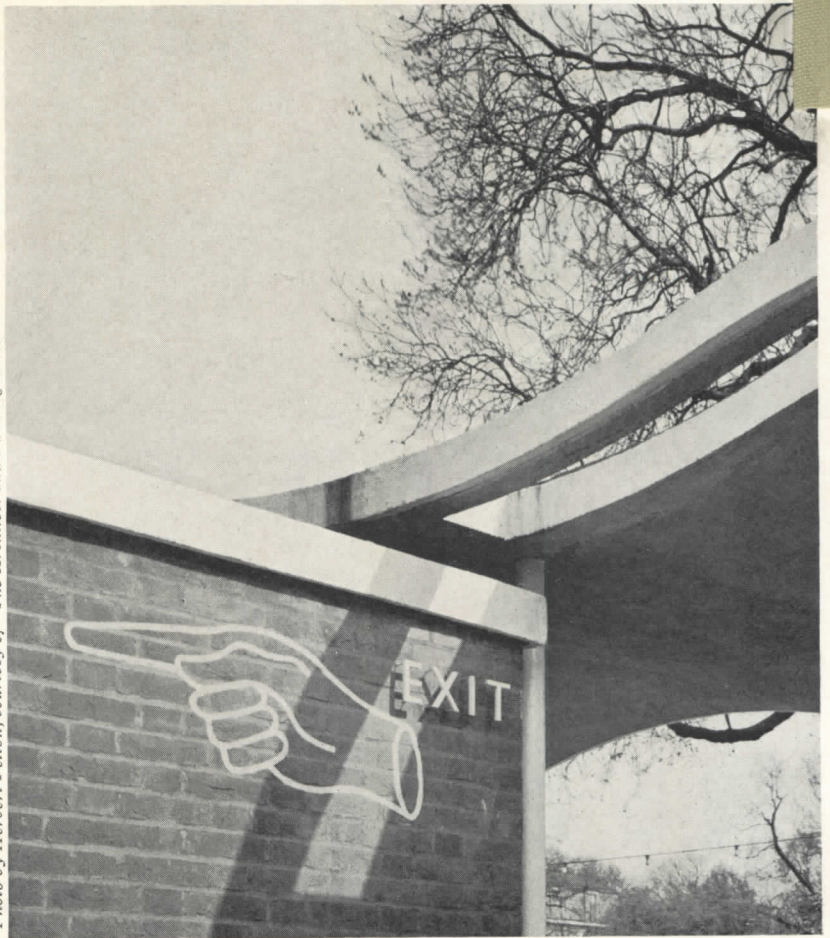


BUILDING NEWS

Photo by Herbert Felton, courtesy of "The Architect and Building News"

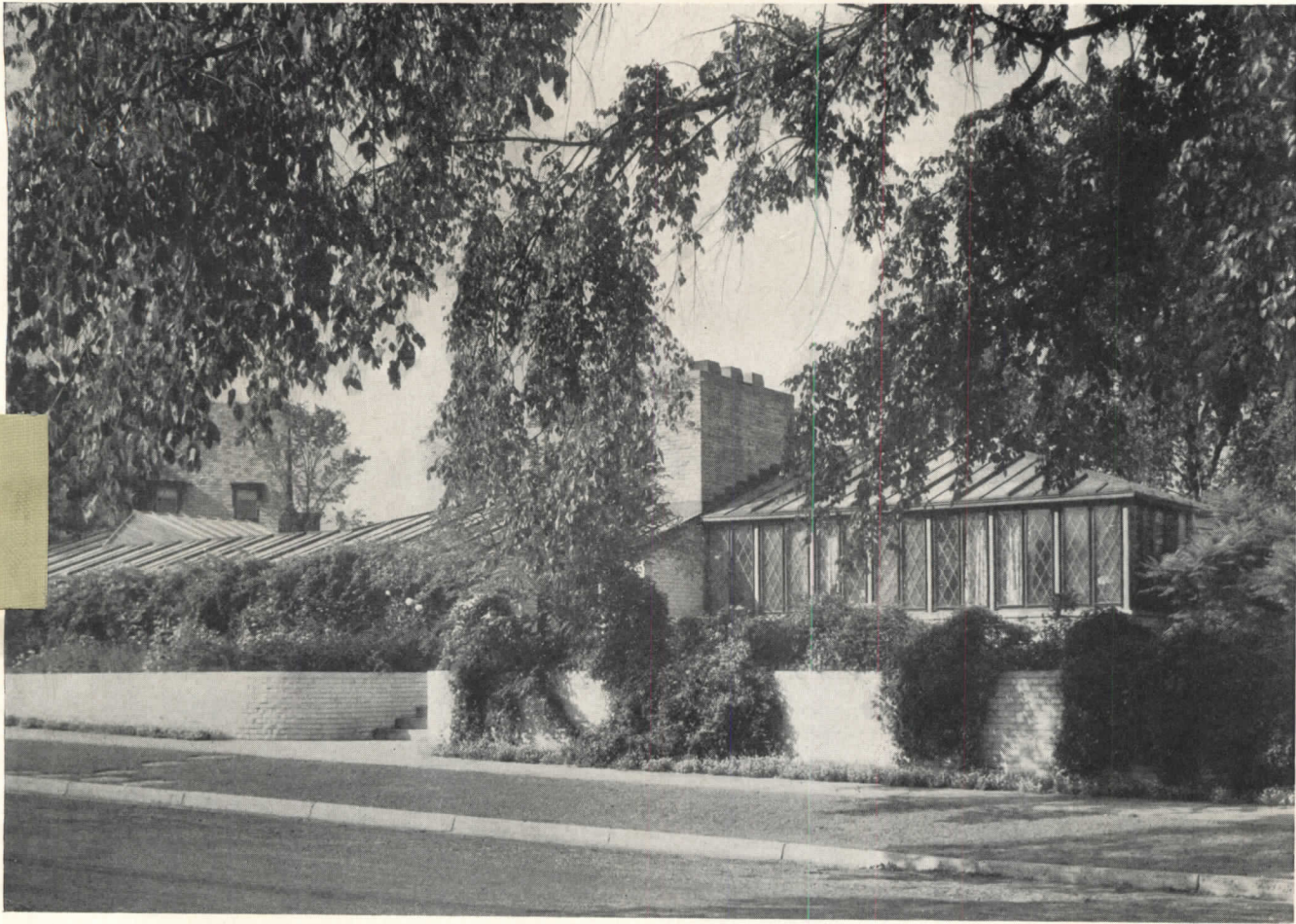


A sinusoidal roof for informality....

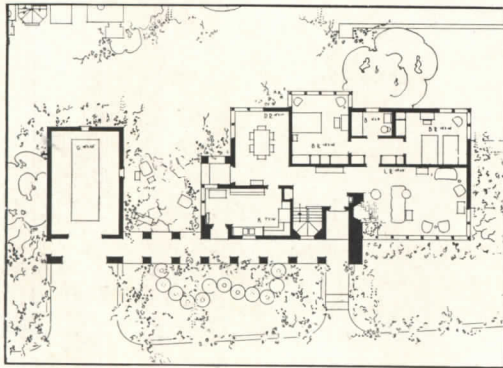
ARCHITECTURAL

Record

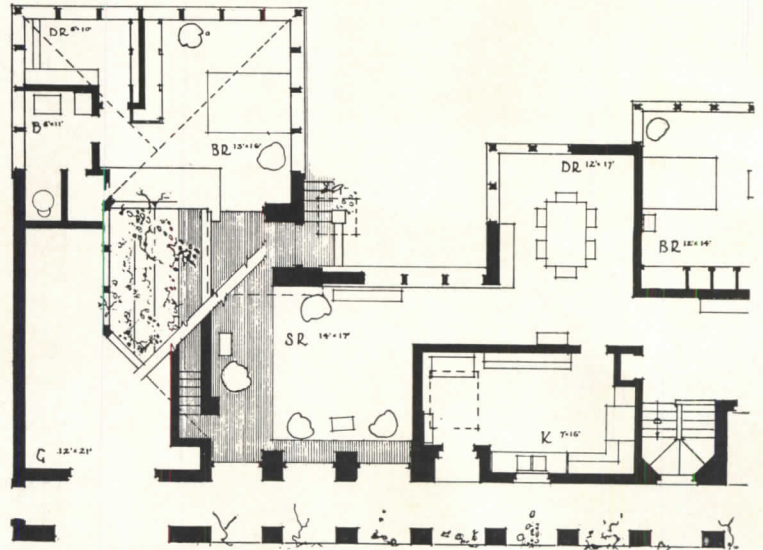
SERVICE AREA INTO GUEST WING IN MICHIGAN RESIDENCE



General view, conservatory roof at extreme left



Plot plan of original house



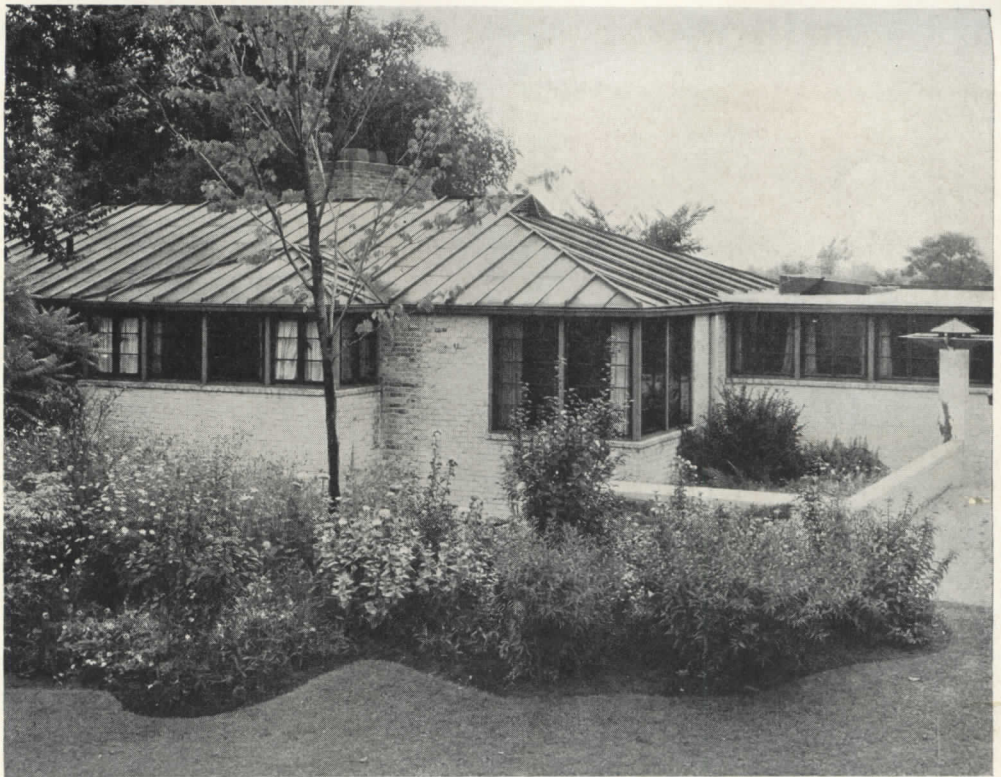
Plan of wing after remodeling

ASIDE FROM his problem of converting a former service area into a guest wing, topped by a half-story conservatory, Architect Dow's chief worry on this alteration job for Dr. Harry Towsley at Ann Arbor, seems to have been the Michigan State Building Commission. "For

some ridiculous reason (the Commission) holds ceiling heights shall be eight feet on the main floor, seven feet six inches on the upper floor. For various reasons, I wanted to lower the main floor ceiling to seven feet six inches but . . . many trips to Ann Arbor were not suc-

FRANTZ AND SPENCE,
Architects

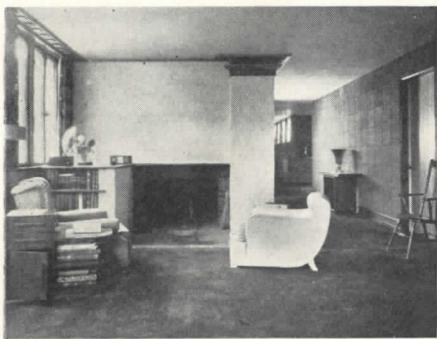
ALDEN B. DOW, Associate
Designer and Architect on Addition



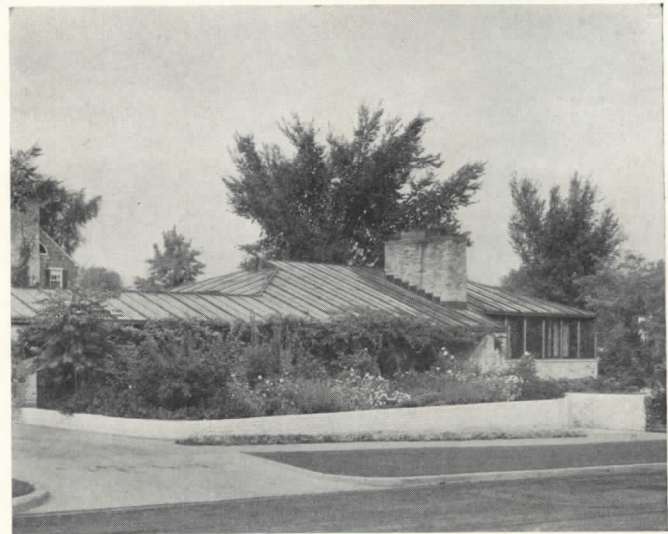
New Wing from Courtyard



Entrance Detail



Old Living Room



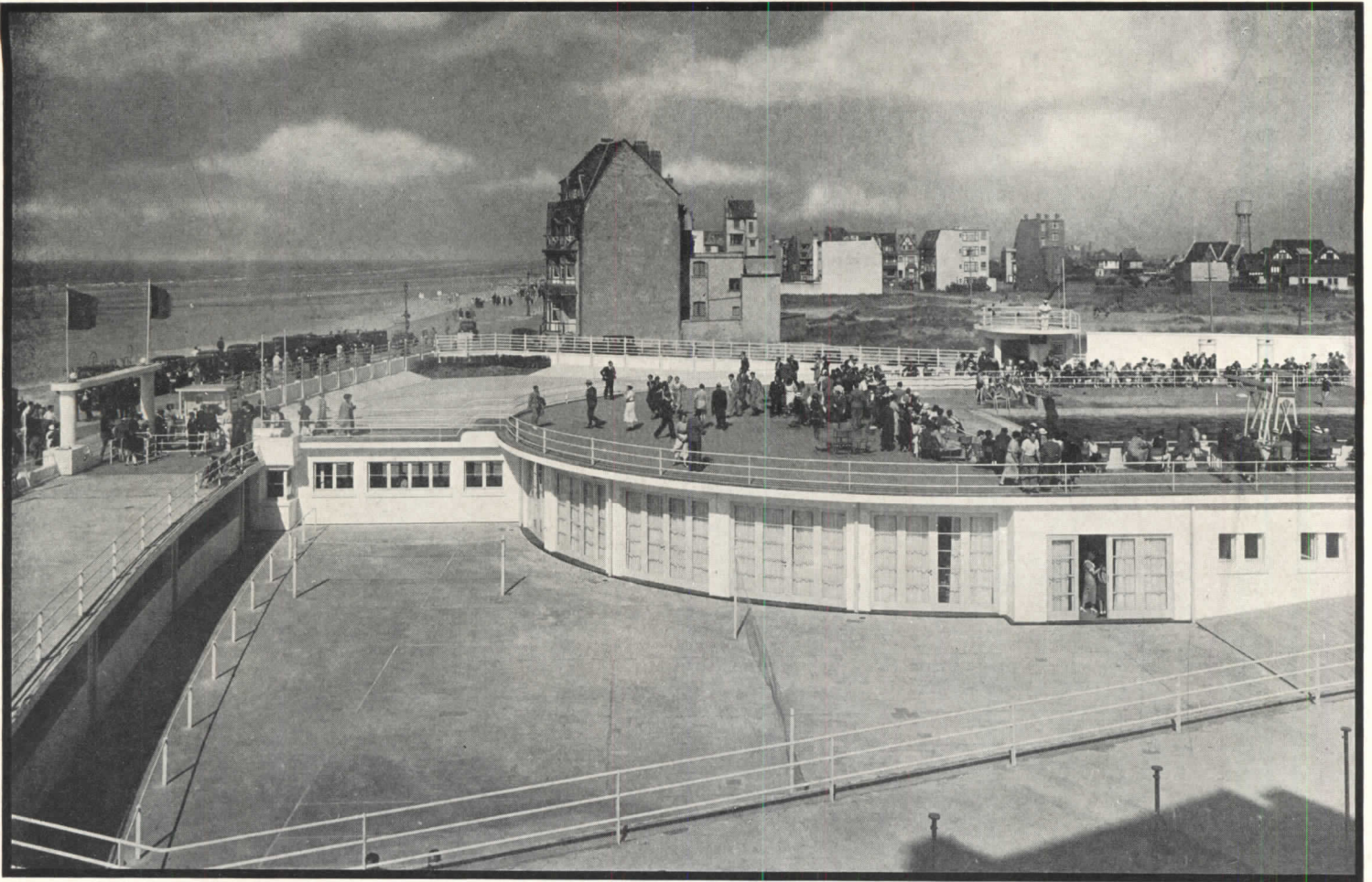
Street Facade

cessful." So plagued was Architect Dow by "the fuss and bother" that he got Detroit's Paul Honore to do a series of plaques commemorating the incident. They now grace the entrance.

The addition constitutes an interesting solution to a

one-story plan which could expand only horizontally and, because of its proximity to a main highway, only on the garden front. The conservatory over the garage is handled in a fashion which reflects Mr. Dow's study under Frank Lloyd Wright.

FRESH-WATER POOL PROVIDES NUCLEUS FOR NOVEL BELGIAN RESORT



Photos by P. Dietens

General view from promenade level

GOVAERTS AND VAN VAERENBERGH
Architects



Poolside Bar

and Van Vaerenbergh, hit upon an unusual solution. Main feature of the establishment, the pool—with diving towers, spectators' galleries, terraces, etc.—is on the promenade level; restaurant, dressing rooms, and sun-

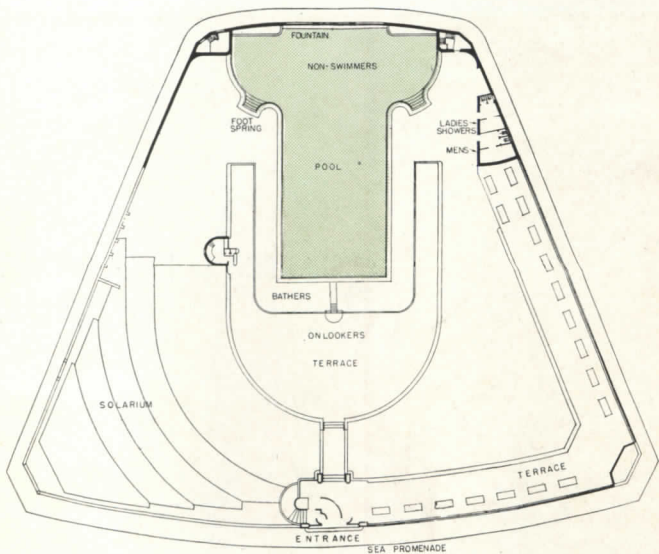
DESIGNED primarily to stabilize a new quarter of Westende, a Belgian resort on the North Sea, the main feature of "Lac-aux-Dames," is a fresh-water pool around which are grouped cafe with dance floor, bars, and play and sunbathing areas. Having a large frontage directly on the promenade to start with, and a ground level somewhat below it, the Brussels architects, Govaerts

bathing are one flight down and protected from prevailing winds.

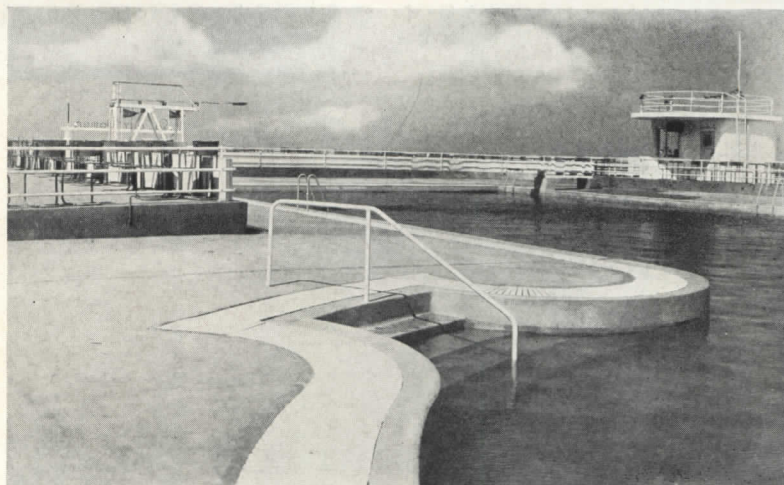
The pool takes its shape from the necessity for combining ease and safety for children and non-swimmers with deep water for swimming and diving. At its shallow end is a fountain out of which pours water from a nearby spring. At its deep end, and on the lower level, the semi-circular cafe looks directly into the pool, separated from it only by a bank of double windows.

Novel feature of the cafe is its provision for subdivision into smaller units. Heavy double curtains, sliding on permanent tracks in the ceiling, make possible its division into four private dining rooms without rearranging furniture, illumination, etc. Bars on both levels—at the pool side above, in the cafe below—provide adequately for liquid refreshment.

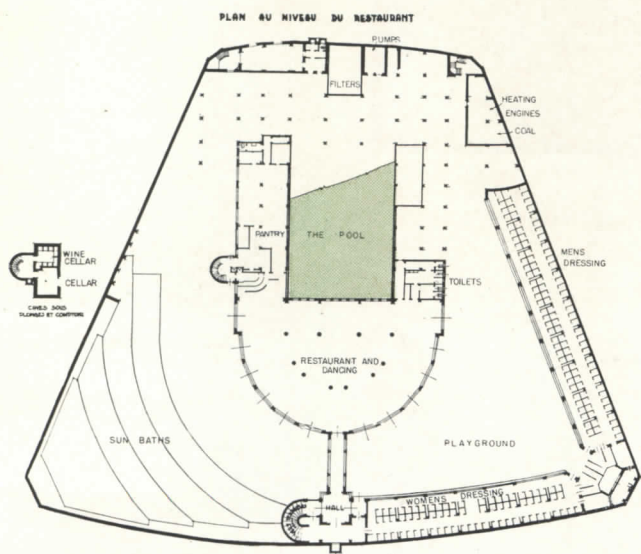
"Lac-aux-Dames" has a structural frame of reinforced concrete and walls of local brick; all exterior surfaces are covered with white cement stucco.



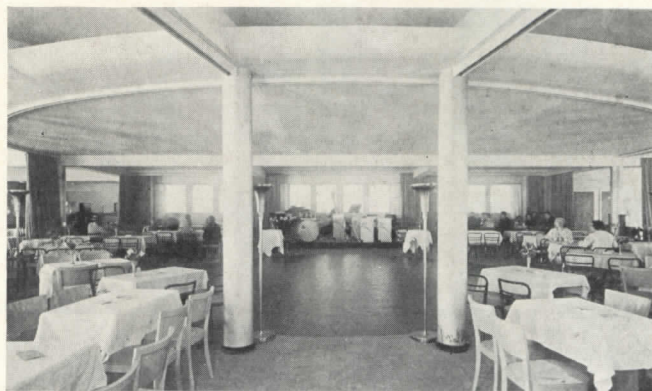
Plan at Upper or Pool Level



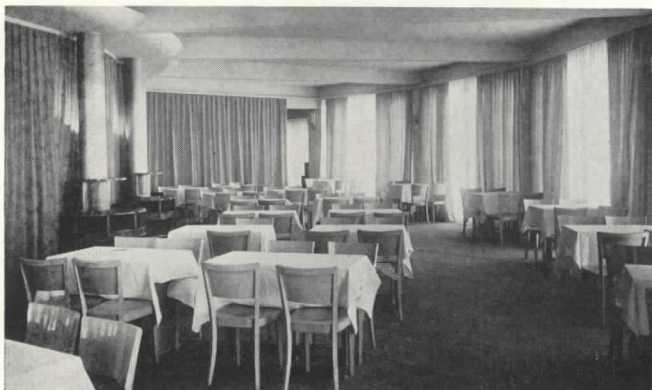
General view of Pool from shallow end



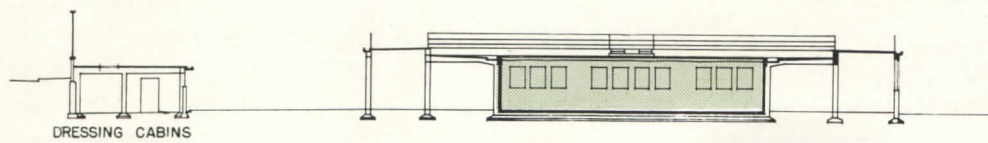
Plan at Lower or Cafe Level



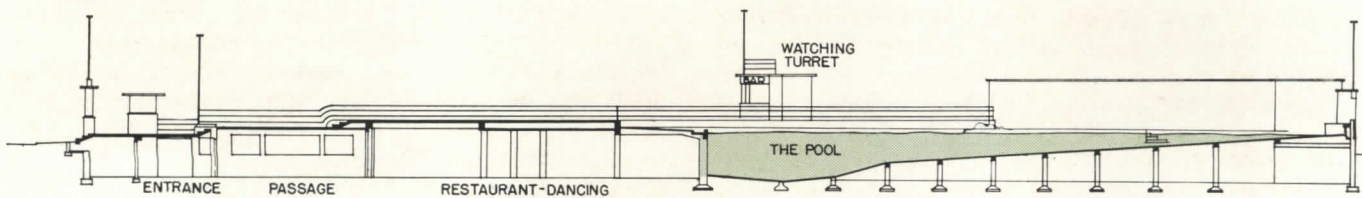
Cafe with Pool windows in background



Cafe with dividing curtains in place



Transverse Section



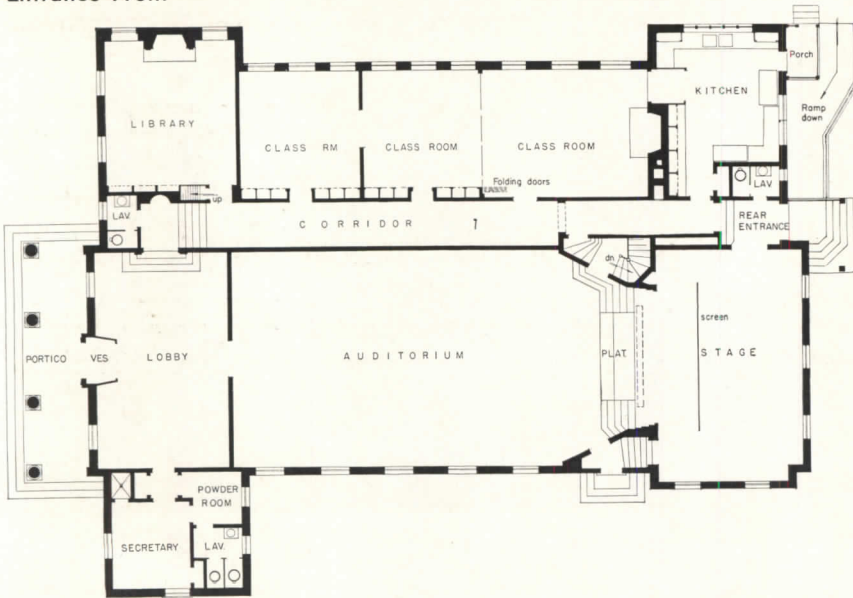
Longitudinal Section

KNOXVILLE'S OSSOLI CLUB BUILDING HOUSES MANY FUNCTIONS

BARBER and McMURRY,
Architects



Entrance Front



Main Floor

Photos by R. W. Tebbs



Entrance to Auditorium

THE PROBLEM of adequately housing the varied activities of a women's club have seldom been more effectively solved than in this building for the Ossoli Club, Knoxville, Tennessee, by the home town firm of Barber and McMurry. Balancing a limited budget on the one hand against an ambitious program of activities on the other, the architects have achieved a compact and economical plan whose chief feature is its multiple use of space. Aside from office, library, and kitchen, whose functions are necessarily fixed, the remainder of the clubhouse serves many functions. The auditorium may be

used for lectures, plays, movies, and cleared of its chairs, dancing and exhibits; the classrooms may be used singly or together; food may be served in any part of the building; toilets are adequate for capacity crowds.

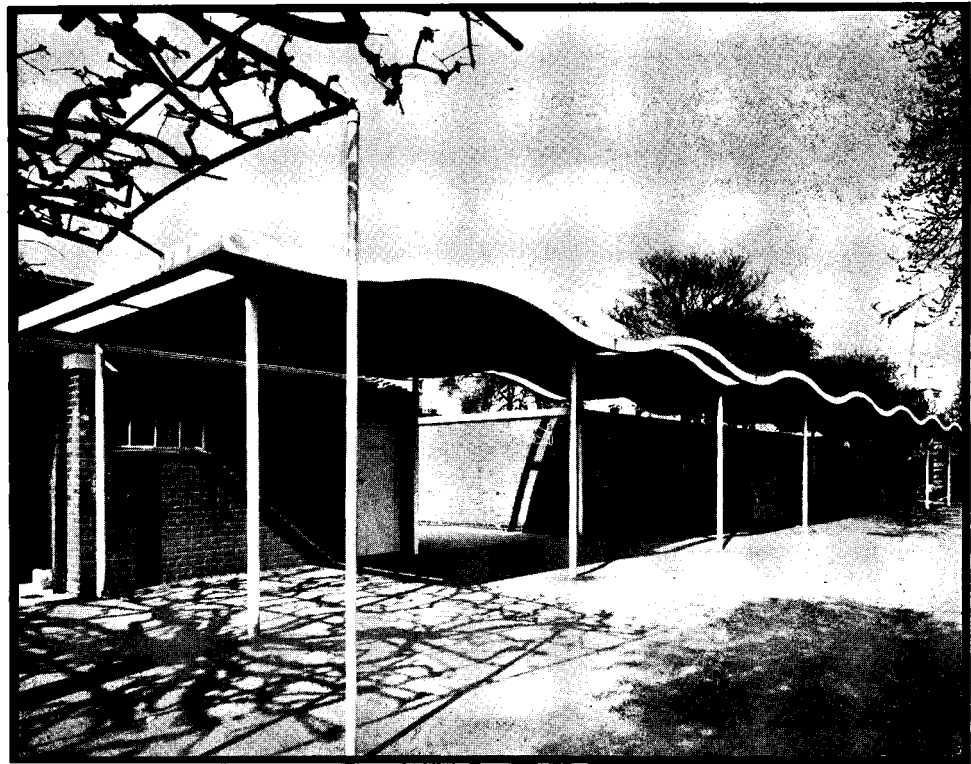
The building, designed in the informal Colonial idiom for which the firm is well known, is of local handmade brick with slate roof. Knotty white pine with acoustical plaster was used in the auditorium, painted paneling in the lobby, knotty pine paneling in the library, plaster elsewhere. The building is located in one of the city's finest residential areas.

LONDON ZOO OPENS A NEW REFRESHMENT BAR

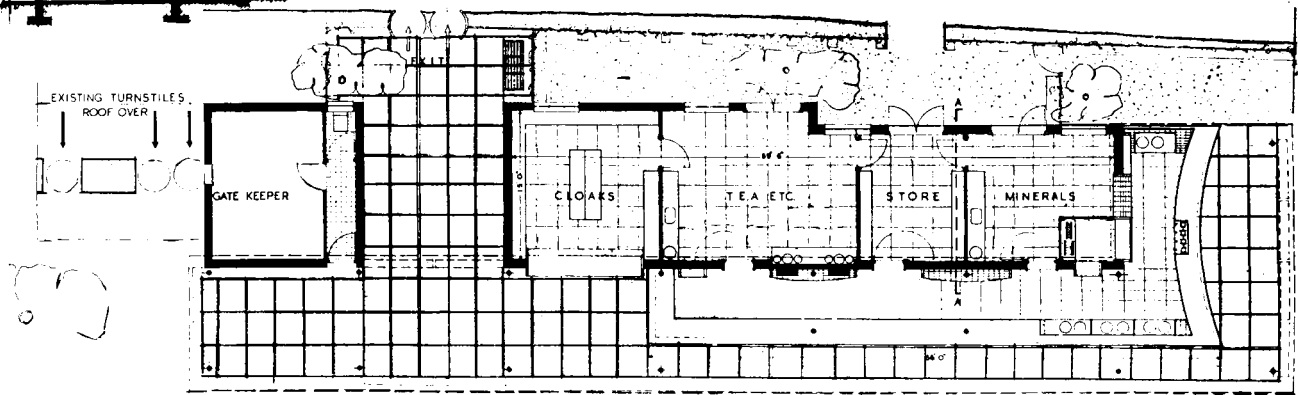
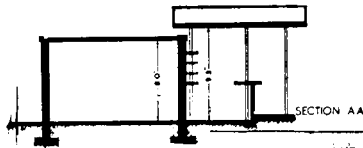
TECTON,
Architects



Corner of Cloakroom

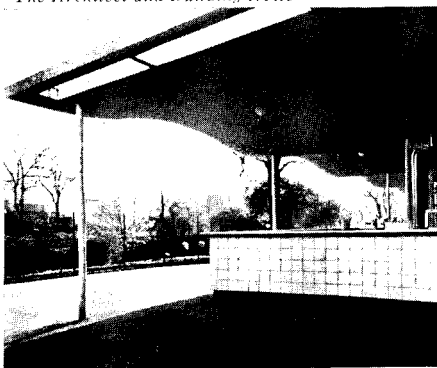


General view, Park front



Plan and Section

Photos by Herbert Felton, courtesy
"The Architect and Building News"

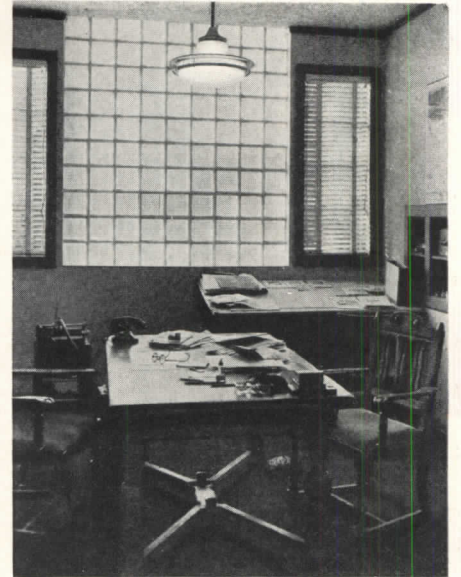


Corner of Bar

SINCE THIS refreshment bar is only one element of the proposed reconstruction of the North Gate of London's Regent Park, Tecton desired that the bar should be "a light and informal" subsidiary to the finished whole. To this end, Tecton changed the roof from the flat slab first called for to the present curvilinear form. (For earlier examples of Tecton's courage in such problems see RECORD, February 1935, page 107). The larger crowds which come to the Zoo have been taken into account in the planning; the bar has been made as long as possible, returned in a curve at one end in order to increase the length of the counter; the service space has been made sufficiently large to handle the preparation and storage of food for serving a large number of people. Easily recognizable symbols have been used to indicate at which part of the counter different refreshments can be obtained. Since this refreshment bar is open in the summer only to deal with the increased number of visitors during that season, no indoor accommodation for eating has been provided, although the overhanging roof provides shelter from rain.

The main roof is built of reinforced concrete and supported on 4-in. steel columns. It has been finished with waterproofing and aluminum paint. The building itself is constructed in red brickwork to harmonize with the adjacent buildings.

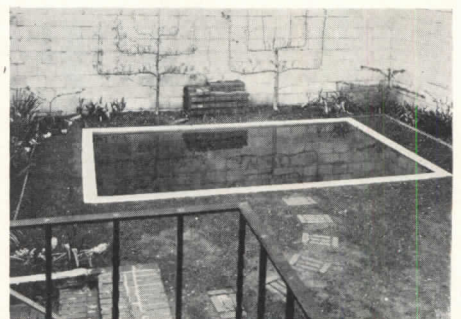
OREGON "FAN" DESIGNS OWN COMBINATION OFFICE AND HOME



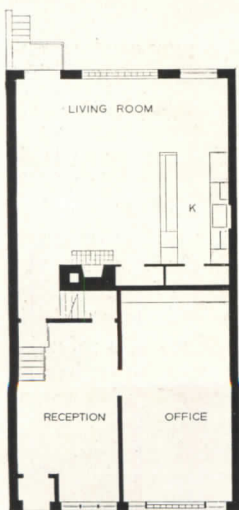
Business Office



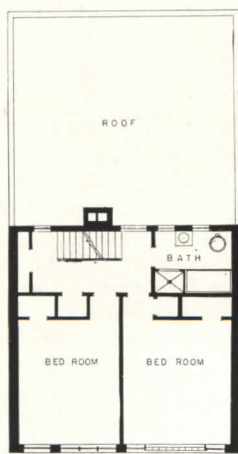
Living Room



Courtyard Garden



First Floor



Second Floor

FACED with the necessity of "working where he lived," Royce McCandliss, Portland advertising man and architectural fan, recently completed this combined office and apartment. On a 25' x 80' interior lot located in a close-in residential area, Mr. McCandliss planned a 5-room structure in which there would be a minimum of conflict between business and household affairs. Although sharing a common entrance, the problem has been adequately solved; the living quarters are on a different level from the office and are ranged across the back overlooking a little courtyard; bedrooms on the second floor have the large protected roof of the living room.

FOUR INTERIORS FROM THE PARIS FAIR

IN FURNITURE, as in women's clothes, the modern exposition finds immediate reflection; no other phase of building design rests so much on current "style" and "fashion." The great fairs of the past two decades have exerted a profound influence on modern design and the one just closing in Paris is no exception. Most noticeable trend there was the reappearance of handicrafts, even in items whose general design springs from industrial experience.

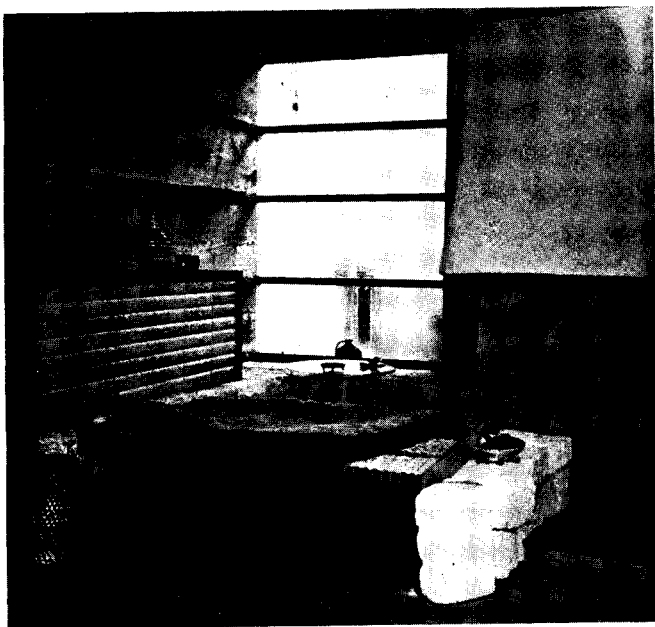


Photo by H. Baranger

FROM SWEDEN CAME THIS LIVING ROOM FOR A country house. White walls and ceiling form a background for a hand-woven yellow carpet, a royal blue corduroy couch and two arm chairs—one in green, the other in white.



ENIGMATICALLY LABELED "LIVING - ROOM FOR Airplane Constructor," this room from Poland boasts an armchair upholstered in lambskins atop a deep-piled hand-woven rug. Both table and chair show that mixture of "modern" and "handicraft" so common abroad.



BEDROOM FOR A WEEK-END HOUSE BY THE POLISH Boqulowski and Denko. Walls are of natural light wood with rope instead of battens. The woven rattan bed rests on rough-hewn stones, the Wagnerian touch being further repeated in the fireplace.



Photos by Studio Pan

MOST FORMAL WAS THE LIVING ROOM FROM THE Polish Pavilion. Here three walls are of dead white, the fourth finished in dark wood. A white rug covers not only the floor but even the couch, while the radio cabinet is of natural wood with an engraved design of white.

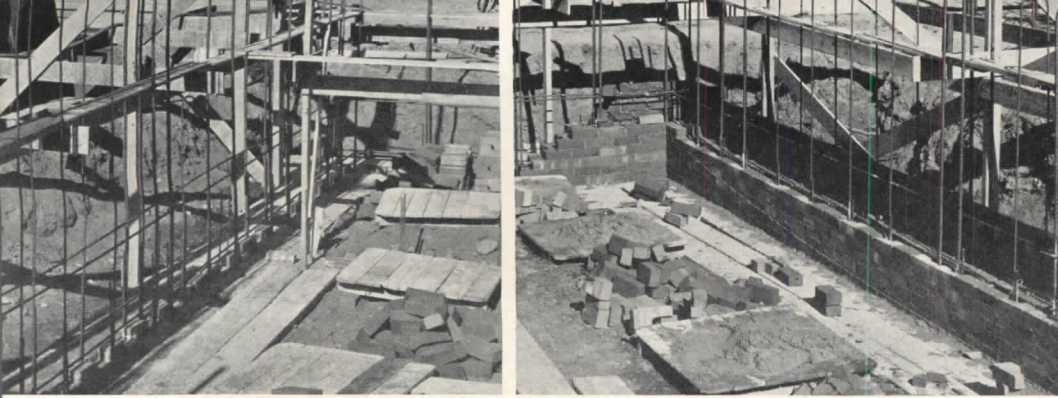
TREMOR-PROOF BRICK

California Evolves New Reinforced Masonry

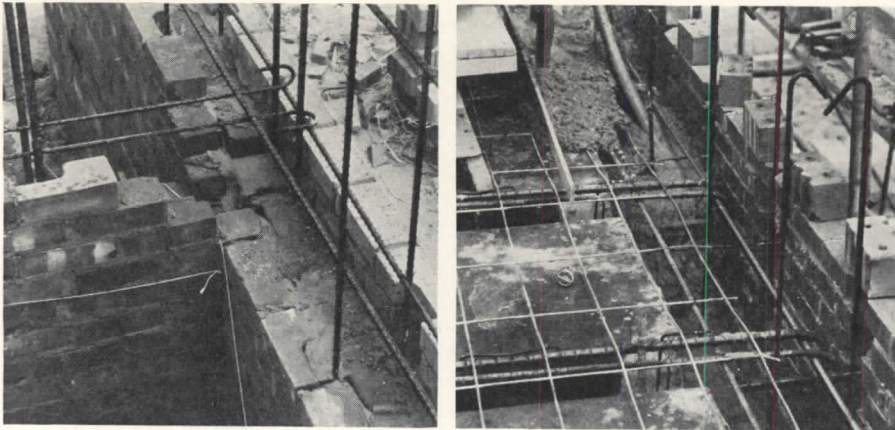
CALIFORNIA'S laws on earthquake resistant buildings, imposing new requirements on structural design, gave rise to the systems of construction used in Los Angeles' Vermont Avenue School. Reinforced brick, no longer new in itself, is used in a new construction method which gives maximum rigidity and meets state seismic laws for lateral resistance. These laws demand that, in addition to all requirements for gravity loads, the structure must be able to resist 10 per cent of these loads applied to the building laterally in any direction.

All elements function

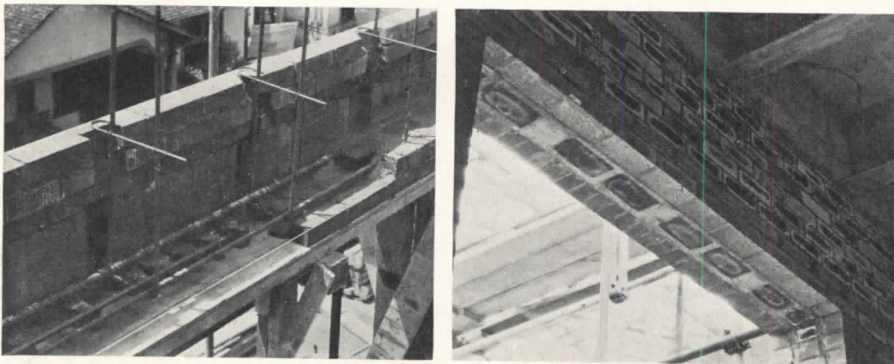
WITH WALLS of reinforced brick masonry, and floors and roof of reinforced concrete, this structure embodies a combination which obtains the maximum advantage of each material. Internal and external walls, and floor and roof slabs as well, are designed as a frame which will resist horizontal forces from any direction by the transfer of these forces to the ground. Longitudinal walls are so designed as to become vertical beams for transverse horizontal forces; floor slabs, designed as horizontal girders, carry accumulated forces to transverse walls which, functioning as vertical cantilevers, transfer lateral forces to the ground. In relatively few cases did the stresses reach these values: direct compression, 175 lbs. per sq. in.; combined direct and bending stress, 292 lbs. per sq. in.; shear, 37 lbs. per sq. in.; bond, 68 lbs. per sq. in. Otherwise, stresses generally were low because all walls were designed to resist lateral forces and support gravity loads. The wall as a whole, with an effective thickness of 13" for its entire height, functions as a continuous frame, capable of resisting either tensile or compressive stress, since the full depth is made available for beam action by placing principal continuous steel near the top and bottom of both spandrel beams and piers.



WITH REINFORCING STEEL AND KEY BRICK SET IN THE CONCRETE footing (left) the brickwork begins, outside course being always kept higher (right) than center and inside. Note accurate spacing and alignment of reinforcing steel.

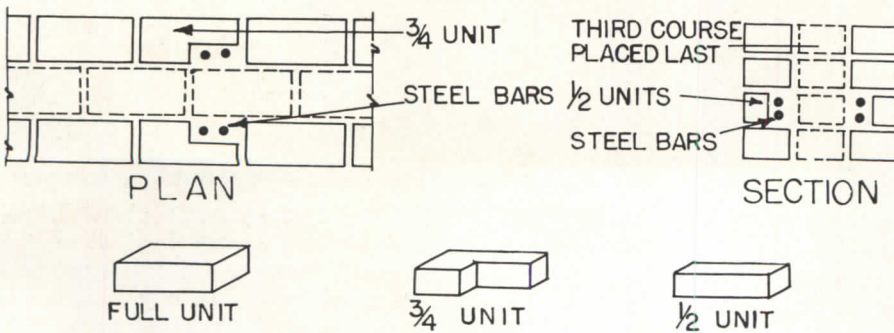


CONDITION AT INTERSECTION OF WALLS—BETWEEN FLOORS (LEFT) and at floor level (right). Note monolithic character of floor beams, floor slab, and vertical reinforcing; note also that outside brick course replaces wooden forms in pouring. All concrete is vibrated in pouring, assuring perfect grouting.



© Photos by R. M. Starrrett

DETAIL OF TYPICAL SPANDREL WALL AND LINTEL CONSTRUCTION. Brickwork laid directly on wood form (left), with headers clipped to increase bond, results in this reinforced brick lintel (right) after forms are removed.



FOR THIS NEW TREMOR-PROOF system it was first of all necessary to design the reinforcing; from this came the three specially-designed brick units (left). To insure effective bonding, a mortar of bedjoint consistency was used only for laying up outer wythes; the center wythe was shoved into a grout of flowing consistency.

NEW BUILDING EMPLOYS STEEL IN NOVEL ROOF CONSTRUCTION

INCREASINGLY important is the solution of problems in wide span construction, which have called forth the evolution of new systems for such buildings as airplane hangars, railroad stations, stores, industrial and exposition buildings. At Germany's "surprise" Dusseldorf Exposition, the Hall of Siderurgy exemplifies an unusual arc construction which eliminates intermediate supports, and gives a greater usable area. Especially important to Germany is the fact that this mode of construction is peculiarly bomb-resistant, in that damage would be limited in area. The static equilibrium of the whole building, by reason of the absence of principal carrying members, would not be unsettled by explosion of a shell. In addition to this protection, a fireproof coating has been applied to the interior roof surface.

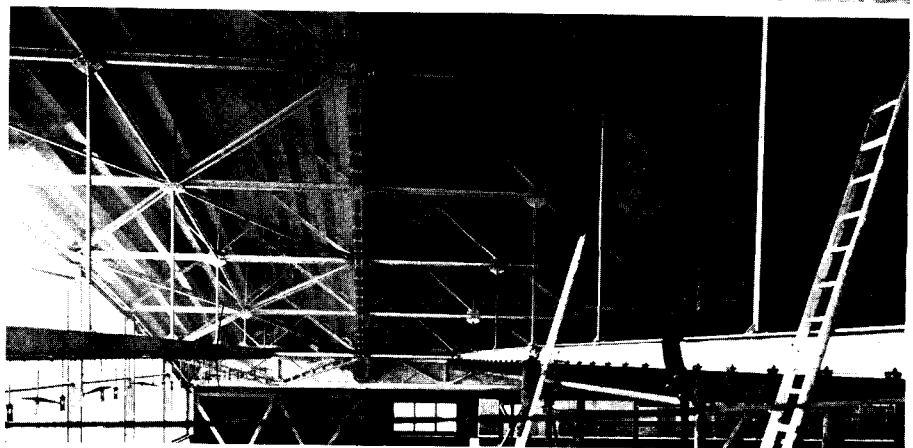
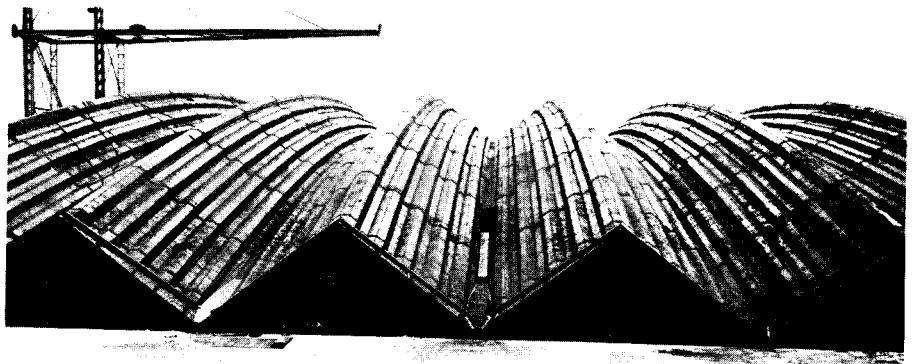
The roof system consists of steel plates suitably stiffened, which not only strengthen the whole, but act as a waterproof casing. These elements form six arcs of triangular section, each with two patellae (knee-caps), one of which is mobile to allow for expansion of the arc. Each individual arch is a truss of which the corrugated exterior covering is an integral structural part. Stiffening is attained by means of lightweight vertical steel lattices which extend from the arcs to horizontal tie beams. Of the 640 tons of steel required for the entire hall, 600 tons were used on the roof itself. The spandrel of the arch has small-area I-beams, fixed in the foundations, and fastened at the top in such a way as to permit expansion of the roof due to temperature and load variations.



Since the building is of a temporary nature, the problem of thrusts on the two end walls has not been worked out as for a permanent structure. Steel, because of its homogeneity and isotropy, which make it equally resistant in all directions, is the most suitable material for construction of large spans without intermediate supports. In view of Germany's *ersatz* policy, the fact that its steel comes from the Ruhr is of more than passing importance.



ACHIEVING A SPAN OF 250 FEET BY MEANS OF A NEW STEEL ARCH which is a structural unit in itself, this building is literally all roof. Although important in the photograph, the horizontal members are actually mere tie rods designed to stiffen the building against those air raids which all Nazis confidently expect.



INGENIOUS DESIGNERS HAVE EVEN GIVEN THE ROOF MEMBRANE itself a structural significance, first by making it of steel, then by corrugating the steel. A fire-extinguishing paint covers the interior surface.

Globe Photo



EARLY EXAMPLE OF THE DIVISION of labor is this 16-sided community church at Richmond, Vermont. Built in 1813 by 17 cooperative individuals, the 16-sided plan was hit upon as a means of dividing the work equally; the 17th built the cupola.

More Lessons Drawn From N. Y. Apartment Collapse

REPERCUSSIONS of last year's apartment-house collapse in New York in which 18 workmen died (RECORD, August 1936; page 80) have not yet died down. Aside from the legal action which resulted in conviction of architect, builder-owner and son, masonry contractor, examiner, and building plan inspector, other and more general conclusions are being drawn from the tragedy. Writing in a recent *Engineering News-Record*, E. E. Seelye points out that physical failure of such structures springs from more basic economic relationships.

"It is evident that this type of building requires a relatively large amount of good-class engineering. Yet what kind of technical attention can be expected when the owner employs an architect to furnish both architectural and engineering services for a fee of around \$1,200 on a \$300,000 structure?"

"What about supervision? The architect is only asked to visit the job occasionally. There is no structural engineer of record. There is often no qualified superintendent other than a representative of the owner and he is interested only in driving the job to a point where the vital building loan payments start."

Babylon Also Frowned on Building Failure

SOCIAL CONTROL of private construction is not as new as some of its opponents would have it appear, according to H. J. Glaubitz, of Baldwin, N. Y. Citing the building code of Hammurabi, King of Babylon around 2000 B.C., as recorded on the eight-foot column now in the Louvre, Mr. Glaubitz quotes:

Par. 228: "If a contractor builds a house for a man, this man shall give the contractor two shekels of silver per ser [unit of weight] as recompense."

Par. 229: "If a contractor builds a house for a man and does not make it strong enough, and the house which he built collapses, and causes the death of the house owner, then the contractor shall be put to death."

Par. 230: "If it causes the death of the son of the owner, then the son of the contractor shall be put to death."

Par. 231: "If it causes the death of a slave of the owner, then he (the contractor) shall give the owner a slave of equal value."

Par. 232: "If it destroys property, he (the contractor) shall replace what has been destroyed, and because he did not build the house strong enough and it collapsed, he shall rebuild the house at his own expense."

Par. 233: "If a contractor builds a house for a man and does not build it so that it stands ordinary wear and tear, and a wall collapses, then he shall reinforce the wall at his expense."

FHLBB Plan Incorporates Small House Designer

A NATION-WIDE PROGRAM "to assure small home builder a sound investment and eliminate shoddy construction, with its inherent waste and loss of property values," was recently announced by the Federal Home Loan Board. The program, to be known as the "Federal Home Building Service Plan," actually represents an extension of its work during the past two years when, through the HOLC's field force of architects, appraisers, and technicians, it directed the reconditioning of 450,000 homes. From this experience, FHLBB learned "the full extent of poor materials and flimsy construction in the low-cost field" and found "alarming evidence of a return to careless planning and jerry-buildings." Now it offers a "coordinated" plan whereby the 3,900 thrift and home-financing institutions in the Bank System would form the nucleus for a standardized "packaged" service to the home seeker. This service would include: Sound financing counsel; the largest loan and most liberal terms con-

sistent with his resources and credit; competent architectural aid in designing his home; a structure suitable to his family needs, site and neighborhood; selection of a qualified contractor; specification of proper materials and a check on those materials; supervision of construction; a Federal Certificate of Registration, stating that his home has been built under the Plan, thereby strengthening investment security and resale value.

Already endorsed by A. I. A. directors, the Plan will include a group of architects in each town, who will furnish a standardized architectural service for a minimum fee.

Finds New Type Construction Only 2.5% Cheaper

ASSERTING that the economies of "fire-protected" construction over "fire-proofed" were greatly exaggerated, H. I. Feldman, New York architect, last month announced a series of analyses to prove his point. His argument fell into two parts: (a) that "fire-protected" construction implied less economical planning, resulting in (b) increased construction costs in certain trades. Mr. Feldman pointed out that in matters of egress, size and lighting of public halls, number of rooms per stairway, exit arrangements, "fire-protected" construction raised many new problems in terms of planning. And this, he declared, led to *changes* in costs (when broken down by trades), but not necessarily *reductions* in total cost. Using a 9-story apartment house on a 100' x 100' plot as a typical example, Mr. Feldman's analysis showed only a 2.5% saving for "fire-protected" over "fireproofed" construction:

	Percent of Cost
FIREPROOFED	
Excavation and foundation.....	3.0
Structural steel	10.0
Concrete and cement	6.0
Masonry	14.0
Carpentry, lumber and sleepers.....	4.5
Plastering	7.0
Electric	4.0
Total	48.5
All other trades not affected.....	51.5
Total	100.0
FIRE-PROTECTED	
Excavation and foundation.....	2.75
Structural steel	8.25
Concrete and cement.....	4.50
Masonry	11.00
Carpentry and studding.....	6.00
Plastering	10.00
Electric	3.50
Total	46.00
All other trades not affected.....	51.50
Total	97.50

Cherry Trees to Stay Commission Rules

OPPOSITION to the proposed location of the Jefferson Memorial in Washington's Tidal Basin won a partial victory when the Memorial Commission instructed Architect John Russell Pope, shortly before his death, to revise his plans for the memorial so that the cherry trees could be spared. Center of the biggest controversy in years (see *RECORD*, June 1937; page 24) the original plan called for the removal of some 2,000 of the cherry tree, so dear to the Capital's tourists. And indications are that the Tidal Basin site will meet still further opposition. Although the Congress adjourned without having passed Representative Treadway's bill to prohibit any change in the present layout of the Basin, it also failed to make the necessary appropriation of \$500,000 for preliminary work. Discussion of other sites goes on apace in the Capital, with the *Washington Post* concluding that, "unless it be hung from balloons," location of the Memorial in the city proper is out of the question.

F.D.R. Vetoes \$500,000 Granite Memorial

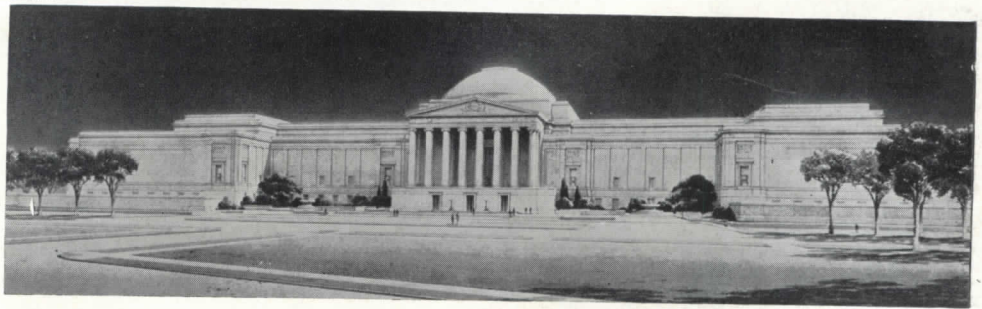
A LITTLE-KNOWN bill appropriating \$500,000 for a granite memorial to the late Will Rogers, after passing both houses of Congress, was recently vetoed by President Roosevelt. Instead of a granite monument in Claremore, Oklahoma, to the cowboy philosopher, the President proposed a "living memorial" of some social value. He suggested that a fund for children—perhaps crippled children—would be far more appropriate. And typical of the growing public interest in such "architectural" matters was the comment of the press. Said the *New York Post*, complimenting the President on his stand: "It is time somebody put a stop to the granite laurel leaf and scrollwork boys."

Canberra's Designer Dead in India

WALTER BURLEY GRIFFIN, planner of Australia's capital, Canberra, died recently in India. After practicing in Chicago for a number of years, Mr. Griffin moved to Australia in 1913 to take charge of laying out and constructing Canberra. (*RECORD*, July 1933, pp. 55-56; August 1932, p. 25.)

Political complications caused him to sever connections with that city in 1920 and enter private practice in Sydney.

Acme



LAST OF HIS GREAT MONUMENTAL BUILDINGS, JOHN RUSSELL POPE lived to see foundations begun on his Mellon-financed National Museum in the nation's capital.

Death of J. R. Pope Marks End of an Era

DESIGNER of more monumental structures than any other single American, John Russell Pope, New York architect, died recently at the age of 63 in New York. With his death, an architectural career almost unmatched in this country came to an end. Beginning his practice in 1900 after a Beaux-Arts education here and abroad, Mr. Pope rose to fame on that wave of "civic consciousness" which, beginning with the 1893 World's Fair, placed a classic façade on the vast majority of American public buildings. For over a third of a century, Mr. Pope's office held the

Among his many important buildings were the Scottish Rite Temple, National Archives Building and DAR Hall in Washington; Roosevelt Memorial, additions to Frick and Metropolitan Museums in New York; and the British Museum in London.

lead in the field of memorial and monumental building. Always a firm classicist, his work retained a characteristic and unchanging premise—"a belief in both the rightness and practicability of perpetuating in America the ideals of the ancient world." On the basis of this approach to architecture, Mr. Pope received a long list of lavish commissions which continued up to his death. His American Battle Monument at Montfauçon, France, was dedicated only last August, while shortly before his addition to the Tate Gallery in London had been opened. In this country, construction on his \$9,000,000 Mellon Museum was recently begun in

By a strange coincidence, both architect and donor of this Museum died within 24 hours of one another; octogenarian Andrew Mellon had died on Long Island the preceding day. The Museum is designed to house the \$50,000,000 "tax-free" Mellon collection of art.

Washington. But controversy, raging around his Thomas Jefferson Memorial, indicated a changing attitude on the part of both architect and layman to Mr. Pope's concept of public building design.

Long famous for its internal organ-

ization, the office of John Russell Pope will continue in the hands of "men who were entirely sympathetic to the broad principles on which his conceptions were based," according to a statement issued after Mr. Pope's death. "It is considered fortunate that Mr. Pope selected as his aides in the development of his many projects such able men as Mr. Otto R. Eggers and Mr. Daniel Paul Higgins, who are so well equipped to follow the leadership, principles of design, and ideals with which they were imbued during their thirty years of association with Mr. Pope."

Architect's "Lethargy" Criticized by British Journal

THE WIDENING circle of discussion over employer-employee relationships in the architectural profession is leading to an increasingly sharp examination of the profession itself. (*RECORD*, September 1937, p. 37.) And the (English) *Architect's Journal* now carries this examination a step further. Faced with an essentially similar but more mature situation—a majority of R I B A members are already employee architects—the

This difference of composition between R.I.B.A. and A.I.A. is largely due to differences in legal requirements for practice in the two countries.

Journal says: "Architects of all kinds are likely to remain inextricably intermingled as they have been in the past. . . . It would seem probable that a general increase in income can only be gained for salaried men when it is gained for all architects."

Better conditions in the future, says the *Journal*, will come only by "pressure being applied to public and private firms to improve conditions of salaried architects, and by all architects modifying their rugged individualism sufficiently to allow them to form larger partnerships in which each man is a specialist in some part of architectural practice. To bring these things about it is not only salaried architects who will have to abandon lethargy."



PWA's 51 projects will be increased fourfold in the next 3 years

U. S. GETS FIRST PERMANENT HOUSING AUTHORITY

NEATLY halved in almost all respects, the Wagner-Steagall Housing Bill on August 21 became the "United States Housing Act of 1937." Roughly handled by a Congress so intent on "going home" that half of its work remained undone, Senator Wagner's bill nevertheless survived. And its passage in any form, points out the Housing Legislation Information Office, "proves conclusively that housing has finally become a national issue. The Bill would never have weathered a disorganized Congress . . . if the proponents of low-rent housing throughout the country had not been articulate in favor of a permanent housing program."

The Act at long last places the United States among those nations which recognize their responsibility for housing the lower income groups. It establishes a permanent U. S. Housing Authority whose goal is a long-range program of Federal aid to state and local housing agencies. Aid will come

Largely as a result of PWA's "demonstration projects," 30 states now have housing legislation which will enable them to benefit from the Act; similar legislation is pending in most of the other states.

in three forms: loans, annual subsidies, or capital grants. Although all three forms are hedged by many limitations, there seems little doubt that housing activity, with \$500,000,000 available in the next three years, will reach a new high. Moreover, the relation of individual architect or developer to the new U. S. Housing Authority will be quite unlike that of its highly-centralized predecessor, PWA's Housing Division, since initiative will now lie with the local bodies. Under the terms of the Act, the Authority can neither initiate nor build new projects.

Cost per room too low

HOWEVER, supporters of the original Bill have pointed to many weaknesses in the Act. Perhaps because it represented four times the total expenditure of PWA's 51 projects, the halved appropriation (cut from \$1,000,000,000 to \$500,000,000) was lamented by none save the Bill's most devoted sponsors and by the U. S. Chamber of Commerce, which thought even the latter figure far too large. But the Act's limitations on the cost per room drew fire

Amendments by a group of Southern Congressmen at one point reduced this maximum to \$1,000 per room. As finally passed, this limit was raised to \$1,250, exclusive of land and non-dwelling facilities for cities of 500,000 or over.

from many sources. Said the *New York Times*: "Experience has shown that adequate housing cannot now be built in most (northern) cities for as low as \$1,000 per room. Some experts say that they could not even duplicate present slums for that amount. . . . Insistence on this limit would pervert the very object of good housing." And A. F. of L's William Green, while hailing the Act as "the only thing of importance to organized labor" accomplished by the Congress, also felt "the limit on cost per room was much too low." Meanwhile PWA spokesmen pointed to their experience which shows that housing with a 60-year expectancy can scarcely be built for less than \$1,600 per room.

Slum clearance vs. housing

THIS problem of initial cost per room was, of course, closely tied up with those of maintenance and amortization. PWA's Housing Division maintained that "to provide dwellings at rentals which families of incomes rang-

ing down from \$1,100 annually can pay, they must be built to last at least 60 years." Since \$1,000-per-room construction is not so permanent as that, rental subsidies were necessary if low income groups were to be reached. The Act was finally amended to provide a \$20,000,000-a-year subsidy for 3 years, but not before PWA officials were able to point out that better construction lowered maintenance costs, meant longer life and, consequently, less need of subsidy.

The new U. S. Housing Authority will be harassed, as was its predecessor, the PWA Housing Division, by a slum-clearance clause which has no essential relation to housing. Said the *New York Times* on this point: "This measure modifies only slightly the foolish Senate provision requiring compulsory demolition or closing of units substantially equal in number to the new units erected. Obviously, the proposed Housing Authority should have power at least to defer demolition wherever a shortage of houses available for lower income families is threatened."

It is assumed that control of the 51 projects of the Houston Division, now complete or nearing completion in the U. S. and its territories, will be transferred to the new Authority.

Need of Rent Subsidy Seen in St. Louis

CLASSIC illustration of the necessity of subsidy in public housing for low income groups is seen in the dilemma of St. Louis' Neighborhood Gardens. Announcing a 10% rent rise in the PWA-financed, WPA-built project, Manager J. A. Wolf called it "a failure" and asserted "there is no such thing in the United States as low-rent housing." Forced to raise rents to meet amortization charges on a \$640,000 PWA loan, Mr. Wolf called attention of the St. Louis Housing Association to the fact that even under previous rentals, Neighborhood Gardens did not reach the slum-dwellers it

Completed in 1935, Neighborhood Gardens is a \$742,000 project of 252 units. Jointly financed by PWA and \$102,000 worth of private capital, the rents were originally scaled from \$18 to \$38 per month.

displaced. On the contrary, it has been largely filled with white-collar and professional groups from other neighborhoods, to the disappointment of the project's directors, who found that unemployment and wage cuts made it impossible for the former tenants to move in. "It is apparent," said Mr. Wolf, "that enterprises like Neighborhood Gardens cannot be carried on unless there is Federal subsidy."

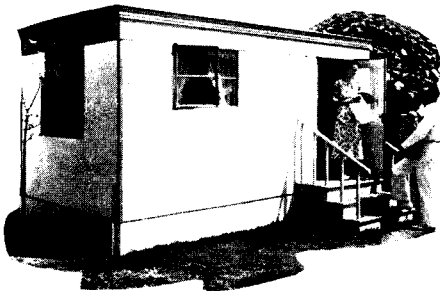
New York Tries Novel Housing Aids

"IN THE FACE of some of the wildest disorder seen in recent years," New York City's Board of Estimate recently established a revolving fund of \$500,000 for the rehabilitation of slum tenements. The opposition—charged by Mayor La Guardia with representing "the owners of filthy, insanitary, fire-trap tenements, who are exploiting the people who have to live in them"—was unable to prevent the resolution's passage, first step under the Murray-Phelps Prior Lien

Passed by last winter's Legislature, Murray-Phelps Bill gives New York municipalities the right to make all necessary repairs on tenements now violating multiple dwelling act, and to collect all such expenditures as a prior lien after taxes and water charges. Bill. The revolving fund will enable the Tenement House Department to begin immediately limited repairs on "old-law" buildings—fire-retarding construction, necessary safety, sanitary facilities, etc. Although on a small scale at present, its sponsors expect a steady increase in this novel form of housing aid.

New Housing Forms for New Housing Needs

RECENTLY announced by a Detroit firm is a chain of small standardized hotels, which will be erected on main highways from coast to coast. Catering only to the tourist trade the first of these highway hotels is about to be constructed in northern Ohio. Eventually there will be one hotel every forty or fifty miles. For easy identification they will be of uniform design and capacity. Properly insulated, heated, and ventilated, and of stone construction, each building will contain sixteen guest rooms, with connecting baths and showers. Garages will be attached to main buildings. A manager will occupy an apartment in each unit.



Close on the heels of this announcement comes that of a prefabricated house-on-wheels, manufactured by Covered Wagon, Inc. Offered as a possible solution of the housing problem, the trailer cottage comes in two models, both designed for permanent living, but equipped for mobility as well. Built-in



20 PERSONS LOST THEIR LIVES WHEN A nineteenth-century tenement in Staten Island, N. Y., recently dropped from sight. Foundations sapped by a "lost" creek, the converted factory collapsed while police and firemen were attempting to rescue the tenants, trapped by rising flood waters. Site of the tenement, which was literally ground to dust and (right) one of the victims being extricated from the wreckage.



equipment—kitchen cabinets, bed, and dinette table—minimizes space requirement. Both models have good-sized bathrooms, with water and plumbing facilities for connection with city water pressure systems. The units are designed for possible combination of two or three trailers into a house of five rooms.

Air Conditioning Gain Raises New Issues

MANY AN American city is today "viewing with alarm" the expanding use of air conditioning equipment—an expansion so rapid, according to a recent survey of the Department of Commerce, that many cities are reporting their water and sewerage systems as being already taxed "to full capacity."

700,000,000,000 gallons of water annually would be required to run the existing air conditioning equipment of the country on a 24-hour, 12-month basis, according to estimates by Carrier and G. E.; this is almost half the amount used by all U. S. cities of 100,000 or over in 1936.

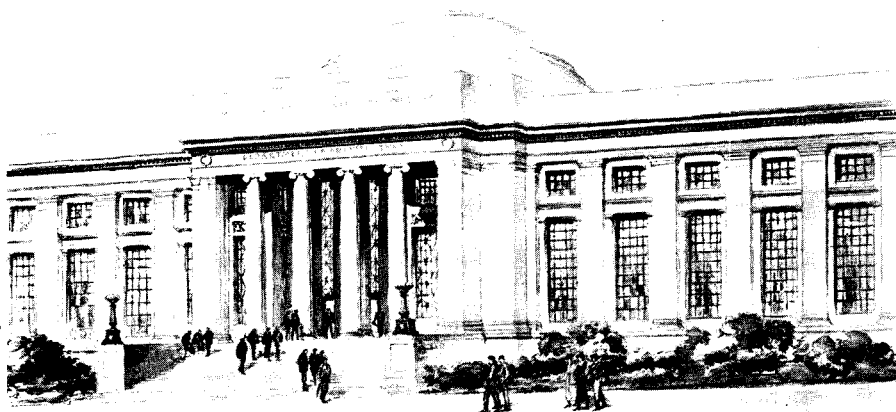
Typical of the way in which important technical developments have their repercussions in economic and legislative structures, this one has caught the average municipality completely unprepared. Many cities have felt the drain

(severe enough in many cases to justify limiting ordinances of one sort or another), but very little actual data have been accumulated, according to the Commerce report.

The report urges each community "to make a complete census of air conditioning equipment, showing installed horsepower, tonnage of refrigeration, gallonage of water required, and method of disposal of waste water." Only on the basis of such data can adequate provisions be planned.

While the magazine *Steel* notes an increase in horsepower used from 168,880 in 1932 to 432,796 in 1936 and confidently expects the "demand to force cities to provide more capacity for water and sewerage facilities," the monthly *Power* warns that the problem is not so simple. The efficiency of the air conditioner must be increased: "We cannot continue to remove only a few thermal units per pound of water. Air conditioners must eventually turn to cooling towers or other methods of dissipating heat with a minimum of water waste." Otherwise, manufacturers may find themselves faced with such regulations covering the use of air conditioners as that introduced in Chicago, whose sewerage facilities are limited.

Photo courtesy M. I. T., News Service



EQUIPPED WITH COLUMNS AND DOME, THIS NEW BUILDING WAS recently begun to house M.I.T.'s School of Architecture; Welles Bosworth, '89, is the designer.

Changing in Response to New Demands

THAT educational institutions are feeling acutely the need for men trained in special fields became apparent last month when schools throughout the country opened with curricula designed to meet the present trend toward specialization. Not new, but increasingly widespread, is the trend toward a larger period of training—a trend which, while making for better-trained graduates—certainly makes for fewer of them.

With the firm belief that what the world needs is well-trained architects prepared to meet the problems of creating buildings for present-day living, Texas A. & M.'s department of architecture has departed from the old time drawing-of-orders instruction. Its most radical change comes in the elementary courses. Where traditional architectural instruction starts the student on a vocabulary of architectural forms derived from historic example often unconnected with the student's background, Texas A. & M.'s Elementary Design allows him to handle characteristic types of materials, learn their limitations and possibilities. From this point the course proceeds to work in arts and crafts and investigation of building types and requirements. As early as possible in the curriculum the student writes his own program and designs a building—usually a house, the building type with which he is most familiar. His work—program, sketch and model—is done on a non-competitive basis, as the school feels that this helps to increase each student's individual potentiality. Competition is introduced at the end of the second year. Intermediate and advanced courses involve the design of buildings as for an

actual client, with consultations, working drawings, and blue prints. Coordination of design and engineering is emphasized by designing structural systems for current design problems.

Along this same line is the University of California's combination course in design, engineering, and working drawings, which begins with the first half of the senior year.

Yale's graduate school plans to meet the needs of men with professional degrees, perhaps with office experience, who want to do laboratory work in modern problems using modern materials. With a minimum of fixed requirements, the department is prepared to give each student an individually planned program along lines of his major interest.

Coincident with curriculum changes is increased interest in city planning and housing. Previously announced (RECORD, July 1937; page 35) were Harvard's and M.I.T.'s courses in these subjects. When Columbia opened last month, its department of architecture offered four new courses in planning and housing under regular faculty members and an imposing group of visiting critics and lecturers. Among these specialists are Marjory S. Cautley, landscape architect; Charles S. Ascher, treasurer, American Society of Planning Officials; Ralph Eberlin, C. E.; and Abraham Goldfeld, manager, Lavanburg Homes. Faculty members from other departments of Columbia will also participate in presenting the new courses. Not only are there lectures in planning and housing theory, city planning engineering and technique, but also design problems in housing, subdivision layout, and urban, suburban, and regional planning.

Air Conditioning Goes to College

ALTHOUGH all large manufacturers of air conditioning equipment have long maintained employee training schools in atmosphere control, General Electric is the first to offer courses in that field to outsiders as well as employees. Now it is augmenting its educational program with courses open to graduates of colleges, technical schools, and high schools. The new program will be worked out by the company's distributors in the field, in the belief that the distributor organization offers wider practical experience and greater possibilities for employment of students in the field of atmosphere control.

Cognizant also of the need for skilled air conditioning engineers is The Trane Company of La Crosse, Wis. A selected group of graduate engineers recently began a six-month course which includes work in the company factory, and installation work with contractors in the territory near La Crosse.

Until now, however, no one institution has been wholly devoted to the study of so specialized a subject as air conditioning. Recently opened in Los Angeles, the Thermo Air Conditioning Institute, Inc., combines in its well-rounded curriculum an intensive study of the theory and principles of atmosphere control with practical training in the Institute's Shops. Practically every type of apparatus for commercial and domestic systems is used for student instruction, with special emphasis on installations for office buildings, hotels, theaters, trains, and ships. The course covers training in problems of heat, its measurement, transmission and insulation, use of instruments, heating systems of all types, psychrometric properties of air, absorption and adsorption refrigeration, cooling loads, air cleaning devices, control systems, electricity, etc. At the Institute's head is Dr. F. G. Baender, long associated with the teaching of air conditioning and related subjects.



Students in Thermo's New Plant



HOUSED IN THIS VICTORIAN CASTLE, MOHOLY-NAGY'S NEW BAUHAUS will offer the latest in industrial design.

TWO NEW SCHOOLS OF INDUSTRIAL DESIGN OPEN

Moholy-Nagy, Gropius, in New Chicago School

IN MARSHALL FIELD'S palatial Chicago mansion there will open October 18 an art school, called The New Bauhaus by special permission of Dr. Walter Gropius, founder of the Dessau Bauhaus which was closed by Nazi order in 1933. The New Bauhaus is to embody the principles and traditions of the first Bauhaus—an integration of art, science, and technics. At its head is László Moholy-Nagy, painter, sculptor and photographer, one-time associate of Gropius and his chief aide at the

Too like castles are New York skyscrapers, said Moholy-Nagy as he passed through that city en route to his new duties. "Why not open them up half or two-thirds of the way up, using glass and steel to make open spaces two or three stories high for terraces and restaurants?"

Bauhaus. Believing that "there are too many narrow-minded specialists, too many artists without practical knowledge of technique," director Moholy-Nagy hopes to develop a new type of designer, conscious of his own creative power, unafraid of new facts, equipped with the right method of approach for independent work.

During the first year, students will spend most of their time in workshops learning materials, metals, leather, wood and plastics. Courses in science, mathematics, economics, anatomy, and comparative history of art complement shop-work and drawing. In addition the curriculum includes supplementary courses in biotechnique (system of conscious inventions), psychotechnique (ability testing), psychology, music, poetry and drama, photography, sports, visits to new buildings, museums, etc. At the beginning of the second year the student enters one of the specialized

workshops. The full course takes four years, at the end of which the successful student receives his Bauhaus diploma. For an extra two years of work in architecture, the architect's degree is awarded.

Design Laboratory at FAECT

RECENTLY ORGANIZED is FAECT's Department of Industrial Design, a continuation and expansion of the former WPA Design Laboratory. Courses in four fields of industrial design are offered—Product, Textile, Display and Interior Design. The curriculum in each is such as to give a broad technical and cultural background. The Product Design program is planned to give a working knowledge of all technical factors pertaining to properties of materials and methods of mass production. Textile Design includes a thorough study of fabric design and construction. Display Design takes up problems of lettering technique, typography, layout, advertising design, reproduction design, packaging, three-dimensional unit displays, and design of large scale exhibitions of a more architectural nature. The Interior Design course stresses the difference between superficial decoration and rational design, and includes technical courses on building construction, structure of materials, lighting, furniture construction, and color theories.

Design Laboratory faculty members include Samuel Garshelis, consultant on electrical, mechanical and chemical design and development for several large corporations and various hospitals, instructor in Industrial Science; Alfons Goldschmidt, professor of Political Economy in a number of foreign institutions, instructor in Social Science; Jacques F. Levy, industrial and product designer, instructor in Product Design.

Germans Prefer "Degenerate" Art

"DEGENERATE" art, now on exhibition in Munich, is more than three times as popular as the exhibition of German or "regenerate" art in the same city. Attended not only by foreign tourists, but by German art students, the exhibit is presumably the last of its kind, for modern art has been proscribed by Hitler, and examples of it are now being thrown out of all German museums. The "degenerate" art exhibit was opened in midsummer as a horrible contrast to the elaborate exposition of Nazi art in the National Socialist regime's monumental art temple. The latter was arranged with the idea of wiping out any remaining uncertainties from the "healthy national sentiments" of German minds. Selections for the national exhibition were made by the Reich's Number One Critic, the Chancellor himself, who is reported to be one of the heaviest purchasers of "regenerate" art.

Librarian Decries "Snobbish" Books

"SNOB APPEAL" rather than genuine scholarship, determines the publication of architectural books, says Talbot Hamlin, librarian of Columbia University's Avery Library, in his annual report. As a rule, he declares, little scholarly work on the historical side of architecture is published, except when heavily subsidized, and few books on contemporary architecture appear today. This, according to the report, is due to the cessation of research caused by conditions—financial in most countries, cultural in Germany, where the Nazi censorship permits only an "Aryan" point of view toward architecture.

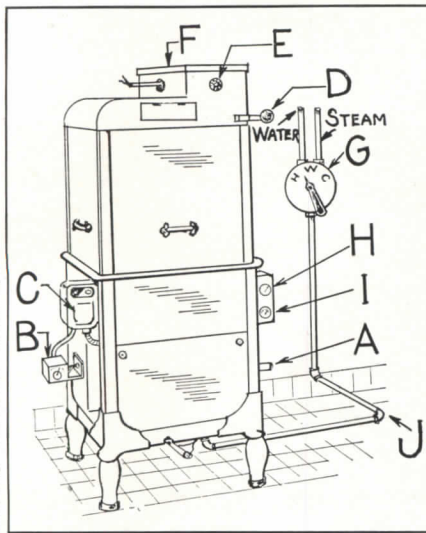


RECENT EXCAVATIONS IN LONDON brought the light of day to this magnificent mosaic floor, fragment of some Roman gentleman's villa of pre-Christian vintage.

NEW PRODUCT NEWS: Dishwashing Goes Scientific

The objective here is to provide the building designer with information on new equipment and materials while it is news, on products in the laboratory stage or just emerging from it, not after they are on the market.

Automatic dishwasher perfected



Courtesy "American Journal of Public Health"

A DISHWASHING machine which automatically controls the temperature of the wash water and of the rinse water, and the length of time of both wash and rinse processes, has been developed by officers of the U. S. Army Medical Corps. Designed by Majors Wesley C. Cox and A. P. Hitchens, the machine consists of a standard stock, single tank model equipped with automatic thermostatic control on the steam injector (A) with accessories for automatic control of the washing process. The latter include electric thermostat installed in the wash tank (B), magnetic motor switch (C), operating switch on the wash handle (D), control box (E), containing time cycle control operating switch and solenoid, pilot light (F), and temperature gauges for wash water (I), and rise water (H). Since the rinse water line (J) delivers water from the house hot-water line at a temperature too low for efficient sterilization, it was necessary to raise the temperature to 180° at 40 lbs. pressure. By installing a regulating valve (G) on the rinse water supply line, steam—mixed with water of the hot-water line—is delivered to the machine at the proper temperature.

Once set at the desired temperature (range is 120°F.—190°F.) the automatic thermostatic control (A) and thermostat (B) can be sealed to prevent unauthorized adjustment, thus guaranteeing optimum time and temperature for the washing process, even when operated by unskilled attendants. A predetermined temperature for which controls are set must be reached before

the wash process goes into action. Coincident with this activation, doors of the machine lock and do not open until the time cycle for the process is completed. The machine automatically stops if wash water drops below the predetermined temperature. Rinse water controls are manually operated on the present machine, but automatic controls have been developed and are to be installed shortly.

New luminescent paint

A NEW luminescent paint, Conti-glo, glows when exposed in darkness to Black Light (harmless filtered ultraviolet) but is of normal appearance in ordinary light. By using this product and regular oil paints, artists can make "dual" paintings, with two different scenes on one canvas. Available in tubes, Conti-glo can be mixed and blended with artists' oil paints. It is of special interest for stage design, says the manufacturer, as scenery and dimensions can be made to change completely by switching from Mazda to Black Light.

Continental Lithograph Corporation, Cleveland, Ohio.

Flexible electrical distribution

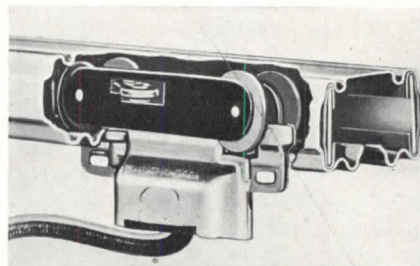


Photo by MacGregor Co.

FLEXIBLE and mobile, Universal Type Trol-E-Duct consists essentially of section lengths of formed steel duct which enclose copper bus bars partially wrapped in insulating material. Inserted in a narrow continuous slot extending along one side of the duct are movable current-carrying trolleys and stationary twistout plugs to which lights, tools, and appliances can be wired. Weight supports also can be inserted in the duct to support lamp fixtures, portable tools, and miscellaneous equipment.

With the use of couplings, elbows, end caps, hangers and various other fittings, the duct sections can be assembled and installed as a compact, continuous and flexible distribution system. Additional outlets to meet increased light and power demands can be tapped off by inserting a trolley or twistout plug in a duct run.

Bull Dog Electric Products Company, 7610 Jos. Campau Avenue, Detroit, Mich.

Swiveled stoker unit

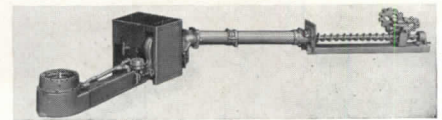


Photo Art

By means of Iron Fireman's new swiveled worm-feed stoker unit, coal bins can now be located anywhere in front of the furnace within a 180-degree arc. Fuel is fed through the swiveled worm conduit. This unit is optional equipment on fall Coal-Flow models.

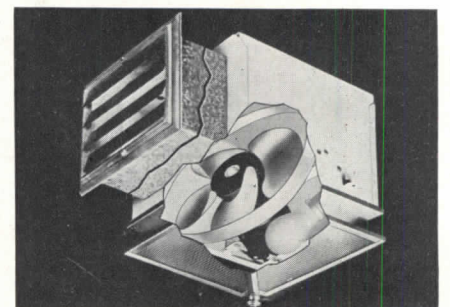
The Iron Fireman Manufacturing Company, Cleveland, Ohio.

Adjustable venting

COMPLETELY adjustable steam venting control is provided by a visual adjustment on the new line of Warco Air and Vacuum Valves recently introduced by W. A. Russell and Company. An adjustable cap on top of the valve vents the correct amount of steam. Directly below this cap is a positive locknut which allows the correct setting to be fastened in place and prevents tampering or accidental change. This new product is said to offer the advantages of completely "stepless" control over the former type of limited venting "ports."

W. A. Russell and Company, Grand Central Terminal Building N.Y.C.

Combination light and exhaust fan



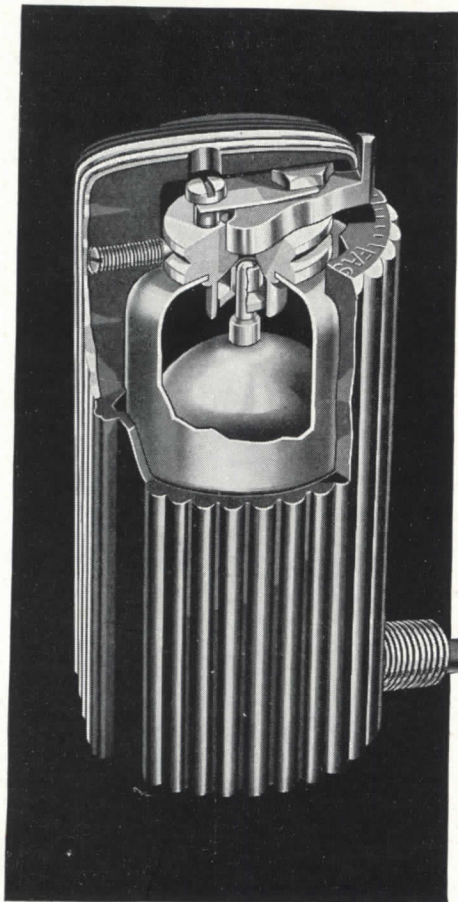
A COMBINATION lighting fixture and exhaust fan, Vent-o-lite, for kitchen installation, is manufactured by Central Queens Lighting Fixture Corporation. Smoke and odors are drawn through the fixture louvers by the fan and forced outside the building through an 8" x 6" duct. Fan housing and ducts are buried in the ceiling between beams. A specially designed oversized motor unit drives the 10" semi-pressure type fan. The light fixture has prismatic glass panels set in a chromium frame. Vent-o-lite comes in two sizes: 11" x 11" for central installation; 10" x 12" for installation over sink, range, or between kitchen cabinets.

Central Queens Lighting Fixture Corporation, 168-29 Jamaica Avenue, Jamaica, N. Y.



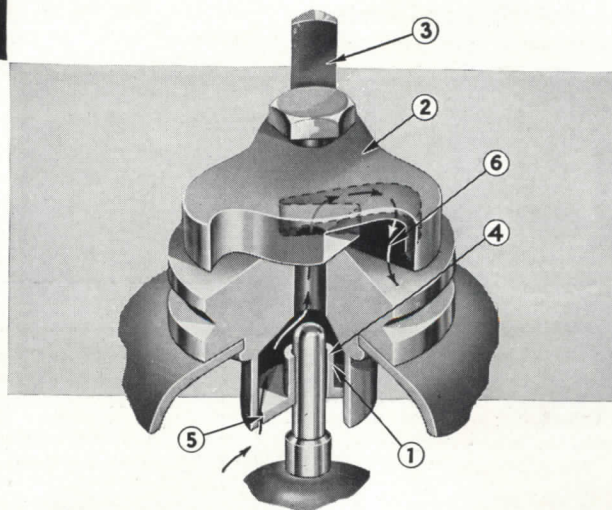
Automatic Modulator

MAKES LARGE PORT VENTING POSSIBLE



Large port venting has been the objective of heating engineers for a long time. Until now it has not been realized simply because it could not be applied to ordinary air valve design. • Large port venting has been made possible by the Automatic Modulator (patented). This device provides maximum port opening only at very low pressures. Beyond approximately 2 ounces it automatically reduces port area to prevent short circuiting the steam, water hammer, etc. • At the start of each heating cycle, every radiator on the system is wide open for very rapid venting. Thus when vapor is generated it has immediate access to the radiators from which the air has been vented. All radiators heat up evenly and quickly. • This is essential for automatic heat and is very desirable on any one pipe steam job, new or old. • The Automatic Modulator is an element of the No. 300 Multiport. These valves used with No. 861 Hurivents comprise the Ideal Fast-Venting System.

1. Automatic Modulator in mid-position.
2. Adjustment Slide Valve.
3. Adjustment Arm.
4. Venting channel when pressure is normal.
5. Venting channel below pressures of approximately 2 oz.
6. Slide valve undercut venting passage.



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Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

NEW PUBLICATIONS

General

Arc Welding Manual and Operators Training Course. By *W. J. Chaffee*. The Hobart Brothers Co., Troy, Ohio.

Basic Specification for Tile Work, Third Edition, No. K-300, 1937. *The Tile Manufacturers' Association, Inc.*, 19 W. 44 Street, New York City.

Code of Standard Practice and Specification for Placing Reinforcing. *Concrete Reinforcing Steel Institute*, 201 North Wells Street, Chicago, Ill.

Report on Progress of The Works Program. *Works Progress Administration*, Washington, D. C.

Air Conditioning and Heating

Air Conditioning Engineering Data Sheets. *Westinghouse Electric and Manufacturing Company*, 246 E. Fourth Street, Mansfield, Ohio.

Central System Air Conditioners by Fairbanks Morse. *Illustrated descriptions of various types of air conditioning units, functions and specifications*. Fairbanks, Morse and Company, 900 So. Wabash Avenue, Chicago, Ill.

For Low Cost Automatic Heat. *Bulletin No. 364*. Detroit Stoker Company, General Motors Bldg., Detroit, Mich.

The Gorton System of Equalizing Steam and Vapor Systems for Automatic Heating. *Gorton Heating Corporation*, Cranford, N. J.

Robinson Chimney Pots. *Catalog of sizes and prices*. Robinson Clay Product Company, Akron, Ohio.

When Your Dream House Comes True. *Illustrated description of hollow steel floor system*. H. H. Robertson Company, Pittsburgh, Pa.

Structural Materials and Parts

Forest Conservation in the Western Pines. *Western Pine Association*, Yeon Building, Portland, Ore.

Plywood Stressed Coverings over Rigid Timber Frames at Great Lakes Exposition. By *C. Merrill Barber*. Includes photographs and detail drawings. Douglas Fir Plywood Association, Tacoma, Wash.

CHANGE OF ADDRESS

The RECORD publishes changes of address only on request, making no attempt to keep a day-to-day account. Only organization in the country with facilities for this is Sweet's Catalog Service, whose painstakingly maintained list undergoes an average of 23 changes per day for every working day in the year.

Roscoe L. Wood, formerly instructor of Architectural Design at the University of Michigan, has opened an office at 808 Seventeenth Street, N. W., Washington, D. C.

Max Gitberg, Architect, has moved to 66 Vernon Street, Springfield, Mass.

Hobart Upjohn, F. A. I. A., announces that Walter A. Taylor, A. I. A., has become an associate of the firm.

Goldner and Goldner, Architects, have moved to 14 West 40 Street, New York, N. Y.

L. A. DesJardins, architect, has resumed practice at 101 Colorado Avenue, Trinidad, Colorado.

Gleeson and Mulrooney, architects, announce the removal of their offices to Fox Building, 1612 Market Street, Philadelphia, Pa.

Kenneth M. Murchison, in association with James W. O'Connor, is now located at 162 East 37 Street, New York City.

H. R. Lenker, registered architect, announces removal of his offices from 25 N. Duke Street to Schmidt Bldg., Center Square, York, Pa.

ANNOUNCEMENTS

"THE RELATION of Health and Hygiene to Housing" is the subject of a symposium to be conducted in New York City on October 8 by the American Public Health Association's Committee on the Hygiene of Housing. Papers to be presented at the symposium by members of the Committee include the following:

Housing and Health, R. H. Britten, U. S. Public Health Service.

Construction Methods, R. L. Davison, J. B. Pierce Foundation.

Sanitary Engineering, H. A. Whitaker, Minnesota State Department of Health.

Town Planning, Professor James Ford, Harvard University.

Safety in the Home, M. G. Lloyd, U. S. Bureau of Standards.

Lighting, James E. Ives, formerly of U. S. Public Health Service.

Air Conditioning, Professor C. E. A. Winslow, Yale University (Chairman of Committee).

The symposium will be held at 9:30 a.m. in the North Ballroom of the New Yorker Hotel.

CALENDAR OF EVENTS

• **October 4-9**—Chicago Exposition of Power and Mechanical Engineering, International Amphitheater, Chicago, Illinois.

• **October 8-11**—First Technological Conference and third annual convention, Federation of Architects, Engineers, Chemists and Technicians, Book-Cadillac Hotel, Detroit, Michigan.

• **October 27-29**—Fifteenth annual convention, American Institute of Steel Construction, Inc., Greenbrier Hotel, White Sulphur Springs, West Virginia.



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CONTRIBUTE TO
BEAUTY

BUT THE EFFICIENCY
OF PLUMBING
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DESIGN**
OF THE
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Select
**SPEAKMAN
FIXTURES**
*For both
fine performance
and
lasting beauty*

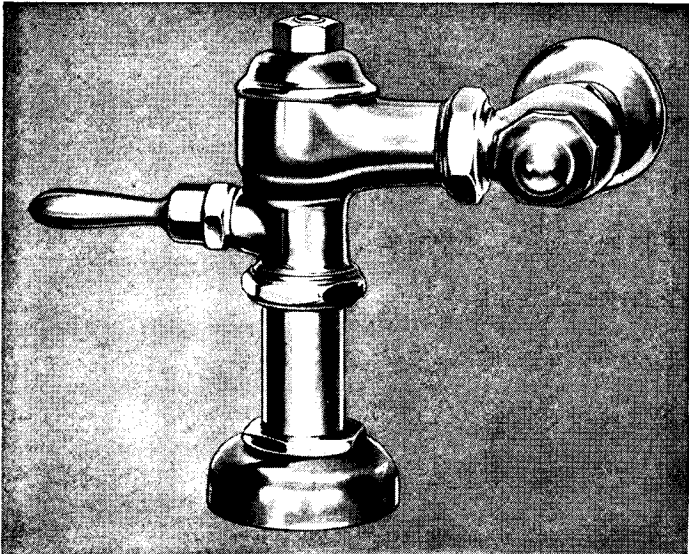


Q

UIET

AS A WHISPER

IN THE NIGHT

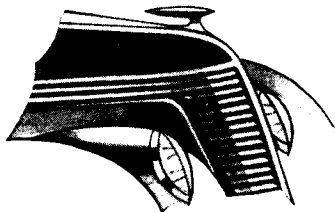


*Pat. No. R. E. 20,246

ELIMINATES THE NOISE THAT ANNOYS

IN HOSPITALS, where quiet is so important to the sick and the convalescent . . . in hotels, where silence means rested and satisfied guests . . . in apartment houses, where freedom from annoying noises is important in maintaining 100% tenancy . . . and in dozens of other buildings where old-fashioned, noisy flush valves are a nuisance—your clients will thank you for selecting Speakman Si-Flo Flush Valves.*

The operation of the Si-Flo Flush Valve is unbelievably quiet, smooth and efficient. It silences the sound of rushing water to a mere whisper which is inaudible outside the bathroom. In design and construction, the Si-Flo upholds the Speakman reputation for high quality. Its entire operating mechanism is centered in one compact piston unit. If repairs are ever needed, this unit can be replaced quickly and easily and at a minimum cost.

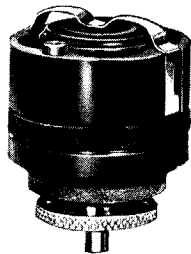


WHAT'S UNDER THE HOOD?

In an automobile, it's not the smart, streamlined body that provides the locomotion, but the silent, smooth-running motor under the hood.

WHAT'S INSIDE?

In the Si-Flo Flush Valve, efficient, noiseless operation is assured by this compact piston unit, completely hidden from view, but easily accessible and quickly interchangeable.



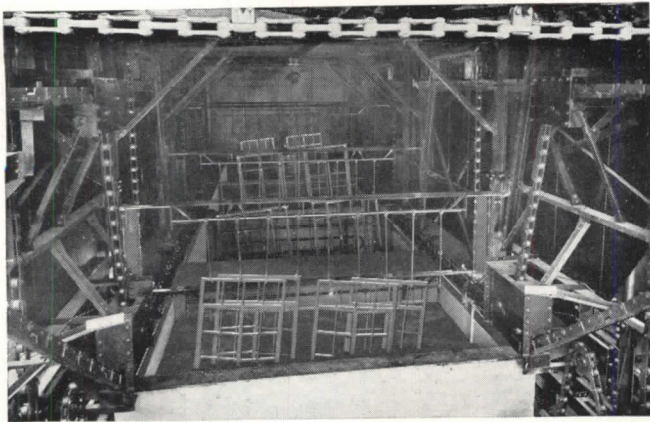
In Sweet's 1937 Catalog File you will find details on Si-Flo Flush Valves and their installation; also details on the Anystream Shower Head, the Mixometer, the Graceline Sink Fixture and other popular items of the complete Speakman Line. We urge you to send for the new Si-Flo Catalog giving valuable water-flow reference tables and data for every type installation—or for literature on any of the other Speakman Fixtures. SPEAKMAN COMPANY, WILMINGTON, DEL. Quality fixtures since 1869.



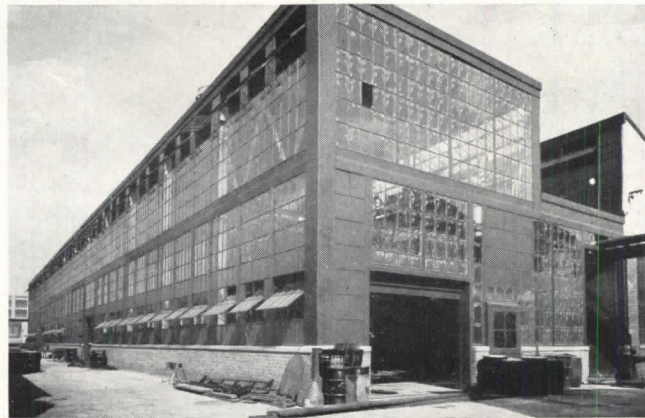
SPEAKMAN

SHOWERS • SHOWER HEADS • BATH FIXTURES • SI-FLO (SILENT) FLUSH VALVES
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SHOWERS AND FIXTURES



The Bonderizing Process. 4 Tanks, 7,000 Gallons, each.



Fenestra Finishing Building. 40' x 234'. Two Basements.

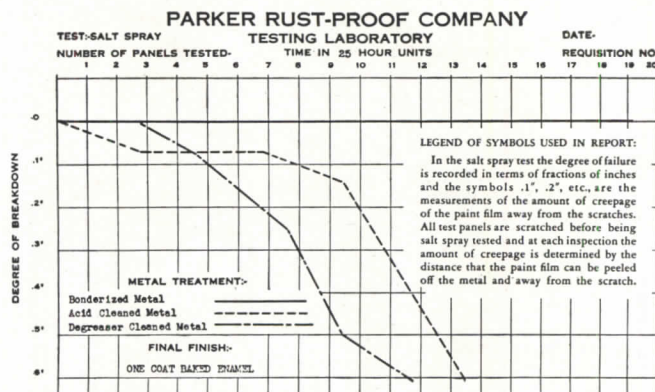
RESISTING

Included in the new finishing operation is the famous Bonderizing Process which has made possible the fine finishes on automobile fenders and refrigerator cabinets. By laboratory and actual usage tests Bonderizing has been proved to be one of the best and most durable rust preventives known.

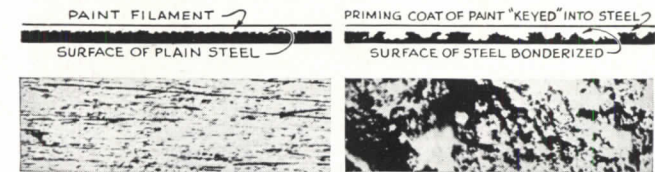
In a new, completely mechanized plant, under predetermined, automatic temperature control, Fenestra windows make a 2½ hour trip through eight operations:—hot alkali cleaning; hot water rinsing; Bonderizing; rinsing; chromic acid dip; air drying; dip painting; oven baking.

Paint, by special DuPont formula, is particularly adapted to dip application at a definite temperature and to provide a tough, flexible, moisture-resisting coat after 30 minutes oven baking at 300 degrees.

STANDARD ON FENWROUGHT (RESIDENCE) TYPES EAST OF THE ROCKY MOUNTAINS. SUPPLIED ON OTHER TYPES AT SLIGHT EXTRA COST.



A salt spray test on three steel plates, each covered with one coat of baked enamel. First plate, Bonderized, was in perfect condition after 480 hours (solid black line). Second plate, degreaser cleaned, began to show deterioration at about 70 hours (dot-dash line). Third plate, acid cleaned, showed almost immediate deterioration (dotted line).



When steel is Bonderized, its normally smooth, metallic surface (left) is chemically converted into a nonmetallic, phosphated, crystalline structure (right) full of microscopic peaks and pits. When paint is applied it flows into the crevices between crystals and is thus "keyed" into the steel.

RUST RESISTING

Fenestra

Fenestra STEEL WINDOWS
BONDERIZED and finished by a
New Process Never Before Applied
to Steel Windows, are now

RUST

A new and important saving in maintenance cost for Builders and Building Owners.

This new process makes Fenestra Steel Windows absolutely rust-inhibitive.

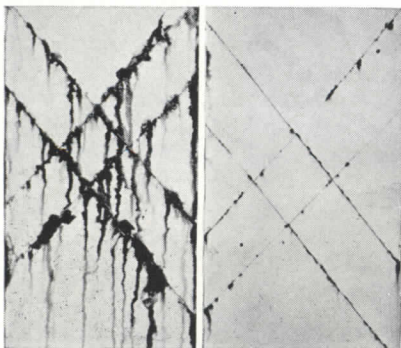
Makes the priming coat on Fenestra Windows last three to five times longer.

Provides a tough, durable base coat that improves the appearance and the lasting qualities of all finish coats that may be applied later.

Gives Fenestra Windows a smooth, satiny finish impossible to secure by any other means.

Guards against creeping alkali erosion between the steel and the paint filament.

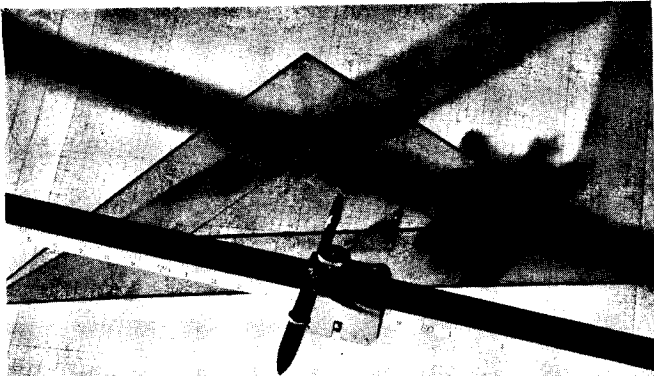
Protects the paint coat against flaking, chalking, peeling and abrasion.



These two steel plates, painted and then scratched were subjected to a salt spray test (20% solution) for over 700 hours. Plates and finishing were identical except that plate on the left was acid cleaned before painting while plate on the right was Bonderized.

DETROIT STEEL PRODUCTS COMPANY

2250 East Grand Boulevard, Detroit, Michigan



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AMERICAN SCHOOL OF DESIGN
CHICAGO

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now Professor of the Graduate School of
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principles of design
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handicraft and machine
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School opens
October 18, 1937

For information on courses write
Association of Arts and Industries
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ANNOUNCEMENT

AEROFIN Heat-Exchange Surface

Aerofin Corporation announces the acquisition of enlarged manufacturing facilities at Syracuse, New York, from which point we shall continue to serve our customers with light-weight, standardized heat exchange surface for heating and cooling. The general sales and executive offices of Aerofin Corporation are now located in the above named city.

This move is in line with an expansion program growing out of the increased demand for Aerofin equipment and reflects the confidence imposed in Aerofin by consulting engineers, architects, heating and refrigeration contractors throughout the country. Aerofin has recently established new branch sales and engineering offices at Dallas and Atlanta, making a total of six strategically located points from which experienced engineering service and technical assistance is available.

With the heating, cooling and air conditioning industries pressing forward on all fronts, you will need the sound, reliable engineering service that Aerofin offers. Take a leaf from the experience of thousands of technicians in these fields who specify Aerofin heat exchange surface. Write today for complete catalogue data and engineering information.

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Fan System
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" **DURABILT** "

An
Assembled
Register—
New and
Better

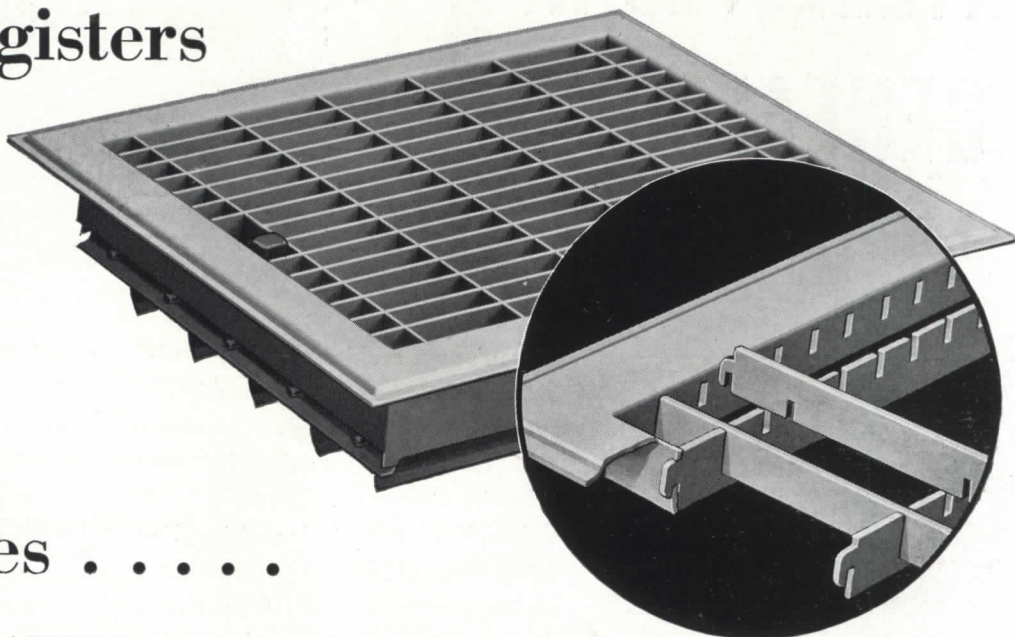
Floor Registers

and

Cold

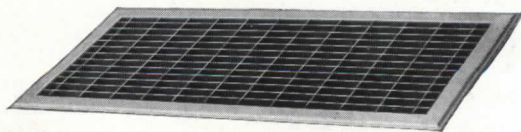
Air

Faces



Here's real news! AUER has now added to its already popular line a perfected *assembled* register—of the steel-bar *constructed* type—with *locked* mortised joints and welded frame. A new AUER plant, with splendid new equipment, now has these **BETTER** Registers ready for you. Severely tested for strength, DuraBilt Registers meet the demand for a *finer* product at a *practical* price. Without sacrifice of true craftsmanship in manufacture, or good taste in appearance, DuraBilt Registers bring your clients a *New Measure of Economy and Value*. All popular sizes and finishes. For warm air heating on *your* projects—specify "DuraBilt" Registers *by name*. Write at once for DuraBilt Descriptive Folder and Prices!

- Multi-Lock assembly for Super Strength and Extra Rigidity.
- All-steel bars—mortised at joints, close-fitted.
- Face interlocked to frame at every connection.
- Ample capacity for air-flow.
- Auer medium-size mesh is close enough to exclude small objects, but narrow mesh can be furnished if preferred.
- A design subdued in character, most pleasing in effect.

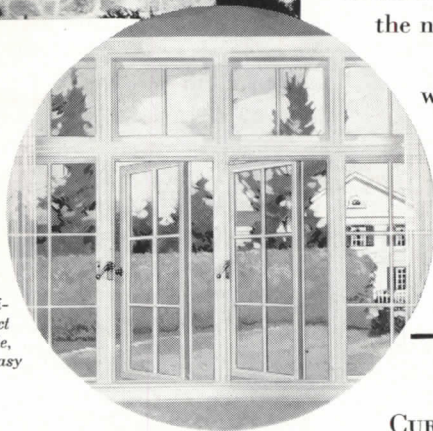


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As attractive inside as it is architecturally correct outside — simple, charming and easy to operate.

If you're an architect you're interested in the genealogy of the *window family*. And you're glad to know that Curtis has introduced a new Silentite Casement.

Window history isn't exciting. For 300 years, until 1932, there was nary an improvement. Then Curtis introduced the Silentite Double-Hung Insulated Window, big brother to the new Silentite Casement.

Here's a wood casement window that has architects applauding. It's a trouble-proof, draftless casement — improved, weather-stripped, with new principles and new, charming architectural beauty, and

new features, which are covered by exclusive Curtis patents.

The Pittsburgh Testing Laboratory checked Silentite against other wood and metal casement windows. They found that it allowed *less heat loss* and *less air leakage* than any of the rest. And they found that Silentite will save as much as 17 out of every 100 fuel dollars!

That's news about windows, and there's plenty more that you'll be glad to hear. For instance, Silentite can't rattle, vibrate or swing in the wind. There's no visible hardware outside or inside except a sash adjuster that's easy to operate. Pre-fit screens and insulating glass make a complete unit. Curtis preservative oil dip adds longer life.

Let us tell you more, give you all the details about this new Silentite Casement. Just return the coupon.

CURTIS COMPANIES SERVICE BUREAU, DEPT. AR-10C, CLINTON, IOWA

AND OTHER CURTIS PRODUCTS: Exterior and Interior Doors • Frames • Trim • Entrances • Molding Panel Work • Kitchen Cabinets • Cabinet Work • Mantels • Stairways • Shutters • Screens • Storm Doors and Windows • Garage Doors • Miterite Door and Window Trim

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THE "INSULATED" CASEMENT WINDOW

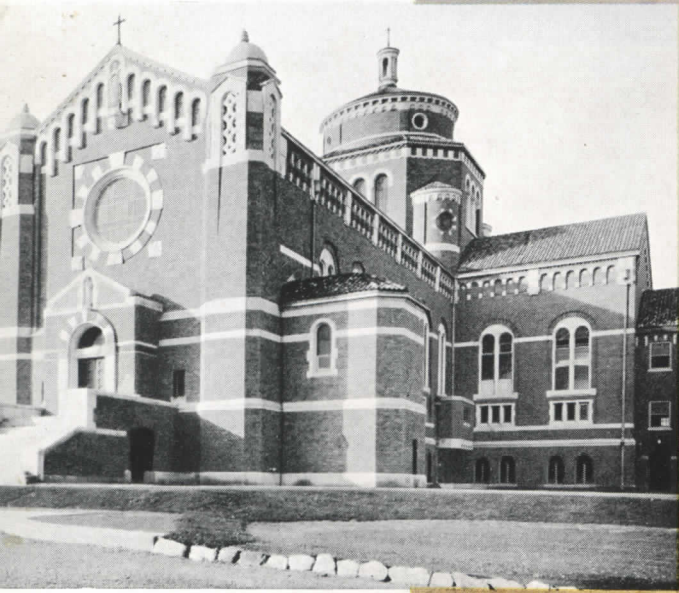
CURTIS COMPANIES SERVICE BUREAU, Department AR-10C, Clinton, Iowa

Please send me further information on the new Curtis Silentite Casement Window.

For information on other Curtis products, as listed above, check here.

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Atlas White portland cement was used in the terrazzo floors of Villa Saint Felix, Plymouth, Mich. Art Mosaic & Tile Company, Toledo, terrazzo contractor. O'Meara and Hills, St. Louis, architects.



Only *White* Cement Makes *Fine* Terrazzo

THE difference between an ordinary terrazzo job and a fine terrazzo job is instantly apparent. Fine terrazzo fairly glows with life and warmth. The colors are pure and rich, faithful to specifications. Patterns are clean-cut, distinct to the minutest detail.

And, best of all, fine terrazzo *retains* these values always. It doesn't fade. It can't be beat for wearability. Its upkeep cost is low.

Skilled terrazzo contractors like to use Atlas White portland cement for their fine terrazzo jobs. It is pure white. It exceeds specification requirements for portland cement strength. And Atlas White portland cement (plain and waterproofed) is quickly available everywhere. Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), 208 South LaSalle Street, Chicago.

FURTHER INFORMATION ABOUT FINE TERRAZZO APPEARS IN SWEET'S

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FOR FINE TERRAZZO SPECIFY ATLAS WHITE PORTLAND CEMENT

NOW YOU GET

3 new advantages

in the famous Jenkins Standard Bronze Valves

CONSTANTLY, Jenkins Bros. strives to attain perfection in Standard Bronze Valves. The three new features presented here are the result of our latest effort to that end. Together they add even greater convenience and better service to the famous valves which thousands of valve users already consider "perfect".

A NEW HANDWHEEL is the most apparent of the features. Put your hand on it... you'll say it affords the best grip and protection from burn of any valve wheel.

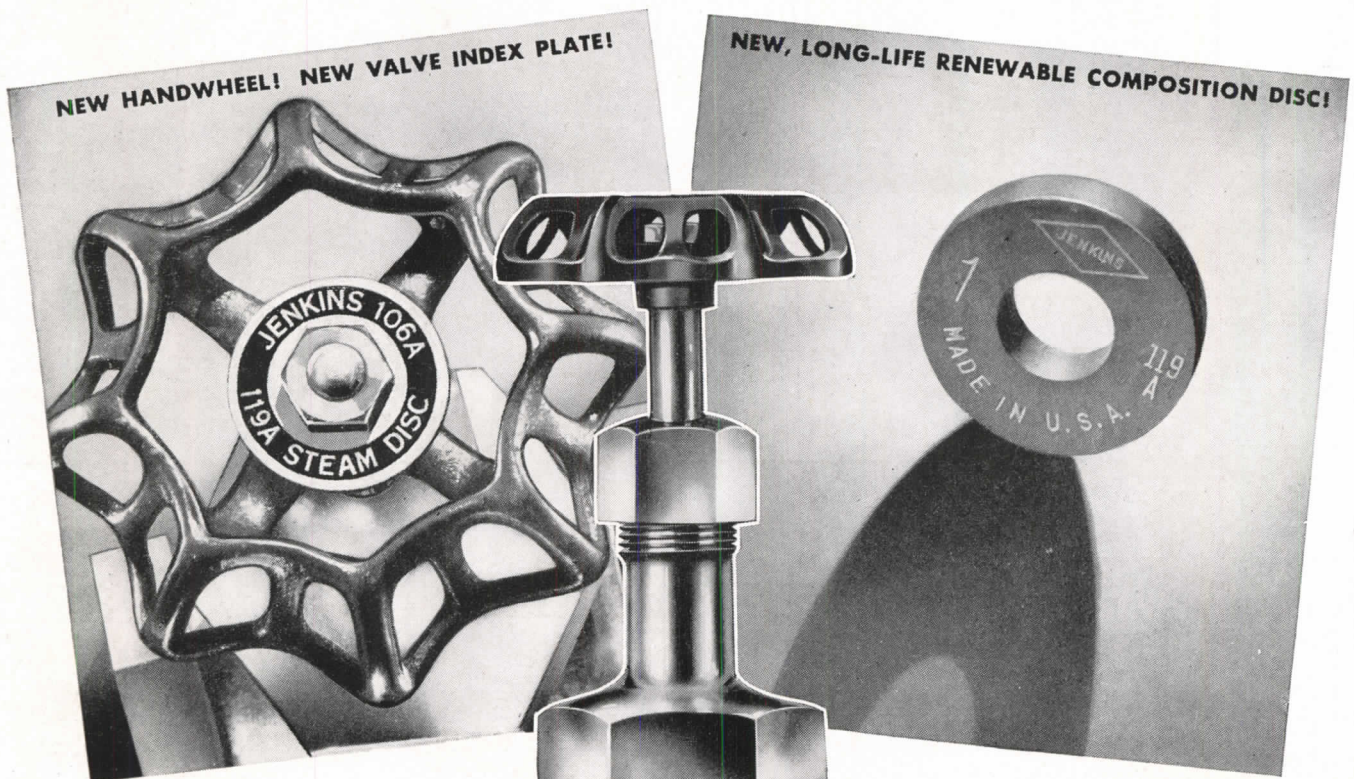
A NEW VALVE INDEX PLATE...telling figure number

and also the disc number and service... is an important time and trouble saver in ordering replacements.

A REMARKABLE NEW DISC that offers unheard of life in steam service is made available. Designated as No. 119-A, it replaces disc No. 119.

Our new folder on Standard Bronze Valves tells all about these and other features which have made "Jenkins" preferred among valve users. Write for it.

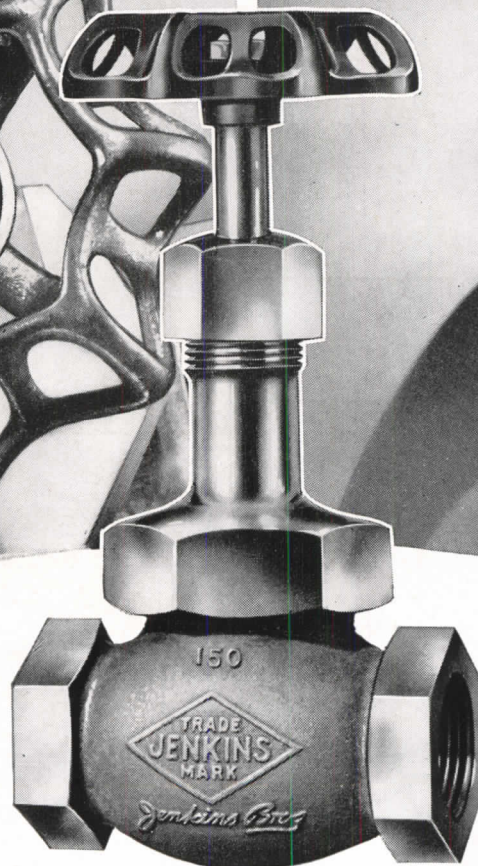
JENKINS BROS., 80 White St., New York; 510 Main St., Bridgeport; 524 Atlantic Ave., Boston; 133 N. Seventh St., Philadelphia; 822 Washington Blvd., Chicago; JENKINS BROS., Ltd., Montreal, Can.; London, Eng.



NEW CONVENIENCE!

Scientifically correct design makes any size wheel fit any size hand. See the extra-gripping area in the deep scallops. See the depressed center that prevents the hand from touching a hot wheel nut. The non-heat design is not bulky, but made of superior malleable iron it stands a wrench.

The Index Plate, held by the wheel nut, is of aluminum with bright markings etched in green enamel.



UNHEARD-OF DISC LIFE!

Two years' service tests show that our new No. 119-A Disc, when used in the service for which it is recommended, will outlast any other composition disc we know about, including hard rubber and Bakelite. This new disc replaces No. 119 and is recommended primarily for steam service, although we believe it to be the nearest thing to a "universal" disc that has ever been developed.

JENKINS VALVES
BRONZE—IRON—STEEL

COLD WAVE GRIPS NATION

Will your heating equipment keep production going this winter?



Those sub-zero days strike with a bang, tying up traffic and putting heating equipment under a terrific load. Once winter sets in, heating repairs are more difficult to make and may cause costly delays.



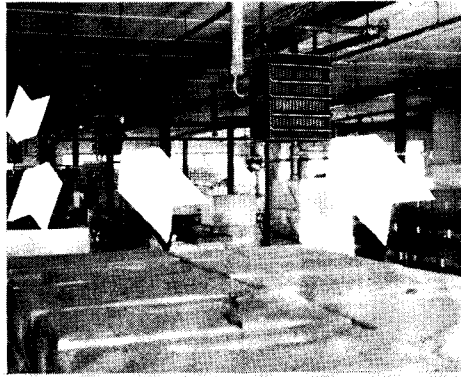
Don't let winter catch you with a full production schedule and poor or ineffective heating equipment. It is cheaper to let your heating contractor check the heating equipment in your plant now.



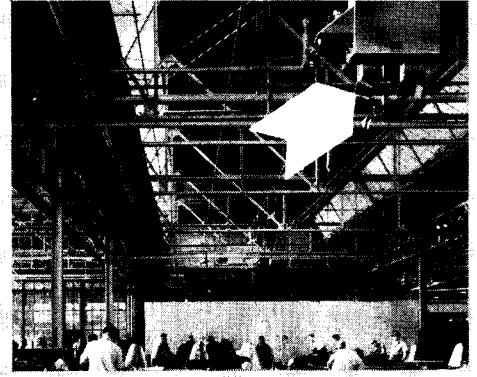
Men can't work effectively in cold plants no matter how hard they try. Production slumps off—efficiency goes down—time is lost. Get efficient heating equipment now. Buy American Blower Units.



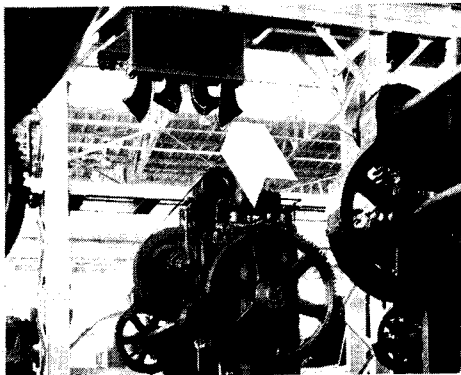
Airport heating has to be efficient. That's why so many of the airports are equipped with American Blower Sirocco Unit Heaters. Those big, powerful units heat large areas easily, and at lower costs, too.



Thousands of American Blower Venturafin Heaters are performing their tasks effectively and economically in printing shops, garages, industrial plants, warehouses, service stations, restaurants, markets, etc.



The bigger the plant the bigger the heating problem. Good Unit Heaters are the best insurance against cold delays. Temperatures may be automatically controlled and maintained.



Save valuable space! This American Blower Unit Heater suspended from the girders overhead forces heat into working areas, cuts heating costs, saves space and prevents damage to heating equipment.



A. G. Turner, production manager, says—"American Blower Unit Heaters have cut our costs considerably. We have tried other makes but American Blower Units work better and last longer."



Above—The Sirocco Unit Heater for high ceiling industrial areas. Right—The Venturafin Unit Heater for all other industrial uses, stores, warehouses, garages, auditoriums, markets, restaurants, etc.

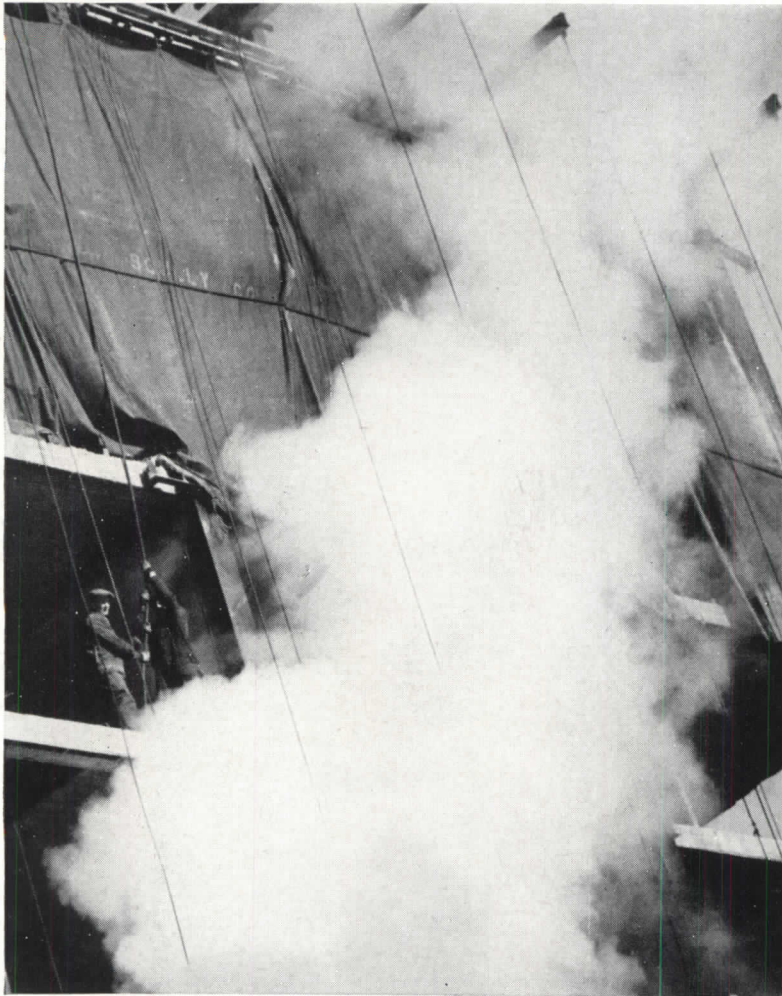
American Blower Unit Heaters cost no more than ordinary units. They are carried in stock in all principal cities and may be purchased on long, easy terms through the Heating and Plumbing Finance Corporation. No down payment—3 years to pay. Ask your heating contractor for complete data.

AMERICAN BLOWER INDUSTRIAL UNIT HEATERS

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'INCOR' SAVED \$1.22 A CU. YARD ON WINTER-BUILT BOSTON BUILDING

SELF-SUPPORTING 5 TIMES AS FAST, 24-HOUR CEMENT REDUCES HEAT, FORM, TIME AND FINISHING COSTS



When Fall nights turn cold, concrete hardens slower. Form stripping and finishing operations are slowed up—the job lags. Plan now to avoid this condition, by using 'Incor' 24-Hour Cement in the weeks ahead.

At this season of the year, 'Incor' offers extra advantages. With 'Incor' it is usually sufficient to heat mixing water and promptly protect the placed concrete against heat loss. Service-strong in one-fifth the usual time, 'Incor' is safe from freezing days sooner; heating and protection problems are simplified, concreting costs are reduced. To get overnight service strength, supply full winter protection.

These advantages mean real money. Example: On New England Power Co. Building, constructed in mid-winter, 'Incor' saved: (1) one set of forms, \$2500; (2) 15 days' overhead, at \$162 a day, \$2430; (3) 24 days' heating expense, \$1623. Total saving, \$6553. Less extra cost of 'Incor', \$1900. NET SAVING, \$4653—or \$1.22 A CU. YD. OF CONCRETE.

Similar savings on concrete buildings, large and small, explain why many architects now automatically switch to 'Incor' for Fall and Winter work. Write for copy of illustrated book, "Winter Construction." Lone Star Cement Corporation, Room 2234, 342 Madison Avenue, New York. *Reg. U. S. Pat. Off.

LONE STAR CEMENT CORPORATION
MAKERS OF LONE STAR CEMENT . . . 'INCOR' 24-HOUR CEMENT

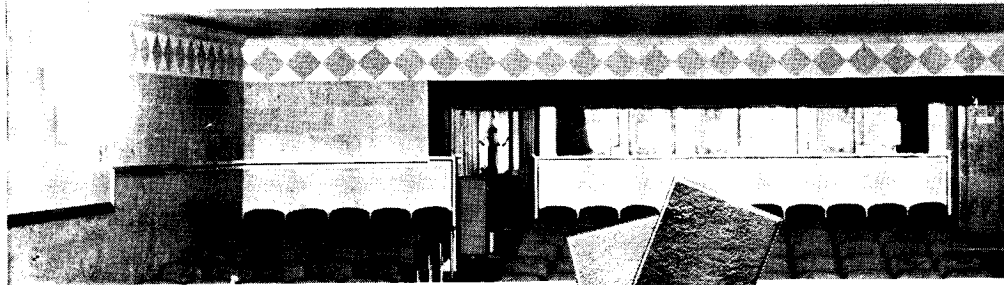
Beautiful Interiors PLUS Better Hearing Conditions — Provide Both With This One Economical Material

NEW WEATHERWOOD **BLENDTEX** INSULATING TILE AND PLANK

Rich, Blended Shades of Soft Color.
New, Interesting Texture

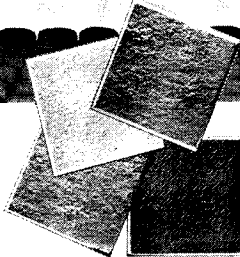


Showing easy application of BLENDTEX Tile to Ceilings, using adhesive.



BLENDTEX Plank is quickly, easily applied to both new and old walls.

■ Here is a NEW insulating interior finish that brings distinctive beauty and charm to *any* interior. At the same time, it improves acoustics; it quiets sound; it helps insulate against heat and cold. Yet Weatherwood BLENDTEX* costs no more than ordinary insulating tile and plank. With its rich, blended shades of *integral* color and new, interesting texture, it is equally suited to home, school, church, theatre, auditorium, restaurant, store and office.



In new or old construction, Weatherwood BLENDTEX decorates—insulates—quiets sound.

SPECIFY BLENDTEX FOR THESE EIGHT IMPORTANT REASONS

1. Blended shades of harmonious colors combine with a new, interesting texture to add charm and dignity to the interior.
2. Improves acoustics and quiets sound—at the same time insulates against heat and cold.
3. Durable. Special treatment of surface increases resistance to wear—helps preserve and prolong the richness and freshness of colors and texture.
4. Integral colors go clear through the material—not merely a surface application.

* Registered Trade-mark

UNITED STATES GYPSUM COMPANY

5. Predecorated surface saves both time and cost of painting.

6. Adaptable—the wide variety of shapes and sizes gives unlimited scope to expression of individual taste in design.

7. Quickly, easily applied to both new and old walls and ceilings—goes right over old walls.

8. Economical—a popular-priced material. With all its advantages, BLENDTEX costs no more than ordinary insulating tile and plank. Weatherwood BLENDTEX is backed by the United States Gypsum Company's rigid high standard and years of leadership in manufacturing wall and ceiling treatments, including Weatherwood IVORY Finish Insulating Plank and Tile, Weatherwood Building Board, Weatherwood Hardboard.

MAIL COUPON FOR FULL DETAILS

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300 West Adams Street, Chicago, Illinois

AR-10

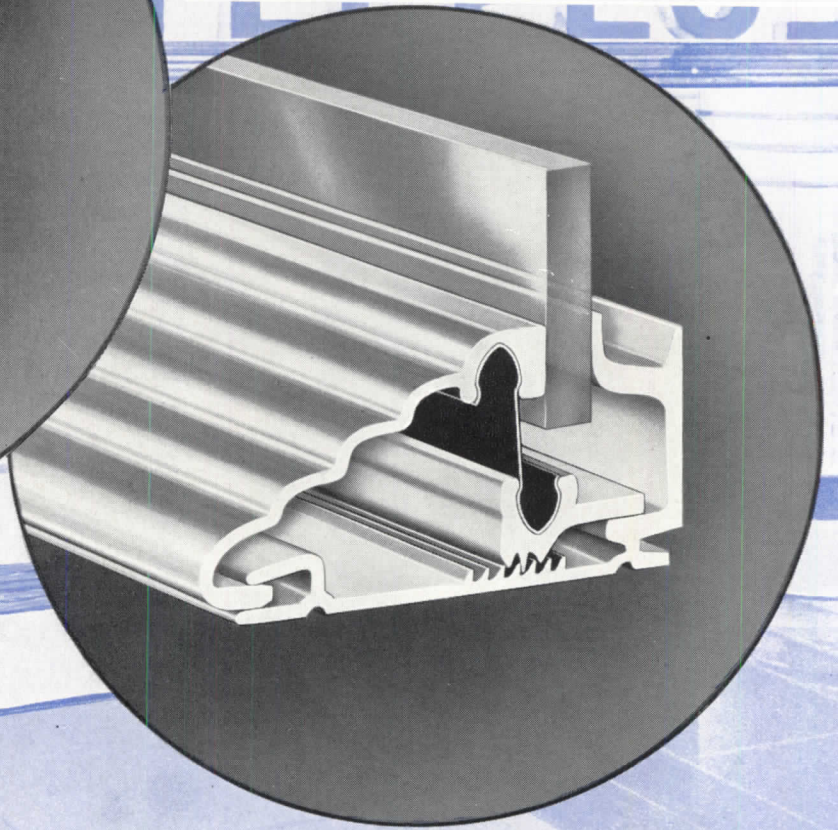
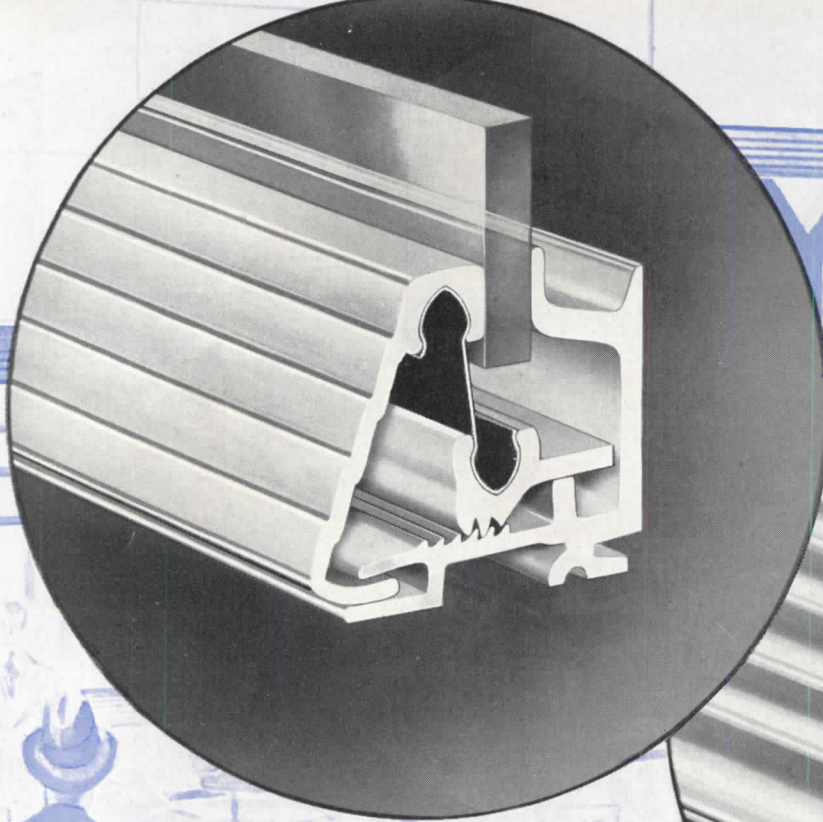
Please send full information regarding the New Weatherwood BLENDTEX.

Name

Address



A New Day in
STORE FRONT CONSTRUCTION



LIBBEY • OWENS • FORD ANNOUNCES

EXTRUDALITE

METAL STORE FRONT CONSTRUCTION

Featuring the Pressure-Controlled
Shock-Absorbing Sash

Extrudalite is a fundamentally new principle of store front construction and design offering outstanding advantages hitherto unobtainable. Extrudalite's patented sash construction definitely minimizes plate glass breakage.

All pressure contacts between metal and glass are automatically controlled to a predetermined degree and constant pressure is maintained through spring cushioning. Complete information will be furnished on request.



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DESIGN TRENDS



Berla

THE BUILDING occupied by "Pravda," a newspaper published in Moscow, one of many contemporary buildings of Soviet Russia discussed by Frank Lloyd Wright on the following pages

ARCHITECTURAL

Record



Sovfoto



Sovfoto

Above: "PLANS FOR THE NEW MOSCOW are far ahead of any city planning I have seen elsewhere," says Frank Lloyd Wright.

At left: "PRAVDA," MOSCOW . . . the more creditable of the left-wing "modernistic" attempts by the Russians . . . too laborious stylization of too little spirit and small content.

SOVIET ARCHITECTURE, as well as events happening in the U.S.S.R., has evoked interest, intense if not always sympathetic, on the part of the rest of the world. Architects of the U.S.A. have followed the fragmentary accounts of recent trends in the architecture of the Soviet Union without obtaining a clear picture of what is going on there.

Last summer (June 15-25) the first All-Union Congress of Architects was held in Moscow under the auspices of the Union of Soviet Architects. Representatives were called from 26 geographical groupings of Soviet Russia. In addition, a number of foreign architects were invited (about 25 in all) from Spain, France, England, United States of America, Turkey, Belgium, Norway, Denmark, and Sweden. The United States delegates were Frank Lloyd Wright and Simon Breines. Wright is well known in Europe and has been particularly esteemed in the Soviet Union. Breines was one of the winners, in collaboration with Joseph Vanderklar, in the International Competition for the Palace of the Soviets in 1932. He subsequently used his prize money on a six months' visit to the U. S. S. R.

Architecture and Life in the U. S. S. R.

BY FRANK LLOYD WRIGHT

NOW THAT I am back at Taliesin again, my Moscow colleagues are far enough away for perspective to assert itself. I enjoyed them so much, was personally so much in sympathy with them while there, that appraisals made on the spot might easily have been overdrawn. They were not.

As I see across the Pole—my friends in Moscow and their work appear the more extraordinary. I went to them intending to do what little I could to end the confusion I thought I saw among them. I disliked the Soviet Work Palace exceedingly—do so yet—hoped to change the minds entangled with its erection, but the foundations were in.

And I found that in Russia now, as in the United States long ago, the masses who had nothing and to whom the landed aristocracy appeared to have everything had their turn to be pleased. Nothing pleases them so much as the gleam of marble columns under high ceilings, glittering chandeliers, unmistakable luxury as they had to look up to it when it decided their fate, when they ate out of luxury's hand if they ate at all.

But reassurance for me lay in the attitude of the Soviet architects themselves. I may mention Alabyan, Colly, Jofan, the Vesnins, Nikolsky, Chuseff and the editor, Arkin, as personal acquaintances in this connection. All of them took the present situation calmly with Russian humor and a touch of fatalism, characteristically Russian.

Just now is no time to offer the liberated ones the higher simplicity which repudiates the falsity of that sort of luxury. This is not the time to insist upon something they could not yet understand—the higher simplicity that has turned upon that flagrant artifice as the people themselves turned upon its possessors. So in the Soviet Union, I saw the cultural lag again as I have seen it and have fought against it for a lifetime in these United States. With the Russians, as with the Americans, several more generations must pass away before a more natural way of life and building can take the place of the old order. The Russian people see viciousness in that old order where human rights are concerned, but the masses of the people are yet unable to see viciousness in the old order in that higher realm of created things of which architecture is the highest.

The architects, however, at least those I have named, are men who do see and realize it. They are men who say, "Never mind, we will tear it down in ten years."

"But it will take nearly that long to finish the Work Palace," I said.

"Never mind," said they, "we may tear that down too, even before we complete it."

"But this popular rush to get into Moscow? Are you on the right road when you prepare Moscow to take in five million country people, instead of sending Moscow out to the five million?"

"But Russia needs a cultural center for her uneducated millions for years to come. Let the city be that cultural center for a time," said they.

That resignation would not be possible for me. I can understand it, perhaps sympathize with it, in a way envy it, but I cannot approve of it, still less share in it. Notwithstanding the tragedy of the first essays in the direction of the new simplicity, I would see the Russian opportunity as a mighty incentive in no way diminished by a false start.

But the attitude of the Russian architects is sincere and, I am sure, far in advance of the social consciousness of our own American architects. I do not know one architect among us who looks so far into the future, able to smile indulgently at his own present effort, perspective given by a fine sense of humor in his idealism.

Said Alabyan: "I thought I would put all the columns I would have to use the rest of my life into this building (the new Theater) and have done with it."

Said Vesnin concerning his Palace of Culture and Rest (a very desirable improvement on Le Corbusier *et al*): "It lacks color. It is only a preliminary study. It is not yet Russian."

Said young Jofan, not yet quite disillusioned concerning his highly decorative Soviet Work Palace: "Never mind, Mr. Wright. It will improve as we go along. We are studying it continually."

And I saw proofs of that statement in Jofan's studio (Napoleon's old residence in Moscow by the Kremlin wall).

Who can help loving such liberal great-hearted fellows? What colleague would not do anything he could do under heaven to help them? The result might be help *from* them.

Said they: "We have faith in our people. We Russians are by nature artists. We love the beautiful. Our sense of life is deep and rhythmic. We will create a new Russia. You will see."

I believe I do see even now in their efforts, a new organic Russia slowly entering into their buildings "through closed doors." And I see no necessity for Russia to die that the Soviet Union may live.

If Comrade Stalin, as disconcerted outsiders are saying, is betraying the revolution then, in the light of what I have seen in Moscow, I say he is betraying it into the hands of the Russian people.

In Moscow the architects by themselves enjoy a large old palace complete, as academy. There are a gallery and supper rooms on the top floor, libraries, studios and collections below. Just before leaving we joined some of the architects I have named for retreat and recreation at their Suchanov, a four-hundred acre park, thirty miles from Moscow, where another old palace stands. There, their own herds and flocks around them, they are putting up new buildings. All stand in a beautiful forest with fine vistas of beautiful countryside. To this wooded retreat, whenever they will, they may and do go with their families and friends for recreation. The architects are about to build small studios for preliminary study and shops for technical experiments there.

There seems nothing but friendly rivalry among them. Why should there be other than willing cooperation?

Wordly rewards cannot benefit them. They are economically independent for life and so are their loved ones. One man's success hurts no one else but is a stepping stone for his fellows. The sting has been taken out of competition and the road to culture of the noble sort is wide open to all who choose to follow it. There is no humiliation in today's defeat because failure today may be retrieved by tomorrow's triumph. The road is open. And their "tomorrow" is today in the sense that Eternity is Now. You will feel it so when you talk to them.

Good fellowship at Suchanov, as Olgivanna, my good wife and interpreter, and I found, is a fine unforgettable human experience. Have you ever known Russian hospitality? No? Well then, be an architect and go to visit Russian architects. They will take you to Suchanov.

Being a farmer myself as well as an architect, I visited a collective dairy farm. The people were at their work in the fields and barns, sharing according to their contributions. They milk three times a day—at sunrise, at ten o'clock, and at sunset. All live together in a village like the farm village of the old order except that now there is the crèche filled with scientifically cared-for babies, while their mothers are at work. The babies are nursed by their own mothers. Nearby, there is a kindergarten, along modern lines. Both crèche and kindergarten are maintained by the Soviet itself. The *Kolkhoz* is a nucleus characteristic of Soviet effort, but agrarian effort, so far, is less developed than industrial effort, as it still is with us.

The factory is better built and managed than the farm. For one thing, the farm requires so much more. This is partly because the Revolution first came from organized labor in the factories, and the farms resisted subsequent movement to collectivize their work. At one time the farmers destroyed their pigs and crops rather than turn them in to the collective. We well know how difficult it is to bring any cooperation to bear upon American farm life, or within it, even now. The Grange came nearest to anything we had but it does not flourish.

The agrarian hurdle seems taken by the Soviets, however. Cooperative farming seems likely to prove the same blessing that cooperatives prove to be in factory industry. The houses of the farm village range about a central square that might be a beautiful park, with loudspeakers there connecting each group with the voice of their leader and the cultural efforts of urban centers. In time, these farm units are sure to become the most desirable of all places in which to work and live.

Plans for the new Moscow are far ahead of any city planning I have seen elsewhere. There is splendid opportunity to make the city over because no private property, nor sentimentality, can say no when the great plan requires the blowing up of whole sections of old buildings. Even sacred old landmarks are blown into the air to make spacious streets where dirty obscure lanes existed. The scope and liberal character of the proposed changes and extensions is astonishing. When completed, Moscow will inevitably be the first city of the world. But, to me, that can only mean something already dated and outlived by the advanced thought of our today.

All of the new city will be much too high—the same premium put upon congestion seemingly that landlordism

places on it here. And I suppose this is partly because the industrialist, still clinging to his habits of congestion, is ahead of the agrarian in the U. S. S. R. He is still ahead in our own U. S. A. For some reason, there will be regimented areas, too, in the "classic" manner, where inevitable freedom should be. There will be four-story schoolhouses, knowledge factories, where two stories would be too high. And while the entire outer belt is a park area, it should be the other way around. The best of the traditional and official buildings should stand in a big central park, buildings growing higher as they extend outward into the country. But much that is splendid is already done—wide avenues and park spaces. The ancient Moscow River is being walled with cut granite blocks, sweeping in a fine curve from the water to the upper levels. The ancient Kremlin walls and domes stand nobly above these new granite slopes.

The Moscow subway is a succession of well-planned palatial stations. I like the more simple ones, built at first, with columns containing lights, the shafts rising and spreading dendriform into the overhead. Later ones are richer and more spacious. The Moscow subway makes the New York subway look like a sewer when one returns to compare them.

But cutting across the road to culture is a barrier, the same barrier that is with us, the popular demand for spiritually unearned, luxurious grandeur. But in their case, no wonder nor reproach. The Russians, outside the aristocracy and bourgeoisie, had less than nothing. Now it is their turn. Millions looking toward Moscow as a Mecca for a lifetime can go there at last! Of course, they go and want to stay, because the lash of unrequited toil on the ground has left its scars.

Concerning new construction: their buildings are no better nor any worse than the best work of other countries. As I have said, misfortune befell Moscow, and our modern movement in architecture too, when her architects took after the left wing. That mistake in direction left some very negative and foreign results—indeed, drab, lonesome, technically childish. The popular reaction from that fiasco could only be luxurious picture-making in the antique, the picture-making which the older people learned as children to admire and covet.

Chuseff and I stood together in his great new Soviet Hotel, a great constructed thing, done in what I told him should be called "the Metropolitan style" because you could see it, with such virtues as it has and all its faults, in Philadelphia or any big city of the world. A comfortable hotel though, and I exaggerated a little because in many respects it was better done, with more comfort provided for an occupant, but still the building was the type of hotel we Americans are learning to hate. Mere size seems to captivate the Russians as it seduced us earlier. Of course, all this is reaction in action.

The Work Palace, to be the crowning glory of the new construction, suffers likewise from grandomania of the American type in imitating skyscraper effects way up to the soles of the enormous shoes of Lenin, where the realistic figure of that human giant begins to be three-hundred feet tall. Something peculiar to the present cultural state of the Soviet is to be seen in the sharp contrast between thick shoes and workman's clothes and skyscraper elegances. These perpendicular skyscraping

motives are surmounted at the characteristic New York setbacks by sculpture, pygmy by comparison. Lenin, enormous, treads upon the whole, regardless. Nothing more incongruous could be conceived and I believe nothing more distasteful to the great man Lenin, if he sees. And yet the young architect whose design was accepted for this work seven years ago has this year built the most dramatic and successful exhibition building at the Paris Fair. The general motive of that building is not dissimilar to that of the Soviet Palace. It too is a building surmounted by gigantic sculpture.

But the Paris Fair building is a low, extended, and suitable base for the dramatically realistic sculpture it carries, whereas the Work Palace itself is a case of thoroughly unsuitable, sadly over-dramatized base underneath realistically undramatic sculpture. I admire Jofan's Paris building as much as I dislike his Soviet work-monument, which is saying a great deal.

The idea of sculpture at the base of the Paris building and the over-elaborate entrance might have been better omitted. All else might well have been subordinated. But here, on the whole, is a master architect's conception that walks away with the Paris Fair. The Soviet Work Palace was an earlier work, the result of competition, and probably Jofan and his colleagues, after working so long upon it, can no longer get a detached view of the whole.

Sovfoto



CITY COUNCIL BUILDING of the Leningrad Soviet on the embankment of the Karpovka River. Leningrad is to be the Soviet showpiece in cities.

I went with him to see a sanatorium he had done near Moscow and that too was a very well-designed, very well-built structure. Any Soviet citizen needing attention and care may go there to luxury seen only on our trans-Atlantic liners. An ingenious arrangement of balconies and rooms gives outdoor enjoyment to indoor comfort. There were too many small things about the place for ornaments but on the whole, here is a performance that could not be, has not been, excelled anywhere.

Jofan! What do you say? Let's declare it off with the Palace of the Soviets. Let's have another competition. I will gladly enter one myself and we shall see how much you have grown. I believe you could win a second time and save the Soviet Union future humiliation.

The building occupied by "Pravda," I saw as the more creditable of the left-wing "modernistic" attempts by the Russians but because of its negative and unconstructive precedents, such is not for the Russians—too laborious stylization of too little spirit and small content. I see the Russians discontented with less than something profound, when culture catches up—say, in ten years.

The extensive Palace of Culture, a recreational center for the studious or artistically-minded citizen, was better in many respects. It contains as good a design for an auditorium as I have seen. The scope and extent of the whole is good in conception, not bad in execution. I liked the architects themselves. I will like their work better when it is more like them. That means more Russian in spirit and character. Both architects are capable men, invaluable to the Soviet, as are many others besides the friends I have mentioned. The Soviet sent four hundred Russian architects to the congress at Moscow.

Leningrad is to be (I take it) the Soviet showpiece in cities. Nikolsky showed me his designs for the new stadium at Leningrad. This stadium is spaciously monumental, a broad treatment employing masses of trees in an architectural way which I liked much. A sensible

Sovfoto



THE PALACE OF THE SOVIETS is intended to be the crowning glory of the new construction. The general motif of this building is not dissimilar to that of the U. S. S. R. Building at the Paris Fair. Both buildings are surmounted by gigantic sculpture.

relief from ponderous masonry, it will be a fine work on a grand scale, really noble.

The Russian cinema has made its buildings the finest good-time places for the people to be seen anywhere in the world. The Vesnins have designed some of them. Colly, my interpreter at the Congress, President of the Architects' Society, the A. I. A. of the U. S. S. R., has a fine sense of proportion and style, at present leaning classicward. Alabyan, President of the Congress, shows himself a competent designer in the new theater, giving life to the old mode. And so it goes on in the stupendous social construction that is calling upon architecture for help and direction. Competent architects, able to build great buildings, are there. And alongside are sympathetic critics, editors like Arkin, the editor of "Pravda," and many others, among whom the heads of their fine arts academies may be included.

What a pity that architecture in Soviet Russia is not as free as the man, so that the millennium might be born at once where the road is more open than anywhere else, instead of again wearisomely temporizing with the old time lag and back drag of human ignorance where culture is concerned. It is hard for me to be reconciled to the delays Russia herself is experiencing, no matter how cheerfully, in getting architecture characteristic of her new life and freedom.

I saw the admirable models for Soviet Russia's new towns and cities in various places, all better than good but too many concessions to the time lag in culture. I suppose the marvel is that a country so backward as Russia was should have these fine things at all, at least have them so soon, perhaps too soon. I grant all that and still regret.

But I saw something in the glimpses I had of the Russian people which overcomes the regret and makes me smile in anticipation. The Russian spirit! There is nothing quite like that spirit anywhere in the world today. I felt it in the air, saw it as a kind of aura about the wholesome maleness of her men and femaleness of her women; in this new gospel of work; in the glad open expressions of the faces of workmen and workwomen. Freedom already affects the unconsciously proud way they carry themselves. Especially the women. I could not help feeling "what a mother this new Russia is going to have."

A new kind of heroism, one more integral with humankind, is growing up in the world here in the Soviet Union where men are men and women are women; where God has ceased to be an expensive abstraction to the people; where abortion is abolished; where there is no illegitimate child and the resources of the state stand behind the mother to reinforce her in the care of her sons and daughters. In Russia, there is a place in the sun ready for the little newcomer when conceived. Wherever and whenever he is born, he is really a citizen with rights that are guaranteed by the state—education and opportunity to work. There is no discrimination between the sexes.

All this is surely wise.

And how wise the premiums placed upon *quality* in work—integral rewards which build up the man in his effort—the "Stakhanof principle," they call it. Rewards of a social and substantial character are devised by a

wise leader to develop an entirely new success ideal. It is so hard for us with all as it stands now in our society even to conceive this new freedom for the individual without grasping several fundamental things totally changed in the human objective. I find myself continually needing a more simple viewpoint than our complex order allows.

Until we get that viewpoint, we can never understand Russia. We will marvel at her vitality and strength, heroic growth and richness of expression, especially her colorful individuality, and never know the secret of such happiness.

The secret is too simple for us because it does not consist in to-have or to-hold but in acceptance of a life consisting in neither except insofar as having or holding may have human benefits each to each and each to all. The relief of such release from ignoble fear, economic anxiety, and false shames, you may already see in Soviet faces, Soviet acts. Heroes and heroism are the glisten in the fabric of this new life.

Having seen and sensed the Russian spirit, I should say that enemies interfering with the Soviet Union would not only have to reckon with the whole male population bearing arms, but with the women too, and every child above nine years of age. Nothing less than total extermination could conquer Soviet Russia.

In Peking (now Peiping), 1919, I made the acquaint-

ance of a Chinese writer, Ku Hung Ming. An Oxford graduate, he had been the Empress-Dowager's secretary. He was then an old man. He showed himself a non-conformist by the fact that his grayish pigtail still curled up beneath his little mandarin cap. I went about sightseeing with the sage and I learned more from him than from any other man I have met. I treasured a book by him, *The Spirit of the Chinese People*, until it was lost when my home burned in 1925.

A true philosopher, he had the faculty of thinking and speaking "in simples." One day, while sitting on the edge of an old stone terrace overlooking a lotus pool, he summed up and characterized the various races of the world with what seemed to me great insight and justice, especially with regard to America. "Soul" seemed to him to be the element most lacking in all the nations, the French having a substitute, "Delicacy." But, he said, it was Russia who would give soul to the world.

At the time, I knew Tolstoi, Dostoievsky, Turgenev, Pushkin, and Gogol; I knew Russian music and theater, too, somewhat, and I thought I saw then what he meant.

Today I believe what he said.

It is true. Russia may yet give to this money-minded, war-minded, quarreling pack of senile races that make up the world, the soul they fail to find within themselves, and, I hope, in time to prevent the suicide their nations are so elaborately preparing to commit.

First Congress of Soviet Architects

By SIMON BREINES

IN THIS ARTICLE I shall describe the Congress more or less as it unfolded according to the official Program of Work. But before I begin I must mention a few facts which will make clear to the reader how the sessions were conducted, who the foreign guests were, and how they were enabled to participate in the work.

The congress covered ten days (June 15 to 25) and with morning and evening sessions daily it turned out to be, for an American at any rate, a rather strenuous though absorbing experience. Since all the reports, with the exception of the papers and discussions of the foreigners, were given in Russian*, we were divided into language groups and provided with interpreters. The English-speaking group consisted of Edvard Heiberg of Denmark; Sven Markelius of Sweden; Harald Hals, Municipal Architect of Oslo, Norway; Clough Williams Ellis of England; Frank Lloyd Wright and myself. We had two interpreters who sat with us at the Congress and alternated in translating the proceedings to us. The French-speaking contingent was the largest and included the Spanish Government architects, Manuel Arcas, J. Martin and J. Vaamonde; the French architects, Francis Jourdain, André Lurçat, who is designing a large hospital group in the U. S. S. R., and Marcel Lods, of Beaudoin and Lods, who built the famous concrete apart-

*The Reports were printed in Russian from day to day and the most important were made available to us in French. The proceedings of the entire Congress will soon be published by the Union of Soviet Architects.

ment towers at Drancy and designed the lighting color and fountain effects at the current Paris Exposition.

The opening speech was made by Architect Alabyan, general secretary of the organizing committee of the Union of Architects. He sketched briefly the achievements of Soviet architecture in terms of housing, social and civic buildings, the stations of the Moscow subway and the newly-completed Moscow-Volga Ship Canal, noting particularly the accelerating tempo of construction in these fields. He contrasted these activities with the situation in other countries where, as he quoted from Frank Lloyd Wright, "architectural initiative had been killed by the crisis."

Alabyan then plunged directly into the question of the hour, the question which has agitated the Union for years and which is apparently the concern of even the humblest Soviet citizen: What is the social function of architecture in the U. S. S. R. and what form shall it take?

"The cardinal function of Soviet architecture," stated Alabyan, "is to serve the interests of the toiling masses." One of these interests, he said, required that architecture be an "embodiment of the socialist epoch, a monument to our effort to produce a new society." Architect Alabyan did not attempt to lay down the specifications for the form which such monuments should take. He did, however, unhesitatingly list those *architectural*

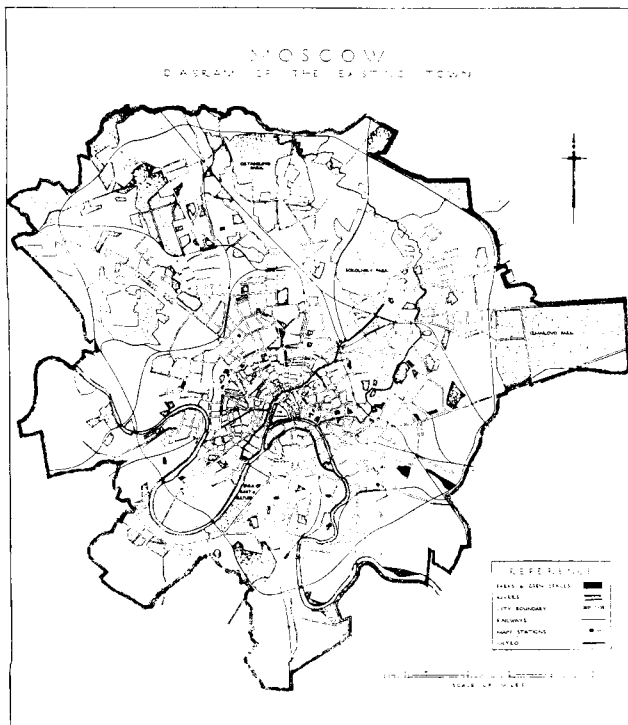
tendencies and their exponents which, in his estimation, failed to serve the interests of the people. He attacked the "formalists" like Melnikov who were "indifferent to living reality" and whose experimental pursuit of architecture as a sort of sculptural problem resulted in the cubistic and extremely freakish buildings which were so well-known soon after the Revolution. Alabyan also criticized the "constructivists" like Nikolsky and the Vesnins who adhered to the "modern" or "functional" style of which Le Corbusier might be said to be the outstanding figure. He pointed out that the "constructivists" had turned their backs completely on the rich architectural heritage of the past and particularly the architectural and cultural heritage of Russia and the affiliated national republics. This is not to say that Mr. Alabyan was a simon-pure classicist. On the contrary, he castigated those "eclecticists" who were too mechanically copying the old masters.

The next reporter was Academician A. V. Schussev* who is perhaps best known as the author of the Lenin Mausoleum on Moscow's Red Square. He reviewed the historical influence of East and West on Russian architecture. He concluded that the Soviet Union must now look increasingly to the West and particularly to America for inspiration. Of course, said M. Schussev, it is in the field of modern building technique and in the conveniences within the buildings that Soviet architecture can most immediately and sensibly benefit from the U. S. and other industrially advanced countries. He frankly admitted that in this respect the Soviet con-

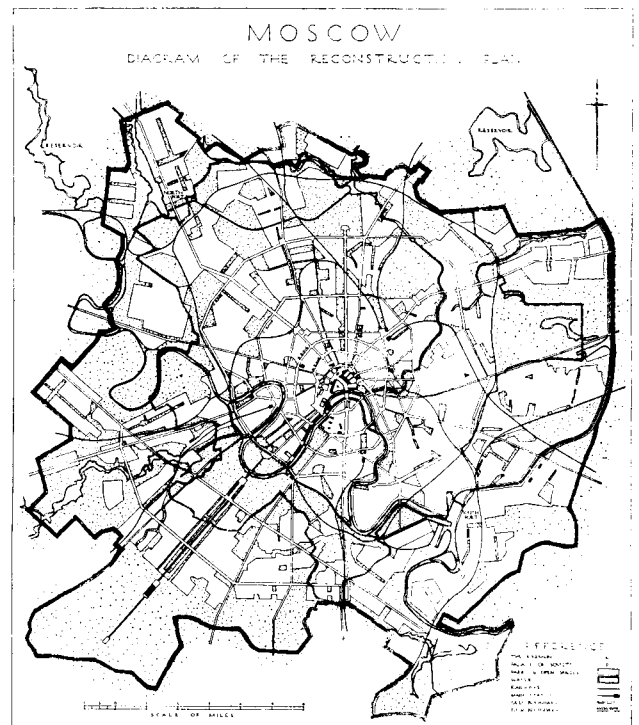
*The title "Academician" is an honorary term indicating membership in the pre-revolutionary Academy of Architecture. It is no longer conferred in the U. S. S. R.

struction industry and architects were still backward. Professor Schussev wound up his report with an admonition to the young architects against "blind imitations of the classic." This was significant coming from the venerable Schussev whose office has been most prolific in recent years in producing designs of decided classic flavor.

The third speaker was Professor N. D. Kolli who analyzed the various trends which have characterized Soviet architecture since the Revolution. In this article it is, of course, impossible to go into great detail. Consequently I can give only the substance of Professor Kolli's most interesting report. He traced the emergence after the war of the radical school among the younger architects. This movement broke with the culture of the past and, beginning about 1921 under the leadership of the Architectural Institute, engaged in an almost hysterical experimentation with new ideas. This period was marked by a reckless swallowing of indigestible chunks of extremist theories and an attempt to transfer mechanically some of these theories to architecture. There was, for example, Architect Ladovsky who attempted to introduce psychoanalytic theories into his buildings; and Architect Tatlin who, in his design for a monument to the Third International, used the spiral as a symbol of revolution; and Golosov who, in his project for a Palace of Labor in Moscow in 1922, designed the roof as a huge cogwheel with teeth. I wonder, as I record Professor Kolli's thoughts, what his opinion is of Alabyan's Theater of the Red Army, which is now nearing completion in Moscow and which is built in the form of a gigantic five-pointed star.



Courtesy "Moscow in the Making"



OLD PLAN of Moscow at left; PLAN FOR RECONSTRUCTION at right. "Even sacred old landmarks are blown into the air to make spacious streets where dirty obscure lanes existed."

I should like to add that even the more sober of the Soviet modernists made fatal blunders in attempting to adapt the new architectural ideas coming out of Europe at that time. The modern style, despite its pseudo-functionalistic trimming, did reflect, and to a large degree was actually based on, an advanced building materials industry and construction technique. The building industry of the U. S. S. R. was simply not equipped in those days to make available the fine materials and the precision which are the *sine qua non* of modern design. Every visitor to the Soviet Union is acquainted with the cruder and, therefore, more obvious results of that former modernist fetishism for huge white stucco surfaces, ubiquitous horizontal window strips and an emphasis on glass. Today, the stucco is frequently found to be disintegrating, the great windows make the buildings in the north too cold and in the south too hot. It is not then to be wondered at that the architects who criticized this state of affairs were able, along about 1932-33, to win the public ear. The reflection of that development is the ascendancy, in the past four years, of the classic and neo-classic style in Soviet architecture.

This is not to say that Soviet architecture has gone completely classic or has abandoned entirely the ideas of the so-called "formalists" and "constructivists," if indeed it is possible at all times to distinguish between them and the classicists. The fact of the matter is that the Congress revealed a most interesting difference of opinion and freedom of discussion. For example, in the discussion from the floor which followed the main reports, Professor V. Vesnin took issue with some of the statements made by Kollı and Alabyan regarding the necessity for eliminating all traces of "constructivism." He pointed out that while it was true that many post-war architectural ideas from the West had been adopted in the Soviet Union without sufficient criticism and with an incorrect ideological approach, nevertheless, it was equally true that "constructivism" contained much of value. Professor Vesnin admitted that there had been many serious faults in the "constructivist" movement and that both he and his brother had erred in not combatting with sufficient vigor the extremists in their ranks. But, he said, "the way to overcome constructivism is through the application of socialist architecture; the method must be scientific." Professor Vesnin not only won applause and support for his position but, when the results of the election of the new Directors of the Union of Architects were announced, his name appeared along with those of Kollı, Alabyan, Jofan and others.

To an American architect, the most striking aspect of the Congress was the discussion which followed the main reports on the problems of Soviet architecture. For two full days there flowed across the speakers' platform a great succession of workers' delegations from factories and farms, of representatives from 26 different national groups within the U. S. S. R., of economists, members of the Central Committee of the Communist Party, heads of industries, of architects and of laymen; in short, a cross section of the entire nation. Each of these speakers contributed something to the vast panorama of architecture in the Soviet Union and its place in the public mind.

A delegate from the Armenian Republic told of how

formerly the use of national forms in architecture had been sternly repressed by foreign overlords; of how the post-war modernistic buildings which were constructed from designs by Leningrad and Moscow architects were found to be unsatisfactory for southern conditions and traditions; of how, under the benevolent stimulation of the central government, Armenian architects were beginning to incorporate some of the native art forms into their designs. He admitted that they had not yet found a satisfactory solution to the question of architectural style, but that at least they had the freedom to experiment. He ended proudly by saying that, whereas before the war there had been only five native architects in Armenia, there are now fifty.

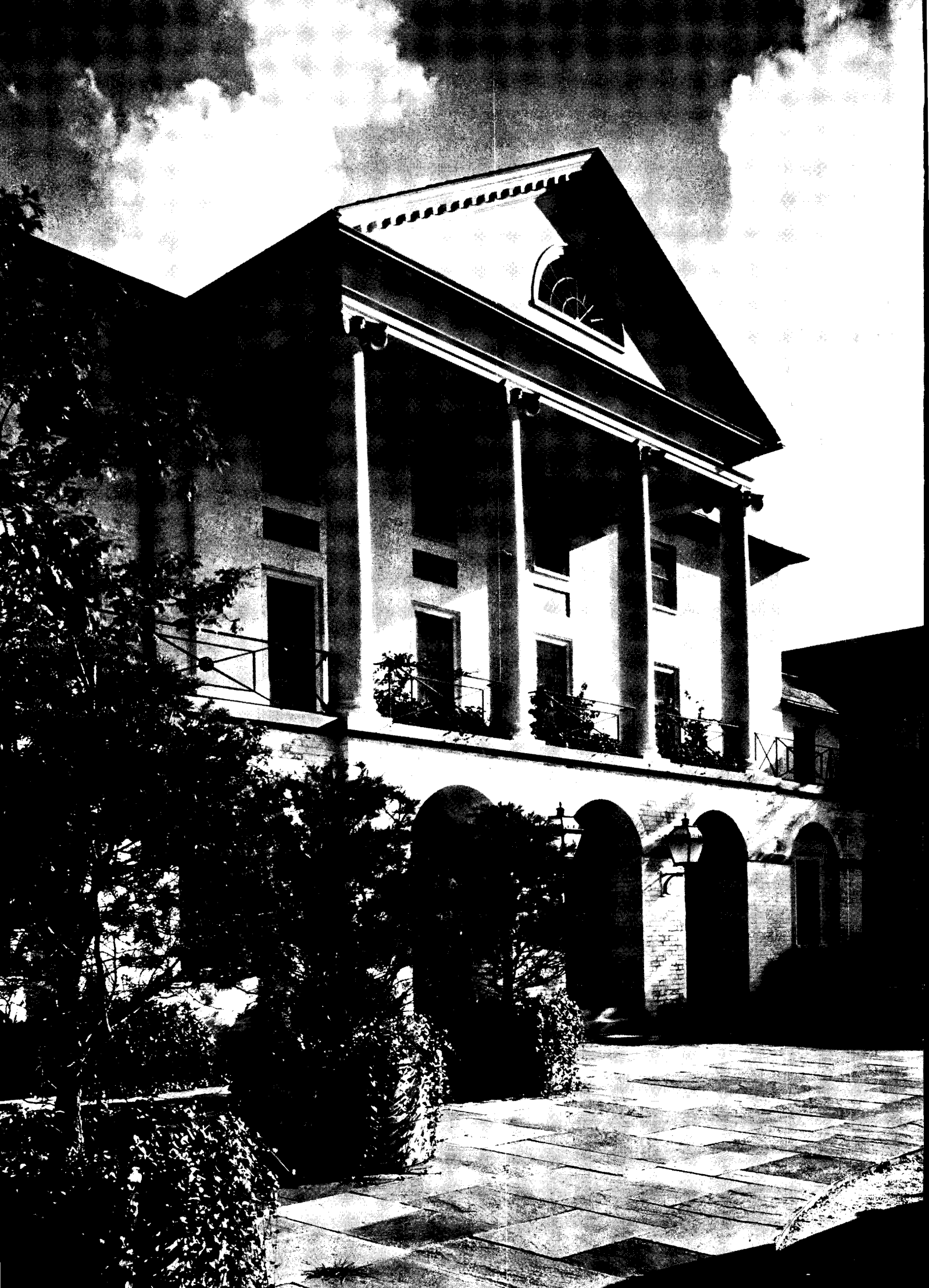
The Ukrainian delegate called for a consideration of the architecture of the collective farm villages with their many new problems. "Architectural form," he said, "is to be studied not only in the museums of folk art but in the day-to-day life of the people themselves." Similar reports came from Uzbekistan, Kazakistan and the other republics.

An interesting feature of the workers' delegations to the Congress was that they gave facts and named names. The group from the great auto factory in Moscow was typical. Its spokesman paid tribute to the achievements of Soviet architecture and admitted that she didn't know anything about art. But why, she asked, did the new factory apartment houses have the kitchens and bathrooms on the wrong side of the building? And why were the windows too large in some rooms and inadequate and inconveniently located in others? Why did the house need repairs so soon after completion? After these and similar criticisms she called upon the architect by name for an answer. It frequently happened in such cases that the architect himself would be sitting on the platform directly behind.

(Continued on page 94)



Courtesy "Crocodile"
CROCODILE, the Soviet magazine of humor, pulled no punches in its issue devoted to the Congress. This sketch, and the one on page 96, are typical samples. The Editors labeled this sketch, "The name of the plaintiff is Palladio, who says, 'Hold him, Guard, in this project only the signature is his.'"



THE BUILDING of the Williamsburg Inn followed an unprecedented demand for hotel accommodation by visitors to America's famed Colonial village. This Inn, with its air conditioned comfort, is part of a program which later on will require further hotel facilities.

Williamsburg Restoration Builds an Inn

By **WILLIAM G. PERRY**, *Perry, Shaw and Hepburn, Architects*

Accommodation for Visitors

WHEN the Restoration work was undertaken in 1928, hotel and inn accommodations at Williamsburg were of the more primitive type; they were, however, sufficient for all purposes save for the heavy demand during the spring commencement period at the College of William and Mary. Partially to meet this annual need, the College authorities had provided certain accommodations for their alumni. Tourist camps sprang up and there were houses taking the occasional roomers, but these were only as numerous as in the average town on an important highway.

The Colonial Inn, standing upon a part of the Court House Green, with rooms for fifty persons, was acquired by the Restoration. As visitors increased, its facilities were improved and the kitchen re-equipped; but with the ultimate demolition of the building in view as a part of the program of the restoration of the

Colonial Area, further and more suitable hotel conveniences were required.

Coincidentally, the larger problem of tourist accommodation was studied and restudied with many alternatives in mind. These alternatives presented in each case possible solutions, to conform with future highway and parking construction and the exceedingly important matter of permanent parking areas with the routing of visitors about the perimeter of the Area itself.

The Site

SITES for an inn or hotel within the Area were considered, one scheme proposing to utilize certain restored buildings for guest accommodation and to adapt outbuildings, stables, etc., for kitchens and dining rooms. Another scheme, intimately connected with the bypass of Route No. 60 and the proposed Colonial National Monument Parkway, would, if adopted, have utilized a site which lies near the central transverse axis of the city as it extends to the rolling fields north of the Chesapeake & Ohio Railroad. Sites, however convenient, which impinged upon the Restored Area defeated their own purposes. Sites far enough detached from the Area to

Opposite page: CENTRAL PAVILION AND MAIN ENTRANCE.
The design was influenced by inns built in West Virginia during the early 19th century.

Photo by Richard Garrison

tempt visitors to enter their motor cars and drive to the Area simply created new problems of additional conveniently located parking spaces.

It became recognized, therefore, that the eventual site would of necessity be one wholly controlled by the Restoration, capable of expansion and so located as to avoid the drawbacks of both the previously studied schemes.

Visitors endured the existing accommodations over a period of eight years with great cheerfulness, eagerly seizing upon every new room as it became available in the newly restored Taverns and Ordinaries.

It is evident that the design of any building, to be constructed entirely convenient to the Restoration and of sufficient size and expandible character to fit the needs of a modern hostelry in a Colonial city of the character of Williamsburg, must present difficulties which take the form of compromises with historic accuracy. It is important that visitors, however, clearly realize that the Colonial Restored Area is definitely restricted and that the present Inn site, south of Francis Street, stands entirely outside this restored area of Williamsburg proper.

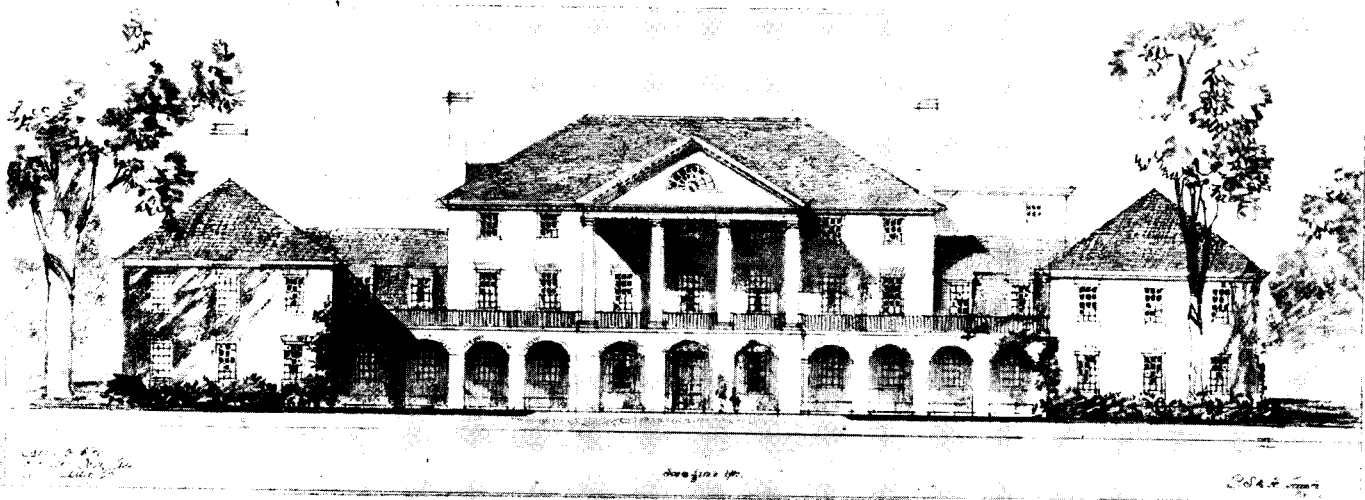
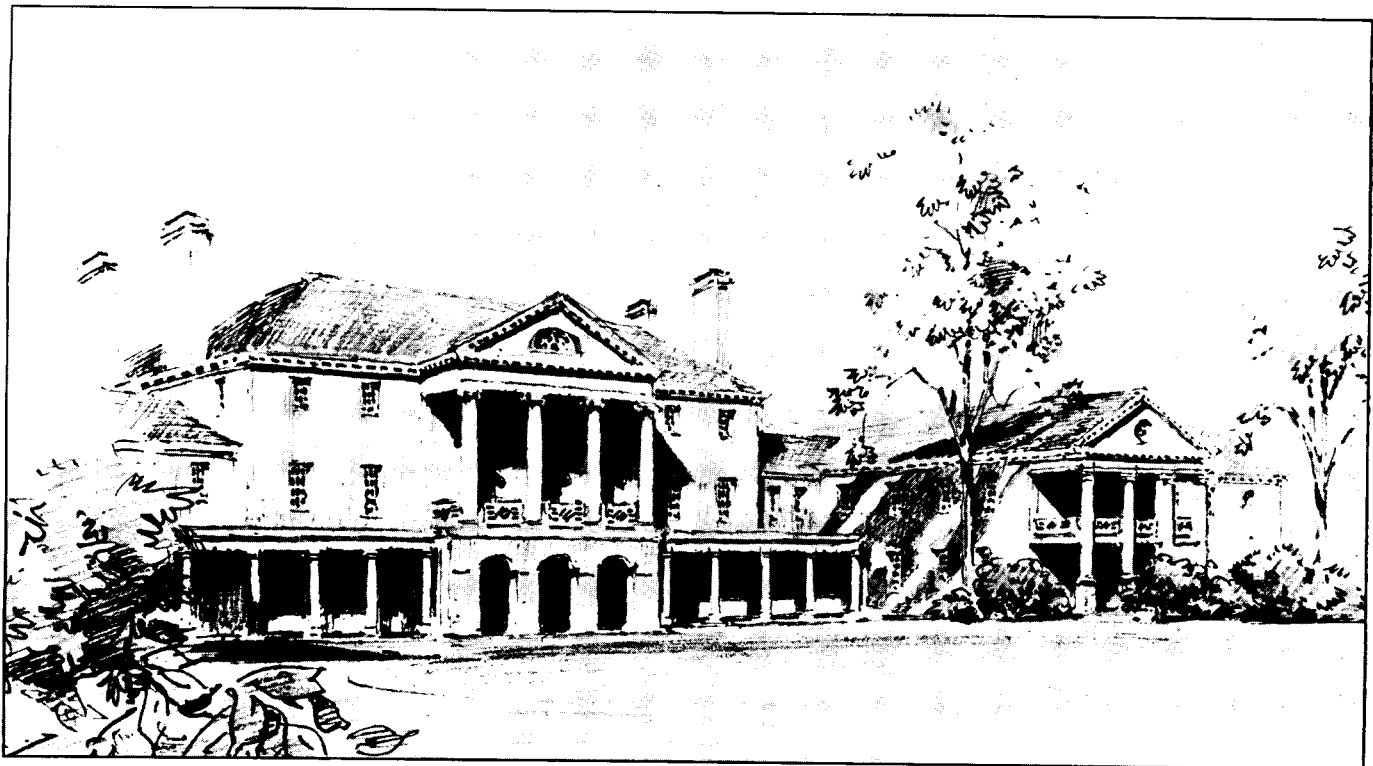
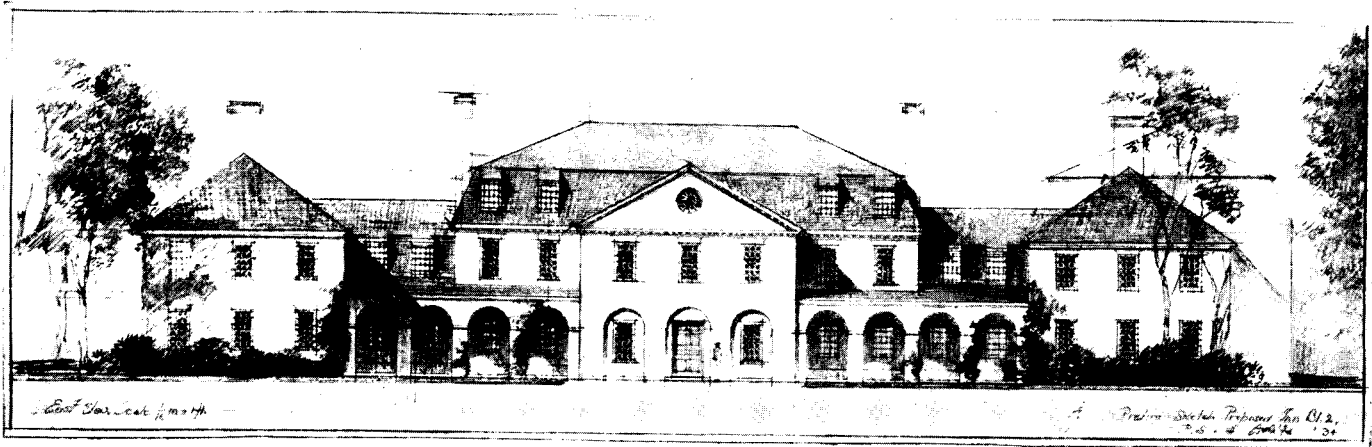
The new building is not large enough, and never can be expanded to be large enough, to take care of more than a part of the demand which is asserting itself during the ever lengthening tourist seasons at Williamsburg. It does, however, amply replace the old "Colonial Inn" which it is to supersede.

The traveling and sightseeing public is crowding in upon the city, providing to home owners in the vicinity an amply satisfied temptation to open their houses—but still the need is not met. This public is naturally divided into groups of every type, financially speaking, and the new Inn, which is illustrated in this article, is the first step toward the solution of the greater problem, providing as it does accommodation for the fastidious at a reasonable rate. At present there are 61 rooms with dining space greatly in excess of that usually provided for a similar number of rooms; for, great as the problem of night accommodations is at Williamsburg, that of taking care of the luncheon hour is greater.

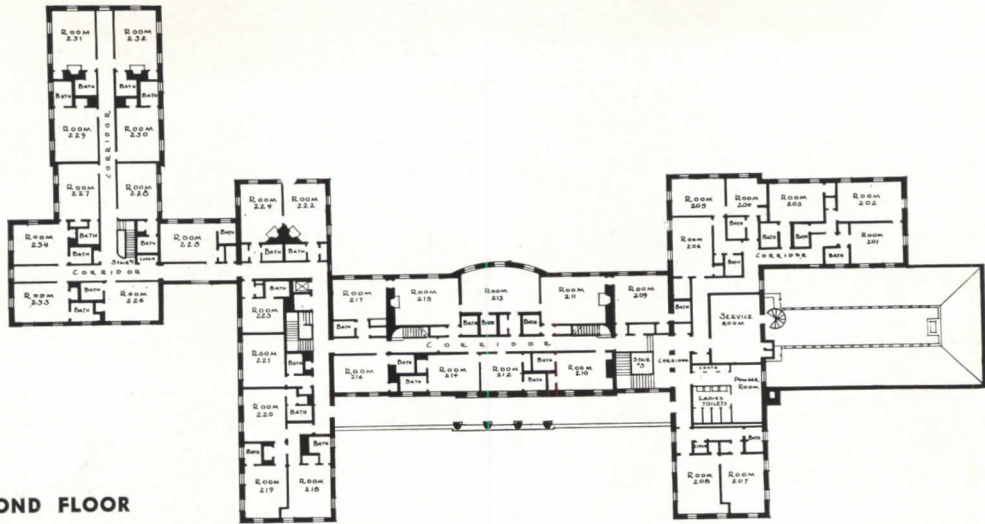
The Inn is set upon the top of a slowly ascending grade 400 feet south of Francis Street and near the center of the Restoration (longitudinally).



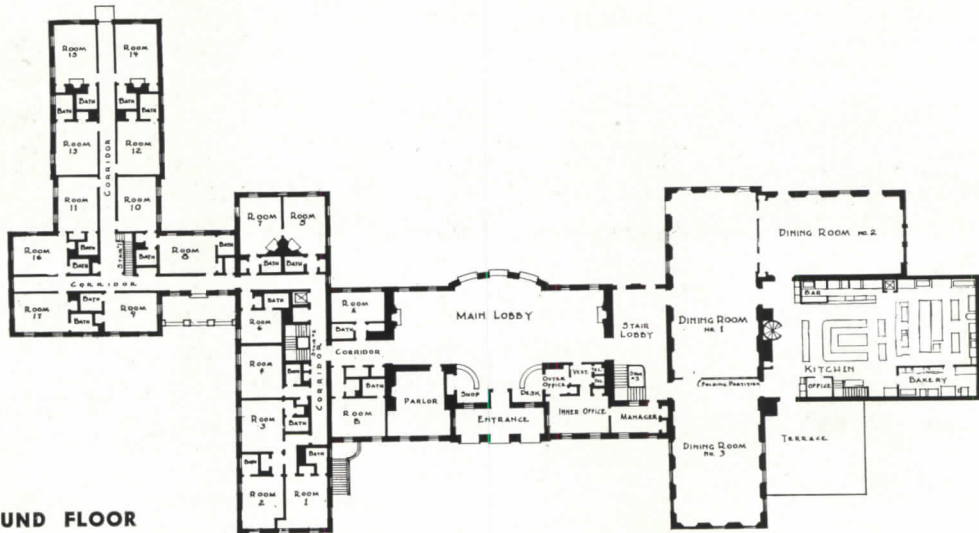
"OLD SWEET," a 19th century inn erected a century ago and still standing in Monroe County, West Virginia, served as the model for Williamsburg Inn.



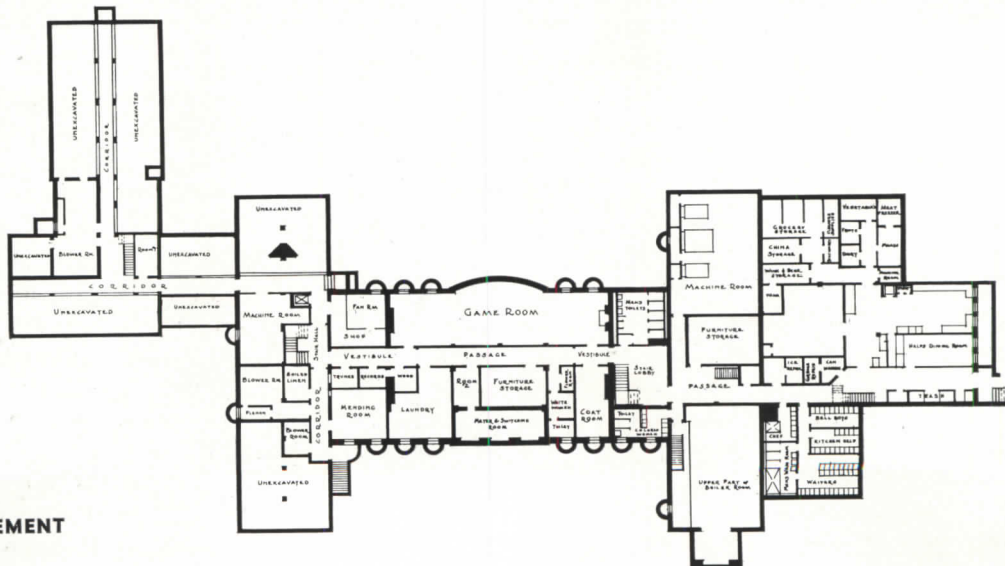
WILLIAMSBURG INN PERRY, SHAW AND HEPBURN, ARCHITECTS
 Progressive studies by the architects in the development of a final scheme



SECOND FLOOR



GROUND FLOOR



BASEMENT



Photo by Richard Garrison

WILLIAMSBURG INN PERRY, SHAW AND HEPBURN, ARCHITECTS
**GENERAL VIEW, FACING TOWARD RESTORED WILLIAMSBURG. The
post-Colonial character differs from that of buildings in Restored Area.**

The foreground is attractively flanked by original Colonial houses which are now being adapted for use as annexes to the Inn. The forecourt and parking space are planted with trees and shrubs of sufficient size to present already an appearance of settled maturity. The danger of architectural over-emphasis in the building itself has been realized, it being apparent that a structure of such size would insistently compete in importance with others that are smaller but far more important such as the Palace, Capitol, and the College.

Forecourt planting tends to subordinate whatever of a monumental character the building might have. Painting of the brick serves to differentiate the building at first sight from the brick buildings of the Colonial Period which are unpainted. But the mass must first of all be so designed that its parts are not too dominant from any one aspect but are in each case carefully subordinated to a central mass of appropriate character. This competition in architectural emphasis with the historic buildings of the city is

not limited to size alone but extends emphatically to the character and style of the new Inn and imposes upon it a distinctive personality of its own.

To avoid the style of the 18th Century in its progressive phases it was considered appropriate to adopt a style that is at the same time Virginian and extra-18th Century. There are two directions in which to turn: the style of the 17th Century as it developed in Virginia or that of the early 19th Century. Logically the latter is the more convincing, coinciding as it does with the period of the hostelryes of commensurate size that stood—and in many instances survive—at the Sulphur and other Springs of the original Virginia territory.

Today, therefore, visitors will recognize at first glance a style, consistent with the architecture of Williamsburg, post-dating it just enough, however, to render it distinguishable and happily reminiscent of the style of similar buildings at the Springs, which connote in their character, hospitality and comfortable accommodation.



Photos by Richard Garrison

WILLIAMSBURG INN PERRY, SHAW AND HEPBURN, ARCHITECTS

GENERAL VIEW TOWARD GARDENS AT REAR. Seclusion and comfort have been provided for guests on terraces and landscaped grounds. Opposite page: TERRACE ENTRANCE.

No one of these Spring Hotels is more pleasing in character than those at the Old Sweet in Monroe County. The abandonment of these buildings and their present deteriorating condition are much to be regretted, although their charm remains. They are so pleasantly suggestive that, more than any other, they were used as a guide to the character of the new Inn at Williamsburg.

The monumental effect achieved by raising the principal reception floor above a high basement is common to the Spring Hotels—a treatment which at once simplifies and dignifies the relationship of the parts. But hotel life at the time was also more simple and perhaps more dignified than today. It was certainly more leisurely. The reader is referred to the interesting lithographic views of the Springs by Edward Beyer in his "Album of Virginia," 1858, in which serene calm reigns supreme only to be disturbed by the arrival and departure of the picturesque coaches and carriages of the time.

Today, it is important that each cubical foot of building contents shall justify itself. Hence there may not be the uneconomical stylobate basement, nor will today's guests welcome a flight of entrance steps, however welcoming their implication. The ground floor must be the reception and dining floor. The problem is changed, but not radically enough seriously to affect the character or the opportunity for achieving effective proportions.

The furnishings in the building will not be confused with those in the Exhibition Buildings of the Restoration. They are stylistically controlled, but adapted to today's requirements. The period of the Regency coincided with that of the Springs and while its influence in Virginia so far as furniture is concerned was slight enough in its true form, it is, as a style, flexible and readily susceptible to agreeable adaptation. With the air conditioned comfort of the lobby and dining rooms, the terrace has not demonstrated its indispensability during the hot season. A large





Photos by Richard Garrison





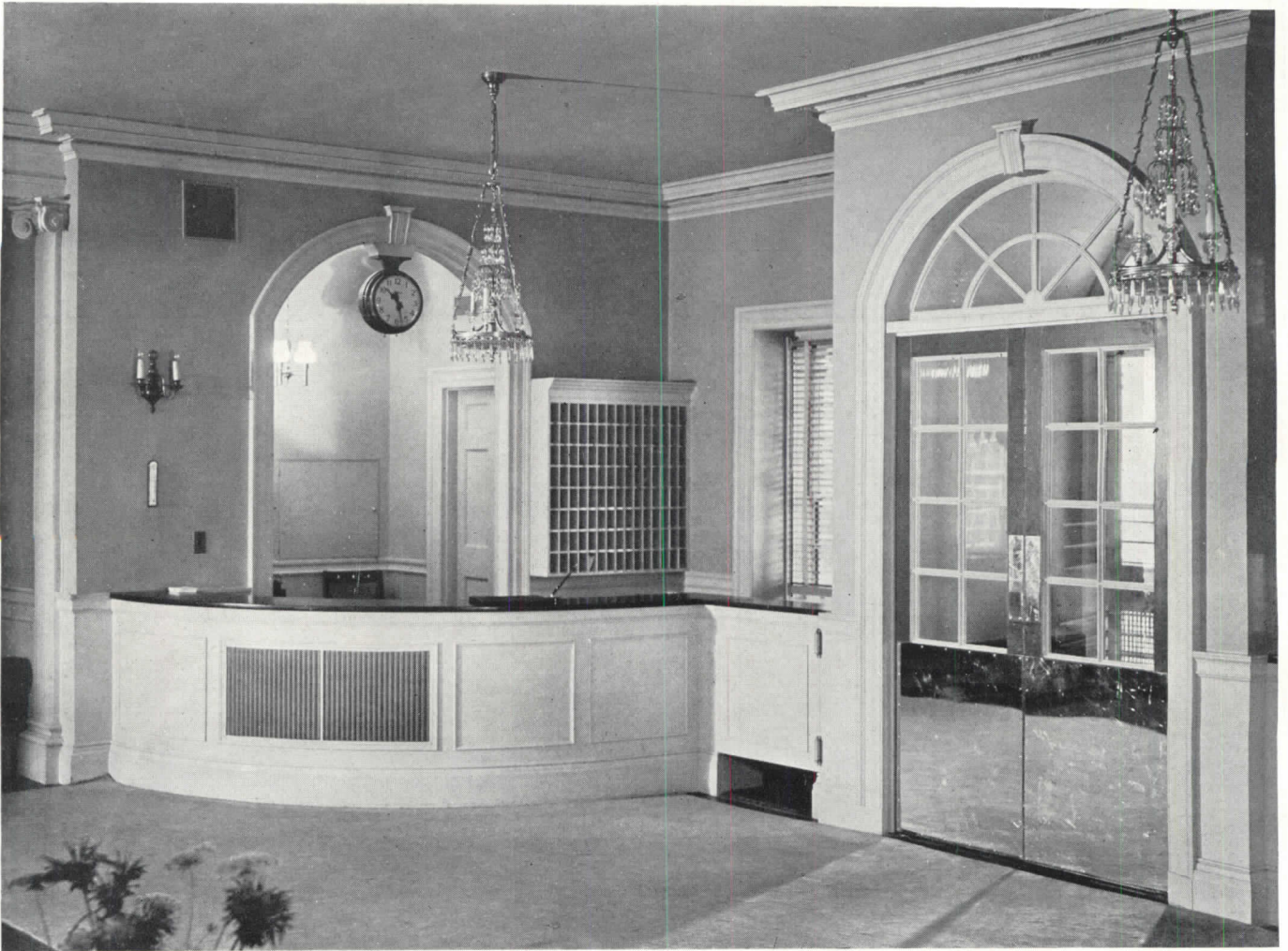
WILLIAMSBURG INN PERRY, SHAW AND HEPBURN, ARCHITECTS

Above: VIEW OF THE MAIN DINING ROOM. A Regency Period setting and furnishings were chosen for treatment of the entire Inn. This view is toward the west windows of the dining room. Opposite page: WEST DINING TERRACE. A secluded terrace, furnished for outdoor use, adjoins the dining room. At the bottom of the page is a general view of the dining terrace immediately south of the principal dining room.

proportion of the bedrooms are air conditioned. It is interesting to study the effect of air conditioning upon the habits of the guests. The absence of inclosed porches is not missed.

No hotel at the Springs was to be found without its inevitable dependencies—the stable, quarters, etc. At Williamsburg the garage and parking and servant problems are being solved in their relation to the city as a whole rather than to any one part of it or to any one particular building. Hence, the Inn requires no “dependencies” of the service type. The illusion of such previous existence, however, is being carried out by

the erection of a “Craft House” in the vicinity of the Inn, to the west, and architecturally related to it. Here the suggestion of stables, quarters and storerooms, adapted to other uses, has been attempted. This building will serve also as a bus terminal, and abutting as it does upon a large public parking space, it serves as a convenient distribution center, information office, and for the exhibition and sale of arts and crafts under the auspices of Colonial Williamsburg, Incorporated, and for the display of an important collection of Early American tools and utensils.



Photos by Richard Garrison

WILLIAMSBURG INN PERRY, SHAW AND HEPBURN, ARCHITECTS



Above: REGISTRATION DESK. This view of the lobby shows the desk in relation to the principal entrance. Opposite the desk at the right of the main entrance (but not shown in this view) is a similar arrangement with a counter for the Inn's gift shop.

Left: GUEST HOUSE LIVING ROOM. This view is of the living room in Orrell House on Francis Street near the Inn. This and one other restored building known as the "Quarter" have been furnished to be used as guest houses in connection with the Inn.



GUEST ROOMS. These two views show furnishings and accessories for typical guest rooms of the Inn. All the furniture was specially made under supervision of a special committee of the Restoration. Many of the guest rooms are air conditioned.

Is a New Social Science Emerging?

A Sociology of Inventions to Forecast and Control Their Effects on Public Welfare

By M. A. MIKKELSEN

THE DISTINCTIVE feature of the report on Technological Trends and National Policy,* published by the National Resources Committee, is that it is "the first major attempt to show the kinds of new inventions which may affect living and working conditions in America in the next 10 to 25 years." The possibility of forecasting in the sphere of technology is explained in the report by a number of factors, one of which is that invention is rarely, if ever, an unheralded event. It is normally a process, with beginnings, development, diffusion and social influences occurring in sequence. "From the early origins of an invention to its social effects the time interval averages about 30 years."

The forecasts contained in the report have to do with inventions recently introduced or sufficiently advanced in development to suggest early introduction. To rationalize its forecasts the report gives a history of the evolution of technology in each of nine major industrial fields—agriculture, the mineral industries, transportation, communication, power, the chemical industries, the electrical goods industries, metallurgy, and the construction industries. Each field is divided into its component scientific or industrial sections for separate treatment by outstanding specialists.

The specialized studies, some of them highly technical, occupy about 250,000 words and are printed as Part III of the report. They constitute original source material summarized, interpreted and supplemented in Parts I and II, entitled respectively *Social Aspects of Technology* and *Science and Technology*, occupying about 88,000 words.

Of the inventions mentioned in Part III the subcommittee which originated the report picks out 13 as likely to have major social consequences—the mechanical cotton picker, air conditioning equipment, plastics, the photoelectric cell, artificial cotton and woolenlike fibers made from cellulose, synthetic rubber, prefabricated houses, television, facsimile transmission, the automobile trailer, gasoline produced from coal, steep-flight aircraft planes, and tray agriculture.

Social Effects of the Cotton Picker

FIELD WORK in the growing and harvesting of cotton is perhaps the least mechanized of any important branch of agriculture. The cheap labor of millions of workers is needed for the picking season. The labor being at hand, the cotton producer uses it throughout the year instead of buying expensive machinery. Tractors cannot be employed in the picking season and, save in exceptional cases, there is no economy in working them only during the plowing and cultivating season. Hence, 70 percent of all mules and 16 percent of all horses

on farms in the United States are concentrated in the 10 cotton States, where they consume annually the produce from about 25,000,000 acres of farm land.

The first patent on a cotton harvesting device was granted by the United States Patent Office in 1850. Since then upwards of 900 have been granted. Several mechanical pickers were exhibited and tested in Texas and Mississippi last year. However, only one, invented by the Rust brothers, is referred to by name in the report: "According to the estimate of the Delta Experiment Station of Stoneville, Tenn., the Rust machine, which can pick in 7½ hours as much as a good hand picker can pick in five weeks, will displace over 75 percent of the labor population in the southern cotton country if the invention is thrown upon the market in the regular manner. The inventors, cognizant of the revolutionary consequences attending their invention, are themselves withholding its application, except for its trial use on a cooperative farm in Mississippi and in the Soviet Union, where the problem of unemployment does not exist and the introduction of the machine can be regulated."

The problems raised by the prospective mechanization of cotton growing do not differ in principle from those experienced in the mechanized branches of agriculture. There is a rural population of over 7,000,000 more or less occupied in cotton raising. This population includes a large proportion of tenant farmers and sharecroppers cultivating small units of land with the aid of women and children, whose labor is used also by freehold planters. Cotton growing is the largest source of employment for woman and child labor in the United States. In other branches of agriculture woman and child labor has been withdrawn from field work.

Beneficent Effects

MODERN FARM machinery requires operatives of a selective type—selective with respect to intelligence, educational, temperament and mechanical aptitude. Operatives limited in number compared with demand command wages high enough to raise their standard of living. Children are kept in school longer, more young people are educated for source occupations, and married women are freed for household duties. Employment in other occupations, particularly the service occupations and the professions, increases because the new class of operatives has more money to spend on food, clothing, shelter, health, education and recreation.

The new types of cotton picker straddle the row, thrusting hundreds of spindles into the open bolls. The cotton is wound about the spindles, removed mechanically, and conveyed to a container on the machine, which is pulled by a tractor. The tractor will displace the mule, mule-drawn plows and cultivation will be scrapped for modern implements, and trucks and automobiles will require hard surface roads. Under mechanization the

*Technological Trends and National Policy, Including the Social Implications of New Inventions. Report of the Subcommittee on Technology to the National Resources Committee. June 1937. For sale by the Superintendent of Documents, Washington, D. C. Price \$1 (paper cover).

economical unit of cultivation will be greatly enlarged, and a widespread readjustment of land holdings by sale and purchase is to be expected. The present economy of barter by which land is let and store credit is extended in exchange for next-crop cotton will give way to the modern economy of money and bank credit.

Mechanization will bring about expansion in machine sales-agencies, automobile service stations, banking facilities, real estate agencies, title searching and other legal work, insurance brokerage, road building, use of fertilizers and of fencing, drainage of lowlands for tractor cultivation, construction of housing for machinery and so on.

From the foregoing remarks, which deal with a selected few of the primary effects of mechanization and which contain no reference to secondary effects potential in lower cotton prices, it is clear that the social benefits of the introduction of the mechanical picker can be systematically studied and forecast with some degree of accuracy. It is equally clear from the report that the social disadvantages are capable of study.

Harmful Effects

THERE IS bound to be a heavy economic mortality among small freehold planters, tenant cultivators and sharecroppers. Some millions of children, women and men, white and negro, will be thrown out of work. These may seek employment in the North in sufficient numbers to react there on organized labor, wages and standards of living. In any event, they will make a big addition to the current overplus of unemployed in the United States. The majority of them have subsisted on a standard of living so meager that they have no savings and must be put on relief.

The tax revenue of most states, counties and cities is not sufficient to take care unaided of large bodies of unemployed. Their income is derived mainly from the general property tax, a survival from the time when wealth consisted principally of real estate, especially farm land. Today wealth is represented largely by stocks, bonds and other securities, the ownership of which is scattered among people who live in metropolitan centers and who can be reached most effectively through the Federal income tax. Those states that have income taxes are obliged to keep down the rates in order not to discourage residence within their borders. The states compete among themselves for population and industry by means of low taxes and minimum social legislation. The cotton states are powerless to augment tax revenue on a large scale and could not on their own initiative develop promptly a common remedial program. Consequently, the Federal government is forced to participate in planning relief, rehabilitation, and resettlement and in defraying their cost.

Mitigating Influences and Measures

FROM THE social history of inventions the report supplies evidence in support of the belief that unemployment incident to introduction of the cotton picker can be partly prevented and partly shortened by reinforcing corrective influences which have heretofore been allowed to operate more or less automatically. To illustrate the character of these influences the following may be briefly mentioned: (1) hindrances which slow down the rate of introduction, (2) stimulation of other industries, (3) education.

If the cotton picker is introduced rapidly it must perforce create a disastrous volume of unemployment. If it is introduced gradually over 20 to 30 years the amount

at any one time may not be greater, certainly not catastrophically greater, than can be absorbed.

The major automatic hindrances are obsolescence of invested capital and labor opposition. It seems unlikely that either of these can be an effective brake on speed of mechanization in the cotton states, where labor is mostly unorganized and where agricultural equipment is primitive. Depreciation of agricultural equipment would be offset by speculative appreciation in land, and the interest of landowners by deed and mortgage would prevail over holders of book credits and chattel mortgages.

However, means of retarding mechanization and of timing it to a program of social readjustment may be found in legislation. This practically untried resource is suggested in the report, although its possibilities are not systematically explored. Meanwhile, it is evident that legislation, including taxation, can be used to encourage a wide instead of a narrow distribution of profit. Cooperative ownership of machines and individual ownership of economical units of land can be promoted, thereby keeping thousands of families on the land as independent planters which for want of capital would otherwise be dispossessed to join the landless unemployed.

As regards unemployment, the most important automatic corrective influence is the stimulus to other industries provided by a newly mechanized industry. The wage earners who remain in cotton growing will have a higher standard of living and employers will make increased capital investments. That higher wages and capital expenditures, even though controlled by fewer people, stimulate employment in other occupations is known from observation and statistical evidence. How the stimulation works in detail should, according to the report, be capable of analytical study with a view to forecasting what industries can be expanded or introduced in the cotton belt.

What is definitely known at present is that increase in total employment in the United States is accounted for by the service industries. From 1920 to 1929 employment in the basic industries—agriculture, mining, manufacture, construction, transportation, communication, public utilities—increased 3 percent; that in the service industries—trade, professional service, public service, personal and domestic service—increased 50 percent. "While employment in the service industries after 1929 never fell to the 1920 level, even during the low point of the depression, and stood 13 percent higher in 1935 than in 1920, the level of man-year employment in the basic industries was, even in 1935, still 32 percent below 1920." The 18 major industries of today, which employ directly and indirectly about 25 percent of the gainfully employed, did not exist in 1870.

Education as a means of correcting technological dislocation is fairly well understood. A special problem in the cotton belt will be to provide vocational education on an unexampled scale for adult unskilled workers.

All Social Institutions Affected by Inventions

THE SOCIAL effects of industrial inventions have fundamental characteristics in common. The permanent effects, except possibly those related to war and crime, are beneficent. The harmful effects are more or less temporary. "The difficulty is not with technology; it is with the failure of the economic and social system to make needed readjustments."

Industrial inventions as a group react upon the whole of society, modifying each of its functional institutions—

family, economic organization, government, church.

When the family lost its home-industries to the factory, the father ceased to be an employer of household labor. Authority shifted from the father to industry and state. One of the modifications in the home, brought about by the industrial revolution, is retarding the growth of population—a development of studious concern to trade and industry since the last Federal census. The economic advantage of large families of children which exists where the home is the unit of industrial and agricultural production is disappearing.

That the industrial revolution is responsible for the growth in their modern form of corporations and labor unions is commonplace knowledge.

In government the automobile alone has greatly enlarged the area of legislation and administration. Many people were formally killed by horse traffic. With horses and vehicles unstandardized, production in the hands of innumerable farmers and many manufacturers, and distribution by local dealers, governments could do little beyond enforcing the ancient maxim of law that whoever did injury by reckless driving should pay damages or be punished. Now that automobiles are manufactured by a few companies, governments try to prevent accidents by requiring brakes and lights up to certain standards, traffic signals and rules, traffic police and the like. This regulation of the manufacture and use of the automobile is typical of a modern trend both in legislation and in the judicial interpretation of the law. The emphasis is no longer on punishing injury but on preventing it by regulating situations and groups.

One of these situations is the inability of local police to cope with criminals who, by taking advantage of the speed, endurance and privacy of the automobile, can neither be kept under observation by officers who know them by sight and record nor pursued effectively by officers unable to describe them and unfamiliar with their characteristic techniques as criminals. Hence, the demand for extension of the police jurisdiction of the Federal government, resulting in the creation of the Federal Bureau of Investigation, Department of Justice, with its large accumulation of identifying records and its adequate technological equipment for analyzing clues. The resources of this Federal Bureau of Investigation are open to the 39,000 separate police agencies of the United States. To members sent by such agencies an affiliated establishment, the United States Police School, gives, in a 12-week term, elementary instruction in 77 technical subjects and, in addition, offers post-graduate specialized courses.

The church probably more than any other social institution has failed to keep in touch with the realities of everyday life as conditioned by technology. One of the symptoms of the disintegration of its authority is seen in its division into 200 organized denominations over questions that have nothing to do with practical ethics. How does church attendance in the United States compare with that at moving picture shows, which draw every 10 days patrons equivalent in number to the whole population?

Government as Source of Control

AMONG THE facts established in the report the following may be mentioned by way of recapitulation: industrial inventions and their social effects can be systematically studied with a view to increased accuracy in forecasting; the permanent effects are on the whole beneficent; the harmful effects, more or less temporary, are due to

dislocations in the functional social institutions, nowadays particularly government and economic organization; the dislocations tend to readjust themselves through blind forces, which can be directed and reinforced; the initiative in directing and reinforcing must be taken by government because it is today the only social institution endowed by the popular will with sufficient authority.

Government as now constituted is ill-adapted for correcting or for anticipating and preventing dislocations caused by technology. Just as technology has actually enlarged the land unit in agriculture and the organization unit in trade, manufacturing and labor—witness the struggle between C. I. O. and A. F. L.—it has potentially enlarged the unit of government. The Metropolitan District lying within a radius of about 40 miles from New York City Hall would be for most purposes an economical and effective unit of government; yet it contains 373 self-governing municipalities, besides many county governments, school districts and the like. Most of the 3,074 counties in the United States are unable to perform the services required of them. Given half-a-dozen regional governments, the competitive interests which paralyze group action among the 48 states would be neutralized. Want of correspondence between the actual and the potential units of government explains why a large share of the onerous tax revenue is needless waste.

A Science of Control is Emerging

TO CORRECT, anticipate and prevent dislocations caused by technology, a new science is required, which may be provisionally called the sociology of inventions. The purpose of this science would be to study the needs, means and forms of social institutions, particularly government and economic organization, which have come to be the chief repositories of authority, in order to enable these institutions to function effectively and in harmony for society as a whole. A substantial foundation can be built at once by selecting pertinent facts from a broad group of existing sciences. The superstructure would rise fairly quickly because the objectives of the search for additional information would be known.

The process by which a new science is created is similar to that by which a mechanical invention is created. The process begins with recognition of the need for the science, which is a social instead of an industrial invention. Next, many constructive minds devote themselves to meeting the needs. It may take years for the science to achieve a synthesis of verified knowledge necessary to ready acceptance by leaders in a host of occupations—government, trade, industry, labor, education, banking, agriculture, the church, and so on—and thus induce the concerted activities essential in a democracy. However, once the need for it is recognized, the science is bound to follow.

What the Report Recommends

IT IS the great practical merit of the report that the program of cooperation in fact-finding and in planning which it recommends must promote the development of a sociology of inventions. The program may be summarized as follows:

1. The 13 inventions picked out as imminent and socially important are to be studied by planning boards with the aid of such specialists as may be needed.
2. Technological unemployment is to be studied by a joint committee from the Departments of Labor,

(Continued on page 149)

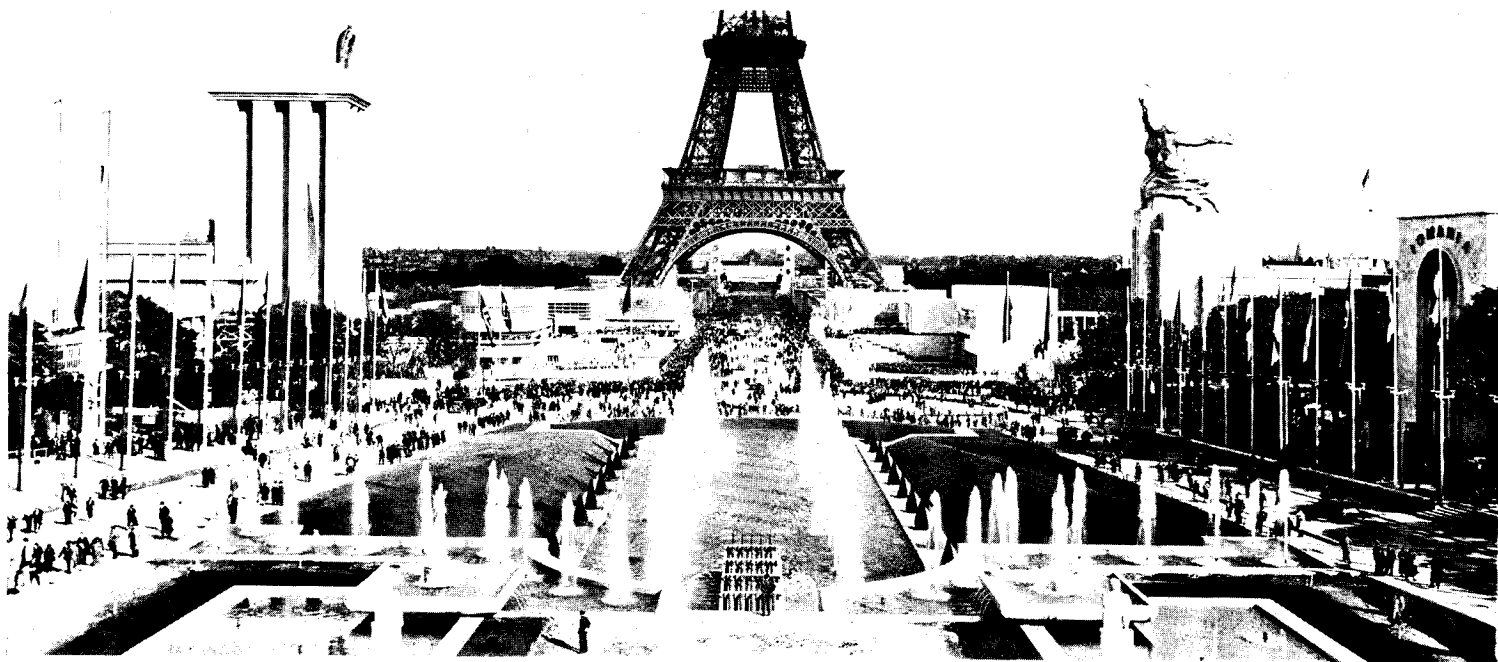


Photo by Bonney

The 1937 International Exhibition, Paris

**An International Exposition of Arts
and Techniques Applied to Modern Life**

THE PARIS EXHIBITION or, to give it its official theme title, L'Exposition Internationale des Arts et des Techniques Appliqués à la Vie Moderne, straddles the banks of the Seine at dead center of Paris, occupying the exact site of the exposition of 1900. It extends from the Trocadero to the École Militaire. Because of the great number of trees in the area, individual rather than collective pavilions were decided upon. The longer axis of the plan follows the banks of the Seine and stretches a distance of almost two miles from Alexandre Trois Bridge near Concord, to Ile des Cygnes and Pont Grenelle at the other end. Two of the Paris bridges have been incorporated in the exhibition and a new roadway tunnels beneath the river. The latter is a permanent improvement to Paris. The pavilions follow the banks of the Seine and cluster around the Eiffel Tower and the old Salle des Spectacles at front of the new Trocadero. The planning of the site was done with ingenuity, permitting a maximum of construction for a minimum of space. The Seine also permits a certain openness and perspective. The site plan was under the direction of M. Jacques Greber, architect-in-chief of the Exposition.

The desired first approach to the fair is from the upper level of the Trocadero because here alone can the visitor see the wide sweep of the grounds and river, dominated by the Eiffel Tower. Here also can be viewed the astounding contrapuntal positions given to the opposing buildings of Germany and the U. S. S. R. Strangely enough, it is this militant pair of pavilions that one sees at every turn overshadowing the modest efforts of the more numerous democracies.

For size, the building or rather group of structures devoted to science occupies by far the greatest area of any single building. The Trocadero was undoubtedly considered the *most important one*; this because the old relic of the 1878 exposition was swept away and a new shining white museum of semi-classic monumentality takes its place in contrast with the temporary ones in which the maximum of color has been sought. It is seldom that architects have been confronted with a more difficult task. The old Trocadero, on whose foundations the new building stands, is wreathed with sentiment and is as much a part of Paris as Notre Dame and L'Eglise du Sacré-Coeur. It was necessary that the old be surpassed and also be included with the old by Parisians and visitors to Paris. A French architect cynically remarked that the old building would be mourned, but only by those who habitually mourn the dead. M. Jacques Carlu, formerly Professor of Architecture at The Massachusetts Institute of Technology, was chief architect of the new building. The collaborating architects are Messrs. Boileau, Azema, Bercier and Romejon.

Besides the new Trocadero the exhibition will leave to Paris several exposition byproducts, including three permanent bridges, an island of the Seine (Ile des Cygnes) made four times its original size, a new aquarium, a rebuilt theater and formal gardens, a widened Pont d'Iéna and Galleries of Modern Art.

The Fair, so far as finished work is concerned, is a competitive showing of national pavilions. This is because the larger French exhibits, the reconstructed

Trocadero, and some of the 37 portals to the exhibition, were not quite ready even at midsummer.

One cannot rise to ecstatic heights of enthusiasm over the buildings; such enthusiasm can be reserved for their manner of construction, their materials, and the astonishing and excellently arranged exhibits. The architect visitor is conscious, however, of a cheerful magnificence of conception, peculiarly French. The Fair is recognized as a startling and rather brilliant spectacle. It was the purpose of the exposition to be creative, educational and, so far as possible, to produce the evidences of technical progress in science and in art. This commendable objective, it appears, was foiled by a lack of coordination between the idea and the realization, which has been left too much to individual fancy. In the future the great expositions should perhaps stress, not merely the progress of a contemporary period—for modern life is a daily exposition of mechanical, intellectual and scientific progress—but organization.

In this brief review of the Paris Fair, comment will be restricted (1) to a very limited number of pavilions and (2) to some comment which the writer, as a casual tourist, with the advantage of a few hasty visits to the exposition grounds, can make. The pavilions included are representative, with many worthy ones omitted. Convenience in walking from two or three entrances determined the selection.

Great Britain

THE BUILDING for the British Empire, with one of the choice sites on the Seine, turns its back on the river, thereby losing attendant advantage of terrace or view. Toward the river there is a blank wall used for murals done in shadow indication. A part of this river facade shows an experiment in producing a mural with luminous tube lighting, illustrating the main line railways of the British Isles. An English critic indignantly observed that the Irish railway system turned out, when illuminated, to represent a crudely drawn impudent teddy bear seated with its back to England. When the lights are on and all the great panorama is a blaze of fireworks and floodlight, this ludicrous joke gleams out from the front of the pavilion and neither Ireland nor England can be seen, only a meaningless network of scarlet tube for English railways—and the teddy bear!

There are novel awnings on the southwest wall of the British pavilion where occur a series of long horizontal windows. These windows are shaded by awnings operated by wood propeller-shaped arms.

Canada is represented by a dwarfed imitation of grain silos. Here is perhaps the best stone fakery at the Fair. What appears as form-poured concrete rings as does the familiar rap on lath and plaster. The interior of the Canadian annex is dark, and not a fit setting for the exhibits of forestry and agriculture.

Here, as in the U. S. building, there is lack of emphasis on peculiarly national products or attractions. For Finland, as an example, the timber industry and wood products are played up while with Belgium their glass products provide the motif. A gigantic photomontage at the end of the British interior illustrates a colored figure of an English farmer with a smock-frock superimposed on it. A two-inch thick catalog was issued for the British show. This ponderous volume listing exhibits of the empire retailed for 5 francs. Conversation along the Quai is to the effect that the English-speaking countries, or more precisely English-speaking United States and Great Britain, do not have buildings

deserving of national pride. They stand unhappily among the architecturally more vigorous projects of Czechoslovakia, Sweden, Switzerland, and Belgium.

Japan

THE JAPANESE pavilion by Sakakura, a pupil of Le Corbusier, is, in spite of its palpable modernity, intimately Japanese. It is built with a combination of materials—glass, steel, and laminated wood. It utilizes an exterior ramp called a "passerelle" in place of a stairway to reach the upper level. The outside location of the ramp keeps the entire floor free for exhibitions. The steel frame of the building is painted a brilliant red. This steel skeleton has enormous sheets of polished plate glass and panels of plywood to serve as exterior walls. Partitions are of thin beige-colored cement.

Sweden

THE SWEDISH building was erected on what was undoubtedly the most delicate site at the Fair. It was built over the Paris underground and no foundation piers could be sunk within the center of the plot. The building was therefore constructed with foundations only under the side walls. The side columns support cross trusses which, in turn, have descending straps of steel to uphold the two interior floors. These trusses are exposed above the roof level with no attempt to violate their purpose with ornamentation as was done at Chicago, where a similar use of exterior trusses occurred. The floors are completely detached from the walls. The architects were Messrs. Lind, R. Houdin, and Neel.

Switzerland

THE PAVILION of the Swiss was built from the designs of Braüning, Leu and Düreg, architects of Basel, who won first prize in a national competition held in 1936 to select proposals for the pavilion. It is constructed with a steel frame, with glass, and corrugated asbestos cement. The building is in the form of a rectangular box with a parabolic curved roof of asbestos laid down as a roof lid. It has been characterized as "coldly precise, hard like the mountains, and rigidly purposeful like the watches inside it." The supporting steel frame is outside the building. The continuous glass of walls is installed in steel frames welded to the inner face of the steel columns. There are commendable uses of corrugated asbestos cement board as facing of the building toward the hot southern sun, when Paris does have sun.

Czechoslovakia

FROM preliminary sketches published in the architectural press last year, Czechoslovakia gave promise of producing the most spectacular building of the nations. Most visitors were not disappointed. It is of steel with a completely encircling wall of glass. Advantage was taken of the river location by erecting a wide glass-paved terrace supported by two large steel columns. Photographs of the columns and of the heavy glass balustrade are illustrated on page 87. Cables strung from the central mast stabilize the building.

Spain

ARCHITECT SERT is responsible for the design of an unfinished pavilion for Spain, more dramatic than if it had been entirely completed.

Finland

THE FINNISH pavilion is one of the few buildings constructed of wood and was designed by Alvar Aalto. To architects, the interiors and their plywood furniture by Aalto are of special interest.

Le Corbusier

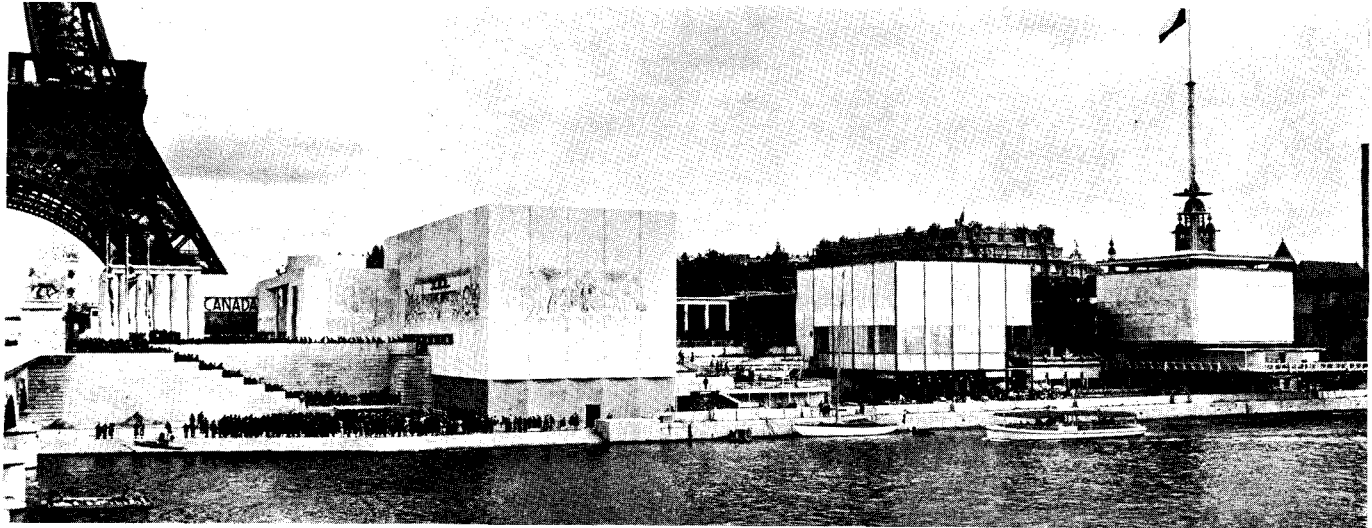
LE CORBUSIER and a group of followers, excluded from participation in the design of exhibition buildings, created their own exposition by erecting a tent outside at Porte Maillot, at some distance from the Exposition area. They displayed with enthusiasm their conceptions of the ideal city, the ideal setting for living, and solutions for the relocation of urban life. The showing was not a pathetic one, as might be expected from such a protest. It was one of the most exciting, convincing, and most easily remembered exhibits of 1937 Paris.

Technical Achievements

IT IS impossible for the visitor to the fair to glean, in a few days, more than snapshot impressions of materials and processes exhibited and demonstrated. For some unaccountable reason there appears to exist, at the present time, no source for such information. Even the taking of pictures within building precincts was forbidden and stopped by guards. An enterprising young architect had made sketch notes on illumination only to have his drawings confiscated and destroyed.

It is assumed that the architect or technician would be most keenly interested in those technical achievements which it was intended would characterize the 1937 exposition. It was planned, according to the original program of the Fair, that new materials would, so far as practicable, be used in actual construction in the buildings, rather than in tiresome display cases roped off from visitors. Most of the pavilions of nations and the special educational-purpose buildings did go far to meet these conditions. The Czechoslovakian building is selected as an example of the many in which glass and other new materials were put to demonstration and use. In the illustrations of this building, shown with this article, glass appears structurally in varying degrees of opacity and of differing character. It serves, not only

Photo by Bonney



From Eiffel Tower to right, Pavilions for Great Britain, Sweden and Czechoslovakia. The edge of the United States building may be seen at extreme right.

as wall with a limited translucency, but also as flat sheets having a maximum of clarity. Glass was adopted too for pavement surface and as pavement lights to transmit light below. The parapet walls with steel-framed panels are of heavy glass with a fine granular surface.

Manufacturers of glass, rubber, linoleum, and aluminum each have buildings for the display of their products. The building for the glass industry is shallow in plan but doubled in apparent interior size by a facing of large polished plate glass mirrors given to the rear wall. The main floor is above the general level of the avenue and is reached by a flight of steps consisting of frosted heavy glass treads. The span of these steps is eight feet, with no risers and no supports other than at the ends. This glass is the familiar armor type which had its further use as doors without frame; also as shelving, tables, parapet walls without cap or frame, and as chairs and benches. On the ground level adjoining this building there is a pool with an enormous cast-glass fountain basin which appeared as limp as the water that poured over its edges.

It is apparent that aluminum has advanced as a competitor with steel. For example, one of the new bridges carrying pedestrians over a roadway is built completely of structural aluminum. A flagpole of polished and tapered duraluminum, aluminum tubing for handrails, aluminum cable used in forming parapet and stairway guard railing, cast sculpture in the polished metal, are a few other uses observed.

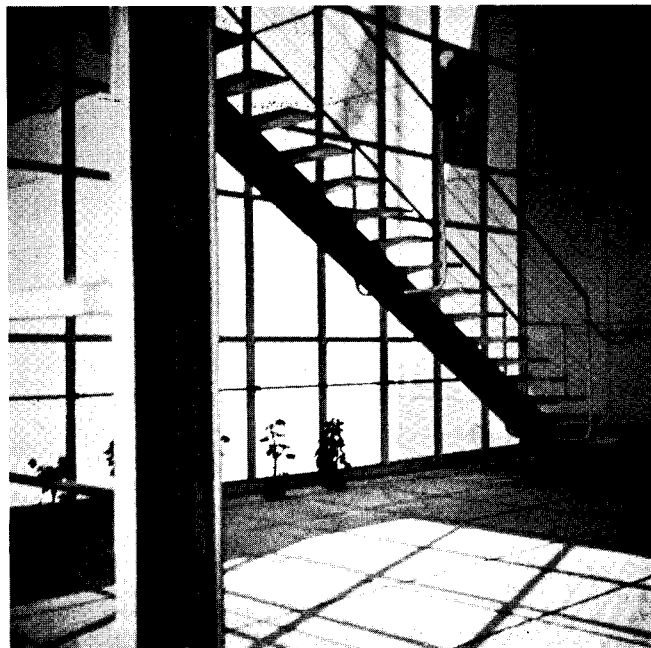
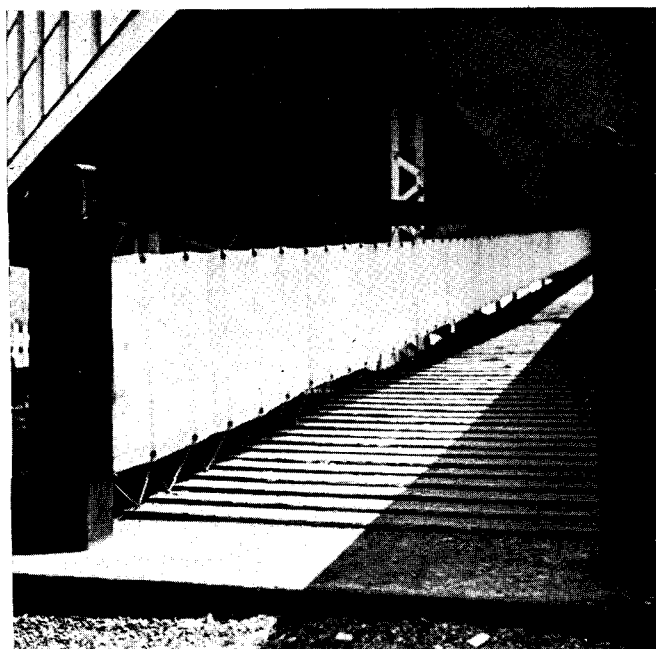
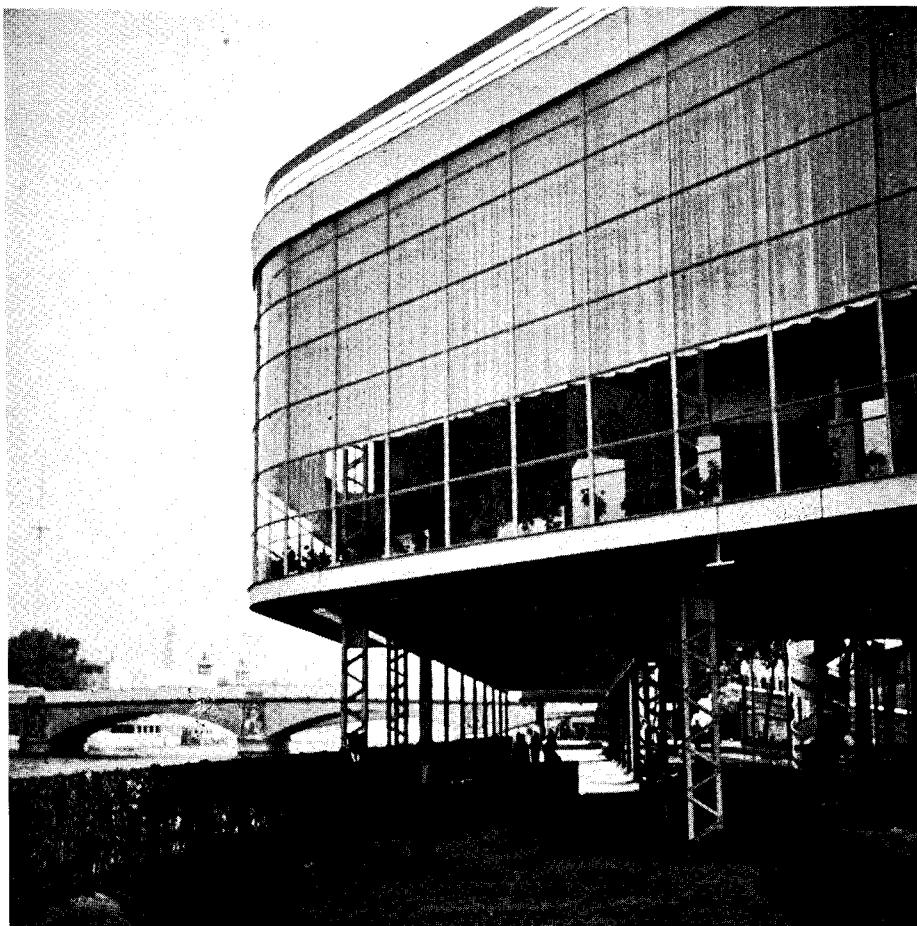
Light and Sound on the Seine

THE ARCHITECTS of the Fete of Light were Messrs. Beaudouin and Lods, who created a grandiose spectacle visible from all points of the Exposition. Sound effects and illumination were coordinated to produce a lighting composition. Fountains of water emerged directly from the river and from bases of bridges. Smoke was released and sent to a considerable height for screens on which light in color was projected. There were four broadcasting networks to provide the sound effects—from the Eiffel Tower, from the river, and from loudspeakers located in trees throughout the Exposition.

Furniture, plastics, rubber, photo-montage for conveying information, and building illumination will be discussed in a later issue.

1937 International Exposition, Paris

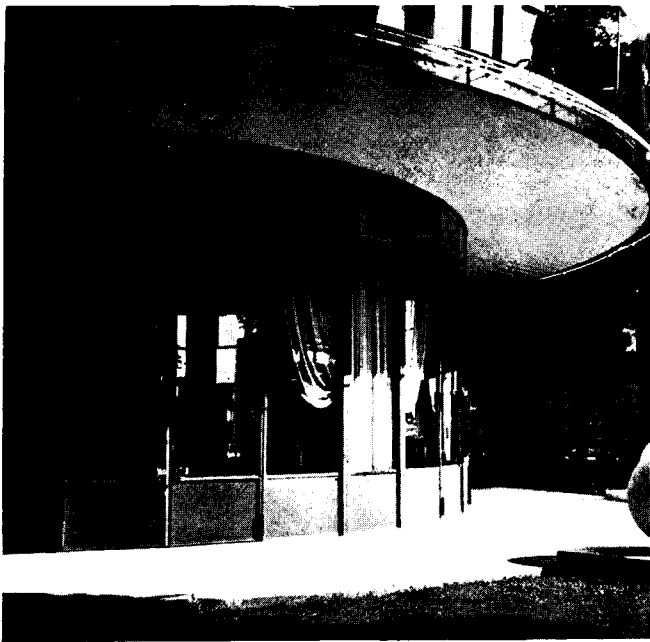
Right: UNION OF MODERN ARTISTS BUILDING supported by trussed columns. This building displays contemporary achievements in applied design—furniture, furnishings, architecture. Pingusson, Louis and Jourdain, Architects. **Below, left: Ramp** from river bank to exhibition level; wood frame with laced canvas at sides. **UNION OF MODERN ARTISTS BUILDING.** **Below, right: ENTRANCE HALL, UNION OF MODERN ARTISTS BUILDING.** Stairway with central steel support; treads are of precast, reinforced concrete; top surface is composition; railing of aluminum tubing and cables.





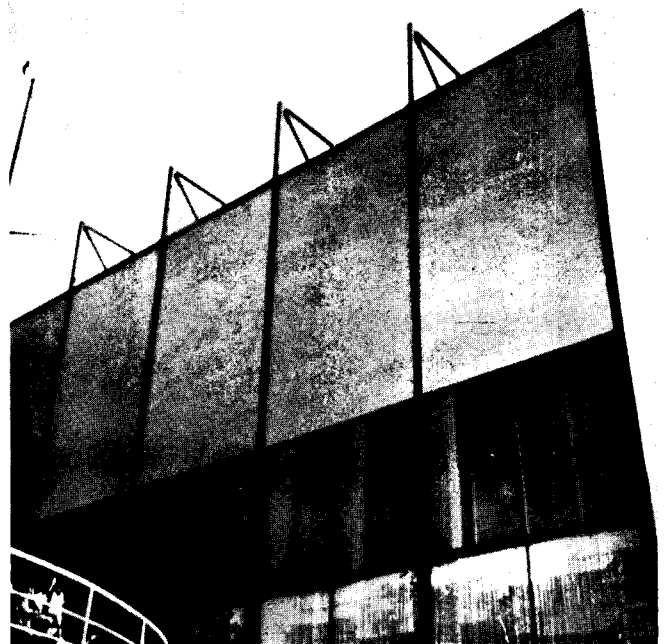
Construction, New Materials, Details

Left: Detail of spiral stairway to upper level. UNION OF MODERN ARTISTS BUILDING. Pingusson, Louis and Jourdain, Architects. *Below, left:* Kiosk for display and sale of a popular national drink. *Below, right:* Southern view of BRITISH EMPIRE BUILDING. Oliver Hill, Architect. The awning is supported and controlled by struts of airplane-propeller shape.

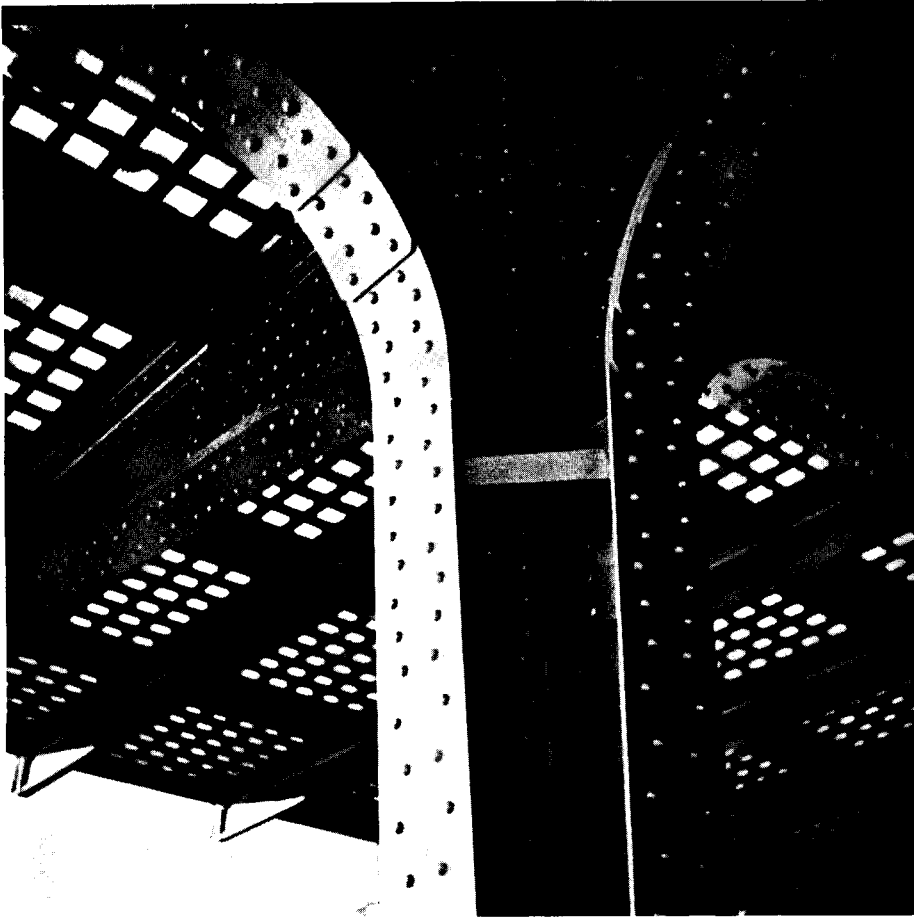


1937 International Exposition, Paris

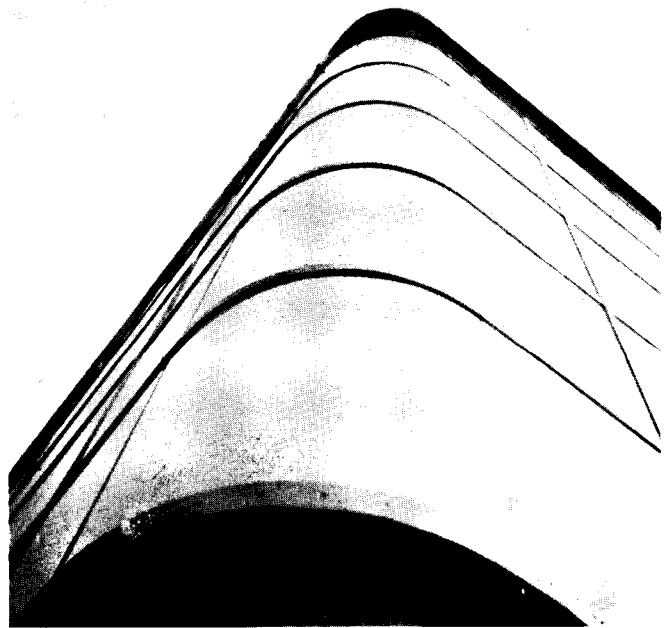
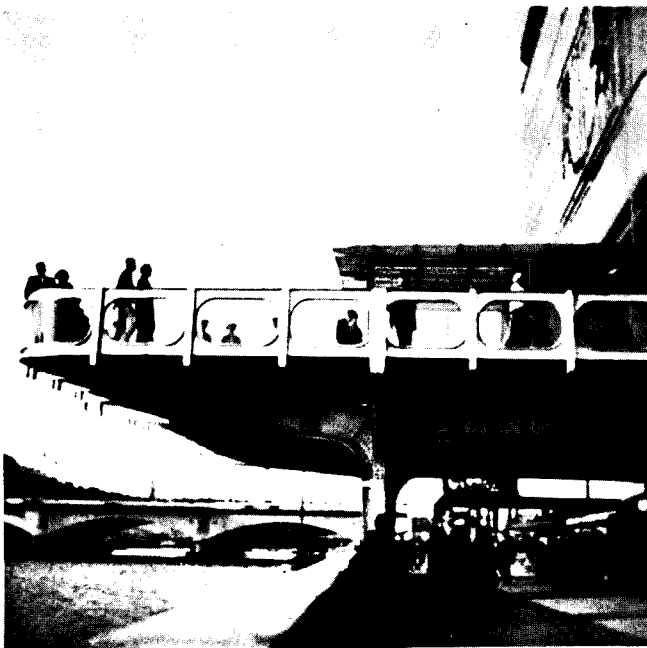
Right: GLASS PAVILION. Methods for using glass are displayed in actual construction. Stairway steps are of sheet glass. **Below, left:** For advantages of exhibition lighting by day and for night illumination, most buildings of the Paris Exposition are sheathed with glass. **Below, right: SWEDISH PAVILION.** Lind, Houdin and Neel, Architects. Floors are supported by trusses above roof level.



Construction, New Materials, Details



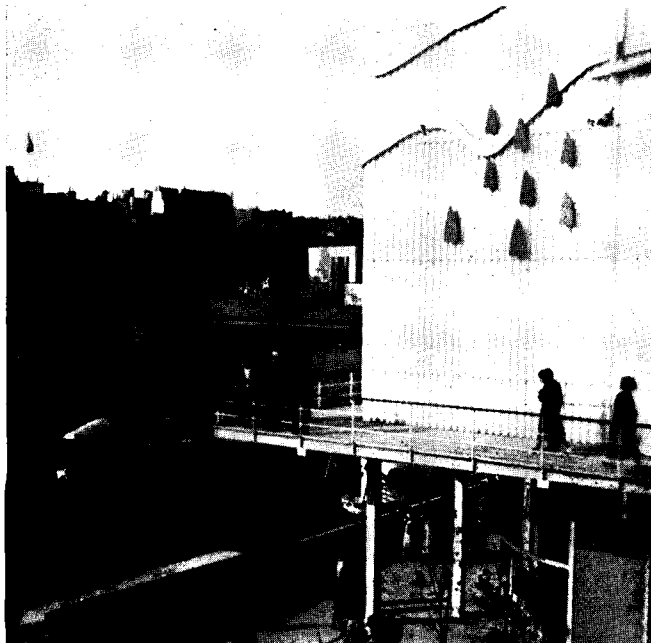
Left: Detail of cantilever column for balcony shown below. *Below, left:* Steel columns support a concrete and glass balcony on the river side of the CZECHOSLOVAKIAN PAVILION. Krejcar, Polivka and Nicod, Architects. *Below, right:* Angle of CZECHOSLOVAKIAN PAVILION. Steel frame; glass panels, clear and semi-opaque. This building is stabilized with external cables.



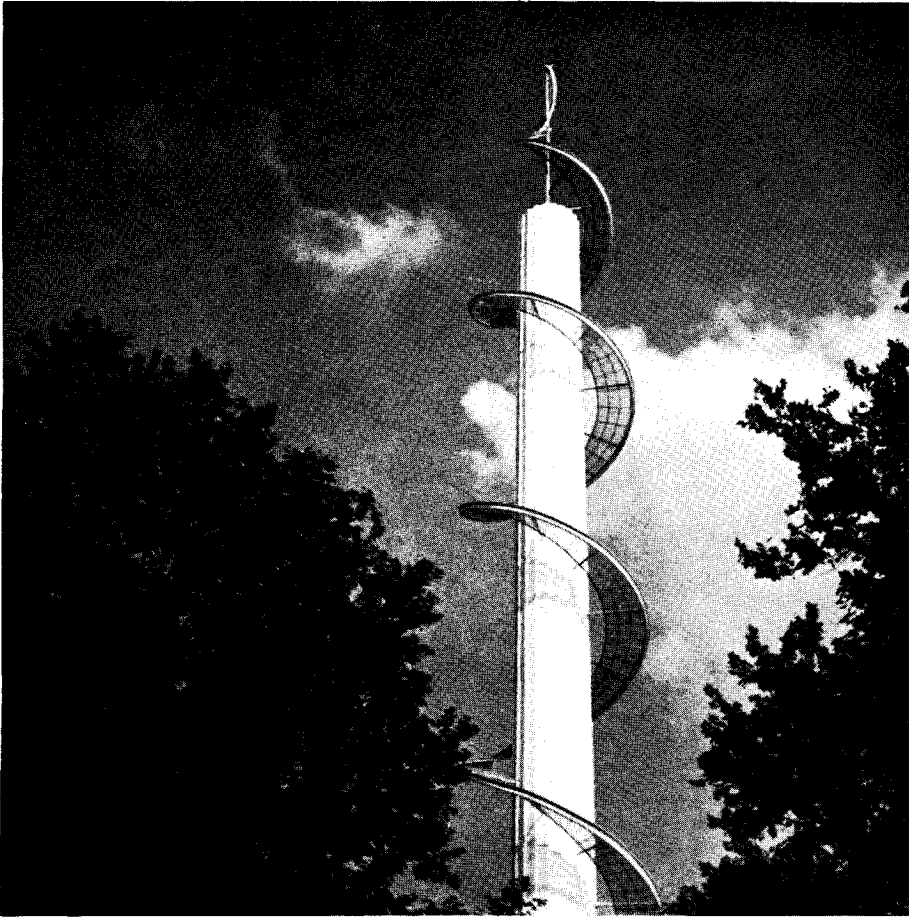
1937 International Exposition, Paris



Right: Propeller as sculptural form. Marine Building in background. Below, left: Angle of SWISS PAVILION with surrounding terrace leading to garden at right and toward river Seine at left. Braüning, Leu and Dürig, Architects. Mural by Max Sulzbachner. Below, right: Wall facing detail, SWISS PAVILION, consists of corrugated asbestos cement board toward southern exposure.



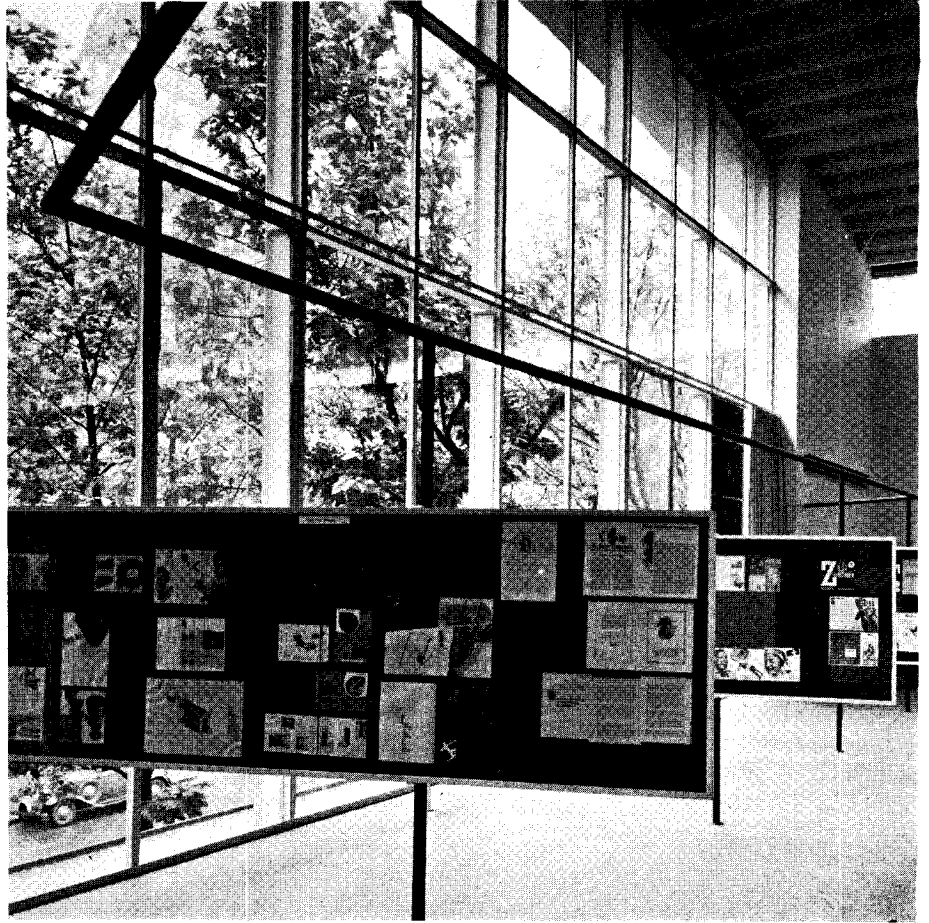
Construction, New Materials, Details



Left: Porte D'Orsay, one of 37 entrances to the Exposition. The spiral surrounding the shaft is of green glass. Compare with the more successful steel skeleton framework and movable scaffolding shown on page 92. Below: Stairway with handrail of hard rubber. The balustrade consists of ordinary expanded metal set in light channel frames.



1937 International Exposition, Paris



Right: Interior of SWISS PAVILION showing display panels, related to glazed wall for lighting. Braüning, Leu and Dürig, Architects. **Below, left:** Entrance signs to SWISS PAVILION are of perforated sheet steel painted with bright color. **Below, right:** JAPANESE PAVILION, glass, steel, and natural wood. Circulation to upper floor level by outside ramp. Sakakura, architect.

Photo by Bonney

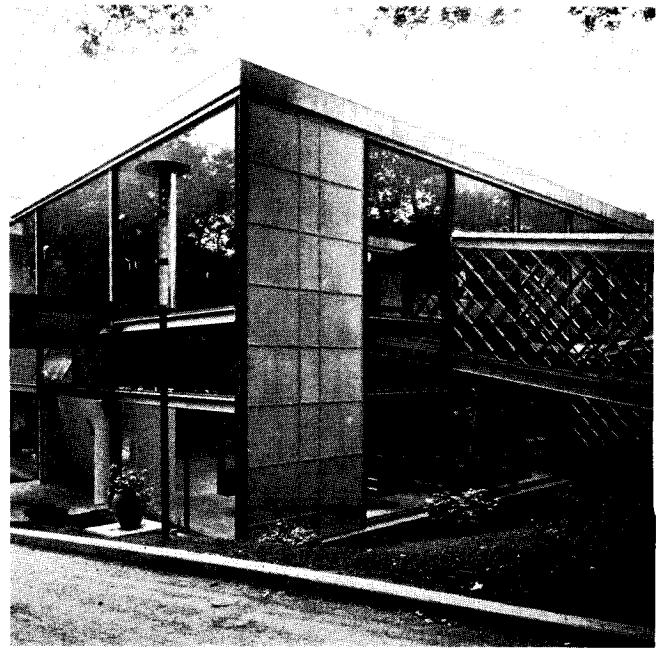
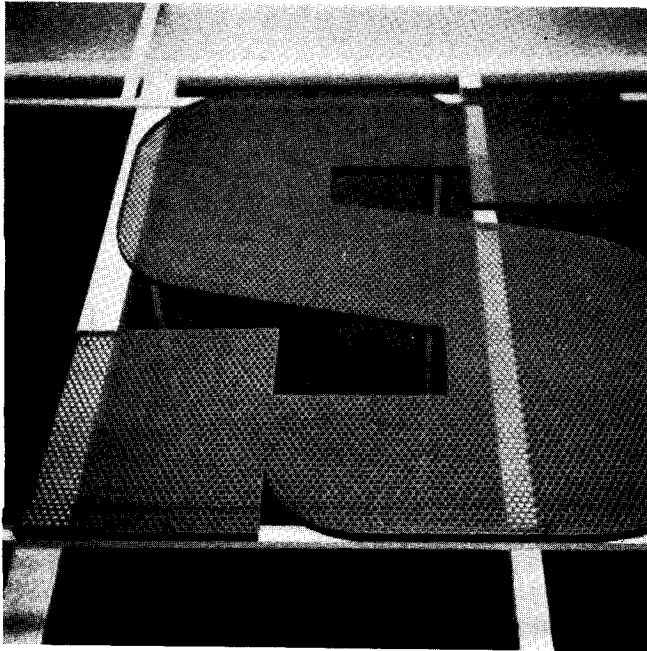
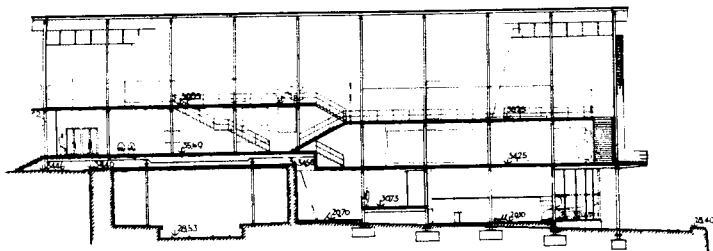


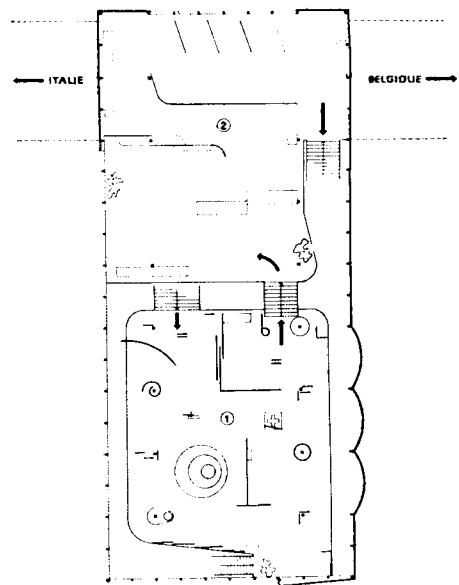
Photo by Bonney



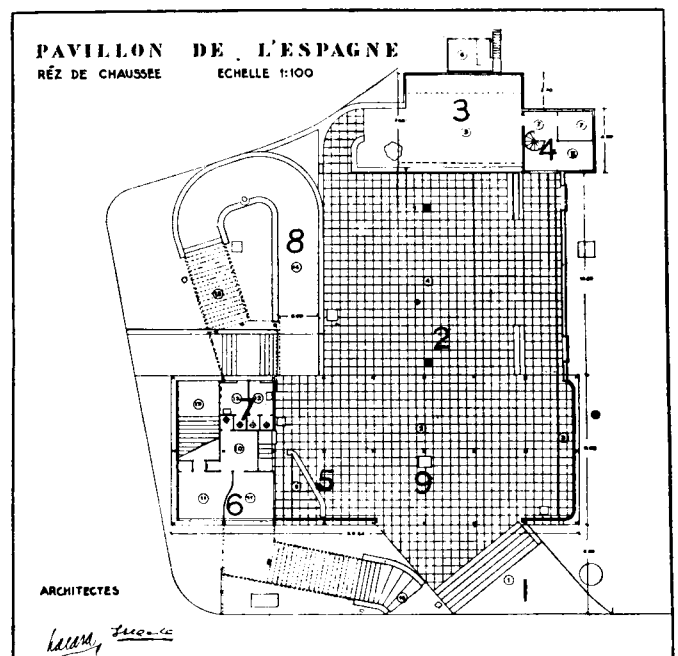
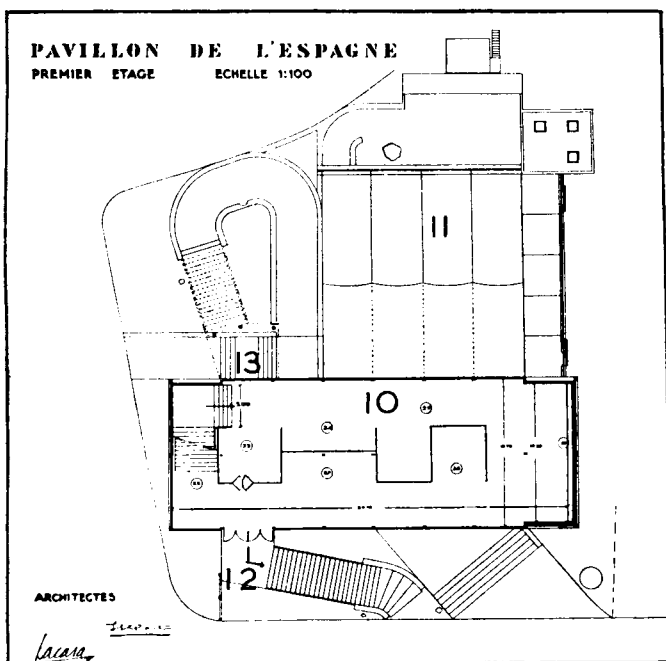
SECTION AND EXHIBITION FLOOR (right) OF SWISS PAVILION

Braüning, Leu & Dürig,
Architects

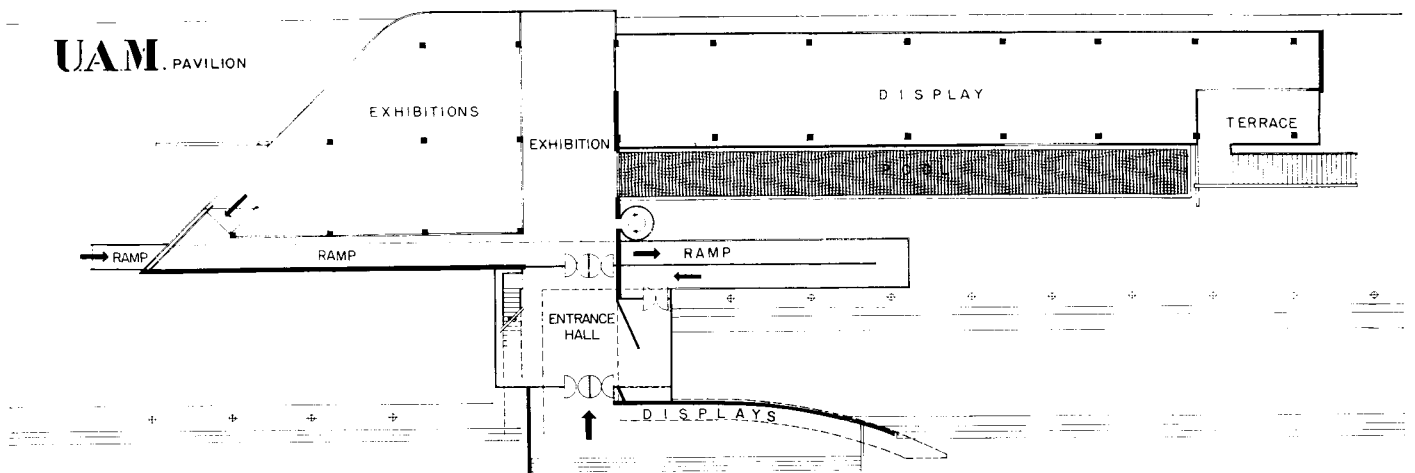
PAVILION
FLOOR PLANS
PARIS FAIR
1937



SPANISH PAVILION. J. L. Sert & L. A. Casa, Architects



UNION OF MODERN ARTISTS BUILDING. Pingusson, Louis and Jourdain, Architects





Photos by Moholy-Nagy

1

Exposition for Exposition *

EXPOSITION is not showcase or museum display. Exposition in its new meaning brings spectator and exhibition together with closest relationship. The display, and with it the contact, must be done with originality and clearness of conception. The display should be unusual and thought-provoking; it may even be amusing in order to be striking. We can learn from the exposition in the Palais des Descouverts, where the cultural development of the human race was shown by means of ingenious approach to all kinds of inventions *through art*. The lesson of the Paris Exposition is this: buildings must be designed for purpose: namely, attention-arresting display. Of the whole exposition the Eiffel Tower, in spite of its date, still remains the finest example of exhibition construction—the classic.

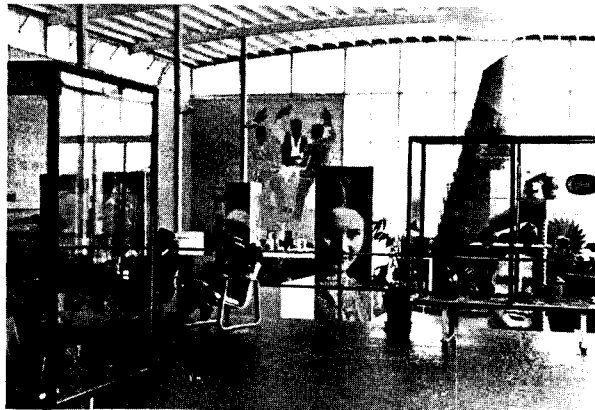
Excepting Le Corbusier, with his huge temporary tent, almost nobody realized in this exposition the fantastic possibilities of building materials and technique. Exposition does not mean the enlargement of ordinary architecture; it means the bold use of Utopian elements, even if they make a part of a skeleton facade, because the suggestive power of their *constructive* play will be not only amusing but will be convincing as well.

Of course the Paris Exposition as a whole is most interesting and valuable because it indicates a general acceptance of the principles of the new architecture. Perhaps some of its meaning remains misunderstood. But it shows clearly too that we cannot attain in the future a successful exhibition on an extensive scale without organization and leadership residing in *one* responsible person. It is not enough to realize the necessity of a precise solution of the traffic problems inside and outside the buildings, that the buildings should be efficiently ventilated, that they should be well lighted, that they should have extensive openings to the outside in order to see from inside to outside and from outside to the interior; it is also a necessary principle that the invited architect should be given a free hand to create his co-ordinated part of architecture for specific purposes,—not vain, meaningless towers or forms for form's sake. Finally, there should be an agreement with the idea that order should be substituted for chaos at this time when the entire world is waiting to clarify and solve countless urgent problems and needs of the *human* being.

* Moholy-Nagy was recently appointed Director of the new American School of Design (New Bauhaus), Chicago. He is author of "Photo-Eye," "New Vision" and other books on photography and design.



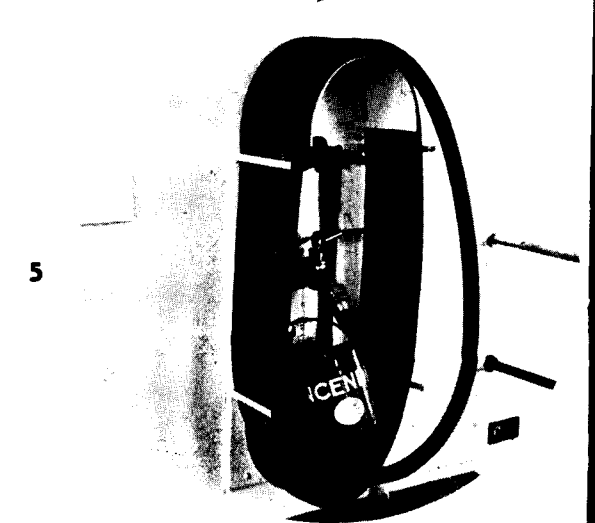
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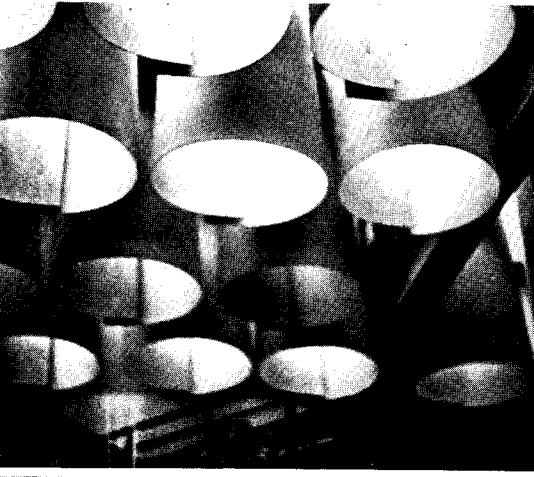


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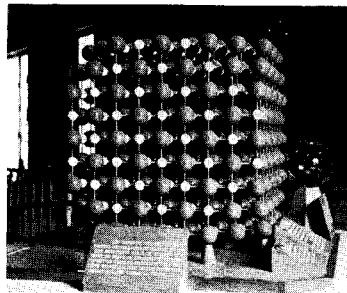
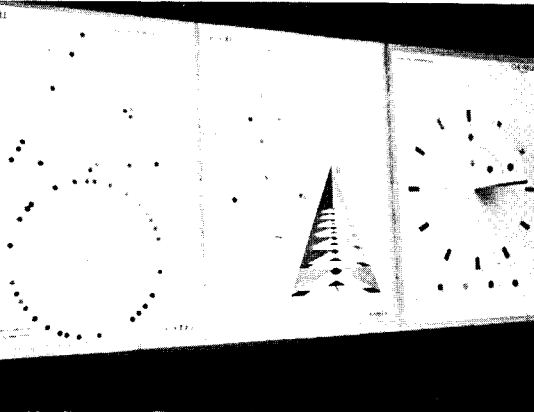


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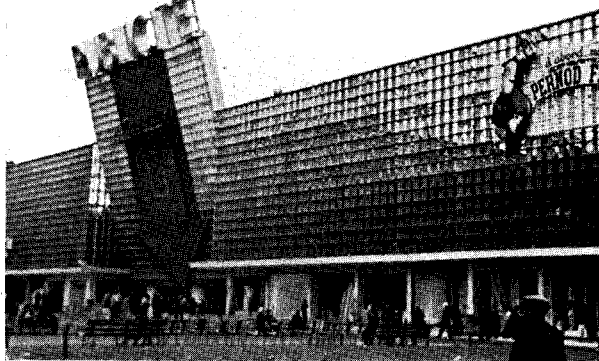
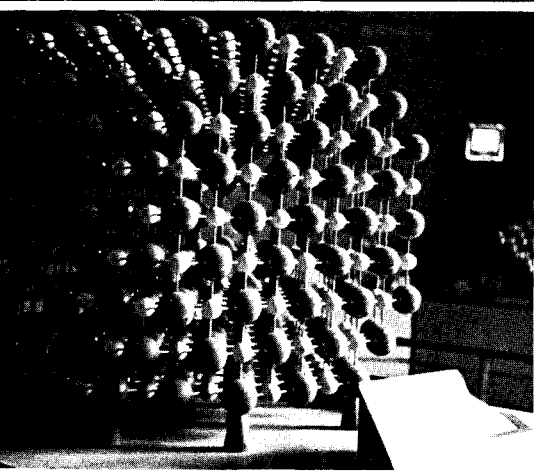
Moholy-Nagy, Picture Hunter, Looks at the Paris Exposition



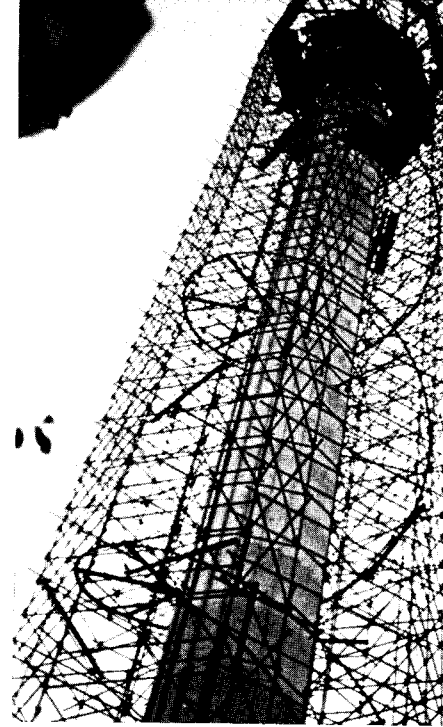
1 Spectators Picasso and Giedion. 2 Photo-reality: Interior, Swiss Pavilion. 3 Exhibits, Swiss Pavilion. 4 Mural observers. 5 Fire extinguisher. 6 Lighting cluster. 7 Diagrams. 8, 9 Visualization of the atom. 10 Three-dimensional statistical charts. 11 Le Corbusier Tent at Porte Maillot; construction at right. 12 Scaffolding during construction of column at d'Orsay entrance to exposition. Compare with completed shaft, without scaffolding, on page 89. 13 Publicity Pavilion with detail at right. This consists of a metal grille for the display of large-scale posters. The center, inclining forward, displays a moving "electric newspaper." 14 Frame for tent by Le Corbusier.



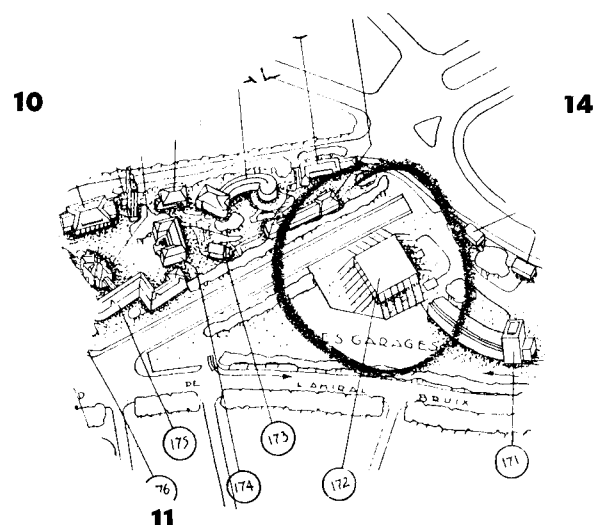
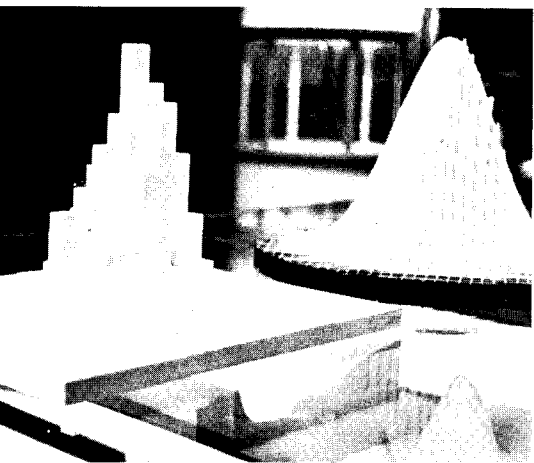
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First Congress of Soviet Architects By SIMON BREINES

(Continued from page 65)

There was, of course, not only criticism. The delegation representing 16,000 Moscow teachers had much to say about inadequate wardrobe space and poor ventilation in the school. But they also noted the fact that hundreds of new schools were being built each year where none had been before and that the physical quality of these schools was improving.

Many of the foreign delegates spoke at this point. Perhaps the most important was the speech of Francis Jourdain of France who made an eloquent appeal for rationalism in architecture as opposed to the resurrection of the classic style. "The facade," he said, "is only the expression of the plan and the needs of the inhabitants of the building. The facade is not an expression by itself."

Another foreigner whose words received great attention from the Congress was Edvard Heiberg of Denmark. "We people from the West are particularly impressed at this Congress of Architects by the concern and interest displayed by the Soviet Government and the Soviet people as a whole. In my country, architectural congresses are unfortunately the concern of only a handful of specialists who have no contact with the people." He warned that it was important to study the classics in order to understand them and not to copy them. It was along about here that some wit remarked that a man is a good architect when he knows the classics, but he is a better architect when he forgets them. Most of us are already acquainted with the splendid reception given to Frank Lloyd Wright, who has always impressed architectural thinkers in the U. S. S. R.

Professor S. E. Tchernyshev reported on the General Plan for the Reconstruction of Moscow and the Problems of Town Planning. Most of his talk was taken up by a detailed description of the aims of the Moscow plan and accomplishments to date. He spoke of the "Metro" and the newly created Moscow-Volga Canal, the purpose of which is (1) to increase the water supply for a possible population of 5 millions and (2) to make Moscow an inland port linked with the White Sea and the Baltic in the North and with the Caspian and Black Seas in the South. All the delegates, including the visitors, made an overnight trip on the canal. I can understand the pride of Russians in this undertaking. Although I was not pleased by the ever present columns and cornices on the pump houses and hydroelectric stations we passed, I will say that the materials and the technique displayed in these buildings compared favorably with good construction anywhere in the world. The new ports created in Moscow by this canal, as well as the future development of this city, may be seen in the accompanying maps (see p. 64).

There are also negative sides to the picture as Professor Tchernyshev pointed out. But, to quote from Sir E. D. Simon's new book "Moscow in the Making": "The solution of the Moscow housing problem is a gigantic task; they are endeavoring in one generation to

(Continued on page 96)

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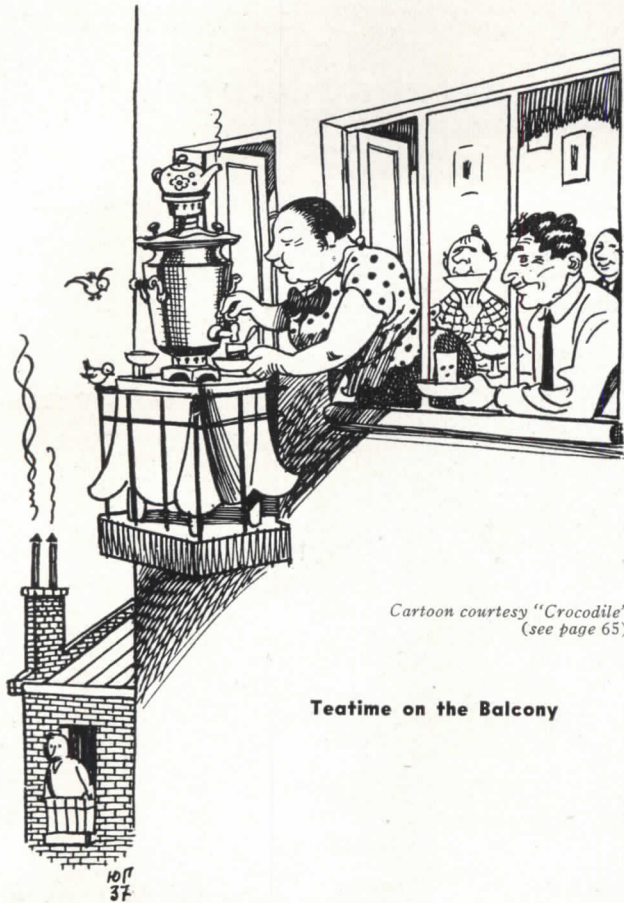
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Cartoon courtesy "Crocodile"
(see page 65)

Teatime on the Balcony

First Congress of Soviet Architects By SIMON BREINES

(Continued from page 94)

raise an Asiatic standard of housing to the latest and best European standard; and that at a time when the population of the U. S. S. R. is increasing by about $3\frac{1}{2}$ million per annum."

Professor Tchernyshev, who is also Chief Architect of Moscow, noted that in addition to those for his city, plans are now being made for the reconstruction of over 200 cities and villages in the U. S. S. R. The report of Chief Architect L. A. Ilyin of Leningrad was along similar lines. He stressed the importance of parks in reconstruction operations and set 60 per cent as the minimum green area in an average city block. Both of these gentlemen spoke of the tremendous advantage in city planning of the public ownership of land.

Perhaps the most important part of the Congress was the session on housing. The discussions on architectural form and style, on "classicism" versus "constructivism," were now over. The speakers began to express themselves more and more in "architectural prose," as someone put it. Architects G. A. Simonov and A. G. Mordinov reported on the Architecture of Dwellings. Said Mordinov, "Soviet architects have made great progress in the sphere of housing in the past few years. Nevertheless, the architect still frequently concentrates too much attention on the facade at the expense of such 'details' as comfort and convenience."

The Industrialization of the Housing Industry was the subject of the report of Professor M. J. Ginsburg. He stated that this year's construction of dwellings in the U. S. S. R. will total 6,430,000 sq. m. Within the next ten years there will be constructed 15,000,000 sq. m. or 2,500 large apartment houses in Moscow alone. Professor Ginsburg stressed the need for the mechanization of parts and equipment. He made many laudatory references to American building methods, particularly to our experiments and achievements in the prefabrication of housing and building parts. There is every indication that the rationalization of the Soviet building industry, which will doubtless follow from this Congress, will proceed rapidly along the technical lines established by American practice. All the more so because, Professor Ginsburg pointed out, many of the obstacles which block the full development of building industrialization in the U. S. are not present in the U. S. S. R. He also called for a closer cooperation between the architect who produces the designs and the industrial organizations which produce the materials and equipment and do the actual construction or assembly on the site.

The resolutions adopted at the close of the Congress were as follows: The Congress notes that while there have been many achievements in the field of architecture, the general level is still not high enough. Soviet architects must overcome "formalism" and also "eclecticism" and must master the art of building; that there is a great need for the more rapid industrialization of the building industry and a closer relationship between this industry and the architects; that careful study must be given to the problem of the buildings and villages of collective and state farms; that many of the problems of architecture can be solved by the correct organization of research and experimental work, and that the Academy of Architecture and other scientific institutions be reorganized for the purpose of bringing theory and practice closer to each other.

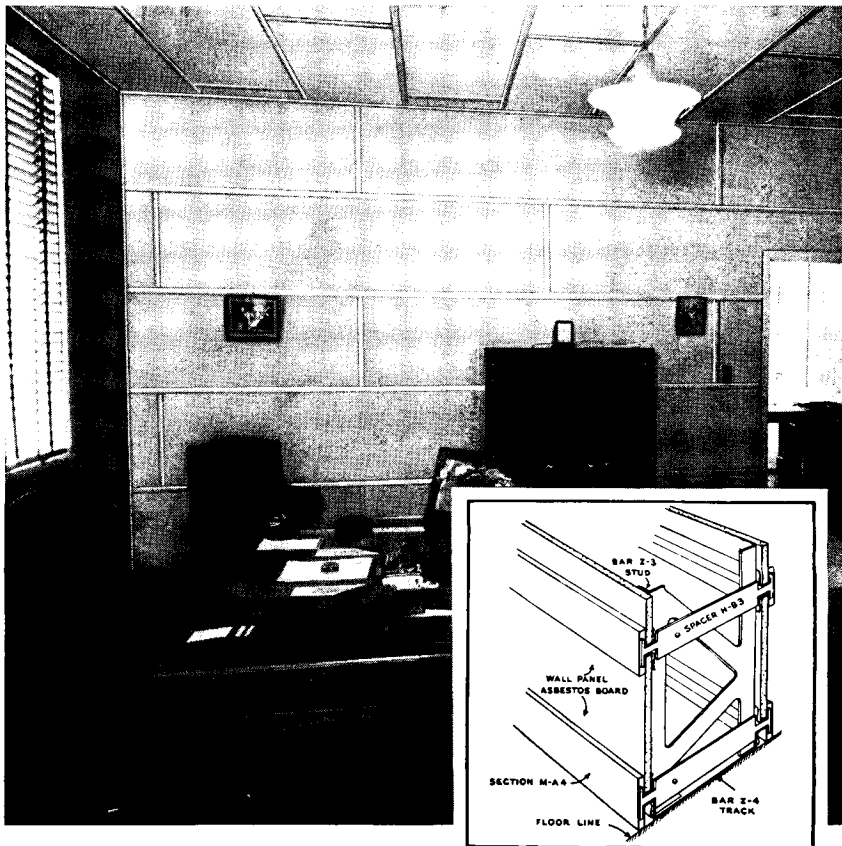
In conclusion I would say that I noted a distinct improvement in the physical appearance of Leningrad and Moscow since 1933. It is true that the Soviet building industry is still lagging behind other important industries. Nevertheless, I observed many striking advances in building technique, notably in the Moscow Palace of Culture by the Brothers Vesnin, in the stations of the Metro, and in the structures of the Moscow-Volga Canal. The Congress impressed me because it seemed to reflect the active interest of a whole nation in the problems of architecture and housing, and because the proceedings were carried on in an atmosphere of vigorous, free, and objective discussion and self-criticism.

CORRECTION • AUGUST ARCHITECTURAL RECORD

The Department of Interior Building, credited to Louis A. Simon, Architect, on page 57 of the August RECORD, was designed by Waddy B. Wood, Architect. In addition, Mr. Wood supervised the development of the working drawings by the Procurement Division of the Treasury Department, and acted as consulting architect during the erection of the building.

*Simplified and
efficient method
of construction*

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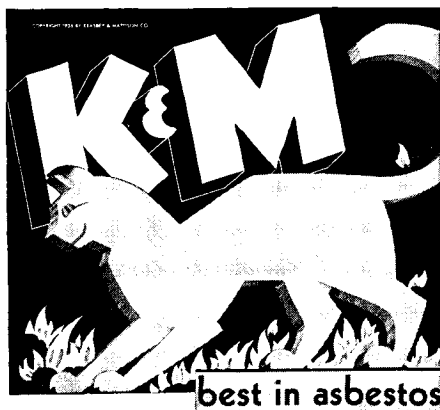


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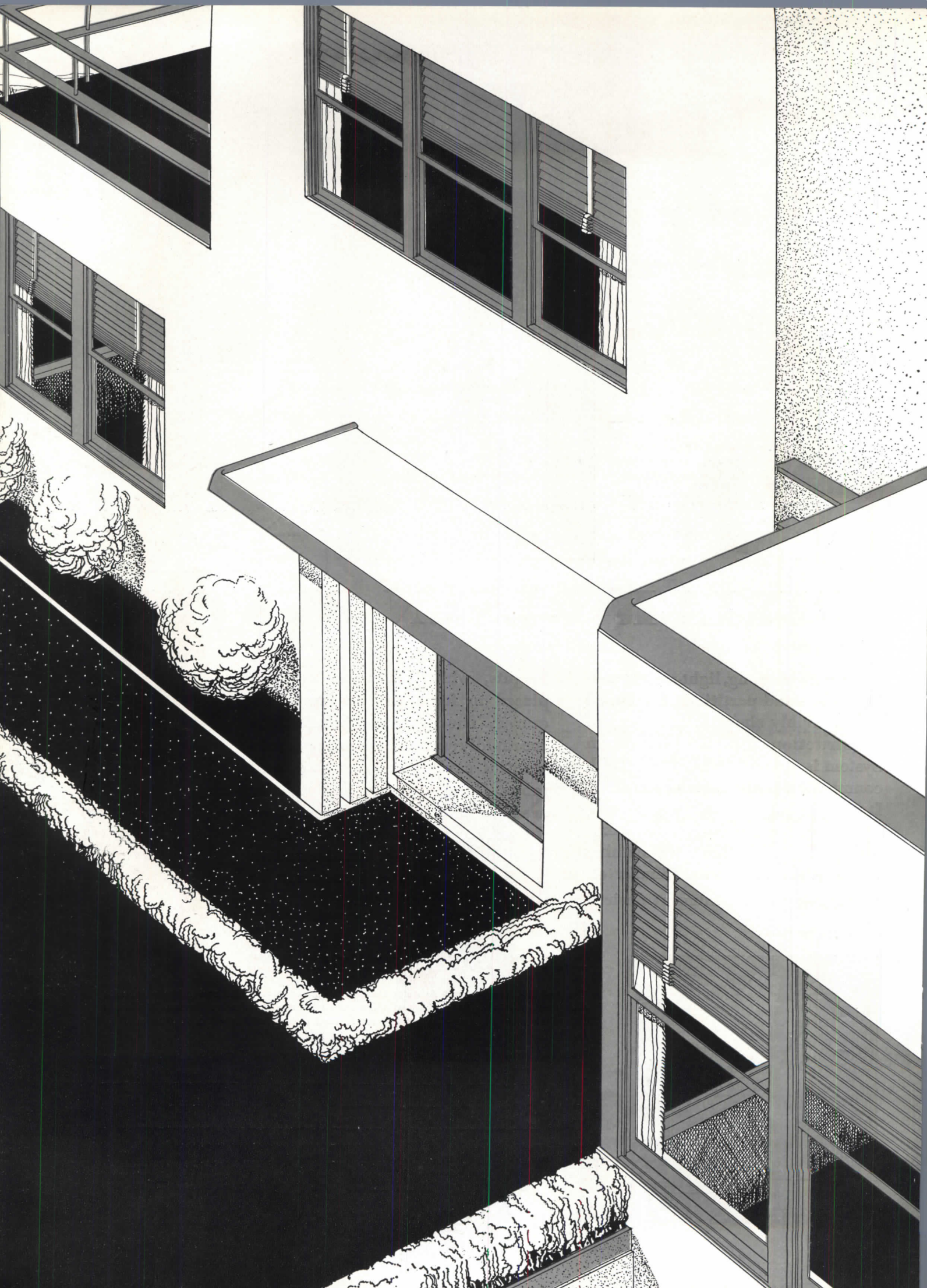
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LET'S LOOK INTO THE REAL COST OF WINDOWS



A price is quoted on "Windows." Is that the final cost, or must a lot of extras be added to get their true cost; labor for assembling knocked-down parts, weather stripping, paint and more labor, and so on? Many builders are saving money by knowing the truth.

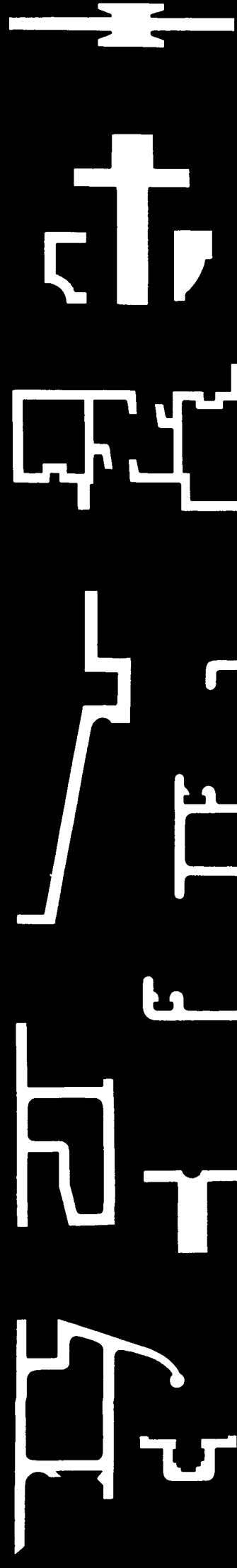
Only the cost of setting Aluminum windows need usually be added to the figure quoted. Price differentials are, therefore, often equalized when costs are compared on a completely installed basis.

With Aluminum windows, less maintenance is required. Because Aluminum is so resistant to weather, they retain their attractive appearance without the frequent painting and repainting required by other windows; they never warp, swell, rust or rot. Property owners are spared much of the upkeep expense ordinarily expected.

Aluminum windows are fabricated from extruded shapes like those shown on this page. Designed especially for window construction, these shapes utilize every ounce of metal to best advantage, giving maximum strength with minimum weight and cross section. They account for the reasonable cost of Aluminum windows.

We do not manufacture windows, but supply Alcoa extruded shapes to many well known window manufacturers. They have developed individual types of construction, and will gladly give you detailed information on windows of their own design. Aluminum Company of America, 2167 Gulf Building, Pittsburgh, Pennsylvania.

★ ★ ALCOA ★ ★
ALUMINUM



ARCHITECTURALLY SPEAKING

by

OTIS ELEVATOR COMPANY

Sometimes we take it for granted that all we have to do is mention the name of a product and everybody understands what we're talking about. But, if we'd just stop to consider for a moment, we'd realize that new developments and new names come so fast they can be very confusing.



For instance, there are two important types of apartment house elevators—by name, Single-Call Push-button Control, and Collective Control. Maybe it would be well to go over their outstanding differences and indicate where each would serve best.



First, to classify Single-Call Push-button Control. In a nutshell, it gives one-call-at-a-time service. In other words, the car answers calls singly and must complete the transportation needs of one passenger before it gives heed to the call of the next passenger. Obviously, satisfactory service by this type of elevator is limited to buildings housing comparatively few tenants.



And now Collective Control. This type of elevator answers *all up* calls on its *up* trip and *all down* calls on its *down* trip. This means—less passenger waiting, less trips for the elevator, which in turn means less wear and tear, and less power consumption. A Collective Control elevator can serve many more tenants than a Single-Call Push-button elevator.



Collective Control elevators can be arranged for "home stations" to which they automatically return when all

current calls have been answered. The "home station" may be at the top of the building in the morning when most traffic is down. At night, when the traffic is up, the system can be reversed, with the "home station" at the bottom. This means a further saving in time and operation cost.



Newest feature of Collective Control is automatic door operation especially adapted for this type of equipment where passengers usually operate the car. This is also an advantage where a part-time operator is employed. During the day when traffic is light and the operator may be assigned other tasks in the building, the elevator is completely automatic and the passenger becomes the operator.



Still another feature is *Duplex* Collective Control (another name, but we'll explain). Duplex provides automatic operation for the building which must have the service of more than one elevator at times of peak demand, and where "serve yourself" service is desirable. Duplex Collective Control is co-ordinated automatic operation on two or more elevators working together as a unit.



Installation of Collective Control has been given added popularity in recent years by the nation-wide availability of manufacturer maintenance. Otis maintenance is available for all types of elevators. It is especially useful to the moderate-size apartment building where elevator service is so important to the tenant's satisfaction, and engineering and mechanical staffs are limited.

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*YOU DESIGN with
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The HUDSON HOUSE APARTMENTS, Ardsley-on-Hudson, New York. Shreve, Lamb and Harmon—Architects.

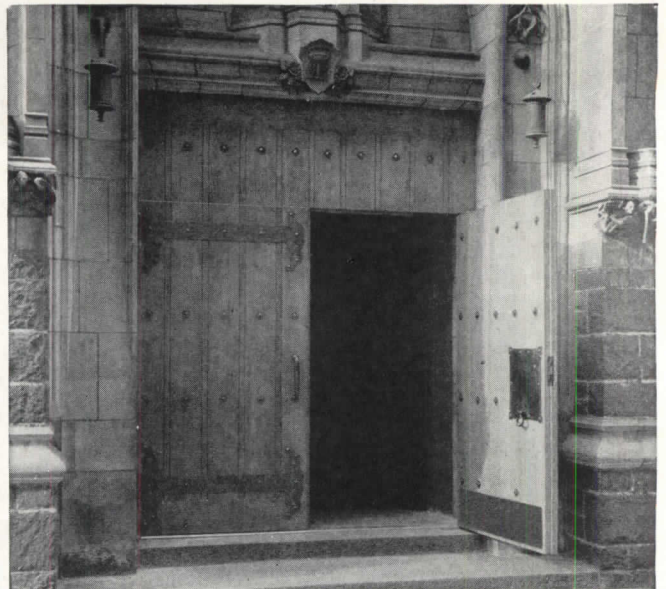
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THE FIREPROOF WALLBOARD
and New PERF-A-TAPE

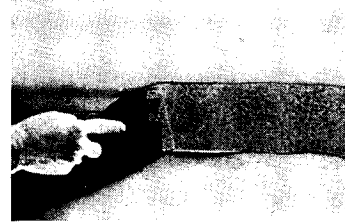
*Perfected System Solves Problem of Joint Concealment—
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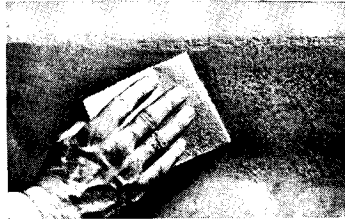
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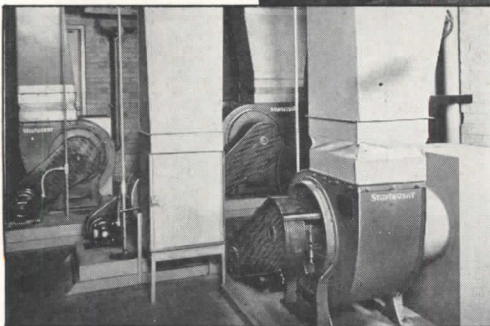
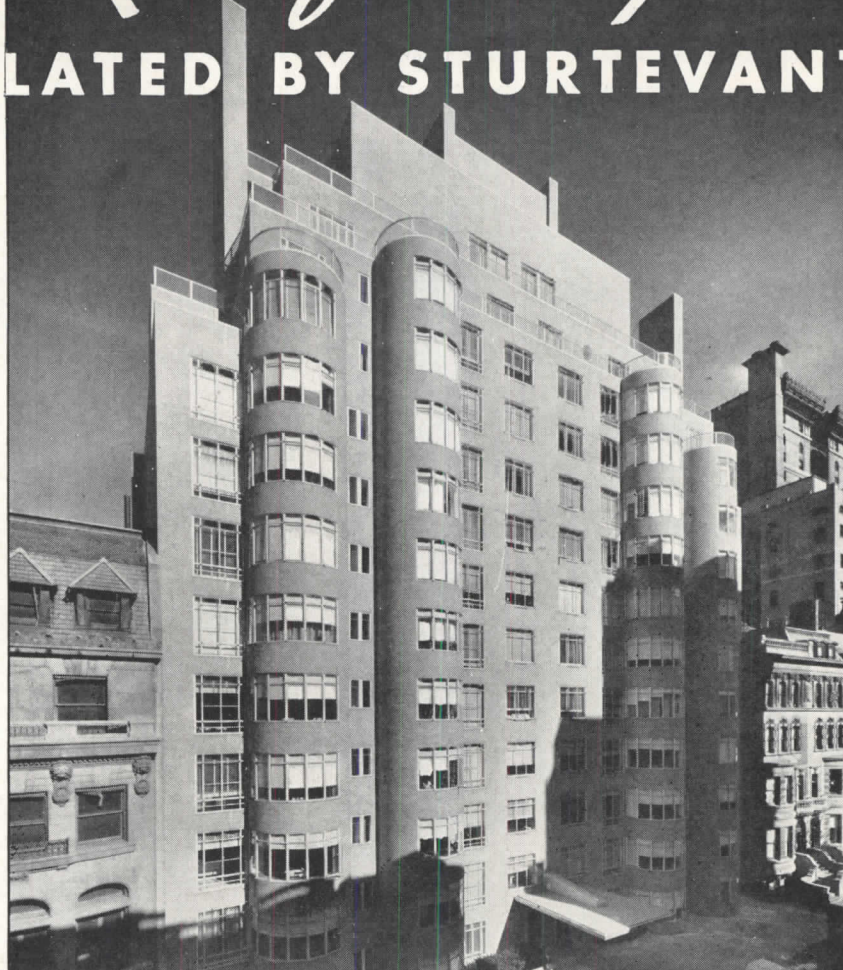
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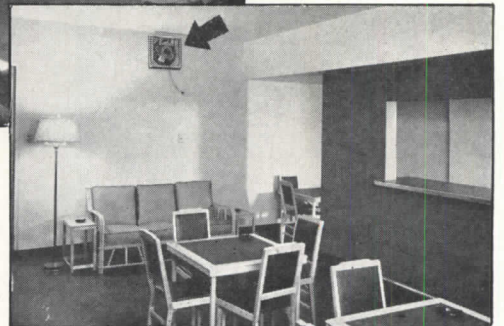


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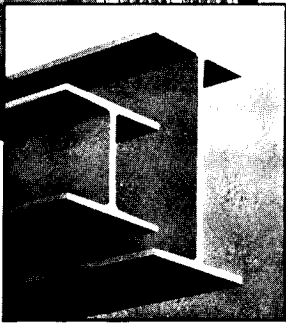
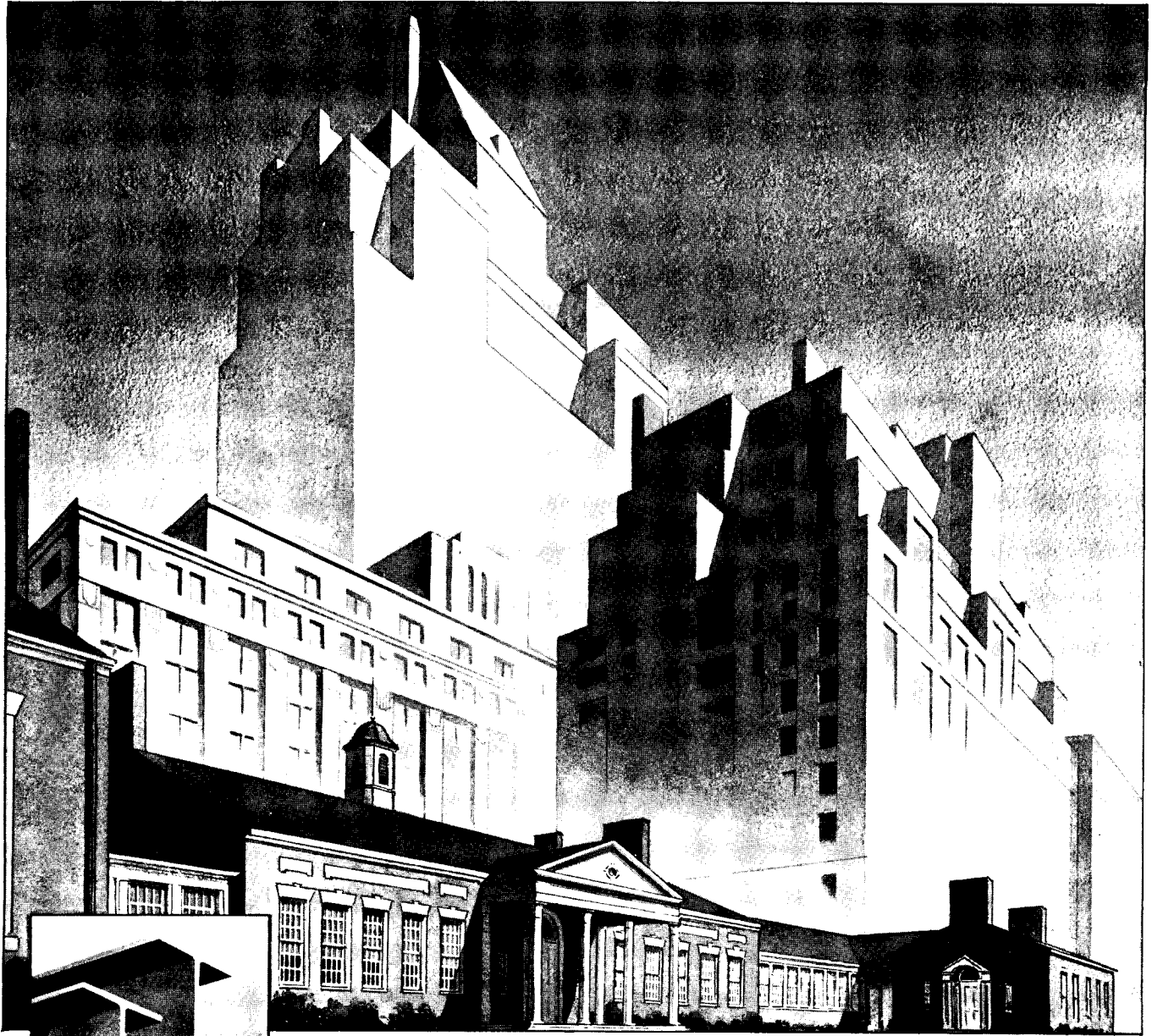
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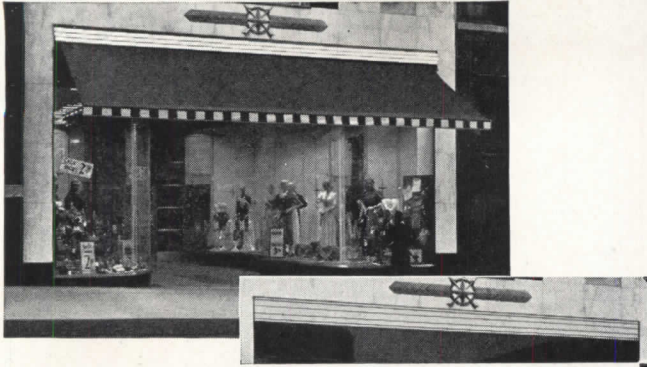
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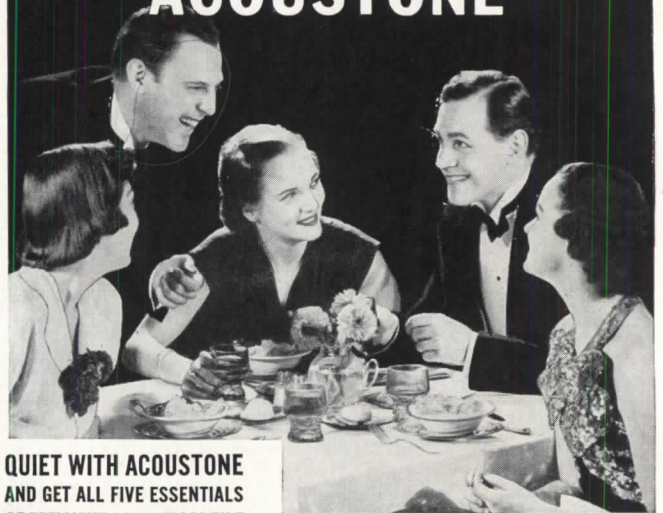
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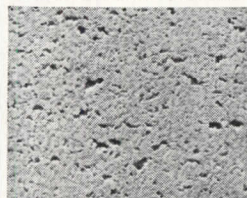
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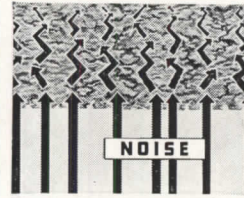
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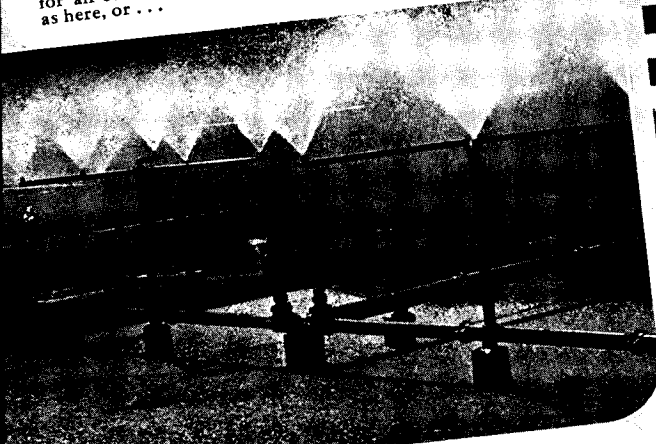


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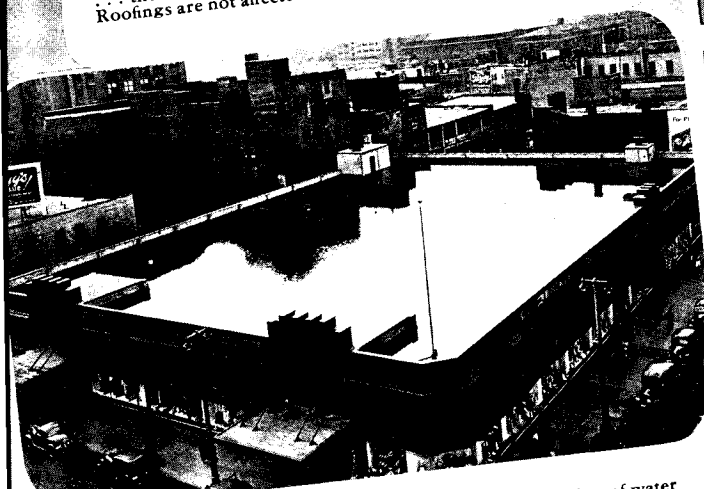
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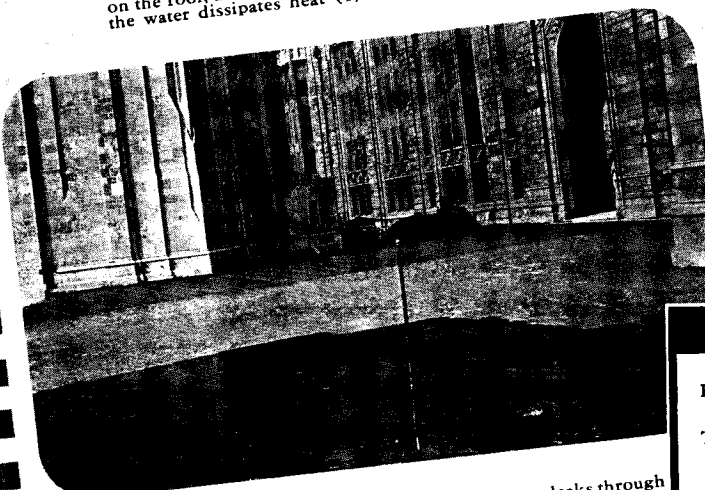
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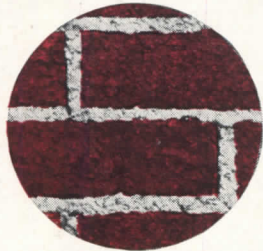
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Record

Rental Potentials Define Apartment Types

By R. STANLEY SWEELEY

THE CENTRAL Housing Committee, Washington, D. C., defines an apartment house as a building containing three or more living units or apartments having some common services. Obviously, within the broad limits of this classification, there are a great many separate types more or less classifiable according to ownership, location, and service.

In terms of ownership the operation may be financed privately, cooperatively, or with government funds. The latter may be in the form of grants, subsidies, or governmental supervision from design to the management of a property. Classified by location, a structure or apartment development may be a city or suburban type, and in some instances a special group to house the workers of a particular industry or project. In the types of service offered there are flats, garden courts, and apartment hotels.

Governmental work as exemplified by P. W. A. housing projects, completed or approaching completion in all parts of the country, has been a very large part of apartment house construction in the recent past. Lately, however, the need of the medium-income tenant group has reasserted

itself. Despite the impetus which may develop in providing low-income accommodations as a result of the Wagner-Steagall Housing Act, it is likely that more and more privately projected and financed apartment houses will be in demand for those tenants who would not be eligible for governmental housing accommodations; for the latter, it will be remembered, limit tenancy to those earning no more than five times the rental.

We shall, therefore, narrow the scope of this study by removing from consideration government-financed construction as well as cooperatively owned properties, the latter as an apartment type having largely disappeared from New York City, almost exclusively the scene of their development.

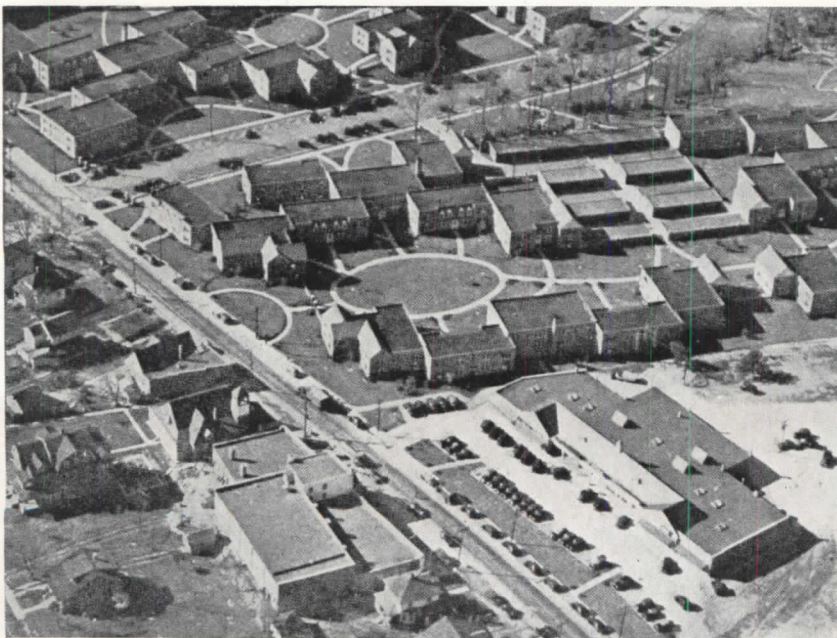
For the medium-income group, the architect and builder may readily visualize two separate types of structure—the flat or ordinary apartment with somewhat limited service facilities, and the apartment hotel, which approaches the hotel proper in having a central location and in the multitude of services and facilities offered. While the flat type includes some of the elements of the hotel, it is in general a project of larger units

and more spacious locations. This consideration, we anticipate, will tend more and more to location in the outlying zones of the larger cities where land values will permit the fullest development of the garden type.

Here will be found school facilities, recreational centers, and all the other requirements of the larger family unit for which this mode of living is most suited.

Undoubtedly, the future development of the garden type of project will reflect many of the standards which have been developed by, and incorporated in, the large government housing groups. In this regard it may be expected that privately operated projects will include larger and more complete recreational facilities for both outdoor and indoor activities. Certainly, the medium-income class of the population, thoroughly aware of what is being done for the lower income group, will not be long content with less. Not being slum replacements, these newer garden courts can be located where natural scenic or wooded tracts afford the most abundant garden potentialities, where the site, rolling or of varying levels, lends itself to planning which is diverse and replete with contrast. Integrated shopping and amusement centers will, of course, be a part of these new communities. An excellent example of such planning may be seen in the recently completed Colonial Village at Clarendon, Virginia.

Still another avenue of present and future activity in the apartment house field is modernization of existing structures. Everywhere, there are structurally sound buildings which are unrentable or which may be made more profitable. For example, innumerable structures, originally planned for large units, may be converted into buildings of small units when these are either in greater demand or return a larger profit. Or again, through the replacement of obsolescent equipment and finishes, many buildings have been converted from economic loss to a profitable source of revenue. In this field one of the most important considerations is the examination and determination of the existing value of the structure—not alone its physical value but its potential worth (after modernization) in the renting market.



COLONIAL VILLAGE showing shopping center (lower right).

New Apartment House Design Standards

By M. H. SUGARMAN, Architect

MR. SUGARMAN is an international authority on apartment house design. Among the hundreds of such structures executed by his office, Sugarman & Berger, are 17 in Moscow, others in Europe and in Central America. In 1925 his apartment house at 125 East 63rd Street, New York City, received the gold medal of the A. I. A. The Hotel New Yorker and the Roerich Museum are also his work.

DURING the last few years there have been many articles written and much attention directed to apartment houses, especially referring to the work done under so-called slum clearance and rehousing activities. However, apartment houses in general have not been sufficiently analyzed of late; little has been published recently about the new standards which have been evolved regarding the business of planning, financing, design, and construction of the commercial apartment house. Every phase of the projection of such buildings has changed so greatly, their future development holds out such interesting possibilities, that a survey of this field is extremely timely.

In commercial operations we are still, and always will be, affected by the relation of real estate values to the project. The height and size of building, its proximity to transportation systems, theaters, shopping centers, and all those things which make city life endurable and interesting remain important factors.

In this question of site we must (and the loan limitations always do) take into account not only the present location and surroundings but its trend, what these will be 10 or more years hence. New types of buildings, new growths or regrowths of sections have sprung up so rapidly of late that buildings only recently completed have been practically outmoded literally before they were finished. In these instances, economic changes and trends have not been adequately taken into account by the projector, whether builder or architect.

Financing

WHEN Federal Housing Administration and other governmental agencies entered the picture we had had a certain amount of financial priming, and for some time the usual agencies were not in the picture at all. Recently, however, we have noted

that most of the larger insurance companies have resumed their interrupted function of assisting in the financing of many apartment houses in cities throughout the country. Banks, building loan organizations, and private capital noting the success of so many of these new projects, have returned increasingly to this field with their capital.

The influence of government-insured (FHA) mortgages will best be described by quoting from an administration release by Mr. Stewart McDonald of the FHA, which the writer received two weeks ago: "In no case does the Housing Administration lend money. In large-scale housing projects the Housing Administration simply insures mortgages on large-scale rental projects. . . . The Federal Housing Administration's large-scale housing program is based, not upon government subsidy, but upon cooperation with private enterprise and private capital in the provision of rental housing of approved standards."

Without going into involved explanations about specific requirements, it may be stated roughly that these government-insured mortgages require:

- a. An amount of money at least equal to the value of the land.
- b. An additional amount for initial cash working capital.
- c. The amounts under "a" and "b" plus, if necessary, an amount to cover the start of the operating phase and a sound ratio of total equity to total cost of the project.
- d. The rentals are fixed prior to the insurance of the mortgages and are generally known as low-cost housing rents. These insured mortgages are definitely for the lower income groups. The whole operation, is also known as limited dividend operations, the maximum dividend allowed to be declared, or paid, by the corporation being 6% of the agreed capitalization. All these steps are under rigid governmental supervision.

Design standards of the FHA are in the direction of securing reasonably low rental rates. Beyond this, they are neither more severe nor very different from the standards of planning and construction required by large insurance companies and banks.

Site and Operation

IN RELATING structure to land it may be said, in general, that too great a coverage of the site may create a feeling of constriction and of closeness. Ratio of coverage may vary from about 70% in cities, narrowing down to as little as 35%, even lower, in the garden types and low-cost government-financed types.

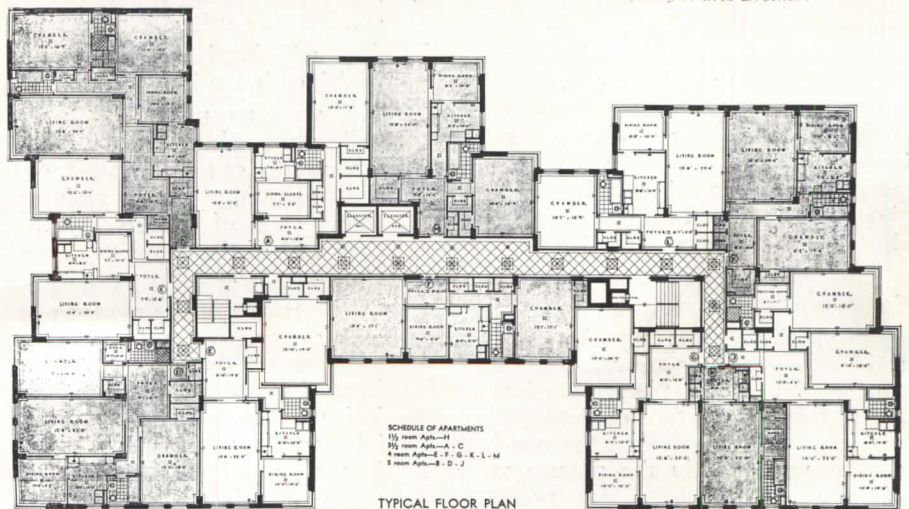
A study of the economics involved in these determinations is one of the most interesting and vital considerations in commercial apartment house planning. In cities where land values are approximately \$750 per front foot up to \$1,500 per front foot, with a depth of 100 feet, it is found that an eight-, nine-, and up to twelve-story structure is most economical. With the type of planning exemplified by several hundred buildings erected within the last few years, an exterior plot should have from 100 to 160 or 175 feet of frontage, as this can accommodate a type which is most economically constructed and maintained, and better planned, especially in relation to the mechanical equipment.

Of course, in smaller towns where the cost of land is not too great and where the building is kept down to four stories or fewer, the question of size of lot is not quite so pressing. In general, the lot size in outlying sections permits garden-type, open planning, which could not be afforded elsewhere.



Photo by Wurtz Brothers

1000 GRAND CONCOURSE
NEW YORK CITY



The decisive principle in the designing of an apartment house is the domination of the plan to the exclusion of all other factors. Once the plan—identical in every detail for 9, 12 or 15 stories, as the case may be—is finished, the building, properly speaking, is designed. There remains only the minor business of spacing the windows, and the addition of such paper architecture as may be applied in an effort to secure an acceptable facade—deplorable though this practice may be. *But it is the plan which rents the apartment.*

What are the newest design standards in the planning of structure? One need only glance through the plans of many of the new apartment houses designed and constructed in the last few years, compare these with those built just four or five years ago, to realize that we have an entirely new conception of all the forces entering into apartment house requirements, whether financial, social, mechanical, space-saving, or even pictorial.

The tenant or consumer, brought up and buffeted about in the last few years by post-war conditions, educated in new philosophies and in new concepts of his place in the sun, has learned to discriminate. His awareness of what is necessary in the matter of living quarters is such as to tax the knowledge and ingenuity of the architect, who must meet his demands as well as those of the interests financing the building. No longer can the architect of apartment houses be just a draftsman, slavishly turning out plans technically correct and following some system of period or pictorial style. The highway of success must be the living road of trend,—trend of thought, trend of economics, trend of aspiration. And while on this road, never for a moment can he forget new technological forces, new mechanics, cost of land, cost of operation, even the cost of probable changes within a ten-year period.

Layouts

THE DETERMINATION of unit size is dependent on neighborhood, cost of land, size of plot, and the returns desired or possible to secure. These, in turn, are influenced by cost of the construction adopted, whether fireproof or nonfireproof, and the height of the structure. The cost of operating is carefully figured, with taxes, finance charges, and amortizations being taken into account. The proper

adjustment of all these elements may perhaps be described as estimating backward from the materially complete building and then readjusting some of the individual elements, arriving with the help of experience and judgment at the type of unit desired. In the last few years demand has been greatly in favor of the small units. They may be represented as:

1. One-and-a-half room unit,
Living room, foyer, and small kitchen.
2. Two-room unit,
 - a. Living room, kitchen, and large foyer.
 - b. Living room, kitchenette, foyer, and bedroom.
3. Two-and-a-half room unit,
Living room, bedroom, small kitchen, and foyer.
4. Three-room unit,
Living room, bedroom, good-sized kitchen with dinette adjacent (or large foyer).
5. Three-and-a-half room unit,
Living room, bedroom, good-sized kitchen, large foyer, and a sun parlor or dinette, which may be used as a secondary bedroom.
6. Four-room unit,
Living room, two bedrooms, kitchen, and foyer.
7. Four-and-a-half room unit,
The same as for a four-room unit, plus a solarium, dinette or small extra bedroom.

Sixes, sevens, and some eights are in demand. Nines, tens, twelves, and upward are not yet required.

In all city apartment houses today a bathroom for each master bedroom should be included. This stress on bathrooms is becoming more and more a fixed condition in all medium-priced and expensive apartments. We may note that contemporary planning forces, evident in the smaller units, are influencing the larger units too. In the six-room units, the dining room and full-sized kitchen are mandatory, as are also a fair-sized bedroom and a bathroom which may be used by a servant or by a member of the family.

The sevens and eights may include an extra service bedroom, library, or another bedroom. The plan appointments are somewhat more elaborate; dressing rooms or dressing closets in connection with master chambers and baths are becoming a fixed requirement. Extra closets and large foyers are of course expected.

Large loan institutions are still

looking forward to an increased demand for these medium-large apartments, since they consider these the safest investment. The tenant renting a six-room or seven-room apartment is in their eyes much more stable, leases for a longer term of years, and decorates the interior. He plants himself securely to raise his family, thereby securing the proper maintenance of the building financially and physically. There are a number of buildings of this class in New York which were not affected much, if at all, by the extended depression.

In room layouts it is well to bear in mind that the living room should be reached directly by a foyer, which should be more than three feet in the least dimension. It should not be necessary to pass through the living room to reach any other room, except in a one-and-one-half or possibly a two-room apartment. The living room must have at least half its wall surfaces unbroken by doors to closets, rooms, or by windows. In medium-priced apartments today, the minimum size of living room is 12' x 19', and in such cases the foyer should open into it on the long axis and in itself be at least 5' x 10'. The average living size is 12'-6" x 22'. It is desirable to have living rooms on corner, street, or court, and to arrange windows for cross-draft on two walls or by corner windows.

Bedrooms in most of our new six-story apartments are 12' x 16' to 12' x 18'; the latter is desirable. When several bedrooms are included in an apartment, one of them may be 11' wide if more room is not available. Bedrooms should each have two closets opening into them, and if possible a dressing closet, especially when the bedroom is the only other room next to the living room. Closets and entrance should be at one end or side of the room, because a full suite of bedroom furniture demands plenty of unbroken wall surface. Windows should be more than 10% of the floor area of the room and two windows are more desirable than one.

The kitchen in small units is and must be small; this in spite of the oft-repeated statement of the housewife of the desirability of a large kitchen. It must, however, be scientifically laid out with the latest and now accepted trio of range, refrigerator, and sink or combination sink, all surrounded and abutted by cabinets, broom closet, and utensil storage spaces.

These kitchens laid out and counted

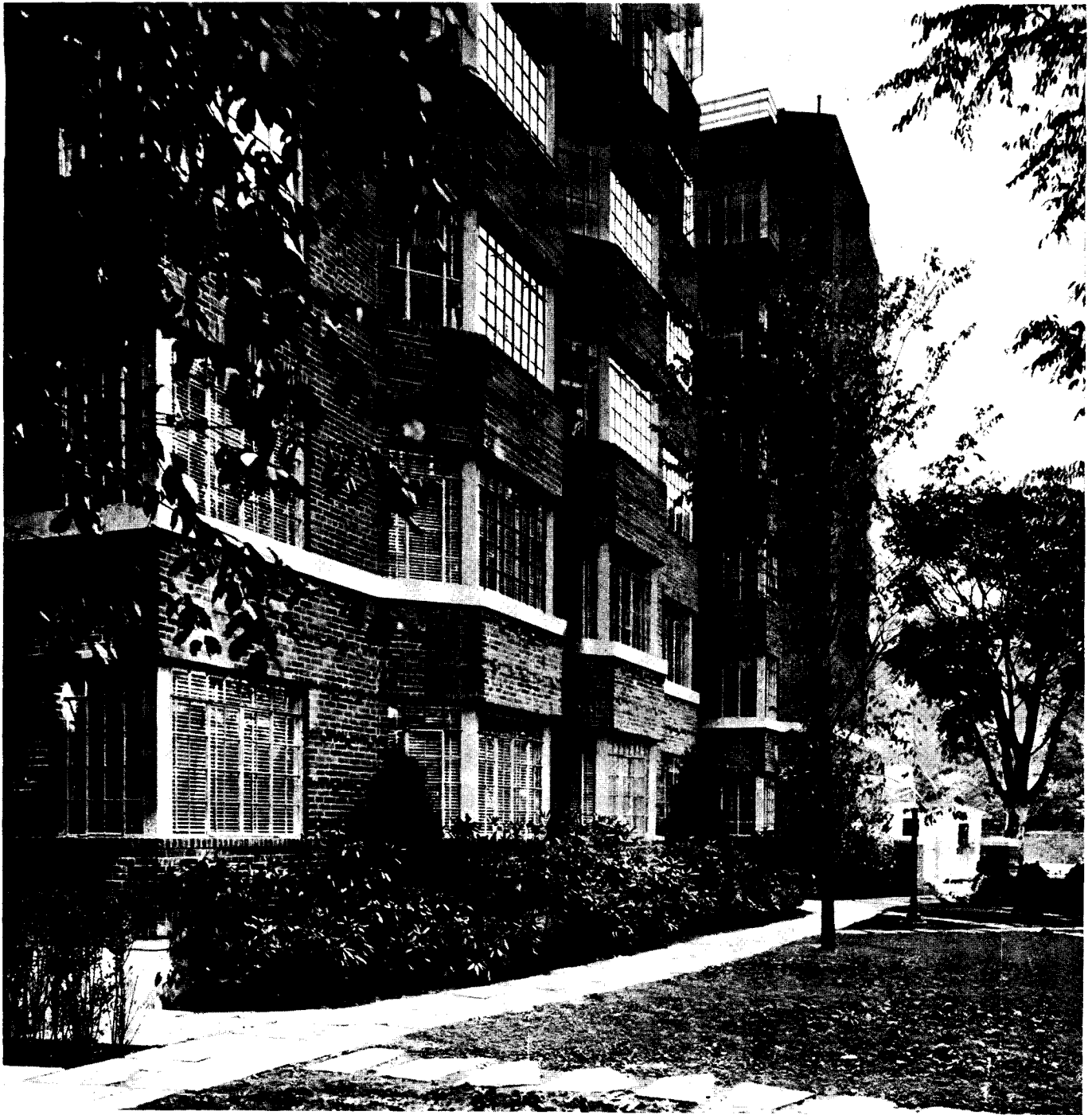
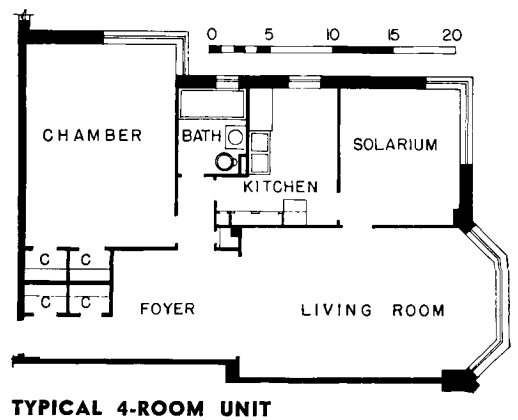


Photo by American Photo Service, Inc.

TRYON GARDENS, NEW YORK CITY

A 6-STORY semifireproof apartment house—a type much in demand and which illustrates a plan which has proven immediately as well as completely rentable.



as a room or even a half-room can be planned so as to allow enough room for one corner to be used for dining. In most of our recent planning we lay out our kitchens as near 8' x 12' as possible, even in the smaller suites.

In the larger suites where a dining room is included, kitchens are much larger and in one-and-a-half room suites kitchens may be as small as 5' x 8' with entrance off the living room. In small suites the kitchen must not be separated by any major space or room from the dining room.

Foyers today are more spacious, 8' x 10' and larger, and opening up directly with wide arch or doorway to the living room. Foyers and possibly an adjoining short hall (it should always be short) must open onto all rooms and bath. Circulation should be direct.

In all medium-priced apartments and certainly in the more expensive ones, each master bedroom should have a bath. We find that four-room apartments consisting of living room, kitchen, and two bedrooms do not rent as well when only one bath is included. It is well to remember that the bathroom is one of the most costly elements of a building, and additional unrequired space is a very expensive luxury.

Common Space

LOBBIES on the entrance floor of apartment houses are now receiving closer study than heretofore. They are somewhat larger, with more direct access from vestibule to stairs and elevators. More care is given to arranging for freedom from encumbering columns and greater expenditure is allowed for the decoration and furnishing than heretofore.

Halls should not be long; if long because of exigencies of the plan, they should be wide or somewhat broken up. We find that "small suite" buildings average about 130' in length. This compels the use of a rather long hall to serve quite a number of apartments on each floor, assuming the use of one bank of elevators and adjoining stairs.

Integrating Collective Services with Living Units

IN SMALL unit apartment houses, whether fireproof or otherwise, when four stories or more, the elevator or elevators are all designed to carry passengers. Services of one kind or another are taken care of by means

of these; garbage is disposed of by means of an incinerator. These, through experience and trial and error, are now universally used. Collection of garbage by means of cans and receptacles and janitors is taboo. The use of dumb-waiters is decreasing.

In the small-unit type of house, four to six stories high, with a lot about 100' x 100' in size, one might reasonably get along with one elevator. With an increase of size and certainly of height, it is imperative to arrange for two or more elevators. If two, it is preferable to have them in one bank so that change-over, break-down, or service can be accommodated. I was once advised by a client, the head of a large estate with many buildings under his management, always to plan a building to leave room for an elevator car big enough to carry a coffin horizontally. Incidentally, this will also insure sufficient space for the moving of furniture in and out of the building.

Central location on the axis of the entrance in the lobby, near the stairway or stairways, is desirable and can be attained if carefully planned. A plan is faulty if it is necessary to enter an elevator on one side and to leave it on a corridor of an upper floor on another side.

There are a number of good makes of automatic elevators in the market today. Dual-control automatic and manually-operated elevators are a comparatively recent type. At certain busy hours these cars are manually controlled; at all other hours the door man or hall boy will look after the lobby and door or operate the elevator when requested.

Standards Dictated by Tenant Needs and Product Availability

LIGHTING is being taken over more and more by the tenant. The type and position of fixtures have been so unsatisfactory and the newer inventions and modern ideas of decoration such as to put the tenant in the position of virtually saying, "Give me plenty of base outlets in every room: one ceiling outlet in each bedroom; one in the kitchen; one in the bathroom; a heavy feed wire outlet for refrigeration and one for ironing in the kitchen; no bracket outlets anywhere, and I will do the rest myself with portable lamps." In some of the large apartment groups where individual current consumption is high, Diesel engines and other current-producing plants have been installed and

the building operators have been able to sell current to their tenants at a low rate and still make a profit. In some instances electric ranges are installed and used in place of gas, electric current being cheap enough.

Since air conditioning is still in the formative stage, the cost of providing air conditioning in an apartment house is usually prohibitive. Taking into consideration the number of individual units, the variation of requirements of these units, the necessary protective prohibitions legal and scientific, the hesitancy of many important insurance and loan companies in approving even modified installations in multi-family houses, it is sufficient to say that it is desirable but still impracticable.

Experimentation is being made in some of the new apartment houses in methods of sound control, but all within a rather narrow range. Various materials such as wool, various fibers such as Celotex and similar products are used to prevent sound from traveling from apartment to apartment or from upper to lower floors. All we have been able to do is to try and localize sound transmission between apartments. Community living, however—and apartment house living is just that—demands that we take the bad with the good. Pipes, pumps, position of tanks and toilets should be so placed as not to transmit the sound of flushing into the dining room or living room, especially when entertaining. This is a source of very great annoyance to tenants who constantly complain about it. Heavier doors and more silent fixtures accomplish some control of sound emanating from the bathroom.

Radio wiring of a modified kind is now universally provided. In the large cities there are several companies specializing in this for moderate sums. If wiring arrangements are not provided for this popular means of entertainment or instruction, the building will be cluttered up or damaged, and affected by rising insurance rates.

The Influence of New Products and New Legal Restrictions

DURING the years of depression a more intensely mechanized and regimented system of production uncovered new materials, new processes, new ways of using old materials and processes, and greater rationalization.

The upturn is here, gaining headway rapidly, and we are finding in

some trades a shortage of labor, in others, even when these are opposed by labor, more and more machine-made materials are used and are applied increasingly by mechanical methods. Even new building codes and rulings in various municipal and state bureaus are taking into account the new materials and processes.

Among the new developments is the increasing use of prefabricated elements: prefabricated steel and sheet steel for stairs, rails, metal fronts, and platforms; prefabricated concrete and stone lintels, arches, beams and girders; facade stone; prefabricated synthetic products for ceilings and decorations of all kinds.

Some of the new methods of construction are coming more into use, as stated before, for economic reasons, but more because of the coming to the front of materials and processes that logically meet a realistic analysis of the functions of a building and the materials necessary to achieve results.

The steel processors have standardized and bettered their products. Codes now allow us to use lighter sections to carry the same loads. Sheet steel in ever increasing grades and forms is replacing the heavier and bulkier material formerly used.

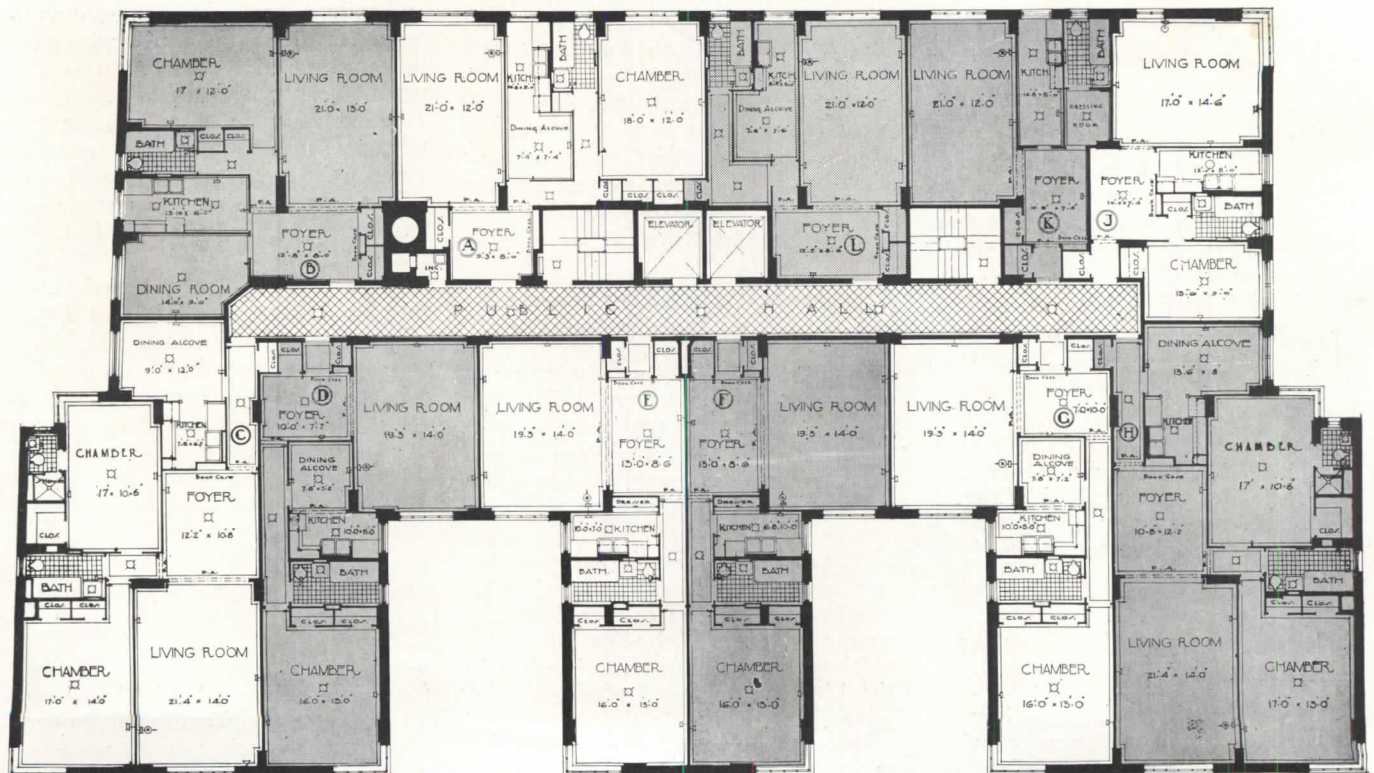
Metal products of all kinds, brass plumbing, copper, aluminum, and other sheet metals are lightening and bettering our pipe stacks, radiators, radiator inclosures, doing away with access doors and affecting the use of covering materials. Metal windows, corner windows, prefabricated flashings, vents and drains are all improved as well as simplified.

In cement and concrete, the mechanical processes of mix and the simplification of new types of formwork, are producing entirely new structural forms as well as finished surfaces. Concrete work of this kind can compete with any other type of fireproof work. We have finished a one-hundred family apartment house in which this type of construction was used; almost every process used in this building was radically different from that used in other apartment houses of this class.

The use of glass brick of various types; interior partitions of channel lath and metal lath of various kinds, thicknesses and makes; use of mastic laid wood flooring; use as heat insulators and sound absorbers of cellulose products of various kinds; these are all new materials replacing others previously used.

All these new processes of manufacture and application, together with labor problems, have even brought about a new building code for New York City, which takes effect at the beginning of next year. The writer believes that a great many of the easements to economic building granted by this code have already been absorbed by building operations cleverly handled. It will be interesting to note what new developments will be evolved by this code, since important changes have always followed new building regulations.

But mere *newness* is not in itself a recommendation. I have always tried in apartment house planning to avoid designs, colors, or products that are too far ahead of current usage. An apartment house is erected for the use of a mass of people. What is convenient and beautiful to some may be inadequate and ugly to others. That which is modern today may be simply bad taste tomorrow. The designer who keeps to the middle path, shunning both the archaic and bizarre, will please a greater number of people over a longer period of time, and he may find in the end that he has made a contribution, however small, to architectural practice.



1001 JEROME AVENUE, NEW YORK CITY

Typical Floor Plan of a fireproof (reinforced concrete) apartment

Control Noises By Considering Materials

by E. H. FAILE, *Architect-Engineer*

BEFORE ANY intelligent approach can be made to the subject of sound control in apartment design, it is first necessary to have a rudimentary idea of the principles involved in sound transmission. Generally speaking, sound is the result of mechanical vibration of the atmosphere, set up by some mechanical force. These vibrations of the atmosphere react on the ear drum and produce the sensation of sound. By the very nature of sound itself, it is possible for these sound waves to be weak or strong as to volume and intensity, to vary as to their rate, and to be a mixture of many separate sound waves at the same time with over- and undertones. Sound takes an appreciable time to travel as is best indicated by the length of time it takes for an echo to return from a distant cliff. Sound travels better through some substances than others. Sound is capable of setting up mechanical vibrations in material articles tuned to the same pitch as the particular sound. The theory of harmonic vibration plays its part in the effect of sound and must be recognized in intelligent sound control.

Sound Transmission

PROBABLY the most important phase of sound control is the elimination of objectionable noises. If the source of the noise is under the control of those desiring to eliminate noise, then quite obviously the best approach to the problem is the direct one of endeavoring to prevent the creation of noise. If the noisy troublemaker is a pump or other piece of machinery, an investigation may disclose the cause. The pump may be old and knocking or of a type unsuitable for quiet operation. To cure it may simply require an insulated foundation, together with a break in the suction and discharge lines in the form of a rubber coupling, so that sound created in the pump itself may not travel along pipes and throughout the building.

Sound will travel readily along any metallic pipe because of the nature of the metal in the pipe, whereas it will not travel through a rubber hose connection, because the rubber hose has

too much elasticity and the sound vibrations are absorbed. The rubber is incapable of vibrating in harmony with the sound itself and, in consequence, is incapable of transmitting the noise from the pump through to the connecting pipes. This is just a simple example of the bottling up of the sound at its source by preventing its transmission through other materials to other parts of the structure. It does not stop the creation of noise in the particular room in which the pump or other piece of machinery is located. The noise created in the room may also be transmitted to other parts of the building through walls and ceilings, etc., in which case it becomes necessary either to surround the machinery with soundproof walls or ceilings or line the room with acoustical material so as to absorb the noise and prevent any build-up through echoes.

When the source of the noise cannot be controlled as, for instance, in apartments built on noisy streets or along elevated railroads, the first defense is to keep the sound out. In so doing we must rely on a type of wall construction or window design that will prevent sound from penetrating into the structure. Street noises will not penetrate through heavy masonry walls to any appreciable extent, but they will penetrate through glass windows.

The thinner the glass the greater the penetration. Metal windows are greater offenders than wood windows and loose windows with open cracks are worse offenders. Still worse are windows which of necessity must be open to permit ventilation. The thin glass in windows and the metal frames transmit noise from the outside to the interior by reason of the mechanical vibrations that are set up through them by sound waves.

Brick walls, on the other hand, will not function in this manner and, hence, will keep out the noise. If walls must be built along noisy streets, the cure is to reduce window space to a minimum and, if possible, to secure light through sections of glass block walls, with artificial ventilation making unnecessary the opening of windows. Glass blocks are not a per-

fect insulation but they are vastly better than an ordinary window and probably somewhat over half as effective as an ordinary brick wall.

The problem is often presented of preventing the sound from penetrating from one apartment to another. People are apt to feel that this only involves the construction of walls that will not transmit sound. This, however, is only part of the problem, although an important part. In designing a soundproof wall, the fact should be known and recognized that sound penetration is best prevented by a combination in layers of materials of different density. The obstruction to the sound transmission occurs largely where it is necessary for the sound to jump across materials of different densities, because at this point the problem of lack of harmonic vibration comes into play.

Hard plaster, for instance, over layers of cork, makes an effective soundproof wall; this is due both to the difference in density of the two materials and the fact that the cork itself, on account of its softness, is not capable, to any extent, of transmitting sound. Soft pulp plaster, applied to hard-glazed terra cotta tile blocks, will offer resistance to sound penetration because of the difference in density of the two materials. But it will not be as effective as the hard plaster on cork; the terra cotta block itself will transmit more sound than cork because of its greater hardness.

However, the construction of a soundproof wall itself is only half the story and where efforts to prevent sound penetration are based entirely on wall construction, failure invariably results; the sound finds other means of traveling from one room to another, largely through the material that composes the floor and ceiling, over and under the partitions. Wood floors over cement arches, especially if covered with rugs, will offer great resistance to sound penetrating into the floor construction proper and, hence, under the partition and up into the adjoining room. If floors are entirely of cement, however, sound travel by this means must be expected. If ceilings are of plaster directly on concrete arches, some sound penetration over the top of the

partition into the adjoining room must be expected. A false ceiling in this situation will help materially, provided the space in the false ceiling has an interior wall separating the air space in the false ceiling above the two rooms. Loose and poorly fitting doors let sound leak out in a surprising manner. They must be given attention.

A typical example of sound control along the foregoing lines was involved in the construction of a music school in which there were row on row of little rooms where the students practiced on everything from tin horns to drums. It was of importance that the occupants of each room be prevented from hearing the music or discord created in the rooms on either side. In this case, the walls between the rooms were built of two layers of 2" terra cotta block with 2" of cork between the blocks, the partitions being plastered on either side. The partitions were not set on the cement floors or concrete arches but were built on top of a 12"-wide strip of cork with the object of insulating them from the structure proper. The ceilings of the rooms were furred. Practically no sound was found to penetrate from room to room through the partitions. The doors to each room were of ice box construction, 2½" thick, and so designed that they could be forced tight against weatherstrips, and an expanding arrangement was worked by a lever in the doors, permitting them to be forced out tight against the jambs. As sound prevention means, the doors were completely effective. The most surprising thing was the difference in the sound that penetrated from room to room when the doors were left open even the smallest crack. A loosely fitted door let through an unbelievable amount of noise as compared to the doors tightly closed.

Now these same music rooms had hard plastered walls and with the little furniture that was used, the echo was terrific. This was cured easily by hanging on the walls so-called acoustical felt, that is, heavy hair felt of perhaps a half inch in thickness. Curtains or tufted chairs would have served the same purpose. Each room was tested by an expert in music, and the amount of felt added or deducted until just the right amount of resonance remained; too much killed the effectiveness of the music and too little permitted objectionable echos and sound interference. For each room there was a

point determined by experiment at which the resonance conditions were just right to the trained musical ear.

Sound Absorption

WHERE THE object is to deaden the noise and the echo, a soft non-resilient material introduced anywhere in the room will be effective. Linoleum floor covering will absorb much noise as compared to marble or other hard floor substances. Hanging curtains are of assistance. Wood table tops will create and echo less noise than marble table tops or tops of other hard substances. Tufted chairs or other furniture will kill and absorb noise, but often the use of these usual control mediums is not possible and resort must be had to some artificial means of sound control. So-called acoustical materials must then be relied upon. Soft pulp plaster on the ceiling will help but not to any great extent. The covering of ceilings with acoustical materials of standard manufacture, such as acoustical tile, is the best means. Any material, such as Celotex, will serve this purpose, although if the Celotex is penetrated with holes, as in the patented acoustical tile on the market, the material is much more effective per square foot of material installed. In extreme cases it may be necessary to cover the entire ceiling with acoustical material to get satisfactory results, although many times the application of only a small portion of acoustical material to the ceiling will have very beneficial results. Acoustical material may best be considered as nothing more than a sound trap. It prevents the rebound and the echo.

Elevator machinery is often the source of trouble,—noisy control boards, elevator machines out of balance, elevator machines installed without proper insulation between the machine and the frame of the building, noisy elevator doors, and so on. Ventilation fans that are out of balance or turning too fast are apt to be offenders and ventilating ducts that are not properly braced will vibrate and create noise. Ventilating systems in which the air rushes through too fast will cause objectionable whistling sounds.

There is a close connection between sound and mechanical vibrations of the building structure, because sound itself is vibration. Rumbling subway trains or heavy trucks may jar earth and building, and transmit mechanical vibrations up through the building structure, which

will be felt on the upper floors; this in turn may vibrate equipment, furniture, or other things on the upper floors. Trouble from sources of this nature should be anticipated and, if possible, guarded against when the building is designed and built.

Often this is not possible, although in many cases some preventive measures may be taken. On streets where heavy trucks are apt to rumble along the roadway, it is well, in installing the sidewalk, to put a cork joint between the sidewalk and the building proper. This will help to prevent the rumbling and vibration of the trucks from being carried into the building through the cement sidewalk. If possible, do not place any concrete or masonry, etc., of the building structure in direct contact with any part of the structure composing subways or elevated railroads. To do so will invite trouble from vibrations and noises transmitted into the building foundations and up through the building.

The elimination, exclusion, or control of sound, except under unusual conditions, does not present any difficult or complex problems, so long as the principles involved are understood and the approach to the problem is along logical lines with a full realization of the fact that there are numerous ways in which sound may be transmitted. There is no question but what objectionable noises are detrimental to both our health and our happiness; that it is also necessary to give consideration to the finer points of sound control if we are to create conditions where music and conversation may be enjoyed to the fullest advantage. Eliminate objectionable sounds at the source if you can. As a secondary defense, keep them out by the use of insulating construction, or if this is not possible, subdue such of them as cannot be kept out by treating the interior of the room acoustically. Give consideration to the creation of suitable sound conditions so far as resonance is concerned so that music may be enjoyed to the fullest and ordinary conversations carried on in pleasant surroundings. Consideration of these elements on a larger scale would make our everyday life more peaceful and materially reduce the nervous strain to which we are all subjected.

Further the question of sound control is not necessarily a luxury, but rather a business proposition capable of paying dividends, especially to owners of apartment houses, hotels, restaurants, and other places where people gather or live.

There Are Decorative Objectives in Apartment Planning

By **A. N. REBORI**, Architect **EDGAR MILLER**, Collaborator

HOME LIFE, whether in an apartment house or residence, is not a mass-production process but a social adventure which demands the leavening influence of grace and beauty. Modern architecture seeks a functional synthesis that will integrate the new mechanisms of living into an efficient whole; but when it perverts life to mechanism, it fails fundamentally of its purpose. Interior and decorative design should combine simplicity of conception and organization with functional efficiency, but the ideal to be striven for is to make each unit that is designed to house human beings an organism that will encourage and sustain pleasurable living.

From the viewpoint of what may be termed *organic* housing, as contrasted with mere functional mechanism, it can be said that modern architecture is not yet a reality; it is only a potentiality in process of being discerned, sought, and partially and occasionally attained.

The design of the modern small apartment house at 1209 North State Street, Chicago, presented us with an unusually interesting opportunity to work toward a conception of how an organic modern architecture can achieve compact, livable, light house-keeping units in minimum workable space, with added factors of comfort and beauty.

The following elements of our problem were of special interest:

Lot and Situation:

A NARROW lot, 40 feet front, 150 feet deep; an 18-foot alley to the rear, with street front adjacent to a noisy street car turning. The owner wanted to build for investment a 4-story apartment house with a maximum number of apartments having every modern convenience, including air conditioning, costing not over \$110,000, and designed to operate at low cost.

Structural Limitation:

A BUILDING of four stories, avoiding the added cost and operating expense of elevators; elimination of the noise of street cars from the front and

trucks in the alley; enjoying maximum use of as much light from the south and north as possible in a building oriented east and west.

Functional Standards:

TO ACHIEVE the equivalent, in use, of a commodious, well-appointed house with air conditioning, electrical cooking, etc., within the limitations of a restricted pace.

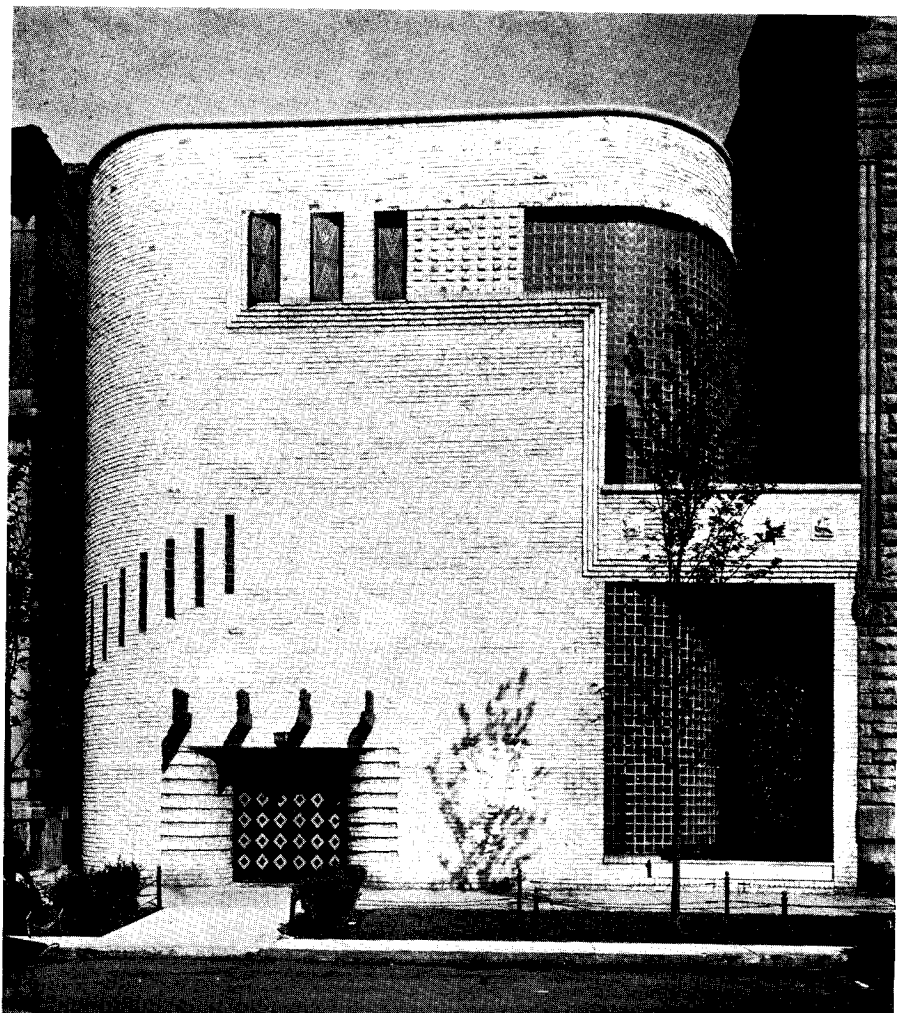
Decorative Objectives:

Exterior and Interior

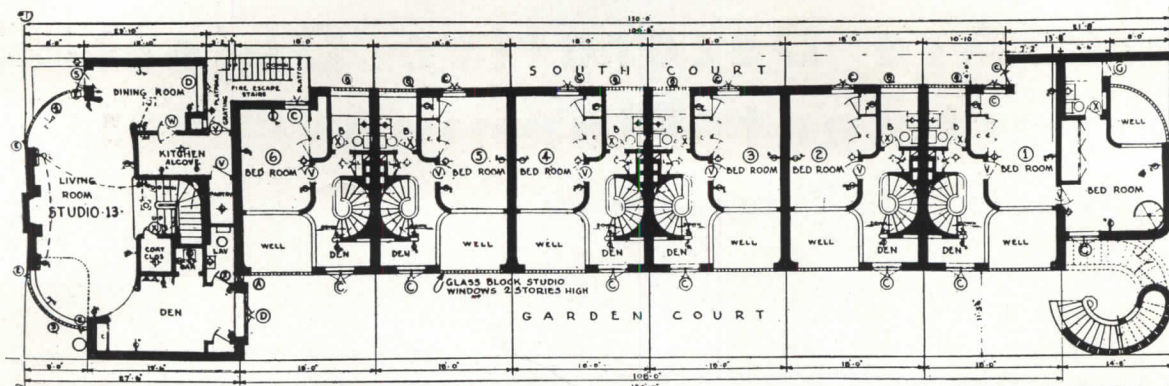
THE OBJECTIVE in decorating was to carry to a graceful conclusion the forms dictated by the plan; to

finish the interior in a restful generalized manner to form a gracious background for various functions of living.

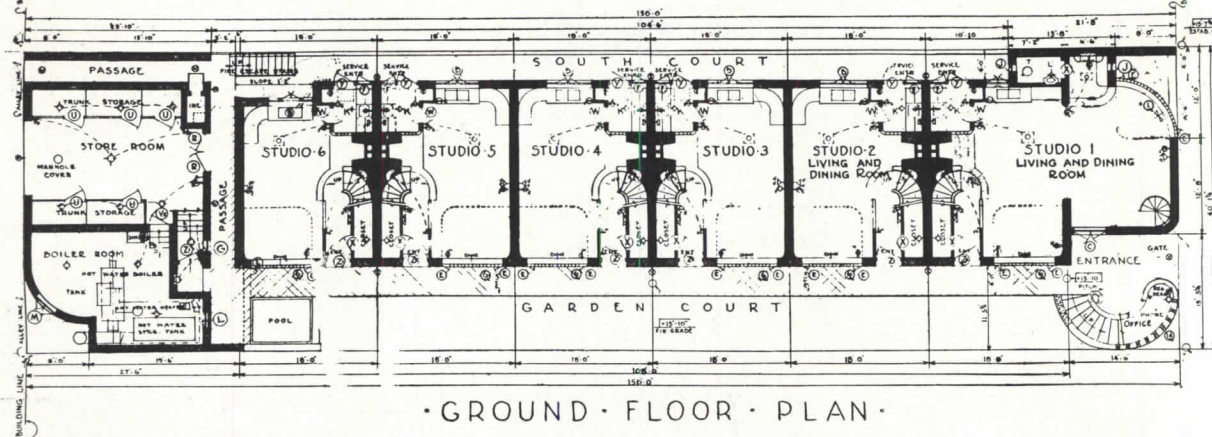
After careful consideration it was thought best to divide four stories horizontally in two sections, each containing duplex units, with entrances for the lower section on garden level from the north court, and access to the upper level by means of an open passage facing the garden court, reached by one continuous circular flight of stairs from the main entrance. This gives the walk-up portion its easiest possible ascent, without going to the fourth floor except through



Photos by Chicago Architectural Photographing Co.



• GROUND • FLOOR • BALCONY • PLAN •



• GROUND • FLOOR • PLAN •

individual private stairs within each unit. The service entrance in the rear of each apartment is likewise reached from the rear entrance approached from the alley side. Toward the noisy side of the building was put a service court, toward the largest light source on the north, an entrance court with a garden. To the front and rear, with the exception of front entrance and service entrance, the building was carried clear across the lot. This full use of the front, minimizing the glass window area, and using glass blocks instead, for deadening qualities, shuts out most of the street car noises. This plan also permits maximum usable area under the ordinance. Access to the upper levels is provided by stairways in front and rear. For the disposal of garbage from kitchens placed at the rear of each apartment, a projecting balcony at the second tier and passage at the service court level leads to a centrally located incinerator and acts as a service passage.

Exterior walls are self-supporting solid masonry with interior plaster on wood furring and metal lath. Each unit of two stories is self-contained within masonry dividing wall and concrete floor slabs at top and bottom. All exposed roof surfaces are heavily insulated against cold and

heat. Wood-burning fireplaces are placed back to back along the masonry dividing walls forming a group of chimney pots rising above the roof. Interior plaster wall surfaces for walls and ceilings are continuous, with rounded corners, free from cornices or moldings. The result is a restful flow of planes which form a pleasing contrast with the large glass surfaces.

Where exposed ceilings occur in the exterior, reinforced structural brick is used in basket weave design for finished surfaces, both for economy and continuity of design. Treads, risers, rail and soffit of curved staircase are also in reinforced structural brick, forming a structure continuous with the building walls.

The roof is ordinary tar and gravel, sloping from rear to front, with a copper gutter set flush with the brickwork.

The air conditioning of the building was somewhat restricted by the city ordinance which does not permit a recirculating system of hot and cold air in multiple dwellings. As a result, each dwelling has a built-in, prefabricated air conditioning unit occupying the space beneath the large glass block opening. These units provide fresh air through an outside wall intake register, recirculated within

each apartment, and exhausted by direct means through roof ventilator fans. To prevent noise and vibration from the fans above the roof from entering the building, the exhaust intake at each register opening is treated with sound-deadening material.

To comply with the city ordinance, it was necessary to provide ten percent of the floor area in windows that open—in spite of the fact that this is actually a disadvantage in an air conditioning system. The air conditioning units work with automatic damper control, electric motor driven, taking the air from outside through a filtering screen, and passing it over heating or cooling coil.

A pipe trench carried around the building beneath the ground floor contains the various plumbing and heating pipes for supply and return to the various risers from the boiler room located at the rear of the building.

Adjacent to the rear entrance of each unit is placed an individual meter, making readings possible without entry into the unit proper. From each meter, electric service is carried to a circuit breaker feeder box located in the kitchen with leads to electric range, refrigerator, individual air conditioners, and various lighting



outlets throughout the rooms.

With the exception of base plugs for lamp receptacles, lighting is of a concealed type. Lumiline lights are used in a vertical cove on the curved wall of the private stairs leading from the living room to the upstairs bedroom of each self-contained living unit. Light coves of a concealed type are also placed at the head of large window openings to create a luminous ceiling. Other light coves at the sides of large curved wall surfaces employ the surfaces as a secondary light source for the room.

The foregoing, whether conforming to ordinances or made more freely, were developed or modulated to achieve an unbroken blending of functional and aesthetic forms. In the exterior of the front the plan is expressed explicitly; the curved stair in plan becomes a cylindrical form. The desire for the south light brings a similar curve to the opposite side of the building. The space outside the

curve gives a natural opportunity for a balcony over the street; the need for cutting down noise as much as possible restricts the number of windows in the front and encourages, rather, the large simple glass block areas oriented to catch the sunlight.

Beyond this the "embellishment" is restricted to a few lines in the brickwork that merely outline and accent the forms resulting from the fenestration. A few terra cotta tile inserts of animals give light and shadow to the brick balcony surface, which seemed to be a logical place to put an accent.

Four projecting pieces of carved oak mark the entrance to approach from north or south. These were carved—a horse, a buffalo, a mountain lion, and a whale—in the simplest manner possible. In terms of humanistic logic, they mark the entrance with statements of life and vitality which can be enjoyed more than a purely mechanical marker ever

could be enjoyed.

The interior court was formed by the circulation diagram. A small space in the plan, at the head of the private stairs in the interior of each apartment, is used as a small library office. In the setback formed by the outside terrace passage on the second tier, this space becomes built out to the wall face below, at once forming weather protection for the entrances and catching light from either east or west through a wall of glass block. These forms are cantilevered from one pier in the center across from the open covered space between the two apartment entrance doors. In this way the open air passage is given a more spacious feeling by the removal of all but the mechanical minimum of confining walls. The forms that resulted were accented in lines of the brick that joined the various parts, interpreting it in one continuous plastic form.

The garden entrances have carved



cement jambs with a recall of the lion-horse-whale motif, used in the low relief, cast from a plaster mold cut intaglio, giving the resulting forms a crisp, direct quality.

For the interiors of these units we conceived a plan that placed the various discrete elements such as bathroom, bedroom, closets, and kitchen, around or over a main room which functions as the organizing center of the unit. This one large room can be used in turn as the parlor, the dining room, playroom or library.

The growing compactness in building has led to the combining of several rooms into one of diversified use. This telescoping of function into one flexible form suggests a simple form and color treatment. Such an interior must be conceived as a general background for living as contrasted with the special treatments usually given to rooms designed for a single purpose, such as a dining or game room.

Privacy becomes a problem in the crowded city. By adopting the large glass block opening and windows of obscure glass, we eliminate the need for curtaining which can give privacy only at the sacrifice of light. Of course, curtains can be used when they contribute to a decorative scheme. At the head of the stairs is a window that selects a pleasant view on the garden. The other windows are obscure glass and close out the congested city surroundings.

The general character of such an interior should be both restful and stimulating. By varying ceiling height in the duplex unit there is achieved a feeling of release. The proper use of accents in the room can enliven it without overbalancing it in the direction of any one dominating mood.

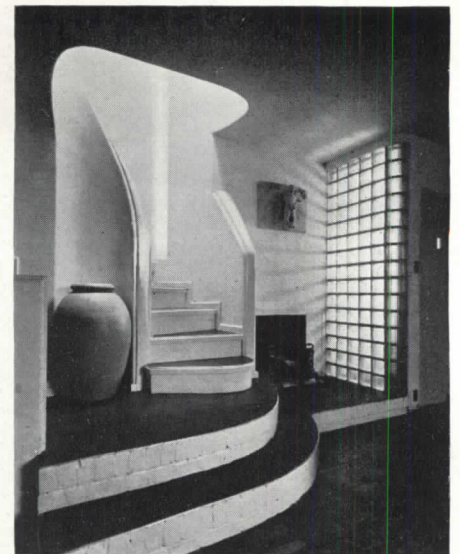
The problem of lighting in its largest sense must include color as a secondary aspect. The window or artificial lighting fixture is the primary source; the reflecting wall or ceiling is the secondary source. This is particularly true in the use of indirect lighting where the only light is reflected and influenced by the color of ceiling or wall. This conception of color as a secondary aspect of the lighting problem suggests that in many cases a ceiling and one main reflecting wall could be happily treated in color differing from that of the rest of the room. Many new schemes can result from this approach, and the problem of wall and ceiling treatment can, for the first time, be detached from old notions of formal treatments that have been the main approach to this problem in the past.

In discussing the interior treatment, one inevitably reaches the question of mode. Various commercial forces seek to propagate in architecture, as well as interior decorating, the same notion of mode that they have used to dominate the field of women's fashions. Their technique is always the same. Take some simple combination of color; give it an appealing name, such as powder blue, butter yellow, oyster white, a chic foreign name like beige or bois de rose; repeat it exclusively, whether it is well or badly used, no matter; and it becomes the mode. Senseless repetition causes the public to tire, and another "new" mode is born. Those commercially interested may subscribe to this, but no fully equipped professional man, particularly if he be creative, can do so, knowing that the true field of decoration properly includes the creative use of the whole color orchestra.

The specious "authority" that attends the use of some momentarily popular "Morocco red" or "powder blue" can give the illusion of aesthetic security only to those who are functioning in a field over which they have no proper command.

There is a popular fallacy that "taste" is the factor that governs the solving of problems in decoration. True taste is an end product arrived at after long experience by one who has native aesthetic equipment.

The term "eclecticism" as applied to architectural criticism, has lost most of its significance because the word is so frequently used by people who have only the vaguest and most restricted sense of its meaning. Any non-creative borrowed form is an eclecticism, without reference to the

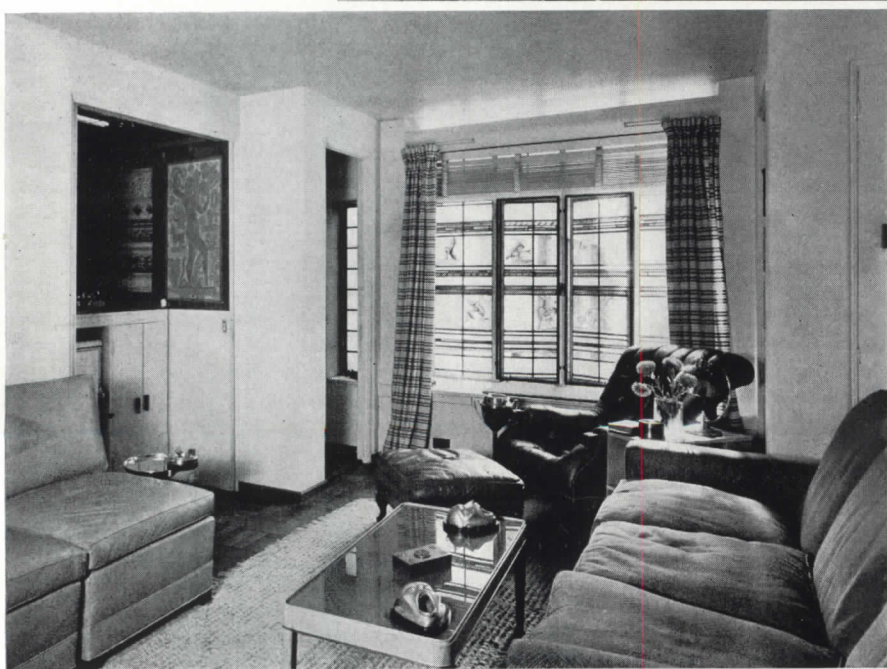


period from which it has been borrowed or which has influenced it, even if that influence came from last month's magazine. Any form that represents a truly unique personal expression, whatever its antecedent influence may have been, cannot by its nature be eclectic. Many so-called modern buildings are in fact eclectic in the sense that they are nothing more than empty borrowings from the prevailing style. The fact that a round form may be made in brick does not necessarily mean that it is "Medieval." Because the chisel mark shows on wood, it does not follow that the carving should be classified as "Swedish." Stained glass may not be "Gothic," and one may use mosaic without reference to the "Byzantine." In the hands of a creative designer these materials can be employed to achieve a fresh, new result.

The building at 1209 State Street has inspired interest out of all proportion to its intrinsic importance either as a structure or as a forerunner of what we prevision as a truly modern treatment of multiple dwellings. Novelty commands the spotlight for a season merely because it is novelty, and relatively few observers can discriminate between the shock value of novelty and the enduring values which the novel form may contain. Nature, the supreme architect, has experimented prodigally with novelties which flaunted themselves for a season and perished, leaving no trace except their bones. But the principles of organization and functioning expressed in these transient forms endured and were embodied in progressively more efficient and beautiful organic patterns.



Photo by Chicago Architectural Publishing Co.



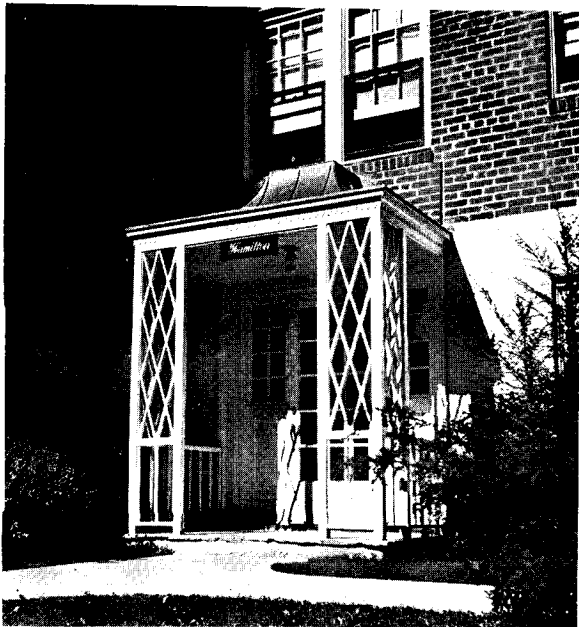
**LIVING ROOM
WITH BAR-IN-CLOSET**



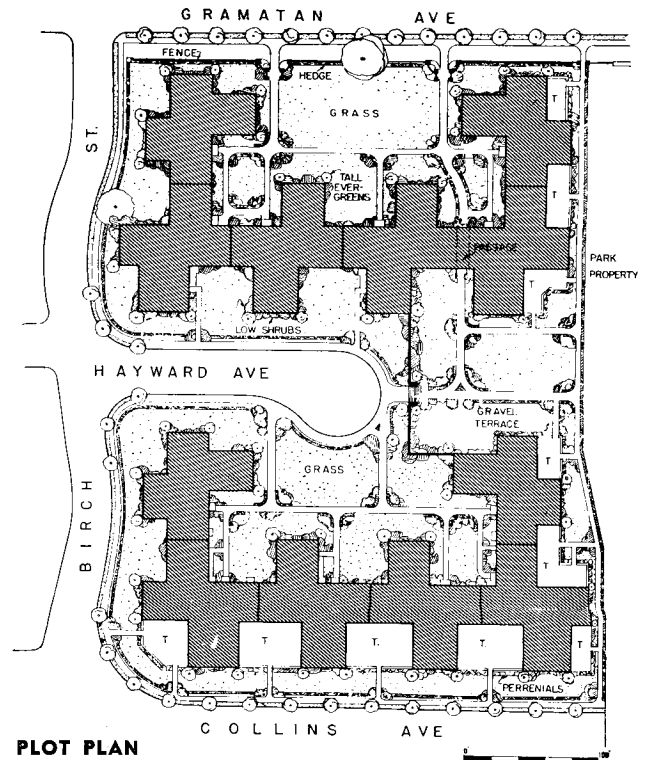
SIBLEY & FETHERSTON

ARCHITECTS

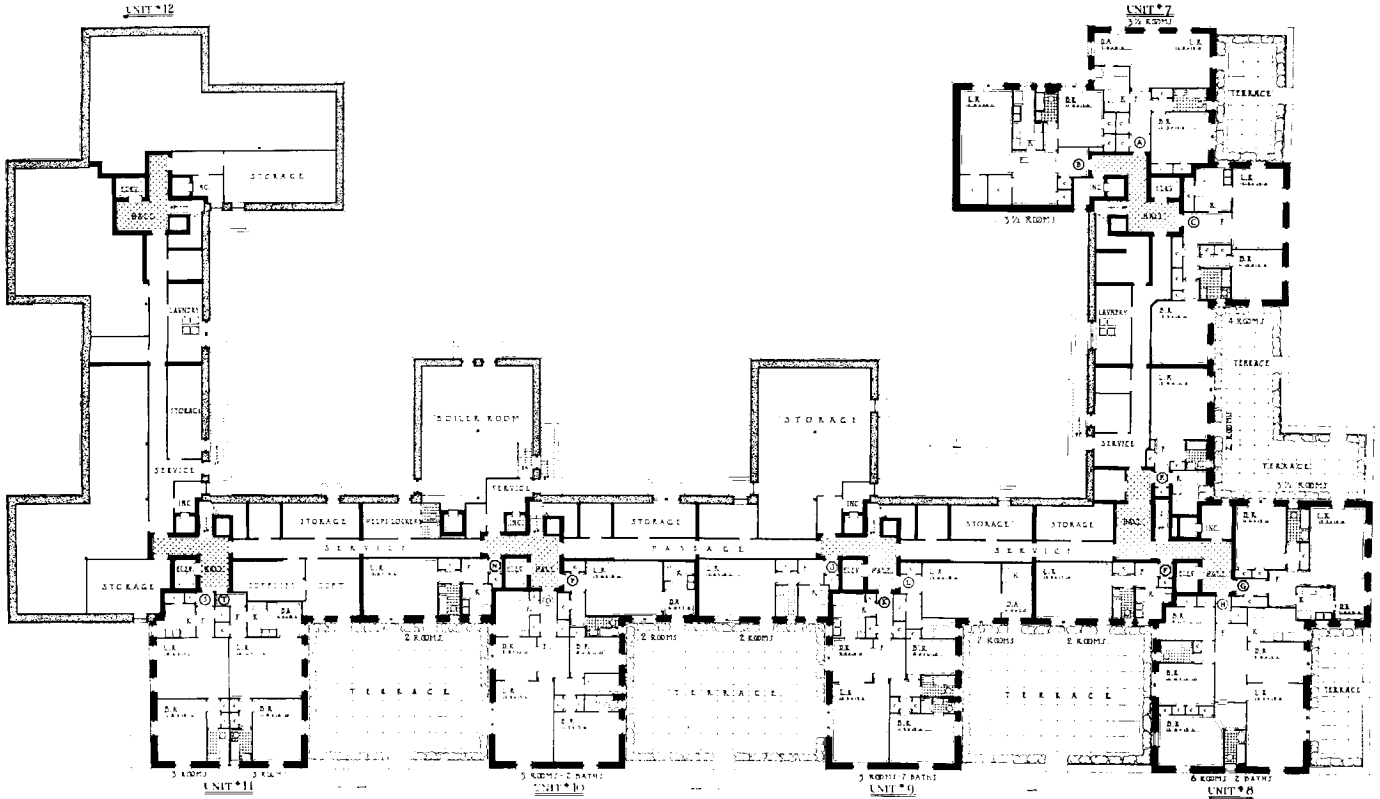
CHESTER CREST APARTMENTS,
MOUNT VERNON, NEW YORK



DOORWAY

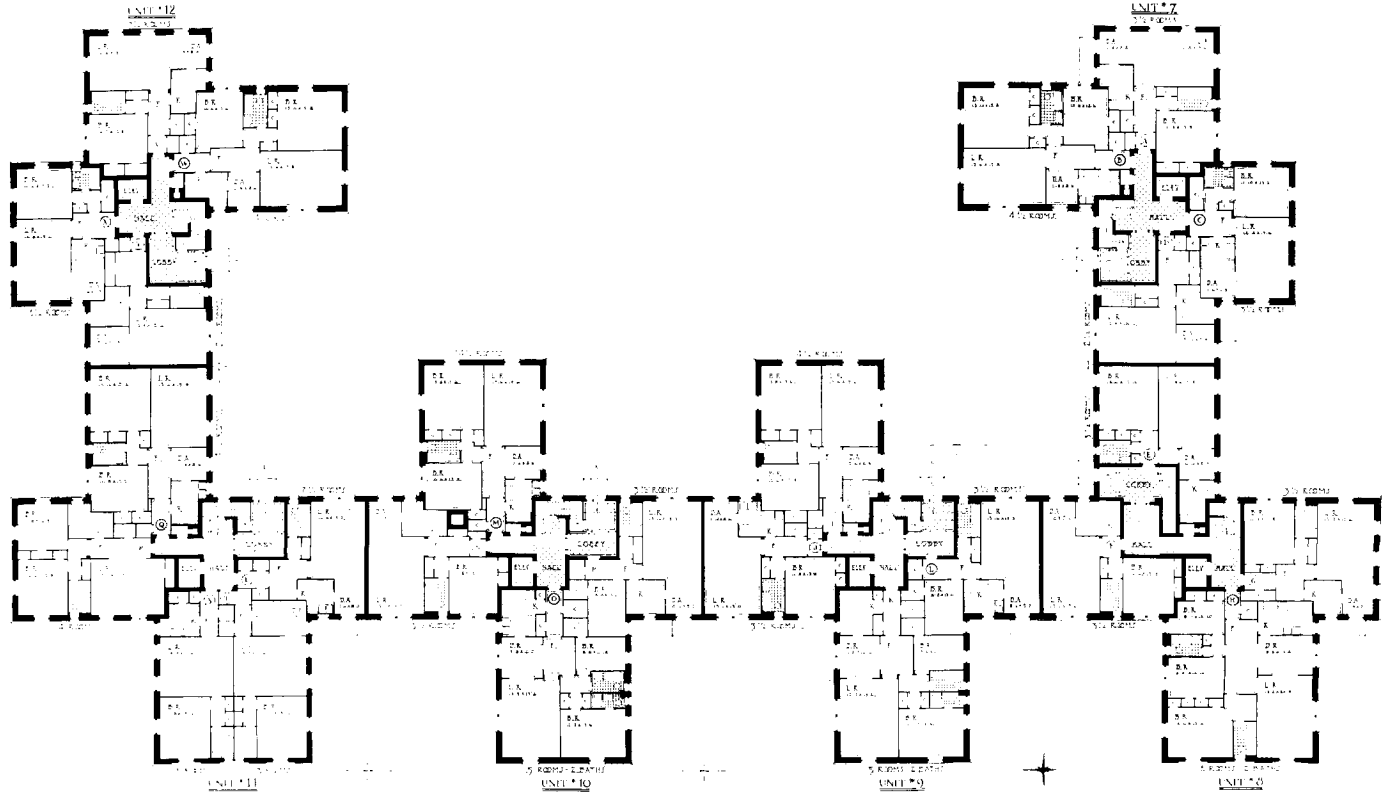


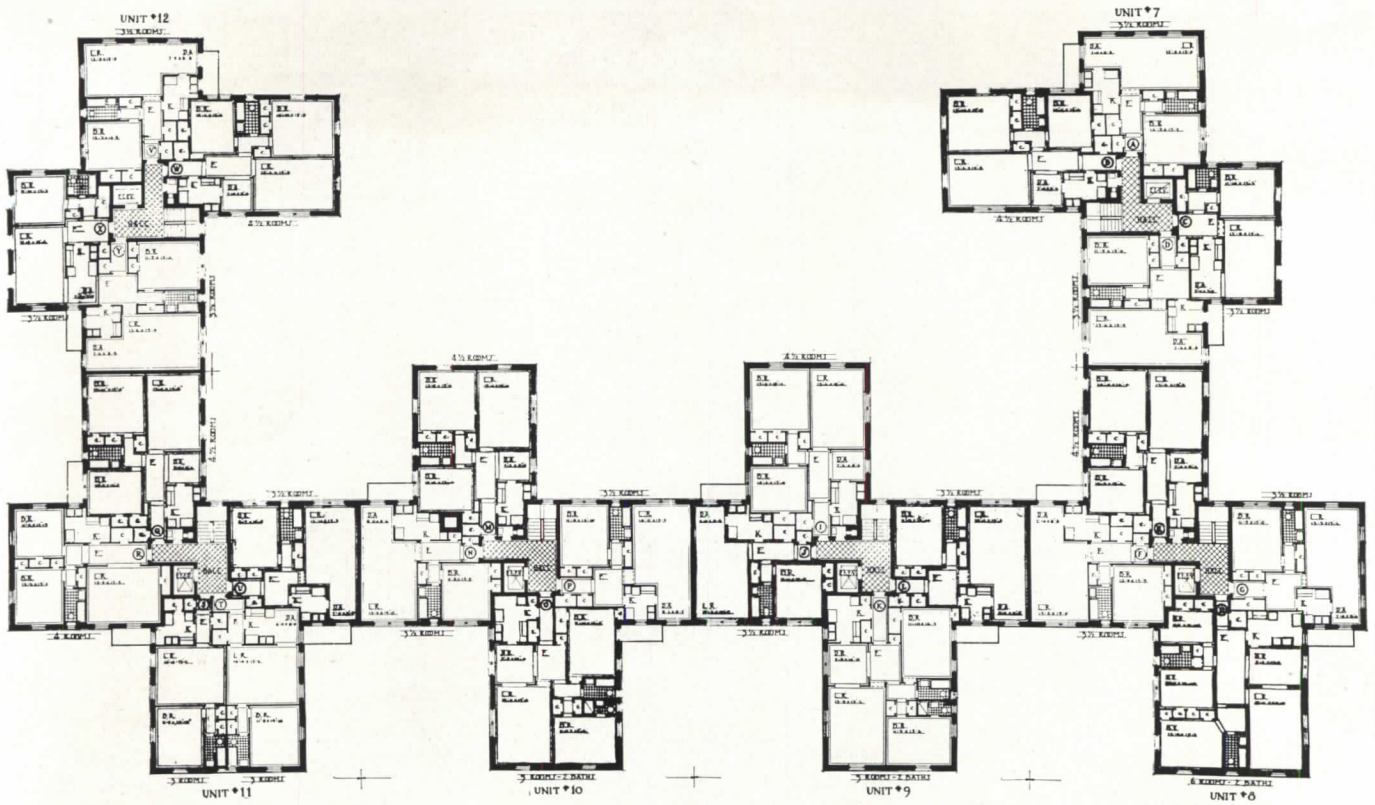
PLOT PLAN



GROUND FLOOR PLAN

FIRST FLOOR PLAN





TYPICAL FLOOR PLAN

THE 280 suites of two to six rooms cover about one-third of the three-acre site, the remainder being devoted to garden and playground areas. Each room has been planned to include cross ventilation and each unit is isolated from adjoining ones by the masonry dividing wall, thus minimizing the transmission of sound between apartments. The development, costing \$2,000,000, has been mortgage-insured by the FHA.

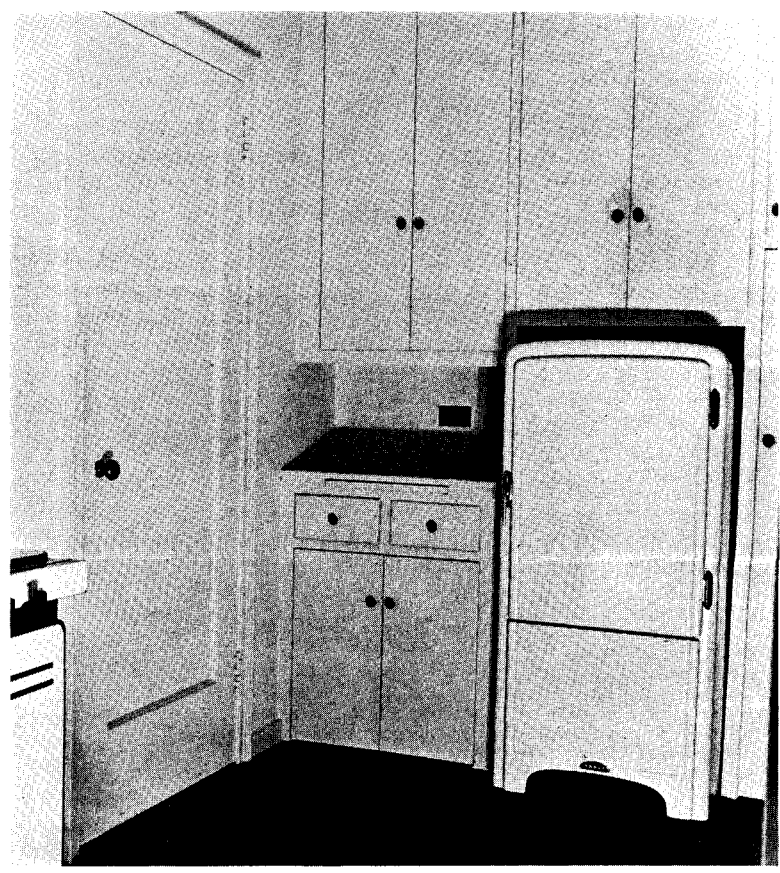
SCHEDULE OF EQUIPMENT AND MATERIALS

FOUNDATIONS	Reinforced concrete	HARDWARE	Bronze finish
STRUCTURE	Steel and cinder concrete arches, first floor only; otherwise, wall bearing, wood joist construction	INCINERATOR	Kerner Incinerator Company
EXTERIOR		KITCHEN EQUIPMENT	Stove, American Stove Company; Norge refrigerator; Briggs, combination sink and tub; Weisberg & Baer, wood cabinets
Walls	Common brick, furred	PLUMBING FIXTURES	Briggs Manufacturing Company; United Metal Box Company, cabinets; Church seats; brass pipe
Roof	Built-up roof, 5-ply, slag surface, Barrett Company; copper on entrance porticos, Brooklyn Roofing Company	HEATING SYSTEM	American Radiator Company, one-pipe steam, convector type radiators; Kewanee boilers; Johnson Oil Burner
Trim	Precast stone	ELEVATOR	Automatic push-button control, Watson Elevator Company
Sash	Wood, weatherstripped throughout	PAINTING	Exterior: Quoins and trim painted white, John W. Masury & Son
Screens	Copper		Interior: Walls painted 3 coat of lead and oil; lobby walls papered
Sills	Slate	SHADES	Columbia Shade Company
Doors	Kalamine throughout; steel bucks	LANDSCAPING	Westchester Nurseries
INTERIOR			General Contractors: Comstock Construction Company
Floors	Terrazzo in lobbies and corridors; pine in kitchens; tile in bathrooms; elsewhere, oak		
Partitions	Solid masonry dividing units; otherwise, plaster on wire lath		
INSULATION	Rock wool		

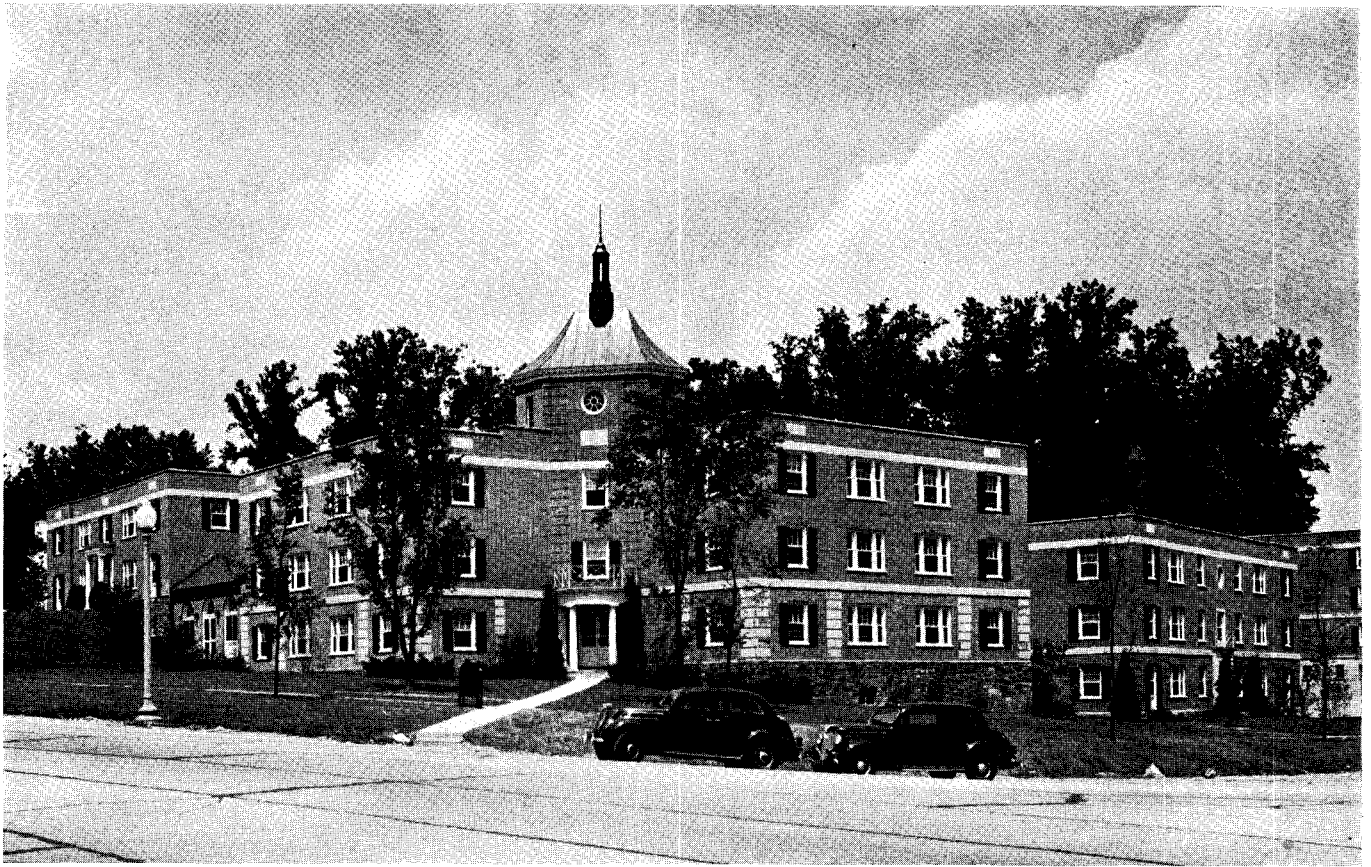


Photos by Zimmerman

Garden court showing fieldstone retaining wall and stairway between levels.



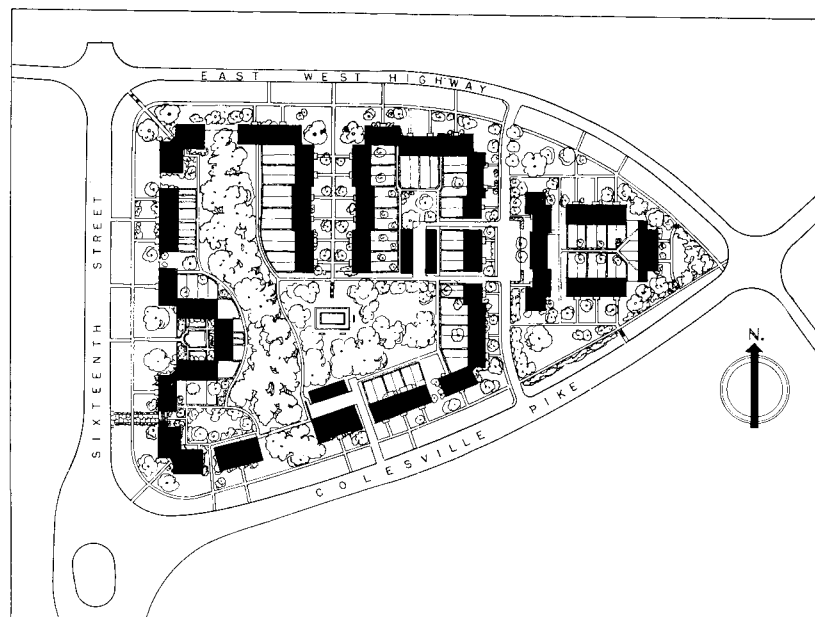
Detail of kitchen arrangement.



LOUIS JUSTEMENT

ARCHITECT, A. I. A.

FALKLAND PROPERTIES, INC.
SILVER SPRING, MARYLAND



PLOT PLAN



THIS PROJECT, designed for families of moderate income, has an average room rental of \$14.50. The site, located near Washington, D. C., is gently rolling and partly wooded. Every advantage has been taken of this, both in the placement of the units and in the preservation of the trees which add so much to the composition.

The density of habitation has been kept unusually low—about 17 families per acre for the 10.5-acre tract. Eighty

of the apartments are of the duplex type and these have their own individual gardens. It is planned to extend the project to the west and north of the present group with an addition of 301 apartments, which will also include a store and parking development.

The present apartments, costing \$855,000, exclusive of land or landscaping, were one of the earliest to be mortgage-insured by FHA.

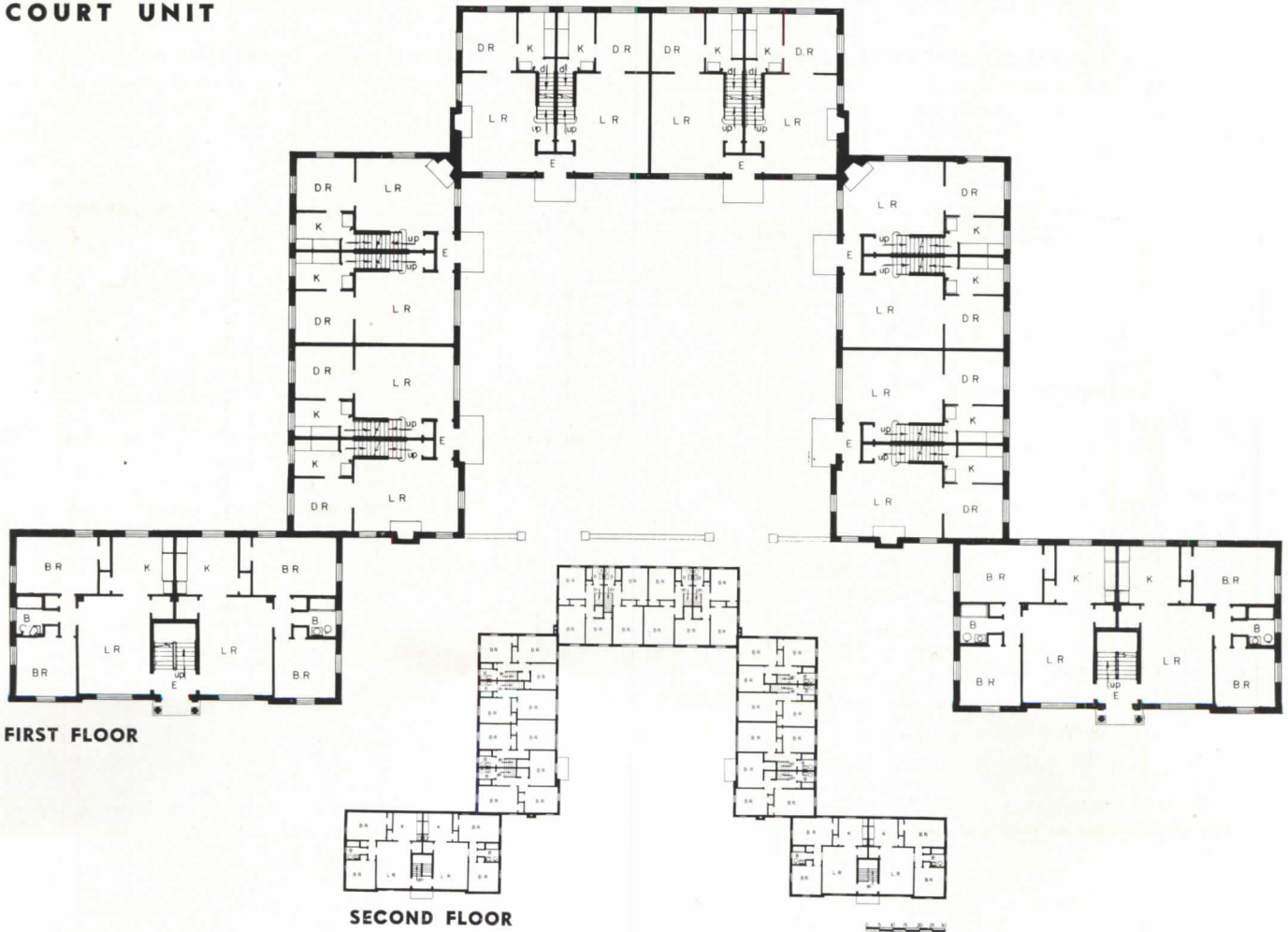
SCHEDULE OF EQUIPMENT AND MATERIALS

FOUNDATION	Concrete	Doors	Six-panel white pine, except Kalamein from public stair halls
STRUCTURE	Floor construction, combination tile and concrete slabs, except: second floor of duplex apartments, wood joist construction	Trim	White pine
EXTERIOR		HARDWARE	Reading Hardware Co.
Walls	Common brick, hollow tile backing	STAIRS	Concrete with wrought iron railing, except duplex apartments wood with wrought iron railing
Trim	Indiana limestone	PAINTING	
Roofs	Pitched roofs, Buckingham slate Flat roofs, 20 years Ruberoid asphalt	Exterior	"Bondex"
Sash	Double-hung wood sash, steel in basements	Interior Walls	Generally casein, Luminal
Screens	Wood frames, bronze wire cloth	Interior Trim	Moore's Dulopake and Moore's Persian High Gloss Enamel
Sheet Metal	16-oz. copper	PLUMBING	Water supply lines, copper tubing with solder fittings; Crane valves; Kohler fixtures, except Briggs Mfg. Co. kitchen sinks Copper-lined hot-water storage tank—Richmond Engineering Co.
INSULATION	3 in. of Unifil laid over stiff cardboard—roofs only	HEATING	Vacuum return steam system, Crane Co. copper convactor type radiation
INTERIOR			
Floors	Bruce wood block laid in mastic, except asphalt tile in public halls—Thomas Moulding Floor Mfg. Co.; heavy-gauge Congoleum in bathrooms and kitchens		

3 A SEMIFIREPROOF APARTMENT PROJECT



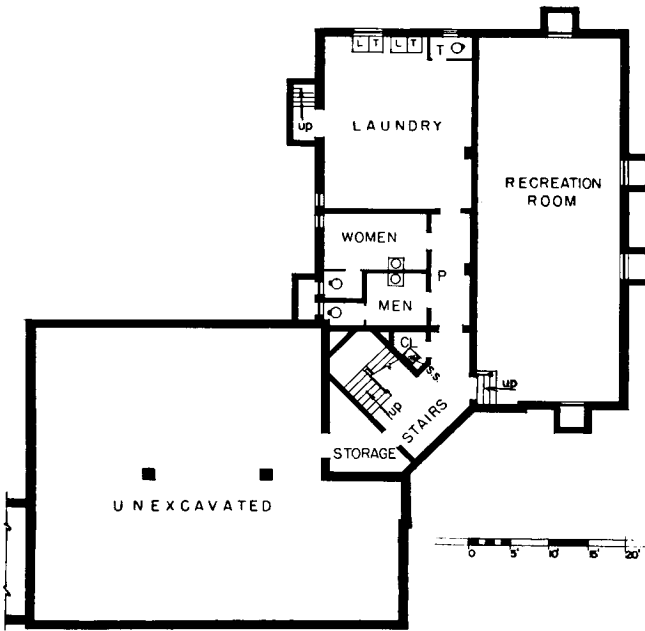
COURT UNIT



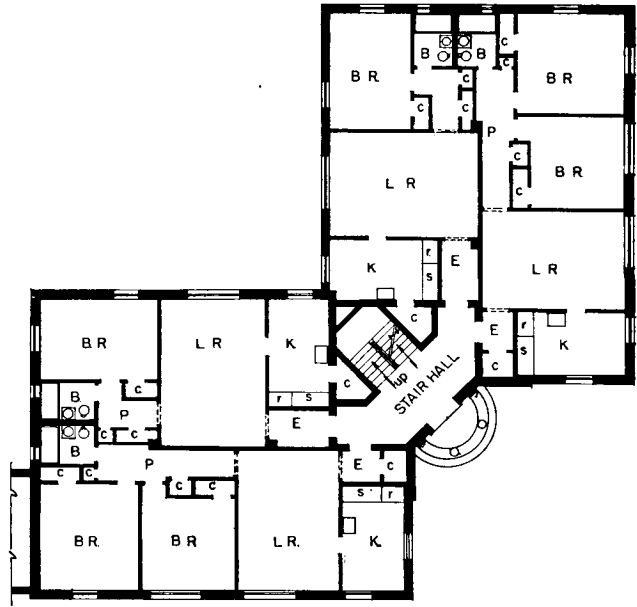
FIRST FLOOR

SECOND FLOOR

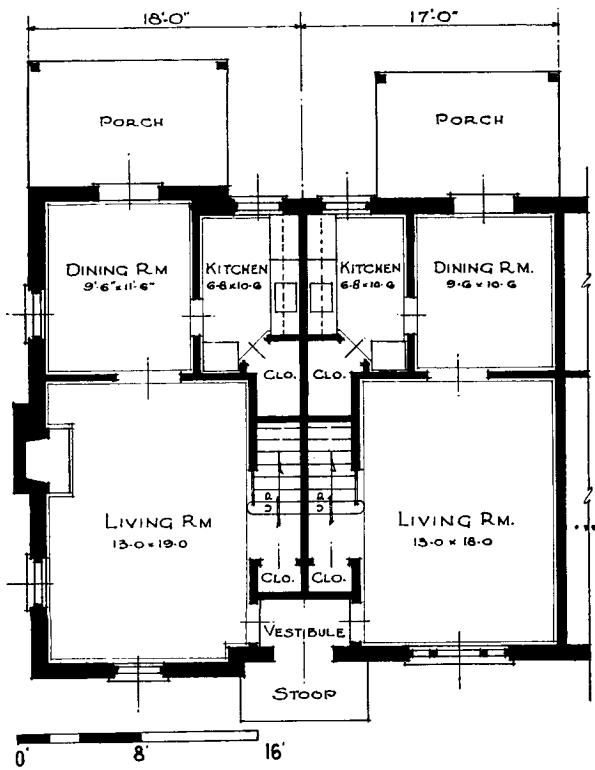
CORNER UNIT



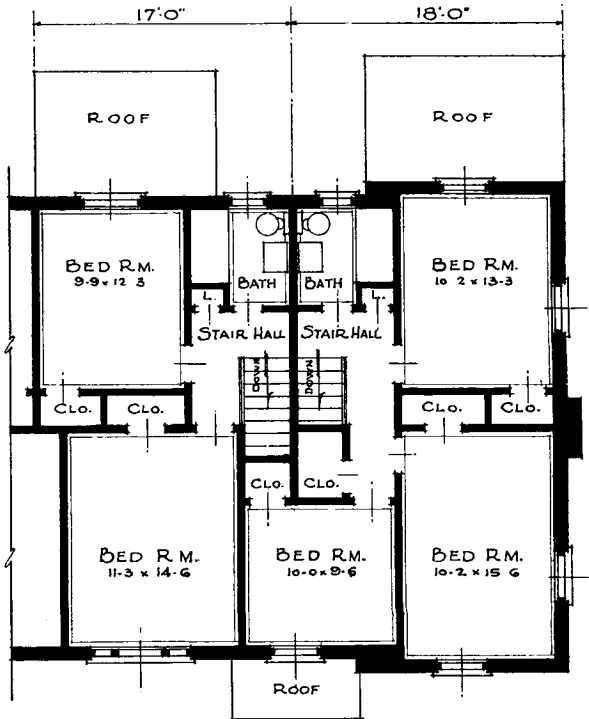
BASEMENT PLAN



FIRST FLOOR PLAN
(Other Floors Similar)



TYPICAL DUPLEX APARTMENT





L. MURRAY DIXON

ARCHITECT

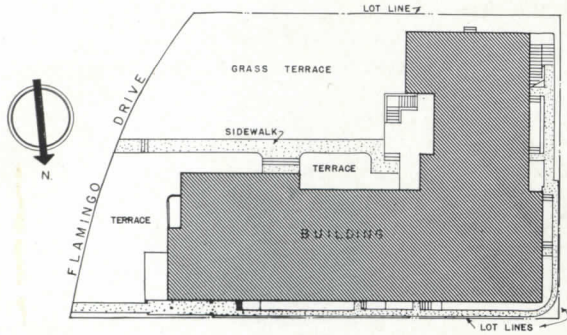
LAKE DRIVE APARTMENTS,
MIAMI BEACH, FLORIDA

THE ARCHITECT of this apartment house has had to contend with special soil and meteorological conditions. The building stands on a natural sand ridge, compelling the use of spread reinforced concrete footings. There is no cellar because the high water level is only four feet below the grade. The boiler room is placed in front of the building, its floor about two feet below grade. For this type of struc-

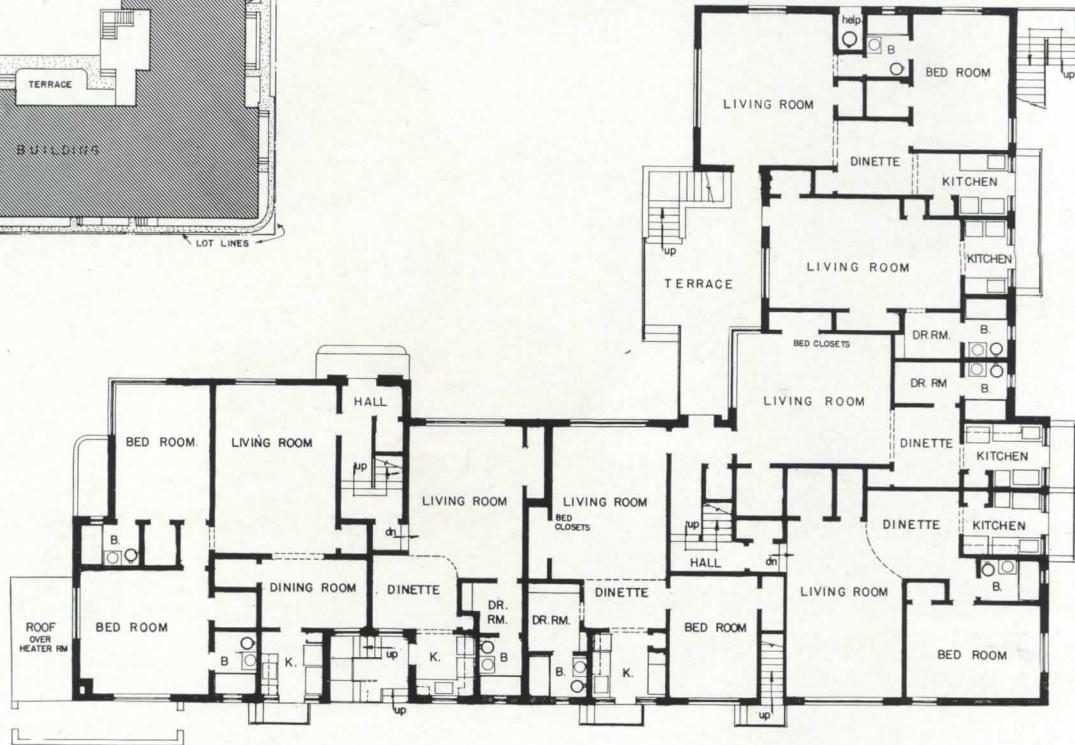
ture, the local code requires concrete columns in the exterior walls for stiffening. In addition, there is a reinforced concrete tie beam entirely around the building at each level. Ample ventilation has been provided for below floors to prevent decay of the joists. It will be noted that the cornice soffits are open to admit air under the roof and thus lessen the intensity of the summer heat.

SCHEDULE OF EQUIPMENT AND MATERIALS

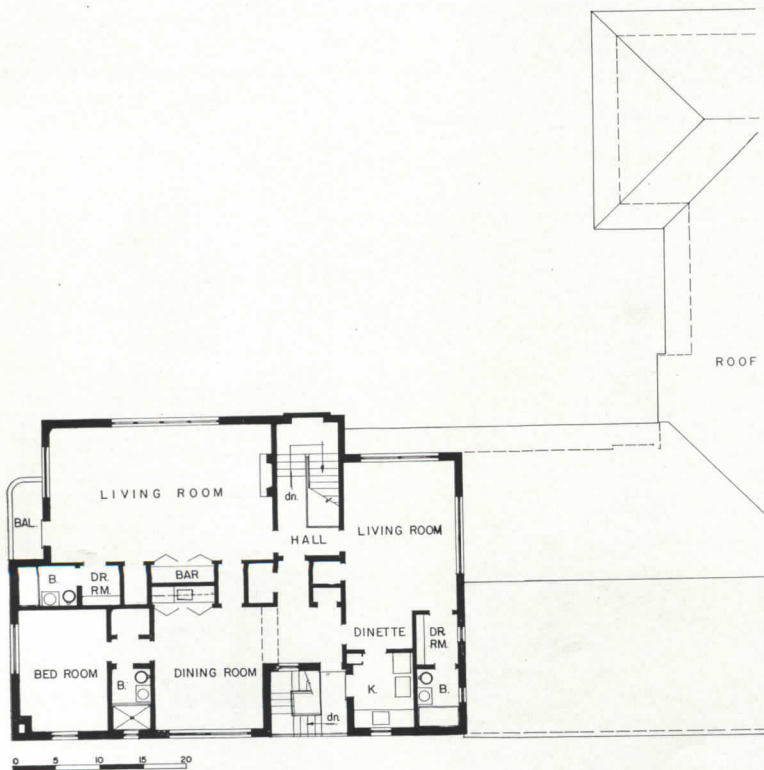
FOUNDATION	Spread reinforced concrete footings and reinforced concrete foundation walls	INTERIOR	
STRUCTURE	Wall bearing; wood joist construction; reinforced concrete columns and tie beams around entire building at each floor for stiffening only	Floors	Sealex standard grade linoleum in kitchens; semi-vitrified tile floors in bathrooms; oak elsewhere
EXTERIOR		Walls	Sheet rock lath reinforced in corners with Clinton cloth; finish plaster U. S. Gypsum Red Top with integral color pigment, slightly textured finish
Walls	Hollow concrete blocks, 8" x 8" x 16"; wood furring	PAINTING	Du Pont Company. Interior plaster walls not painted. Exterior has a lime wash stucco paint, with <i>Crystex</i> integral waterproofing; floors shellaced and waxed
Roof	Wood rafters and sheathing; 10-year bonded, 3-ply built-up asphaltic roofing, gravel surface, Carey Co.	PLUMBING	Standard Sanitary Manufacturing Company fixtures; soil pipes, cast iron; water supply pipe, galvanized mild steel
Metalwork	Copper	HEATING	Gar Wood oil burning heating plant
Sash	Truscon Steel Company steel casement sash and screens; "B" quality double-strength glass, Libby-Owens-Ford		
Doors	Cypress with Barland weatherproofing thresholds and weatherstripping		



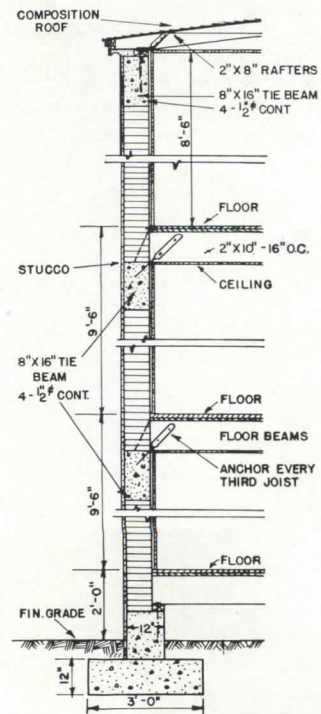
PLOT PLAN



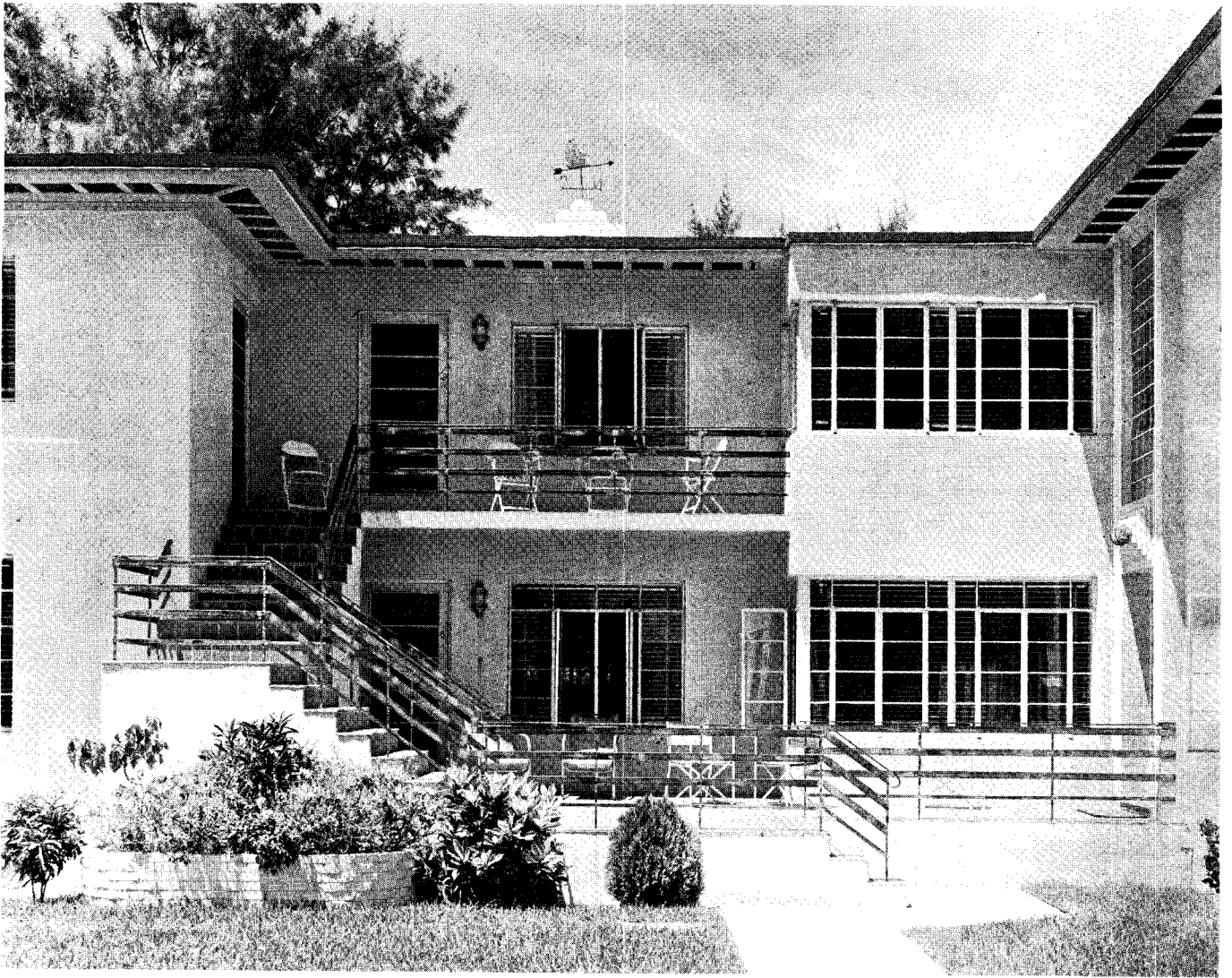
FIRST FLOOR PLAN
(Second Floor Similar)



THIRD FLOOR PLAN

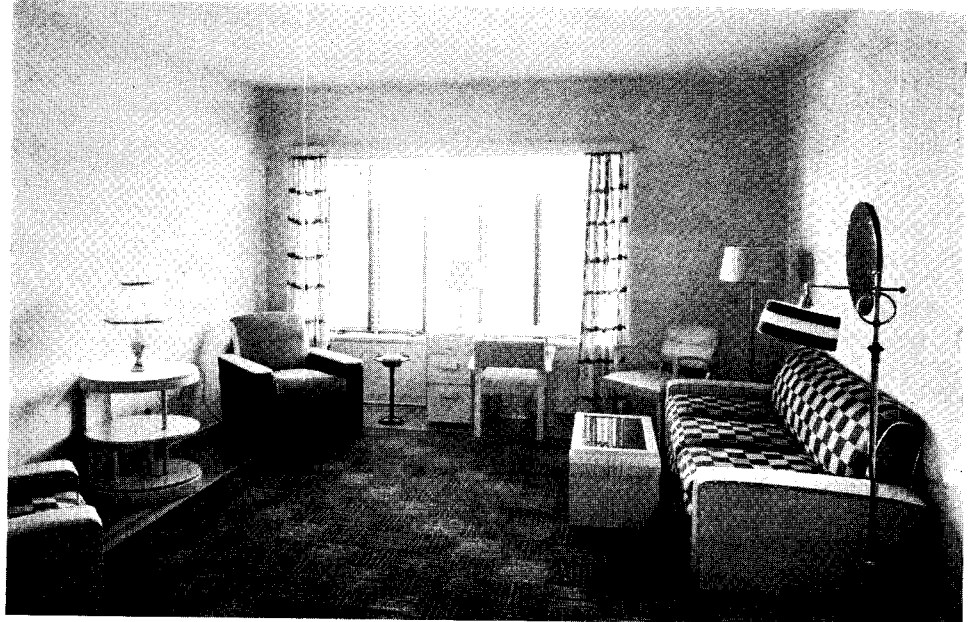


DETAIL OF WALL SECTION



TERRACE AND EXTERIOR STAIRS TO SECOND FLOOR SUITES

Photos by Moser & Son



TYPICAL LIVING ROOM

A SEMIFIREPROOF APARTMENT, 113 SUITES

5

MAYFAIR HOUSE,
NEW YORK CITY

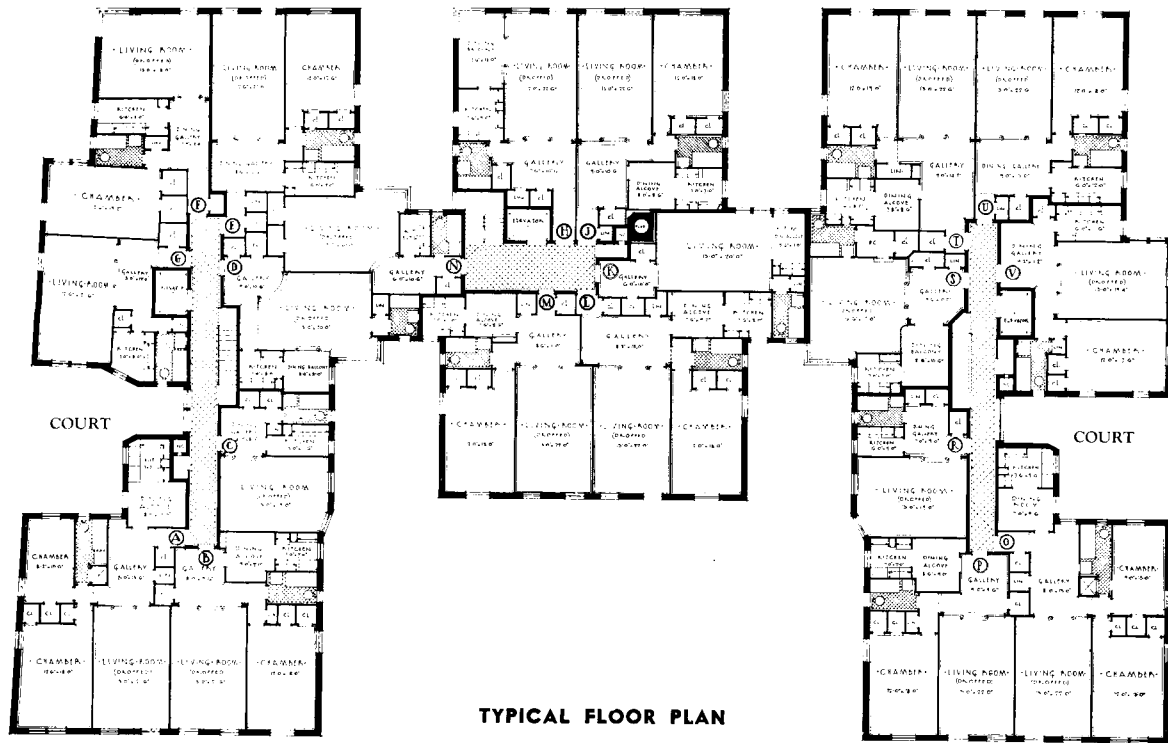
H. I. FELDMAN

ARCHITECT



Photo by Cosmo-Sileo Co.

IN ADDITION to 113 suites of two to four rooms, the ground floor includes five stores and two large rooms for storing carriages. The laundry (23' x 35') is in the basement. The total cost is 38c per cu. ft.



TYPICAL FLOOR PLAN

SCHEDULE OF EQUIPMENT AND MATERIALS

FOUNDATION STRUCTURE	Concrete on concrete and steel piles Steel and cinder concrete arches, first floor only; otherwise wall-bearing wood joist construction
EXTERIOR	
Walls	Colonial range face brick, Fredenburg & Lounsbury
Roof	Semi-course Ruberoid roof
Trim	Semi-glazed terra cotta, Federal Seaboard Terra Cotta Co.
Sash	Double-hung wood sash, except that corner windows are steel casement by Croft
Doors	White pine

INTERIOR Floors

Selected oak in living rooms and galleries laid in French herringbone style; bedrooms laid in strips with double walnut borders; public halls and lobbies are terrazzo; tile in bathrooms

HARDWARE INCINERATORS KITCHEN EQUIPMENT

Associated Hardware Co.
Kerner Incinerator Co.

HEATING

Stove, Waterman Gas Ranges, Frigidaire refrigerators
One-pipe vapor system with Fitzgibbons Boilers and Todd oil burners

ELEVATORS

Automatic push-button control, A. B. See Elevator Co., Inc.



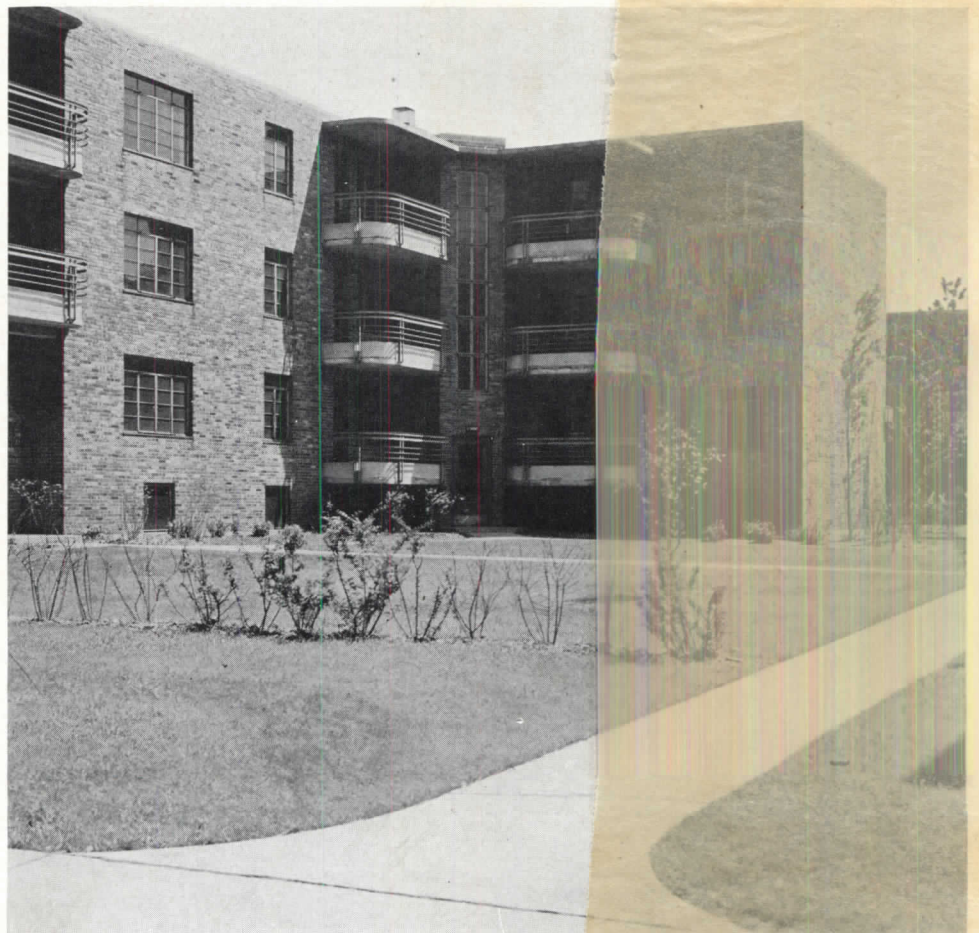
WALTER R. McCORNACK

ARCHITECT, F. A. I. A.

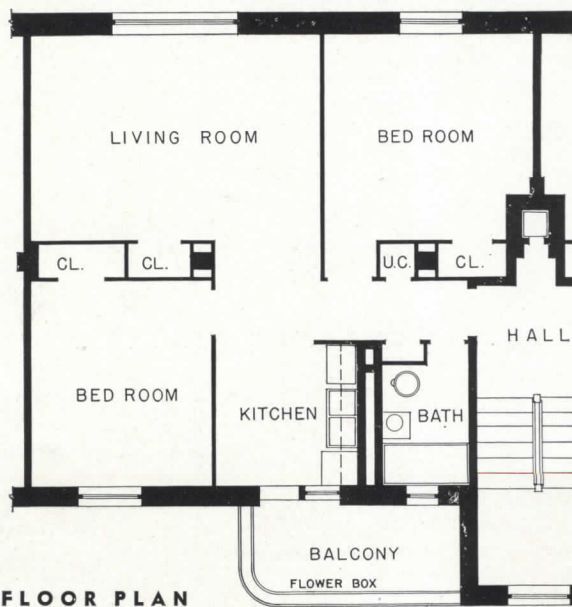
Photos courtesy P.W.A.

CEDAR CENTRAL APARTMENTS
CLEVELAND, OHIO

OCCUPYING a former slum area of 18 acres, this PWA housing development consists of 2,296 rooms. These are rented for an average of \$7.35 per room, including charges for refrigeration, cooking, and hot water. Children's playgrounds and other recreational areas have been liberally provided.



BUILDING
TYPES



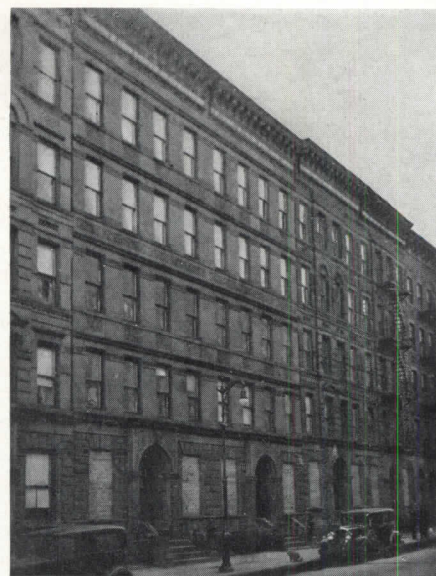
TYPICAL UNIT FLOOR PLAN

7 A MODERNIZATION OF AN



LOUIS E. ORDWEIN
ARCHITECT

Photo by Zimmerman



BEFORE

TYPICAL of current modernization work is this transformation of four obsolescent structures into one rentable apartment house. Prior to improvement the dumbbell flats were largely vacant or rented for \$25 a unit. Upon completion it is expected that it will be possible to obtain a rental of \$27 per room, with no vacancies likely.

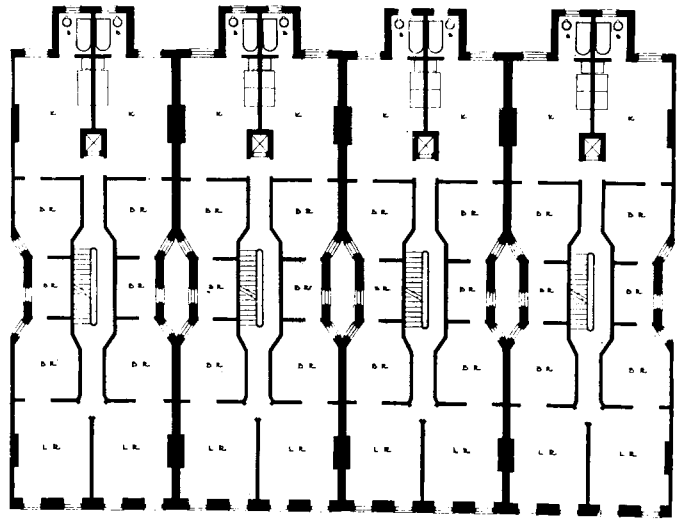
530 EAST 88TH STREET,
NEW YORK CITY

SCHEDULE OF EQUIPMENT AND MATERIALS

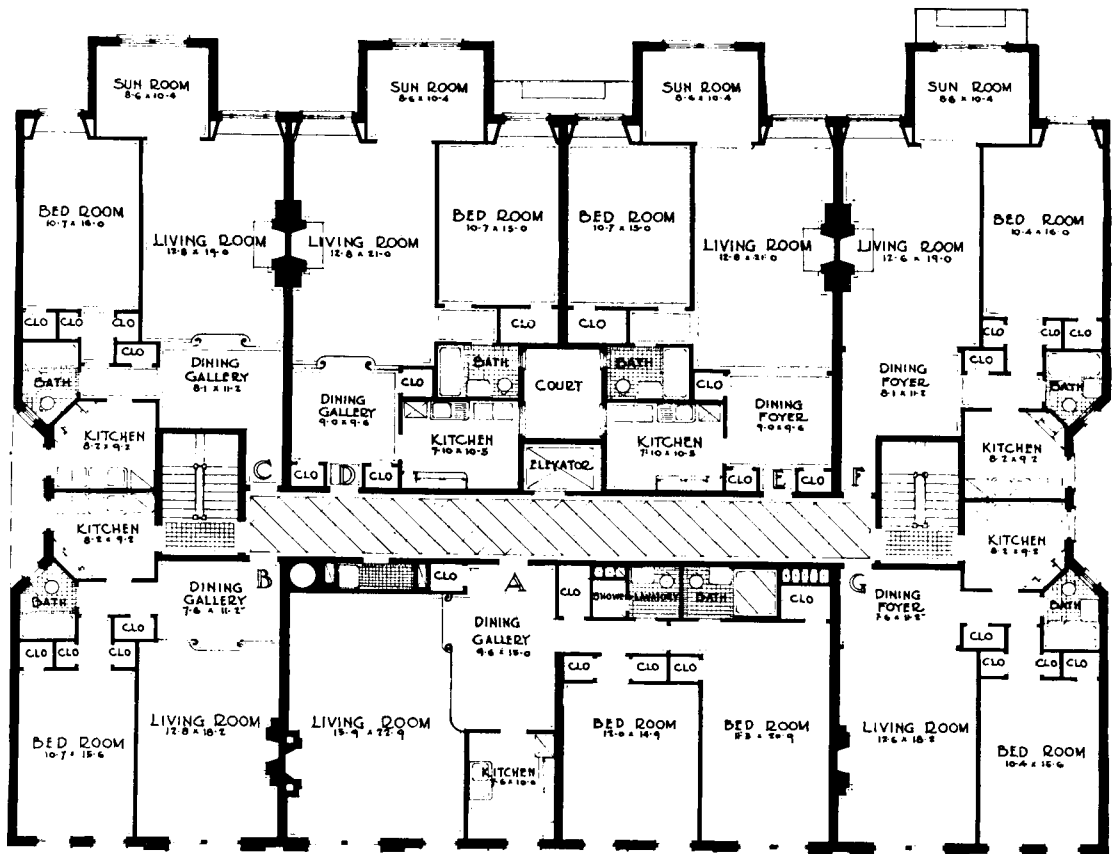
FOUNDATION	Stone	Walls	Plaster; tile wainscot in bathrooms
STRUCTURE	Wall bearing, wood joists	Doors	White pine
EXTERIOR		HARDWARE	Colonial brass; wrought-iron railings in dropped living rooms
Walls	Smooth brick of two tones	STAIRS	Steel
Trim	Precast stone	PAINTING	Walls, three coats of lead and oil; ceiling, casein paint
Roof	Wood, Ruberoid finish	PLUMBING	Standard Sanitary fixtures; brass water lines
Sash	Steel sash in living rooms; elsewhere wood	HEATING	National Radiator Co., concealed radiation; oil burners to be installed
Metalwork	Copper	ELEVATOR	A. B. See, fully automatic
INSULATION	Rock wool—roof only	ELECTRICAL	
INTERIOR		INSTALLATION	Wiring, rigid conduit
Floors	New strip oak with borders of walnut inlay; bathrooms tile; linoleum in kitchens; terrazzo in public halls		

BUILDING
TYPES

THE IMPROVEMENT of the facade indicates the great importance of this factor in every apartment house modernization program. Sales appeal conveyed to the prospective occupant is largely predicated upon a favorable appeal of the new facade. In this instance the fire escapes, and the elevation generally, have been done with restraint and imagination.



PLAN PRIOR TO MODERNIZATION



TYPICAL FLOOR PLAN (NEW)

AN EXISTING condition of different floor levels was utilized in providing dropped living rooms in the apartments on the left (east) portion of the new building. With larger rooms, new mechanical and service equipment, better circulation and daylighting, the new apartments are considerably superior to the quarters which they replace. It is, however, regrettable that planning has not resulted in the complete removal of the small flue-like courts that

were such a baneful characteristic of the old tenement. Both in size and placement, these are not very much better than the narrow air shafts of the older building. It will be noted, however, that only the bathrooms and kitchens now open on the court shaft. Again the sunrooms, converted from the former toilet sections, are inadequate both in window and floor area; they appear also to shut off sunlight from the adjoining room.

Comparative Analysis of Apartment House Heating Systems

By THEO. F. ROCKWELL

IN THIS ARTICLE, the discussion will be confined to apartments meeting the following specifications:

1. Four to six rooms per suite.
2. Not more than six suites per building.
3. Rent of suite to be between \$50 and \$75 per month.

The tenant in such a building wants, and is entitled to, enough heat so that he can maintain a comfortable and reasonably uniform temperature during the heating season. The tenant, however, should realize that he is living in an apartment of this kind in order to reduce his living costs by pooling certain of the expenses with other tenants, whose wishes must be given some consideration. It is improbable, therefore, that the tenant is entitled to a highly refined temperature control in his apartment for 24 hours a day.

The owner, while he may desire to provide a high class heating system, is confronted with an all important economic condition. After a tentative rental is established, his investment (for land, structure, and equipment) may not exceed a certain figure or the venture will be a failure. That is, this figure cannot be exceeded unless:

1. The additional investment produces a satisfactory return by a saving in operating costs.
2. The additional investment so increases the attractiveness of the apartment that tenants willingly pay a rental higher than the rate prevailing in the locality for similar accommodations.

It therefore becomes the purpose of this article to show how study of the problem at the time of designing the building can accomplish certain savings in operating costs, produce more satisfactory heating conditions, and yet require no material increase in investment.

The general solutions to the heating problem present themselves at this point:

1. The entire building can be

heated by a single heating system.

2. Individual heating systems can be installed for each suite.

The advantages and disadvantages of the first answer are:

- a. The initial cost of the single system is less.
 - b. The system may be operated by one person, who soon should acquire the experience necessary for proper results.
 - c. Damage from freezing in vacant apartments is less likely to occur, although this means some waste of heat.
 - d. If plant is fired with solid fuel, daily attention is required. The income from a single building hardly warrants the services of a full time janitor who is competent to do the work properly. Therefore, unless several such buildings are built in a group, this condition is an argument in favor of gas or oil fuel.
- c. Temperature control in the individual apartments will not always be satisfactory, even though combustion control at the boiler is provided. Individual apartment control or even individual room control is possible, but the initial cost is not warranted by the rental scale already established.*

The advantages and disadvantages of the second answer are:

- a. Each tenant may control heating to suit himself.
- b. Full-time janitor service may be dispensed with and the saving applied to
 - (1) Reduction in rent.
 - (2) Investment to make apartments more rentable.
- c. Rent may be lowered by difference between operating cost of single system and fixed charges on additional cost of individual systems.

*It is probable that most tenants, properly approached, would be willing to assist in temperature control by manual operation of radiator valves, if they were satisfied that heat would always be available when valve was opened again.

- d. Careful tenants are not obliged to bear their share of the heat wasted by careless and inconsiderate tenants.
- e. Heat is saved when apartments are temporarily unoccupied during the heating season.
- f. The initial cost is higher.
- g. More space in building is required.

The proper evaluation of the preceding factors depends materially on local prices for building materials, fuel, and janitor service. Therefore, it is well to introduce at this point a concrete problem and analyze the factors involved. Accordingly, the plans for an apartment of the type specified and built in the Pittsburgh district, together with several possible designs for the heating system are here presented (Figs. I, II, III). Since this building is located in Pittsburgh, only conditions in that area are considered.**

A preliminary study restricted the scope as follows:

1. A comparison of space required by the respective systems favored a radiator system of heating.
2. Hand-fired coal was eliminated in the case of the single system because of the labor involved and because the results were inconsistent with the standard originally set up.
3. Coal was eliminated for the individual systems because of the dirt and the space required by separate coal bunkers.
4. Local prices limit further competition between fuels to stoker-fired coal or coke and natural gas.

The first step in the design of a heating system is the determination of load or the heat loss from the building. The results of this are given in Table I. The losses for the uninsulated condition are for the building as built: that is, wood lath and plaster, studs, $\frac{7}{8}$ " sheathing,

**The same method would be followed in other locations, but different conclusions obviously are possible.

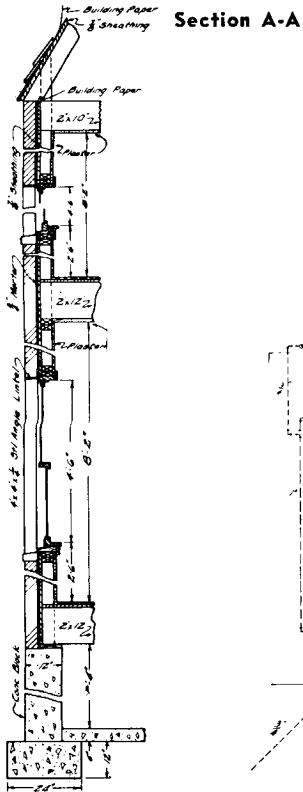
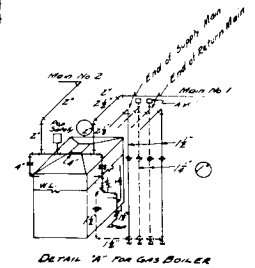
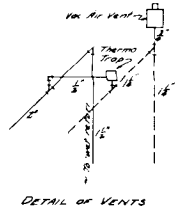
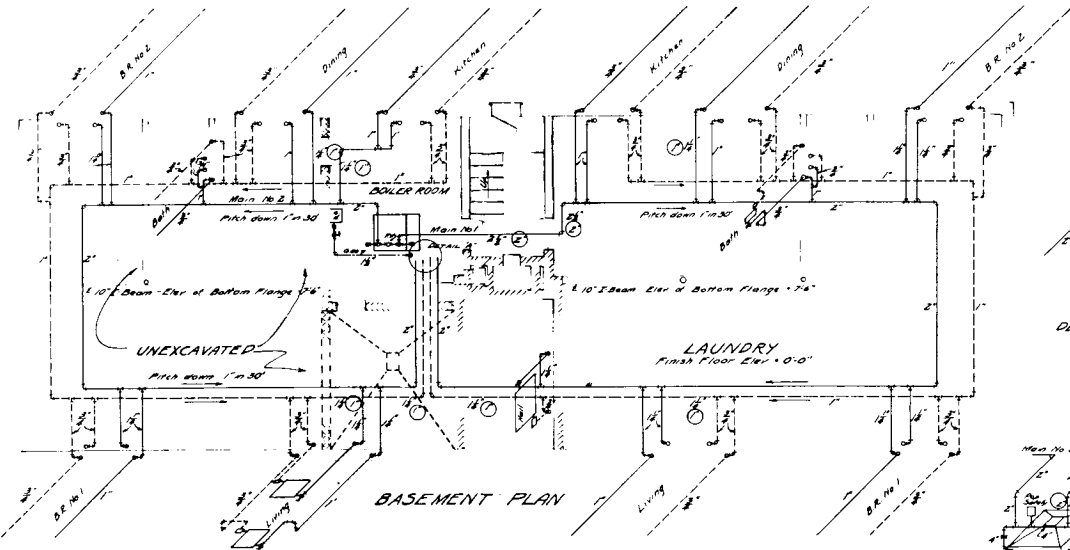
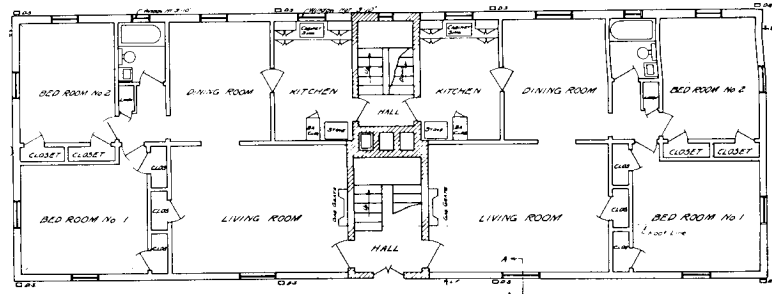


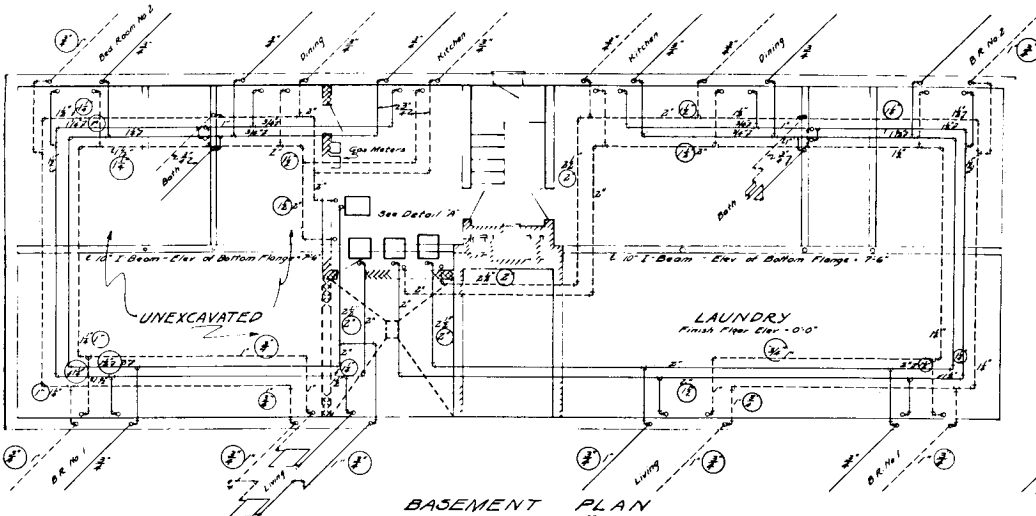
FIGURE 1
Typical Floor Plan



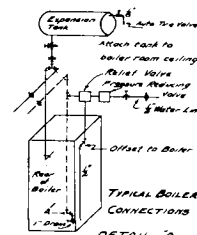
ROOM	RADIATOR SCHEDULE													
	UNINSULATED				CEILING & WALLS INSULATED									
	First Floor	Second Floor	First Floor	Second Floor	First Floor	Second Floor	First Floor	Second Floor						
Kitchen	14	3 20 0	4	25 4 20 11	16	3 20 9	4	12 4 19 9	14	3 19 10	4	17 3 17 10	4	17 3 17 10
Dining	12	3 23 9	4	35 4 26 12	20	3 23 10	4	14 3 19 10	17	3 19 10	4	17 3 17 10	4	17 3 17 10
Bath	3	3 22 4	4	24 3 24 4	13	3 20 3	4	6 3 22 10	7	3 22 5	4	7 3 22 5	4	7 3 22 5
Bed Room No. 2	3	24 10	4	25 3 24 10	13	3 26 10	4	24 3 22 10	17	3 22 21	4	17 3 22 21	4	17 3 22 21
Bed Room No. 1	3	26 14	4	26 3 26 14	19	3 26 15	4	24 3 22 20	17	3 22 20	4	17 3 22 20	4	17 3 22 20
Living	10	3 23 17	4	26 3 26 16	12	3 19 12	4	23 3 19 12	17	3 19 20	4	17 3 19 20	4	17 3 19 20
Hall	30	3 24 10	4	26 3 24 10	32	3 23 16	4	30 4 24 10	17	3 19 20	4	17 3 19 20	4	17 3 19 20

- NOTES:-
 1. Studs shall be same size as valves & traps
 2. Pitch branches toward main 1" in 10'
 3. Pipe sizes in circles indicate sizes determined by use of building insulation
 4. Isometrics of risers are not to scale

FIGURE 2
Vapor Heating System



TYPICAL BRANCH CONNECTION



ROOM	RADIATOR SCHEDULE													
	UNINSULATED				CEILING & WALLS INSULATED									
	First Floor	Second Floor	First Floor	Second Floor	First Floor	Second Floor	First Floor	Second Floor						
Kitchen	14	3 20 0	4	25 4 20 11	16	3 20 9	4	12 4 19 9	14	3 19 10	4	17 3 17 10	4	17 3 17 10
Dining	12	3 23 9	4	35 4 26 12	20	3 23 10	4	14 3 19 10	17	3 19 10	4	17 3 17 10	4	17 3 17 10
Bath	3	3 22 4	4	24 3 24 4	13	3 20 3	4	6 3 22 10	7	3 22 5	4	7 3 22 5	4	7 3 22 5
Bed Room No. 2	3	24 10	4	25 3 24 10	13	3 26 10	4	24 3 22 10	17	3 22 21	4	17 3 22 21	4	17 3 22 21
Bed Room No. 1	3	26 14	4	26 3 26 14	19	3 26 15	4	24 3 22 20	17	3 22 20	4	17 3 22 20	4	17 3 22 20
Living	10	3 23 17	4	26 3 26 16	12	3 19 12	4	23 3 19 12	17	3 19 20	4	17 3 19 20	4	17 3 19 20
Hall	30	3 24 10	4	26 3 24 10	32	3 23 16	4	30 4 24 10	17	3 19 20	4	17 3 19 20	4	17 3 19 20

- NOTES:-
 1. Studs to valves shall be same size as valve
 2. Branches shall be same size as riser
 3. Pitch all mains and branches toward boiler 1" in 10'
 4. Pipe sizes in circles indicate sizes determined by use of building insulation
 5. Isometrics of risers are not to scale

FIGURE 3
Hot Water Heating System

building paper, and brick veneer in the walls; wood lath and plaster without flooring in the top floor ceiling; and weather-stripped windows. The

weather conditions assumed were standard design conditions for Pittsburgh: inside temperature 70°F., outside temperature 0°F., and a 13 mile-

per-hour wind velocity.

In line with the purpose of this discussion, which is to recommend a different distribution of funds

Table I**HEAT LOSS FROM BUILDING**

	Uninsulated	Ceiling Insulated	Ceiling & Wall Insulated
	B.t.u. per Hour		
First Floor Suite	30,900	30,900	25,700
Second Floor Suite	55,100	34,200	29,100
Front Hall	12,100	10,200	10,200
Total for Building	184,100	140,400	119,800

invested in construction, the use of thermal insulation is now urged.

Considering only return on investment (annual fuel savings), the greatest economies in a building of this kind will accrue from insulation of the second floor ceiling; hence insulation should first be applied here. One method would be to use rock wool 3" deep.

To determine whether such additional investment is warranted, the dollar value of the fuel saved must be estimated. At the present time the cost of stoker coal delivered in the bin, and including the cost of power to operate the stoker, may be conservatively placed at \$4.00 per ton. Natural gas in the quantities demanded by a single boiler is available at an average price of 50 cents per 1,000 cu. ft. The over-all seasonal efficiency may be placed at 50% for stoker-fired coal and 70% for gas.* On this basis it costs 32 cents to produce one million B.t.u. with coal and 67 cents with gas. The ceiling area is 2300 sq. ft. and if placed at time of construction, 3" of rock wool could be obtained for an added first cost of \$210.**

In Table II, the bids of a reputable Pittsburgh heating contractor for the various designs are tabulated. (Note:—The coal-fired systems include an allowance of \$45 to construct a coal bin.) These figures indicate that a saving of \$164 in the cost of the coal-fired system may be effected by the use of 3" of rock wool insulation in the ceiling. Hence the net cost of the insulation would be \$210 — 164 = \$46.

Notes:—Estimated cost of 3" rock

* Seasonal efficiencies are assumed lower than those obtained in short tests at rated capacity because:

1. Boiler operates at approximately 1/3 rated load a large part of the season.
2. Pressure control only is used on system installed and considerable overheating results because tenant is wasteful.
3. Janitors employed in this class of apartments are usually not skillful in handling stokers.
4. The coal consumption resulting from this assumption is less than coal actually consumed in building similar to one shown in Fig. I.

** Bid received in Pittsburgh for placing at time of construction.

wool in ceiling—\$210. Estimated cost of 1 1/4" rigid insulation in walls—\$133.

Following a method outlined in a previous article and published in the ARCHITECTURAL RECORD in July and August 1933, the annual fuel saving would amount to \$37 for coal and \$73 for gas. The ceiling insulation would therefore pay for itself in less than two years even with low cost coal as fuel.

A further reduction in heat loss may be accomplished by insulating the exterior walls. The value of fuel saved by wall insulation is less per dollar invested for insulation than in the case of ceilings; hence a different criterion for adequate wall insulation might be used. To overcome the chilling effect of cold walls (heat dissipation from occupant by radiation*) a satisfactory wall surface temperature (inside surface) must be maintained. To do this, the exterior walls should have an over-all coefficient of heat transfer of .18 B.t.u./hr./sq.ft./°F. or less. Such a coefficient will result from the substitution of 3/4" rigid insulation for sheathing and 1/2" rigid insulation for lath. According to recent bids taken in Pittsburgh, such construction would increase the cost of the wall about 5 cents per sq. ft. to a total cost of \$133.

Referring to Table II again, we see that this insulation would permit

* Cold Walls and Their Relation to the Feeling of Warmth. Houghten & McDermott. A.S.H.V.E. Trans. 1933. Selection of Building Insulation. T. F. Rockwell, ARCHITECTURAL RECORD, July, August 1933.

a further reduction of \$70 in the cost of the heating system, making a net increase in cost of \$63. The value of the fuel saved by this insulation would amount to \$14 per year with coal and \$28 with gas. To pay off this extra debt at 5% interest would require about five years with coal fuel and three years with gas fuel, both of which are reasonably short periods.

Thus it has been demonstrated that by adding a net of

Ceiling	\$46
Walls	63
Total	\$109

to the initial investment (perhaps one-half of 1%) a reduction in operating costs is effected that is sufficient to liquidate the debt in an average time of three years. The proposed insulation is therefore justified on this ground alone.

It is now advisable to study comparative costs with coal and gas as fuels. As the use of insulation has been shown to be worthwhile, the comparison will be based on the insulated construction. The results of this analysis are shown in Table III.

Only the labor item, perhaps, will need additional explanation. A single building of this kind will not provide enough income to employ a full-time janitor for the usual duties of cleaning halls, caring for the lawn, and tending to the heating system. To get satisfactory results from stoker firing attention is required at least twice daily for cleaning fires, removing ash, and refilling hopper. At present a minimum charge for this service appears to be \$20 per month or \$140 for a seven-month season. The figures used in this analysis do not assume a bin-fired stoker, but it is improbable that this method would eliminate the twice-daily attention needed for handling bituminous coal.

The labor charge of \$25 for gas is for starting and stopping the boiler and for periodic inspection during the heating season.

Table III clearly shows that it is

Table II FIRST COST OF HEATING SYSTEMS

HEATING SYSTEM	Uninsulated Building	Insulated Ceiling	Ceiling & Walls Insulated
Vapor System—Fig. II Stoker Fired Coal	\$1,887	\$1,723	\$1,653
Vapor System—Fig. II Gas Fired	\$1,703	\$1,562	\$1,472
Individual Hot Water System Fig. III—Gas Fired	\$2,234	\$2,059	\$1,959

Table III ASSUMPTIONS AND ANNUAL CHARGES

	Stoker-Fired Coal	Gas		
ASSUMPTIONS				
Unit Price of Fuel	\$4 per ton	.50 per M cu. ft.		
Includes power for stoker				
First Cost	\$557	\$420		
Boiler, Control and Burner or Stoker				
Cost of Coal Bin	\$45	...		
Useful life	15 yrs.	20 yrs.		
Seasonal Efficiency	50%	70%		
Total Fuel per year	19 tons	302 M cu. ft.		
Interest	5%	5%		
Repairs	3%	1 1/2%		
Labor (Minimum wage per month)	\$20	...		
ANNUAL CHARGES				
Fuel	\$76	\$152		
Hauling ashes	7	...		
Labor	140	25		
Current expense	\$223	\$223	\$177	\$177
Interest (Boiler etc.)	\$28		\$21	
Coal Bin	2	...		
Depreciation	36		21	
Repairs	16		7	
Fixed Charges	\$82	\$82	\$49	\$49
Total Annual Cost		\$305		\$226

the labor item that weights the annual cost of heat in favor of gas fuel. The reader, therefore, is cautioned against extending these figures to unwarranted conclusions. As the annual fuel consumption increases the labor cost per ton of coal decreases and a point would be reached where coal would become the cheaper fuel.

If five or six of these buildings were built in a group, a full time janitor at \$100 per month could be employed, and as tenants of this class are generally willing to pay a little more rent for janitor service, that annual labor chargeable to heat might fairly be reduced to \$50 or \$60 per building, and assuming a further discount on quantity purchases of coal, the annual cost would then favor coal.

To confine ourselves now to the assumption that a single building is to be built, the annual cost of heat is then \$226 or \$56.50 per suite. On a twelve-month occupancy basis the rent should then include an item of \$4.71 per month for fuel and annual charges on the boiler, plus \$2.25 per month for annual charges on balance of heating system or a total of \$6.96 per month for heat.

According to Table II, the cost of individual gas-fired systems would be \$1959 for the construction with insulation in ceiling and exterior walls, which is \$487 more than for the gas-fired single system. If the owner is to make this additional investment, he must make an additional charge in the rent to care for it.

The fixed charges based on the

initial cost of \$1959 for the separate hot water systems for interest, depreciation, and other repairs amount to \$5.13 per month per suite. If this method of heating were adopted, then the monthly rental would include this amount of \$5.13 in place of the charge of \$6.96 for heating with the single system, or a reduction of \$1.83 per month. The average estimated fuel costs based on twelve months are \$3.50* per month for first floor apartments and \$4 per month for second floor apartments, which would be paid by the tenant.

Table IV indicates that the tenant's shelter expense would be increased about \$24 per year. For this he would have the following advantages:

1. Full control over temperatures in his own apartment.

* Based on higher rate for gas, because consumption per tenant will seldom exceed 15,000 cu. ft. per month.

2. He would not be penalized by the wasteful and inconsiderate action of other tenants in the buildings in connection with the heating system, because an experienced owner will include a charge in the rent to cover such contingencies.

3. Supply of heat is not dependent on actions of a janitor.

The following advantages would accrue to the owner if the individual system were adopted.

1. Additional sales appeal because of
 - a. Slightly lower rental.
 - b. Automatic temperature control in each apartment.
2. Reduction in waste of fuel from overheating where apartments are temporarily unoccupied.

Summarizing these results based on relative fuel prices existing at the time of writing, the following recommendations concerning the insulation of the building and the design of the heating plant are made:

1. The initial expenditure of approximately \$350 for insulation of the building is justifiable because:
 - a. It results in a saving of the cost of the heating plant which may be fairly credited to the cost of the insulation.
 - b. Use of less fuel will pay for balance in a few years.
 - c. Better effective temperature conditions during both summer and winter will reduce apartment vacancies.
2. If a building of this approximate size is to be built singly and is insulated as described, gas is the cheaper fuel.
3. If a group of five or more buildings is to be built, stoker-fired coal becomes the cheaper fuel.
4. If the building is to be built in

(Continued on page 144)

Table IV COMPARISON OF COSTS FOR HEATING TO TENANT

	One System Gas-Fired Steam	Individual System Gas-Fired Hot Water
COST PER MONTH PER SUITE		
Fixed charges paid by owner and included in rent	\$3.27	\$5.13
Fuel and current expense paid by owner and included in rent	3.69
Total included in rent	\$6.96	\$5.13
Fuel charge paid by tenant	3.75
Total cost of heat to tenant	\$6.96	\$8.88
Average net increase for separate systems		\$1.92

4. a neighborhood where the advantages previously listed for the individual systems would appeal to the class of tenants expected, serious consideration should be given to this method. Final decision, of course, remains with the owner and will be influenced by ratio of owned to borrowed capital.

In support of some of the assumptions and assertions made in this paper the following data are presented.

It is the usual practice in this country to use 70°F. to 72°F. as the inside design temperature for homes, and then in predicting the annual fuel consumption it is assumed that such temperatures will be maintained. Such was the method followed in this analysis.

It is well known, however, that many people are not satisfied with a dry bulb temperature of 70°F. in an uninsulated building when outside temperatures are below 25°F. to 30°F. The reason for this is that the dissipation of body heat by radiation to cold exterior walls and ceilings is

excessive and must be compensated for by an increase in air temperature which reduces the convection loss from the body. Hence occupants of uninsulated dwellings will maintain temperatures of 74°F. to 78°F. during severe weather.

Inasmuch as the average outdoor temperature for the Pittsburgh heating season is 41°F., the seasonal demand for heat is proportional to the difference between 70°F. and 41°F. or 29 degrees. If it is assumed that the actual inside temperature averages 75°F., except for the nightly drop, then the demand for heat is proportional to a difference of 34 degrees, or an increase of 17% for about 16 hours per day. This condition is of course reflected in the annual fuel consumption.

The use of the proper amount of insulation in exterior walls will result in higher temperatures of the inside surface of these walls during cold weather. This, in turn, reduces radiant heat loss from the body, and the occupant is satisfied with temperatures between 70°F. and 72°F.

Part of the cost of wall insulation is justified by this reason, but the saving resulting from this change is difficult to predict with accuracy.

With the single heating system for a building, individual temperature control for each apartment (i.e., other than manual operation of radiator valves) would add considerably to the initial cost, and locating a single thermostat in one suite is deemed to be unfair to the other tenants. Hence, the only control contemplated in addition to the usual safety devices is a pressure-stat to maintain a maximum and minimum steam pressure. A program clock is included to permit reduction of steam pressure at night.

Local overheating is bound to occur with this method because of absence of the tenant or because of neglect to close radiator valves. For this reason, therefore, and because of the inexpert attention the heating system receives in a building of this kind, it is felt that the respective seasonal efficiencies have been set as high as they reasonably may.

Satisfy Urban Living in the Apartment Hotel

By **T. C. CAMPBELL**, Vice President of *Fred F. French Management Company Inc., N. Y.*

THE APARTMENT HOTEL combines to a certain extent advantages of the apartment house together with most of the facilities offered by a transient hotel. This type of dwelling should be most popular in the future, not only for the single person but for families of two or three persons as well. I believe the apartment should consist of 1½, 2½, or 3½ rooms; the 1½-room apartment should consist of a living room approximately 14' x 23' with a small kitchen scientifically planned to eliminate waste space. In the 2½ rooms, there should be a living room of approximately the same size, a bedroom about 12' x 16' in area, and a kitchen. In the 3½ rooms the arrangement should be such that the extra bedroom can be used as a dining room or

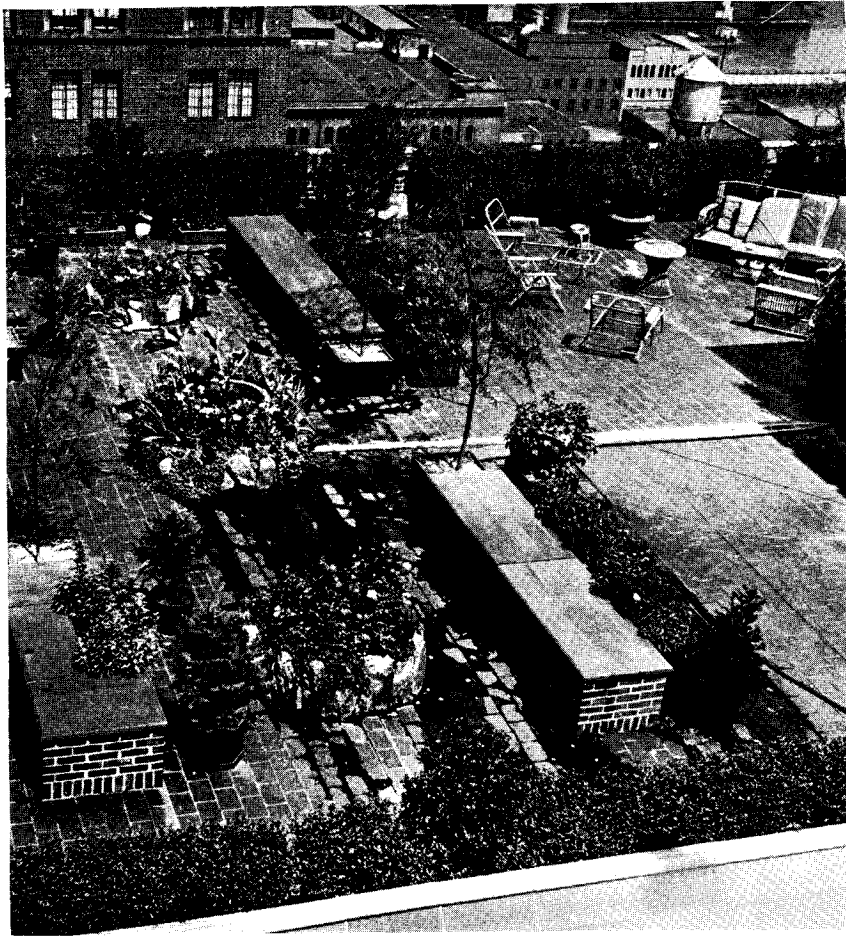
spare bedroom. In this arrangement the kitchen should open directly into the living room. The ideal plan would be a living room, bedroom, and kitchen, with a foyer entrance. In fact, if the foyer entrance can be provided for even the 1½-room apartment, it will be a decided rental asset, regardless of how small it may be.

It is my belief that in new construction the installation of air conditioning should be seriously considered, since there is no doubt but that it is here to stay as definitely as is central heating.

Ultramodern bathrooms, with separate shower stalls, will be increasingly in demand. I believe that more warmth in bathroom finishes and decoration will be required. These may include substitutes for tile in

both wainscots and floors. Built-in fixtures should be specified for all the little improvements which simplify housekeeping, such as soap dishes, glass holders, flush-type medicine cabinets. In general none of the protruding gadget-like fittings should be installed. Adequate lighting fixtures are an essential part of the modern bathroom.

The kitchens should be given a great deal of consideration. Although the public has probably not reached the point today where complete electric kitchens are a rental asset, I think the trend is in this direction. For the present, I believe that kitchens should be equipped with three—or four—burner ranges, insulated-heat ovens connected with a vent to carry off cooking odors, etc. The refrigeration



A corner of the roof garden available to tenants of Tudor City Apartments, New York City

should have a minimum of 4 cubic feet of capacity in the smaller apartments, more in the larger ones. Great stress should be laid upon noiselessness of operation; a large proportion of tenant complaints are actuated by the annoyance of noisy refrigerators.

More attention must be paid to the number of lighting outlets. Practically all ceiling fixtures, with the exception of those in foyer, kitchen, and bathroom, can be eliminated; where tenants desire wall brackets, these can be attended to individually. A desirable feature for the living room is a master switch controlling all outlets in the room.

The complete elimination of woodwork in the kitchen is advised. Porcelain or chromium-finished sinks and drainboards are essential. A linoleum floor, sanitary cove base, and a hard plaster wall finish, will eliminate so far as possible the cracks in which vermin hide away. Here again adequate lighting fixtures should be provided, scientifically arranged to

eliminate shadows. Light in the kitchen is quite as important as in a drafting room. A very small detail, but an important one, is a small laundry drying rack, the type which takes up very little space and is inconspicuously hung on a wall.

In planning an apartment hotel building, sufficient incinerator facilities must be provided and should be located in a space provided, with a slop sink on each floor. Slop sinks and incinerator closets should be large enough to allow for bottle bins and for objects too heavy or too large for the incinerator. Corridors should be provided with either linoleum, rubber tile, or some other comparable material, eliminating carpet both for reasons of sanitation and maintenance.

In my opinion it is very questionable whether apartment hotels should have restaurants. These are rarely income producing and have usually been considered purely a rental asset. With complete facilities provided in

the apartment kitchen, the need of a restaurant in the building is doubtful. But if there is to be a restaurant in the building, it should be located on the roof, reducing the expense of stacks and ducts and attracting greater patronage. Roof space is far more valuable to the building as a whole than a few studios or penthouses. The rental price of such studios or penthouses is governed by the average rental of the building. It is very difficult to secure a \$10,000-a-year studio tenant in a building in which most apartments are renting for \$1,200. On the other hand, the laying out of the roof space for the advantage of all the residents of the building enhances the rental value of the individual apartment. For example, a space should be provided for sun bathing or for the enjoyment of evening breezes, thus making the roof serve the purpose of a garden.

Almost any large apartment hotel should devote a large portion of the first or main floor to lobby space, and if possible to a radio room and a reading room. Careful study should be given to the laying out of the main desk space and manager's office. The rest of the main floor may be devoted to stores and shops.

Necessary services in an apartment hotel are telephone, package room, and delivery services, thereby eliminating all outside vendors or delivery men. These services are also a decided rental asset. An adequate trunk and baggage room in the basement should be provided.

In the central zone of a large city, I do not believe that it is necessary to provide any recreational facilities whatever for the tenants of an apartment hotel, since the vast majority of them who can afford to live in this zone will find their entertainment right in the district in which they live. Almost invariably when such facilities have been provided they have been little used. A swimming pool is a decided advertising feature—but an advertising feature only.

In summation, I would say that the trend of tenancy in many cities, for a very large group of potential occupants, is definitely to the city centers. This is evident in New York City and elsewhere—and because of this trend the apartment hotel offers a fertile field for new building, making possible one of the best returns on invested money. And for architects it represents a distinct building type to be designed and constructed for the satisfaction of special requirements.

8 A FIREPROOF APARTMENT HOUSE,



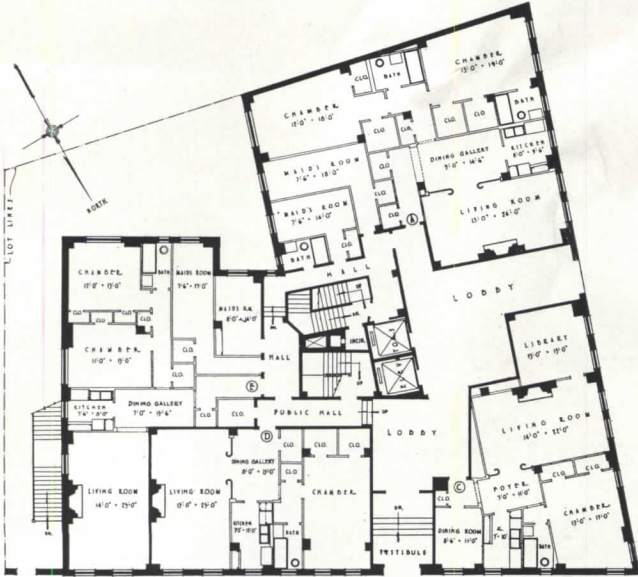
BOAK & PARIS, INC.
ARCHITECTS

FIVE RIVERSIDE DRIVE
NEW YORK CITY

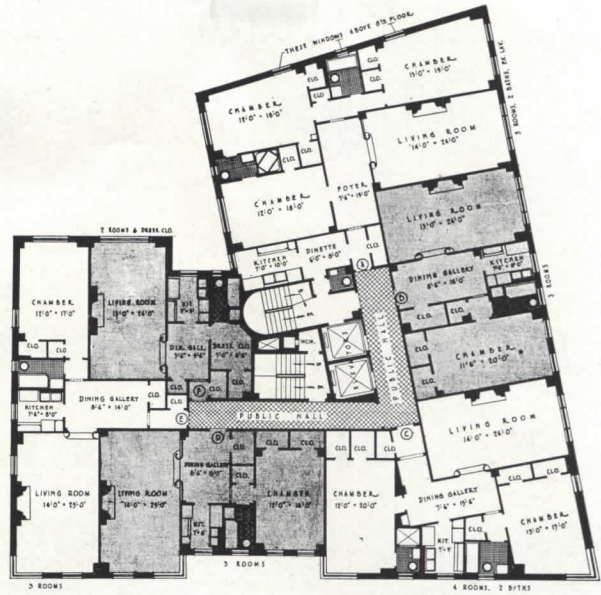
* Cost includes land.

SCHEDULE OF EQUIPMENT AND MATERIALS

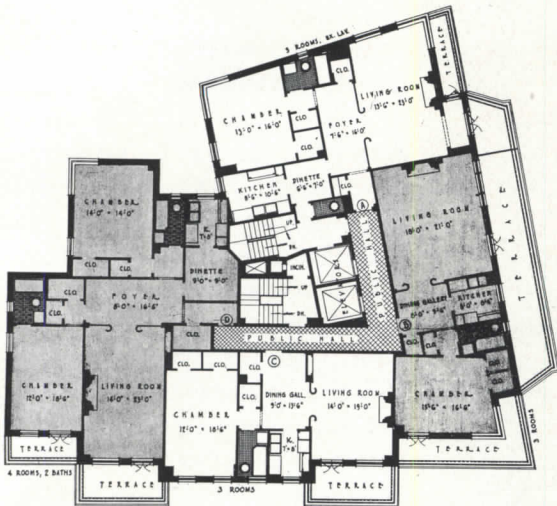
<p>FOUNDATIONS Concrete</p> <p>STRUCTURE Structural steel and cinder concrete arches</p> <p>EXTERIOR</p> <p style="padding-left: 20px;">Walls Face brick, Fredenburg & Lounsbury; terra cotta backing</p> <p style="padding-left: 20px;">Trim Cast stone, New York Cast Stone Co.</p> <p style="padding-left: 20px;">Roof Quarry tile on built-up asphaltic</p> <p style="padding-left: 20px;">Sash Steel casement sash, Detroit Steel Products Corp. Steel double-hung sash, Pomeroy Co.</p> <p>WATERPROOFING Integral in foundation walls and basement floor, A. C. Horn; Structural Waterproofing Co. paint on interior face of masonry walls</p>	<p>INTERIOR</p> <p style="padding-left: 20px;">Partitions Terra cotta, cinder concrete, gypsum</p> <p style="padding-left: 20px;">Floors Oak, except linoleum in kitchens Rubber in lobby and corridors</p> <p>HEATING Steam, Orifice System of American Radiator Co.; steel pipe, Bethlehem Steel Co.; valves, Pratt & Cady</p> <p>PLUMBING Hot and cold water lines, brass, Anaconda Co.; Sloan Flushometers; Ohio Brass Co. valves; Kohler Co. and Standard Sanitary Co. fixtures; United Metal Box Co. cabinets</p> <p>KITCHEN EQUIPMENT Slattery Co. gas ranges; Frigidaire refrigerators; Napponee kitchen equipment, Cox and Co.</p> <p>ELEVATORS Car switch—operator control—A. B. See Co.</p>
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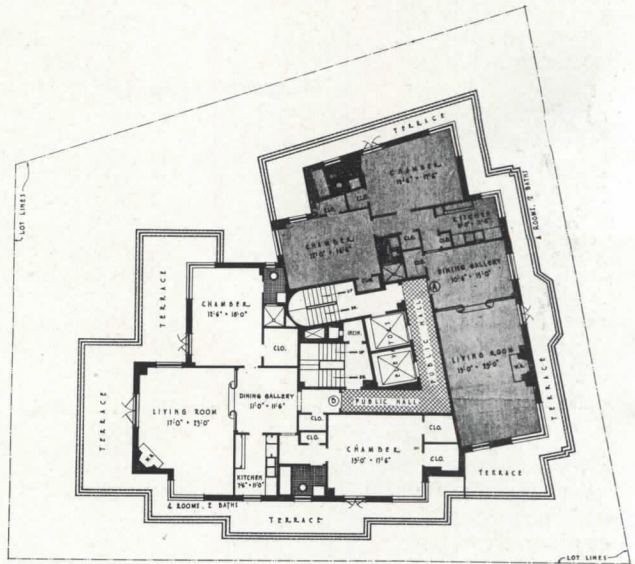
FIRST FLOOR PLAN



TYPICAL FLOOR PLAN

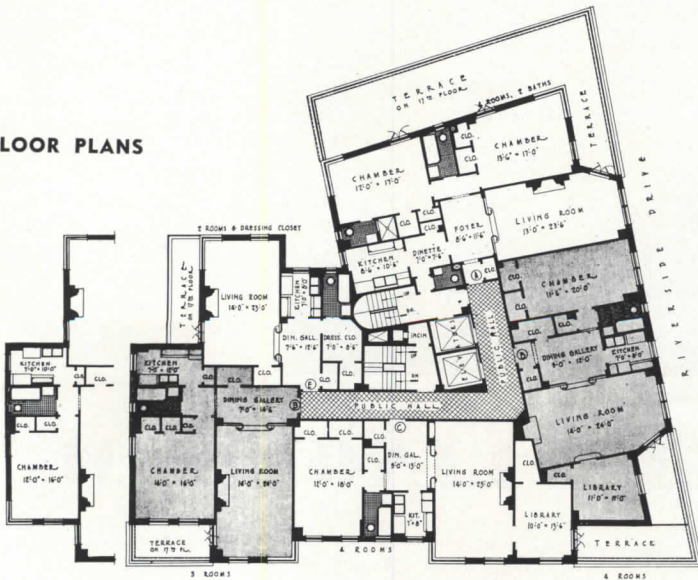


19th FLOOR PLAN

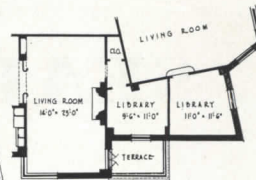


PENTHOUSE PLAN

17th AND 18th FLOOR PLANS



(PART PLANS OF 18th FLOOR ARE SHOWN AT SIDES)



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the modern scheme*



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SEALEX LINOLEUM

TRADEMARK REGISTERED

Floors and Walls

Is a New Social Science Emerging?

By M. A. MIKKELSEN

(Continued from page 80)

Commerce, and Agriculture, and Bureau of Mines, the Interstate Commerce Commission, the Social Security Boards, and the Works Progress Administration. The findings are to be made available to the industry and labor likely to be affected.

3. Science committees are to be formed in Federal departments that deal with technical interests, for continuous study of trends in science and invention and of their social implications. Reports are to go to the proposed National Resources Board, to city, county, and state planning boards and to the public.

4. Patent laws are to be studied by a group of social scientists and economists with a view to articulating them with social and economic needs.

5. The Science Committee of the National Resources Committee, with such assistance as may be needed, is to investigate existing activities in reporting inventions and scientific discoveries and is to advise on the feasibility (a) of more balanced coverage, (b) of selecting those more socially significant, and (c) of assembling such data in some central location or locations.

6. A permanent over-all planning board is to be established. "Such a board is needed to give breadth of consideration to the variety of factors which affect specific plans. This board would take its place in the governmental pattern as coordinator for the many special planning boards, of which there are now 47 State boards, 400 county boards, and 1,100 city boards." The over-all board in question is the contemplated National Re-

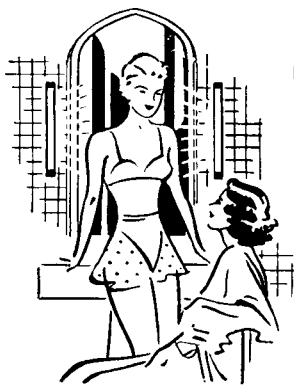
sources Board, the creation of which was recommended by the President's Committee on Administrative Management last January.

Unique Value of the Report

THE REPORT is in itself a demonstration of the normal process by which scientific discoveries and social and industrial inventions are achieved. Recognition of general needs is followed by search in many quarters for means and forms. Taken singly, the ideas contained in the report are familiar. This is because of long-standing recognition of the need for controlling the harmful effects of industrial inventions and because long years have been given to discussion of means. One school of thought denies that means exist, except automatic forces set in motion by economic laws. The unique value of the report lies in two facts: it offers comprehensive proof that means exist, in the hands of government, and it officially presents a policy, program, or form by which control may be exercised in a democratic country. If the form is successful it will be a social invention of momentous consequences to democracy. Possibly an economy of abundance is not impracticable, after all.

About all that this reviewer can do in a limited space is to give a freehand rendering of the argument of the report by keeping to a narrow range of fact and comment and to express a personal opinion regarding the significance of the report as a whole. It might seem as if particular attention should be given to the competent chapter on Construction. However, the reviewer notes with satisfaction that ARCHITECTURAL RECORD readers have been kept informed on technological trends in building.

MIAMI BATHROOM CABINETS AND ACCESSORIES . . .



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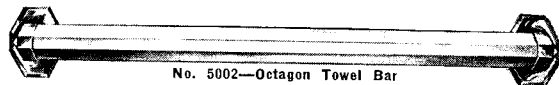
Miami designers and engineers will co-operate with you in the solution of any unusual bathroom cabinet problem. Complete information gladly sent upon request. See our Catalog in Sweet's.

MIAMI ENSEMBLES

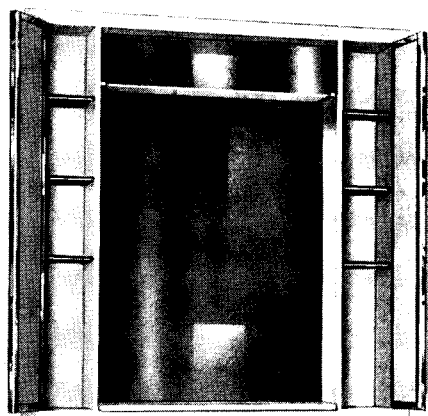
Miami Cabinets are produced in Combination Units, in various shapes and sizes, to conform to individual bathroom architecture and the family needs.

MIAMI CHROMIUM BATHROOM ACCESSORIES

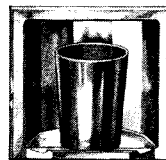
Recessed and Projection Types



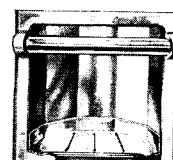
No. 5002—Octagon Towel Bar



MIAMI "OXFORD"—Entirely different from any other cabinet. Modern, distinctive, compact. Large recessed mirror is flanked on each side by storage cabinets with chromium-framed mirror doors hung on chromium piano-type hinges. Indirect lighting.

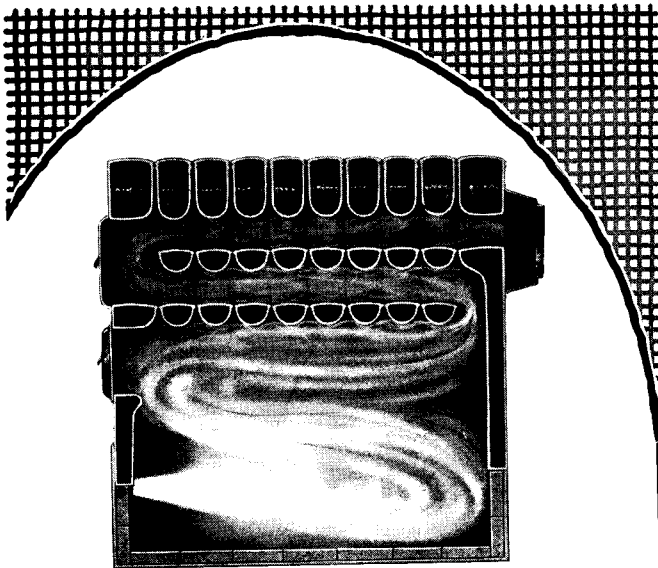


No. 6001—Tumbler Holder



No. 6004—Soap and Grab Bar

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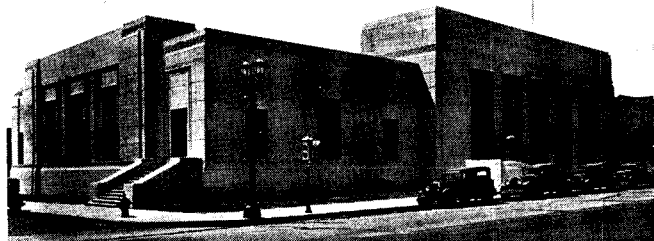
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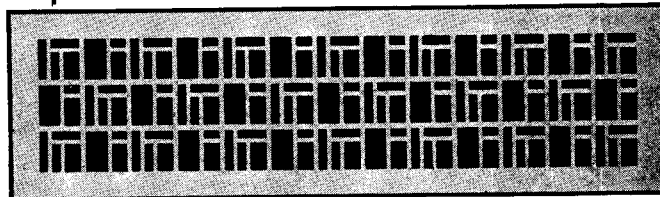
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