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Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS

August 1962

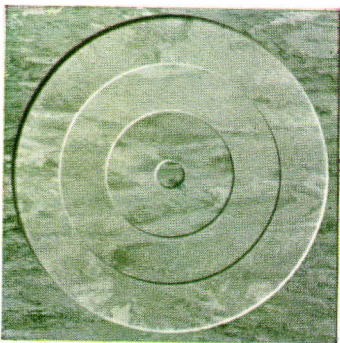
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Journal

VOLUME XXXIX, NO. 1

AUGUST, 1962

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Arches of the Federal Science Pavilion at the Seattle World Fair. Minoru Yamasaki, FAIA. Photo by Steve Wilson.



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A regular column conducted by our specialist on Urban Affairs, Matthew Rockwell, Director of Urban Programs



“Nature contains the elements, in colour and form...but the artist is born to pick and choose, and group with science...that the result may be beautiful.”

— J. McNeill Whistler

In the design stages an architect exerts complete control of his project, subject only to the twin disciplines of art and science. It is for him alone to fuse the two in a happy meeting of form and function, line and color. But if this control is to remain absolute while his ideas are given substance and permanence, he must be assured materials of uniformly excellent quality.

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On Seminars

June was a sabbatical month. It included two very worthwhile seminars, which I attended. Both dealt with urban design—or city architecture as some like to call it. The first, at Hershey, Pennsylvania, sponsored by the highway fraternity, dealt with the “amenity” of urban freeways. Those of us on the steering committee worked successfully to enlarge the program. We felt the discussions should include consideration of highway location and alignment. Ultimately, after several days of hard talking, the conference agreed to the following position: “The construction of efficient, effective and attractive freeways demands a total design concept. This means the integration of all aspects of design into a whole that is satisfying and effective, and integrated with its surroundings. Design that is simple and natural will largely alleviate confusion in the use of freeways. This is a job not merely for the highway and traffic engineer, but for the architect, the landscape architect, the city planner and other specialists.” There were other points, but none so important to architects, landscape architects and city planners, who, with an approximately equal number of engineers, comprised the group.

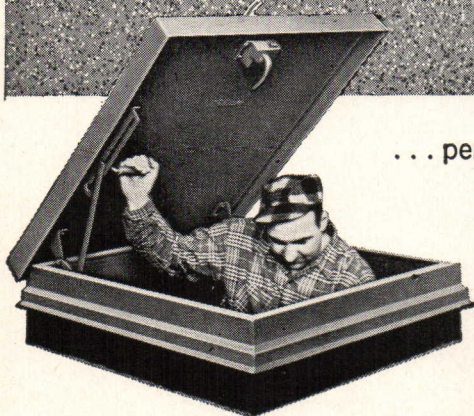
The second conference, only part of which I could stay for, was at the Cranbrook Academy of Art, in Bloomfield Hills, and was jointly organized by the Institute and the ACSA for a select group of young teachers of architecture. Entitled “The Architect and the City,” speaker David Crane of the Boston Redevelopment Authority thought it might have been better dubbed “The Architect *in* the City.” At one dramatic meeting of the group, there was almost unanimous feeling that it was far too soon to develop the solidified definitions of the city called for by the program.

This writer felt much empathy for the teachers, but being responsible (along with the Institute’s UD Committee) for the development of a series of statements on UD, he was impatient with their attitude. The need to move ahead in our knowledge of the city means that we cannot escape the responsibility to formulate progressively every scrap of worthwhile information on the city.

Close followers of Institute statements regard-

(Continued on p. 12)

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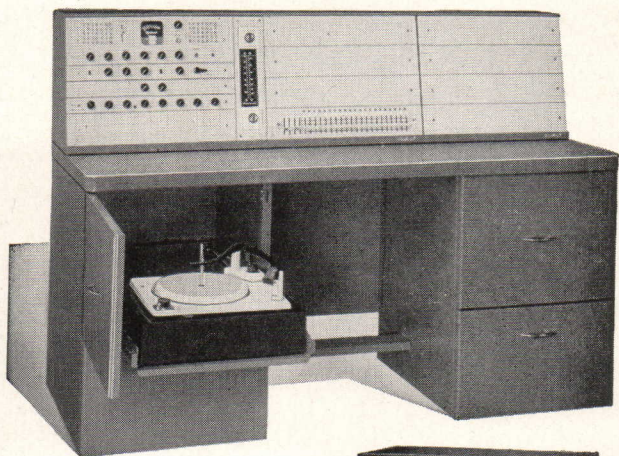
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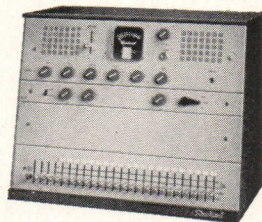
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Urbanisms (Con't)

ing the development of UD 62/63 will recall that the project will include guidance and tools for the holding of seminars at chapter level. With the two seminars described here behind us, and others held during the past year by several chapters, we are becoming concerned that the meaning of "seminar" itself is being forgotten. The Hershey and Cranbrook seminars were both small enough to allow an easy interchange across the table. By contrast those in one city were held in a large ballroom and in fact constituted a "lecture course." It should be added that this last group was extremely popular and a small room would not have been adequate. Yet with all its popularity, the lasting effect of this ballroom delivery cannot compare with that of the small workshop. But if we do recognize this important quality of seminars—their spirit of interchange—let us not forget also the need for amenity. The meetings in the green Hershey countryside took place entirely underground. Let us hope this is not symbolic of discussion material!

Large parts if not all of each seminar discussion will appear in early issues of the *Journal*.

Gate Four, Tulsa

Normally there is nothing stimulating about walking through an airport gate. The image it brings forth is composed of stained pavement, chain link fencing, and a jumble of miscellaneous equipment.

Not so in Tulsa. Proceeding through Gate Four on a recent stopover, we were delighted to find a spot of green on the apron just outside, a small but well maintained landscaped area. There were similar planted plots at each of the airport gates.

It took courage, we thought, both to create and maintain these plots. The experience also called to mind the fact that urbanisms, the amenities of city life, are often found in unlikely places.

Urban Design?

A good deal of recent shoptalk around the office recently has concerned the definition of urban design, the legitimacy of the term itself, and the blood relationship between it and architecture.

There seems general agreement that urban design grew directly from architecture. But has it now become something broader, involving other disciplines as essentially as it does architecture? Or is it merely an architectural specialty, like residential design or school design? If it is part and parcel of architectural practice, should it be called something else, something like "city architecture"?

We solicit our readers' thoughts. ◀



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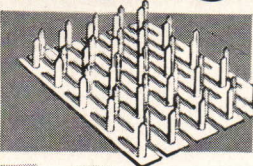
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News

Kamphoefner Appointed

Governor Terry Sanford of North Carolina has appointed Henry L. Kamphoefner FAIA, Dean of the School of Design at North Carolina State College, to a Scientific Advisory Committee of forty members to help in the implementation of the State's objectives in its scientific and industrial development.

A Four-State Registration Agreement

The California State Board of Architectural Examiners, the Nevada State Board of Architects, the Oregon State Board of Architect's Examiners and the Washington State Board of Registration for Architects have agreed to (a) use a common examination to be given at the same time in the four states, (b) work for adoption of similar standards of qualification for applicants, (c) work towards reciprocity in the four states. The first common examination was given in June. This action results from the desire to establish similar standards for seismic analysis as well as to provide better service to the public.

AIA Book Wins Award

"Mid-Century Architecture in America," edited by Wolf Von Eckardt, Hon AIA and published by the Johns Hopkins Press, was selected for Top Honors at the thirteenth annual Exhibit of Chicago and Midwestern Bookmaking. The prize-winning books were selected on the basis of design, printing, binding and over-all excellence. The handsome volume contains the AIA Honor Awards from 1949 to 1961, and is on sale at most book stores for \$12.50.

A Correction

The "News" columns of our June issue announced the awards given at the 22nd National Church Architectural Conference, but a paragraph was inadvertently omitted just before the end. It should have read:

Maurice Lavanoux of New York was named winner of the much-coveted Conover Memorial Award. This is the highest honor given by the group "for excellence in fostering spiritual values in the creation of ecclesiastical edifices." As Executive Secretary of the Liturgical Arts Society and Editor of its magazine, Mr Lavanoux has crusaded for thirty years for more worshipful church buildings.

Danish Buildings in the Virgin Islands

Written from material furnished by Neil Penry, architect formerly with the Design and Construction Division of the United States National Park Service

► One balmy day in the year 1672, a group of Danish colonists sailed into a deep, hill-encircled harbor on the south coast of the Caribbean island of St Thomas, now one of America's Virgin Islands. Gradually, as the years passed, they cleared the slopes and planted them in sugarcane; gradually, the port town of Charlotte Amalie grew up around the harbor.

Two hundred and eighty-nine years later, in the spring of 1961, another group of Danes arrived in Charlotte Amalie—with transits, tapes and cameras. They were a party of twenty-five architectural students and faculty from the Royal Danish Academy of Fine Arts, who were to spend the next two months conducting a survey of the extensive and rich architectural remains of Denmark's once-prosperous West Indian Colony.

Professor Hans Engqvist, leader of the expedition, explained, "We are here to record with drawings and photographs what still remains of the architectural expression of our former Danish West Indies. The Islands' natural features and political, economic and social history have been studied extensively; however, there exists no collective presentation of its cultural development, of which architecture may have been the most original and important."

*Photographs courtesy
of the Historic American
Building Survey*



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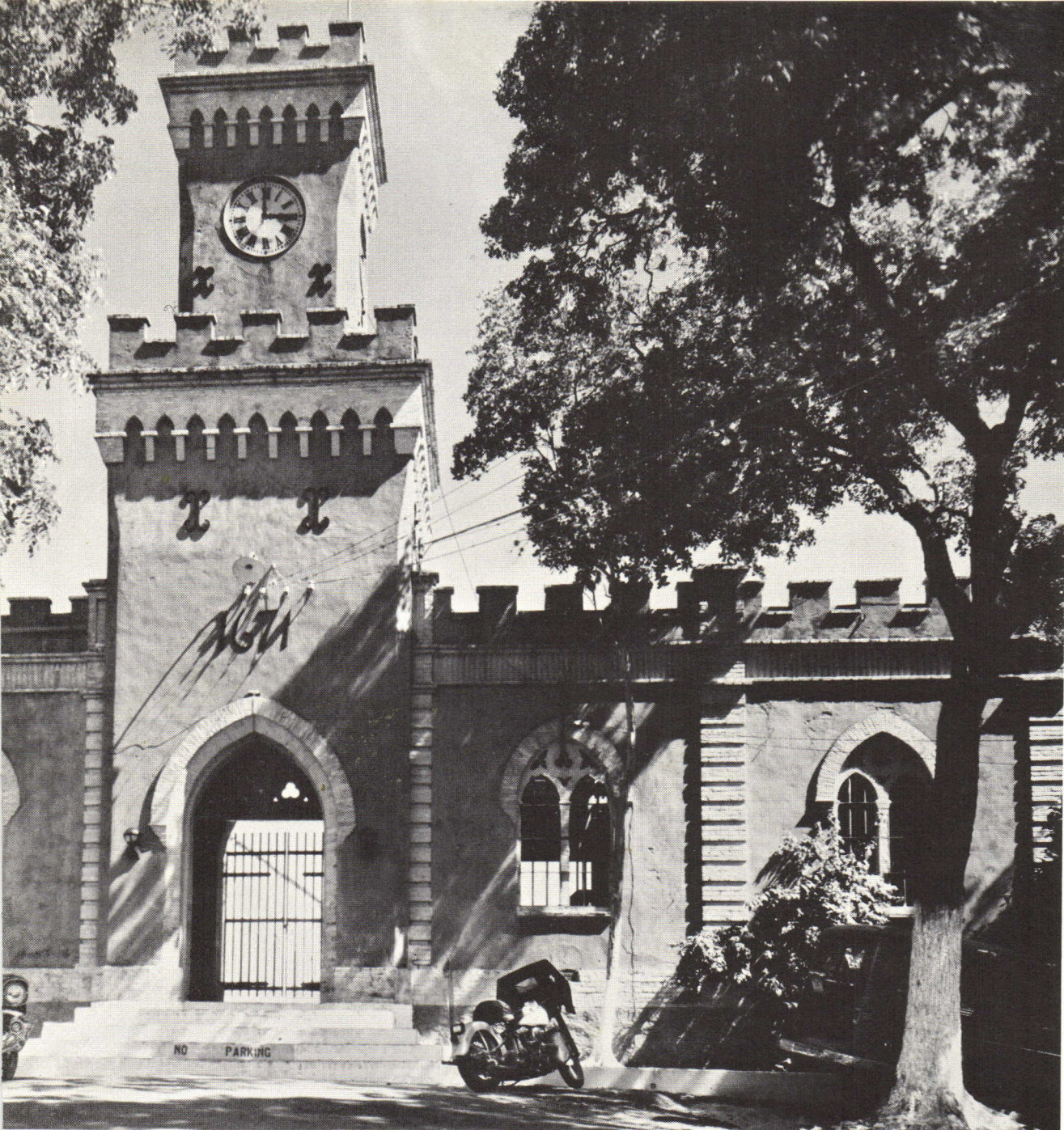


1 Government House. Christiansted, St Croix, The Virgin Islands

2 Moravian Church (Window Detail). Fredensfeld, St Croix

3 Number 51 King Street. Christiansted, St Croix

4 Christiansfort. Charlotte Amalie, St Thomas, The Virgin Islands



4

The Virgin Islands survey was one of the regular summer-study expeditions sponsored by the Academy's School of Architecture. It had been five years in the planning, first under the direction of Dean Kay Fisker, and later, of Viggo Muller-Jensen, present head of the school. Financial backing came from both Danish and American sources, mainly the Danish Ministry of Education and the Jackson Hole Preserve, Inc, a nonprofit conservation organization headed by Laurence S. Rockefeller. Other help was offered by the National Park Service and the Historic American Buildings Survey. The Governor of the Virgin Islands expressed interest, and agreed to provide housing and local transportation for the group.

There was a feeling of urgency, a "now-or-maybe-never" spirit to the expedition. The towns

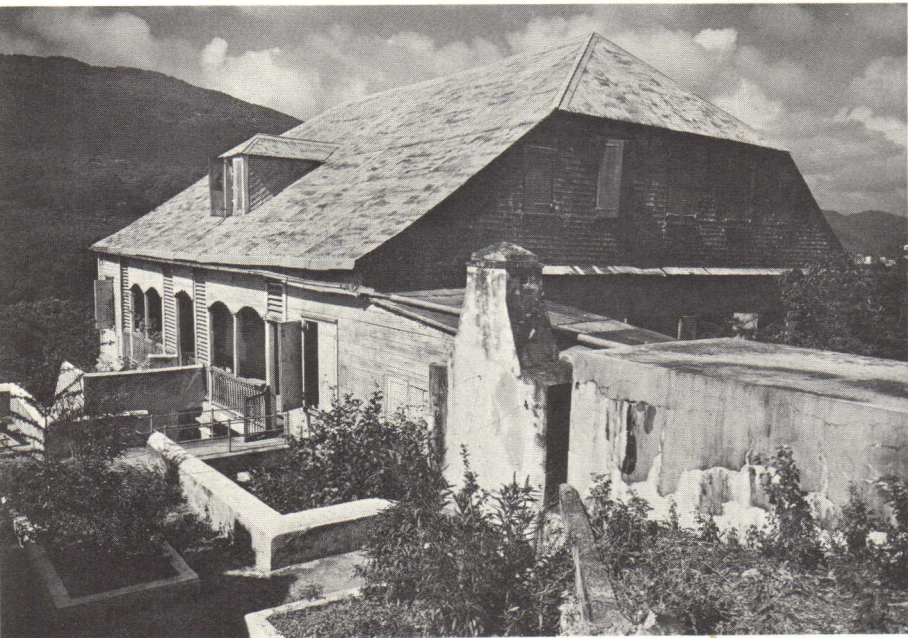
of the Islands still hold a large collection of unique and distinguished eighteenth-century Colonial structures. However, after more than a century of sleeping in the sun, these now tourist-busy islands are beginning a new period of rapid growth and development and change.

The Danish party was interested primarily in the architecture of the former colony's towns. Little was known about the development of Charlotte Amalie, first of the three towns built by the colonists. However, archivists dug up the original plans for Christiansted and Frederiksted, both dating back to the mid-eighteenth century.

Each of the three had developed its individual character, according to its location. Charlotte Amalie, from the beginning a merchant-town, had its warehouses along the bayfront and extending



5



6

5 Reef Bay Plantation House. Reef Bay, St John, The Virgin Islands

6 Nisky Moravian Mission House. Charlotte Amalie, St Thomas

7 Christiansted Lutheran Church (Formerly the Dutch Reformed Church). Christiansted, St Croix

8 Frederiks Lutheran Church. Charlotte Amalie, St Thomas

9 For Christiansvaern. Christiansted, St Croix. Plan of the 18th century fort by Lt V. Giellerup and Lt V. Frus, 1836. From the original in the Rigsarkivet, Copenhagen



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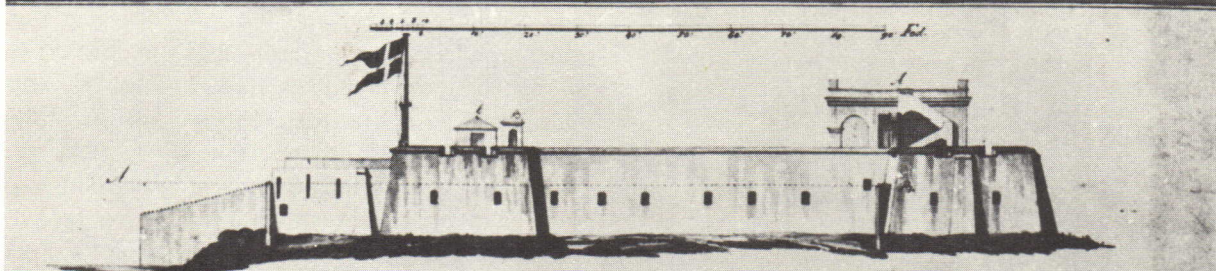
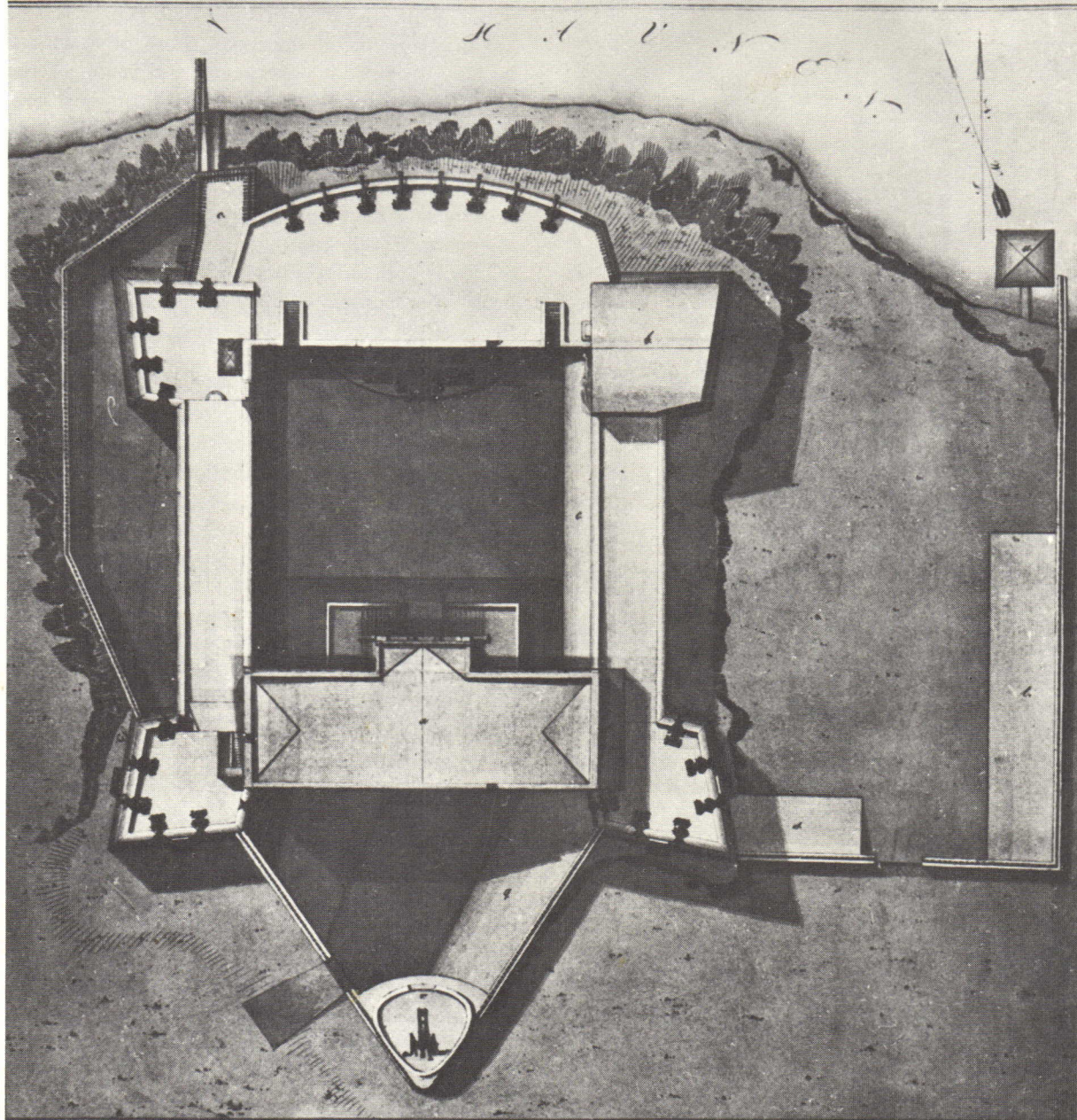


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N. 10

PLAN

Christiansværnsfæst med nærmeste Omgivelser



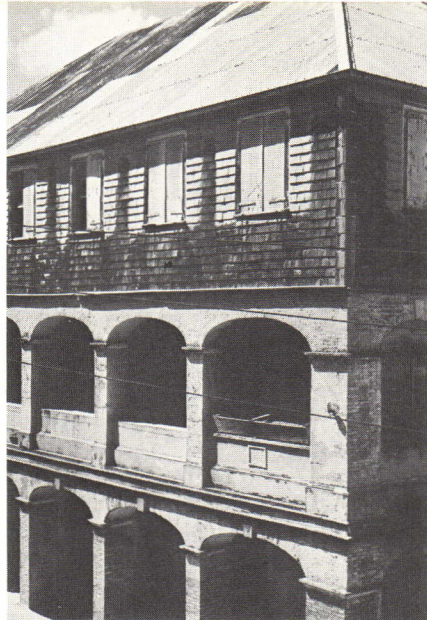
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10 Number 46-47 King Street. Christiansted, St Croix



11 Denmark Hill (Hilltop Villa). Residence of the Danish Consul, Charlotte Amalie, St Thomas

12 Denmark Hill. Residence of the Danish Consul, Charlotte Amalie, St Thomas



out into the harbor, with narrow slips between to accommodate lighters from the trade ships riding at anchor in the bay. Facing the main street, merchants built two-story houses with salesrooms on the first floor and living quarters above. The rich built their estates high in the hills, where trade-winds gentle the heat of the tropic sun.

Christiansted, on the north shore of St Croix, became the seat of government and center of the colony's social and cultural activity. Frederiksted, planned for the west end of St Croix, had bad luck from the start. In the shadow of Christiansted, it never reached its projected potential. Then sometime near the end of the nineteenth century, the town was largely razed by fire.

Slowly the colony's prosperity declined as sugar beets from Europe supplanted the cane which was the basis of its economy. Finally, in 1917, Denmark sold the Islands to the US.

The Danish architecture of the Islands is mostly simple in form—plain cubes covered by hip roofs. The earliest buildings were daub and wattle or wood frame construction with walls sheathed in clapboard or wood shingles. Later, masonry construction became common—either brick or stone rubble with corners and openings brick-framed.

The yellow brick which Danish trading ships carried as ballast in their holds was, for the colonists, a familiar building material. The masonry was usually plastered over, inside and out, with a layer of lime-mortar, and finished with several coats of limewash. Wood-framed roofs were originally covered with wood shingles; these gradually gave way to corrugated metal sheets painted with a characteristic red weather coat. Windows and doors were protected against torrential rains and hurricane winds by wooden shutters, held in place with complicated sets of heavy iron hardware.

The twenty-five members of the survey party split up among the three towns for the two months' work. Their studies included measured drawings (including plans, elevations, sections and details) and photographs of individual buildings, street elevations of entire blocks, and accurate and up-to-date surveys of the towns with notes on building form, condition, and use, and drawings and photographs of interior furnishings and decoration.

Watching the architects at work, local residents developed an active interest in the historic structures of their home islands. The survey party was asked for its recommendations for preserving the best of the colonial buildings, and for suggestions for harmonizing architectural forms for future town development. Eventually the Virgin Islands legislature appropriated \$5,000 for preparation, by the survey party, of a special report with recommendations for town planning and building codes. ◀

R/Surveillance and Review

by Grady Clay

► One hundred and three years ago, Uncle Billy Smith and his two sons, working for “Colonel” Edwin L. Drake, struck oil at Titusville in northwestern Pennsylvania. It was a big strike for those days—twenty barrels of oil per day.

I happened to be on the Island and Nantucket just about a hundred years after the Pennsylvania oil strike, and discovered what it had done to Nantucket. It had struck Nantucket dead—for the simple reason that Nantucket had prospered on the whale trade, and the sale of sperm oil for the lamps of America. The discovery of petroleum in Pennsylvania killed the market for sperm oil as dead as the whales from which it was extracted.

Any visitor to Nantucket these days must be struck, as I was in 1959, by the unchanging quality of its architecture and its townscape. For a hundred years, from the death of the whaling industry to the birth of the tourist industry, Nantucket slept the sleep of the righteous poor. For a hundred years, except for a brief Civil War boom, hardly a shutter was shifted, nor a single shingle reshingled. No captains walked the docks, no widows climbed to the rooftop of those handsome old houses to look for the returning ships.

And it occurred to me then, looking at Nantucket, that the greatest preservatives of architecture in the past have been either poverty or plutocracy. Plutocracy gave us Rome, Newport, Tuxedo Park, Versailles. Poverty gave us Nantucket, Natchez, Annapolis, and those lovely slumbering southern towns I visited as a youngster—Charleston, South Carolina and Savannah, Georgia. Towns where nothing of importance had happened since the late War Between the States; towns where nobody had the money to fix up, paint up, clean up, or even to tear down. Their newspapers, or more properly, their No-newspapers, reflected their architecture: empty, enervated, sleepy and somehow content. Those were

Grady Clay needs no introduction to AIA Journal readers. The Editor of Landscape Architecture is becoming one of the best-known and most widely listened-to writers and speakers on the problems of land and the city today. This article is condensed from a talk at the convention of the Indiana Society of Architects, May 25

the cities of Let-Well-Enough-Alone. And if Well-Enough wasn't good enough, you could always go North, make money, and never be heard from again.

Today those once sleepy cities are turning themselves into tourist traps and outposts of Northern industry as fast as their new Chambers of Commerce can push them. Today you cannot touch a single shingle, nor shift a precious shutter, without being served legal notice to cease and desist by the local Architectural Preservation Society which, it may surprise you to learn, now has the power of law to preserve what is undoubtedly the new economic base of the community—the architectural heritage on which so many modern tourists feed, and for which they pay great sums of money to be lectured. The descendants of the old Nantucket ship captains are harpooning a new kind of fish—and far more profitably.

For a hundred years, those old towns were no places for building architects or for newspapermen. There was nothing new; there was no news.

Today, as most of you know, those towns and cities are getting more like Indianapolis and Louisville and Dayton and Detroit with every passing bond issue: full of enterprises, enormous plans, grandiose projects and new people—people for the most part born someplace else, and determined to grab a piece of Higher Standard of Living. This generally means changing something, building something, or tearing something down.

Newspapermen and architects alike have a vested interest in change; from it we get our livelihood; without it, we would become Non-newspapermen, and Non-building architects.

My purpose here is to discuss current changes in our ways of life, their effect on our several professions, and suggest some changed attitudes and practices which may serve us better in the future.

The first change is one which, I am afraid, architects have little to do with: the growth and geographic expansion of our cities into suburbia. This is where the great construction boom of the next twenty-five years will take place. Urban redevelopment can't hold a candle to suburban development in dollar volume or in total impact on the lives of our people.

Suburbia

My comments on suburbia are probably prejudiced, for I have spent considerable time over the past ten years presiding, in a journalistic sort of way, over the burial of some of the finest farmlands in the United States. These burial ceremonies are generally known as subdivision, and as a reporter I have been called upon to make remarks, fitting or otherwise, about the late lamented, his heirs and successors. Instead of covering the remains with flowers, we cover the farmland with asphalt driveways, concrete streets, brick patios, cook-outs, drive-ins, deep-fries, Dairy Freezes and high buildings. Out there where the septic tanks gurgle, where the speculators lie in wait for the capital gains, we are creating our new urbanized areas.

An urbanized area, as you know, is one in which we substitute traffic jam for forest preserve. It is former pastureland where city folks seek to pay off their mortgages in genteel company and photogenic surroundings. It is land where five acres are made to do the work of one; where one husband does the work of five servants; where field larks are replaced by Thunderbirds; where the straight furrow has been replaced by the wrinkled brow; where man and nature can live in sweet harmony only so long as the power-mower can be persuaded to function.

In a comparatively few years, we shall as a nation be building close to 2,000,000 new dwelling units a year. Most of them will be on land now devoted to wheat, cows, weeds, and country clubs. Dr Marion Clawson, of Resources for the Future, tells us that the current rate at which we are withdrawing land from agriculture into urban uses is about a million acres a year, and that for every acre we put into actual use, we withdraw another acre from agriculture to go into *non-use*—held for a speculative rise, or eroded into uselessness

by new bulldozing nearby, or vandalized by suburban youngsters so that it's no longer useful for farming.

The second great change has been the injection of the word "ought" into the market place for land and therefore into the practice of architecture, the decisions of city planners, developers and indeed all the rest of us.

The chief yardstick used until the 1950s in the United States to determine what would be done with city land was its price. If a man wanted a downtown corner badly enough, he paid a high price, then built a tall building hoping for high rents to repay his investment, with profit. Nothing worked so well as the free market in determining how land would be used. Price was umpire, mediator, arbiter and ruler. Price was impartial, objective, relentless. You paid your money and took your choice. Land was worth what a willing buyer would offer and a willing seller would accept. The "highest and best use" of land was whatever would produce the highest rent or maximum sales price. The lesson of the market place was: if you can't pay the price, stay out of the game.

The market place for urban land in America has periodically been invaded by new influences, and a variety of manipulators. Congress manipulated the price of land in the first place by selling land wholesale to speculating companies who laid out cities, sold lots, and established the basic pattern of land use and development. The Ordinances of 1784-7 helped carve the wilderness into negotiable squares of land. Once the government's help in making land available to the market was no longer needed, the market place took over.

Since 1950, however, thousands of parcels of land in redevelopment areas have been appraised, bought, cleared, sold, leased or designated for future action as part of the urban redevelopment process. It is a massive exhibition of intervening in the market place for land. By 1961 it was estimated (NAHRO *Renewal Newsletter* December 5, 1961) that "25,000 acres of slum or blighted land are being cleared by 550 redevelopment agencies."

Land Price

Not only is price of such land determined by a formal process requiring professional appraisal and possibly court action; but the land is put to new uses which may have little to do with the maximum dollar value.

Price is not so much what a willing seller will accept, but the amount an unwilling seller is forced to take under threat of condemnation. Future use is determined not so much by the buyer's anticipation of profits, but by his knowledge that he will turn it over to a third party at a loss. The

buyer, ie, the city through its redevelopment agency, is acting as middleman. The third party will not only make a profit but must obtain that profit by using the land in a manner previously determined by the mayor, city council, redevelopment agency, and a host of other individuals in public office and outside as well.

In sum, the “highest and best use” of land—and therefore its price—is no longer necessarily what the market place says it is; it is being prescribed by what public officials and specialists outside the market place think it *ought* to be.

In Washington, the planners on the staffs of William Zeckendorf and the Redevelopment Land Agency decided the Potomac riverfront south of the Mall “ought” to have a handsome public promenade, although the market had decided long ago it should be used for docks. In Pittsburgh the planners decided that land at the point where the Alleghany and Monongahela Rivers come together to form the Ohio, “ought” to be a public park, although the market long ago had ruled it was best for railroads and warehouses. In England, the London County Council now says the public “ought” to enjoy a full view of St Paul’s Cathedral, although the free market had shut off that view with profitable buildings.

The key word in all this is “ought.” Hitherto, it had mattered comparatively little what some mayor or planner thought “ought” to happen on a particular piece of land. The price a buyer was willing to pay generally determined what *did* happen.

The third great change is in the *rate of change*—the speed with which buildings are built, and physical environment radically or cataclysmically changed, for better or worse.

I have watched the impact of excavation contractors on the appearance, livability and water drainage patterns of a community. This is a much-used symbol for discontent today: If we don’t like a public official we say he is “bulldozer-minded.” Bulldozers so often serve as the vehicle to destroy living things—they knock down trees, kill shrubs, fill up ponds, cover up springs. Whatever they do, they do it quickly.

This speed is both disturbing and stimulating. Most of us are impressed by it. But we cannot escape the unexpected side-effects, the ripple-effects, the economic and social reverberations that come from physical changes which outstrip the capacity of society to adjust, accommodate, to

observe, to judge and to exert pressures while those changes are taking place.

The so-called “Freeway Revolt” which took place in San Francisco in 1958-59 shows what I’m talking about. In this instance, the design of the Embarcadero Freeway, which cuts across the foot of Market Street in front of the Ferry Building, was “upgraded” with little advance notice. “Upgrading” is a process—often carried on in secret—whereby it is decided that something not yet built will be built even bigger. The “upgrading” was done by the State Highway Department and it caught the City Planning Department flat-footed. They had been counting on a one-level, four-lane job which they figured could be “sold” to the citizens. Instead, the “upgraded” job was two levels, eight lanes, about five stories up in the air. When the sketches were published, that’s where a lot of important citizens went—straight up in the air.

That wasn’t all. The new plans for a Western Expressway showed a big cut right across the famous Golden Gate Park. A tremendous controversy over design began to develop. One basic fact was that the Embarcadero Freeway design was offensive to many people; and the way in which it was dumped on the public as a *fait accompli* was even more offensive. The citizens put pressure on the Board of Supervisors and in January, 1959, the Supervisors adopted an official policy “opposed to the construction of all freeways contained in the San Francisco Master Plan.” And even though everybody knows *some* freeways are needed in San Francisco, that policy of 1959 has been relaxed only very slightly.

Speed Needs Surveillance

All this change at great speed requires, I believe, much more *surveillance* by the public, the press, and by architects over the whole process of city-building and its end-product. I hope I can persuade all of you that the architect, the city official, the building client, and the public at large will benefit from *more critical surveillance* of both the process and the final product.

When I mention “surveillance” I am talking about constant and critical reporting, not only in the press but in official and professional reports, on the actual functioning of new buildings. How do they look? How do they work? What are the good and bad points? What was added during the construction; what was changed? How does the

finished building compare with the architect's original drawing, on which the successful passage of the last bond issue was based?

I realize that the way of the critic is difficult in our society. You know the old saying: "He who can, *does*; he who *can't*, teaches; he who can't teach, *criticizes*." The Romans had a phrase for it: "Facilius est destruere quam construere." "It is easier to pull down than to build up."

Nonetheless, the role of the interpreter and critic is a useful one not only in architecture but in covering the whole art of city building. I believe the professions of architecture and of journalism have an equal obligation to develop and emphasize the role of the critic in improving our cities.

Purpose of Criticism

The purposes of criticism certainly include these:

1 To identify, describe and hopefully to kill off the weeds growing in our cities—the slums and their causes; the slum-builders and their allies; the jerry-builders and their accessories; the cheats, crooks, despoilers and uglifiers.

2 To encourage the best of contemporary design, planning, restoration and innovation by singling out the un-sung and un-heralded examples of good design. I know from experience that there are hundreds of wonderful examples in every city that need to be recorded, described, photographed.

3 To provide to the architect, the planner and the city official a new and broader audience, well-informed and able to make mature judgments. I have had the experience, common to many writers, of having people say "You know, I've passed that place a hundred times and never gave it a glance until your paper published the story of its history."

4 To help educate the consumer of urban design, the consumer of the future city. These are the millions who must live with, look at and use what architects design, what their clients build.

In the end, this is the great function of us all—to inform and enlighten the public as to what their choices are now, and what they might be in the future; and to widen their possibilities of choice.

In order to do this, I think we should add something new to the building process. I call it the final step—*functional review*. After every building of any importance is finished, occupied and has been used for some time, there should be a formal review instituted by the client or the insuring agency—by FHA, the Urban Renewal Administration, Bureau of Public Roads, City Council or other appropriate body.

This review would compare the finished product

with the original plans; it would include interviews with the users and with the neighbors.

The purpose should always be to learn lessons for the future; to add those lessons to the public knowledge; to publish and spread the word, to benefit not only the users of architecture, but the designers themselves.

Part one of my prescription therefore is built-in critical surveillance, and review.

Part two is what I call *new pressure-points* in the design process itself.

This is a fancy way of saying there ought to be new steps in the design process of buildings, neighborhoods, projects, and large complexes of buildings where the forces of competition can get to work.

Specifically, I believe we need far more architectural competitions in the process of building our cities than ever before.

During 1960 and 1961 I spent a good many months as research associate to the Joint Center for Urban Studies, looking at urban renewal projects, and especially studying the so-called developer competitions for choosing the developer of urban redevelopment projects. The results of this study have been incorporated into a monograph, called "The Competitors," which will be published later this year. I took a specially hard look at the competition for the Golden Gateway site in San Francisco, the Farm in Brookline, the Elephant and Castle in London; and to a lesser degree, competitions in Southwest Washington, Society Hill in Philadelphia and Ocean Park in Santa Monica.

The Power of Competition

I came out of this study with a much greater respect for the power of competition in stimulating the creative forces in men; in the capacity of competition to produce new ideas, solutions, innovations; in the generative force in competition which, in each of these cities, produced a wealth of new combinations of people and organizations.

The Golden Gateway competition in San Francisco had this in common with the competition in 1958 for the replanning of the central areas of Berlin; and the 1959 competition for the Elephant and Castle District in London. Each of them brought up a variety of multi-level approaches toward high-density development; and the separation of pedestrian from vehicular traffic.

All the competitions I have studied have this in common: they have been remarkable occasions for showing the public how many choices it is possible to make in developing one's city. In San Francisco there were nine competitive proposals; in the London competition for the Elephant and Castle site, thirty-five; in Society Hill, Washington

Square East in Philadelphia, four; in Santa Monica's Ocean Park, eleven. And of course, in the more traditional architectural competitions for single buildings, the Toronto City Hall and Square competition attracted more than five hundred entries.

I do not believe this is wasted effort, even though the nine competitors for the Golden Gateway project spent over \$1 million for architectural, financial, legal, engineering fees, scale models, brochures, publicity and all the rest.

For the developers, it is merely the cost of doing and getting new business; and a badly-run competition or an inept public agency in charge of competition will certainly discourage developers and architects. But the principle is an admirable one, and the practice is improving.

For the public is shown what the choices are; these do not appear in the newspapers as a *fait accompli* but as legitimate, competitive choices.

But this is not all. I am convinced that the competitive process should be extended to other aspects of city-building, and for illustration I will take one of the most notorious: urban expressways.

Suppose the design of an urban expressway were opened up for a true competition in which developers, their architects and engineers would compete for possession of certain important pieces of city land, through which expressways must be built. The procedure for designing and building highways today is fairly cut-and-dried. The specifications are rather rigid; the job is designed by a hired consulting firm who must operate within the strict confines of state and Federal specifications. The job is put out for bids. The state takes the lowest and best bid, and supervises construction. The great works of "beauty" which we see around us today are the result.

Suppose, instead, that the design of this particular portion of expressway were put up for competitive proposals. The State Highway Department would supply the city with specifications for a traffic corridor of such-and-such a capacity. These would be functional specifications, not descriptive specs.

The city would acquire the property, clear the buildings on it, and put the property up for competitive proposals. At this point, private developers, with their own staffs and consultants of architects, landscape architects, engineers and witchdoctors, would make proposals for the re-use of the land. Each proposal would, of course, be re-

quired to provide the central traffic-movement corridor to handle the flow.

Each proposal would also be required to follow the general renewal plan for that neighborhood.

But when the competition is over, one developer would end up as the winner, with either the ownership, or a long-term lease on the property.

His winning proposal might include a high-rise office building built on air-rights directly *over* the expressway. It could include a tremendous parking garage of several levels *below* the expressway. If the expressway adjoins an existing city street, the frontage along that street could be devoted to retail stores, with the expressway overhead.

What a contrast with the urban expressway of today! Most of them totally sterilize all city land which they touch. Expressways force city land off the tax rolls, cutting a city's income by millions of dollars when they get close to the central business district. The art of "sterilizing by landfill" is highly developed.

Sterilizing Freeways

Present urban expressways not only sterilize tax money, they sterilize neighborhoods and introduce vacuums one or two blocks wide. They provide vehicle movement by destroying the very essence of city life, which is based on human activities.

I maintain that these activities should be permitted to go on *in conjunction with* expressways, and not be destroyed *by* them. And I am convinced that the introduction of legitimate, carefully conducted developer competitions could bring the highways into the private enterprise system, and make them subject to the stimulating process of wide-open competitive proposals.

So much for my three prescriptions:

1 A tremendous increase in public and published comment, interpretation and criticism of city development and its products.

2 A built-in system of examining and evaluating buildings, projects, all the products of the building industry—after they have been put into use by people.

3 The widespread use of the methods of developer's competition and architectural competition in the process of building our cities.

4 Finally, I am convinced that what is now needed—and what has been lacking in the immediate past—is the voice and pressure of a strong, national citizens' organization to encourage and to insist on well-planned and beautifully exe-

To preserve, enhance, and improve this nation's great bounty of natural and man-made beauty; to conserve irreplaceable natural and scenic resources; to encourage and publicize superior design in landscape architecture, architecture and urban development; to prevent blight, neglect and uglification; and to develop an educated public vigorously supporting these goals.

cuted public works; and to sponsor private demonstrations, exhibitions and test cases.

At present, any citizens who oppose an unsightly or ill-considered project—the highway-through-the-city-park is the typical case—are weak and divided. Usually they are fighting strong and nationally-organized interest groups. Occasionally they include fanatics (for how else do local protest groups survive?) Often they are too late, too emotional, and inept in public controversy and maneuver. Sadly lacking in positive suggestions or programs of their own, they are usually cast in the unpopular role of being just “a bunch of aginners.”

The time has come, and the occasion is ripe, for positive rather than negative action. There must be a national alliance of citizens and citizen groups, with the goals stated above.

That is quite an order. Yet the accomplishments of the Civic Trust in England, our National Trust for Historic Preservation, Action, Inc, and, in an earlier day, the American Planning and Civic Association, show clearly the possibilities. The Civic Trust's demonstration projects, such as the Bur-

slem Market Place renovation described in *Landscape Architecture* in July 1961, are fine examples.

We have much to build upon: a host of existing groups with common interest in improvement. We have leagues for the preservation of worthy institutions, scenes and objects; for the wider use of art in everyday life; for renewal, remodeling, restoration. Our national societies of landscape architects and architects have fought significant battles, and will continue in the forefront.

They have hundreds of potential allies: garden clubs and neighborhood improvement societies eager to venture beyond arranging flowers and annual picnics; downtown improvement leagues, citizens' associations for planning, open space committees, local renewal societies, most of them with no national affiliations, their efforts and funds often dissipated in dribbles. Many would gladly cooperate in a common cause.

They need a clearinghouse, a reference center, a source of guidance, advice and help. Thus they can rise above local partisanship, be above self-seekers, overcome public apathy, fight uglification, and create a more beautiful America. ◀

A
Few Words
on the
Dilemma
of
Modern
Architecture

by **Henry Hope Reed, Jr**

*The well-known critic of contemporary
architecture again questions the
foundation upon which the structure
of modern design has been built.
Adapted by the author from an address
given to the Architectural Alumni
Association of Western Reserve University
in Cleveland on March 15th*

► We live in a wonderful era. The epoch-making triumph of Colonel Glenn is only the trumpet blast announcing more to come. Science pursues its glorious exploration and conquest of nature with never-ending reward.

In contrast art presents a strange chaotic image, as if the absurd and the ridiculous were its only aim. It is difficult to believe that we would see the day when we would welcome a ballet without music, but the event has come to pass. Recently the Jerome Robbins' company; "Ballet: USA," offered a diversion called "Moves," a ballet performed in silence. Well, not altogether in silence. One worshipful observer said that it was "a genuine creation possessed of both form and feeling, a creation which permits the dance its own eloquence unprompted by musical sounds." And he went on to speak ecstatically of the sound of breathing, the huffing and puffing of the dancers, the stamp and slap of their feet as music. The next inevitable experiment will be a ballet, not only without music, but without lights. The audience will then have the huffing and puffing and stamping in all their "musical" purity. The title, no doubt, will be "Voids."

Another curious example of the chaos can be seen in the changes made to the great hall of Grand Central Terminal, at one time New York's most photogenic interior, magic for the camera. Yet the first corporation to defile it with advertising was a manufacturer of film and cameras, the Eastman Kodak Company. The company has an excellent dividend record as the brokers say, the objectionable advertisements could not possibly have advanced sales, yet this visual destruction was permitted by the businessmen who run Eastman Kodak.

In the world of painting, dominated by the Abstract, or what Frank Getlein has happily termed *Schmeerkunst*, literally anyone can turn artist. Paul Valéry, the French poet, noted the absurdity when he compared the training of the painter of today with that of today's athlete. "The solidly reasoned exercise of the athlete, his severe discipline, and his power and freedom which come only after long self-control" contrasted strangely for him with the little that "is needed to pass as an artist" in our time.

The same breakdown is found in the contradictions in the world of architecture. An architect who hated cities, especially New York, and who hated painting and sculpture, was given the com-

mission to design a museum on New York's Fifth Avenue. No one was surprised when the Guggenheim Museum was built on the designs of that self-declared genius, the late Frank Lloyd Wright. Nor are we surprised when Lewis Mumford, who hates cities and who hates monumental art which is, after all, the highest form of urban embellishment, is hailed as the great authority on cities. When Robert Moses, who is at present building a World's Fair, denounces the World's Columbian Exposition of 1893 as a bad influence no one protests. That the Chicago Fair was the source of American city planning, of American civic design, of American mural painting, of public sculpture, and even of decorated flagpole bases has apparently escaped the attention of Mr Moses. Nor does he seem to know that its plan was devised by Frederick Law Olmsted, the man who, with Calvert Vaux, laid out Central Park. But then Robert Moses is only echoing modern art historians and modern architects in his denunciation of the 1893 Fair.

Increased Working Population

When Pietro Belluschi, one of the consultants on the new Pan-Am Building rising behind Grand Central Terminal, was called on to explain away the problem of an increased working population in the district occasioned by the building, he casually remarked, "Oh, well. The city is going to die anyway." Yet Mr Belluschi is at the head of one of our great schools of architecture.

Even the hard-headed businessman has been cowed by the current fashion for chaos. There is a new glass bank being planned for Park Avenue, for that part of it which is familiarly known as Glassville. The president of the bank hates modern art in all its forms and lives in a new traditional house. Here is this great businessman, skillfully and shrewdly dealing in millions of dollars, who abdicates his position to such an extent that he cravenly accepts for his bank a style of architecture he despises.

Even the economic and functional aspects of his new glass slab are not considered. He knows that a glass wall comes close to being twice as expensive as one of brick masonry, he knows that glass is one of the poorest forms of insulation entailing considerable overhead in terms of maintenance and airconditioning, and he still accepts the current fashion like a frivolous woman buying an "amusing" Easter bonnet.

One significant aspect of today's chaos is the loss of stature on the part of the artist, including the architect. In the drafting room of a large New York firm chatter turned one day recently to the position of the architect. It was decided that if matters go on in the present trend of modernism,

that is, the attempt of the architect to play engineer and his arrogant dismissal of decoration, only the engineer and the interior decorator will survive, for there is no place for the architect. To underline the point one of those present cited Mrs. Kennedy's fête for the President of Pakistan on the lawn of Mount Vernon. She turned to an interior decorator, not an architect, to supervise the installations. Sixty years ago it would have been Stanford White, for he was not above such work.

Of course, the profession is well aware of what is going on and many in it are very much concerned. How else explain the numerous articles and speeches on "Whither Architecture?" and "Esthetic Responsibility"? The uneasiness forms a sharp contrast to the sense of power and confidence which, emanating from the 1893 Fair, once permeated the profession.

Actually the architect—and all of us for that matter—finds himself in the charnelhouse of the Romantic Era. Around him are the carcasses of ideas first mentioned in the eighteenth century and nurtured by Romanticism a hundred and fifty years ago. For our age are reserved the dregs of a bygone epoch. Jean-Jacques Rousseau was the apostle of the anti-urban outlook and the worship of primitive nature. Lewis Mumford is a typical child of Jean-Jacques. Wordsworth denounced cities as reducing man "to a state of savage torpor" and praised rural life which nourished the honest yokel. Frank Lloyd Wright echoed the same outlook over and over again. It will be recalled that the favorite word of Wright to describe his work was "organic." The first man to make use of the term in Wright's sense, to describe the process of artistic invention compared to a bush growing out of the soil, was Samuel Taylor Coleridge. However, in the instance of Wordsworth and Coleridge both men were circumscribed by the classical world, something which the Wisconsin architect never knew.

Originality

Another idea which goes back to the eighteenth century is that of "originality," the most officious of modernistic demons. The first man to write on the subject as we now conceive it was Edward Young whose book, "Conjectures on Original Composition," appeared in 1759.

Then there is the concept of the genius in the arts which stems from Thomas Carlyle. The Scotchman offered genius with "privileges of its own," even with its own laws. It has been carried a step further today in the form of the self-declared genius.

These, and many other notions which riddle contemporary art, were well-launched a century ago. Geoffrey Scott was careful to underline the

influence in his "Architecture of Humanism" where he devoted two chapters to "The Romantic Fallacy." Perhaps if the modern architect would escape from out behind his glass wall he might gain a better perspective on his dilemma. Were he to look to the world of literature to see if someone has outlined the sources of his ideas and shown where they come from he might be able to find a way out of his dilemma and an answer to "Whither Architecture?"

Fortunately there are several men, professors of English no less, who can help him. Their instrument is the history of criticism. By tracing certain concepts and values, they have had to define them and they have had to show how they have come down to us. Their books, which are readily available in paperback, demand concentration but the curious will find ample reward. The first of these is "The Mirror and the Lamp: Romantic Theory and the Critical Tradition" by Professor M. H. Abrams of Cornell. In it he shows how the emphasis in literature, and it applies with equal truth to the arts, has shifted from the work to the poet. The obsessive subjectivism which is probably the most characteristic quality of the artist today is traced down the last two centuries.

Among other concepts Abrams points out the interest in Primitivism around 1800 when the peasant poet was made much of. The names of Stephen Duck, the Thresher Poet, and Mary Collier, the Poetical Washerwoman, mean nothing to our generation but they once enjoyed some notoriety. Instead, we find today Primitivism in painting

and even the Metropolitan Museum of Art has lately held an exhibition of "101 Masterpieces of Primitive Painting." The late Grandma Moses made a modest fortune with the help of an astute dealer out of the fashion. What Abrams shows us is the fact that the literary world is far ahead of the art world which discovered, praised and then forgot about the primitive.

There is another authority from the campus who has also explored the subject. What is significant about this second authority is his presence at a university which has been one of the leading promoters of destruction in the arts by its support of modernism. In fact, it began its destruction by throwing away its casts of architectural ornament and sculpture back in 1936-1937. The university is Harvard and the man is Walter Jackson Bate, at present head of the Department of English.

Professor Bate, in addition to defining certain basic concepts, fixing the classical approach on the one hand and the Romantic on the other, treats these concepts as very much alive. In placing them opposite each other he has invited discussion, not simply dismissing them as part of the history of ideas.

Here is a passage from his "Prefaces to Criticism," where he puts the classical into focus. "To say that art," he writes, "is an *imitation of nature* at once implies the existence of something outside the artist's own mind which he is trying to imitate. This external reality is the primary concern; the classical attitude has always meant a comparative lack of interest, therefore, in the artist himself—

COMING IN THE SEPTEMBER JOURNAL

Toward a Consensus of Approach to Urban Design

Morton Hoppenfeld, Assoc AIP

We need a professional debate to define and elaborate upon the concept of Urban Design. A consensus of what it is will lead to a more focussed discussion of techniques. This article is an attempt to seed the debate

Abu Simbel

The incredible story of how modern techniques can save one of the greatest monuments of the past

The Rome Prizes for 1962

Selections from the portfolios of this year's two Rome Prize winners

New Spaces for Learning

Alan C. Green

Architectural research and the new facilities for education—a project at Rensselaer Polytechnic Institute

Housing for the Elderly—Technical Standards of Design

George E. Kassabaum AIA

The second article in the series by the Chairman of the AIA Committee on Housing for the Elderly

Architecture for Rehabilitation

Thomas K. Fitzpatrick FAIA

The Dean of the School of Architecture at the University of Virginia reports on the results of a fourteen-month study tour of rehabilitation facilities and programs in twelve countries of Western Europe

in the psychological character of his imagination, for example, and especially in his own subjective feelings. In judging an *imitation* of something, the first and last consideration is the success with which the imitation is able to duplicate what is most essential and important in its original model. Hence art should seek to be *objective*. To the classical writer, it would have been meaningless to hold up, as an end in itself, what the romantics later called 'originality.' For one can be 'original' in any number of ways. For example, to react counter to the truth in every respect is, after all, a form of 'originality.' On the other hand, if 'original' is equated with 'unusual' or 'rare,' nothing is more 'original' than really to react in accordance with the truth. The term, in fact, is meaningless as an ideal for which to strive. The end is awareness or insight; and whether the awareness is 'original' is not even secondary but irrelevant."

Consider how we are surrounded by "originality" today from a silent ballet to the latest in glass and reinforced concrete. And Professor Bate reminds us that "it is important to note why such romantic catchwords [and modernistic catchwords] as 'originality,' 'imagination' and 'creative' are absent in classical criticism." It takes very little effort to apply his comments to architecture.

With the help of Abrams and Bate we begin to see modernism in its proper perspective, and with our new sight we will come on others who saw the falsehoods which have brought modernism down upon us. A past-President of The American Institute of Architects, Henry van Brunt, is one whose observations will be particularly useful. Van Brunt is America's greatest writer on architecture; compared to his works those of Sullivan and Wright have the clarity of the Book of Mormon. Not only did he have a full command of his subject, he was also a man with a style.

It is worth glancing at the passages where he outlines the reasoning which led to the design of the famous Court of Honor of the 1893 Fair. "In view of the fact that these buildings had a mutual dependence much more marked than others on the grounds," he wrote in 1892, "and that the formal or architectural character of the court absolutely required a perfect harmony of feeling among the five structures which inclose it, it became immediately evident to these gentlemen that they must adopt, not only a uniform and ceremonious style—a style evolved from, and expressive of, the highest civilizations in history—in which each one could express himself with fluency, but also a common module of dimension. *These considerations seemed to forbid the use of medieval or any other form of romantic, archaeological, or picturesque art.* [Italics mine.] The

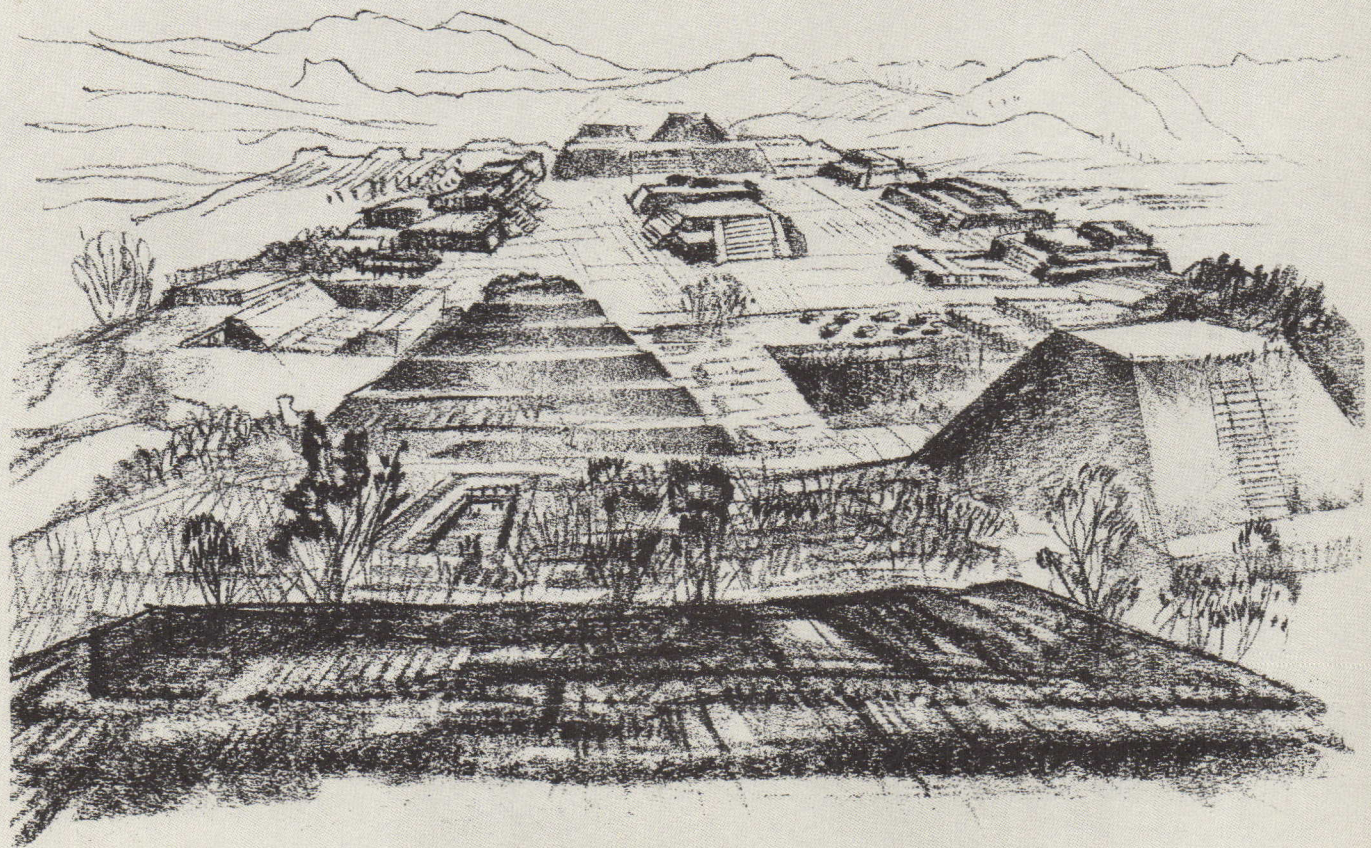
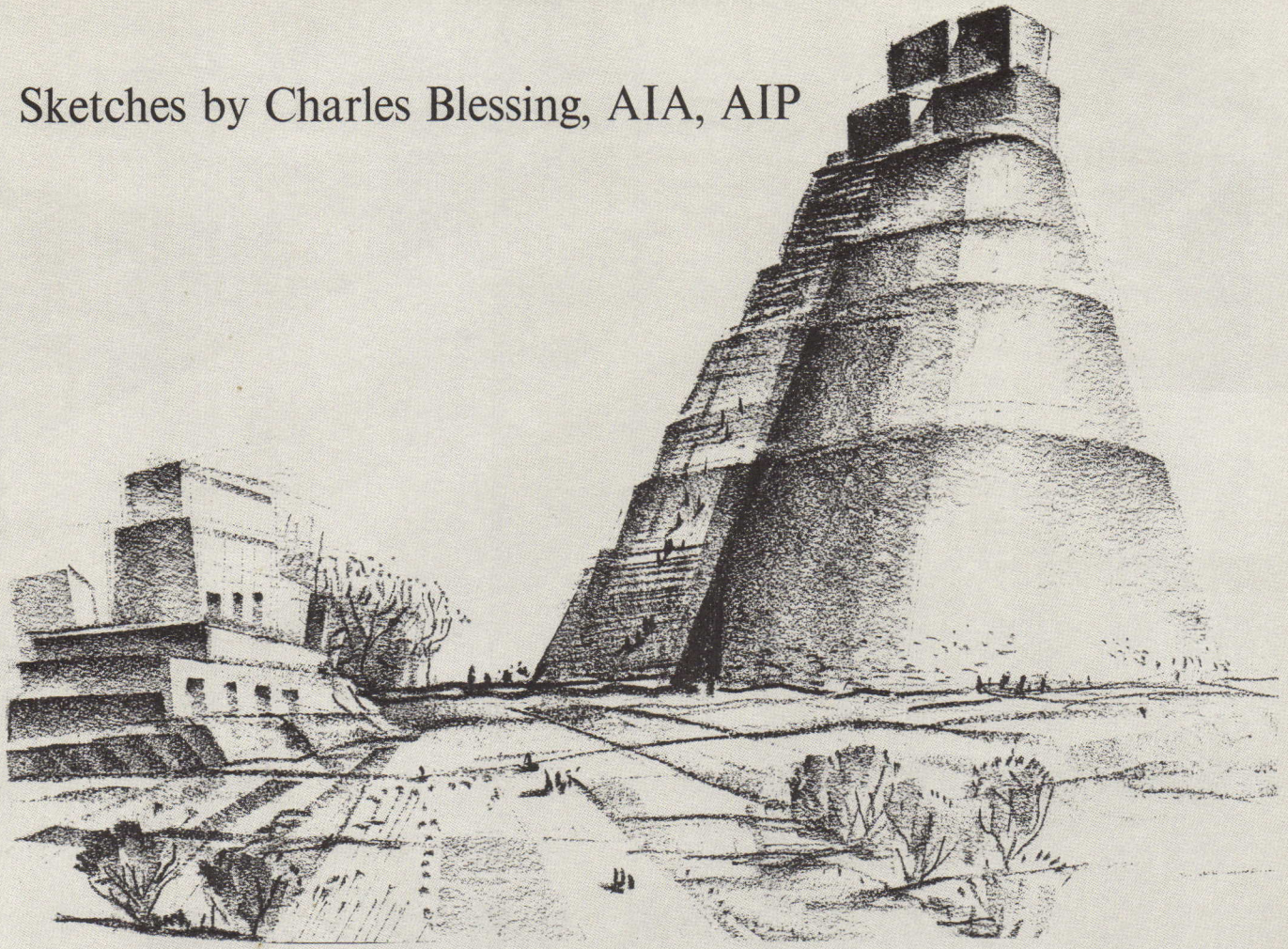
style should be distinctly secular and pompous, restrained from license by historical authority, and organized by academical discipline. It was not difficult, therefore, to agree on the use of Roman classic forms, correctly and loyally interpreted, but permitting variations suggested not only by the Italians, but by the other masters of the Renaissance."

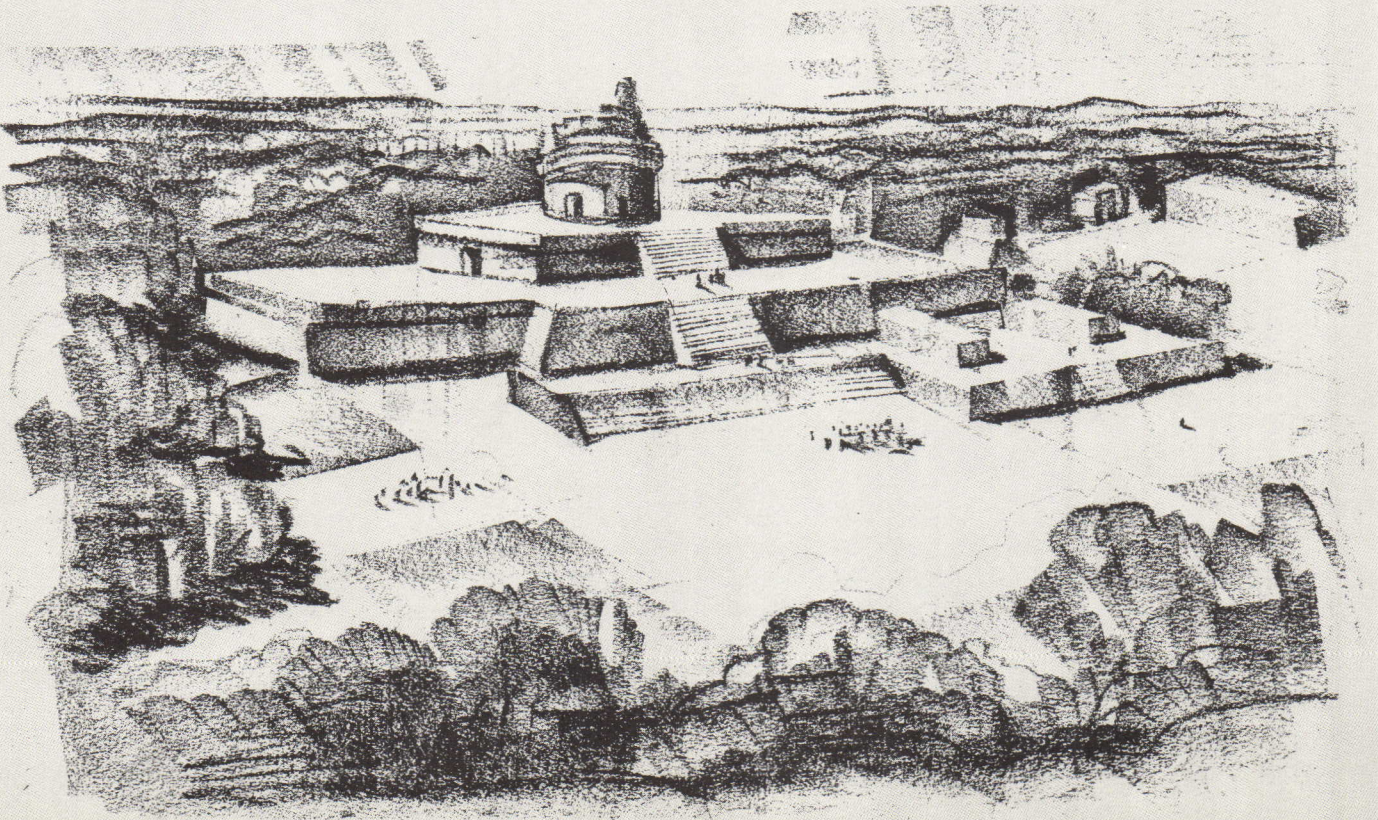
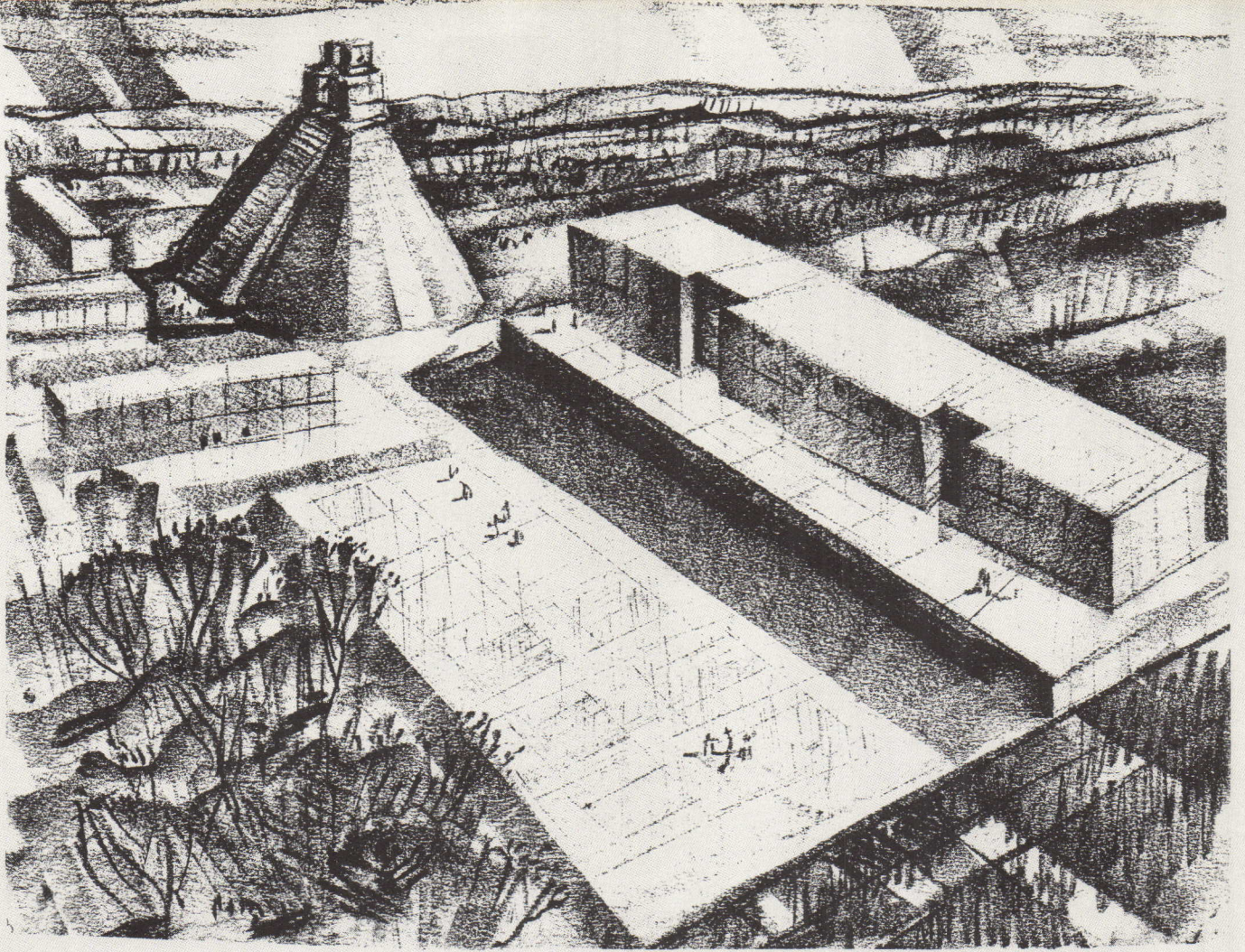
He then goes on to explain what was in back of the minds of Hunt, Burnham, McKim, Post (all Presidents of The American Institute of Architects) and the others responsible: "It was considered that a series of pure classic models, in each case contrasting in character according to the personal equation of the architect, and according to the practical conditions to be accommodated in each, but uniform in respect to scale and language of form, all set forth with the utmost amount of luxury and opulence of decoration permitted by the best usage, and on a theater of almost unprecedented magnitude, would present to the profession here an object-lesson so impressive of the practical value of architectural scholarship and of strict subordination to the formulas of the schools, that it would serve as a timely corrective to the national tendency to experiments in design."

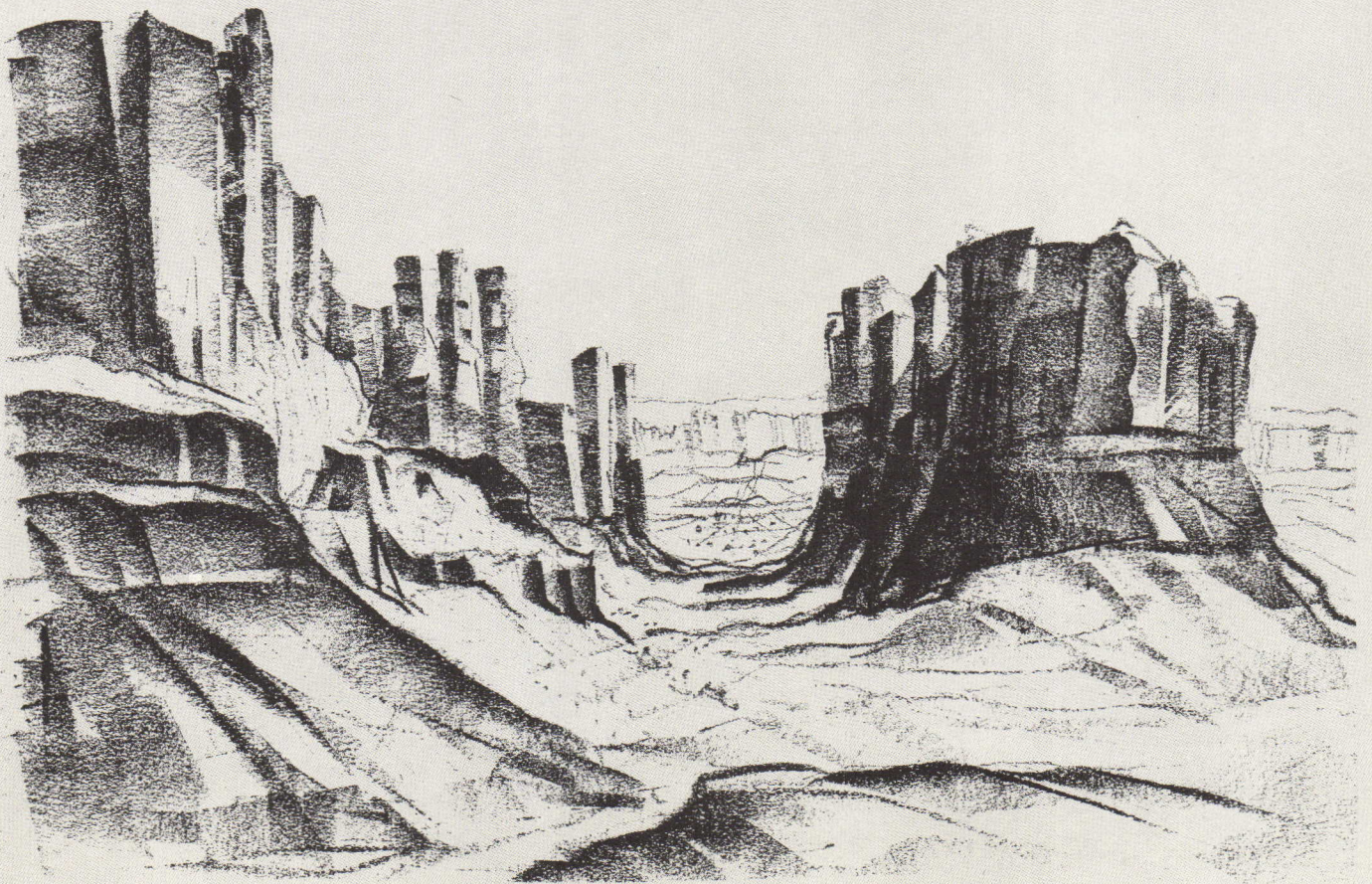
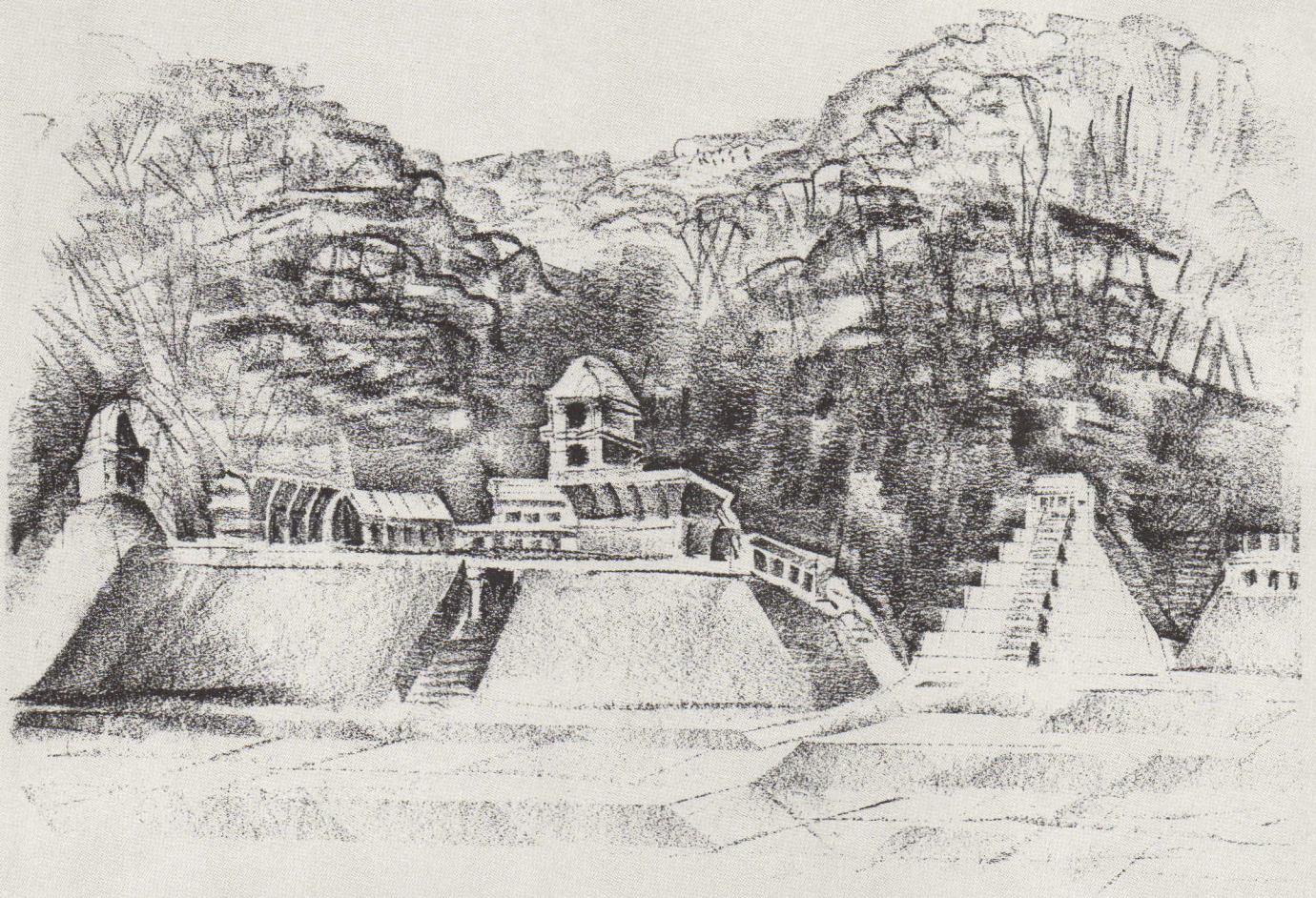
"The national tendency to experiments in designs"! We have had little but that in the last thirty years until the profession has been so overcome with guilt that it even discusses esthetic responsibility.

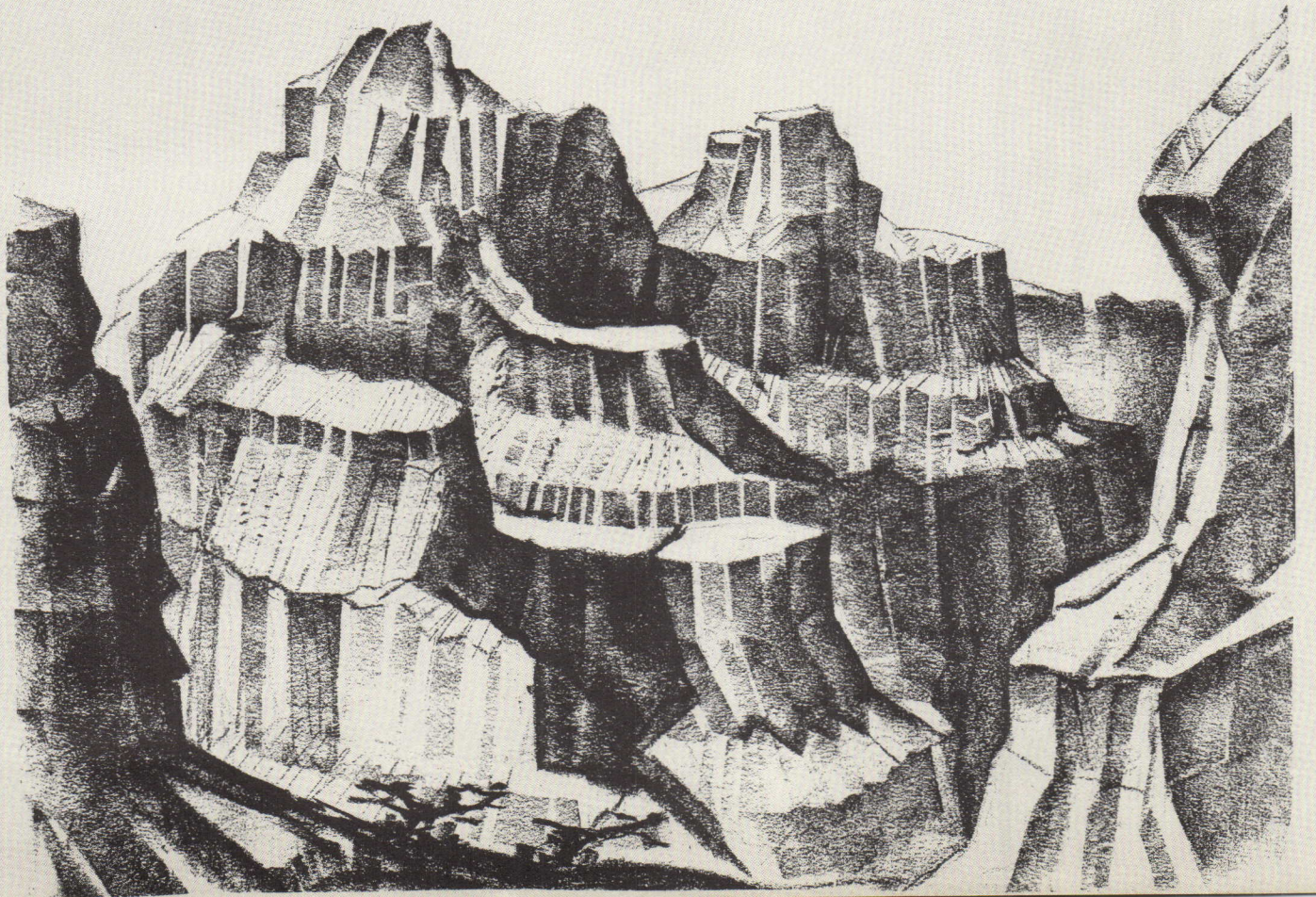
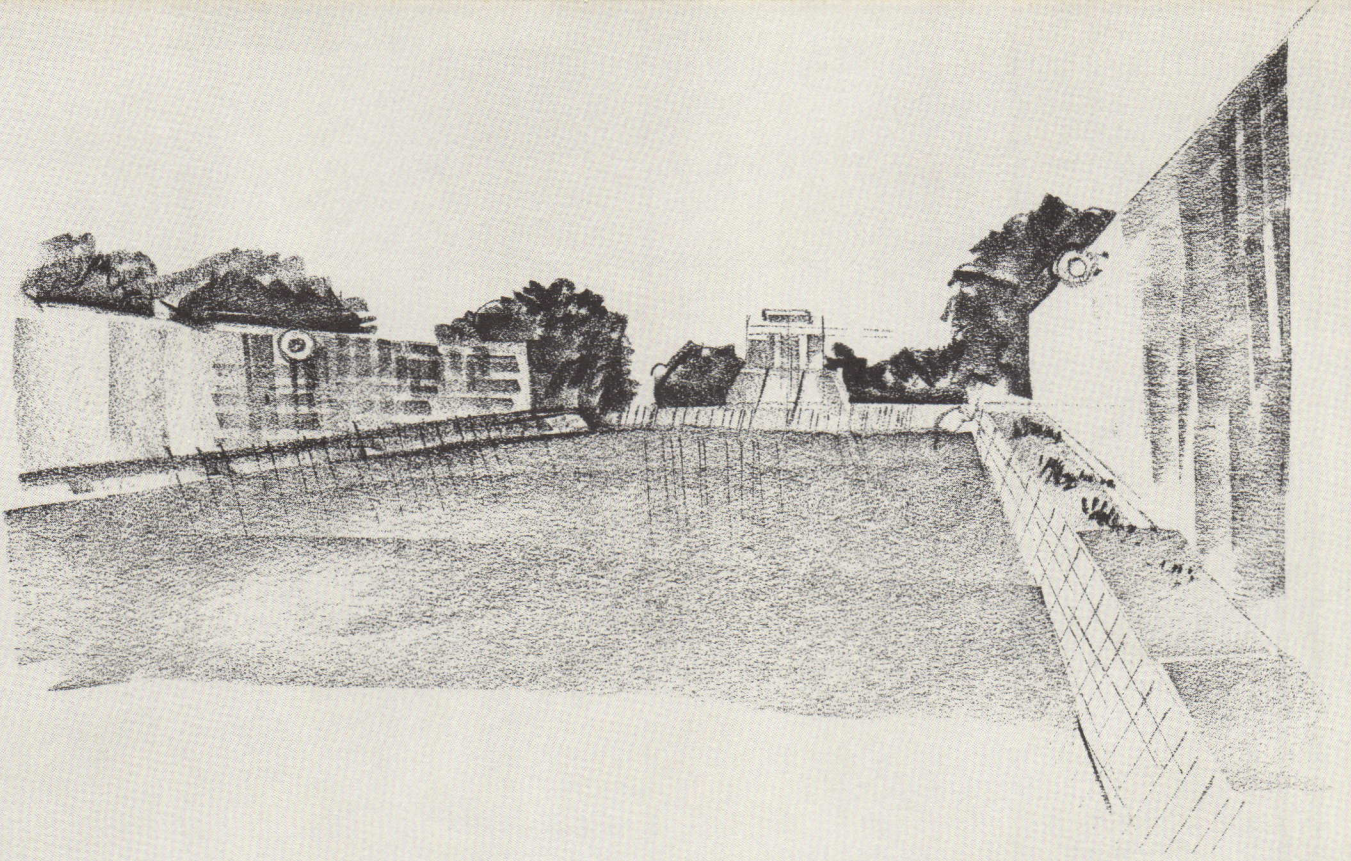
Modern architects have good reason to be worried because, if they do not read Abrams, Bate and even van Brunt, the public will. One day van Brunt's works, which are now being edited by Professor William A. Coles of the Department of English of the University of North Carolina, may be in paperback. The English professors are not to be dismissed lightly, they are already far ahead of the art historians. One day the public will share their knowledge and their insight and the worried modernists will find themselves in the position of the late P. Morton Shand. The English architect who played a key role in introducing the modern to England through his articles in the *Architectural Review* around 1930 came to regret his proselytizing. "I have frightful nightmares," he wrote John Betjeman shortly before he died in 1960, "and no wonder, for I am haunted by a gnawing sense of guilt in having, in however a minor and obscure degree, helped to bring about, anyhow encouraged and praised, the embryo searchings that have now materialized into a monster neither of us could have foreseen: Contemporary Architecture (the piling up of gigantic children's toy bricks in utterly dehumanized and meaningless forms), 'Art' and all that. It is no longer funny; it is a frightening, all-pervading menace." ◀

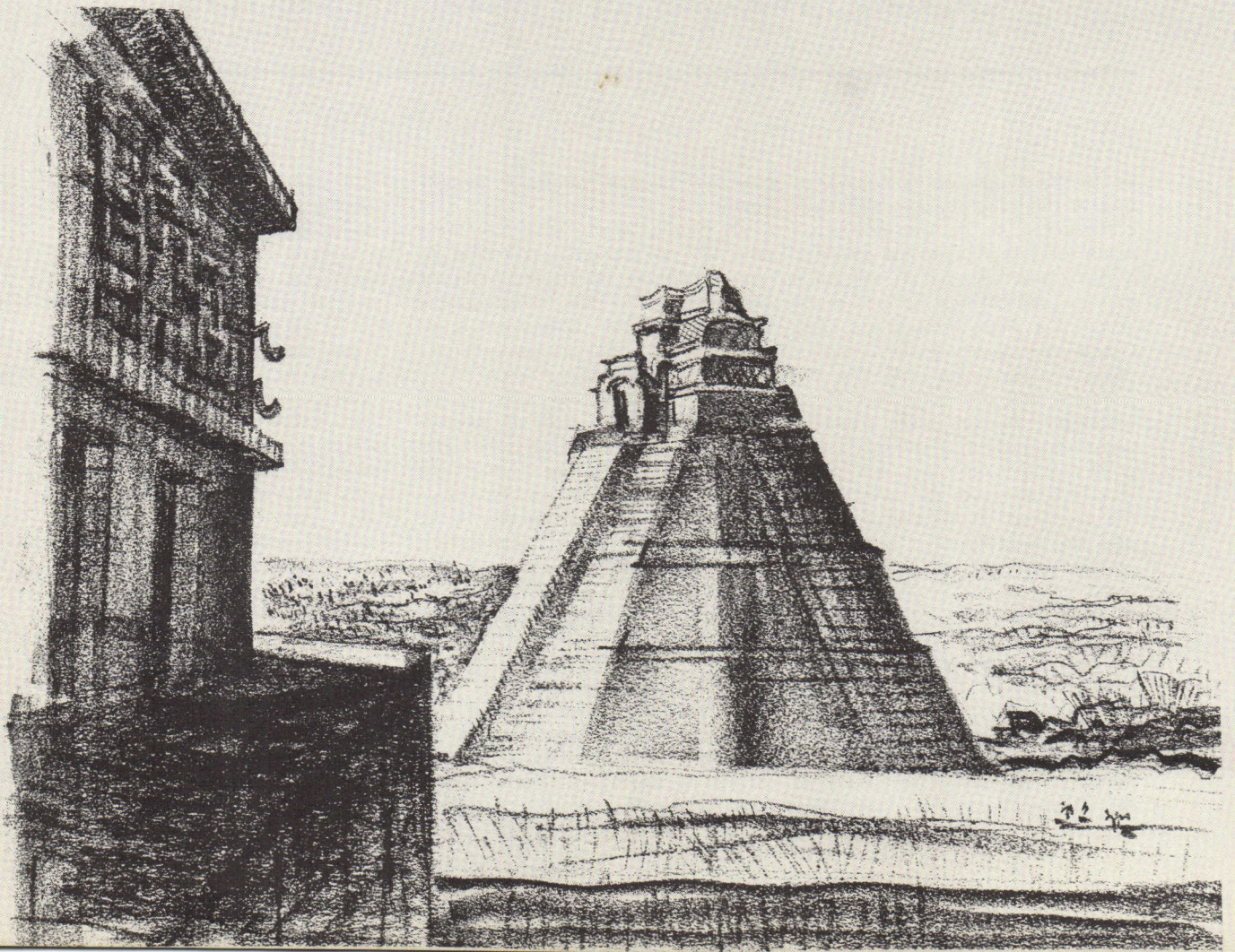
Sketches by Charles Blessing, AIA, AIP











New Hope for Federal Architecture

► At a Cabinet meeting on August 4, 1961, President Kennedy directed that "... a survey be made of the Government's immediate and long-term space needs, with particular reference to the Greater Washington area." An Ad Hoc Committee on Federal Office Space was appointed, consisting of Luther H. Hodges, Secretary of Commerce; Arthur J. Goldberg, Secretary of Labor; David E. Bell, Director, Bureau of the Budget; Bernard J. Boutin, Administrator, General Services Administration; and Timothy J. Reardon, Jr, Special Assistant to the President.

The Committee's Report has been released under date of May 23, 1962, and it contains much of interest to the architectural profession. The survey reveals that 8.7 million square feet of new office

space will be needed in the Washington area during the next ten years, and sets up suggested departmental priorities. It also discusses the possibilities and limitations of decentralization of Federal activities, and recommends greater authority to the GSA Administrator in the leadership of planning Government space needs far ahead.

The two last sections of the Report are of such importance to the profession that we reprint them in full below. (The "Guiding Principles" were summarized in the *AIA Report* for June 4th.) It is heartening indeed to see such a clarion call for architectural excellence come from a high government source—it must be hoped that the Congress which holds the purse-strings will go along with it! ◀

Guiding Principles for Federal Architecture

► In the course of its consideration of the general subject of Federal office space, the Committee has given some thought to the need for a set of principles which will guide the government in the choice of design for Federal buildings. The Committee takes it to be a matter of general understanding that the economy and suitability of Federal office space derive directly from the architectural design. The belief that good design is optional, or in some way separate from the question of the provision of office space itself, does not bear scrutiny, and in fact invites the least efficient use of public money.

The design of Federal office buildings, particularly those to be located in the nation's capital, must meet a two-fold requirement. First, it must provide efficient and economical facilities for the use of government agencies. Second, it must provide visual testimony to the dignity, enterprise, vigor, and

stability of the American government.

It should be our object to meet the test of Pericles' evocation to the Athenians, which the President commended to the Massachusetts legislature in his address of January 9, 1961: "We do not imitate—for we are a model to others."

The Committee is also of the opinion that the Federal government, no less than other public and private organizations concerned with the construction of new buildings, should take advantage of the increasingly fruitful collaboration between architecture and the fine arts.

With these objects in view, the Committee recommends a three-point architectural policy for the Federal government.

1 The policy shall be to provide requisite and adequate facilities in an architectural style and form which is distinguished and which will reflect the dignity, enterprise,

vigor, and stability of the American national government. Major emphasis should be placed on the choice of designs that embody the finest contemporary American architectural thought. Specific attention should be paid to the possibilities of incorporating into such designs qualities which reflect the regional architectural traditions of that part of the nation in which buildings are located. Where appropriate, fine art should be incorporated in the designs, with emphasis on the work of living American artists. Designs shall adhere to sound construction practice and utilize materials, methods and equipment of proven dependability. Buildings shall be economical to build, operate and maintain, and should be accessible to the handicapped.

2 The development of an official style must be avoided. Design must flow from the architectural profession to the government, and not vice versa. The government should

be willing to pay some additional cost to avoid excessive uniformity in design of Federal buildings. Competitions for the design of Federal buildings may be held where appropriate. The advice of distinguished architects ought to, as a rule, be

sought prior to the award of important design contracts.

3 The choice and development of the building site should be considered the first step of the design process. This choice should be made in cooperation with local agencies.

Special attention should be paid to the general ensemble of streets and public places of which Federal buildings will form a part. Where possible, buildings should be located so as to permit a generous development of landscape. ◀

The Redevelopment of Pennsylvania Avenue

► One of the distinctive features of the American Republic is that from the earliest days the nation's capital has been located in an area set apart for that special purpose. No one visiting Washington can fail to recognize that the government established here in the eighteenth century was something new in the world, and that the men who created it were fully conscious of the great enterprise on which they had embarked.

The plans for the city of Washington, as drawn for the first President by Major Charles Pierre L'Enfant, began with the location of the principal buildings of the new government and the great avenues that would connect them. The "grand axis" of the city, as of the nation, was Pennsylvania Avenue leading from the Capitol to the White House, symbolizing at once the separation of powers and the fundamental unity in the American government.

Just as the new government was not founded on small aspirations, neither did Washington or L'Enfant make any little plans. The city they conceived was not intended to be completed in the life of one administration, or one generation. They designed the capital of a great nation: Building it would become the work of that nation.

Scarcely a generation in our history has not contributed to this work. The appearance of the nation's capital has been a matter of continued concern to Congress, and to successive administrations. Down through the years, despite some lapses, those responsible have been essentially faithful to the original vision of Washington and his inspired city planner.

The modern era began with the report of the McMillan Commission at the beginning of the century which reiterated the essential principles of the L'Enfant scheme.

The Commission plans called for the construction of the Mall, the Lincoln Memorial, the Arlington Bridge, and for a general development of public buildings in the area between the Capitol and the White House.

The most recent major development in the capital took place under President Hoover and Secretary of the Treasury Andrew Mellon who conceived the great Federal Triangle. This spacious and dignified complex of office structures occupies the area formed by Constitution Avenue, Fourteenth Street and Pennsylvania Avenue. As a result, all of the space on the south side of Pennsylvania Avenue between the Capitol and the White House is occupied by public buildings.

It was clear to the planners of the 1920's, that the south side of Pennsylvania Avenue could not be developed while neglecting the north side. To develop one without the other would produce an imbalance wholly at odds with the spirit of L'Enfant. Accordingly, the plans for the Federal Triangle were accompanied by plans for a Municipal Center on the north side of the Avenue extending from Third Street to Sixth Street, with John Marshall Place at the center. The architecture of the municipal buildings was to follow closely that of the Federal structures opposite.

Andrew Mellon expressed with great feeling the harmony of the scene he hoped to create—

"It is easy to see what the effect will be. As one proceeds down Pennsylvania Avenue toward the Capitol, on the south side will be a succession of beautiful and harmonious buildings, all of a design in keeping with the semiclassical tradition so well established in Washington. On the north side vistas will be opened up, so that groups of buildings, such as the beautiful District of Columbia Courthouse,

on John Marshall Place, shall be brought into the general plan of Pennsylvania Avenue. At the same time the Mall will present the spectacle of a great park bordered on one side by the new boulevard lined with beautiful buildings, a wide parkway of greensward with its four rows of trees, its drives and walks, statues, and reflecting pools, all arranged in such a way that long vistas will be opened up for views of the Capitol in one direction and of the Washington Monument and Lincoln Memorial in the other."

The plans for Pennsylvania Avenue were never fulfilled. The great depression prevented the completion of the facade of the Federal buildings (while the main court of the Triangle was left to become a parking lot of surpassing ugliness.) For various reasons, only about half the Municipal Center was constructed.

The result of the failure to fulfill this grand concept has been lamentable disharmony. On the south side of the Avenue the stately progression of Federal offices designed under Andrew Mellon is twice in-

The Profession

terrupted by earlier structures of a quite different character. The north side presents a scene of desolation: block after block of decayed nineteenth century buildings, many of which are vacant above the first story, only rarely interspersed by partially successful efforts at modernization. The roadway, sidewalks, lamp posts and other features of the avenue have been sorely neglected. Increasingly the Capitol itself is cut off from the most developed part of the city by a blighted area that

is unsightly by day and empty by night.

Pennsylvania Avenue should be *the* great thoroughfare of the city of Washington. Instead it remains a vast, unformed, cluttered expanse at the heart of the nation's capital.

The present appearance of Pennsylvania Avenue demands attention for the precise reason that profound changes are about to take place. Large segments on the north side are decayed beyond restoration. It is clear that a great many of the buildings are about to be torn down and replaced by new structures which will include both private and public buildings.

This presents a great opportunity. From Washington's time there has been a general understanding that the Federal government has a responsibility to maintain standards of buildings and architecture in the nation's capital. For the past half-century this function has been ably performed by the Commission of Fine Arts. The prospect that a considerable number of buildings will be erected along Pennsylvania Avenue in a short span of time makes it possible to consider the overall appearance, as well as the appearance of the individual structures. Instead of designing and constructing one new building at a time, it becomes possible to design and construct what would, in effect, be a new avenue.

This is an opportunity not to be missed. It will not come again for a half century or more, except at the prohibitive cost of demolishing large blocks of new and expensive office buildings.

At the same time it is clear that a dramatic transformation in the appearance of Pennsylvania Avenue is possible with only a marginal increase in projected expenditure. The General Services Administration hopes to build a number of new buildings in the downtown area. The need for additional office space is such that it cannot be doubted that Congress will approve. There are equally good grounds to suppose that substantial private capital will be expended for hotels and office buildings in the downtown area. (It may be noted that Washington attracts over 15,000,000 visitors a year!) Merely by combining these separate endeavors in one construction program a totality far more handsome, more truly functional, and more soundly economical may be achieved.

The committee feels there should be no delay in setting about this

effort. Specifically, the Federal government, in cooperation with the District government, should formally undertake the redevelopment of Pennsylvania Avenue, so that it may assume its rightful place as the principal thoroughfare of the nation's capital.

The Pennsylvania Avenue project should be regarded as a continuation of the work on the Federal Triangle which began a generation ago. In this instance, however, the effort should involve a partnership between the government and private enterprise. A primary object of the redevelopment of the Avenue should be to emphasize the role of the Capitol itself as the center of the city. For this reason care should be taken not to line the north side with a solid phalanx of public and private office buildings which close down completely at night and on weekends, leaving the Capitol more isolated than ever. Pennsylvania Avenue should be lively, friendly and inviting, as well as dignified and impressive.

As much attention should be paid to the 160-foot-wide Avenue itself as to the buildings that line it. Much repairing and rearranging are in order. The object should be to produce an Avenue on which it is pleasant to walk as well as possible to drive. Benches, arcades, sculpture, planting and fountains should be encouraged.

In 1952, by Act of Congress, the National Capital Planning Commission was created and designated as "the central planning agency for the Federal and District governments to plan the appropriate and orderly development and redevelopment of the National Capital and the conservation of the important natural and historical features thereof." It is clear that the central responsibility for planning the redevelopment of Pennsylvania Avenue resides with the Commission. To fulfill this responsibility it will be necessary for the Commission to engage the services of a number of the foremost architects of the nation: Nothing less than the very finest, established talents available will be sufficient for this unusually significant undertaking.

Responsibility for the design and construction of new Federal buildings will, of course, remain with the General Services Administration, which should play a major role in the entire program. The Planning Commission will also wish to work in the closest cooperation with the Architect of the Capitol and the

Commission of Fine Arts. They will also wish to work with the National Capital Transportation Agency, the Federal City Council, Downtown Progress, The American Institute of Architects and the numerous other public and private organizations that will be concerned with this splendid challenge to the creative talents of all those concerned with the beauty and majesty of the capital city of the United States of America. ◀

EDITOR'S NOTE: President Kennedy has appointed an Advisory Committee on Pennsylvania Avenue Redevelopment, with the following distinguished membership: Paul Thiry, FAIA, William Walton, Ralph Walker, FAIA, Minoru Yamasaki, FAIA, Nathaniel Owings, FAIA, Fritz Gutheim, Douglas Haskell, FAIA, Charles Eames, Vincent Scully, Dan Kiley, AIA.

AIA President Henry Wright wrote the following open letter to the President:

The President
The White House
Washington 25, DC

My dear Mr President:

Your recent appointment of an Advisory Committee for the Redevelopment of Pennsylvania Avenue is an important step in implementing your program of upgrading this "grand axis" of the city. You are to be commended for your quick action in getting this vital program under way.

For your Advisory Committee, you have selected outstanding men whose fields of activity and interest eminently qualify them to analyze the needs of the Avenue and point the direction for its redevelopment.

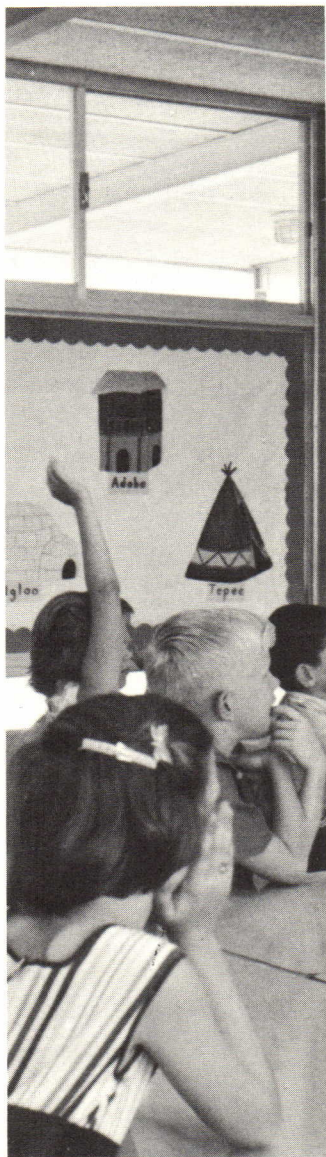
Your plan for a partnership between the Government and private enterprise in developing the project, using proper safeguards for quality of building design and land use, promises the best results.

Your directive that "Pennsylvania Avenue should be lively, friendly and inviting, as well as dignified and impressive" takes into consideration the qualities that will give the Avenue its full value.

Architects of all areas of the nation are concerned with the future development of Washington, DC. We offer you our full cooperation in this important project.

Yours respectfully,

HENRY LYMAN WRIGHT, FAIA
President



Architecture for Eight-Year-Olds

by Arthur Fehr, FAIA

We architects complain that we are unappreciated—we need an educated public. But what can we do about educating the public? The AIA Journal believes we must start in the schools—and be willing to wait a few years for the results (June issue, page 98). This Austin, Texas, architect is really doing something about it, and may his example inspire others to do it too!

happy I was that I was there and that they were there. They looked apathetic. Then a possible approach occurred to me; I had to establish a common ground within their experience.

“Where did you sleep last night?” I asked.

“In bed,” one child answered.

► Children tend to take their world for granted: It’s their oyster, and just that simple. The first time I ventured into an elementary school room—at least the first time after reaching the age of indiscretion—I had been called upon to “explain architecture” to a group of eight-year-old children. And I found that the children were teaching me about architecture.

It’s difficult to sell our profession to second-graders. They’ve seen houses being built without an architect in sight. Obviously, they conclude this man is a fifth wheel, a parasite on the honorable occupations of carpentry and bricklaying. It’s difficult to tell them what an architect is for. But it is worthwhile.

That spring day when I went back to school, the teacher graciously introduced me to the children and then retired. There I was. There were the children. I began, lamely, by telling them how

Dear Mr. Fehr,

Thank you for telling us about architects and their work. Thank you for talking to us. You build lots of helpful buildings and houses and apartment buildings. There are many buildings and houses in the city. The architects are always busy. The blueprint is made in a machine. The contractor helps the architect. The architect plans the house.

By The
John End
Cobb

Since architects don't spend much time designing beds, I tried the question again.

"In our house." This was a start, at least.

"Where did you go Sunday morning?"

"To church," or "To Sunday school," some of them answered.

We began, in that way to collect a list of buildings familiar to the pupils. I wrote the names on the board. We added apartments, airport terminals, banks, stores, hospitals. In a few minutes we had a long list of buildings, all different. But how and why?

"Which is larger, your house or a bank?" I asked.

Most of them agreed that a bank was likely to be larger.

"Why is a bank larger?"

"Because they have more money," one child ventured.

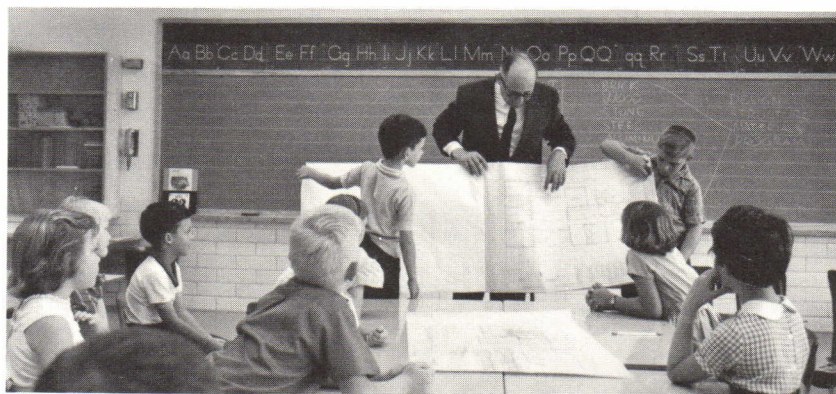
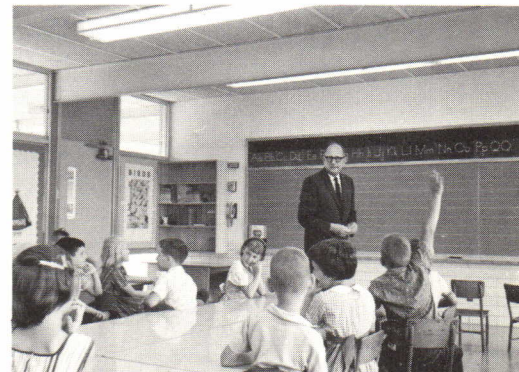
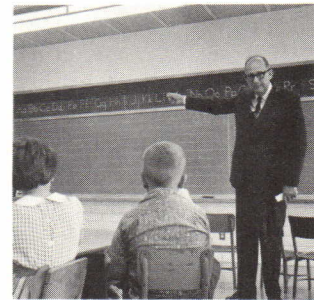
"Is that the only reason?"

"There are more people in it, too," another answered.

"Are there bedrooms in a bank?" I asked.

The children weren't certain but didn't think so. From that point I pointed out that an architect has the job of finding out what a building will be used for, what kinds and sizes of rooms are needed.

"An architect first finds out from people what kind of building they want and how much money they can spend on it. He talks to them and finds out many things. This lets him write a *program* so he can *design a building* and choose the materials." Here we learned some new meanings to words the children already knew. At Christmas time they had a Christmas *program* of songs and stories. "An architect," I told them, "writes a *program* of things some people want in a building."



About that time one little girl jumped up and said: "It's like mother making a cake. She has a recipe, is that kind of like it, maybe?" "Yes, it is much like a recipe."

So much for the program. The next word is *design*. Because of its abstractness, this was a little difficult to put across to the children. I pointed out that the rooms in a building have to fit together and must all be just the right size. I reminded them of how they all had built houses of blocks "when they were little." The architect, I suggested, builds a model of the house not with blocks but with lines on paper. That is his *design*. It is not the real thing, just a picture of it.

Then we got to the word *material*. "There are dress materials, school materials, and there are other materials out of which buildings are built." The children bombarded me with words to write on the blackboard: Brick, Wood, Stone, Steel,

Aluminum, Tile, Glass, Carpet, Nails, Pipes, Cement, Paint, Plaster, Electric Lights.

"There are hundreds of different materials or parts that must be put together to build a building. Before an architect decides what materials he wants to use, he must study the materials. He must know their thickness, width, length and strength. And then pick those materials that the people can afford to buy which will help make a beautiful building.

"This brings in numbers. The tile on this floor is nine inches by nine inches. You can count the tiles and soon find out how long this room is and how wide this room is. Now these glazed wall tiles," pointing to the material, "are four inches high. By counting them and adding these eight-inch-high concrete blocks, we can find out how high it is to the ceiling. That is how an architect thinks of a space by fitting materials together.

David

Dear Mr. Fehr,

Thank you for telling us about architects and their work. Blueprints show contractors what to do. Contractors follow the plans to build apartments, houses, stores, hospitals, offices, churches, and schools. Houses need pipes, gas, and heat. There must be garages for the cars. Architects plan houses just the way we want them to be.

Dear Mr. Fehr,

Thank you for telling us about architects and their work.

We hope you had a good time.

We hope to see you again.

You told us about being an architect.

You told us how to be an architect.

Love,
Carol

"When someone wants to build a house, an architect talks to the mama and daddy and finds out what sort of spaces they want for their family. Then he fits the spaces together on paper to make a design. He also thinks of the lot on which the house will be built. He will save the beautiful trees and place the house so that everyone who visits it will see beauty in it."

Then it was time to bring out a house plan and show how the diagrams give information to the contractor and show him how the materials should be put together.

The children wanted to see more, and I found them fascinated by photographs of study models, sketches of projects in preliminary study and, especially, colored renderings.

By this time we were ready for a question-and-answer period. You might be amazed by the questions that can come from an eight-year-old:

"Did you ever build a farmhouse?"

"What would happen if the contractor could not build a house?"

"How do you know where to fix a broken water pipe?"

"Have you ever built on a hill?"

"Have you ever built a doghouse?"

"How did you decide to be an architect?"

"How can I get to be an architect?"

"When I was your age," I said, "we had electric street cars in our town. I wanted to be a conductor. I always said everyone would have to pay but mother and dad could ride free. The street cars are gone and now we have buses. Anyhow, I became an architect. Some day when you get real old—say sixteen or seventeen or eighteen years old—you may want to know a little more about architecture, because you may want to study how to become an architect. When that day comes, I invite you to come see me and just remind me that I talked with you about architects today." ◀

Comprehensive Architectural Practice

Shopping Centers

by Clinton Gamble, FAIA

Comprehensive architectural services as related to analysis, promotion, design, and construction of shopping center developments

Need for expanded services

The shopping center is a prime example of one of the many building types that require from the architect more than the basic services of design, production, and supervision. In order to practice successfully in this field, the architect must expand his services to some degree of comprehensive practice. This is not meant to imply that the architect must take over all of the functions needed for shopping center development. On a typical project, a long list of other professionals and specialists will often be involved. Such a list might reasonably include market analysts, real-estate agents, mortgage brokers, land planners, traffic consultants, all kinds of engineering consultants from soil analyst to airconditioning, bankers, chain store real-estate and building departments, government officials, landscape architects, accountants, appraisers, investment syndicate representatives, interior designers, lending institutions, insurance brokers, attorneys, general contractors, and sub-contractors.

Enlightened coordinators

In the kind of comprehensive practice needed in the shopping-center field, the architect's role is truly that of the enlightened and knowledgeable coordinator. The nature of this role and the fact that the architect can be counted on to act as a professional in his relations with the owner and others connected with the work may very well be the key reasons why the architect is necessary.

While it is obviously impossible to describe adequately all of the aspects of comprehensive services for shopping centers, the following will give some indication of the more important considerations.

**Analysis, Promotional,
Managerial Services**

Feasibility must be established

Market analysis for department stores

Landowner vs. entrepreneur

Method of accomplishment

In the establishment of the need for the facility, no building project is more susceptible to market analysis than a shopping center. Since the chain store nucleus is the key to its development, it is almost axiomatic that if the market for the largest store—the department store, or recently the large discount store—can be demonstrated, the total need for the center is almost completely established. Since the shopping center is completely dependent on the major tenants for its initiation and existence, the feasibility study is primarily a matter of enticing these tenants to lease in the center. It is not an over-simplification to say the lease for the major store spells the success for the promotion. Consequently knowing the expansion plans for the major stores in an area is the best practical adjunct to feasibility.

The architect who maintains a constant study of major store locations can be helpful to the owner or rental agent—many times in a negative way—by objectively relating new locations to his continuing study of present locations and advising whether a real opportunity exists or not for successful lease negotiations. It seems to be traditional that architects are more conservative in their approach to these matters than real-estate agents.

The technique of market analysis for the major department store is well established. There are two or three well-known national consultants who specialize in this field. The department-store chains themselves have well-developed analysis departments as part of their real estate operations and most other major chains also have similar departments. The architect must be knowledgeable enough to interpret the analysis quickly so that in preliminary conversations he may play a key role as part of the development team.

It is important to maintain a balanced position between the chains and the land owner or entrepreneur if such is the case, in interpreting the analysis in terms of land, building size, and costs against well recognized “rules of thumb.” In this way, all of the factors that tend to produce a successful center, or vital factors that may be lacking, may be quickly recognized. In some cases in smaller centers, the architect may well have to act as the market analyst.

The technique of analysis has been well explored in publications of the Urban Land Institute and the International Council of Shopping Centers and the two organizations are continuously publishing new material. Any architect who intends to practice in the field of shopping centers might well belong to these organizations and take an active part in them.

The major decisions in the method of accomplishment of a shopping center are mainly dependent on who the final owner turns out to be. A center may be held by the original land owner, a private syndicate, the major store, a sale lease-back, or others. In one center designed by our firm, there have been three changes of ownership over a seven-year period. First this was a small center planned to expand; next, fringe expansions took place; recently a major expansion has been accomplished and there is still more expansion to come. We found ourselves in the position of minor-league city planners in effect, since we

have been the only member of the team retained through all the changes. Time and again we found ourselves being called upon to evaluate the center and its potential, while new groups negotiated for ownership. Improvements, land leases, long term sale contracts on the land, refinancing of mortgages, lease of specific land with option to buy—all these methods have been used in this one center. Recently we have been employed by the present owner as the key figure in negotiations with an investment group considering the purchase of the entire center. We were instrumental in bringing this group into contact with a management group who will contract for management if the investment group actually buys the center. Obviously, the services in this center have gone far beyond the role that the architect's basic contract envisages. The total building program in this center will probably amount to \$8 million when completed, yet fully half of the time of our principal-in-charge has been spent on matters entirely outside the specific design of these buildings.

Economic possibilities

In shopping centers, the knowledgeable architect will often find himself acting as a true coordinator. Standing in a position between the merchant with his needs and desires and the translation of these needs into buildings, the architectural firm will find itself, time and again, preparing the initial tables showing the relationship of building cost, size, rents, maintenance, and so on, even before tentative schematics are considered.

Building costs and rents

Since all figures of this sort must be related to one another, the first step is to agree what type of square-foot figures are to be used. Our firm prefers using the "rented area." In other words all comparisons of the total area of the store or the center are based only on the rented area, regardless of whether the area is sales or service. Common areas such as sidewalks, canopies, covered truckways, malls, and vaults are excluded from the figures. Related to rented area, a store might cost \$15.00 per square foot. A breakdown of this cost might show that airconditioning will cost \$1.25 of the \$15.00, light fixtures seventy-five cents per sq ft, exterior paving and site work \$1.15 and so on. When negotiating the leases these figures give the rental agent exact information as to the probable cost differentials he is working against when he agrees that the landlord will furnish certain items or argues that the tenant should furnish them.

Rents are commonly discussed on this same rented square-foot basis. The \$15.00 per-sq-ft-store in this example might rent for \$2.50 per square foot. Of this rent the owner might pay \$1.50 per sq ft amortization and interest on the mortgage, thirty cents for taxes and insurance, and fifteen cents for the landlord's share of operation and maintenance. Consequently, fifty-five cents would remain to give the landlord a return on his equity. By keeping all these costs on a pro-rated square foot basis, it is easy to make direct comparisons, between tenants, of returns against investment and to answer many other questions. The most important thing is that everyone working on the project will be talking in the same cost terms. In this way, all the wild speculations regarding costs that often result when unlike comparisons are used may be avoided.

Location and transportation requirements

The figures used in this example are based on reasonable assumptions, conservative or optimistic depending on the results of market analysis, existing market costs, probable interest of merchandise and so on. It should be remembered, however, that the success of a shopping center is entirely determined by economics.

The old adage in real estate about the three important factors being location, location, and location, is most certainly applicable to shopping centers. Driving-time or transportation time of potential customers to the site is a part of market analysis, and the actual location of a center cannot be determined until the need, methods of accomplishment, and economic possibilities have been determined. Sometimes, strangely enough, the architect may find himself in the position of having a project well along in terms of these three studies before he actually knows who "the owner" will be.

Land values and availability

If a shopping center project has developed to the point discussed here, various locations must then be evaluated in terms of cost. Economical appraisal of the land value is of paramount importance since the "intrinsic value" or "comparison value" may be entirely out of proportion. Since shopping centers require large land areas, and these areas are subject to tremendous variations in cost, the services performed by the architect up to this point are of great importance here. Probably the greatest change in "before" and "after" values of land occur with the development of a shopping center. Most projects will stand or fall on the "before" land value determination.

Land assembly and feasibility

In shopping centers, site selection and land assembly go hand-in-hand with feasibility. The problem is quite clear-cut. When it is known that a major store is interested in establishing a new location, the proper approach is to find the land for the tenant, and not to find the tenant for the land. A great deal of time is spent by land owners who happen to own a large tract and are dazzled by the profits that might come from a shopping center on their site. Such owners often disregard the fact that no real reason exists for the development of a center at their location, nor any reason for a major store to consider the location. As the shopping center field has become better defined it is quite clear that chains of centers, just as there are chains of stores, are coming. These chains of centers are being established by finding the land for the tenant. Probably the most important factor for the architect in this case is to be of assistance in the chain's location problems in an effective way. The proper service in some cases where his client is a land owner might be for the architect to show that while the land may not constitute a good shopping center location, that it will be good for something else.

Shopping center chains

Working with corporate clients

More and more we are dealing with corporate clients in shopping center work. These are often clients with a continuing series of projects. If the architect can take a place at the Board table when the company policies are being discussed and can help shape the general direction of the company effort, he can provide truly expanded service. Being an effective mem-

Average Life of a Hypothetical Shopping Center Building

	COST (\$)	LIFE YEARS	LIFE X COST
Foundations	10,000.00	40	400,000
Walls, Floor, Roof, Structure	20,000.00	40	800,000
Doors, Windows, Millwork	6,000.00	20	120,000
Roofing	2,000.00	15	30,000
Acoustical Ceiling	1,500.00	15	22,500
Tile & Terrazzo	2,500.00	20	50,000
Electrical—Wiring	3,500.00	20	70,000
—Fixtures	2,500.00	10	25,000
Plumbing—Piping	5,000.00	20	100,000
—Fixtures	4,000.00	15	60,000
Airconditioning—Ducts	5,000.00	15	75,000
—Machinery	10,000.00	10	100,000
—Grilles	1,000.00	10	10,000
Movable Partitions, Cabinets	11,000.00	10	110,000
	<u>84,000.00</u>		<u>1,972,500</u>

1,972,500 ÷ 84,000.00 = approx. 22.5 years average life for this building. For depreciation purposes, an average life of 25 years might be used.

Long-range financing

ber in such a discussion is an entirely different matter from the direct job of design or planning. The emphasis must be on the general over-all background, on the total problem.

Almost all shopping centers are premised on large institutional first mortgages. With institutional mortgages, a preliminary commitment is necessary so that the equity requirements can be determined. The guaranteed rents must support the institutional loan and should come from the triple-A rated stores. By estimating the triple-A rents and deducting fixed charges (taxes, insurance) the remainder can be capitalized into the probable commitment. The architect may well be the best equipped person at this stage for developing a realistic estimate.

Determination of the life of buildings

Due to the income tax structure, "depreciation" of buildings has a very special meaning. By using rapid depreciation schedules, the Federal government has opened up a method for substantially reducing the apparent income and its resultant tax. Depreciation involves two steps. The first is the determination of the "life" of the building. Traditionally the government has allowed forty years as the normal life. However, by breaking the building into its component parts it is clear that some parts wear out faster than others. A simple table for determination of the average life is shown above.

Depreciation

If the various "life" figures such as those given in the table are agreed upon by the Federal tax examiners, then a life of twenty-five years calculated by the "sum of the digits" or by the "descending balance" method (which starts off at roughly double the constant rate) means that the depreciation allowed for tax purposes the first year would be eight per cent of \$84,000 or \$6720 in the example. Twenty-five years equals four per cent a year; this rate doubled equals eight per cent. This is not to say that it would be good judgment to use all these calculations in a particular case. This must be decided at a Board meeting such as that mentioned before. The architect can make a knowledgeable breakdown of costs based on principles such as those discussed, analyze them with regard to the real useful "life," and advise the owner on the use of the figures.

Interim financing

Since most shopping centers will require interim financing for construction purposes only and this financing exactly parallels the mortgage commitments discussed above, the interim financing can be quickly determined. It should be emphasized that owners are concerned with total costs and financing. The archi-

Operational Programming

Functional requirements

Equipment and furnishings

Personnel and maintenance

*Financing and organizational
requirements*

Building Program

Basic philosophy

tect, while maintaining a high degree of professional responsibility, can discuss these matters from a completely objective point of view. In most cases, the architect's compensation for such services can be determined on a direct hourly basis, not dependent on "speculation" or contingency. The architect can—indeed must—avoid letting himself be placed in a bargaining position. He must always remain in a status from which he can constantly advise on the total picture.

In order to determine the functional requirements of a shopping center, the store rental pattern must be programmed and then designed, since each center, having a known market (average of incomes, probable drawing power against competition) will have a different emphasis on types of tenancy. The relationships between building costs, sizes, rents and so on developed earlier can now be revised and studied to meet this market. Peculiar individual requirements, particularly of chains, can be equated into this analysis.

At this point, the type of center and its rental pattern will indicate the equipment and furnishings required for general use. Arrangements for tenant equipment are a major part of the lease agreement. The architect must establish ground-rules with the rental agent so that he may be of real service before signed leases are executed. These items may be the crux of the lease negotiations.

Personnel requirements and maintenance requirements are closely connected. Realistic estimates of these requirements must be made for inclusion in the total picture mentioned before. The net return against equity can only be determined after all costs are nailed down; some of the most illusive of these are operational costs.

The total picture requires conservative and adequate provision for the financing of operation. The proportion of chain to local stores is the exact measure of the business risk.

Planning to get the best operation possible is involved not only with the direct management of the center but also with such things as public relations. Preliminary decisions on how management is to work may be made in this stage.

Up to this stage of development of a shopping center, only rough schematic layouts required to make early determinations will have been prepared. A determination to negotiate a building general contract would mean that a broad outline of preliminary specifications and memos agreeing to areas, unit-costs, etc, would now be required. In such a case, the architect would work closely with the selected general contractor. An entirely different concept is required if the general contract is to be bid. The method of ownership of the center must also now be firmed up.

A review of the site and climate requirements follows the actual site selection. Even before this, the climate and site re-

quirements of the general geographical location will have been considered.

Space relationships

Definite and meaningful schematics must be done now to spell out the space requirements. The types of stores to be adjacent to one another is most important. The architect will wish to give his full attention to maintaining a realistic *parti*.

Scheduling

The exact date of opening for a shopping center must be determined. Merchants have very critical requirements as to the time of year they begin business. Their entire stocks change every few months; in fact even a week's difference may change a merchant's whole approach toward initial inventory. Exact schedules must be planned and maintained.

**Operational
Design Services**

The operational design of common areas, the method of airconditioning whether individual or central, the lighting of the site, whether there will be a meeting-hall for civic functions—all of these must now be considered and policy determined. These reflect in the building costs to be sure, and might properly be considered as covered in building programming. General layout and relationships, and common equipment and furnishings, must now be given design considerations.

Design development

During the leasing period, which occurs during the time of preliminary sketch development or in what might be called the operational design development stage, the architect will need to be in close contact with the rental agent, furnishing him comparative costs for the variety of building decisions that occur. A guarantee-plus-percentage lease is a delicate formula with many variables that can be adjusted in relation to each other. The more the owner provides, the more rent he gets; but there are many shades of meaning in this statement. Approval of the lease itself, and particularly those sections dealing with the building requirements is a very important part of an architect's expanded service. The architect in some ways will be working with two owners. Extensive contact with the tenant (who is the real owner in the sense of using the building) is often necessary. How well the architect handles this relationship, as a direct personal service, will reflect on the effectiveness of his comprehensive services.

Guarantee plus percentage leases

Up to this point, outside of the direct schematics mentioned, no preliminary sketches in the usual sense have been prepared. Indeed it is important to restrain everyone else involved in the planning from asking for sketches, renderings, models, etc—the usual tools of architectural practice. It is entirely possible that a year or more will have been taken up with the other considerations. During this period, large files of memos, tables, letters of intent, all sorts of communications, and not one drawing of consequence will have been prepared. The point is, of course, that without the exhaustive determinations that have been described, dozens of perspectives could have been made, and none of them would reflect the exact scheme that now must be developed. An architect could well have earned a good many dollars up to now and not have furnished any of his traditional services. In these studies, compensation based on a percentage

Preliminaries must follow other phases

Building Design and Construction Services

Negotiated construction contracts

of building costs would be unrealistic. Instead, a simple hourly charge arrangement, scaled according to the kinds of personnel involved in the work, is often used by architects.

Most of the building design and construction functions are so normal and usual in shopping center work it is probably unnecessary to discuss them in detail. Two points are worthy of attention, however—the negotiated construction contract and the need for close and continuous attention to project costs.

In most cases, shopping centers can best be built by negotiating a contract with the general contractor. This requires complete and mutual confidence and respect between the general contractor and the architect. It requires complete disclosure and constant coordination. Interestingly enough, it also demands many of the same ethical requirements from the general contractor that are subscribed to by architects.

The negotiated construction contract is useful for a shopping center because, unlike other building projects, the center is almost always actually under construction long before a final set of working drawings are completed. For example, on one project a 220,000 sq ft department store was under way and the steel frame erected before the drawings were finished. A major part of the electrical work could be finalized and priced only after the interior fixtures were designed and bids let four months after the building construction started. Similarly, another 125,000 sq ft in the same project had the steel frame in place when only sixty-five per cent had actually been rented. By negotiating a guaranteed maximum with a fixed fee, many months had been saved. It is doubtful that a large center could possibly wait for the entire contract to be defined in working drawings before beginning construction.

Negotiated contract problems

The potential disadvantage in the negotiated contract is that a great deal of mutual confidence is required among owner, architect, and contractor. The moment that any one of these three tries to take advantage of the situation, it falls apart. The architect must produce a set of plans that the contractor agrees are within the scope of the work he contemplated. The contractor must agree to sufficient flexibility in his calculations to fit the final job conditions the architect finds as he completes his plans. The owner must be entirely fair in relating the tenants and their actual requirements to what has been previously determined as probable requirements. Probably no other building operation requires more reliance on a proper professional attitude, more experience and application of good judgment. When it does work on this basis, however, this is really a team effort that produces buildings that are better integrated, better designed and more quickly built than by any other method.

Need for cost analyses

Continuous cost analyses must be made during the construction of shopping centers; and most centers are never really finished. Most have a continuing building program, of alterations and changes in operations or maintenance. Consequently, for post-construction services, it may be best to revert to the hourly compensation arrangement, after the contract work has been accepted.



Student Maturity

by **Frank Ferguson,**

Vice-President ASC-AIA, University of Utah

► Let us not fall into the error of seeing the true value of our college experience only when we view it in retrospect. All too often graduates look back on their formal training with a blank nostalgia, wondering what all the fuss was about. Because of a fearful approach to creativity and a surface involvement in design, they are forced to admit to self-appraisals which are anything but positive. To such graduates, the remembrances of college life present a gray and lifeless composition, one characterized by ease, complacency, and indolence.

To end five years of training with such a negative summation of oneself is tragic. Those who find this experience theirs can only admit that they, in their comfortable half-involvement, have literally bypassed life. Those of us who are yet in school should take care, then, to avoid the mistake of not understanding college experience.

In order to make the most of college life, we must become adults. To become adults would require that we put aside egotism, impatience, thoughtlessness and selfishness. Manet, the great French impressionist, can serve as an example of what a mature approach to life can mean. He approached his life—painting—with such sincerity and vigor that only after he had painted Rouen Cathedral some seventy times did he lay the brush aside and consider his investigation adequate.

As a contrast to the devoted Manet, think of the talented student who considers his day's work done when he has flippantly completed a single solution to a design problem. This individual, for the greater part of the design term, happily goes about, gloating over his brilliant solution. Such a person's talent is a curse, not a blessing, for he squeezes through life never having to really work hard but also never reaching his fullest capacity. And though he may impress momentarily, he will never have that which in life makes a person constant and reliable.

Can we then, through being honestly involved in undertakings of learning, gain the incentive to weave into our lives that which is true and right and everlasting? The result will be that we will become whole individuals who cannot be fully discerned by one glance. There will be far more to us than meets the eye. We all have met such individuals who require many attentions and become more interesting with each encounter.

To assume that devious routes, involving quick answers and easy solutions, lead to success is to invite disaster. Our only alternative, then, is to seek knowledge and proficiency in as direct a way as possible: by eliminating extraneous activities and by devoting our time and our effort to one goal. The life of a great man will show that he had one goal uppermost, and that he organized all of his time and energies around that goal. Idleness and indecision had no part in his life and therefore, he worked with confident exuberance.

Much of the foregoing may appear to have precious little to do with college experience. But in actuality, such ideas are the crux of the whole matter. It is the nature of education that what one learns is determined by what one is prepared to learn. And since one's life is a set of behavior patterns (patterns which are learned early in life) and a continuum of experiences, that which is learned in one area affects that which is learned in all other areas. Hence, it is the fabric of life, the substance of spirit, the over-all moral fiber which comes to the fore in determining success.

It is a sobering thought to remember that we pass this way but once. Never again will we and our surroundings be exactly the same. The thought rather introduces an element of urgency into all that we do. Let us not fall into the error of wasting college life. To allow pettiness, laziness, indifference to rob us of the true substance of education would be tragic. Now is the time for us to be bold in our search. At graduation, will we be troubled with blank nostalgia, stunned by our own emptiness, or will we be assured with humble confidence, struck by our own fullness. ◀



Professional Practice Seminars

by Robert H. Levison, AIA

General Intent

1 General Information

It is felt that the growing need for discussion, direction and education in Professional Practice is necessary; this, by way of review for seasoned practitioners and to overcome the lack of such courses available to the young practitioner, through the established educational systems.

Professional Practice, it is felt, embraces all of the technical and business skills of every architect. Essential administrative methods which will allow more time for design can be taught by an interchange of information at all levels. Better services to the client should be a major ultimate goal. Seminars can be presented in two ways:

Provocative—Raising questions so that the recipients may investigate the item discussed further.
Capsuled—With complete answers readily obtainable at the time of the seminar.

2 Chapter and State Association Level

At Chapter and State Association levels, the objectives should be:

- to increase the knowledge of the new practitioner, and
- to review and update the older professional in the latest concepts and to pass on helpful hints by more experienced and successful professionals in the organization.

Type

1 Workshops

- One-day: The one-day workshop is effective only when a single area of office practice is covered.
- Two-day: The two-day session is best suited to the workshop as it allows more time for complete discussion and to view all of the many facets of the subject to be covered.

- Evening or luncheon: The evening or luncheon affair is not as satisfactory for seminars as it must, of necessity, confine itself to very narrow limits and should be considered under lectures only.

2 Lectures

- One-day: This tends to become too academic and does not allow sufficient time for discussions of divergent points of view on subject material.
- Two-day: Not recommended for lectures.
- Evening or luncheon: Best suited, as narrow limits may be established.

Subjects

1 *Expanded Services*—most timely. The AIA, through its Dallas and Regional meetings and *Journal* articles, will explore this subject throughout 1962.

2 *Basic Services*—Review is especially valuable in connection with "Expanded Services."

3 *Mandatory Standards*—Proposed revisions are companion seminar topics to "Expanded Services" and "Basic Services."

4 *Report Writing*—Of growing importance to the practitioner.

5 *Writing Specifications*—Much can be done in cooperation with Specifications Committee.

6 *The Architect and his Accounting*—Always changing. Architects should be kept up to date.

7 *Building Project Finance and Appraisal*—An area to be explored for "The Package without the Deal."

8 *Cost Estimating and Bidding Procedure*—A sensitive area—explore.

9 *The Minimum System for Successful Office Cooperation*—Fascinating and very provocative.

(Continued on p. 68)



Housing for the Elderly—SITE SELECTION

by **George E. Kassabaum, AIA**

► There are approximately sixteen million Americans who are considered elderly by our society—that is, over sixty-five years of age. Of this number probably at least ninety per cent will continue to live in their own homes which, providing the neighborhood is not deteriorating and providing the house is adaptable to the changing needs of an older person, is as it should be. Except in the cases of his own older relatives and friends, the architect will probably not be called upon for his advice regarding the selection of the site for such housing. But for those whose needs are best satisfied by some sort of communal living, projects offering varying accommodations and of varying sizes are needed.

Unfortunately, there will be many times when the architect's advice is not requested until after the site has been selected. In fact, the availability of a piece of property unsuitable for other types of development is too often the stimulus for a sponsor to decide to develop it as such housing. Under these circumstances the desirability of the site can only be evaluated, and the architect can either use his ingenuity in limiting the compromises that must be made or he can advise the client that it is not suitable for housing for the elderly and advise him to develop it in some other manner. The architect must accept this obligation in advising his client, for the finest building design on an unsuitable site will fail to produce housing that can hope to satisfy the total needs of the older person.

Obviously, no site will satisfy all of the requirements that will be hereinafter set forth, and generally no attempt has been made to assign priorities, for this is where the judgment of the architect and his particular client must prevail. However, general principles can be established with compromises being made where necessary, as long as

there is an awareness that the number and degree of such compromises will have a tremendous effect on the eventual success of the project.

The importance of the site is being stressed here because, as architects, we are sometimes inclined to attach all of the importance to our structures and how they might be physically adapted to the site. Others studying broader problems are not so inclined to single out the building as being all-important. In fact, in preparing their report for the New York State Division of Housing those in the Housing Research Center at Cornell University have said “. . . it might be said that while the dwelling unit must accommodate itself primarily to the various *physiological* requirements of the aged, only the proper selection of a neighborhood and the site can fully satisfy the *psychological* needs of the aged. The dwelling unit is impersonal and mechanical in its accommodations of daily living habits. The site and the neighborhood, on the other hand, are essentially social and personal. They lend life and meaning and make whole the reality of existence.”

Location

The neighborhood, and therefore the site, has greater significance for an older person because it must somehow compensate for some of the unpleasant effects of growing older. Broadly, three of the most common effects might be said to be:

Loneliness. Surveys indicate that most older people must anticipate living alone. Under these circumstances, they are denied the companionship that comes from living in a household. As the changing character of our urban areas makes it most unlikely that the older person will be able to stay in the part of the city that he has lived in for many years, and with more leisure time in which to become lonely, *the older person needs easy access to the social life of the community so that new friends can be made.* Such social contacts can be en-

couraged or discouraged by the location of the site. Too often a misinterpretation of the desire of an older person to have a little privacy has led to isolated buildings, isolated projects or isolated communities—isolating the individual from society just when he should be urged to continue as an active participant in the world around him.

Boredom. Forced retirement reduces the individual's feeling of being a contributing member of his society, as well as further reducing his chances for social contacts. As an older person's mental health can often depend upon his continuing to keep busy and active, he should live where part-time employment is possible even though it might not be necessary as a source of income. *To make such opportunities as convenient as possible, an urban, mixed-age neighborhood is indicated.*

Disability. To compound the chance of loneliness and the feeling of insecurity that can so easily result from a withdrawal from the world, most people will become at least relatively restricted in their mobility. Slowness and difficulty in getting places discourages the easy escape from the immediate environment that is so readily available to the younger person, and contributes to the feeling of abandonment and loneliness. This places a premium on the convenience offered by an urban location rather than the quiet beauties of a suburban setting.

We have said that we would not assign priorities, but your Committee feels that there is one essential requirement in determining the suitability of any site. We can say that no facility serving the aging can exist solely by itself. It must be a part of a larger, vital community.

Therefore, in the cases where it is impossible to retain the individual in his own familiar neighborhood, new facilities should be located so that the general character of the immediate environment should be a mixed-age, residential neighborhood with the following community services available, ideally, within a half-mile radius and accessible by means of a reasonably level walk:

1 The site should be near the established *health and welfare services of the community*, if the feeling of insecurity resulting from less vigorous health is to be overcome.

2 There should be *convenient churches* with their spiritual and social programs, if the residents are to be able to take advantage of the counsel and the peace of mind that can often be the difference between happiness and misery.

3 Within easy walking distance should be the *neighborhood shops*: grocery stores, drug stores, beauty parlors, barber shops, shoe repair shops, cleaners, laundries, etc, if the feeling of self-sufficiency is to be encouraged and the ingredient of

adventure is to be provided. The needs of an older person are not so great as to demand large-scale stores such as supermarkets, although they are by no means undesirable. It is just that smaller shops can most generally supply their physical needs, and are much more likely to also be the source of a more personal contact and a means of creating new friendships.

4 The site should be located so that the residents can take advantage of the *libraries, recreational and entertainment facilities* of the community, if the increased leisure time is to be a blessing rather than a curse.

5 One of the principal causes for the relatively rapid decline in physical ability of the older person is due to their inclination to ignore their body's need for proper nourishment. Because there is seldom a feeling of hunger, the quantities of food consumed are small, with a result that either much food is wasted or a hot, balanced diet is sacrificed in favor of a sandwich. Therefore, except where central food service facilities are provided within the project, it is most desirable that there be a clean, pleasant and friendly *restaurant* nearby. In addition to reasons of health, dining out can be a social event to be anticipated, and the older person should not be deprived of this opportunity to have a place to relax and be with friends.

6 Since it is highly unlikely that all of these will be close to any one site, easy access to *public transportation* is a most important factor in being able to take advantage of the facilities that the community has to offer. It is also important as a possible means of supplementing one's income through part-time work, to visiting distant friends and relatives, encouraging them to visit the older person, and generally to keeping alive a spirit of self-sufficiency.

The improper selection of the site with respect to these facilities can greatly increase the cost of the project since the needs they supply are essential to allowing a happy life, and, if they are not provided by the neighborhood, it will be necessary to construct, operate and maintain space for such items within the project itself.

Size of Property

The importance of a location in an urban or suburban setting complicates the selection of a site for any type of solution except the elevator apartment. However, this type of building must not be accepted as the universal answer. If a feeling of self-respect is to be provided, it is essential that our elderly be able to choose between individual cottages, row houses or towers in the sky. An adequate site is essential to assure quiet and to permit the development of adequate outdoor areas for passive and active recreation.

Land coverage is more critical than density, although for most types of housing the two are inseparably related. While a high percentage of openness is not an automatic guarantee of a successful project, it is essential if there is to be a chance to plan for natural beauty, a vista, sunlight and breezes, and if the architect is to have the opportunity to try and compensate for any disadvantages of the site. To be able to do this, more than a minimum piece of property is required, and it is recommended that the size of the land be such that the eventual land coverage ranges from ten to twenty-five per cent. More important than the actual area is the skill with which the architect develops the site so that the result will permit intimacy and human scale.

The recommended densities are even more difficult to define, especially where high-rise units are concerned. Because of the relative inactivity of the older tenant, it is possible to permit greater densities than would normally be considered permissible. Also, as the type of recommended site is likely to have relatively high land costs, higher densities may be required in order to provide a project at rents that can be afforded. In consideration of these factors, densities as much as 120 persons per acre for high-rise units can be recommended, providing the land coverage is kept low.

For a project of individual houses a density of eight dwelling units per acre should not be exceeded and, where row houses are anticipated, a density of approximately fourteen dwelling units per acre should be considered as being the maximum.

Surrounding Neighborhood

In saying that the neighborhood should be of a mixed-age residential character it is recognized that there may be a conflict with existing zoning laws. This will especially be true if the site selected is in an area of single-family houses and if the proposed project is presented in a manner that will

create an image of an "old folks' home" or of filling the area with doddering old people who will become a burden on the surrounding area. The benefits such as the stability that the residents will lend to areas normally inhabited by transients, the relief to overcrowded school systems, etc, can be emphasized, but less objection is likely to be encountered if a neighborhood already having apartment buildings can be found.

Normally, both the needs of the older person, as well as the objections of the neighborhood, will be better met by smaller, more intimate groups of such specialized housing. However, when the surrounding neighborhood is older, and possibly facing the need for rehabilitation in the foreseeable future, planners should consider introducing larger projects as a stimulus for self-improvement within the surrounding areas, providing human qualities can be maintained.

Of course, it is possible that the need for community services can best be met by neighborhoods that are other than purely residential. This will especially be true in our larger cities. However, the area must at least be healthful, free of industrial fumes, dusts and smoke, free from flashing signs, and should be insulated from sources of loud, continuous or impact noises with the outdoor noise level not exceeding fifty decibels. Another source of annoyance to the older person is the confusion of an active recreation area such as a schoolyard. This might appear to be in conflict with the desirability of being near the recreation areas that the community can provide, but it is essential that our residents be able to get away from constant noise even though it is desirable to be within walking distance of such active recreation areas.

Consideration must also be given to the changes in the over-all land use that might be anticipated due to probable trends and projected plans. This is, of course, true of any architectural development. However, it is especially applicable in the case of a project for the elderly due first to the

Check List

- | | | |
|--|--|---|
| <input type="checkbox"/> natural beauty | — parks | — traffic hazards |
| <input type="checkbox"/> mixed-age, residential neighborhood | — entertainment | — extensive changes of grade |
| <input type="checkbox"/> convenient relationship to facilities of existing community | — restaurants | <input type="checkbox"/> cost of land such that reasonable densities can be maintained |
| — health and welfare | — utilities | <input type="checkbox"/> easy development for proper orientation for sunlight and breezes |
| — churches | — fire and police protection, other community services | <input type="checkbox"/> easy development for passive recreation |
| — shops and stores | <input type="checkbox"/> free from: | |
| — public transportation | — industrial fumes, dust and smoke | |
| | — disturbing noise | |

heavy investment involved and, second, to changes which might be tolerable in terms of a normal residential site, but would be most depressing for a site largely occupied by the elderly.

Traffic and Topography

The site should not be completely bounded by major traffic arteries. Older people with less ease of movement, with impaired eyesight and hearing should not have to cross heavy traffic.

The natural beauty of the site is most important again because the residents will be so much more dependent upon their immediate environment, but the topography should be such that it encourages walking as this is the best form of exercise for the older person. Short flights of steps are not necessarily undesirable for most older people, but it should be possible to by-pass them.

Utilities and Cost

For the feeling of security that is essential if the older person is to lead a happy life, there should be established municipal services such as adequate utilities, police and fire protection and ambulance service immediately available from the community, as well as well illuminated streets.

Because of the wide variety of services that can be offered by any project, it is not possible to establish a percentage of project cost that can be allocated to the purchase of the property. However,

where each individual should have consideration, it is almost impossible to retain the integrity of the individual in enormous buildings housing hundreds of people. Therefore, keeping in mind our land coverage and density limitations, it is recommended that the cost of land should be such that it can be justified on the basis of a project housing no more than approximately one hundred and twenty-five residents.

Site Development

The proper development of any site for housing for the older people is such a complex problem that it will be dealt with in a separate paper. However, the need to avoid radical changes in grade, as well as the importance of at least having the potential for developing beautiful natural settings for individual privacy and passive recreation, makes the consideration of future development more important than usual.

Because our society is late in recognizing the challenge of providing more than just shelter for the increasing number of people who now find that they have more leisure time, fixed incomes and less physical stamina, it is most likely that such ideal sites as have been described will have long since been developed in other ways. But the necessity to make the right compromises is the architect's everyday challenge. To assist him in this difficult task the check list on p. 67 has been prepared. ◀

(Continued from p. 64)

10 *Legal Aspects, Contracts, Lien Laws, etc*—Excellent for better interprofessional relations.

11 *Insurance*—One of the most critical areas of practice.

12 *Public Relations for the Individual Architect*—Dual-function area for Professional Practice Committee and Public Relations Committee.

13 *Over-all Office Procedures Regarding Employee and Co-professional Relations*—Excellent for better inter-professional relations.

14 *Review of the Standard AIA Documents*—Always a subject for review.

15 *Student and the Architect*—A very valuable and essential topic. Dual function of Education and Professional Practice Committee.

16 *Office Forms and Working Drawing Methods*—This always provides much discussion.

17 *How to Increase your Income while Providing Better Service*—This is the area for more experienced practitioners to aid the less experienced.

Criteria—Educational and Informational

The State Association or Chapter should establish criteria under these two basic headings and limit subject matter in these areas. It would be well for the Professional Practice Committee of either the State Association or Chapter to establish different criteria prior to the establishment of seminars.

It is desirable that a system of reporting to the membership be established and this may be done through the use of the Chapter bulletin, the State Association magazine or by a full transcript of the meeting. This is one of the more desirable points as it indicates to the absent member that the Chapter or Association is doing something, in spite of limited funds, toward the betterment of the practice of architecture. It creates a desire on the part of the membership to attend the next session.

It is considered desirable to have prints of Institute document schedules and other "handouts" for the future reference of the listener and his increased interest in the subject matter. ◀



A. Reinhold Melander, President, Duluth, Minn; Chandler C. Cohagen, 1st Vice President, Billings, Mont; Paul W. Drake, 2d Vice President, Summit, NJ; A. John Brenner, Secretary, Phoenix, Ariz; C. J. Paderewski, San Diego; Earl L. Mathes, New Orleans; John E. Ramsay, Salisbury, NC; George F. Schatz, Cincinnati, Directors; Walter F. Martens, Past President, Charleston, WVa

Administering the Licensing Law

by **John Scacchetti, AIA**

This is the second of two parts.

► The process of preparing for examinations entails considerable effort on the part of the office staff as well as the State Board. Applications of the candidates must be very carefully scrutinized for compliance with all requirements regarding education, experience and personal data. Cross-checking of dates will on occasion disclose errors sufficiently serious to disqualify a candidate from the examination for which he has applied.

Also, on occasion, a sponsor will reply to the questionnaire in less than flattering terms, reflecting on a candidate's ability. In such cases the Board is forced to evaluate the one against the others received and may ultimately be required to withhold approval until further checking is done.

As there is a carry-over from previous examinations, all applicants must be checked to determine that the repeated subjects do not exceed the number permitted to be taken over, or that the prior failures do not exceed the times permitted before being required to retake the entire examination.

Little time is allowed to pass after examinations before the candidates begin to display impatience at the delay in being informed of their status.

It, of course, takes some time before all papers are evaluated, reviewed and grades confirmed. Lengthy sessions ensue and often extend to very late hours beyond the normal working day.

Recording of grades, computing averages and preparing and mailing notices of passing or failure are part of the work to be done even before the successful candidate can be invited to appear for an oral review to test his qualifications and professional outlook on his chosen profession.

The importance of the interview with the candidate becomes increasingly apparent as each succeeding session of examinations brings new prospective architects before the Board for questioning.

From the responses it is sometimes possible to ascertain weaknesses which the examination did not disclose.

In such cases the Board will emphasize the need for further study in the deficient subject and will on occasion defer the award of the license for periods up to three months to allow the candidate to review the work before the Board will consent to re-examine.

It is not expected that the new licensee will be as familiar with all aspects of the profession as one who has been in practice for many years. He is expected, however, to be reasonably familiar with all the functions of the architect if he is to be permitted to practice as a professional.

The effect is sobering; he becomes more fully aware of his professional responsibility and that it is for his benefit and for the protection of his future clients.

The Board's actions in New Jersey are directed to administration of the law, but in the conduct of this effort it has been found that a close relationship with the architectural organizations is mutually beneficial.

Public relations are improved with the Board's work and program being publicized.

Thus the State's licensees are kept informed of the Board's efforts to be of assistance to them in their work. Twice annually for the past several years the New Jersey Chapter of the AIA and the New Jersey Society of Architects have invited the candidates who have passed the written examinations to a dinner meeting, at which time the State Board reconvenes and awards certificates to the newly licensed architects. Many of them bring guests to witness their participation in the proceedings, resulting in favorable publicity for both the Board and the Societies.

Every Board is committed to the administration of the statutes as prescribed by its legislature. The personal desires of Board members are subordinated to this and cannot influence their decisions.

A common model law, when drawn and accepted by all member Boards of the National Council, will in a great many instances clarify and establish reasonably uniform requirements which should materially assist in establishing nationwide standards for licensing.

It cannot be expected however, to standardize procedures nor to overcome the need for special bylaws or requirements issued by the individual State Boards, to meet special legislative needs or to satisfy situations not normally found in other areas.

The candidate for initial or reciprocal licensing will do well to study the laws and regulations governing the practice of architecture before making application either to be examined or to practice.

There are many matters of major importance, statutory regulations notwithstanding, which should be remembered as being helpful in securing registration.

Application should be made in ample time to allow the Board to act upon it at a regularly scheduled meeting. An inquiry to the Board before filing may indicate the need for faster initial effort on the applicant's part to conform to the calendar of the Board.

Sponsors should be individuals who can be reached and who are aware of the need for immediate replies to requests for information.

Schooling and experience records should be detailed and accurate with the chronology in proper order. Experience acquired must be the sum total of a nature acceptable to the examining Board. Attempts to expand experience by counting overtime or detailing part-time employment, unless of an exceptional nature, will delay approval at best or result in rejection of the application. If the application is being made through the National Council of Architectural Registration Boards the record cannot be forwarded if more than five years have elapsed from date of initial issue or the last periodic review.

Under the new procedures recently adopted by the National Council of Architectural Registration Boards, the annual renewal will become automatic for certificate holders provided there are no unresolved counts in the record and the fees have been paid.

Where the probability of out-of-state work is indicated, it is very important that this record be kept current.

Records should be clear at all times to be sure that all infractions or violations charged have either been dismissed or the penalties satisfied, as licenses will not be issued with any counts pending. This would hold also where a penalty remains unsatisfied because the violator is beyond the jurisdiction of the Board which assessed it.

It is important to remember that documents signed before acquiring a license may constitute an illegal act and may be used by the Board as evidence in assessing a penalty for violating the law, with a delay in the issuance of a license.

Exhibits of work executed in the state where a license is being sought never fail to stir a Board to rapid action in penalizing a violator.

Laws regulating the professions are so written as to license individuals only for the purpose of establishing responsibility. Partnerships, associations with others who are not licensed as architects, or corporations seeking reciprocal registration present special problems in licensing and identification of documents.

Firms or organizations with holdover names from previous associations or continuing with the names of deceased partners are not permitted to practice in N.J. Only the active principals whose names appear in the title block and who are properly licensed are recognized as the architects in fact. The use of corporate or fictitious names on documents or reproductions is not permitted. (Exceptions are made where successors to a recently retired or deceased partner indicate the need to continue because of contract commitments, but this is permitted for a period not exceeding two years and only with the express consent of the Board.)

The Board should be consulted to determine the member or members who are required to be registered, and the manner in which the firm name must be made to appear on all documents that are issued so as to be acceptable.

If the firm or organization is composed of licensees other than architects, the professional board governing such other profession should also be consulted. Compliance with the regulations of one board does not authorize any act or transaction considered to be a violation by another Board or agency in that state.

Board-members are practicing architects who face the same problems as all other architects, but in addition devote many hours of their time to serving their state. By careful screening of the applicants they help to maintain a high level of competence and ethics among those seeking a license to practice architecture.

Information sought before applying will reduce the chances of errors or delays in the processing and will quite often forestall infraction of regulations no matter how innocent the intent may be.

Joint efforts by the boards and the National Council have developed many standards which are applicable in all states. An architect who satisfies the minimum requirements and carefully observes all rules of procedure before filing can secure a license with a minimum of effort and without unreasonable delay. ◀

Lessons From Dallas



► A convention is educational in more ways than one. Officers and staff always find something to learn about the conduct of convention business.

At Dallas we learned how to count votes with IBM cards. We had planned the seating of delegates by regions in order to overcome criticism of inaccuracies in voice and roll-call procedures at previous conventions. The new system worked well on the voting, but counting turned out to be a nightmare on a hand computer.

The trouble was that each ballot was worth more than one vote in relation to the number of registered delegates for each chapter. A ballot from chapter A might be worth 1.8 votes, one from chapter B would be worth 2.15. The problem was solved for us by IBM with punch card ballots which could be computed and counted by the machine in five minutes instead of forty-five.

Cybernation, it's wonderful! Now we know how to guarantee fast and accurate convention voting.

One big lesson from the Dallas convention had to do with the old bugaboo, "communications." The problem and possible solutions came into focus in the meeting of the Board with chapter presidents on Monday afternoon. This meeting, limited to a discussion of national affairs, will undoubtedly become a fixture in convention programs because of its success this year and its potential for communication between influential thinkers in the AIA. The idea for the presidents' meeting was an outgrowth of proposals on structure by the Northern California Chapter.

Here is a summary of the central communications problem. Each year the Board offers for convention action various business matters, some requiring changes in the Bylaws. An official notice of impending business is sent to the membership not less than thirty days before the convention.

The items of business thus presented represent hard months of study and debate by national committees and the Board itself. In almost every instance, each question has been approved by the Board unanimously or nearly so, and may be said to represent the "administration's position."

Under our present procedure of notification, few chapters have more time than one meeting to consider such business matters and form their opinions. This year it was my good fortune to visit with six chapters during this opinion-forming period.

The experience was rewarding. Contrary to a general belief, I found that chapter members *do* read printed communications from national headquarters. Nevertheless, and in spite of our best efforts to communicate the whole story on a new and debatable issue, reading matter is not enough.

I found on the debatable matter of "councils," for example, that a chapter discussion would raise all of the questions, pro and con, that were raised by the Board itself on this matter and took three meetings of the Executive Committee and the Board to resolve to their satisfaction. In some cases, I was able to answer opposition opinions with acceptable reasoning, in others I found questions indicating a need for further study to get the matter properly worked out.

Evidently there is no substitute for face-to-face discussion on vital matters affecting the future of the profession and the AIA. A new idea always seems to stimulate the automatic negative first. Many people think that way. Some proponents get carried away with early enthusiasm. But generally, our more reasonable members sit and listen for a while and must eventually sell themselves on a new idea. Once convinced of the rightness of a principle, the constructive thinker approaches the subject from the standpoint of how to make it work by eliminating the cause of each hindering problem.

This process of progress takes time. The chapter presidents at Dallas made it clear that our procedures leading up to convention action are too hurried. We will figure out a better way.

A mandate from the convention seemed to be—we approve of the way you are moving, but don't go too fast! A satisfying mandate at that.

W.H.S.

Library Notes

Structures

This list is devoted to some of the technical books on structures. It includes books listed in the catalog under Strains and stresses; Structure, Theory of; Structural frames; and Strength of materials. All volumes may be borrowed on the Library loan service at the usual rate of fifty cents for the first volume, twenty-five cents for each additional book requested at the same time.

ANDERSEN, PAUL

Statically indeterminate structures, their analysis and design. New York, Ronald, 1953. 318p.

ANGERER, FRED

Surface structures in building. New York, Reinhold, 1961. 142p.

BORG, SIDNEY F. & J. J. GENNARO

Advanced structural analysis. Princeton, Van Nostrand, 1959. 368p.

BRESLER, BORIS & T. Y. LIN

Design of steel structures. New York, Wiley, 1960. 710p.

CARPENTER, SAMUEL T.

Structural mechanics. New York, Wiley, 1960. 538p.

CHARLTON, THOMAS M.

Model analysis of structures. New York, Wiley, 1954. 142p.

COWAN, HENRY J.

The theory of prestressed concrete design, statically determinate structures. London, Macmillan, 1956. 264p.

COY, PAUL H.

Structural analysis of Unistrut space-frame roofs. Ann Arbor, Univ. of Mich. Press, 1959. 2v.

DRAFFIN, J. O. & W. L. COLLINS

Statics and strength of materials. New York, Ronald, 1950. 398p.

FERTIS, DEMETER G.

Transverse vibration theory. New York, Ronald, 1961. 301p.

HALL, ARTHUR S. & R. W. WOODHEAD

Frame analysis. New York, Wiley, 1961. 247p.

HAMMOND, ROLT

Engineering structural failures. New York, Philosophical Library, 1957. 224p.

HARRIS, CHARLES O.

Elementary structural design. Chicago, American Technical Society, 1951. 163p.

HOFF, NICHOLAS J.

The analysis of structures. New York, Wiley, 1956. 493p.

JENSEN, ALFRED

Applied strength of materials. New York, McGraw-Hill, 1957. 343p.

KANI, GASPAR

Analysis of multistory frames. New York, Ungar, 1957. 113p.

LEONTOVICH, VALERIAN

Frames and arches; condensed solutions for structural analysis. New York, McGraw-Hill, 1959. 472p.

LIGHTFOOT, EDGAR

Moment distribution. New York, Wiley, 1961. 363p.

MACNAMEE, JOHN

Analysis of symmetric cylindrical shells. London, H.M.S.O., 1955. 84p.

NEAL, BERNARD G.

The plastic methods of structural analysis. New York, Wiley, 1956. 353p.

PARKER, HARRY

Simplified design of roof trusses for architects and builders. New York, Wiley, 1953. 278p.

PARKER, HARRY

Simplified design of structural steel. New York, Wiley, 1955. 244p.

PARKER, HARRY

Simplified mechanics and strength of materials. New York, Wiley, 1951. 275p.

PHILLIPS, ARIS

Introduction to plasticity. New York, Ronald, 1956. 230p.

PLUMMER, HARRY C. & J. A. BLUME

Reinforced brick masonry and lateral force design. Washington, Structural Clay Products Institute, 1953. 271p.

ROARK, RAYMOND J.

Formulas for stress and strain. New York, McGraw-Hill, 1954. 381p.

ROGERS, GROVER L.

An introduction to the dynamics of framed structures. New York, Wiley, 1959. 355p.

ROGERS, GROVER L. & M. L. CAUSEY

Mechanics of engineering structures. New York, Wiley, 1962. 428p.

SUTHERLAND, HALE & H. L. BOWMAN

Structural theory. New York, Wiley, 1950. 394p.

TIMOSHENKO, STEPHEN

History of strength of materials. New York, McGraw-Hill, 1953. 452p.

TORROJA MIRET, EDUARDO

Philosophy of structures. Berkeley, Univ. of Cal. Press, 1958. 366p.

TORROJA MIRET, EDUARDO

The structures of Eduardo Torroja. New York, Dodge, 1958. 198p.

TRATHEN, RONALD H.

Statics and strength of materials. New York, Wiley, 1954. 506p.

VAWTER, JAMISON & J. G. CLARK

Elementary theory and design of flexural members. New York, Wiley, 1950. 215p.

VIERTELS, EPHRAIM

Simplified problems in strength of materials and structural design. New York, Arco, 1956. 636p.

WACHSMANN, KONRAD

The turning point of building. New York, Reinhold, 1961. 239p.

WANG, CHU-KIA & C. L. ECKEL

Elementary theory of structures. New York, McGraw-Hill, 1957. 387p.

WANG, CHU-KIA

Statically indeterminate structures. New York, McGraw-Hill, 1953. 424p.

WILLIAMS, CLIFFORD D.

Analysis of statically indeterminate structures. Scranton, International Textbook Co., 1959. 360p.

WILLIAMS, CLIFFORD D. & E. C. HARRIS

Structural design in metals. New York, Ronald, 1957. 655p.

YITZHAKI, DAVID

The design of prismatic and cylindrical shell roofs. Haifa, Haifa Science, 1959. 253p.

Book Reviews

Architect: Creating Man's Environment. Robert W. McLaughlin. NY, Macmillan Co, 1962. 5½" x 8½". illus. 207 pp. \$3.50

Along with subjects future college students would expect to find in a career book—a list of architectural schools and what goes on inside, types of jobs available when his four or seven years are up, and how much he might make on his own—Professor McLaughlin supplies his personal views of the meaning of architecture. Here is an inspiring piece of persuasion and propaganda for the profession, and because this volume of the Macmillan Career Series, as the others, is written by a member of the profession described, it is not extremely critical—rather it tries to encourage students into study of architecture and thus minimizes any drawbacks. The last chapter is especially guilty; it is a humorous and fairly disasterless week in the life of an intelligent, public-spirited and philosophical architect and his staff.

No important facts are left out of the middle chapters on school, practice and what happens between. Each process of design—program, structure, documents, supervision; each step in becoming an architect—motivation, aptitude, schools and courses, licensing and practice are well covered. It is an excellent introduction to what an architect does—the rest will be learned on visits to schools and conversations with architects in practice.

Professor McLaughlin, director of Princeton University School of Architecture, appropriately emphasizes the architect as an intellectual, scientist and artist, though he carefully reviews all necessary business skills saying "business is a means and not the end of architecture."

He introduces issues the AIA is now concerned with—package-dealers and expanded services. He also points out the architect's dependence on engineer, builder, landscape architect and other specialists, and manages to find an excellent balance point between modesty and responsible pride.

He favors four years of liberal arts followed by graduate school in architecture—education and

more of it can improve design, where licensing and registration laws, negative forces, cannot make a mediocre architect good or raise design standards. Research in architecture is a necessity; areas most needing study are history, environment, sociology of architecture, building industry, technique, esthetics and psychology—the list nearly covers the whole field of architecture and should be an adequate challenge to anyone who wants to change the world.

Here is a strong argument for organized research—individual research in specific problems becomes expensive as soon as it begins to go deep enough. It lacks opportunities to call in other experts, coordinate with organizations doing research in similar problems, and to use resources of large libraries and manpower that would be available, for instance, in a university.

Nearly last comes the part most would look for first—five influential hero architects (not-often worshipped)—Sullivan, McKim, Skidmore, Saarinen and Louis Kahn. He explains the meaning and effects of their designs; these are artists who have influenced styles and will further inspire ambition. They are true architects perhaps because they combine function and beauty; because they feel with Kahn that "A great building must begin with the unmeasurable, go through measurable means when it is being designed, and in the end must be unmeasurable." P.H.P.

On Designing. Anni Albers. Middletown, Conn: Wesleyan University Press (2nd edition, enlarged) 1962 82 pp illus 8" x 8¼" \$5.50

A choice collection of very brief papers on the art and craft of weaving. Coming to America in the mid-thirties from the Bauhaus, Anni Albers has made her place as craftsman, teacher, philosopher. Her artistic sensibility and integrity accepts today's machines but sees their potential in the perspective of a thorough knowledge of the hand and history.

These dozen short essays and

talks are not simple in language. One feels a rather heavy Teutonic texture of thought seeking expression. Professing to discount the intellectual in favor of what might be called non-verbal expression through material, structure and pattern, the word takes a wry vengeance in these several bits of deep-thinking. The light, however, does shine through the web. We find a fine perception of the essential qualities of materials, and of the true values of the individual—not in striving to express himself but to express these same essential characteristics of material and structure in the search not for fashion but for style.

Several passages, illuminated by the ancient history of her craft, refer to the mastery of ancient Peruvian weavers. While examples of their work are well-known in our collections, they have been appreciated generally for superficial qualities. Anni Albers contrasts in some detail today's poverty of weaving structure, particularly that of the machine, compared with the ingenious variety of pre-Hispanic Peruvian techniques. They even devised methods of weaving fabrics more than fourteen feet wide which she explores in a fine piece of archaeological detective work—clearly stated in an eventual victory over the cussed word. E.P.

Protecting your Home Against Termites. Oscar Saxam. Book-service Publications, Box 1028, GPO, New York, 1961. paper. \$2.00

Reviewed for the *AIA Journal* by Joseph W. Wells, AIA (author of "Termites," *AIA Journal*, Dec '61, p 74-84)

This book contains much valuable information on construction of buildings to prevent termites' entry into and damage to wood structure.

We would question a few minor items, however:

- twice the author refers to a "fool-proof" termite job—this exceeds one's greatest expectations.

- use of metal barriers is not given quite as much credit as it is due as an effective deterrent.

- use of the non-technical word "cement" for "concrete" between pages 13 and 44 is unfortunate.

These however are minor complaints—we feel the book is valuable and worth study.

Editor's Page

Running Scared

I attended the annual convention of a state association of architects last week—in fact, this is the third consecutive year the group has invited me, and I appreciate it very much. It's now been six years since I left my practice, and sometimes I feel that I'm losing touch with the realities of down-to-earth problems. This was just such a down-to-earth group. It was good for me—and I had a good time besides. I am keeping the identity of the group, and the names of the panelists, under my hat for reasons which may appear obvious later. I am sure my friends will recognize themselves, however, and will feel that I'm being just too, too cautious.

The subject under discussion for three days was "The Functions of the Architect," and it was pretty thoroughly explored, from site selection to draperies. The moderator was a well-known and highly successful practitioner, exuding wit and confidence, to whom all things seemed easy. The panelists were equally successful architects, ranging in their attitudes from extreme self-assurance to a ready acknowledgment of plenty of errors and omissions. This made for an interesting setup.

The discussion was entered into by all sorts of architects, from big fellows to little fellows. This helped too. But I came away with the feeling that a good many practitioners today are "running scared." Scared of the bigness and complications of some of the tasks they face, scared of the increasing complexity of modern practice, scared by the ever-mounting number of liability suits against architects, scared of the implications of the "expanded services" being preached by the Institute.

Some admitted they occasionally relaxed enough in their diligence to actually rely upon the protection of their errors and omissions insurance. This was rather shocking. Others stated they made their drawings and specifications as complete and as conscientiously as humanly possible—but kept their payments up on their insurance just the same. One architect, with a large practice on important buildings, stated that he didn't carry errors and omission insurance—in fact, he didn't believe in it. He said he relied solely upon his own personal care and integrity and that of those who worked with him. Well, we can say, that's mighty fine, very idealistic—but maybe he's pushing his luck. I hope it continues to work!

There was some criticism of the Institute's expanded services program, based principally on ignorance and misunderstanding. There was a

feeling that "There's nothing new there. We've been doing that all the time." Or, "An architect can't spread himself so thin; one man can't possibly become expert in so many fields. I believe in the *individual* and in the individual practice of architecture."

In defense of the Institute's program it was pointed out that even though there may be nothing *new* in the inclusion of so many allied services within the scope of the architect's work, very few architects have ever performed *all* these services on any one job, even though many may have performed some of them on some jobs. Furthermore, many architects are *not* equipped to perform these services and it's time they were. The Institute's program is designed to inform and re-educate those who need it—and there are many.

And so it went—not at all boring, on the contrary, always highly interesting to hear so many points of view, misguided though many of them were. There's nothing like a bull-session to clear the air.

A well-organized, well-financed, closely-knit state or regional group like this is a vital part of the Institute. The Committee on Structure has recommended that such regional organizations be encouraged and strengthened. It has even been suggested in several places that the regional conventions may some day take the place of the super-duper national convention, which is growing to a size where it becomes increasingly difficult to conduct and discuss vital Institute business.

State or regional associations are composed of members of a more or less homogeneous area. Their problems are the same and they seek the same solutions, furthermore, the members are, or can become, closely acquainted with one another, which makes for harmony, interest and conviviality. But by the same token, there may be a tendency sometimes to become too self-sufficient, too inward-looking, losing the national outlook. For this reason, there will always be a need for a powerful national organization which can speak for the entire profession—especially in these days when the Federal government is one of the biggest clients of the profession, and when the government shows signs of taking an increased interest in architecture and the arts.

A strong American Institute of Architects, working through its chapters and its state and regional units, can be of the greatest possible assistance to the members who today are running scared, alarmed by the responsibilities which face them.



The Architect's Guide to Surgical Infection

by Robert Hyde Jacobs, Jr, AIA

When the US Public Health Service awarded hospital research funds to the New York Chapter of The American Institute of Architects in June, 1960, it was the first time such an award had been made to an AIA local chapter. This was in recognition that hospital architects could contribute more toward solving the complex problems which our hospitals face, if given the opportunity of understanding more deeply our hospitals' needs and problems.

The New York Chapter's Office of Hospital Research, of which Robert Hyde Jacobs, Jr, is director, is the result of this research award. The program is entitled "Basic Studies for Planning of the Operational Suite" and is under the sponsorship of the Chapter's Hospital and Health Committee, made up of a number of prominent hospital architects in the New York area. The project is assisted by an advisory board composed of persons distinguished for their work in preventive medicine, surgical bacteriology, epidemiology, surgery, anesthesiology, nursing, hospital administration, housekeeping and maintenance, and hospital planning. Mr Jacobs has here attempted to give us a balanced view of the highly controversial subject of wound infection.

Two articles by Mr Jacobs will follow on design and location of locker rooms for surgical suite, and a proposal for a surgical center. His opinions are, of course, his own and not necessarily those of his sponsors or advisors.

► No single factor has had greater influence upon the design and operation of the surgical suite than the problem of wound infection. Infection is the enemy of surgery. Severe pain, long periods of convalescence, the failure of the surgical repair, and even death can result and no

effort, however costly or troublesome, would seem to be too great to prevent infection. The surgical suite today, in all its complexity of layout, in its accumulation of special equipment, and in the elaborate routines carried out by its personnel is, in a sense, a living history of efforts through many generations to master wound infection. This history suffered a brief interruption with the introduction of antibiotics. These drugs so effectively prevented the development of infection that for a time it seemed a specific solution had been found that would make all the complex and onerous aseptic techniques unnecessary. As we all know, this happy time was short-lived; soon there appeared strains of staphylococcus resistant to the effects of the antibiotics. Severe infections began to appear with alarming frequency and the old war was resumed.

In this war, it is clear that the architect must play some part; our designs may materially assist the OR personnel in carrying out procedures for the prevention of infection, or may make those procedures difficult or even impossible. But to give effective aid, the architect must have some independent understanding of the problem of wound infection. This article is concerned with the problem as a whole, to the purpose that the architect may be better able to judge the relevancy of the various factors; be alerted to possible future approaches—including those that are still "far out"; be armed with a reasonable skepticism against plausible but dubious answers; and in short, be enabled to put his part of the task in context. Subsequent articles will deal with application of principles of infection control to the surgical suite, based on this groundwork.

If we look for some clear and authoritative voice to explain to us

just how infection occurs and how it can be prevented, we are bound to be disappointed. Instead, we find a multiplicity of authorities voicing quite different approaches to the problem, often with contradictory recommendations. To this must be added the wealth of new products and devices being advocated and adopted, the sometimes spectacular claims of manufacturers, the often-conflicting statements of surgeons, bacteriologists, nurses, engineers and epidemiologists—the whole conspiring to create confusion through which the conscientious architect can hardly find his way.

Yet, in exploring this area, a few broad outlines have emerged which help to clarify the problem.

Medical Approach

First of all, two approaches can be clearly seen: the medical and the environmental. Medicine is concentrating in three areas:

- development of chemotherapeutic agents for treatment of resistant infections
- development of vaccination or serum therapy to confer immunity
- development of methods to reduce receptivity of the host to pathogens.

The first of these are as has already produced results. Many hospitals have instituted a policy of restraint in the prophylactic use of antibiotics while keeping in reserve some of the newer chemotherapeutic agents for use only when resistant strains appear. These methods have been at least partially successful, yet at present they offer hope

Technical

only of treatment—not prevention. The second or third medical approach may offer hope of an ultimate solution that some day will make strict environmental control unnecessary. At present a breakthrough in these directions would seem to be remote enough to be of no immediate concern to us as architects.

But in the meantime, the medical approach to infection continues to assert a profound influence simply by its insistence that strictly medical factors are of first importance. There is much to support this attitude; the type of surgical procedure,

the affected area of the body, the introduction of sutures and other foreign materials, and the technique of the surgeon all seem to have an influence on infection.¹ Surgery cannot be performed without destroying tissue. Some procedures kill large quantities of cells which, remaining in the wound, form a focus for infection. If the patient is carrying infection, whether systemic or localized, if infective agents are lodged on his skin or within his body, self-infection becomes a strong possibility. Dr Peter Dineen² showed in a ten-year study at New York Hospital that approximately forty-eight per cent of their post-operative infections in their general surgical services and urology were of enteric origin. That is, they were caused by micro-organisms that commonly reside within the digestive system. Self-infection is clearly indicated.

Perhaps of greatest importance in the medical approach is the patient's natural resistance or receptivity to infection. Wide individual variations seem to exist. Some patients fail to become infected even when their wound is known to have become grossly contaminated; other patients acquire severe infections even under nearly aseptic conditions. Medical research is being done in this area³ but until more is known about the factors influencing host receptivity, and means are found to develop resistance, a rather fatalistic attitude is likely to persist, to the effect that if the patient is a receptive type he will become infected despite all efforts.

Neither architectural design nor mechanical equipment, nor even OR management, can hope to influence these particular factors in wound infection. Awareness of their prime significance inevitably tends to downgrade the importance of the environment in the minds of some medical people, and the architect should expect to find on occasion a genuine lack of interest and even open opposition to proposals for new and stricter environmental controls.

Environment Approach

Despite these limitations, no one is actually prepared to abandon the environmental approach. On the contrary, faced with at least the temporary inability of medicine to deal adequately with the problem, enormous emphasis is placed today upon attempts at environmental solutions. There is no question but

that infection does occur from environmental factors—from micro-organisms originating outside the patient which find their way into the patient's surgical wound. If the routes traversed by micro-organisms from their sources to the wound are understood, means can be found to block their passage and infection from them prevented. Two possible routes exist: contact and airborne.

The Contact Route

This is the route that all traditional OR techniques have been designed to block. In every case contact involves the introduction of pathogens into the wound by some object which touches the wound. This could be an instrument, a surgeon's glove, or even a pathogen-laden drop of moisture dropped from the surgeon's nose or mouth. Differences of opinion exist as to the relative importance of inadequate sterilization, faulty gloves, breaks in technique, as causes of infection, but there is general agreement that the contact route is of the utmost importance and that even the traditional techniques of control can be highly effective.

We are impressed with the unreliability of many well-established techniques. Steam sterilizers, for instance, must be carefully maintained, properly loaded and operated, and frequently tested if they are to perform reliably.^{4, 5} Dr William C. Beck has shown that fifty per cent of all new gloves delivered by manufacturers to hospitals contain holes large enough to pass pathogens from the hand into the wound.⁶ While the importance of these holes in terms of actual wound infection probably cannot be measured, this may be a significant discovery and Dr Beck's glove-testing device may become an important addition to the operating room.

Dr Carl Walter asserts^{7, 8} that a properly-designed, equipped and maintained surgical suite can eliminate the great bulk of clean wound infections if it is operated with rigorous and intelligent attention to traditional aseptic techniques. Hospitals throughout the country have been tightening these techniques, apparently with good effect. But we have been impressed by the many remarks of operating room nurses whom we have interviewed concerning the fact that they frequently observe breaks in technique. There seems to be a limit to the effectiveness of discipline even in the oper-

ating room. The architect can play some part by designing the suite so that these techniques can be more successfully carried out. Means are needed, such as work simplification, that will reduce the importance of human error.

The Airborne Route

The field of environmental infection control is today all but dominated by concern over the possibility of infection reaching the patient through the air. This presumption is so plausible that a great deal of research is being done on this basis and surgical suite design and operation have already been affected by it. It has, however, been very difficult to prove that infection does in fact occur in this way.

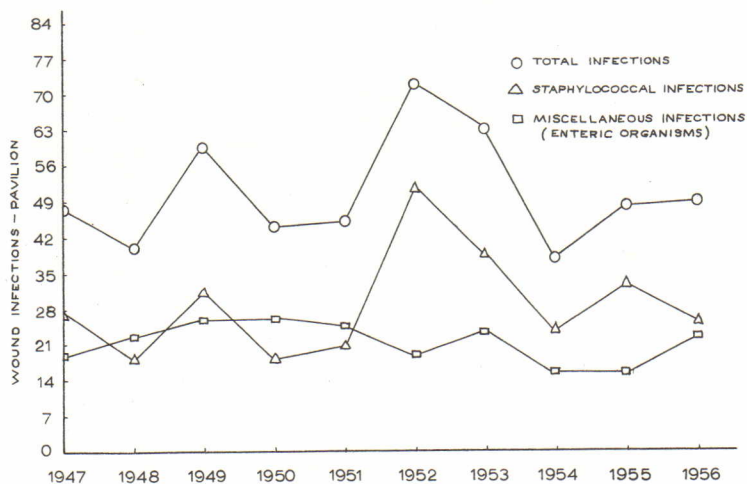
Tests have shown that everyone does shed micro-organisms through his nose and mouth and other portions of his body. These micro-organisms, in the form of scurf (superficial epithelium) or dried droplets, or in association with dust, float freely in the air but in time settle out, principally on the floor and other horizontal surfaces. During the course of an operation they may, of course, fall into the open wound. If the patient or someone else in the room is an active carrier of some pathogen, it seems reasonable to assume that some of this virulent material will fall into the wound and be the cause of an infection.

One circumstance that casts doubt on the whole presumption of airborne infection is the rarity with which carriers in the surgical suite infect patients. A carrier releases pathogens into the air, so it may be presumed that these will reach the patient by that route. Dr Peter Dineen at New York Hospital, and Dr C. K. Himmelsbach and others at the National Institutes of Health Clinical Center, are conducting programs whose objective is to search out and thoroughly document specific instances of post-operative infection. This work is done largely through the taking of nasal cultures from the patients and all personnel attending the operation. If an infection subsequently develops, the infection is cultured and the pathogen responsible is identified. This pathogen is then compared with the cultures taken in the OR at the time of the operation. While specific instances of post-operative infection caused by a known carrier have been recorded in the literature,^{9, 10, 11} these pro-

grams have experienced a singular lack of success in finding the expected correlation between the carriers and the subsequent infections. This experience would seem to indicate that infection through pathogens in the air either does not occur or is not a common event. It may be that contact is the important route, and when surprisingly rare infections from carriers do occur, it is through contact (including droplets).

Perhaps the closest anyone has come to proving that infections can come through the air is Dr Ruth B. Kundsinn, who found one carrier who worked in the operating rooms at Peter Bent Brigham Hospital but who did not come into contact with the patient, the surgical team, or the surgical materials or equipment. While many patients were exposed to this carrier without effect, two patients did acquire infections. While we cannot rule out the possibility that a surgeon might have picked up this pathogen in the locker room or elsewhere and passed it on to the patient by contact, there is a strong inference that the pathogen passed from the carrier *directly through the air to the patient*, causing the infection.¹²

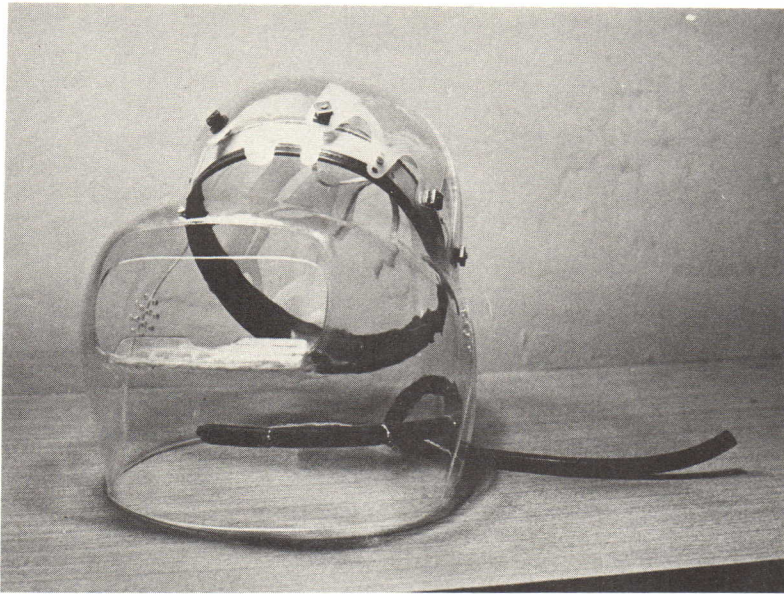
If we do accept this *direct airborne route* as a possible hazard, solutions to the problem would seem to lie in finding means of quickly detecting carriers before they enter the operating room. Present bacteriological methods may be of value in keeping tabs on the fluctuating carrier states of an OR staff and have been used when an epidemic of infections breaks out, but these methods are too expensive and too slow for routine use. In the meantime, means can be devised for more effectively decontaminating patients and staff. Scurf can, of course, be retained by more effective costuming and some efforts in this direction have been made. More attention has been given to the development of better masks to prevent pathogenic exhalations from reaching the wound. The surgical gauze mask has been shown to be highly inefficient and when loaded with moisture may indeed add to the hazard of infection.^{13, 14} Attempts have been made to develop masks of greater efficiency but problems of fit, cost, respiratory inhibition, and comfort have been difficult to solve. Dr Ralph Adams pioneered in this development with a mask containing an absolute filter.¹⁵ More recently, disposable-filter masks have been de-



Ten-year incidence of wound infections in ward patients from 1947 through 1956. By permission *Surgery, Gynecology, Obstetrics*



Glove testing device, developed by Dr William C. Beck: the smallest hole in a rubber glove will permit passage of electricity from the water to the surgeon, and a warning is given by the dial on basin stand



Plastic surgical mask, developed by Dr Edward O. Goodrich

veloped and appear to be receiving general acceptance.

The idea of a power-assisted mask that would draw off the expired air seems obvious enough but, surprisingly, little work has been done on it. One exception is the work of Dr Edward O. Goodrich, Jr in New Mexico¹⁶ in developing a practical vacuum mask. While requiring a connection to the vacuum system, this mask has many advantages in both comfort and effectiveness and we are following its development with great interest.

It is interesting to note that the suggested means for blocking infection by the *direct airborne route* offer little problems to the architect.

Background Contamination

The emphasis on infection by air, however, goes far beyond the concept of direct airborne infection. Today the general atmospheric environment is indicted as a cause of infections. We might define *background contamination* as the airborne micro-organisms that may be found in a room even when it is currently uninhabited by people. The source of contamination may enter the space through doors or windows or the ventilating system, or it may be the residue floating in the air, left in the space by prior occupants, or kicked up from the floor or other surfaces. Such micro-organisms are ubiquitous and no room is found without them. To eliminate them entirely would require room sterilization. Even to reduce their numbers appreciably may require elaborate efforts in practice and design. Yet without any very

clear evidence that background contamination is responsible for infection, this potential danger is already influencing the design of new surgical suites. The design of filtered ventilating systems of high volume as a tool in the maintenance of asepsis is being accepted everywhere; a recent survey of surgical suite plans collected by our office shows that more than a third make some special effort to limit background contamination through architectural layout, ranging from a mere tightening of traditional zoning concepts to the complete separation of circulation systems and the segregation of areas by the use of locks or interchange rooms. The difficulties of carrying through with this approach in any comprehensive way make us yearn for conclusive proof that background contaminants do produce infections and that what we are doing makes demonstrable sense. When questioned on this, the response of a research bacteriologist was a rather resentful remark to the effect that anyone who uses his "common sense" can see it "stands to reason" that if you reduce the number of pathogens in the OR your will reduce the number of infections, and this is a common assumption. This point of view is reasonable and may well be true, but two things have shaken our confidence: Triethylene glycol and ultra-violet ray.

Triethylene Glycol

Triethylene glycol, when vaporized in the air, seemed at one time to be the perfect atmospheric disinfectant. It was heralded as a

wonder and this was no mere *Readers' Digest* promotion. Careful research studies proved its nontoxicity, proved its effectiveness against a great range of micro-organisms (including staphylococcus and the viruses), and proved it effective, in actual room conditions, in drastically reducing the airborne bacteria count.^{18, 19, 20} Installations were made in hospitals, Army and Navy barracks, factories, pharmaceutical firms, theatres, offices, private homes, etc. And then, careful clinical studies showed the process to be totally *ineffective*.^{21, 22, 23} We do not know how this could be but it seems clear that if, in fact, pathogens were being killed by triethylene glycol, they were not the pathogens responsible for causing respiratory infections. We began to see that our early distrust of presumptive evidence could be quite justified.

Ultra-Violet Ray

The effectiveness of UV in killing a wide range of micro-organisms has been clearly established. Initial attempts to use it in the operating room seemed to show its remarkable effectiveness in reducing infections.²⁴ As early experiments in many fields so often appear to be successful and later turn out to be disappointing, a large and well-designed clinical research program was set up by the US Public Health Service to verify these early findings.²⁵ The results of this program have not yet been published, nor would we care to prejudice these results prematurely. But word has reached us informally that the initial stage of this program has not shown the UV to have been effective. If this proves to be the case, doubtless many explanations can be offered for its failure; but one question I believe cannot be avoided: Are the pathogens killed by UV the pathogens which in the normal course of events, would be responsible for causing wound infection?

Proof

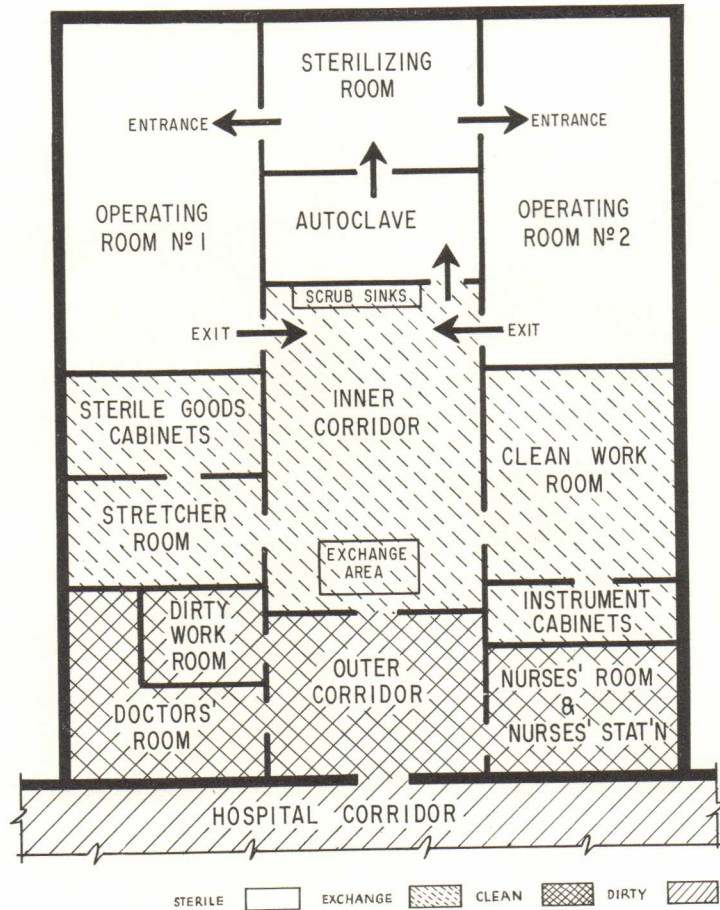
How can it be that some of the infection control measures that have been given considerable medical support, been installed in hospitals and promoted by manufacturers, are not based upon proof of their effectiveness in preventing infections in practice?

Usually we found that a good deal of scientific testing had been done (often, apparently, of a very careful nature) that adequately

proved the *laboratory* effectiveness of the device as a bactericide (in the case of an antiseptic) or as a barrier (in the case of a filter) but that clinical studies had not been made to show its effectiveness in actually preventing infections. There is, of course, a large volume of clinical information already available and currently being developed. Unfortunately, much of this proves, upon close investigation, to be unreliable and the architects (and some of the hospitals, too) need to be warned to view skeptically some of the more spectacular reports that appear in the press.^{26, 27} As most hospitals today record their post-operative infection rates, any drop in the rate subsequent to the adoption of a new infection control device can easily be heralded as proof of its effectiveness. This kind of proof is, however, seldom conclusive because there are many variables that, unless rigidly controlled, might invalidate the conclusions. Among these are: the methods of recording infections; the classification of the wounds; the length of the operations; the composition and carrier status of the OR personnel; the patient-characteristics, both in surgery and in the medical wards; and any concurrent change in OR methods, procedures or equipment. Added to this is the difficulty in obtaining records of sufficient numbers of cases to produce statistically meaningful results. This is difficult because, severe as the problem may be, we are actually only concerned with a maximum range of about ten per cent. Even in carefully designed clinical research programs such as the excellent ultra-violet ray programs,²⁵ great difficulties are encountered in their actual conduct. In just one day's observation in one of the hospitals cooperating on ultra-violet ray research, we noted five small imperfections that could conceivably upset the validity of the results:

- wearing of street clothes during collection of Petri dishes
- frequent failure to distribute culture media in OR
- failure of OR personnel to wear protective clothing when they knew UV was not on
- failure to culture personnel on any regular basis
- failure to note "breaks in technique" when they were observed

In fact, the difficulties are so



Operating suite at Huggins Hospital. Redrawn with permission from *Hospitals*, JAHA, 16 sep 60: Stanley K. Read, "How One Hospital is Winning Its Battle Against Infections"

great that after a long discussion in this office, one USPHS grantee currently conducting experimental work in post-operative infection candidly wrote us:

"I do not feel that our studies on epidemiology will pinpoint the source of specific infection. I wish we had a methodology to do this . . . If we could limit some of the so-many variables in each study we would have more clearcut results. Clinical approaches are rather fruitless. The factor of host-resistance is still the most potent force in beclouding all of our studies. We must deal in impressions; which leaves the profession unimpressed, and we are spending much money on the basis of these impressions without any real proof."

Potential Dangers

An interesting sidelight on current research is the lack of interest in investigating the potential dangers of new proposals. On close questioning we found that behind a public optimism many investigators were harboring private fears that the potential dangers might

prove to be the real dangers.

Thus, we found an engineer who feared that the filtering device he was working on might occasionally malfunction and serve as a collecting and concentrating device rather than a barrier. We found a surgeon who feared that his extensive environmental use of antiseptics might, by altering the "microbiological ecology," create an environmental situation conducive to the development of highly resistant micro-organisms (such as spore forms) not now a serious problem in wound infections. We found a bacteriologist working with UV whose private nightmare was the possible mutation effects of UV and x-ray on micro-organisms.²⁸

These dangers may not be a reality, may be of little significance, or may be prevented. There is, however, a need to track down these questions which is not being met. In this connection it is interesting to note that the ban on the use of *Beta Propiolactone*²⁹ because of its possible carcinogenic effect did not originate from investigators who were using the material for space sterilization.



Trexler-Levenson plastic isolation chamber in use at Walter Reed Germfree Laboratory, in a simulated operating room scene. The original surgical tent of this type was developed by Notre Dame University. This design incorporates certain refinements on the original but as yet has been used primarily in animal research

Fundamental Questions

It is apparent that some very fundamental questions need to be answered before any true progress can be made in the control of infections.³⁰ The fact is that we do not understand the relative importance of many of the mechanisms relating to infection and until these factors are understood, methods to control infection are bound to be merely shots in the dark.

Establishment of the classic situation of science leading technology and technology sustaining science is clearly needed. Once scientific work has pinpointed the mechanisms of contagion, medical, engineering, procedural as well as architectural methods can be devised and refined for solving the infection problem. Without this proof, we must continue with a shotgun approach, loading up the surgical suite with every device extant, in the dreary hope that something we do will be valuable in cutting down infection rates.

Fortunately, much work of a fundamental nature is underway. To name but a few, we are impressed with the work of Professor T. W. Kethley, Head of the Bio-engineering Branch of the Engi-

neering Experimental Station of the Georgia Institute of Technology, whose experimental work in a simulated operating room on the behavior of minute airborne particles, may be of the greatest importance in shedding light on the mechanics of airborne contagion.³¹

We are also very much impressed by the careful evaluation of air treatment methods and the general development of atmospheric technologies being done by Lawrence Hall, Chief of the Biophysics section of the Communicable Disease Center and his staff in Savannah, Georgia.^{32a, 32b} Some of their current experiments in personnel shedding and in the evaluation of air-contaminated sutures implanted in live tissue may prove to be of the greatest importance.

The work of Dr C. H. Rammelkamp, published over a ten-year period, while dealing largely with streptococcal infections, is particularly illuminating and goes a long way in explaining some of the questions of air sanitation.³³ We are also impressed with the fundamental nature of the work of Dr Leighton E. Cluff³⁴ (whose epidemiological and medical studies seem to confirm Dr Rammelkamp's findings), as well as the extensive work being done

in unraveling the mysteries of carrier states by O'Grady, Williams, Shooter, and others.³⁵

Controlled Research

It has seemed clear to us for some time that some link needs to be found that will bridge the gap between the limitations of laboratory experiments and the uncertainties of clinical research. The key to such a program would be to find a way of simulating the surgical situation while strictly controlling all possible variables. If such a methodology could be developed, a basic theory of wound infection might be established that could be verified under hospital conditions. Strict control of the following areas would be necessary:

- the receptive organism (patient)
- the wound itself
- the treatment given, and
- the pathogenic environment

Techniques would seem to be now sufficiently advanced in a number of disciplines to make control of these factors a possibility. Thus the surgical patient would be replaced by a standardized animal, specially bred and treated for high

infectability, and reared under germ-free conditions to eliminate the variables of endogenous and enteric organisms. The location of the wound, its size, extent, duration and tissue could, of course, be standardized, as well as the treatment and handling of the host animal, its preparation, anesthesia, etc. Equal attention would be paid to strict standardization of the surgical technique. Careful control of all environmental factors can be achieved by use of plastic isolators and other of the now-well-established gnotobiotic techniques. Considerable experience has already been gained in the production and standardization of pathogenic atmospheres. Control of such variables as particle-size, air movement, temperature, humidity, ionization, dust-density, as well as the source, condition, age and viability of pathogenic and non-pathogenic microorganisms, is within the realm of possibility today.

While this proposal is beyond the scope of our project, considerable interest was shown in it at the Communicable Disease Center and at the National Institutes of Health. We are very pleased that a research project, using a methodology of this nature, under the direction of E. L. Fincher of the Georgia Institute of Technology, has been initiated under a grant from the USPHS.

The Gordian Knot

If we may look forward to a medical miracle that will someday prevent all infection, is it not as reasonable to look forward to some kind of environmental miracle—some way of cutting the Gordian Knot in which we find ourselves entangled? The problem is really quite specific and even limited: simply devise a means of protecting the surgical wound itself from direct pathogenic invasion.

To our mind, there are five possible ways of doing this. Dreams perhaps, but if one of these possibilities should prove feasible, the effect on OR procedures and design would be indeed profound.

Antiseptic

What are the chances, for instance, of an antiseptic being developed that could be sprayed directly into the wound during the course of the operation? After reading Dr George F. Reddish on antiseptics³⁶ we discussed these possi-

bilities with Dr E. G. Klarmann, of Lehn and Fink, and Dr Leonard Vinson of Lever Bros. Both agreed that while antiseptics of lower toxicity index were in prospect, no antiseptic would probably ever be developed that would not inhibit the natural healing process.

We are not willing to close the book on this possibility, however. The situation of the cell of a microorganism located on the surface of the wound is not identical with the cells of the organism itself. A new principle of antiseptics may someday be developed that will have the necessary selective properties. Studies in this direction have been reported by a team of physicians at the Franklin Boulevard Community Hospital with a Keratin-gelatin spray.³⁷

Electronics

A second approach might be through the use of electrically-charged particles. This would be based upon the principle used by Statronic Filters, Inc (NY), not of precipitating airborne particles as the electronic filters do, but of charging them so that their tendency to collect on surfaces is reduced. To increase the effectiveness of this method, it might be possible to give the body of the patient a like charge that would actively repel any airborne particle from the wound. As far as we know, no work is being done in this area.

Air Flow

A third possibility, and one that has received considerable attention, is the concept of bathing the wound in a flow of sterile air that, by its very presence, would exclude contaminated air. The best known of these proposals envisions a uniform movement of air from ceiling to floor that would eliminate the horizontal movement of contaminants.^{38, 39, 40} While rapid dilution of contaminated air is possible by using very high air changes, any hope of complete exclusion is discouraged by the recent findings of Professor Kethley which show the powerful diffusability of suspended particles. Some means may still be devised to control this factor. We are particularly intrigued by the proposals of Mr Peter Krantz.⁴¹

Plastic Isolator

A fourth possibility is a form of "packaging," now used to control the critical point in the raising of

sterile laboratory animals: the need for sterile birth. This is accomplished in a special device where the animal is placed under a sheet of plastic. A Caesarean section is performed within a sterilized chamber by cutting through the plastic membrane. The infant animal is removed into the sterile space without contact with any surface of the mother's body.⁴² The application of such a device to human surgery would seem almost impossible, but through some really brilliant topological changes and other ingenious adaptations, Professor P. C. Trexler and Dr Stanley Levenson have developed a plastic isolator based upon these principles, which does indeed seem to be suitable for operation on humans.⁴³

The Trexler-Levenson device, developed at the Germfree Laboratory at Walter Reed Medical Center, is being further perfected at Curtiss-Wright in a project under the direction of C. Herbert Wheeler, Jr, AIA. A similar device has been under experimental use at the University of Arkansas.⁴⁴ While current development objectives are for only a limited range of surgical procedures, if these prove successful further developments can be expected. Of all "pipe-dreams" this seems the nearest to realization. Its effect on the design of surgical suites would, of course, be enormous.

Sterile Room

Finally, we are also much interested in Professor P. C. Trexler's proposal for a sterile laboratory, a fifth possibility.⁴² Professor Trexler explodes as myth the widely-held assumption that no space occupied by human beings can ever be maintained as a thoroughly aseptic space. Although the technical problems may be even more difficult than those of the plastic isolator, a sterile operating room would seem to be a distinct possibility and would eliminate some of the restrictive properties of the plastic isolator.

The Present

So much for the future. What of the present? Hospitals must be built and operated today and some reasonable approach must be adopted. As architects, we will of course be guided by the attitude of our hospitals and their staffs. If the attitude is negative, if they say in effect, "No information has ever been presented which proves

that a single infection has been caused by normal background contaminants and before we will accept the expense, the inconvenience, the interference with the work of the surgeon, necessitated by stringent environmental asepsis, we would demand proof," then there is little the architect can do but concentrate on improving the effectiveness of traditional procedures. But many hospitals today, in order to face their immediate responsibility to their patients, are willing and eager to go ahead with almost any method that holds out a possibility of control. They say, in effect: "Extensive tests conclusively prove that staphylococcal and other pathogenic agents exist in the atmosphere, on the walls, the floors, the clothing, the furniture of all operating rooms, that these agents have been proved to be alive and capable of reproduction and that as long as they exist we are going to advocate any method which will reduce their numbers." This may well be a philosophic attitude rather than a scientific method but when intelligently applied it does command our respect.

Comprehensive Programs

Perhaps the most thorough-going program of infection-control remains the program developed by Dr Ralph Adams in the little Huggins Hospital in Wolfeboro, New Hampshire.⁴⁵ Devices used here include special masking, gowning, booting, plastic draping, extensive and continuous antiseptic washing, air-pressure control, air filtration, UV, zone control with interchange

area, personnel education and training on all levels and a continuous program of bacteriological testing of patient, personnel and environment. We have nothing but admiration for the thoroughness and ingenuity of this work and readily accept this as perhaps the very best example of the "shotgun" approach. Dr Ralph Adams does not like this simile but rather views his work as the creation of a chain of protective devices each one of which is an essential link in the maintenance of a near aseptic environment.

It cannot be denied that Dr Adams' achievement is based in a large part on the small size of this surgical suite (see plan) which made the adoption of the original plan a relatively simple matter. Other small surgical suites have been developed with a high degree of sophistication (see Nuffield plan). To design larger surgical suites without making them merely multiples of self-contained, paired operating rooms, can become a very complex problem.

Working Principles

The following working principles, I believe, may prove useful. For the time being, we might as well keep in the background our doubts regarding the mechanism of wound infection and concentrate on just keeping contamination down. Space contamination can be divided into two aspects:

- blocking introduction of contamination from outside the suite, and
- destroying or removing contamination released within the suite.

Antiseptic

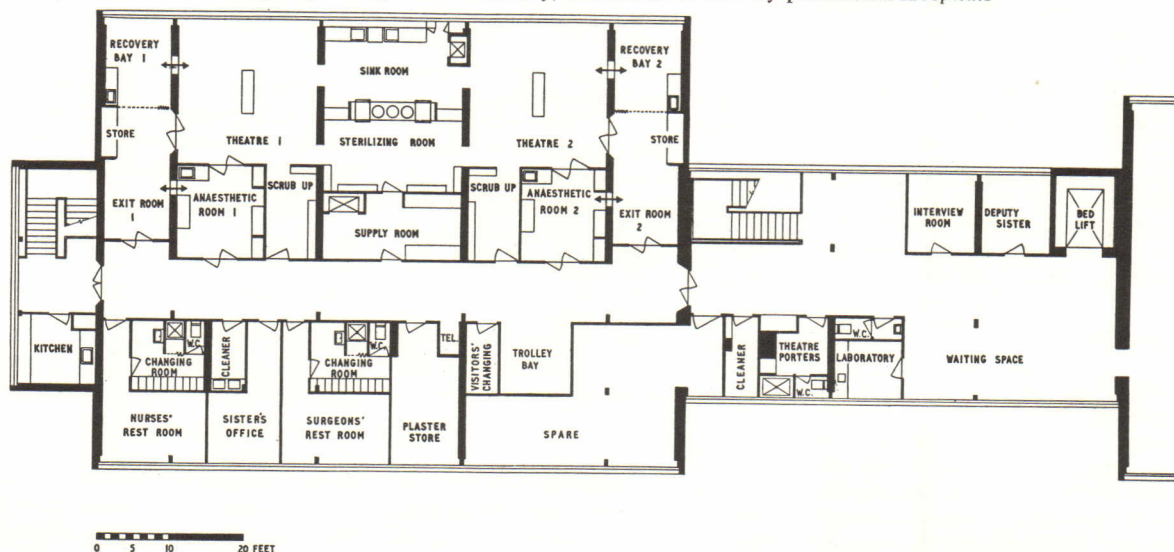
Under the second category could be listed all the washing, disinfection, sterilizing and incinerating techniques. Any means of disposal of waste or treatment of soiled materials should be included.⁴⁶ Rapid removal of contaminated air is of course an important consideration, as is providing for the disinfectant-washing of room surfaces and operating room equipment whose large size and intricate design make its cleaning difficult.

The need for maximum cleanability of room surfaces has resulted in surfaces that are just as hard, smooth and free from cracks, corners, etc, as possible. But these are materials that also easily release the micro-organisms on their surface to other objects, or even to the atmosphere. Thus it may become necessary to revise our thinking in this respect and look for materials whose surfaces offer the *least* transfer of micro-organisms.^{47, 48}

One approach to this might be the use of water-miscible oiled surfaces⁴⁹ or an extension of the draping procedure now confined to the movable equipment in the operating room to the architectural surfaces of walls and floors.

A disposable drop cloth, for instance, located under the operating table, and defining the area forbidden to the circulating nurse, might be of value for its retentive capacity and also serve as a means of quickly removing any gross contamination at the end of an operation.

Velocity distribution through operating room doorway, room not in use. By permission *Hospitals*⁵⁰



Aseptic

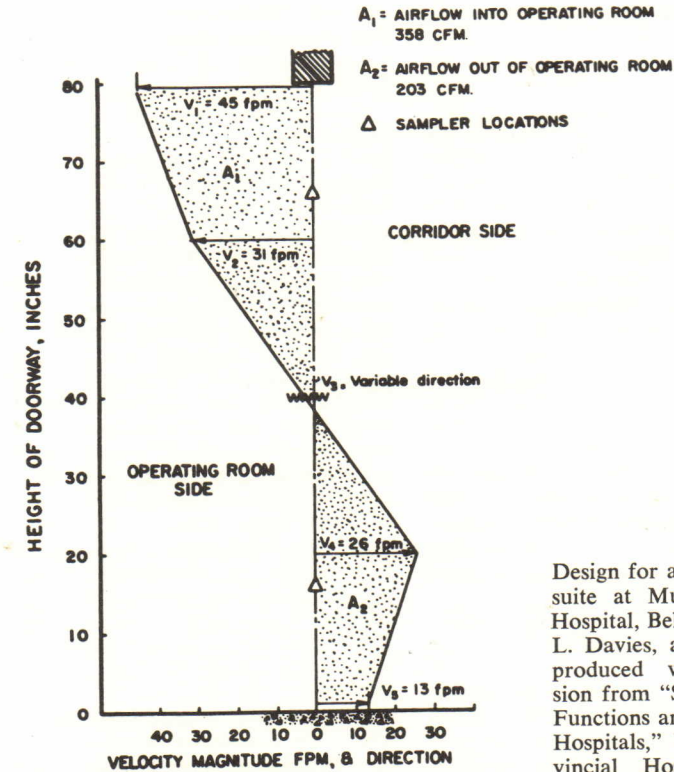
Blocking the introduction of contamination from the outside is a different problem. It involves the introduction of contaminated air, people and things.

Air

It has long been recognized that recirculating contaminated air in the surgical suite is a hazard that must be avoided. The surprising thing is finding that fresh air, even when introduced through properly-located intakes, may also be contaminated. Fortunately, much work has been done in the development and evaluation of air filters and it is now feasible to filter the intake air to almost absolute purity. Blocking air contamination through the doors is much more difficult. Pressurization of the suite with the highest pressure reserved for the operating room itself is undoubtedly a help. But Harold W. Wolf, Marvin M. Harris and Lawrence Hall, in a very interesting study⁵⁰ show that when a door is opened, a surprising flow of contaminated air may enter through the upper portion of the doorway. Provision of vestibules with doors interlocked to prevent simultaneous opening may be the only answer to this perplexing problem.^{32c}

People and Things

All of the host of objects that enter the surgical suite from stretchers, sutures and solutions, to patients, personnel and panties, may be considered "fomites"—that is,



Design for a twin theatre suite at Musgrave Park Hospital, Belfast. Richard L. Davies, architect. Reproduced with permission from "Studies in the Functions and Designs of Hospitals," Nuffield Provincial Hospital Trust, Oxford University Press, 1955

objects that carry pathogens on their surfaces.

First of all, any unnecessary traffic should be excluded. Much can be done, for instance, by providing an interchange space where deliveries can be left so that the person making the delivery need not enter the aseptic area of the suite.

But there is also a need to decontaminate the persons and objects that must enter. Many decontamination processes may be used, ranging

from simply wiping an object with a disinfectant to passing it into the suite through a double-ended sterilizer. The basic function of surgical locker rooms is, of course, *personnel* decontamination.

There is a need to develop much farther these decontamination processes, but this development cannot be done outside the context of the work systems of the hospital. These possibilities will be explored in future articles. ◀

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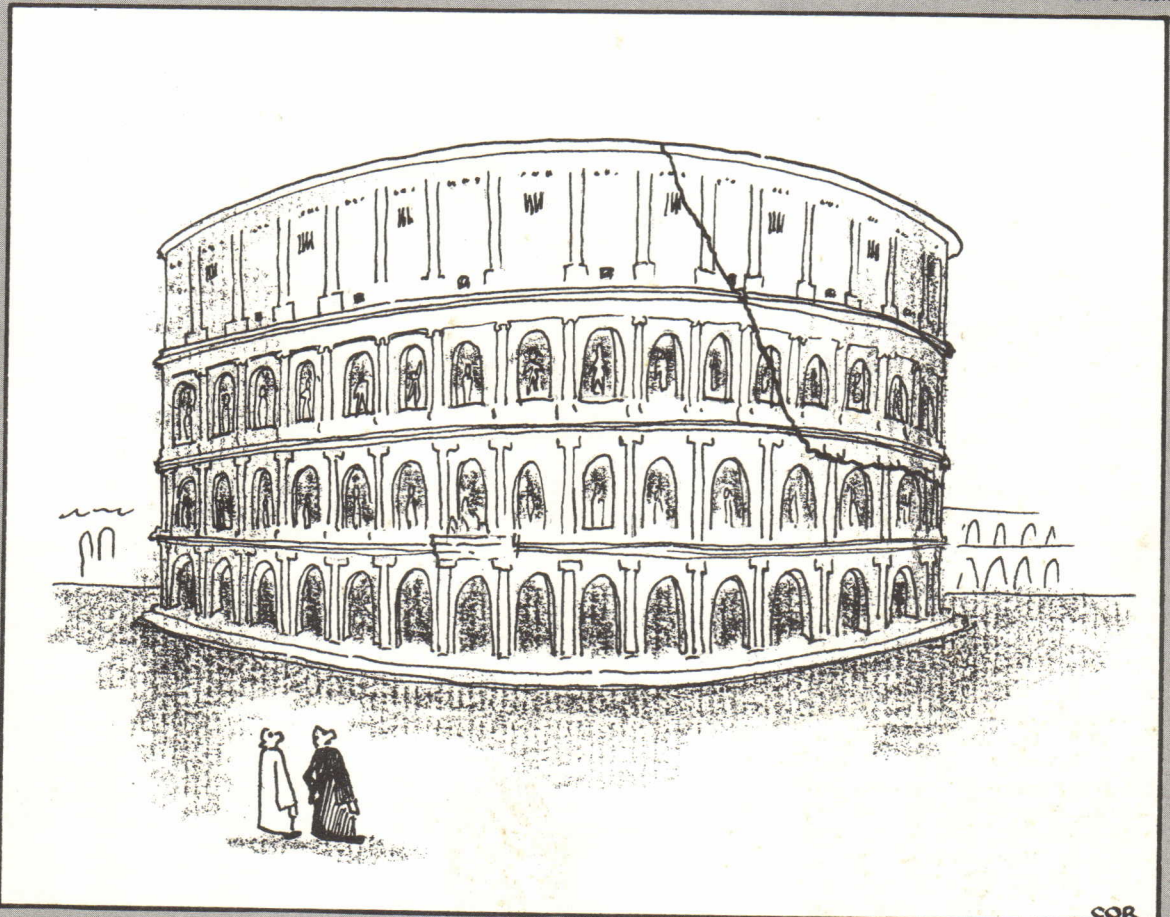
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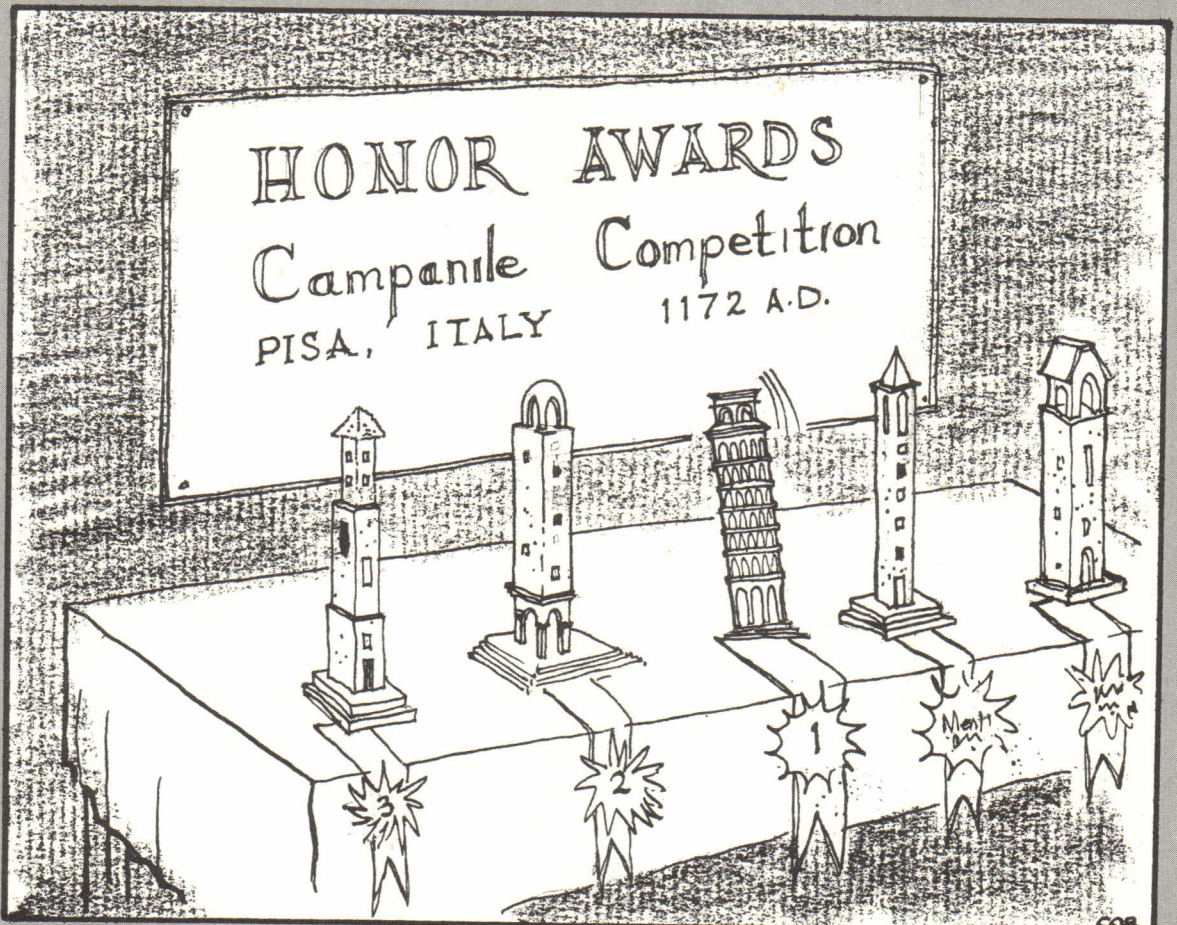
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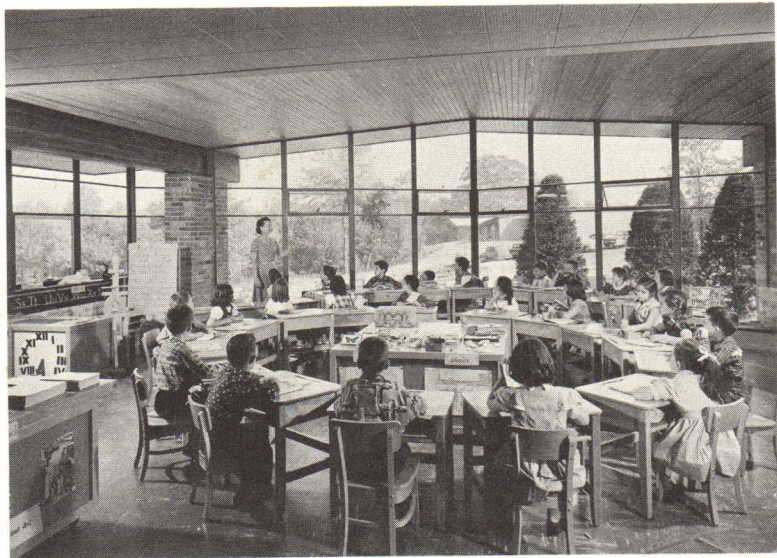
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School Plant Studies

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Educational Specifications For A School Building

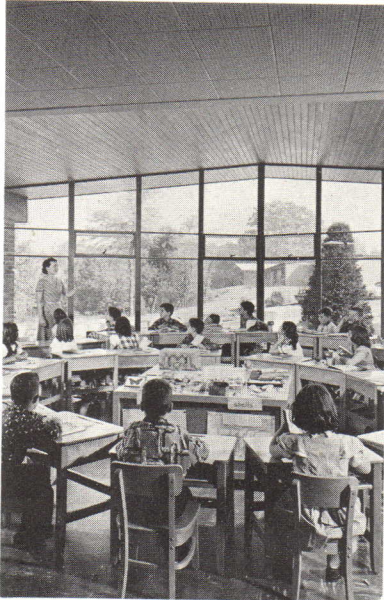


Bill Hedrich, Hedrich-Blessing

by **Frank G. Lopez**, AIA

Vice-President, Educational Research Services, Inc.

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 interested laymen. One copy of each current issue will be sent free of charge—additional copies 10¢ each.



Heathcote School, Scarsdale, NY.
Perkins & Will architects

How to Develop Educational Specifications For a School Building

by Frank G. Lopez, AIA

From a seminar paper delivered at the annual convention of the American Association of School Administrators, February 1962, at Atlantic City, New Jersey

► The function of educational specifications for school plants can be reduced to very simple terms. Their job is to facilitate production of school plants which perform well. Nothing more. But that simple statement encompasses many elements, and it is in fashioning these elements that most of us who have a hand in preparing so vital a document run into difficulties.

Head down—eye on the ball!

The chief difficulty is in maintaining constantly, throughout the document, a clear conception of the educational program which the school plant is to serve. Design of buildings and their construction are fascinating to laymen, so it is not surprising that educators with a little experience in obtaining new schools often find themselves buried in trivia which are properly the province of the architectural draftsman. The educator, a professional of high attainments in his own field, is a layman in respect to architecture and building. Conversely, the architect, a layman in respect to education, is often fascinated by the aims and processes of education, sometimes to the point where his concept of the school plant radically changes the course of the educational process.

There is no evil intent on the part of either; in fact, the reverse is true. It is genuine enthusiasm to produce the best possible educational tool which compels them both. Each has a wealth of experience to apply to the problem, the educator's drawn from years of working in and with the imperfect instruments which most school plants are, and the architect's from years of learning how to bring order, beauty, and practicality to bear profitably upon the dreams and aspirations of education.

The problem, then, is to harness the talents of these experts so they will pull together and not in different directions. It is one of developing mutual understanding, respect, and stimulation to produce the best possible school plant. The two disciplines, education and architecture, must interact profitably. The chief instrument for accomplishing this interaction, for producing teamwork, is what we today call educational specifications.

Each of the two members of this basic team speaks his own language. The architect has his own professional jargon developed out of the techniques of his work, and so does the educator. To a third party each language is scarcely comprehensible and is often misinterpreted. Thus the educational specifications must serve also as a sort of Rosetta Stone, providing a statement of aims and necessities which will have the identical meaning for at least two different types of specialists.

Participants

I have used the phrases "basic team," "third party," and "at least two different specialists" intentionally. For while the ultimate responsibility for producing successful school plants lies squarely upon the educator and the architect, not to be dodged by either, many other experts inevitably get into the act, all of them usually laymen as far as the total school plant is concerned. First there is the school board, which has legal authority to initiate action, delegate responsibility and authority, finance action, approve and disapprove. Next there is the mass of citizens in the community, whose interests in their schools are varied and who have moral/legal powers at least as effective as those of the school board, which ideally represents the public. This amorphous third party, laymen all, must also clearly understand this Rosetta Stone of which I have spoken. The chief cause of difficulties in which school boards, architects, educators and citizens-at-large too often find themselves involved is lack of mutual understanding.

What we are calling here the "educational specifications" constitute what the architect calls a program for design. A program appropriate to a given set of circumstances (and for each school these differ) which is also unmistakably clear and well-explained is not likely to run into public opposition

today. A few years ago this was not always the case; there were then numerous instances of obstructive public action and reaction, which we all remember. Many factors have shared in changing this climate: international politics (remember Sputnik?), internal convictions and political considerations, shifts of our populace not only in growth of numbers and changing residential patterns but also the shift in occupations from unskilled to a preponderance of skilled, managerial and professional occupations which demand better education and educational facilities. Not the least of these factors is improvement in communication between educators and the public, for which many agencies and individuals are responsible.

May I remark parenthetically that some of the most challenging educational requirements and concepts with which our firm has been concerned have come from unexpected areas of the country. Semi-rural towns in the deep South and semi-urban regions in the Middle-West have asked for help in exploring new approaches to education and defining the school plants which these require. In contrast, the attitudes in areas where the values and requirements of education have long been accepted often seem unimaginative. The first are intrinsically stimulating. The others present a different type of challenge, that of uncovering what people really want, because what we say we want and what we actually desire may be worlds apart.

This brings to mind a caution regarding what the program of educational requirements should not contain. A number of such programs are not programs at all; they contain extensive, minute directives as to kind, dimensions and framing of chalkboards, precise dimensions of rooms, exact descriptions of hardware and easily-maintained wainscot materials, windowsill and head heights, and so forth. Such a specification has several built-in dangers. Often, nearly always in such a document, the over-all educational aims and techniques are unstated; they are present only by implication and those who must approve the document as well as those who must follow it must guess at what the total plant is supposed to accomplish. Second, the educator wastes his time in concentrating on matters which the other member of the team—the architect—should be better qualified to decide upon, al-

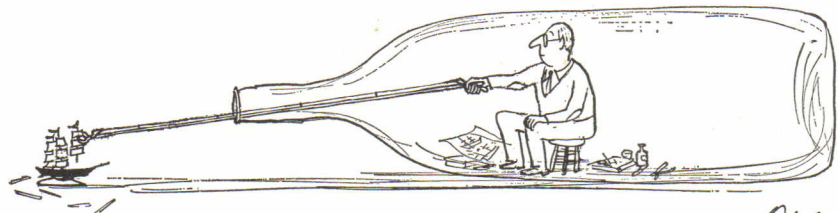
though no good educator has time to waste. Third, such rigid specifications so restrict the architect that he cannot exercise successfully the chief talent for which he has been hired: his ability to create. Fourth, the more detailed such specifications are, the more likely they are to contain impossible contradictions. Fifth, such detailed specifications are more likely than not to produce inflexible buildings, inappropriate for change, although today educational concepts are in continuous flux. We simply do not know, in detail, what tomorrow's school buildings should be like.

To illustrate the absurd length to which such specifications go, may I cite two instances from actual documents which have come to my attention. To quote from one description of a classroom: "The exterior wall shall be largely a window wall from approximately 30"-36" above the floor to within 12"-15" of the ceiling. Careful attention should be given to avoid too much glass and undue glare." Since there are no requirements for sun-control devices (in fact, none are used in the school buildings in this community), the two requirements conflict directly. The windows required cannot help but produce glare.

The other instance requires a room to be exactly 59'-10½" long, a specification which neither the architect nor the builder can satisfy.

erly a part of the school plant and has definite effects upon the educational program. For the remainder of this talk, therefore, I shall refer to the educational requirements for a school plant instead of specifications for a building.

Developing a satisfactory program of educational requirements requires, first, a careful, reasoned thinking through of educational aims, present and future, for the particular community concerned; secondly, decisions as to what known educational techniques will be employed now, and in what directions these are likely to develop in the future. Neither of these is an easy task. Both require extensive educational background and experience. Both are the educator's province. Some architects are qualified to inspire, suggest, and stimulate fresh thinking on such matters, and so are some laymen among the "third-party" members to whom I have alluded. The educator would be foolish to ignore such advice and suggestions; he must have all the help he can get. But he must also take full responsibility for formulating aims and adopting techniques or he fails as a professional man. Often he employs consultants, but this does not relieve him of the responsibility. He must wholeheartedly understand and accept a consultant's recommendations or the recommendations have no validity.



Courtesy of Saturday Review

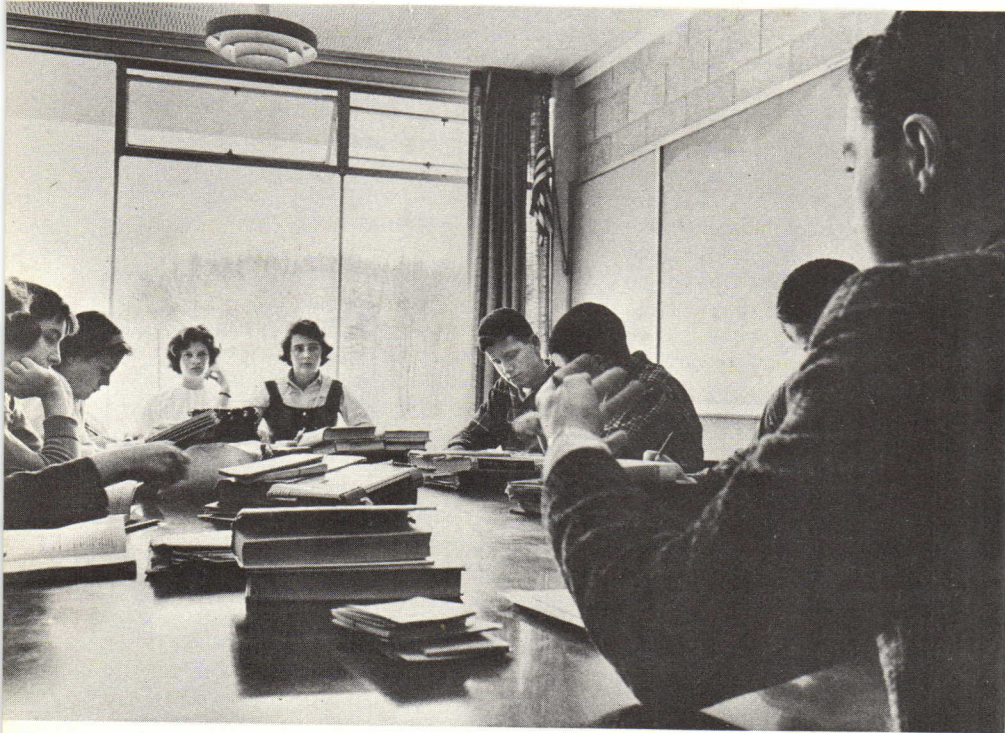
Educational Requirements

What should the specification contain? First let me explain that I object strenuously to two words in the title of this panel meeting. The first is the word "specifications." According to Webster, specification is a minute description or enumeration of particulars. I would prefer, for clarity, to use the word "requirements." The second word to which I take exception is the word "building," which implies that the educational requirements affect only the structure. We all know that the entire school site is prop-

The program of educational requirements should include:

- statement as to type of school and its initial and probable ultimate capacity
- description of community background and extent of community use of plant
- description of educational program and of desirable educational and operational techniques, in behavioral terms

It is essential to tell the architect how people—pupils, teachers, other



Seminar at Wayland HS, Wayland, Mass. The Architects Collaborative.

adults—are to use the facility; what kinds of activity will take place; whether there will be significant differences in pupil achievement to cope with, which may require varying kinds of facilities and environments; how large the teaching groups are to be—in standard classes of thirty pupils each, or in groups varying from two to three students to 100 or more. The architect must know whether the day-to-day schedule contemplates large blocks of time, standard equal periods, or combinations of brief and long periods, so that he may plan the circulation through the building accordingly.

- description of desired relationships of spaces within building proper and outdoors

This includes not only conventional zoning of the building to separate noisy and quiet areas, but also what is wanted to further cooperation between teachers and guidance counselors, interaction between art and liberal arts, between math and sciences, between indoor and outdoor physical education, between biology rooms and field trips, between research facilities and classrooms. Since the architect is trained in visual techniques, examples and diagrams are of great help to him here provided they are interpreted as examples, not as models to be followed without deviation or improvement.

- space budget which includes close approximations of required areas of all assignable spaces

These should be given in square feet, never in room dimensions, in order to capitalize on the architect's talent for organizing space efficiently. These are net areas, inside the walls and partitions, and should be totaled.

- approximation of permissible gross area of building, measured according to AIA standards. This should be predetermined to assure a reasonably efficient plan as far as space is concerned

- general descriptions of performance expected of building as a whole, with reference to:

structural system and materials

environmental controls, including lighting quantity and quality, acoustical properties and noise control, esthetic qualities interior and exterior, heating and/or cooling, ventilation, properties of floor, wall and ceiling finishes, etc

safety requirements

maintenance and operational requirements.

The intent here is not to require extensive knowledge of building techniques, but to state how the building elements must perform whatever technique or material is employed. Thus a particular struc-

tural system is not to be specified, but the requirement must be that the structural system must not inhibit future interior changes in space layout. Again, the number of air changes per hour, or air volume per student, should not merely comply with code provisions (building codes, concerned primarily with safety, usually lag behind engineering techniques) but should require air volumes and changes determined by the learning situation.

- descriptions of activities, functioning and special environmental needs, of the types just outlined, for all occupied spaces within the building and developed outdoor areas

Typical and special rooms should be included. Lists of equipment, special requirements as to size, capacity, and relationships between items of equipment, form an invaluable part of this element of the program of requirements. Built-in or utility-connected equipment must be included. Portable equipment lists are desirable also, so the architect will be able to provide proper space for them. Illustrations, diagrams and drawings will help the architect to understand what is wanted here.

- budget for building construction and attendant fees should be a part of the program

It may appear along with the basic data on type and capacity of school, in connection with the gross area recommendations, or independently.

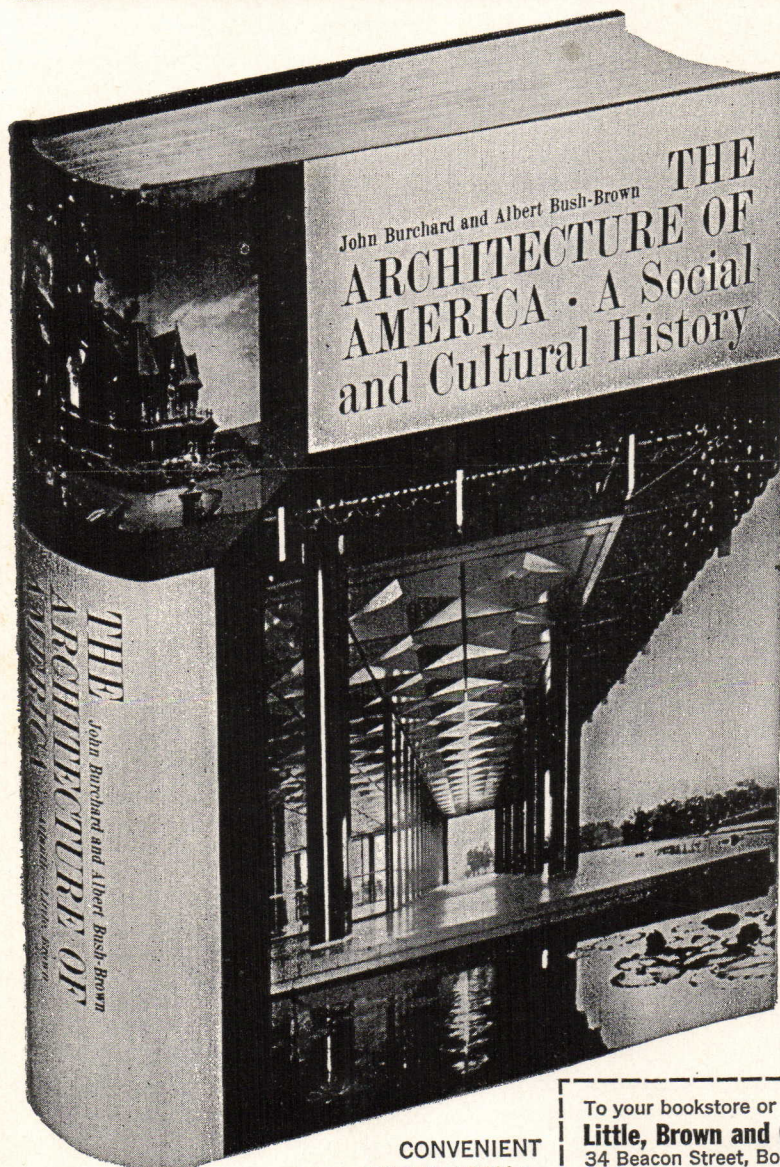
Preparing such a document as this is no easy task. It is common to involve in its preparation committees of board members, citizens' advisory groups, and teachers and department heads. This practice works well when the entire project has competent direction. Both the laymen and the professional personnel involved are likely to develop strong individual preferences, the layman perhaps to be unduly impressed with an example of technique which he has seen elsewhere, the physical education supervisor to emphasize his department's importance. Someone has to balance and coordinate all the wants. That someone, necessarily, is the school administrator. Whether he likes it or not, if the program or statement of educational requirements produces an unsatisfactory school plant, he will be blamed. If it produces a good plant he should deserve the praise. ◀

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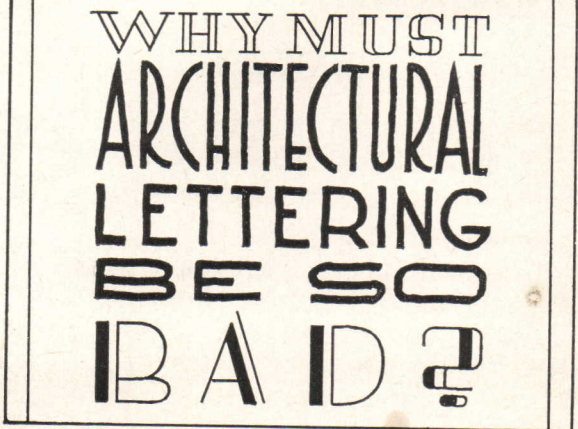
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WHY MUST
ARCHITECTURAL
LETTERING
BE SO
IB A ID ?

by Wolf Von Eckardt

► The trouble with most architectural lettering is that many architects aren't even aware just how ugly, old-fashioned and inappropriate it is. I fear, in fact, that some of my gentle readers will see nothing wrong with the hand-lettered lines above. Others, however, will be shocked to learn that, letter for letter, they were faithfully copied from an otherwise excellent textbook on architectural rendering, published, not under the reign of Queen Victoria or Cass Gilbert, but Anno Domini 1962. This atrocious stretching and squeezing, contorting and deforming of our beautiful Roman alphabet is not only practiced by a majority of contemporary architects, but it is also taught to the still innocent formgivers and total environment creators of tomorrow. The result is, of course, that many, if not most architectural drawings and plans of perfectly up-to-date designs are titled, explained and spoiled with letters that are discrepant and, as the current jargon has it, "a bar to effective communication." Those architects and draftsmen who are vaguely uneasy about these tortured block letters resort to the not so good old Leroy and its bland sans serif, or appliqué Franklin Gothic in zipp-a-tone. The improvement is slight. And more often than not, they too, stretch or squeeze the pre-fabricated letters into squared-off lay-outs which violate both form and function because they are contrived and hard to read.

The art of the letter—handwriting, lettering and typography—I submit, is quite generally a badly neglected stepchild of American culture. We have few, if any, creative artists or even devoted and knowledgeable craftsmen in the field. The handwriting we teach in our schools is still based on the Victorian quill pen scrawl of one Platt Rogers Spencer which, to be sure, like dear old Carpenter Gothic, has a quaint nostalgic beauty when well

done. But it can't be done well, fast or legibly with a skipping ball point pen. Thus Johnny can't write and stops trying as soon as he's old enough to peck at a typewriter. Need we even mention the esthetic quality of our outdoor signs? And indoors, too, most advertising lettering is just as offensive as its message. The typography of the mass circulation journals seems to aim only at outscrambling the competition.

It is therefore hardly surprising that architects know and care so little about contemporary concepts of the function and beauty of the alphabet. They cling to letters which are essentially Art Nouveaux in character. They were evolved during that brief period in history when everything in sight was shaped like or decorated with crawling worms. The Ecole des Beaux Arts taught this letter style first. Then the Bauhaus came along and tried to construct it geometrically with ruling pen and compass. Moholy-Nagy's and Herbert Bayer's experiments were, of course, interesting. But all they proved was that you can't really tamper too much with the classic Roman letter form and still read, let alone bear it. Typographers and type designers, such as Jan Tschichold and Eric Gill, among others, have long since advanced, or, if you will, returned the art to its inherent, organic essentials of typographic commodity, firmness and delight. Architects, however, seem unaware of this and still stubbornly embrace the sick Bauhaus guinea pigs of Fagus works and Woolworth Tower vintage. Some even display it proudly in all-capital, personal communications. The ill-proportioned block letters have, it seems, become a professional shibboleth, much as some beatnik painters sport beards.

Beards, of course, are harmless because, luckily, they are fixed to their owners. Bad architectural lettering, however, tends to stray from the blueprints onto letterheads, brochures and other publications and even buildings. Some architects are awfully stubborn about imposing their lettering style and typographic layout concepts on their surroundings. That is why, in contrast to England, for example, the American environment is inundated with so much bad and inappropriate sans serif lettering. A reform seems in order. But my space has run out, so that I must defer its discussion to the next issue. I hope you can bear the suspense. ◀