

THE ARCHITECTURAL RECORD

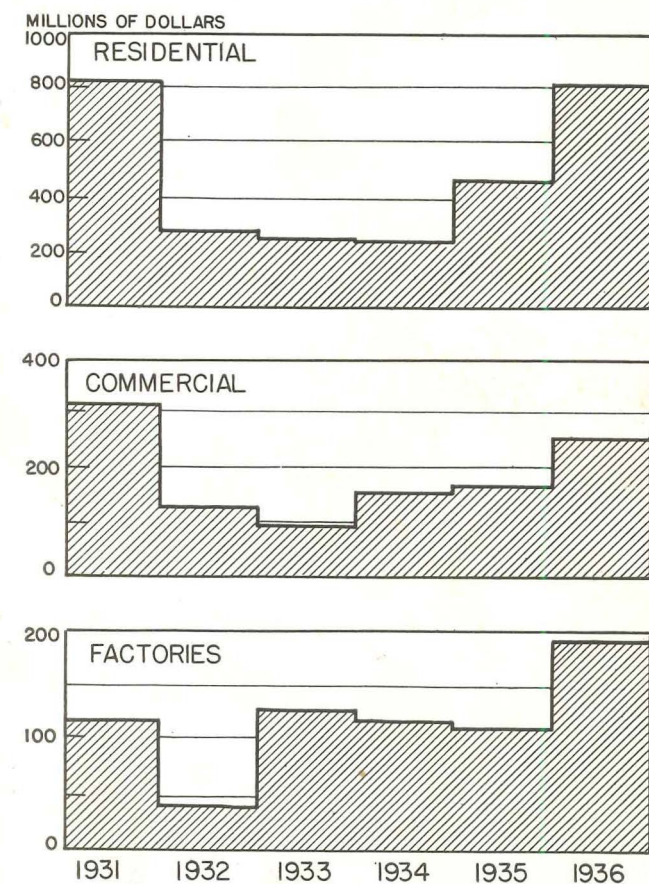
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HIGHLIGHTING 1937 BUILDING PROSPECTS

By L. SETH SCHNITMAN
Chief Statistician,
F. W. Dodge Corporation

The year 1936 ended with a 60 per cent gain in the value of total building operations. No one class was responsible for this large improvement over 1935. That private projects—factories, houses, and commercial buildings—participated generously in the broad upward swing is easily the item of outstanding significance in the 1936 record. Had improvement occurred only in public and institutional types—where liberal governmental aid has been operative—the results would have been far less impressive and the implications for 1937 far less certain.

CHARTING RECOVERY IN THREE IMPORTANT BUILDING CLASSES *



For residential building the year 1936 virtually attained the level for 1931; for commercial building the year's record was still some distance away; while for factory building the year 1936 exceeded the 1931 level by a substantial amount. Much further improvement appears probable for 1937 in each of these important classifications.

* Based on data for 37 eastern states only.

No year thus far in the recovery cycle has begun more auspiciously for private building than does the year 1937. This, more than from any other cause, grows out of genuine demand for space which will have to be met now that the national income is on the upgrade. The quantitative improvement in private building of all descriptions which looms for 1937 should be easily the largest of any since building recovery was first sighted in 1934. Percentagewise the improvement may not be as great as that shown for 1936 over 1935; in this case it is important to remember that 1937 starts from a much higher quantitative plane.

Commercial building should show a gain of better than 30 per cent over the total for 1936; for factories the indicated improvement over 1936 is better than 60 per cent; for residential building a gain of at least 40 per cent is not improbable.

What is in store for public and institutional building is still problematical. Much depends upon the incoming Congress but, at this writing, it appears fairly safe to assume that no material let-down in publicly-financed building operations as a whole is likely to occur in 1937. This conclusion seems warranted because of the improving conditions in state and municipal finance which should make possible larger bond flotations for capital expenditures at attractively low interest rates and go a long way to offsetting whatever declines may occur in Federal building operations.

Thus far no consideration has been given to those classes of construction which are usually classified as civil engineering. For public works such as bridges, highways, sewerage systems, water-front developments, the present outlook is for a moderately lower volume in 1937 than in 1936 chiefly because it is in this class of operation that governmental aid is likely to be retarded. For public utilities, which includes electric light and power plants, railroad construction, pipe lines and water supply systems, in addition to sundry lesser items, the prospects for 1937 are distinctly promising; here, too, the influence of private initiative will play a larger role. A gain over 1936 for the general public utility classification, therefore, of as much as 50 per cent is not to be considered an improbability.

Where then will all of these indicated gains occur? Improvement, previously spotty, will continue to give way to further general betterment. Gains, previously confined to smaller jobs, will broaden and envelop larger projects. Modernization, of large importance in recent years, will continue, but its influence will be relatively less pronounced. New building will assume the spotlight. Speculative building will continue to gain momentum. Investment building, too, will participate in the broad swing upward. In short, though conditions will vary with the locality, improvement in 1937 should be broader and more extensive than anything yet seen in the current cycle. To view 1937 as a year of boom, however, seems entirely unwarranted by the facts; prospects rather favor a healthy expansion than a runaway.

IOWA OPENS NEW CAMPUS

National Fine Arts Conference Marks Dedication

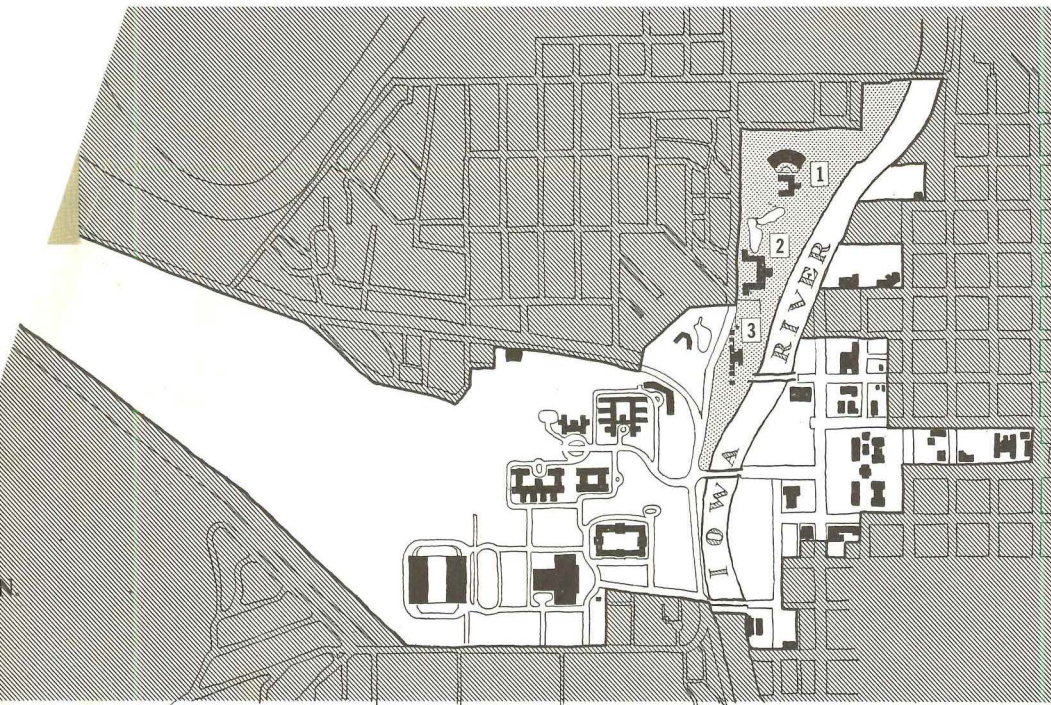
Far different from the usual tall tales of world's largest-hog, nation's-worst-drought are reports of the first National Fine Arts Conference held recently at the University of Iowa. For besides playing host to some of the nation's best known artists, playwrights and musicians, the University dedicated its new 30-acre fine arts campus, brought to the public eye its long work of integrating the multi-form artistic enterprises of the prairie state.

Chief emphasis of the 3-day conference lay upon the necessity of developing the fine arts on an integrated "regional" scale. Speaker after speaker stressed this point. "The regional theater," said Martin Flavin, New York dramatist, "is the only real contact which the playwright has with the American public." Nor did this imply an arty obsession with regional peculiarities of speech, manner or dress. On the contrary, said sculptor Paulanship, "here are the raw materials (of art itself)—vital desires, ideas, talents and human needs—let us mold them for our good and our future."

Few better places for the Conference discussion, "a coordinated program for the fine arts," could have been chosen. For behind this conference at Iowa lay a long uphill pull for just that. 30 years ago there were community singing contests at Iowa; an art guild (of five persons) was started in 1914; 15 years ago the University had its student dramatic and oratorical societies; 1933 saw the birth of a camera club.

In 1929, a School of three Departments was created—Graphic and Plastic Arts, Dramatic Arts, Music—coordinating all existing courses and planning many new ones in an ambitious program for the fine arts. This program, itself progressive, explains the organic connection between the School and the people of the region.

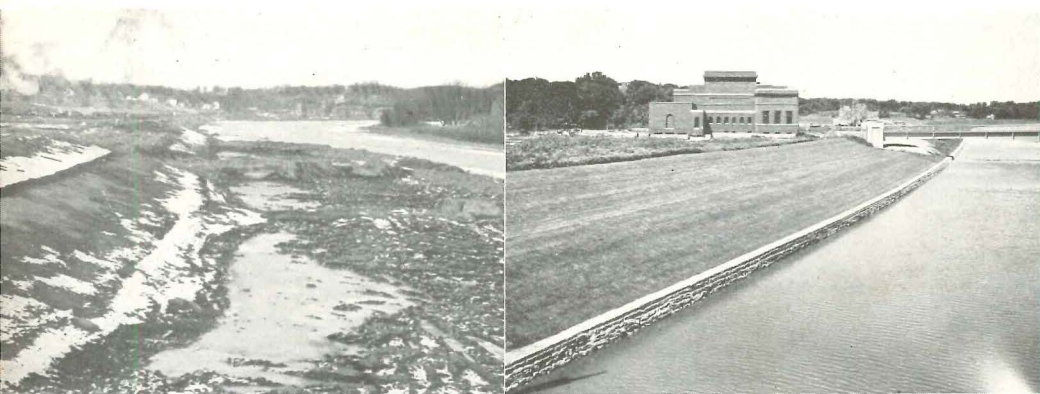
But no new campus—least of all one for the fine arts—drops complete into the University lap. Having developed this wide variety of cultural activities and having evolved a plan for integrating them into a sort of cultural front, U. I. had still the task of housing them. Cash-raising in government and philanthropic circles is no easy task; but after 8 years of it, the University now has almost two-thirds of its Fine Arts project complete and paid for.



1. MUSIC BUILDING (proposed).
2. DRAMATIC ARTS BUILDING.
3. GRAPHIC AND PLASTIC ARTS BUILDING.

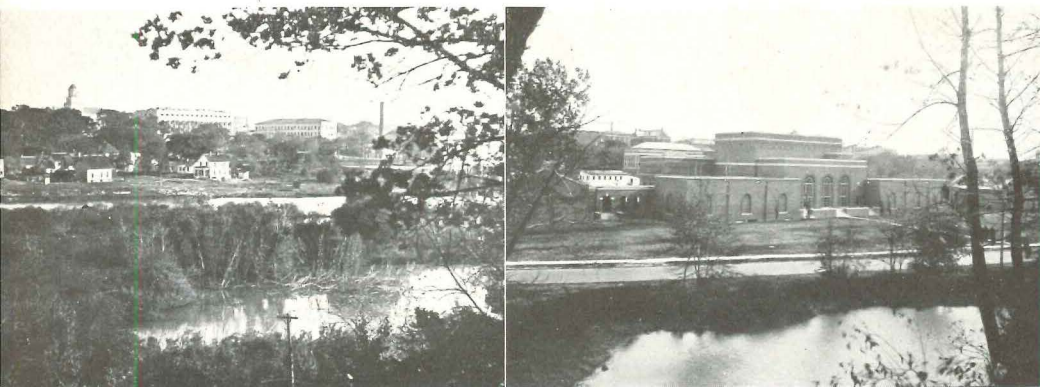
The wedge of swampland which once bisected the University of Iowa has been converted into a 30-acre Fine Arts Campus second to none in the country. When completed, the Campus will not only provide for classes in every phase of the fine arts, but also every type of enterprise connected with them—concerts, outdoor music festivals, dramatic productions in any of several theaters, broadcasts, and exhibitions. Construction on the Music Building has not yet begun.

Photos courtesy "Daily Iowan" by R. Graham



ABOVE: Looking north on the Iowa River, before and after it was deepened, straightened and its west bank lined with reinforced concrete.

BELOW: Where frogs once croaked in the swampland now lies the made land of the new Fine Arts Campus. Beyond is Iowa City and the older portion of the University.



DRAMA SCHOOL OPENS NEW PLANT WITH HOMESPUN HIT

FINE ARTS SCHOOL PROGRAM

1. To create an indigenous American art using the materials of this region.
2. To stimulate the arts throughout the state and region through conferences, contests, and festivals.
3. To send a continuous flow of young men and women into society who have come to know the cultural values of art.
4. To find through scientific research ways of discovering and developing those with outstanding talent.
5. To provide for student expression.
6. To offer different types of training for those with special ability.

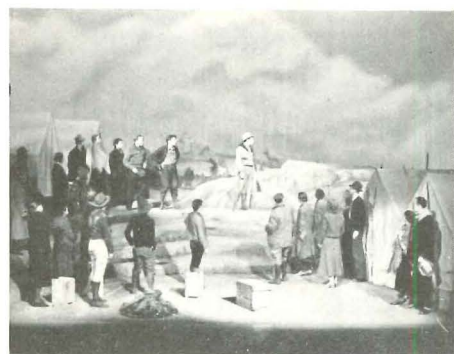
When playwright Martin Flavin spoke at the dedication of Iowa's new Dramatic Arts building, he asked and answered the question: What's wrong with the theater? "There is nothing wrong with the theater," said he, "but there is something wrong with the Broadway theater—it has become economically out of reach of the rank-and-file of the public." Thus "75 to 85 per cent of the plays produced are failures . . . the hazards of Broadway production today are terrifying." But meanwhile, there had grown up a social theater which—"barring the handful of annual 'hits' which get from Broadway onto the negligible 'road'—is the only real contact which the playwright has with the American public." Further, Mr. Flavin believed "that there is a great theater audience in America which the non-commercial theater is preserving and developing, and that the playwright cannot afford to neglect this audience nor his source of contact with it."

Of all this Iowa's dramatic arts department has been long aware. In opening its new building it brought to a close a 15-year record of experimental work in the production of original scripts by young playwrights. Conkle himself, author of the dedication play, "200 Were Chosen," is an Iowa grad whose work first saw the footlights at Iowa U. E. C. Mabie, director of the department, said that in Iowa they are "interested in creative instead of imitative work in the theater"; and, with the new theater plant as a basis, planned a continual expansion of their already well-developed program. This expansion includes such projects as a summer school in all branches of dramatic work (students being selected from the increasingly popular state-wide competitions already launched by the University); a Shakespearean theater to complement the established regional one; publication of a quarterly magazine dedicated to the upbuilding of a genuinely indigenous theater in Iowa. The University Theater plans not only a radio theater but a laboratory where dramatic presentation will be scientifically studied.

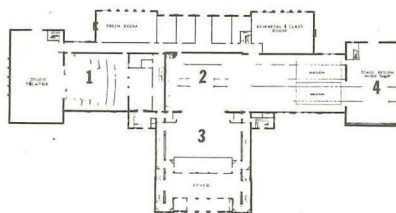
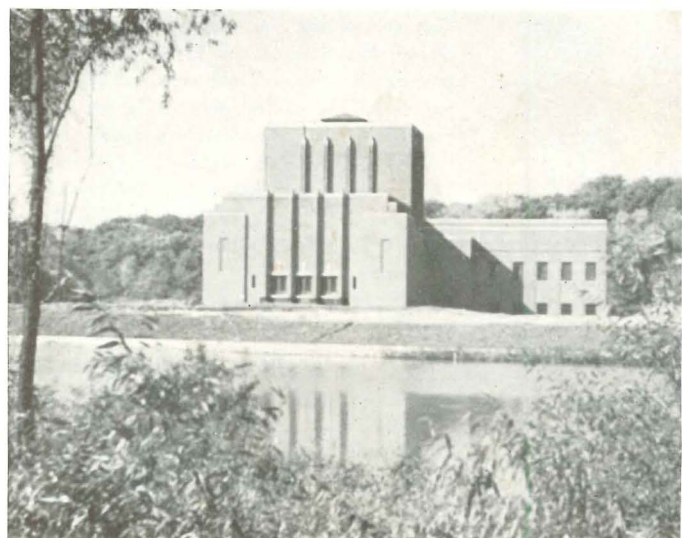
Here, as in the other Departments of the Fine Arts School, emphasis is laid upon participation of the students themselves in all phases of activity. Literally hundreds of students have been thus educated to the social importance of drama in modern life; the Department has become a decisive force in Iowa's cultural life.



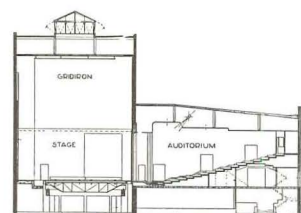
On Broadway, Elsworth Conkle's play "200 Were Chosen"—a story of midwestern farmers taken off relief and sent to "pioneer" in Alaska—was deftly, sympathetically presented by Actors Repertory. This was the first play by Mr. Conkle, himself an alumnus of Iowa's Dramatic Arts Department, to reach the Great White Way.



Simultaneously in Iowa City, the University's experimental theater proudly raised the curtain on the same play. Used for the first time was the theater's up-to-date equipment—revolving stage, controlled illumination, cyclorama. Proudest of all were the students of their "cloud-making" machine by means of which cloud effects—called for in the script—were projected onto the stage.



PLAN



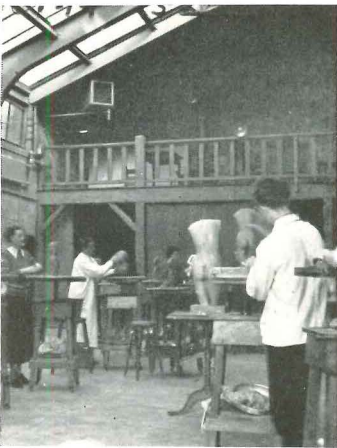
SECTION

Beautifully located on the remodeled banks of the Iowa, the present unit of the Dramatic Arts Building consists of the auditorium (3) with its revolving and wagon-type stage (2) and stage design workshop. To this will be added a studio theater (1) with green rooms, dressing rooms, etc. Later a Shakespearean theater and library will be added at one end, a broadcasting studio with research laboratories at the other. The building, unit by unit, will conform to advanced standards of planning, illumination and acoustical design.

ART STUDENTS AT IOWA TURN TO PRAIRIE FOR INSPIRATION



Under Grant Wood's direction, advanced students in the Mural Studio work on murals of pioneer life for Iowa State's Library at Ames. Housed in a wing of the Arts Building, the Studio forms a unit of its own.



The Edstrom Sculpture Studio, at the opposite end of the Arts Building, houses advanced students in sculpture. All facilities for large-scale, full-time work, uninterrupted by other activities, are provided for.

Stressing the fact that in any regional culture "art has an importance quite on a par with literature," Paul Manship, eastern sculptor, served as principal speaker at the dedication of the Graphic and Plastic Arts Building. "The voice of the prairies clamors for expression," said Mr. Manship. "The picture of the grandeur and dignity of life is at our door, demanding to be disclosed. It is for us to extend the limits of knowledge and culture. . . . Here are the raw materials—vital desires, ideas, talents and human needs—let us mold them for our good and our future."

Central point of a state-wide complex of activity, the Graphic and Plastic Arts is the oldest and best established of the School's departments. Aiming "not only to train but to educate" artists, the Department's program extends far beyond the campus. It sponsors a highly successful exhibition of high-school work from all over the state; it holds the annual Iowa Art Guild Show; it participates in the Big Ten traveling exhibition; it brings many loan exhibitions to the University; and for the Conference it arranged no less than four separate and distinct shows.

Thanks to its new building the Department is now able to offer instruction in every phase of art—theory, research, design; and interesting in this

connection is the work of the Mural Studio, under the direction of Iowa's own, Grant Wood. Mr. Wood, of "American Gothic" and "Daughters of the Revolution" fame, returned to teach painting at the University. When anonymous donors made the studio possible, he set advanced students at work on murals. And now, with WPA-NYA help, they are busy on a series for the Library of Iowa State College at Ames.

Newcomers to the Department, and indicative of its close relation to the public, are Mr. Wood's "art clinics" and the "hobby classes." The clinics began two years ago as a result of requests for advice and criticism from Iowa's amateur artists; they have now developed into a series of planned discussions of the technical problems of painting. At the hobby class organized this year, sculpturing, cartooning, sketching and painting are taught by faculty members of the Department who give their time. "About forty persons, ranging from children to grandparents, are attending the class which requires no registration, no fee, and no experience; and gives no academic credit." Modeling clay is furnished for sculpturing, a model for painting and sketching. Although the first few meetings were confusing, with the art enthusiasts undecided as to "just what they wanted to try first," they are now settled down.



First unit of the Fine Arts group to be completed, the Graphic and Plastic Arts Building provides for the manifold activities of the Department. The central unit, made possible by grants from the Carnegie Corporation and the Federal government, contains classrooms, exhibition halls, small studios, etc. The two wings, built in 1935 by private subscription, house the mural and sculpture departments, while the connecting cloisters serve as galleries for the Department's permanent and loan exhibitions.

Present plans call for a series of detached studios to flank the main building. This colony, first of its kind on any American campus, will house and provide equipment for special phases of the Department's work—lithography, etching, etc.

ARTISTS TAKING ACTIVE PART IN U.S. CULTURAL FRONT

"America: Today" Subject of A.A.C. Exhibition

Launching the first art show ever to be held on a nation-wide scale, the American Artists Congress last month presented an "all-American" graphic arts show. "America: Today" sets a precedent both in scale and subject matter. It opened simultaneously in 30 cities throughout the country; and it covered every phase of contemporary American life.

Convinced that "a vast public will result from the plan to put high-quality contemporary American art into the hands of the American people," the Congress asked several hundred graphic artists to contribute work on the subject. The prints were selected solely on the basis of quality and many hitherto obscure artists were selected alongside such well-known figures as Rockwell Kent, Kuniyoshi, Covarrubias and Gropper. The show has been published in book form, with first-class reproductions of the entire show.

Group Sees Artistic Upsurge from Government Aid

"The United States has become one of the three most art conscious countries of the world," according to a recent survey of art activities in present-day America made by the American Artists Group. The Group sees it as no accident that the recent biography of Vincent Van Gogh, *Lust for Life*, reached best-seller proportions or that 123,000 people mobbed the Museum of Modern Art last year to see the Van Gogh exhibition. On the contrary, it sees the "enormous increase of public interest in art" as due to a number of factors, most important of which is the activity of the government in the art field. "This is true whether we consider it as cause or as effect. By encouraging regional art and assembling the works of artists from all parts of the country in great national exhibitions, the government has not only benefited the individual artist but enormously increased public interest in art.

"This interest has been fed too by the holding of regional contests for the assignment of commissions to decorate the once-bare walls of our public buildings. Works of art, for the first time in our history, have been made

available in relatively large quantities."

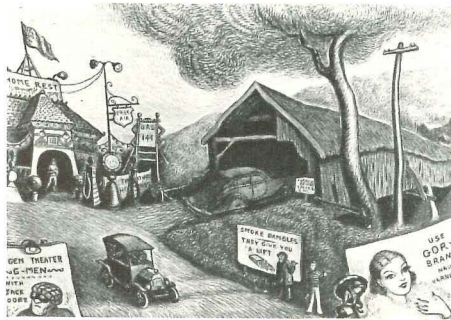
Although overlapping in membership, the Group has no formal connection with the Artists Congress. Its objective; "increasing the opportunity for the American people to acquaint themselves with and to enjoy the living art of their country."

Government Exhibits Art Purchased

At Washington's huge Corcoran Gallery of Art, the Treasury Department last month exhibited the murals, paintings and sculpture which it is using to adorn Federal buildings. This art work was either (a) bought from an allotment of approximately 1% of the total building cost per building or (b) the artists were put on the pay roll of the Treasury Relief Art Project. Though the program is small and "cannot proceed on a basis of comprehensive emergency relief," Forbes Watson, Adviser to the Treasury Department Art Projects, was quick to point out that sculpture and painting in government buildings fall naturally under the Department's Supervising Architect. "The present program," said Mr. Watson, "is the first completely organized plan to coordinate painting, sculpture and architecture."

Surrealist Show Sets Town Agog

While visitors to New York's Museum of Modern Art gaped at the bearded grapes and fur-lined teacups of the current Surrealist exhibition, the city responded with surrealist parties, surrealist advertisements, surrealist cocktails. "Fantasy flowers furiously in Dada and its only begotten, Surrealism," says Jerome Klein in the *New York Post*. "How do we explain them? . . . First, notice that this rich display of the irrational covers the period since the rise of a modern rational interpretation of the world"—i.e., since DaVinci and Durer, for whom the grotesque was a "fanciful inversion of the rational" or, as with Daumier and Goya, an instrument used "to expose the distortion and brutalizing of human nature through social exploitation." But Surrealism, says Klein, "this deliberate cult of nonsense and confusion, developed during the post-war years in Europe, is an effort not to understand objective reality but to escape it."



"Progress"—by Wanda Gag



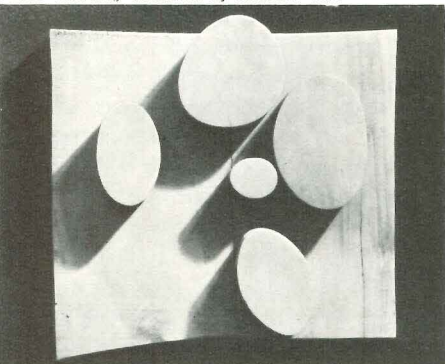
"South Carolina Harvest"—by C. Pollock



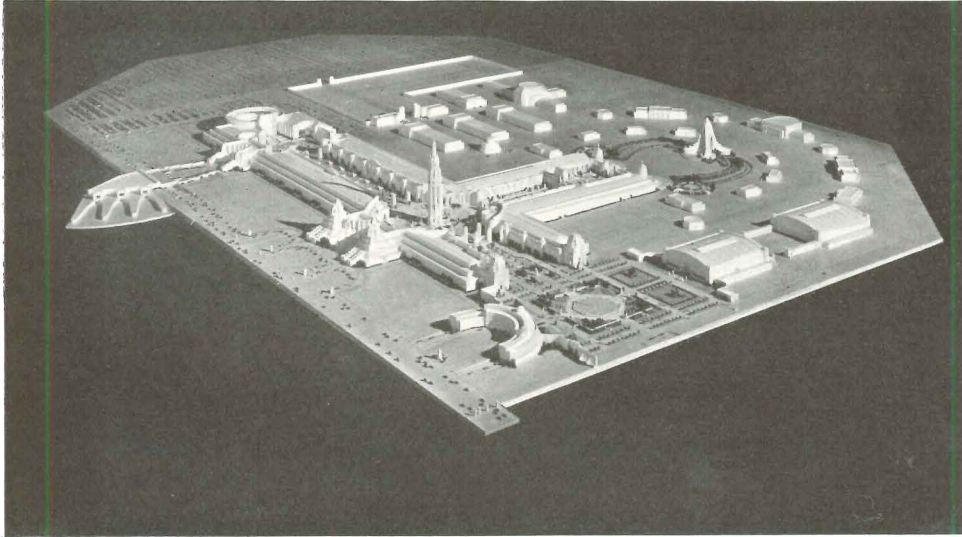
"Lansford, Pa."—by Rive Helford

AMERICA TODAY AS SEEN BY SOME OF the graphic artists in the national exhibition of the American Artists Congress.

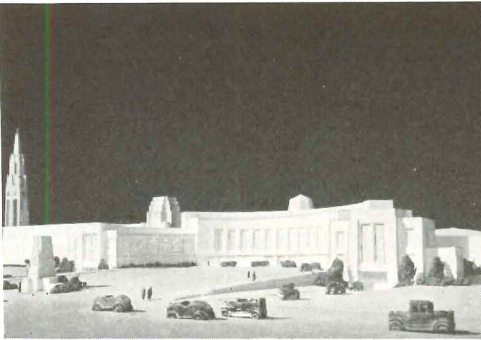
Photo courtesy Museum of Modern Art



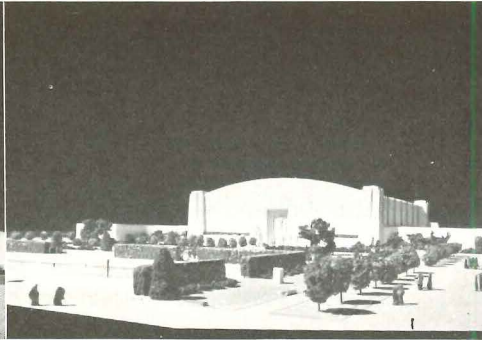
"OBJECTS ARRANGED ACCORDING TO THE LAW OF CHANCE OR NAVELS" is the name of this wood relief by Hans Arp at the current Surrealist show in New York.



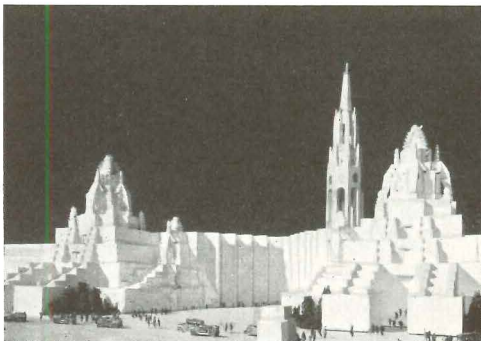
THE GOLDEN GATE INTERNATIONAL EXPOSITION as it will appear on its island in San Francisco Bay. In the left foreground is the 110-foot causeway approach from the San Francisco-Oakland Bay Bridge. In the right foreground is Exposition Harbor, which will be used for marine regattas. The Administration Building is the first building to the right of the roadway. To the extreme right are two exhibit palaces; behind them is the Lake of All Nations. Main entrance to the Exposition is halfway up the boulevard, with the ferry terminal beyond; parking space at upper left.



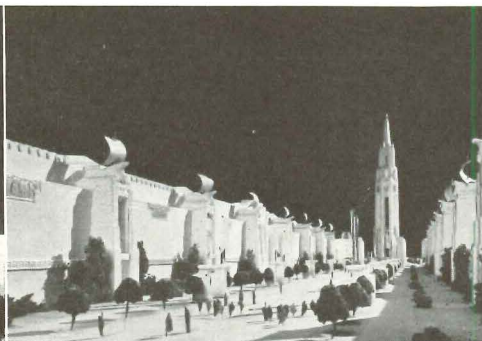
DESTINED TO BECOME THE WORLD'S FINEST TERMINAL BUILDING of the new airport after the Exposition is the Administration Building, now under construction on the island.



DESIGNED FOR A TWOFOLD PURPOSE ARE THESE HUGE STRUCTURES—exhibition palaces during the fair period, airplane hangars after the fair is over.

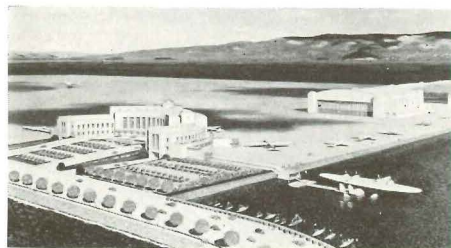


THE MAIN ENTRANCE CARRIES WEST COAST TRADITIONS in exposition architecture to new heights of romanticism—Gothic, Indian, Mayan and Modern Monolithic are bedfellows here.



THE WESTERN OCEAN CONTRIBUTES FULL-RIGGED SAILING SHIPS to the main latitudinal axis of the Exposition. Most of the exhibition space is concentrated in these continuous structures.

STRIPPED FOR ACTION, the 430-acre man-made island will become one of the world's finest and most formidable airports, from both civil and military standpoints. It will serve as the American terminus of the new Trans-Pacific airlines.



FRISCO UNVEILS COMBINATION FAIR AND AIRPORT

Unable apparently to wait for a full century to roll around, San Francisco plunges on with plans for celebrating the Forty-niners in 1939. Recently, with appropriate ceremonies in Rotunda of the City Hall, a model of the Golden Gate International Exposition was unveiled by Leland W. Cutler, Exposition president. The occasion marked the completion of architectural plans—for major buildings as well as general layout—by the fair's Architectural Commission, of which George W. Kelham is Chief.

"Beauty and pageantry" aside, the Architectural Commission faced a problem of unusual complexity. The fair site, a 430-acre man-made island in San Francisco Bay, is designed primarily for another and more significant purpose—to serve as municipal airport for both land and water planes—and is an integral part of the great San Francisco Bay Bridge project. It was this fact which determined the site—a magnificent location in the center of the Bay—and made PWA funds more readily available than they would otherwise have been.

Although considerably smaller than the other World's Fairs now building, the San Francisco fair shows a much higher degree of integration in its planning. This is partly due to its isolation. Traffic of three types—motor, boat and plane—is segregated to three separate entrances along the west side of the site.

Motor traffic, confined to the wide boulevard along the western shore, discharges its passengers at the main entrance and either turns around or proceeds to the parking space which occupies the entire north end of the island. Ferry passengers are discharged at the covered slips further up the boulevard and pass over it directly into the fair buildings. Seaplane passengers disembark at the permanent airport pier to the right of the causeway entrance.

The permanent airport buildings along the south shore—location of which was, of course, fixed—have been skillfully incorporated into the general scheme. The architectural styles indicated in the model carry on the tradition of California exposition architecture—a romantic eclecticism combined with the monolithic "feeling" of California's most ubiquitous structural system—ferro-concrete.



TO GET IDEAS FOR THE 1937 PARIS FAIR, Francois de Tesson, French Under-Secretary of State, and Jacques Greber, Chief Architect, came all the way to New York last month. Wined and dined by New York Fair officialdom, M. de Tesson and M. Greber nevertheless found time to inspect the dump on which the Fair will rise. Above: Irvin Scott, Chief Architect and Col. John P. Hagan, Chief Engineer of the New York Fair; M. Greber, Grover Whalen, M. de Tesson and W. Earle Andrews, General Manager of the New York Fair.

FAIRS: THREE GO UP AND AN OLD ONE COMES DOWN

N. Y. gives "Theme Tower" job

Before the smoke of last month's competition for a "typical building" for the Fair had cleared, commission for the Theme Tower was awarded by Fair President Whalen to the firm of Harrison & Fouilhoux, New York architects. Mr. Whalen said he hoped the architects would succeed in executing "a work that will integrate accurately the theme of the World's Fair and will strike a note that will be felt in the other structures of the Fair." Mr. Harrison, with Mr. Fouilhoux smiling his agreement, told reporters that they regarded their task as that of finding "a trade mark or symbol" for the Fair. Although sketches have been made public of a vast circular building dominated by twin towers, these were entirely tentative and the design of the building will be left almost entirely to the discretion of the architects, Mr. Whalen said. The materials to be used are also left to the discretion of the architects, subject to the approval of the directors of the Fair.

Meanwhile, the drive to sell \$28,000,000 worth of Fair debentures got under way. In a series of luncheons and dinners 68 volunteer groups were formed to assume the responsibility of selling the debentures to the nation's trade and industry.

Fair Plans Rushed in Paris

Though the site of the 1937 Paris Exposition "at the moment strongly resembles a battlefield which has seen terrific fighting," Francois de Tesson, head of a delegation recently in this country to exchange ideas with New York Fair officials, said that "goodwill among nations and economic disarmament will be fostered by the Paris International Exposition."

Final selection of architects for the various individual buildings has been made and construction of the Paris Exposition is being rushed for completion by May. Anticipated attendance runs into millions, though uncertainty over coronation plans in England is reflected in Paris: if the coronation of the new king is postponed, Paris stands to lose heavily.

An interesting structure will be the International Ice Palace. Above the roof of this 2-story building will project a 150-foot tower, which will be covered with ice during the hot summer months and will erupt in mini-

ature snowstorms at intervals. It will be illuminated at night by means of a new process comprising gases obtained by cooling methods.

Great Lakes Exposition Again

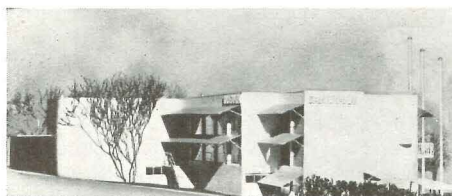
The Great Lakes Exposition will reopen May 29 on Cleveland's 150-acre downtown lakefront exhibition grounds. Exposition buildings will be considerably expanded and progress in factory, farm, mine and laboratory will be dramatized on a broader scope than was permitted by the brief organization period last year.

Farewell to Crystal Palace

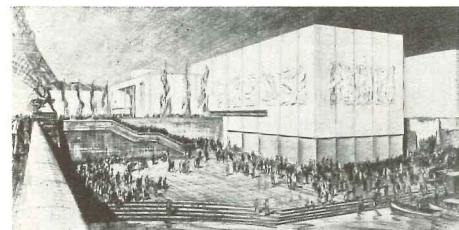
On a Tuesday last month "the world was in two great classes," according to the English *Architect's Journal*; "those who had seen the end of the Crystal Palace and those who had not." But even though the Duke of Kent was there, "in hip boots and helmet," the world's most famous structure burned to the ground. Marvel of the world when Queen Victoria opened it in Hyde Park in 1851, it was moved to Sydenham in 1854 and considerably enlarged. But "the grandfather of prefabrication" remained one of the most significant structures of all time; its effect on architecture was immediate and it was quickly—though poorly—copied both in America and Europe.

Joseph Paxton, the English architect who designed the Palace, is supposed to have gotten his idea for the structural system from a giant African water lily (recently imported into London) whose huge pads had a structural design which enabled them to support a full-grown man. In the face of the bitterest opposition—Ruskin wanted to know if the "priceless heritage" of Greece and Rome was to be ignored—Paxton evolved a design using cast iron and glass which, for the first time, abandoned the load-bearing walls as an essential structural element.

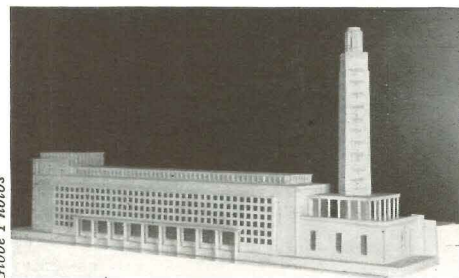
WORK PROCEEDS ON PARIS FAIR



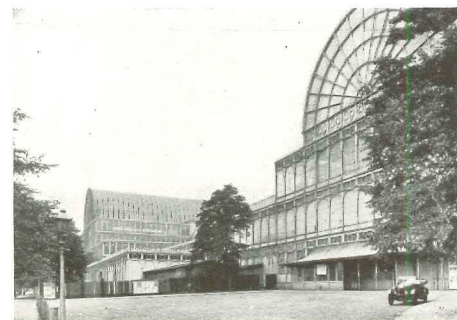
Danish Pavilion



British Empire Building



International Ice Palace



Wide World Photo

"ART-FOR-ART'S-SAKE" APPROACH TO ARCHITECTURE NO LONGER POSSIBLE, SAYS HOUSER

Catherine Bauer, 1936 Guggenheim Fellow, is the author of "Modern Housing" and Secretary of A. F. of L.'s Housing Conference. She recently returned from the first leg of a survey of European housing conditions and this winter is a member of the N. Y. World's Fair Board of Design.

Miss Bauer Finds Sweden "Not Quite" The Utopia Pictured

"It's a good thing I've always been leery of what are still sometimes called the 'purely scientific' aspects of the housing business," says Miss Bauer, recently back from a summer abroad, "because Europe during the past five months was no place for any one who was shy or snobbish about politics. A purely technical or art-for-art's-sake piece of research in architecture, housing, or city-planning would have been about as difficult and futile as a tabulation of the incidence of black beards in the Italo-Abyssinian affair. All the way from Paris—where LeCorbusier, purest of the pure, is actively associated with the Maison de la Culture (intellectuals' organization in the Front Populaire)—to Trondheim where I found myself making a speech to eager technical students on 'The American Political Situation,' I would have had to be blind, deaf, lame and an idiot not to be interested in politics."

Miss Bauer, whose itinerary led her across France, Switzerland and Germany, spent most of her time in Scandinavia. Everywhere she found conditions in a state of flux. In France she found that, with little publicity abroad, the government had passed a sizable Public Works Act. In this 5-year program housing, particularly for rural areas, will play a large role, under the leadership of Henri Sellier, France's No. 1 houser, now Minister of Public Health.

But in Germany she found that "the best housing put up since 1932 is the Olympic Village now used as a military barracks. I interviewed several important officials in the Arbeitsministerium, where housing matters are now handled, and found that there is on the whole very little now being done. They made numerous suggestions and offered to drive me around to see Berlin housing, but practically every project mentioned had been constructed before 1932 by the Social-Democrats. So I had to explain that I had seen all that before—what I wanted to see was Nazi housing. Well, I finally saw some and it wasn't very good housing." . . . In the middle of Haselhorst, the last great *Siedlung* built before the Dritte Reich (and where some of the most important technical experiments were made), she was amazed to find "a small park, newly

landscaped in formal style, to show off a Nazi monument emblazoned with the pious slogans of thankful tenants."

But in Scandinavia she really found things humming. "In all three countries there were general elections this fall. In all three, labor parties won and now dominate the government. Housing and public works were major issues in the campaign, and one can now expect that housing programs will be greatly expanded in the next few years—in the field of subsidized public housing as well as in cooperatives.

"Sweden is perhaps not *quite* the Utopia that readers of Marquis Childs may imagine, especially as regards housing.* The Tenants' Association in Gothenburg, which is strong enough to make collective agreements with the apartment owners, is at this moment engaged in its biggest fight to date. The area under dispute comprises about 600 dwellings. By no means in the worst district in town, they are typical 3-story flats built around 1900 and occupied by employed industrial and white-collar workers. The principal demand of the Tenants' Association, however (and the one which the owners think most outrageous), is for one flush toilet on each *floor!* (At present there are only privies in the court.)"

"Swedish technicians have discovered that a growing nationalist sentiment can occasionally be used for constructive purposes. The great furore about the falling birth rate (it's really not very different in Sweden from here—but it seems to bother the small countries more) has been the basis for several important reforms in the Social-Democratic program. First and foremost among these was the Housing Law passed last year, which granted very liberal subsidies to house families having three or more children.**"

"Even war-defense measures," Miss Bauer discovered, "have their use to city-planners who don't live in ivory towers. The smart young city-planner of Gothenburg, Uno Ahren, is working

**"Space-standards in Sweden are the lowest I have yet encountered anywhere. In all the big cities almost half the families live in one room and kitchen dwellings, or less. What's more, in cold statistics, they don't call a dwelling 'overcrowded' until there are *more* than two persons per room (counting kitchens)!"

**"Prior to last year the only important government aid to housing was in the form of State loans to cooperative and other nonprofit enterprise, and the provision of land by municipalities."



"THE FINEST SCHOOL I'VE EVER SEEN," says Miss Bauer of this new school in the Paris suburb of Suresnes. Built by architects Beaudoin and Lods, the school consists of a series of semi-isolated units set in a magnificent park.



NAZI HOUSING ALONG THE HOHENZOLLERN Canal outside Berlin. Over a cup of coffee, one of the owners told Miss Bauer they'd bought the house semi-finished, "didn't know when they'd ever be able to buy the plumbing."

out a comprehensive scheme for introducing open spaces into the middle of his city, lowering the building heights and potential density in new suburban areas. And, in this work, he finds that his most valuable allies are the army air-defense engineers!

"In Norway there is an architects' organization, really a union, which is doing an impressive job. Its membership already includes most of the young architects with talent and energy. They manage to support and get out the lively and handsome magazine, *Plan*, which (even though the Norwegian reading public is less than 1% of ours) puts ours to shame.

"This group of architects presents to an outsider an amazing picture of the new attitude of technical men towards politics. In the first place they are affiliated with similar groups of doctors, lawyers, teachers, etc., in an extraordinarily disciplined and purposeful larger organization of Norwegian intellectuals and professionals called 'Mot Dag' (New Day), which has been active since shortly after the war. I met one of their ablest young lawyers, who had been 'sent' up to Narvik, an important iron ore port several hundred miles north of the Arctic Circle: he was chairman of the Municipal Council. In Trondheim I met another one, also in his middle twenties: he was president of the Students' Union at the National Technical University.

"The entire Mot Dag organization belongs to the Labor Party, and the Architects' Union largely determines the policy of that party with respect to technical matters within their field—notably housing. In addition, most of them are members of the Norwegian equivalent of the A. I. A. Finally, they form one local in the Building Trades Industrial Union and work closely with them to push housing and public works and other activity in the field."



CONCRETE RESULTS OF COOPERATION between architects and labor are these new national headquarters of the Building Trades organizations in Oslo. They were designed by a collective within the Architects' Union.

New Society to Fight for Better Design

Because they realized that "as individuals they were powerless to shape the forces which condition the application of their creative and technical abilities," almost 100 architects, engineers, industrial designers and landscapists in late November formed the *Designers of Shelter in America*. Meeting at the New School for Social Research in New York City, the D.S.A. read, discussed and then adopted the constitution proposed by a committee selected for that purpose last spring.

Although a difference in opinion developed early in the meeting—the committee, unable to agree, submitted a majority and a minority report—on one point there was general agreement: that there was need of an organization which embraced all designers in the production of shelter. But moot was the question as to how deeply such an organization should explore the social and economic forces "which condition the application of their abilities."

Outlined for D.S.A. was an ambitious program of activities to include publication of a magazine, sponsorship of exhibitions, educational and research work, cooperative work on specific projects by groups within the organization, cooperation with other professional and labor groups in architectural and allied fields. A. C. Shire was elected president; Jan Ruhtenberg, vice president; James M. Fitch, secretary; Henry Wright, treasurer.

NAHO finds Cost, not Quality, Vital Factor in Housing

Philadelphia last month was host to the National Association of Housing Officials, meeting in their third annual convention. A long and very compact program confined most of the liveliest discussion of the two-day conference to hotel lounges and cocktail bars.

Large in the discussion loomed the future role of government in housing. Langdon W. Post, chairman, the New York City Housing Authority, declared at the conference that the Public Works Administration is anxious to get rid of the projects, and proposed that some arrangement be worked out whereby the New York Authority would obtain control of the two federally-built projects in New York City through a one-year lease. As yet, no definite arrangements have been made whereby the

federal projects would be turned over to local authorities, Mr. Post said.

But municipal housing authorities are none too anxious to assume responsibility for control of federal low-rent residential developments, said Henry Wise, member, Cambridge Housing Authority. Although they have long maintained that federal housing projects should be placed entirely in their hands, the discussion showed them as hesitant over accepting projects from the Federal Government because of their high cost, consequent high rents and the restrictions and control which the Federal Government wishes to maintain.

A somewhat different note was struck by Catherine Bauer, well-known houser, when she warned that public housing will not be attained on a large scale until a labor party, sufficiently strong to dictate federal policies, is set up. Her suggestion that delegates to the meeting work toward this end in their particular communities was loudly cheered by the public officials, welfare workers, architects, and others in attendance.

One of the sessions was devoted to a discussion of cooperative housing. Ernest M. Fisher of FHA, who was a member of the delegation sent by President Roosevelt to study the cooperative movement in Scandinavia, showed interesting color films of British and Swedish housing.

NAREB to study "Science" of Real Estate

"To conduct comprehensive research into real estate problems and to promote adequate, widespread education in the various specialized fields of realty activity," the National Association of Real Estate Boards, meeting recently in New Orleans, adopted Walter S. Schmidt's recommendation for creation of a National Real Estate Foundation. Said Mr. Schmidt, presenting the plan: "You, as realtors, are concerned primarily with cities; you can prosper only as they prosper . . . yet, almost without exception, they are rotting at the core." Some steps had already been taken but "how woefully inadequate, how negligible these accomplishments" in the face of present-day conditions.

By means of the 6-point program of education and research of the new Foundation, "trends can be determined and principles enunciated to give them sound and practical guidance."



MAIN SHOWROOM, DENNISON'S, NEW YORK CITY

PHOTOGRAPH BY MAX ZIMMERMAN

A M E T H O D FOR PRIVATE ENTERPRISE TO REBUILD CITIES

by CLARENCE ARTHUR PERRY

Russell Sage Foundation

EDITOR'S NOTE.—Although Mr. Perry frequently mentions slum districts and New York city, his suggestions have an equal applicability to other cities and to deteriorated areas not yet regarded as slums. The neighborhood unit varies in size with density. In one city a public school district may cover 40 or 50 acres—in a metropolis only 20 acres—but in both cases the arrangement of the dwellings and their related services should follow the same pattern. The problem of rebuilding is that of inserting a pattern, gradually, into areas which are decaying because of its lack.

Digging a channel in the slum for commercial development is a hazardous proposal. Some upturning of traditional notions is bound to occur. One is certain to strike the boulders of property interests. However, these acres of sour real estate, which lie just outside the downtown business centers of our large cities, present a challenge that cannot be ignored. Pestilential to their dwellers and liabilities to their owners, they nevertheless possess in an unusual degree that prime attribute of land value, accessibility to population. Must it be admitted that their reclamation is beyond the capacity of the American people? If so, where is that inventive ability and productive genius for the possession of which we have so complacently accepted the praise of other peoples?

There is a school of thought which holds that slum rehabilitation is a government job. If that view limited the function of government to demolition, I should find it useful. There are, however, certain conditions residing in the very nature of government which constitute serious impediments to its success in the constructive phase of the slum job. In the first place, government—certainly democratic government—cannot proceed without a popular mandate. It cannot build without an appropriation. The giving of both the mandate and the money, according to experience, is capricious.

The authorization is not always accompanied by the funds. One Congress may give enough for the foundations and the next Congress fail to appropriate for the superstructure. If, however, a practical channel were provided for private enterprise in this field it would work continuously, just as long as the golden vein held out.

In the second place, an administration cannot take visible and certain risks. You all remember the early days of the Housing Division when Robert Kohn, carrying out the instructions of his Department, told us about the kinds of projects which would be entertained by the government. He emphasized particularly that every housing proposal sent to Washington must have the undoubted approval and backing of its community. Well now, under the conditions that existed, what classes of people were in a position to formulate and send in development proposals? Naturally only the owners, or the controllers, of large plots. Human nature being what it is, how could the owners of large tracts frame projects involving the purchase of their land that would seem to the public at large as marked by magnanimity and public spirit? And yet I submit that the Administration could not—and no thoughtful person would expect it to—undertake projects which lacked an obvious public approval. Stern political conditions require that, at least in

their original form, government projects be devoid of patent risks.

Are we, however, to attempt the conquest of the slum without the aid of imagination, invention, and constructive genius? If we are going to make use of those aids we must have a form of auspices that can take risks. We all know that whenever a Ford or a Chrysler devises a new model, and makes the machinery necessary for its production in large quantities, a quite considerable risk is undertaken. The uncertainty as to customer approval is an inevitable accompaniment of the advance in design which is embodied in the new model. Most changes in the apparatus of human living carry risks for the entrepreneur who first introduces them. This is especially true of innovations in style. But private enterprise can take these risks, it can stand occasional losses, because it has also the chance of making compensatory profits. There can be little boldness of invention or enterprise on the part of industry when either dividends or prices are limited in advance by external authority. That brings us to the first characteristic of our proposal. It is suggested that development corporations operating under this plan be not restricted as to prices and, certainly at the outset, not limited in the enjoyment of earned dividends.

If, however, private capital is going to be permitted the stimulus of profits in its slum enterprises it must expect to pay regular taxes and to get along without a government subsidy. Those conditions are accepted in the plan under discussion.

But private enterprise has so far shown little ability to rebuild slum districts. If it is going to operate there, it must have some kind of help. Precisely what aid is required? Obviously it must be helped to surmount the two big obstacles that now stand in its way. They are: (1) the difficulty of inserting large-scale developments in the existing street system, and (2) the impossibility of paying the "hold-up" prices demanded by monopolistic landowners. Meeting those difficulties, it is immediately apparent, will involve some kinds of change in the present municipal practices and general legal procedures.

Type of Project

It is plain that private building money will not seek to work in slum districts unless there is a type of project that is physically possible and economically attractive. What, in outline, are the chief characteristics of such a project? The method being presented contemplates only those central slum areas which from a city planning standpoint should be continued in a residential category, and assumes that apartment dwellings are the indicated type of housing.

At the outset it is obvious that, to cover the costs of the expensive land, demolition of the old tenements and construction of new buildings, as well as to yield a profit, considerably higher rents must be obtained from the new tenants than were paid by the former dwellers. A higher income class must be attracted to this slum district. Can it be done?

If a class of people with different standards from those of the former tenants are to be induced to live in a slum section, two things must be accomplished. (1) Their

natural objections to the section must be overcome, and (2) they must be attracted by advantages which are superior to those in their present environment.

Their objections to living in a slum will vary, of course, but usually they will consist of the following: (a) the street address would not represent their social status and tastes; (b) the disagreeable character of window vistas and of street conditions in the immediate vicinity, and (c) the unpleasant personal contacts on the streets, in nearby parks and shops, and in the school.

It is clear that the only type of development which stands a chance of overcoming those objections is one that is large and comprehensive. It must be sufficiently outstanding in size and distinguished in character to afford a street address with the social stamp desired by the prospective tenants. Its ground plan must create both internal vistas and street conditions of satisfactory quality. If it is to meet the needs of a competent, healthy family-loving class, the project must include not only outdoor amenity, but shops and a public school. Cultured parents are particular about the schools their children attend.

The question now is: Could those requirements be met by any plan that is physically possible? Let us examine conditions in New York's central slum area. Quite a number of the East Side blocks are 670 feet long. Suppose you put five of those blocks together. You would have, including the four intercepted streets, a plot 670 feet by 1,240, or something over 19 acres. At a density of 316 per gross acre, you would have a population of 6,000 which would furnish the pupils for one elementary school. If you covered as high as 40 per cent of the plot with structures, you would still have over 11 acres to devote to recreation spaces and landscaped amenity. With such a plot to play with, is the skilled architect going to experience difficulty in turning out an interesting plan? Think of his diversified designing opportunity! Has there ever been a richer chance for imaginative ingenuity and artistic expression?

In addition to the living quarters, such a development would include, as integral parts of the scheme, a number of facilities not usually provided in housing projects. These would vary but they might include the following: retail shops, a school, a children's playground, an open-air pool, handball courts, and possibly a hotel containing a ballroom and various meeting places. The school's auditorium and gymnasium could be planned in such a way as to accommodate many occasions and services of interest to adults as well as children. Without having to get out his car, the Wall Street worker could take his exercise, enjoy a swim, hold a dinner party, smoke his cigar amidst shrubbery and tinkling fountains, and provide his guests with first-rate amateur or professional entertainment. His family could satisfy a large number of their daily needs without having to venture into traffic-crowded streets.

When the projected North River, midtown, and East River tunnels have become realities and an elevated drive has been constructed along East River, the automobile access to the East Side from both New Jersey and Long Island will be vastly more comfortable. Is it not possible that housing projects of the character described may then overcome the present objections to the East Side as a resi-

dential district and begin to exert an effective attraction upon higher income groups?

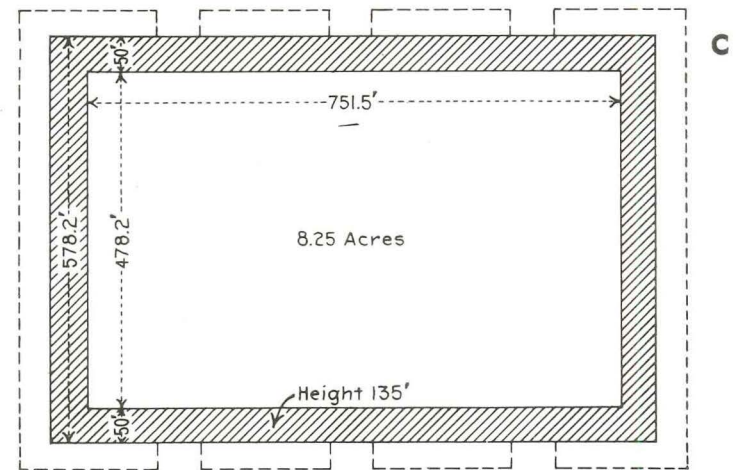
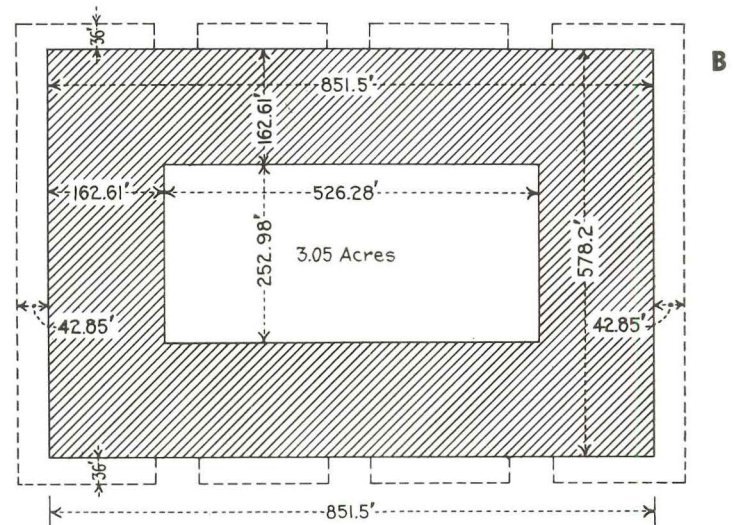
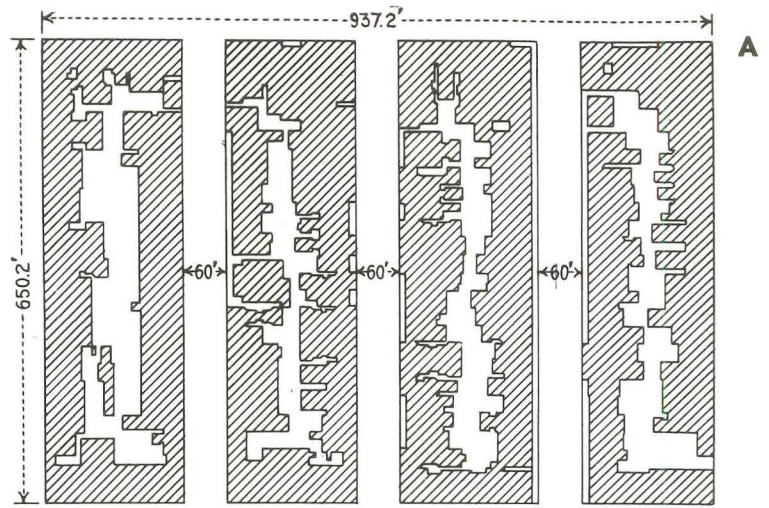
An important aspect of the physical planning problem is that of closing, or modifying the character of, the intercepted streets. Will the requirements of general circulation permit the insertion of a residential cell of five-block magnitude into an already congested street system? On this point several observations can be made. As to the complete closing of streets the problem is mitigated if the first project of this sort is located next to East River. Streets have to end there. Ending *some* of them a block west of the river would not entail much inconvenience. Again, in the existing one-way traffic system we partially close some streets now. For traffic which could not be interrupted, the best solution would be found, probably, in the provision of tunnels for vehicles, and of underground arcades (lined with shops) for pedestrians. On the surface, general traffic would be facilitated by the fact that the streets bounding these projects would be widened at the expense of the development.

Are projects of the kind outlined economically practicable? Of course no positive general answer can be made. Each one would be different. All that can be done here is to offer certain considerations having a presumptive significance. They arise principally out of the fact that in dwellings the source of light and air is through windows in the side walls. When you place two dwellings side by side you shut out from each of them a certain amount of the precious atmosphere. When you place them on top of each other the access of sunlight to rooms through windows is not interrupted. Thus when you replace a horizontal disposition of living quarters with a vertical arrangement you invest dwellings with greatly increased values.

Again, open spaces acquire both utility and value through combination. If the cube of luminous ether just outside your window is lined up against the cubes of other residents, you can then look through not only your own cube but those also of your neighbors. They can look through yours as well as their own. The ether can apparently stand the passage of an infinite number of light rays without suffering damage. The charm of vistas increases with their length. In multi-block projects the developer can take advantage not only of the values peculiar to towers and vertical construction generally, but he can also preserve and utilize efficiently the green earth and the open spaces above it which result from this form of reconstruction.

Another source of value is that which is inherent generally in new construction. The developer can incorporate many of the new developments in heating, lighting, decoration and household equipment. These improvements, added to the advantages which are peculiar to these comprehensive developments, should invest them with unusual marketability. They should not only bring higher prices than equivalent quarters elsewhere, but also show a lower vacancy rate.

At this point it should be stated that the neighborhood unit type of project described above has been selected for this method because of the numerous public benefits which are gained through its utilization. Also, projects of this magnitude should have a more appreciable effect than smaller ones in raising the tone of the section. It is not assumed



A Actual plan of four New York City blocks.

B Diagram showing building bulk at same height as A with indicated setback from streets and over three acres of open area at center.

C Diagram (not a proposed plan) showing possible disposition of apartment house perimeter at height of 135 feet. There would be 8 1/4 acres of open space for parks, gardens and recreation.

that all the blocks of the East Side, or indeed any other blighted area, can be included in neighborhood unit districts. Certain blocks will be unmanageable because of traffic reasons or because of certain structures it is not practicable to demolish. Such interstitial areas are, however, likely to be helped and revitalized by the new demands put upon them by the reconstructed neighborhoods in their vicinity.

After a method has been worked out, and has become established, for the assembling of large plots, it is possible that the same method can be used in acquiring smaller ones.

Assuming now that a strong development corporation has become convinced that, given the ability to acquire the

standards which must be observed. Any other requirement that should be imposed upon the character of the development in the public interest must be determined by the government in advance.

3. With the location and the specifications of a desirable unit plan in hand the government approaches a competent construction corporation. It explains the general idea, exhibits the particular requirements and announces that, if a capable corporation prepared a project plan meeting those specifications and asked the city to implement it, the appeal would not fall upon deaf ears. (After this procedure became established the selection of the corporation might be accomplished by means of a competition.)

The corporation then studies the specifications, prepares a project plan—we will assume—and submits it to the city. Along with the proposal, it offers evidence of its ability to purchase the site on the terms indicated by the city and puts up bonds guaranteeing its performance of the construction.

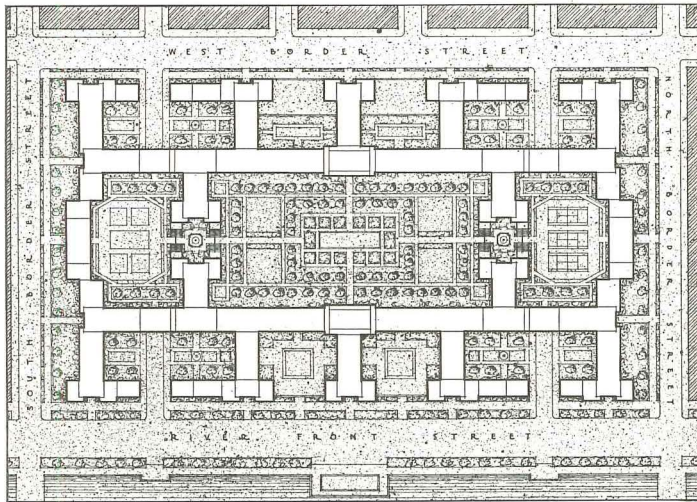
The city examines the corporation's proposal and its project plan. Since the government has in its specifications indicated a willingness to modify the intercepted streets, that matter becomes automatically adjusted by the acceptance of the plan. All that then is required to make the plan practical is assistance in the acquisition of the site by the corporation. For the solution of this difficulty, it is suggested that use be made of an established procedure which is called "changing the city map."

Changing the City Map

For this discussion we may be allowed to assume that the corporation's ground plan is of a simple character and one best suited for the application of the method that is proposed. What such a plan would show is fairly clear. In its center there would be one or more large courts or open spaces. They would be set aside for planning, for recreation, for amenity. Essentially they would perform the function of a public park and that is the legal status it is proposed to give them in this scheme. The difficulty involved in this classification will be discussed later. In addition to these parks, the plan might show a space marked "public school." It might also show the bed of certain existing streets which it was proposed to close. It would probably show strips around the border of the plot which it proposed to take from private plots and devote to the widening of the boundary streets. In between these border strips and the central parks there would be strips marked "building sites." Thus the components of the ground plan according to their legal status would consist of: public parks, a school site, land in streets or desired for streets, and private building sites.

Before referring to the existing statutory provisions under which the city can act in dealing with this matter, I should like to say that of course the municipality will not make use of these provisions unless it can assure itself that its act can be justified in the minds of the public at large. The basis upon which it may hope to secure such justification will be discussed in a moment.

Now, without taking up the order or the details of procedure, and assuming an extraordinary unanimity and co-



A FIVE-BLOCK APARTMENT DEVELOPMENT — BY ARTHUR C. HOLDEN & ASSOCIATES.

plot at a reasonable price, it could make an attractive profit in a slum district, what could it do to get started? How would it know where to look for a site? How would it be able to secure a permit to close or modify cross streets? Merely the putting of these questions is sufficient to elicit the answer. Private industry is not in a position to take the initiative in slum reconstruction. The way must be pointed out and illuminated by government.

The Attitude of Government

If our theory is sound that the rebuilding of the slum is practical only in large chunks, each being magnificently treated, then we are dealing with a tremendous industrial operation. Such huge excavations and refillings in a congested section cannot be accomplished under a mere permissive or regulative attitude on the part of the city government. It must desire these improvements, if we are to have them, and it must work aggressively to bring them about. It will have to adopt a special reclamation policy and set up an agency or arm of the government having the requisite powers and organization to give it expression.

Without suggesting what bodies should perform the various functions, let me first outline briefly the kinds of aid which government can give—must give—in the carrying out of the proposed plan.

1. The districts for which neighborhood unit developments may be proposed must be demarcated upon a master plan map. The treatment of the intercepted street which the city will permit must be defined.

2. Before such districts can be laid out, however, the government will have to carry on planning and economic studies which will enable it to specify their optimum size and other characteristics. It must determine not only the number of blocks a unit may occupy but set the limits as to density, fix the permitted coverage, and establish the light

operative attitude on the part of city departments, let me mention the various powers under which it is believed this matter of changing the city map can be handled. It is plain that the park department can condemn the land set aside in the plan for public parks, especially when it is understood that their entire costs are to be borne by the development. The board of education can condemn the land for the school site. As to the land in the existing streets, marked for closing, it is certain the city could not secure the consent of the abutting owners, and to avoid damage suits the city will have to condemn the abutting parcels. In order to secure the strips needed for widening the boundary streets, the city will again have to resort to condemnation.

After all those "takings" have been exercised, it is assumed that the remnants of the private parcels will be in such a shape that it will be impractical to utilize them as suitable building sites. To avoid "consequential damages" the city will be obliged to take those parcels also and this it would do under the established procedure of excess condemnation. The city would then have "taken" all of the private land in the plot upon which the new development is to be erected. Certain parts of it, by the corporation's project plan, are set aside for public purposes—parks, school site, and streets—the remainder only being available for building sites. This remainder the city is now in a position to sell and to transfer to the corporation, under such restrictions as it desires to impose. The consideration of the transfer is that which was offered by the corporation—that is, the reimbursement of the city for all the awards that were made in the process of all of the condemnations exercised in securing the whole plot.

The corporation is now in a position to go ahead and construct the development.

Excess Condemnation

The amendment to the New York Constitution, under which "more" land than is actually needed for specific public improvements can be taken, says: ". . . provided, however, that the additional land and property so authorized to be taken shall be no more than sufficient to form suitable building sites abutting on such park, public place, highway or street." It is clear that under a strict interpretation of this amendment, and of the statute based upon it, a particular plot plan, contemplating the application of excess condemnation, would have to be designed with extreme care. Much, of course, depends upon how "suitability" is construed. Frank Williams, in his *Law of City Planning and Zoning*, refers to the 1904 Ohio statute which authorizes the cities of that state to condemn excess land to protect certain classes of improvements and preserve their "view, appearance, light, air, and usefulness." If by judicial construction a broad view could be taken of our New York law; if the unsuitability of structures not related to a comprehensive plan could be plainly seen by the courts; then little trouble should be experienced under this procedure in resorting to excess condemnation for acquiring plots desired for governmentally-approved building projects. Perhaps if the first projects under this method do not rest upon too thin ice, and the inevitable test case is successful in upholding the desired principle, the procedure may bring such public approval that the

disposition to question it will disappear.

To the layman, the purpose behind excess condemnation, even when specified as the elimination of remnants and constituting a way of escaping "consequential damages," is so basically a method of facilitating a beneficial replotting that there should be no question about its applicability in the situation under discussion. If, however, the early attempts to use this statute should disclose a weakness in this position, then the difficulty should be removed by legislation and, if necessary, by a broader amendment. The procedure itself would seem to be justified by public policy.

The Public Benefits

Whether or not public opinion will sustain the city in a real estate operation of this magnitude—one which at first sight will to many seem revolutionary—will depend upon the validity of the advantages it bestows upon the public at large and upon how well those advantages have been "gotten over" to the public mind. These public benefits may be enumerated as follows:

1. Without expense to the taxpayers, a sizable plot of green earth, affording recreation and amenity, has been inserted in the midst of a residential neighborhood.
2. A school and a collection of retail stores have been suitably and conveniently related to their supporting populations, a collocation that happens rarely in undirected residential improvement.
3. Access to school, shops and parks has been made possible to their patrons without the necessity of crossing traffic-laden highways, thus promoting a lowering of the casualty rate from vehicular accidents.
4. The light, air and sanitary aspects of the district being rebuilt are improved. The method makes it possible to impose higher standards in these respects than are feasible under existing general regulations.
5. A control of density, supplementary to that afforded by zoning, is placed in the hands of government.
6. A district of declining property values, characterized by heavy arrearages in taxes and high service costs in police and correctional departments, is replaced by a district of economic stability, and improved moral character.

The placing of the project in the hands of a large private corporation, unrestricted as to dividends or rents, is bound to be a target for criticism. This objection should be forestalled by giving careful attention to it in the educational campaign that will need to accompany the inauguration of this method. It should be pointed out that the public benefits which constituted the price for government help were obtained through the restrictions that were placed upon the corporation's use of the land. The number of rooms which could be provided, the land which should be set aside as parks, the closeness of structures as respects their shadows, and the restrictions upon the future increases in building bulk—in all these ways the corporation was limited and compelled to submit to governmental guidance. The limitation upon population, especially, affected the income that could be obtained from the project. The government fixed the maximum density at the lowest figure consistent, according to its calculations, with a potential profit just large enough to attract a competent corporation to undertake the

job. In this connection the tremendous risks assumed by the corporation should be made clear and impressive.

A measure that will also help in the public attitude towards this method is suggested by the flexible restriction upon dividends that has been accepted, in certain cases, by the Federal Housing Administration. It permits a straight dividend of six per cent and, if the surplus is large enough, an increase up to eight and one-half per cent, provided such excess over six is shared equally with the tenants. Corporations which believe in small profits on a large volume of business will accept this limitation. The important thing is to secure the corporation that is going to break the ground first. If even this restriction prevents that, it is preferable not to set it up, in the beginning.

Even if a flexible limitation of dividends is adopted it would be well to ponder, and perhaps revise, the FHA figures. The straight permitted per cent should be high enough to attract capital, following the principle that is followed in fixing the return of public utilities. As a matter of fact, the corporation selected by the city to do the construction will be essentially in the category of the public utility body.

Apartment-Parks

The spectacle of large interior courts in lower East Side apartments which are open to the public will not seem, to persons familiar with that section, a satisfactory solution of the problem involved in attracting to it a higher income class of tenants. If those courts are going to have the legal status of public parks, how is the public to be kept out of them?

In seeking a way out of this difficulty, let us examine some park usages. There are golf courses in Forest Park, Queens, which I may not enter, carrying golf clubs, without paying a fee. I cannot park my car at Jones Beach, or Playlands without paying a fee. There are tennis courts in parks upon which I may not play without paying.

Whether such facilities are handled as concessions or administered directly by the Park Department is a detail of routine that does not concern us. Neither is the kind of equipment or the treatment of a park space the essential basis upon which a charge is made. The real reason, as I see it, is exclusiveness of use. The golfer and the car-owner are given the right to occupy certain spaces for a time to the exclusion of others. If the golf courses were absolutely free they would be so crowded that nobody could use them enjoyably. It is the fee in the case of the tennis court, the parking space, and the golf course that makes the enjoyment of such facilities comfortable and possible. It helps both to regulate use and to place a part of the maintenance cost directly upon the consumer.

If the apartment-parks proposed in this scheme were open to the whole public without any regulation, their peculiar value would be so lessened as to defeat the purpose for which they were created. The way to meet this difficulty seems, therefore, to lie in an application of the fee system. How can this matter be handled?

Suppose that the parks, within these rebuilt projects, as fast as completed, passed at once into the charge of the Park Department, by its staff to be equipped and super-

vised. How could the Department, out of its fixed appropriation, meet these new and incalculable demands? Suppose tax money was spent in the equipment and supervision of these large interior parks, so located as to be enjoyed mainly by the occupants of the fine new apartments—would the taxpayers at large accept that situation without any murmurs.

Suppose, however, we treat all of these apartment-parks as concessions, operated by the owners of the development upon the following terms. The owners agree to equip and maintain the parks in compliance with such regulations as the Park Department may set up. They agree to permit the enjoyment of the parks by all persons, whether residents of the development or not, who pay the regular fees. These fees shall be based upon the actual costs of administration plus any percentage which the Park Department may require. The fees of the tenants may be included in their rent and they will receive cards certifying their right to use the parks. Families or individuals living outside of the development would be able to gain the same right—obtain the same cards—upon paying the same fees.

Without some such policy, the procedure we are proposing would be seriously crippled. With such a policy, it becomes possible to visualize the gradual reconstruction of our slum areas, in large patches, each with a core of green earth that is paid for and supported, without the aid of taxpayers, entirely by those whose lives it brightens. As public parks such patches could never be built upon and would thus serve as barriers to any future increases in the density of their developments. Would they have any less public quality than the golf courses and the parking spaces in parks for which patrons now pay? Is it, or is it not, a good public policy to establish a new legal classification called "apartment-parks"?

The Public School Problem

The size of the neighborhood unit is based upon that population required for one elementary school. The suggestion of its use as the pattern for these projects raises the question as to the disposition of the school buildings now existing in slum sections. That is a difficulty and there is no general rule by which it can be met. Each case will constitute a special problem that will have to be handled by the government agency that first determines the suitability of a district for reconstruction. There are several possible situations:

1. An existing school is in sufficient repair and is so located that it can be left standing and incorporated in the reconstruction project.
2. The existing school is so old and dilapidated that a new one is required.
3. The incursions of business or industry may have left an island of residential territory so located that it can be treated as a new school district for which a new building will be needed.
4. A certain district, too small to require a regulation public school, can be planned for a class of tenant who is accustomed to use a private school and for whom a private institution meeting special needs can be built into the project plan.

In cases where the school problem could not be suitably handled at the time, that fact might be sufficient reason for deferring the reconstruction of that district to a later date. It would doubtless be a good policy to take the easiest cases first. As reconstruction proceeded, confidence in the future of the section would be built up. It would be realized that several generations would use the educational facilities being constructed and that therefore they should be adequate for the long and important service they would be called upon to render.

The Dispossessed Tenement Dwellers

Under the proposed procedure, there is no possibility that the slums can be cleared so rapidly and so suddenly as to occasion a wholesale exodus of the present inhabitants. Nevertheless they will gradually have to find new quarters and that will constitute a social problem. From both humanitarian reasons and the fact that the government is abetting the demolition of their present homes, it will have to concern itself with measures for their resettlement. Just what methods will be best to follow is a large question and one that cannot be discussed in this paper.

It may be pointed out, however, that our proposals are not creating a new and unanticipated social problem. Slum clearance has already been set up as a definite governmental concern. In this procedure an attempt is being made to supplement the government's efforts, in achieving a declared objective, through the use of private industry.

Again, to whatever extent this procedure does accomplish slum clearance, it creates a social situation that can be used to urge support for another declared governmental objective—low-rent housing. Furthermore, the governmental agency that operates under this plan, in the selection and supervision of neighborhood unit projects, will gain a knowledge and a technique that will stand it in good stead when it comes to handle projects that enjoy a government subsidy.

Summary of the Proposed Method

In order to make the principles involved in this procedure stand out clearly, many of the practical details have not been discussed. Thus no reference has been made to the possibility that the owners of structures within neighborhood unit districts selected for reconstruction might begin to make alterations, or even rebuild, while the negotiations with the constructing corporation were going on. Such moves would tend to upset this procedure. Some legal device that would keep a situation stationary for a fixed period is required.

To meet this difficulty, resort is made to the suggestion that has been offered at different times by both Arthur C. Holden and the National Association of Real Estate Boards, namely, of a legal "neighborhood improvement district." This would require a special law based upon the state's police power. The proponents of this device have set various objectives for it, but in this scheme it would be used simply to prevent the issuance of building permits affecting properties within a selected area for a stated period following the formal publication of its boundaries and of the purpose to implement its reconstruction.

Another detail that has not been covered is the assignment of the various public functions to particular bureaus or agencies. As a matter of fact, no hard and fast allocations can be made that will be suitable everywhere. In the following enumeration of the various steps in this procedure a tentative assignment of functions to specific agencies is submitted for its suggestive value.

The Steps in the Procedure

1. The municipal housing authority carries on planning and economic studies to determine the best locations and sizes for possible neighborhood unit projects.

2. The city planning commission demarcates the boundaries of such unit projects upon its master map.

3. The municipal council publishes the boundaries of a project as a "neighborhood improvement district" for the purpose of preventing, for a stated period, any building within the demarcated area.

4. The municipal housing authority selects (perhaps by competition) a construction corporation and acquaints it with the opportunities and the requirements connected with the rebuilding of the published district.

5. The corporation studies the matter, prepares its plan and proposal, and submits them to the housing authority, asking permission to carry out its plan and the assistance of the city in assembling the site.

6. The housing authority examines the corporation's proposal and, if found satisfactory, recommends that the change in the map which is sought by the corporation be brought about and that the site be sold, after condemnation, to the corporation.

7. The municipal council publishes the proposal to change the city map and sets a date for hearings.

8. If the hearings develop no insuperable obstacle, the condemnation procedures are set in motion.

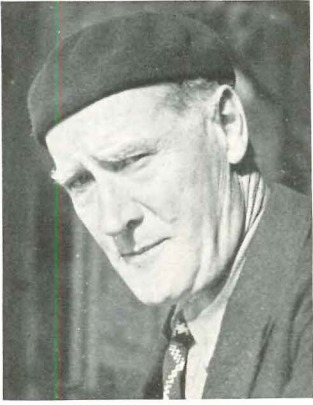
9. The corporation reimburses the City for the awards which are made, the private building land is transferred by the city to the corporation, which then proceeds with construction.

10. All operations of the corporation during construction and exploitation are carried on under supervision by appropriate governmental agencies.

The philosophy of this method is simple. Wild residential districts decay because they grow without the constraint and the direction of a pattern. Dwellers need in their vicinity services which their homes cannot give. They desire character in their surroundings—a quality that tells about themselves. Both the articulation of services and patrons, and the investment of a settlement with character, can be accomplished only through the medium of a pattern.

A jungle cannot be corrected. It must be extirpated. The slum requires demolition, replotting, and reconstruction in accordance with a pattern. Arranging the various elements of a composition cannot be done by individuals. That is a function which can be performed only by some agency working in the interest of all—the government. Once the mold has been shaped, another agency can be trusted to pour the casting. Give this job to private industry and it will furnish the energy, stand the risks, adorn its products with intriguing qualities, and work unceasingly.

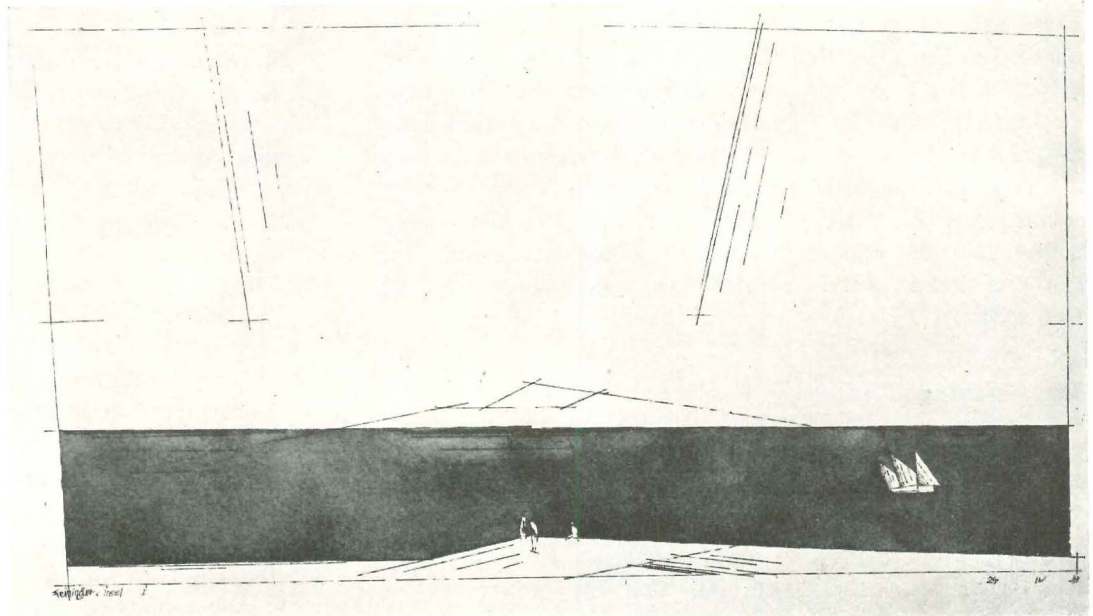
Photo by André Feininger



LYONEL FEININGER was born in New York City in 1871. As a boy of sixteen he went to Germany by sailing ship intending to stay in Europe one or two years. It was not until forty-nine years later, in the summer of 1936, that he returned to America to conduct summer classes at Mills College in Oakland, California.

It seems unnecessary to determine whether Feininger should be classed as an American or a European artist. It is obviously safe to assert that contact with the European art renaissance of the pre- and post-war years, Cubism, in particular, had its influences on his techniques. Feininger is renowned in Germany as a Cubist. He was associated with the Bauhaus from its earliest years at Weimar.

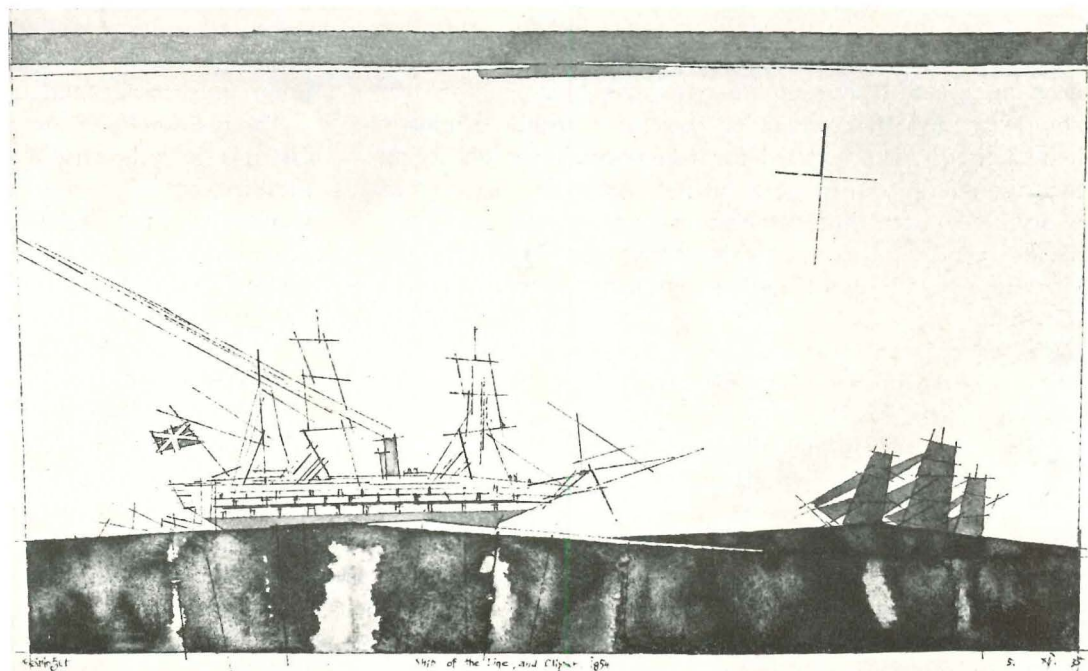
Feininger's favorite subject is the sailing ship. He sees the beauty of the ship born of its own function—the bitter necessity of facing the wind and sea under all conditions. Although his paintings are abstract and

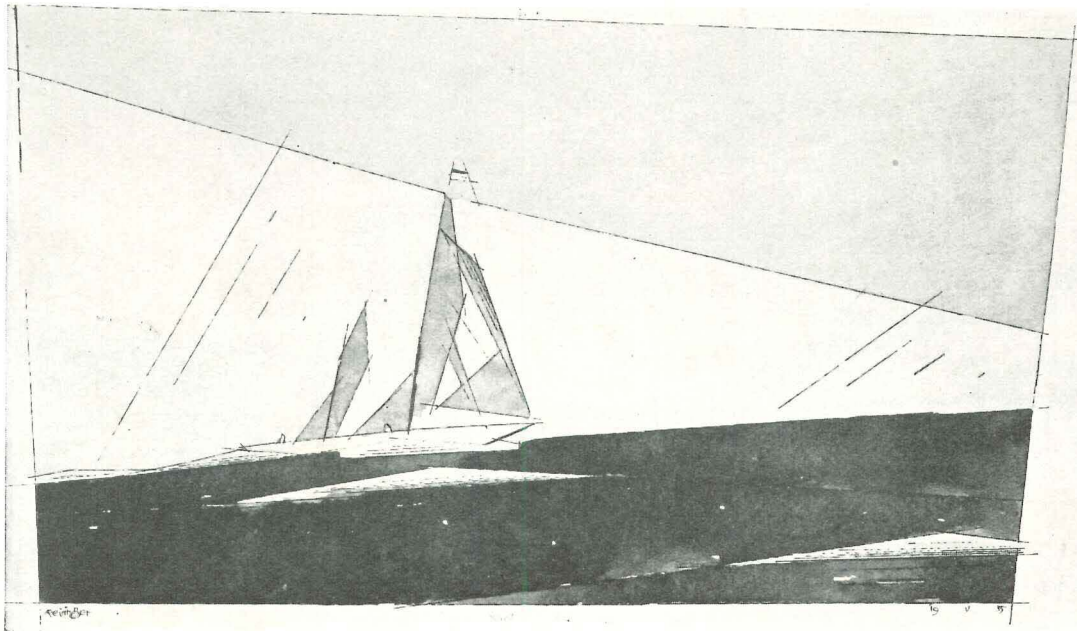


MYSTERIOUS ISLANDS

WATER-COLORIST

SHIP OF THE LINE AND CLIPPER

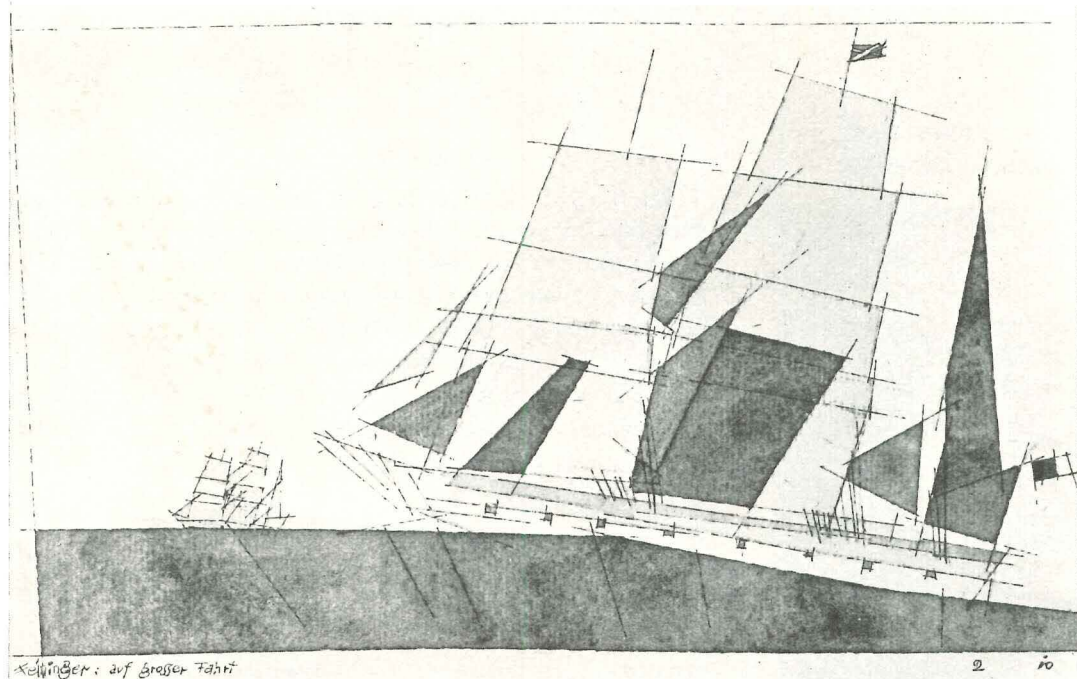




YACHT

LYONEL FEININGER

GRAND VOYAGE

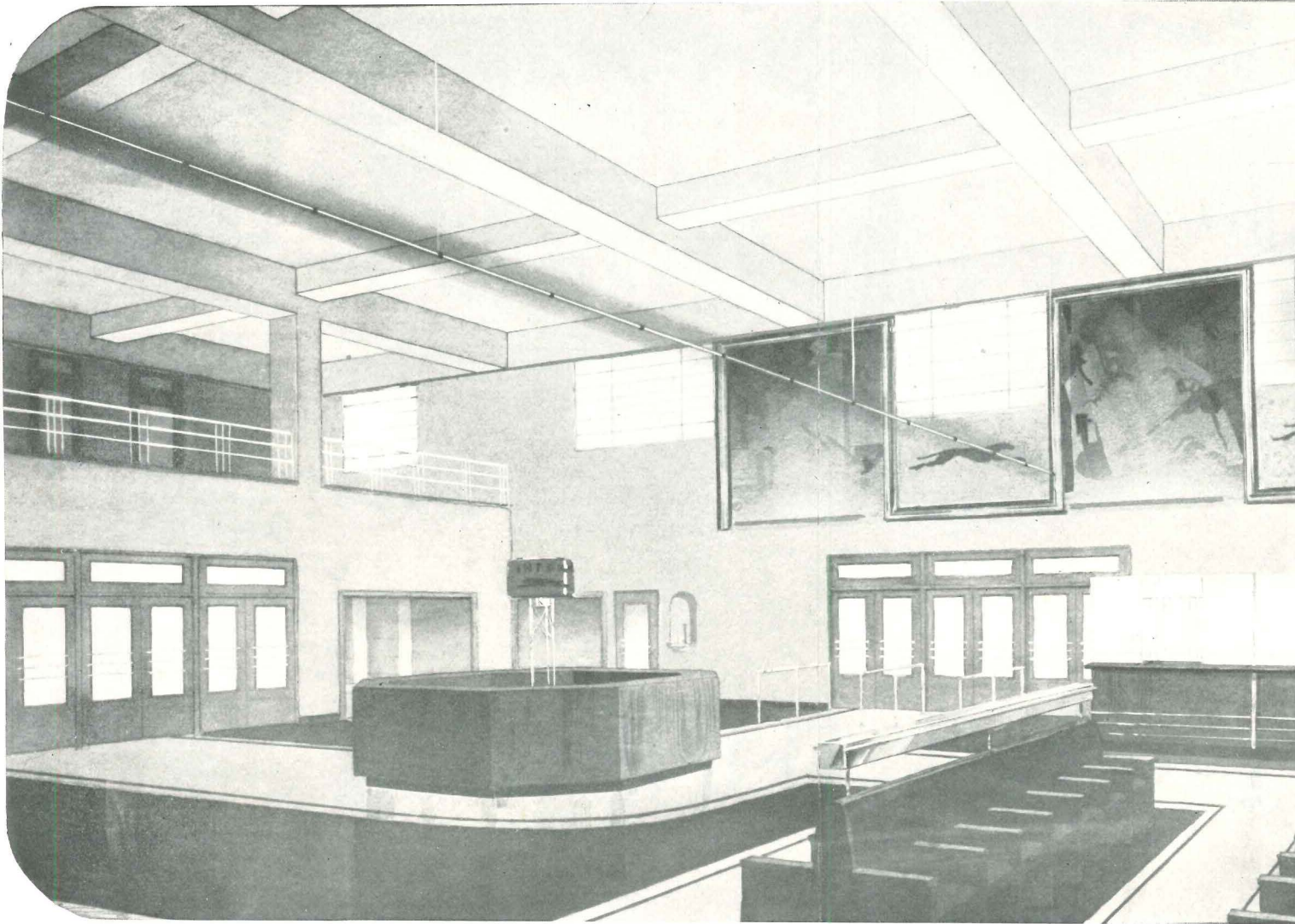


suggestive rather than realistic it is easy to understand the old salt who remarked after looking at them, "that man knows ships." Another of Feininger's favorite subjects are houses in the streets of old-gabled towns. Again it is the essential form which attracts him. He knows houses, and often paints from wooden models of houses he has made. The fact that Feininger, like Paul Klee, is also a musician helps us to understand the architectonic nature of his vision.

The strangely provocative quality of Feininger's work arises from the combination of precise structural line and dreamlike mood. Clear lines that direct the eye and spaces of muted bright color, which one finds in his aquarelles and certain of his oils, can only be compared to Japanese prints in their power to evoke a feeling of distance.

Writing of Feininger's recent work, Herman Scheffauer speaks of the strange transparency and luminosity in these creations, as of other or inner worlds, glassy walls and planes that carry the eye and soul to new infinities of light, radiance and distance beyond distance. Here indeed we approach close to painting that has succeeded in fixing the "soul" of things, the astral body, as it were, of towns and other apparitions of the external world.

The pictures are reproduced through the courtesy of Miss Willard of the East River Galleries, New York.



WAITING ROOM, CAPITOL GREYHOUND BUS TERMINAL, NEW YORK CITY
 THOMAS W. LAMB, INC., ARCHITECTS

BUS TERMINAL FOR THE ATLANTIC GREYHOUND LINES,
 MARTINSVILLE, VIRGINIA—GEORGE D. BROWN, ARCHITECT



THE BUS TERMINAL of a few years ago was a small shed-like structure, consisting of a waiting room and a small office; or, in some instances, the drug store served as a bus stop with ticket office. Rapid developments in transportation and demands for more adequate facilities confronted the architect with the problem of planning the bus station to include arrangements and space provisions in keeping with the demands of progress. A listing of the features of this new building type follows:

- | | |
|-----------------|--------------------------------------|
| Waiting room | Tours booth |
| Lounge | Information booth |
| Parcel room | Offices for executives and employees |
| Baggage storage | Pillow room |
| Kitchen storage | Newsstand |
| Showers | Dispatcher's booth |
| Ticket office | |



THE BUS TERMINAL

By OFFICE OF THOMAS W. LAMB, INC.

Restaurant
Lunchroom
Kitchen
Sheltered platforms
Toilets
Service rooms for help
Barber shop

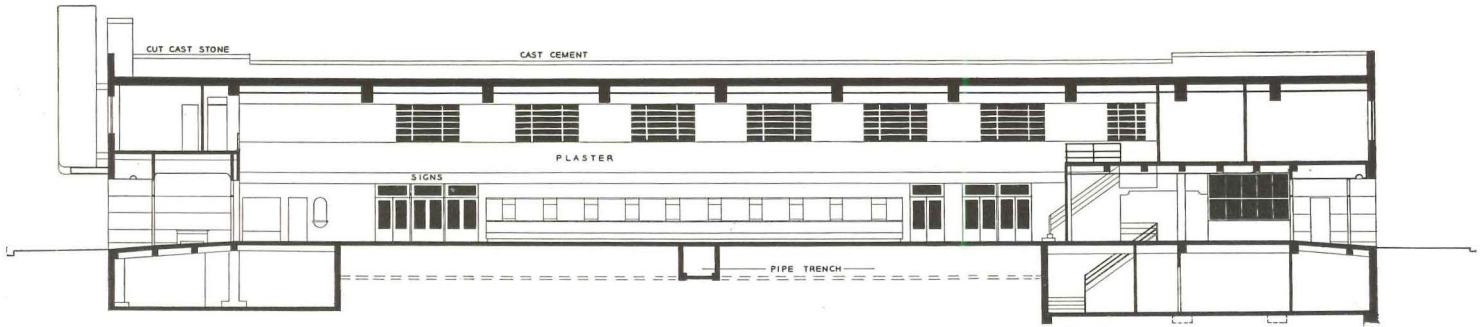
Telephones
Ticket storage
Steamship office
Manager's office
Auditor's office
Other offices

The Capitol Bus Terminal in New York City is the latest and most complete station, serving transcontinental and suburban routes. It is the nearest approach to the complex railway terminal. It is built on a plot approximately 200 feet by 155 feet in width. The building is 88 feet in width and extends through the block from 51st Street to 52d Street. On each side of the terminal and adjoining the bus lanes are concrete platforms constructed sawtooth fashion to facilitate the entrance or egress of the passengers from

the busses. A dispatcher's office completely glazed for unobstructed vision of the dispatcher is located at the center of the west platform, giving him complete control over the incoming and outgoing busses.

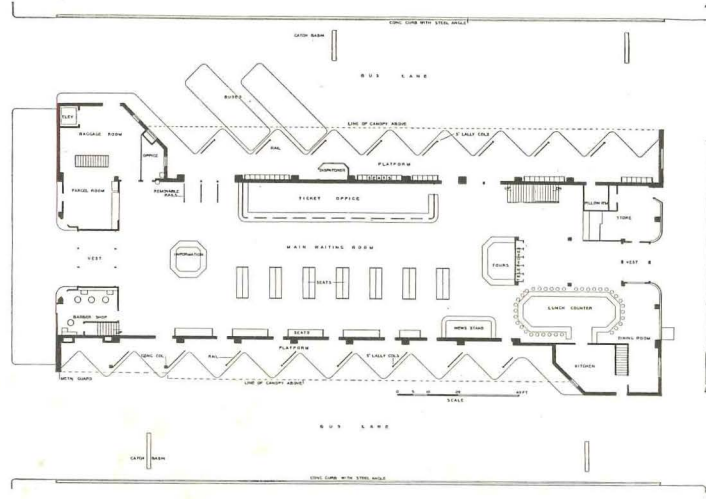
The metal canopies are constructed over the east and west platforms to provide shelter for the passengers going or coming from the busses.

These canopies are faced with 18-gauge galvanized corrugated Toncan metal with $1\frac{1}{2}$ " corrugations set normal to the wall, bolted to wood blocking secured to steel framing. Each sheet is lapped with interlocking joints riveted together, and soldered around the rivets. All joints are caulked. At the walls these canopies are flattened and turned up 6 inches; they are spiked into the brick joints and then cap flashed. Molded gutters of 16-oz. lead-coated copper

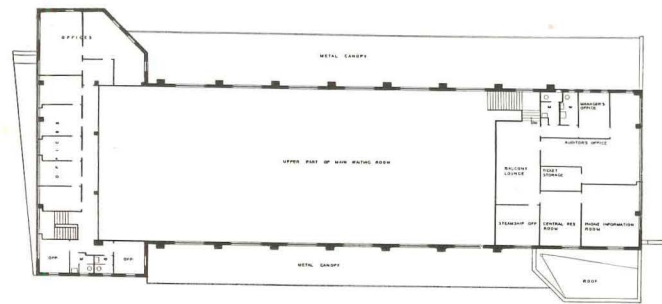


SECTION

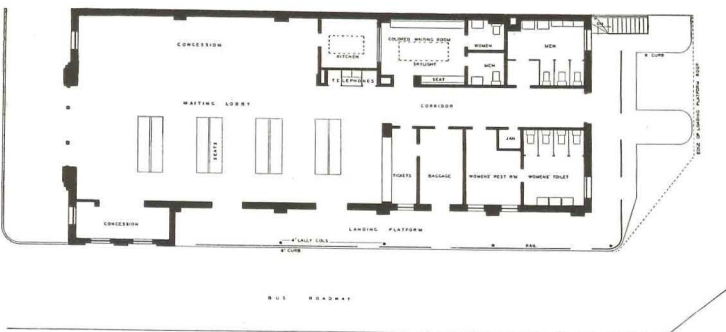
Above and at Left: CAPITOL GREYHOUND BUS TERMINAL, NEW YORK CITY—THOMAS W. LAMB, INC., ARCHITECTS



FIRST FLOOR



SECOND FLOOR



FIRST FLOOR PLAN
BUS TERMINAL FOR THE ATLANTIC GREYHOUND LINES
CHARLESTON, WEST VIRGINIA. GEORGE D. BROWN, ARCHITECT

are provided the full length of canopies along the lanes. This method of canopy construction over bus lane platform is an innovation since formerly these were constructed of concrete and were also used for baggage loading platforms at upper level. The old type busses, it will be recalled, carried baggage on baggage racks on their roofs, but the new type busses introduced this year carry the baggage in specially-designed compartments, below the floor of the bus and between the wheels. An overhead loading platform is therefore no longer necessary.

The building is constructed of brick masonry on a concrete foundation with brick piers supporting the roof girders. Along the east and west bus lanes the walls are faced with Kittanning brick to a height of approximately 8'-10" and the masonry above this point is finished in stucco to the underside of the parapet coping.

The 51st Street facade and returns are surfaced with buff colored face brick from the top of the cast granite back to the underside of the topmost coping.

The ceiling height of waiting room is approximately 24'-0". The side walls are finished in plaster above the terrazzo base, with spaces reserved for murals. The floor of the main waiting room is surfaced with terrazzo with figures of racing "greyhounds," outlined by 1/8" thick white metal divider strips. The "Ticket," "Tours" and "Information" counters are faced with Burl walnut panels, inlaid with strips of ebony, separated by ebonized hardwood moldings. The counter tops are covered with 3/16" thick "battleship" linoleum edged with extruded aluminum nozing.

At each end of the waiting room there is a second floor mezzanine for the offices of executives and employees. These second floor mezzanines are constructed of concrete, finished in linoleum and mastic floor tile, and are terminated at the waiting room portions in the form of small open railed balconies. The northerly portion of the mezzanine is designed for the use of a balcony lounge, connected to the main waiting room by a large stairway finished in terrazzo. Here the patrons may repose, and view the complete activity throughout the main waiting room.

A complete annunciating system is installed for announcing busses to waiting public.

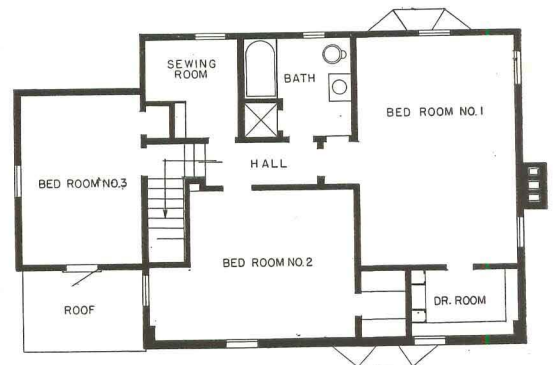


Photograph by Murray M. Peters

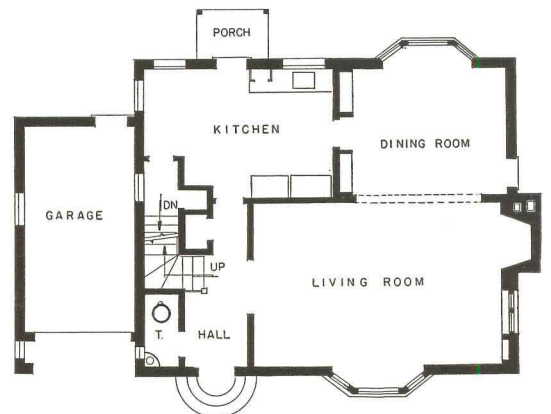
HOUSE OF CHARLES A. THOMSON
 PORT WASHINGTON, LONG ISLAND
 PORTER O. DANIEL, ARCHITECT

CONSTRUCTION: concrete block foundation, brick veneer walls, slate roof. Floors are of random oak plank. All walls are papered with the exception of foyer, living and dining rooms which are paneled in pine. Aluminum foil insulation on second floor ceiling. Heating is by steam. Built-in features: bookcases and china closets. Double-hung windows with bronze screens. **COLOR SCHEME:** exterior, whitewashed brick and red shutters; interior, pine panels stained, waxed and rubbed with steel wool; other rooms painted. **COST:** \$9,900, including plot.

SECOND FLOOR



FIRST FLOOR



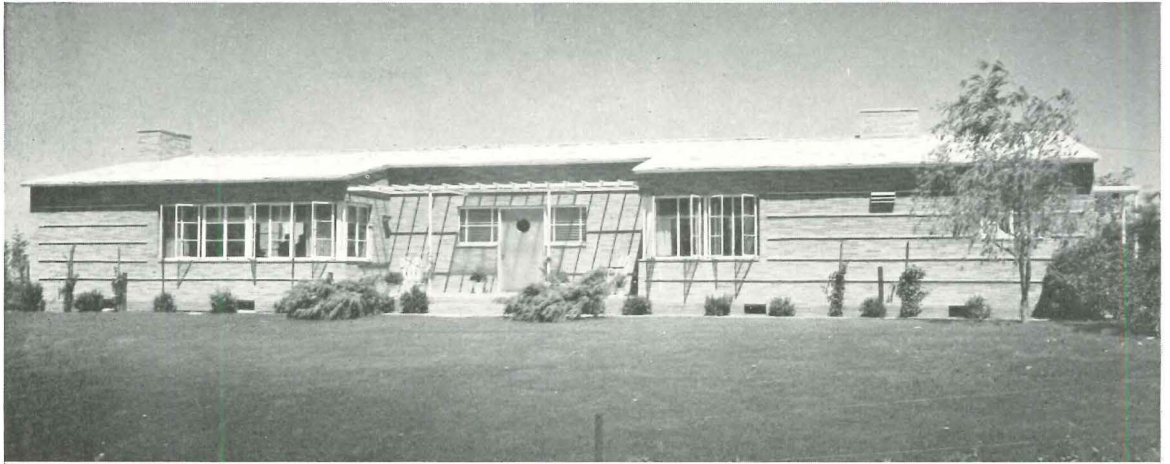


Photograph by Murray M. Peters

HOUSE OF CHARLES A. THOMSON
PORT WASHINGTON, LONG ISLAND
PORTER O. DANIEL, ARCHITECT

EXHIBITION HOUSE

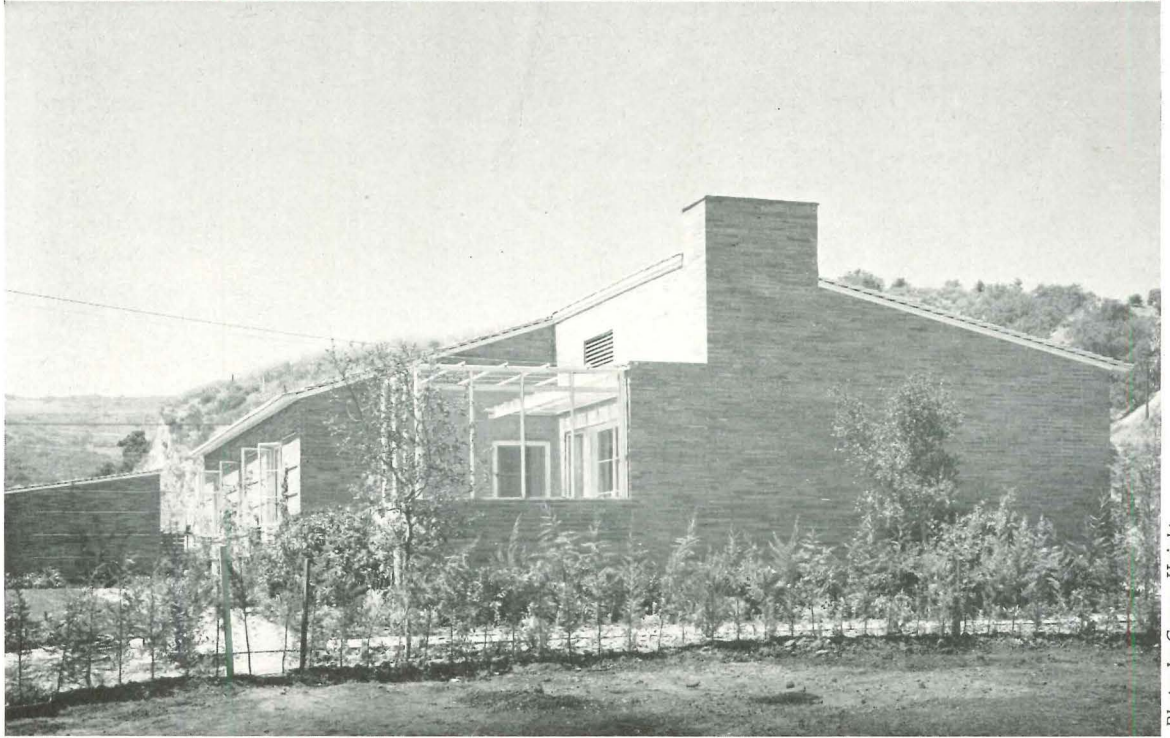
A



EXHIBITION HOUSE FOR THE "LOS ANGELES TIMES"

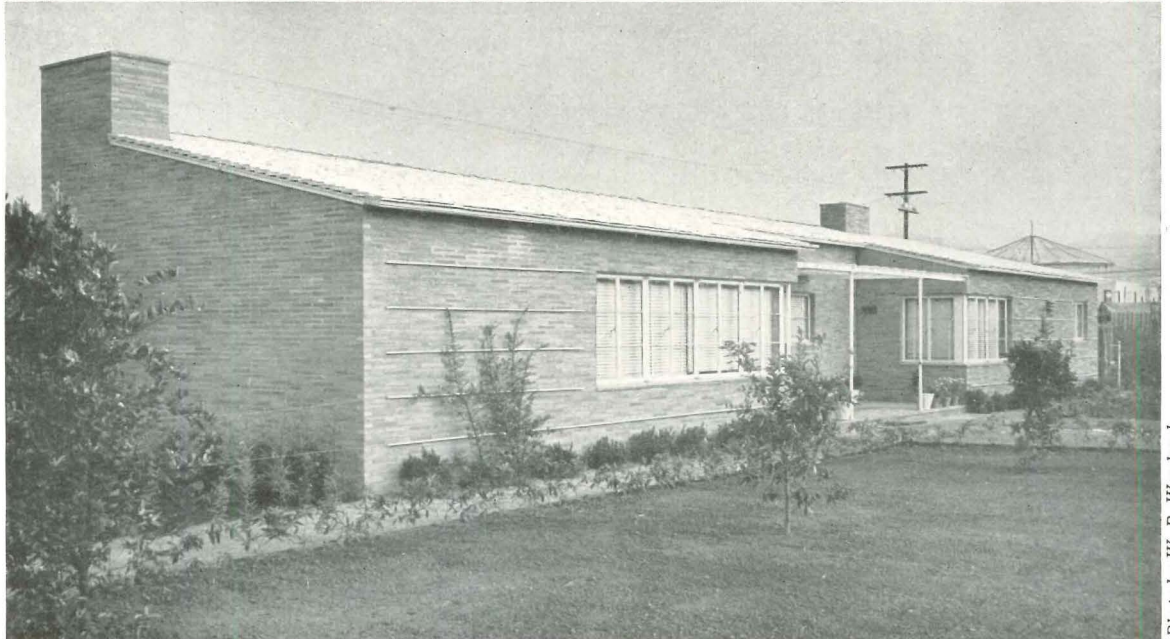
LOS ANGELES, CALIFORNIA

B



H. ROY KELLEY,
EDGARBISSANTZ,
H. G. SPIELMAN,
ASSOCIATED ARCHITECTS

C



A . . . GENERAL VIEW
B . . . END VIEW
C . . . EXTERIOR DETAIL

Photos by George Haight

Photo by W. P. Woodcock

EXHIBITION HOUSE

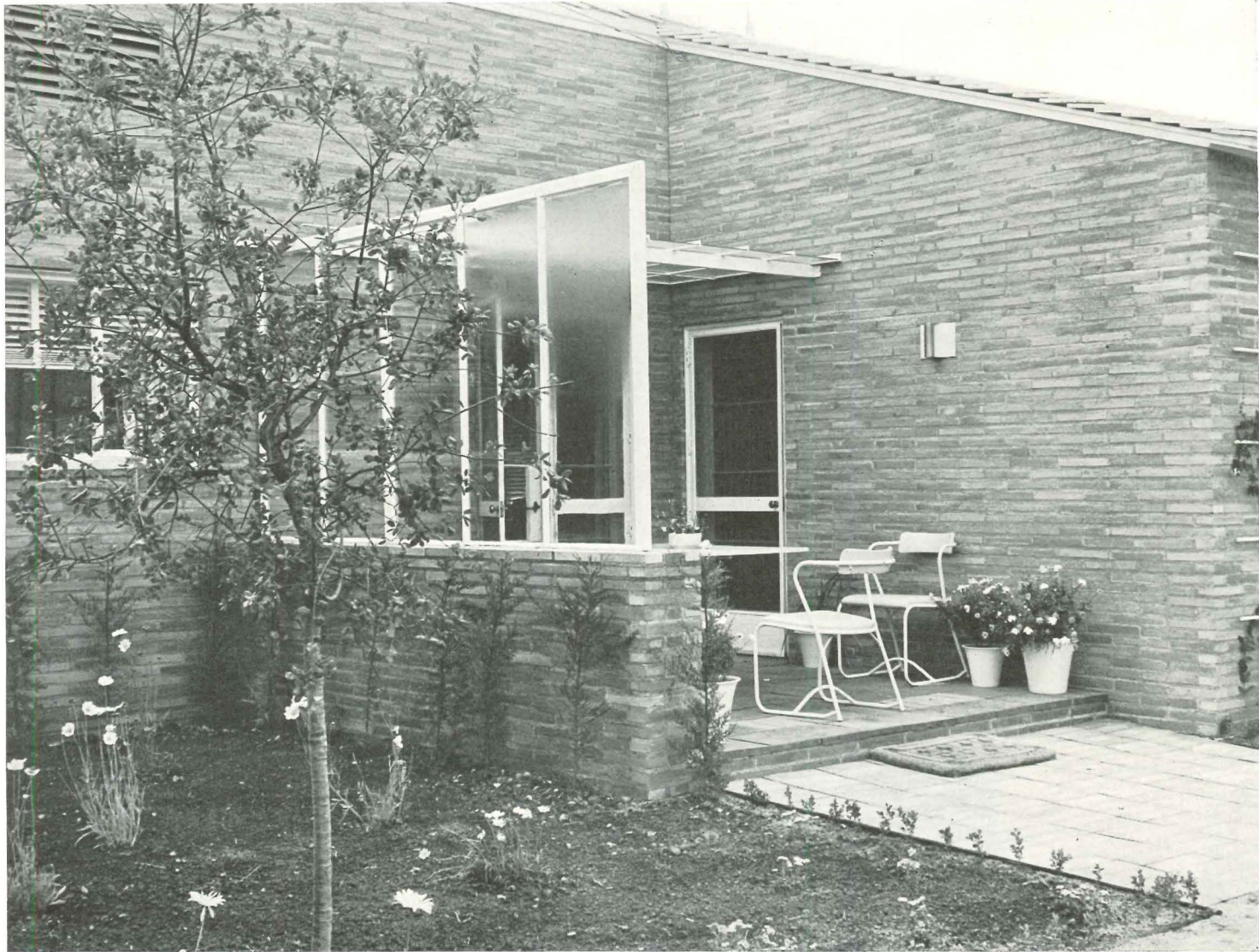


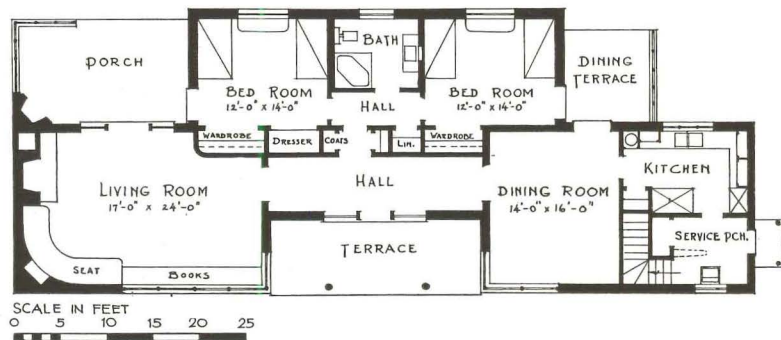
Photo by W. P. Woodcock

EXHIBITION HOUSE FOR THE "LOS ANGELES TIMES"

LOS ANGELES, CALIFORNIA

H. ROY KELLEY, EDGAR BISSANTZ, HAROLD G. SPIELMAN, ASSOCIATED ARCHITECTS

Above: DINING TERRACE.
Opposite Page: SERVICE ENTRY.



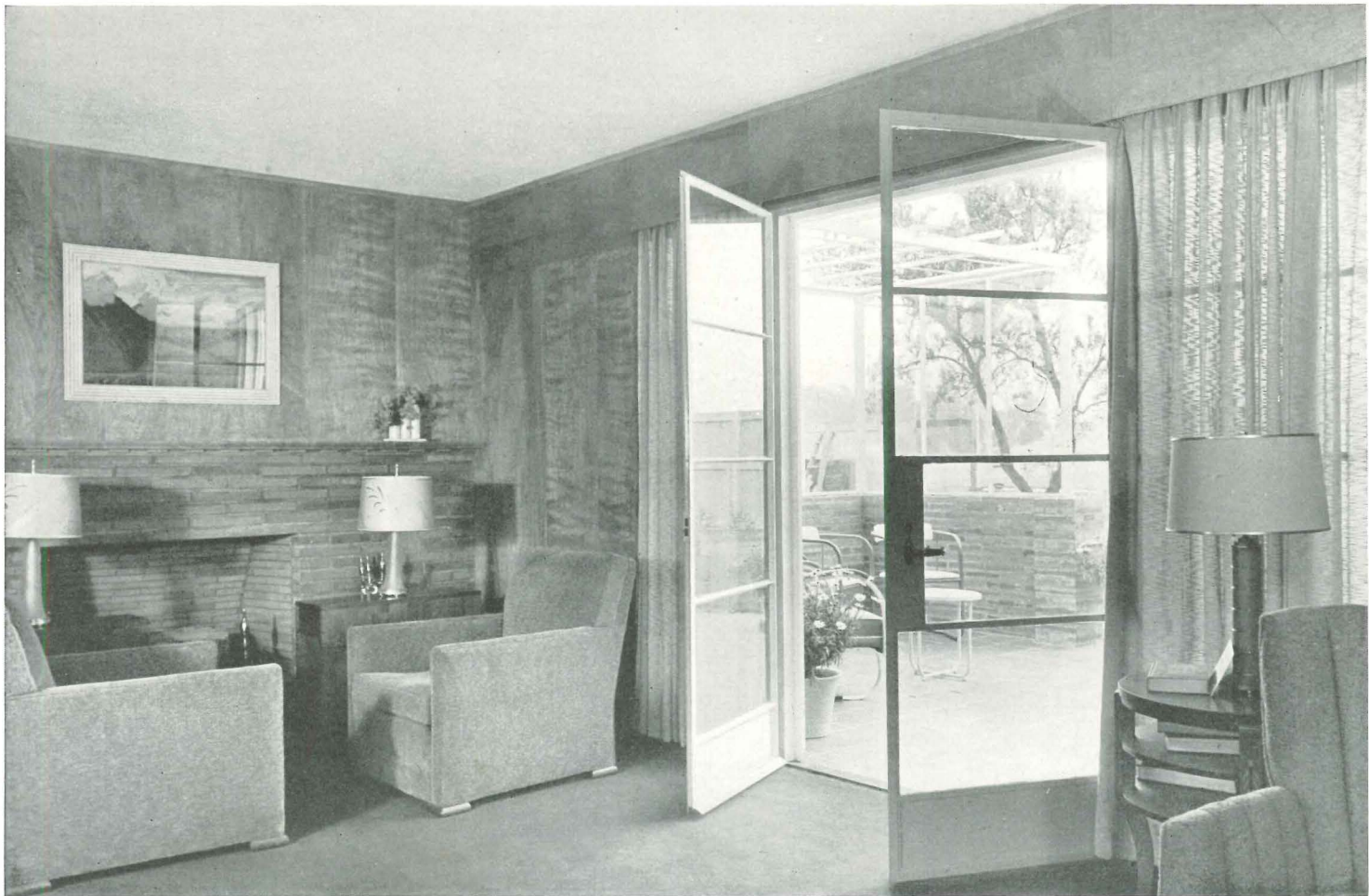
FLOOR PLAN

EXHIBITION HOUSE



Photo by George Haight

EXHIBITION HOUSE



EXHIBITION HOUSE FOR THE "LOS ANGELES TIMES" LOS ANGELES, CALIFORNIA

H. ROY KELLEY, EDGAR BISSANTZ, HAROLD G. SPIELMAN,
ASSOCIATED ARCHITECTS

Above: LIVING ROOM, VIEW TO-
WARD FIREPLACE AND PORCH.
Right: DETAIL OF ENTRANCE HALL.

Photos by W. P. Woodcock

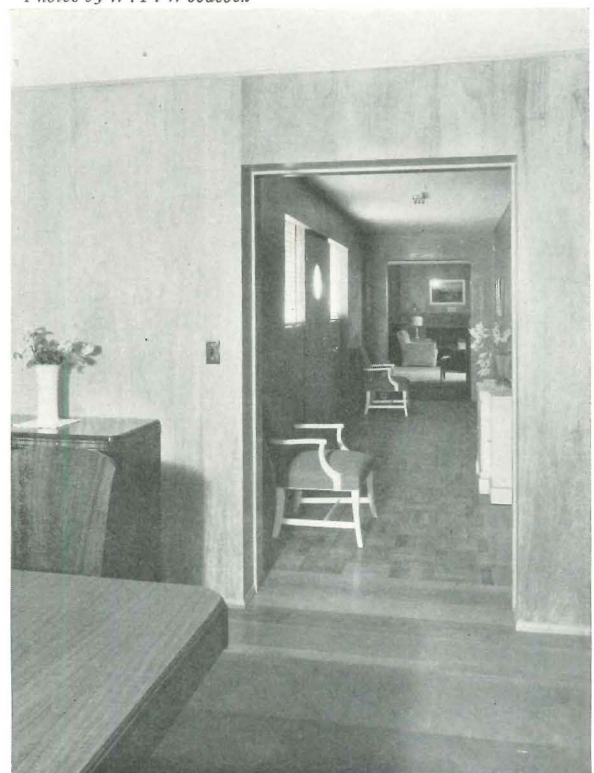


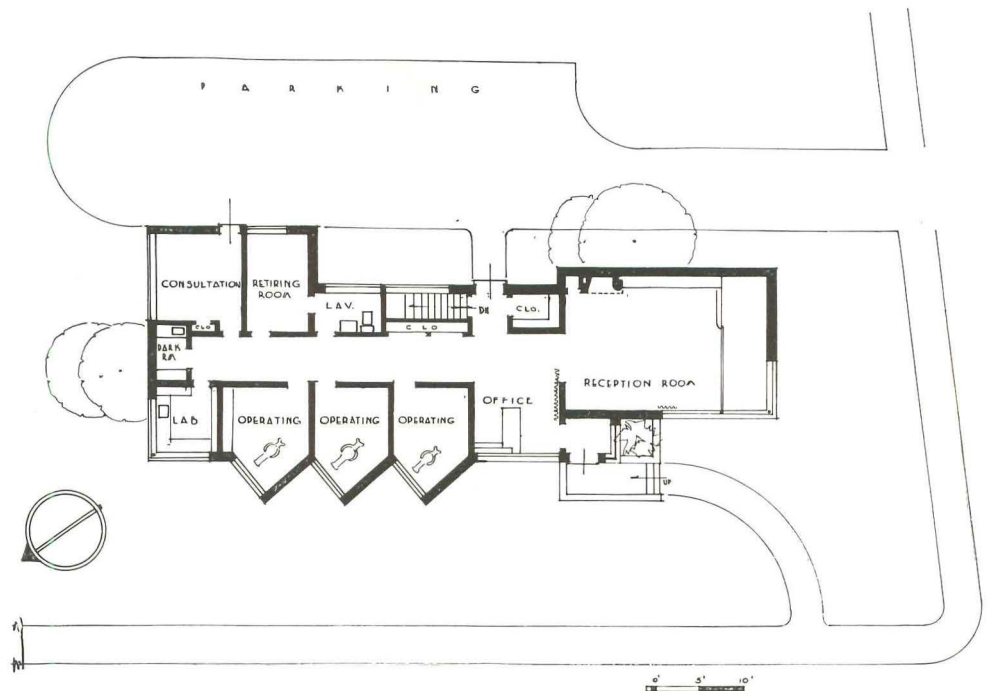


Photo by Arthur C. Haskell

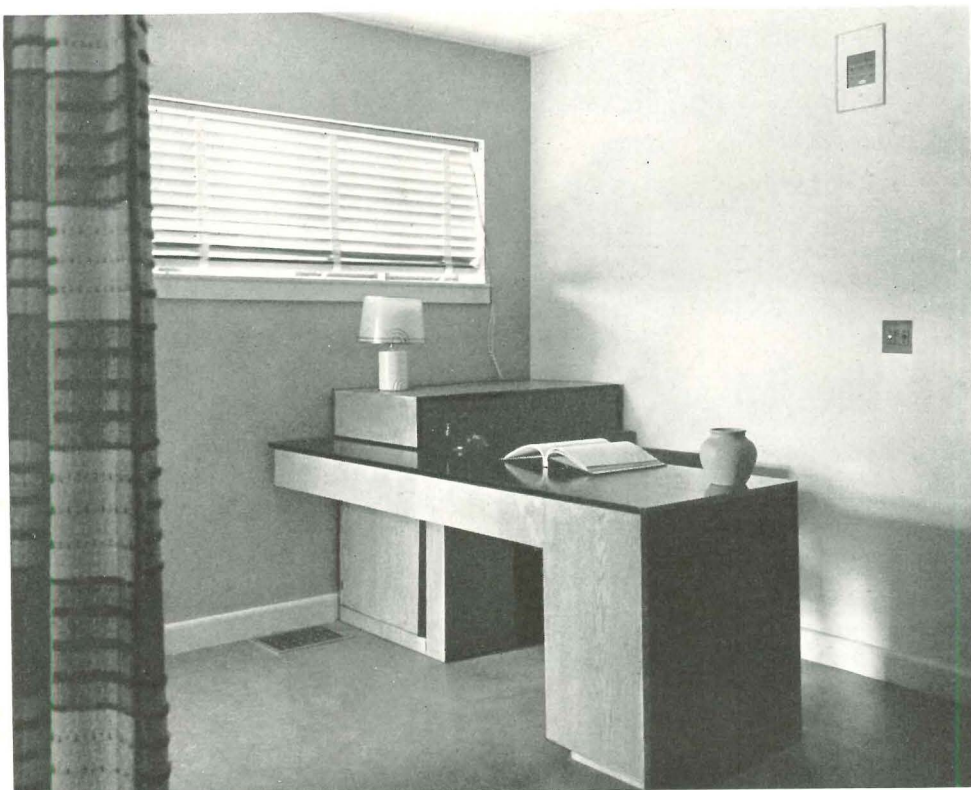
DENTAL OFFICE MELROSE, MASSACHUSETTS

ROYAL BARRY WILLS, ARCHITECT; HUGH A. STUBBINS, ASSOCIATE

CONSTRUCTION: exterior walls of cinder concrete blocks, surfaced with California stucco. Inside partitions are wood studded, lathed and plastered. Roof of built-up tar and gravel with rockwool insulation. Metal-backed rock lath on walls. Lintels for windows steel angles. Windows are Hope standard casements. Floors throughout are linoleum except in reception room which is carpeted.



DENTAL OFFICE



RECEPTION DESK IN OFFICE

DENTAL OFFICE

MELROSE, MASSACHUSETTS

ROYAL BARRY WILLS, ARCHITECT

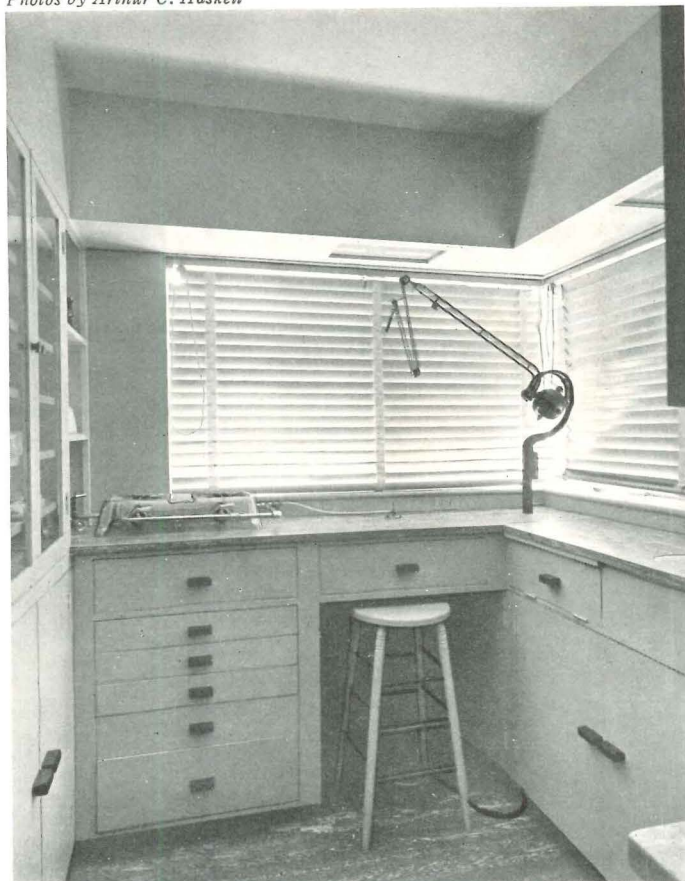
HUGH A. STUBBINS, ASSOCIATE

INTERIOR LAYOUT: the building consists of an office for attendant and large reception room with platform at one end to serve the dual purpose of lecture platform and place for children to play. There are three operating rooms, each fully equipped, and a laboratory and darkroom for developing X-rays, a private study for the doctor, and a retiring room with lavatory connecting. There is also a small basement for the heater and for storage purposes. Heating is done by gas air conditioning unit.

COLOR SCHEME OF RECEPTION ROOM: floor, dark blue; wall opposite main window is dark brown; that over fireplace is white, that opposite the entrance is light yellow. Covering on chairs is yellow and brown; divan is brown. Curtain separating office from reception room is beige, yellow, white and brown.

INTERIOR OF LABORATORY

Photos by Arthur C. Haskell



COVERED MARKET

VIEW TOWARD MAIN ENTRANCE

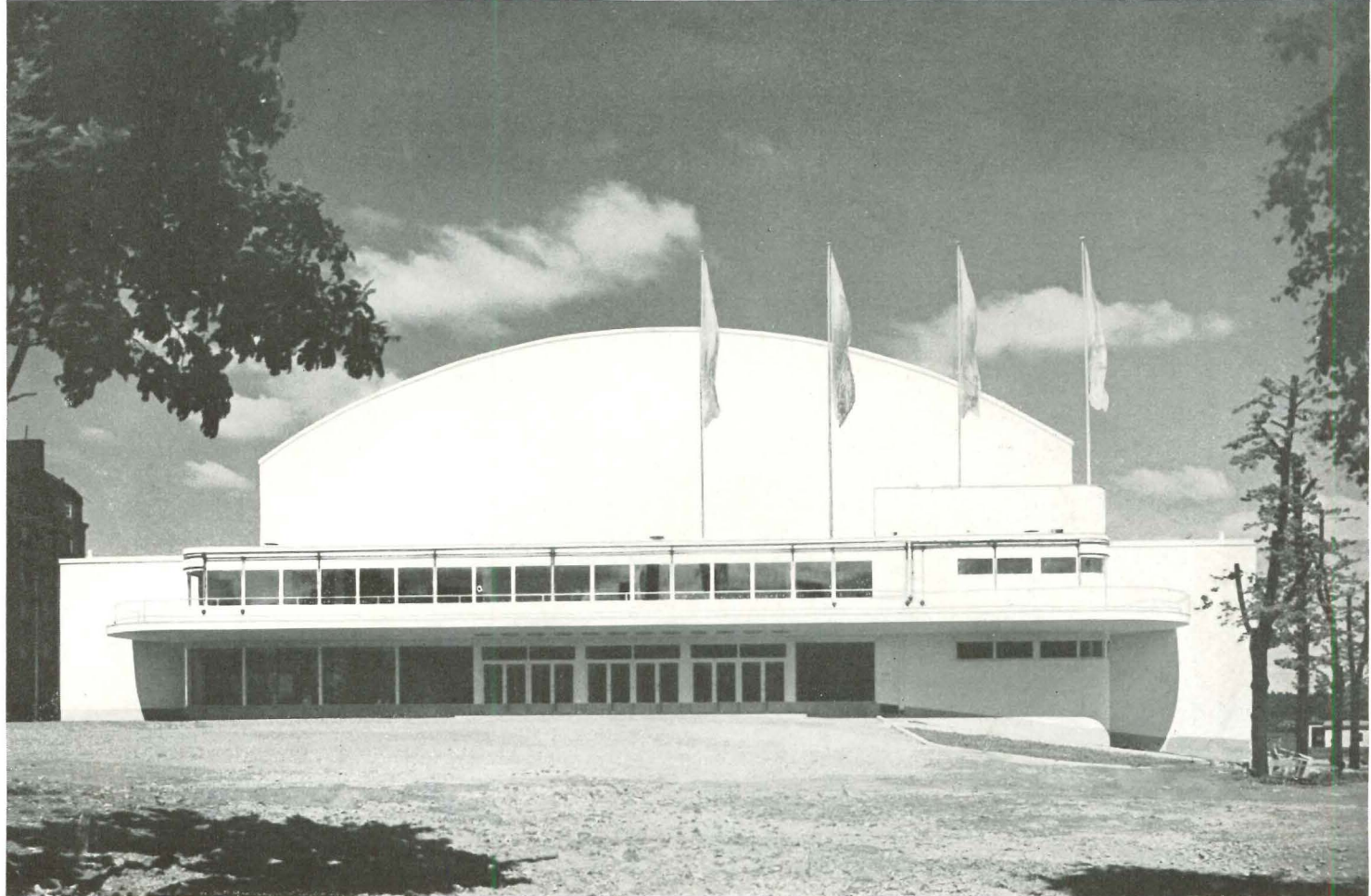


Photo Roos

COVERED MARKET

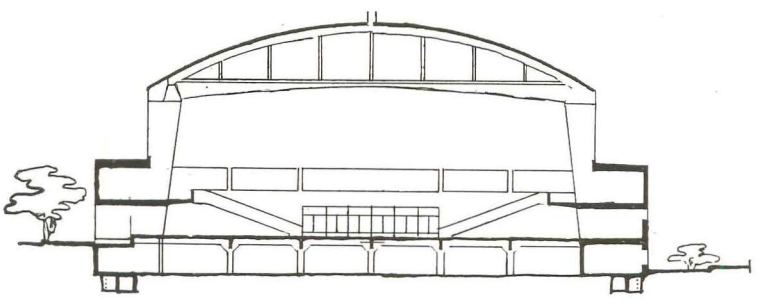
HELSINGFORS, FINLAND

A. HYTONEN AND

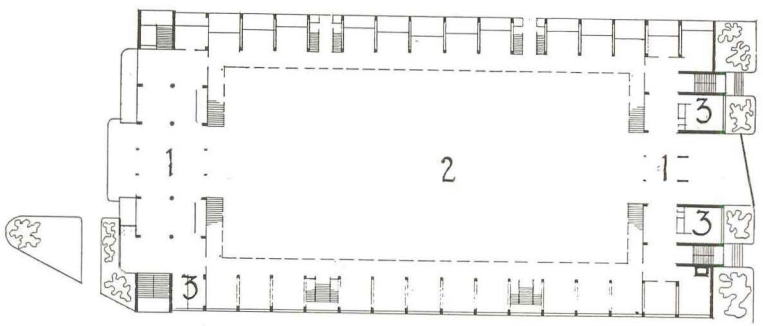
R. V. LUUKKONEN, ARCHITECTS

PROBLEM: the Covered Market at Helsingfors serves a variety of uses. Most important of all, it is an inclosed market and fair; it is used for exhibitions, gatherings such as festivals, lectures and sporting events.

DESIGN: the building proper consists of a large hall with surrounding balcony. The space beneath and above this balcony is divided into a series of bays by concrete walls, both for separating spaces and for support of roof. The ground floor is sufficiently large to accommodate four tennis courts. One end of the hall is open, while the other end provides space for a restaurant.



SECTION



GROUND FLOOR

- 1 ENTRANCE HALL (Ground Floor)
- 2 LARGE HALL
- 3 LAVATORIES

COVERED MARKET

MAIN ENTRANCE ON SOUTH SIDE



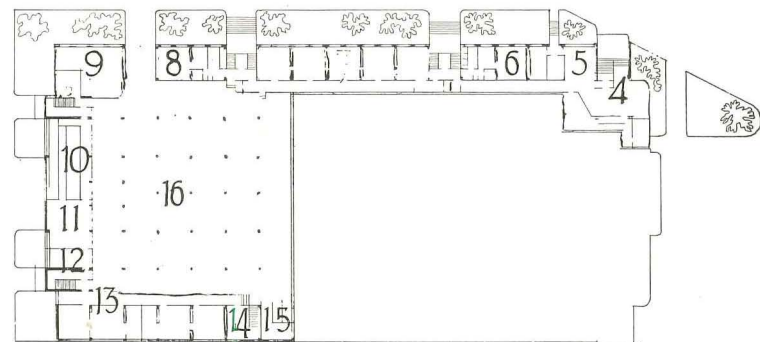
Photo Roos

COVERED MARKET

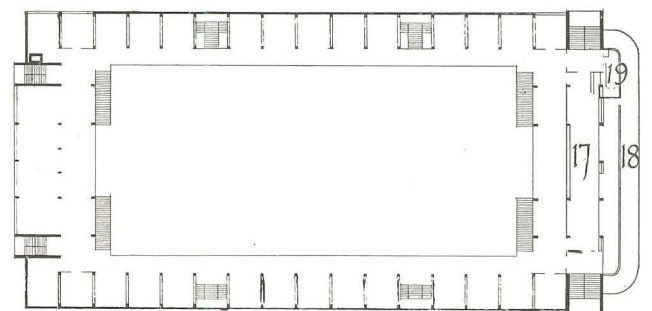
HELSINGFORS, FINLAND

A. HYTONEN AND R. V. LUUKKONEN,
ARCHITECTS

- 4 TOILETS
- 5 KITCHEN
- 6 JANITORS' LIVING QUARTERS
- 7 OFFICE
- 8 STOKERS' LIVING QUARTERS
- 9 VENTILATING PLANT
- 10 BOILER HOUSE
- 11 FUEL
- 12 PUMP ROOM
- 13 DRESSING ROOM
- 14 METER ROOM
- 15 ELECTRIC SUB-STATION
- 16 STOREROOM
- 17 RESTAURANT (first floor)
- 18 BALCONY
- 19 PANTRY



BASEMENT



FIRST FLOOR

INTERIOR



COVERED MARKET

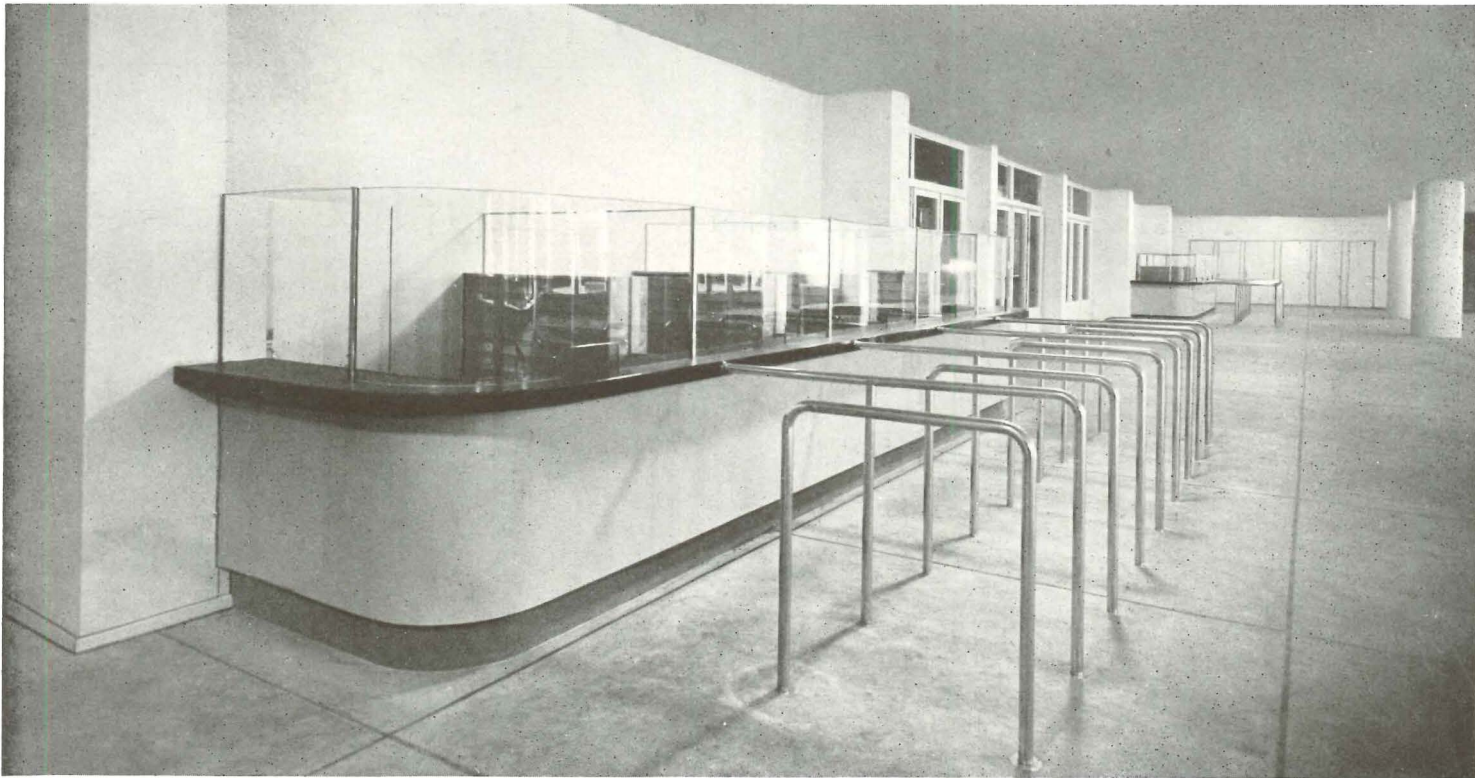


Photo Roos

CASHIER'S OFFICE

COVERED MARKET

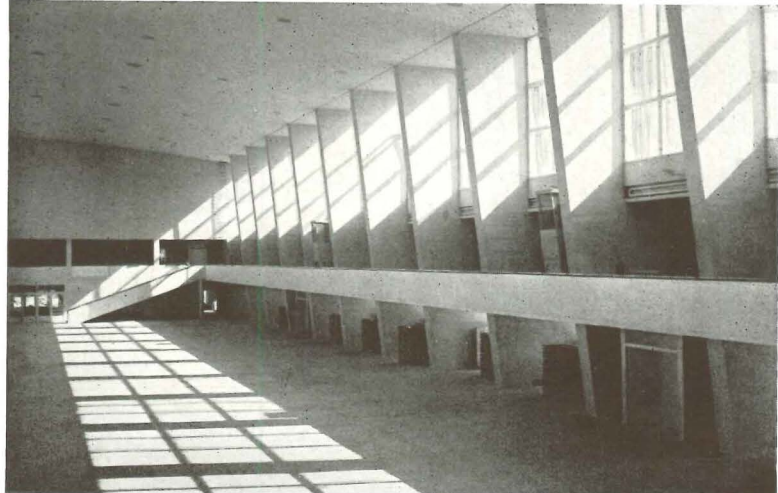
HELSINGFORS, FINLAND

A. HYTONEN AND R. V. LUUKKONEN, ARCHITECTS

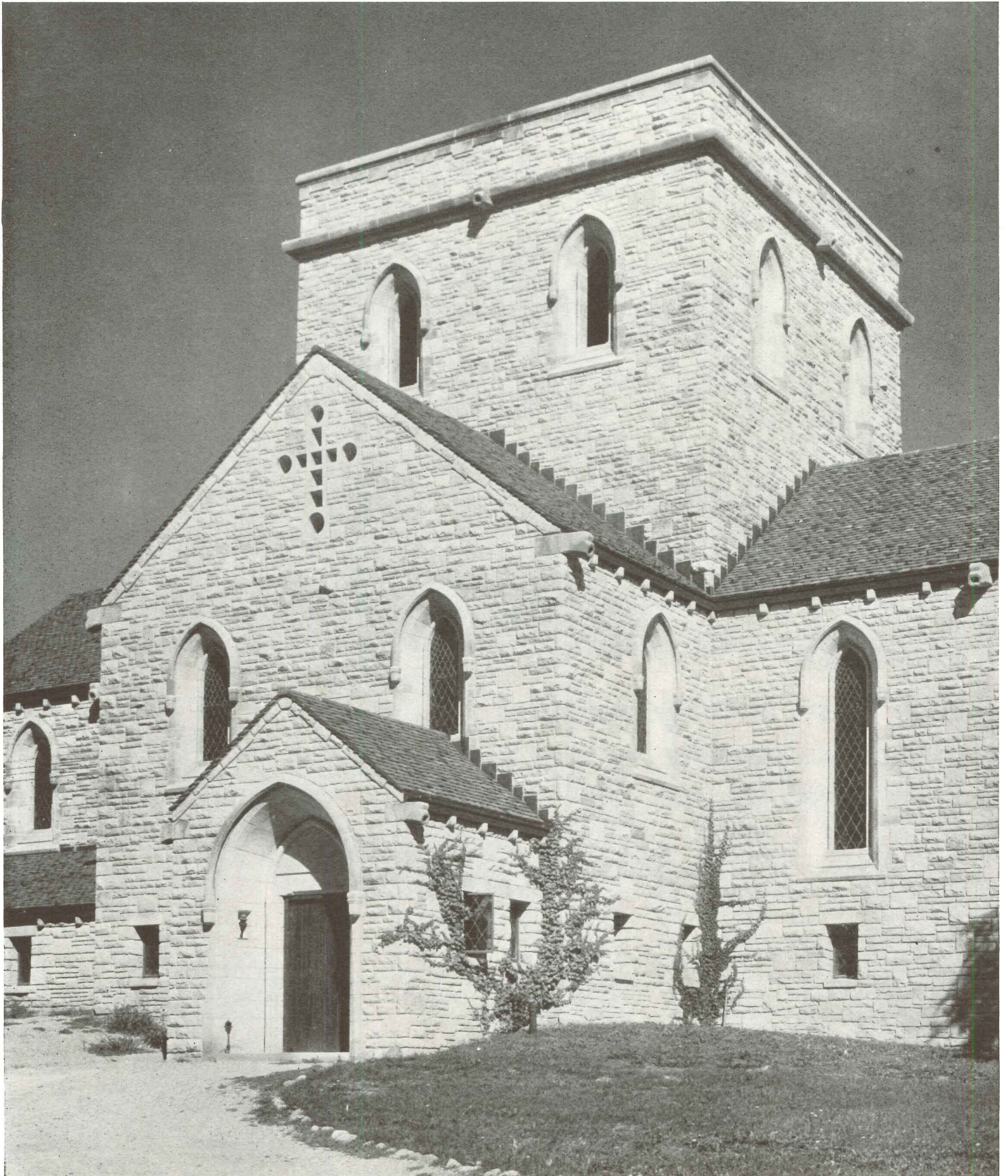
CONSTRUCTION: the roof is supported by trusses over concrete cross walls. Exterior walls are in concrete and brick. The horizontal thrust of arches is cared for partly by the walls and partly by tie-rods which span the hall. The ceiling of the hall and also the roof are of wood. The exterior face of the building is stucco over concrete and brick. The interior facing is cloth stretched over wood frames. A specialized lighting system was adopted and made to suit a variety of needs. The general lighting was placed behind large sheets of glass flush with the ceiling, the lighting units being above. Reflector lights were adopted for windows. A third group, namely, stage lighting, consists of six lights hung from the ceiling. These were used for concerts or for meetings. Provision is also made for spotlights, moving pictures and other current requirements.

INTERIOR

Photo by E. Granlund



Photograph by Robert W. Tebbs



CHURCH OF ST. HUGO IN THE HILLS
BLOOMFIELD HILLS, MICHIGAN

ARTHUR DES ROSIERS, ARCHITECT

CHURCH



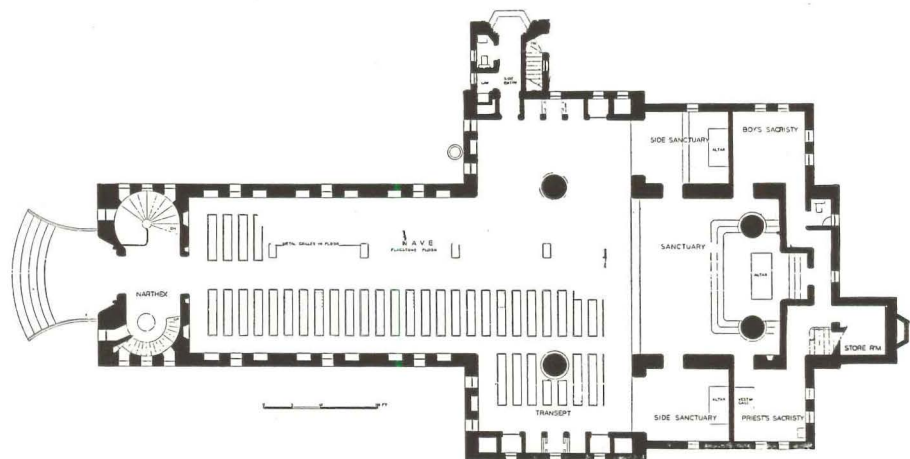
Photograph by Robert W. Tebbs

CHURCH OF ST. HUGO IN THE HILLS

BLOOMFIELD HILLS, MICHIGAN

ARTHUR DES ROSIERS, ARCHITECT

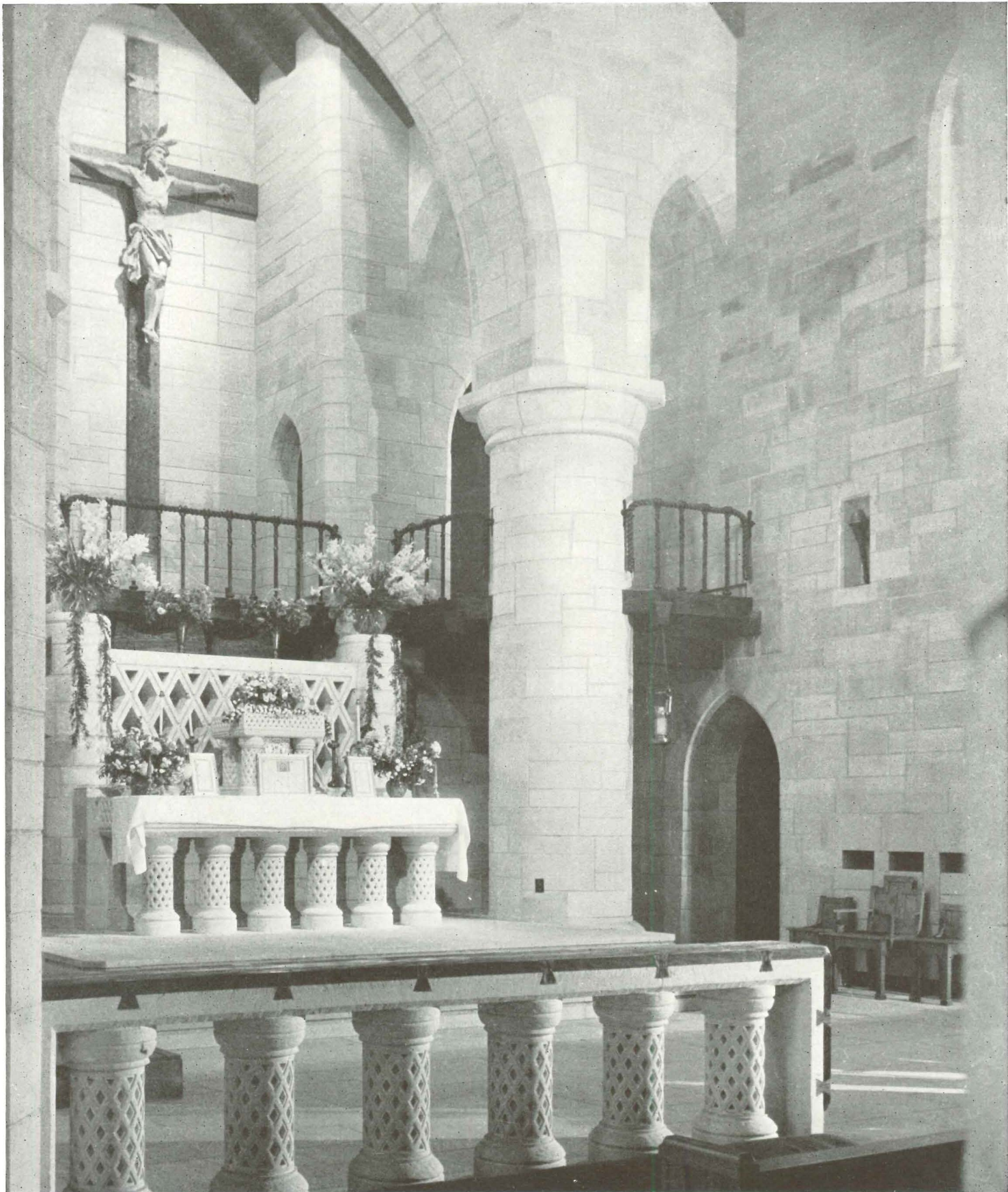
The exterior is of native stone. Entrance doors are built of cypress timbers bound together by wrought iron overlays bolted to the timbers. The interior stone walls are buff in color and laid in random ashlar manner. The open-timber ceiling consists of heavy wood roof supports, between which is laid thick cypress planking of random V widths. The problem of acoustics in the church was carefully studied and solved by introducing into the ceiling sound-absorbing material.





CHURCH

Photograph by Robert W. Tetbs



CHURCH OF ST. HUGO IN THE HILLS
BLOOMFIELD HILLS, MICHIGAN

ARTHUR DES ROSIERS, ARCHITECT

TECHNICAL NEWS AND RESEARCH

JANUARY 1937

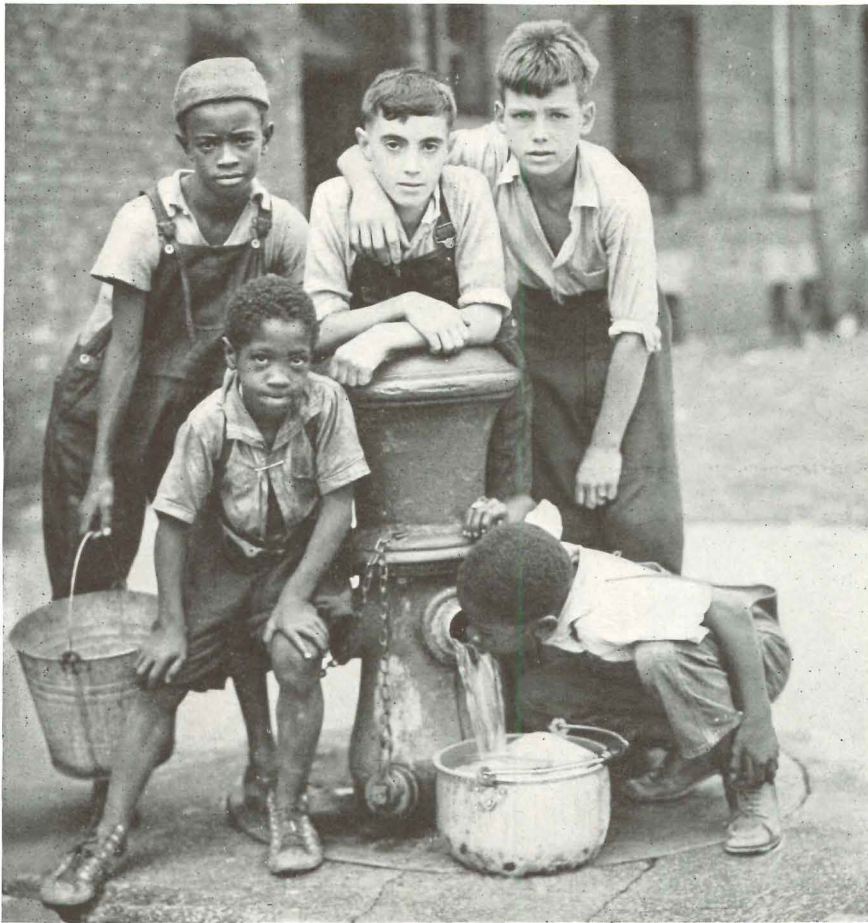
High standards of sanitation—a distinction of American life—are responsible for the rapid technical and commercial development of sanitary facilities in this country. Much of excellence has been accomplished, but a survey of the field shows still further progress is needed as standards continue to advance.

The problem is broad in scope. On a regional scale the practice of dumping sewage and industrial wastes into rivers and streams has resulted in increasing pollution of surface waters. (Industries dump an estimated 1,192 tons of solids daily into New Jersey water-courses: report by N. J. Sewage Experiment Station to American Chemical Society.) On a local scale defective plumbing installations have been found to be a cause of water supply pollution and consequent spread of disease. Both legislative and technical measures, as set forth by the American Public Health Association in its engineering session in New Orleans last October, are needed to correct these conditions.

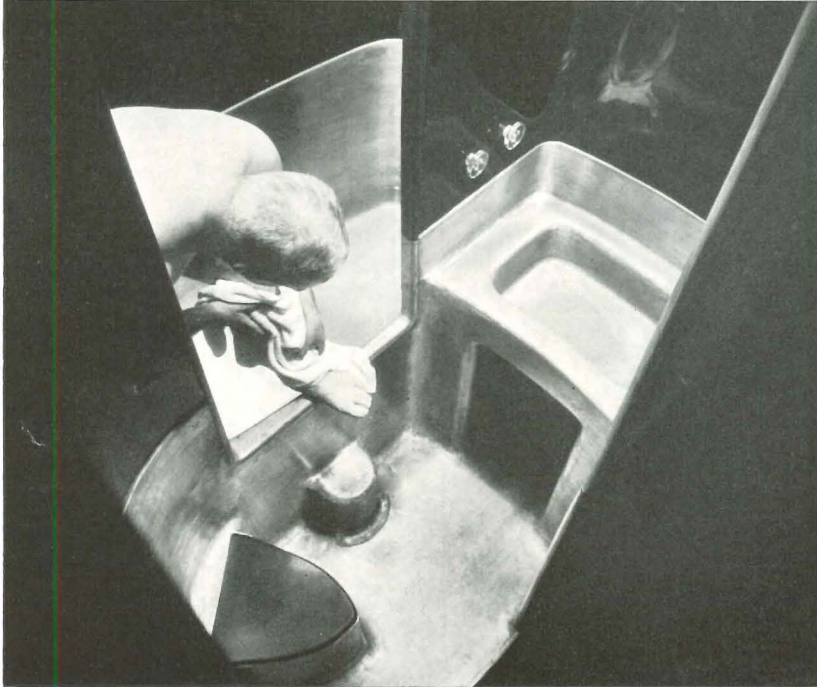
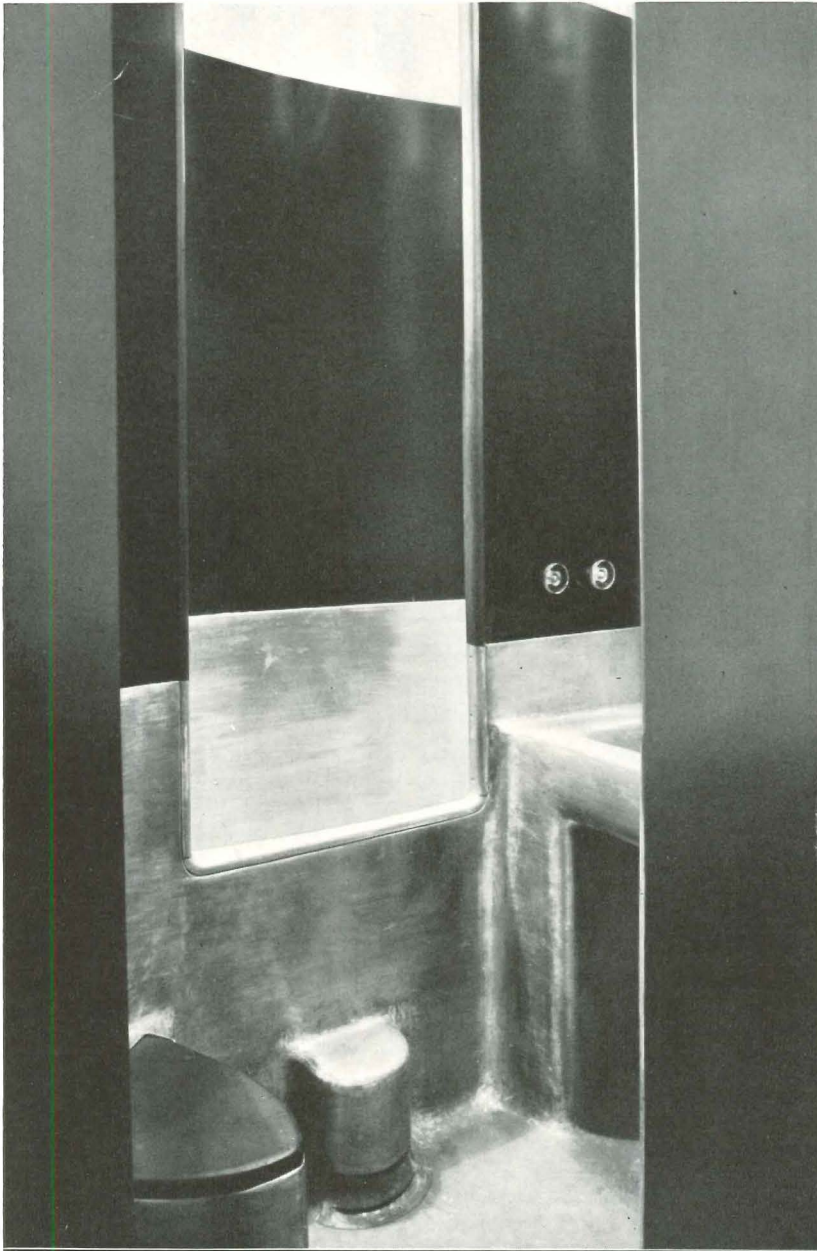
At the same time there remains a large quantitative shortage of sanitary facilities. The Real Property Inventory of 1934, conducted by the Department of Commerce in 64 typical cities, revealed the following facts: 5% of all dwellings had no running water, 13.5% had no private indoor water closets, 20.2% had neither bathtubs nor showers. Since 18.1% of the 1,500,000 urban dwellings investigated needed major repairs or were unfit for habitation, and since rural housing is even worse, it is claimed that one-third of all American homes are substandard.

Typical slum conditions are illustrated here—with—(above) the only water supply for a 40-flat Chicago building which includes 70 children among its inhabitants; (below) a toilet used by 20 occupants. To eradicate such conditions the Metropolitan Housing Council has been formed in Chicago. This organization is sponsoring legislation for minimum standards of sanitation which will compel owners to raze substandard dwellings.

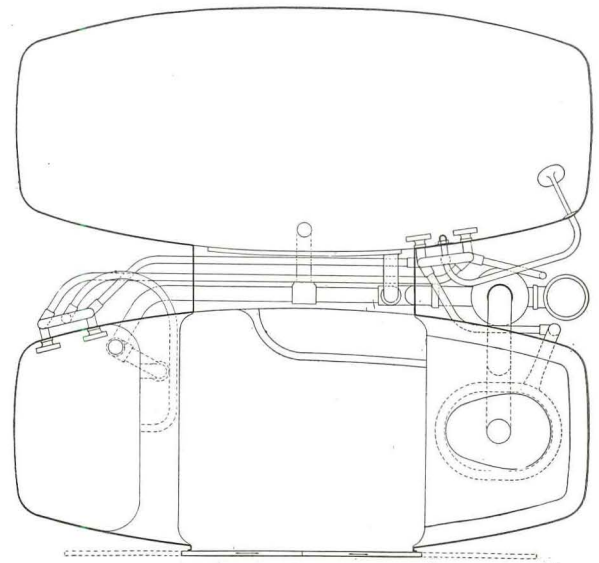
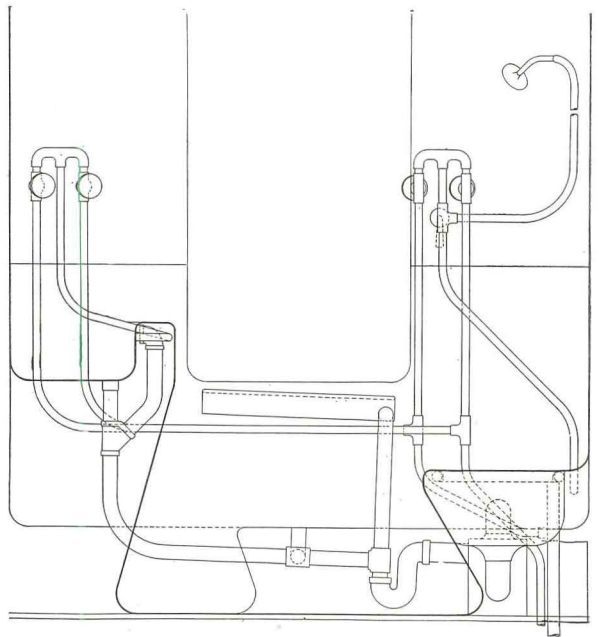
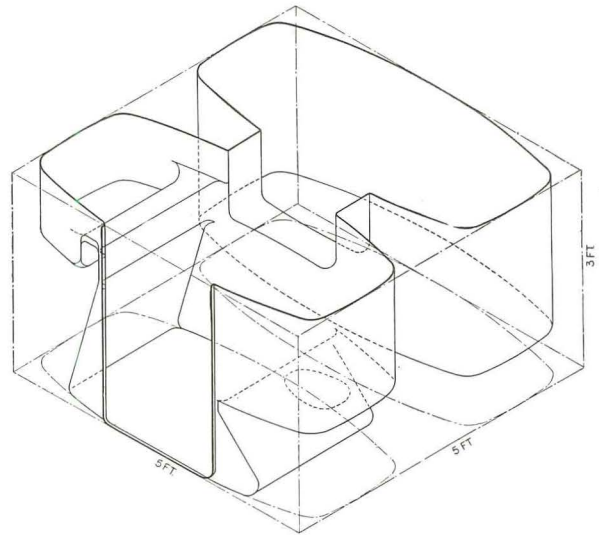
The technical importance of proper sanitation is recognized by the building industry, as current research activities testify. Many efforts are being made to produce better equipment at lower cost. Some of these are reported in the following pages.



Courtesy Plumbing and Heating Trade Journal



F. S. Lincoln



INTEGRATED BATHROOM

Experiments are now under way in the Phelps-Dodge Research Laboratories, New York, on a prefabricated bathroom known, because of its dimensions, as the "Five by Five." The designer is Buckminster Fuller, inventor of the Dymaxion House (a pioneer design in tensional construction) and the Dymaxion Transport (a 3-wheel rear-motor streamlined automobile). A few semi-production units will be ready for the market within a month.

The P-D bathroom consists of two main chambers—(1) the bath, (2) the lavatory and toilet—each a monometal stamping. Fixtures are integral parts of the floor and walls of the lower third, or "splash sector," of the bathroom. The two chambers are identical in dimensions. Their general shape and a 27" width permit their being carried individually through stairway bends and through the minimum standard (28") doorway. Two men can handle an installation.

The complete bathroom can be installed in a room as a unit cabinet with or without concealment by partitions. Where space is limited, as in small boats, trailers or trains, the outer chamber can be made a complete unit in itself, viz. a 5' x 2'-3" powder room. It might then include a shower between lavatory and toilet with curtains isolating the shower space from the fixtures. Such a unit would weigh only 125 pounds. A total weight of 250 pounds for the complete P-D bathroom compares with an average weight of over 1,000 pounds for a standard tiled bathroom of similar size and with luxury-size fixtures.

A full-size laboratory model is shown in the accompanying illustrations. The line drawings portray the unit which is going into production; various changes are observable in the design of lavatory and toilet seat.

PHELPS-DODGE BATHROOM DESIGNED FOR MASS-PRODUCTION

Above the bathing and the lavatory-and-toilet stampings, and extending to ceiling height, are two wall extension units, fashioned either in lacquered metal or plastics. Fitted over the tops of these units are two hollow ceiling sections which contain indirect lighting devices and means for heating and propelling air. Under-surfaces of the ceiling sections are a perforated translucent plastic. There are openings in a panel of the lower outer chamber for exhausting the air downwards and for removing steam and odors. This control of light and atmosphere eliminates need for a window.

The two base units are locked together by a U-piece doorframe, which also acts as a stop for the wall extensions and as a central support for the ceiling. This locking device has a central breadth of 6 inches and serves as a seat for the bath. It also acts as a guide for a Venetian blind which may be lowered while the shower is in use in the bathing chamber. (The blind facilitates the air-flow's removal of steam.) As a removable cover plate, the U-piece gives access to the manifold of plumbing pipes which runs between the two chambers.

The copper and copper alloy roughing-plumbing manifold consists of a prefabricated and bracketed assembly of all the hot and cold and waste lines, bent, welded and jointed in such a manner as to require only final connection to inlets and outlets in the two chambers and to the three connecting leads to the water and waste lines of the house. Provided the lines are within ready distance, installation should be accomplished within a few hours with the bathroom completely ready for operation.

The bathing chamber floor is elevated 9 inches above the level of the outer chamber so that the bath can be cleaned from the outer chamber without "back-breaking." To permit this elevation, a step is formed as an integral part of the outer chamber's panel. The top surface, covered with cork, is on the same level as the tub. Handles in the doorway and on the walls will provide safe entrance and exit to the bathing chamber. The floor of the bathing chamber is flat, with coved corners and only sufficient slant to allow proper draining. Wall sides continue flush up into the upper wall extensions.

A pair of sliding doors are an intrinsic part of the bathroom, since a swinging door could not open inwards because of the limited space and might not be able to swing outwards in all installations.

These doors further demonstrate the fact that the bathroom is an integral cabinet machine, since a tight closing is essential for the atmospheric control.

Other bathroom features:

(1) An overflow slot for the bathing chamber runs the length of the opening into the outer chamber just below the U-piece threshold. As with the overflow slots of swimming pools, it prevents any water slopping out of the chamber.

(2) An indirect light in the bottom of the bathing chamber wall illuminates the water and the floor, thus serving to prevent accidents.

(3) The lavatory water inlet is located on the side of the basin nearest the user so that the water spouts away without splashing or working into one's sleeves.

(4) The drain is placed in the left-hand corner nearest the washer to avoid catching one's fingers.

(5) Tub and shower handles are located at a point where they may be reached not only from the antechamber but also by the bather while lying down in the bath. When showering, the bather may reach them for mixing without having to stand under the stream.

(6) The stamped copper base units are surfaced with a monel "metalizing" of polished and slightly hammered texture, designed to prevent slipping and to provide not only a uniform appearance but also a minimum of surface dirt adherence.

(7) An electric heating system between the two base units warms up the metal itself. Since copper is the most able of heat-transfusing metals, the heat is carried to all surfaces in a few seconds, giving a radiant effect.

(8) Simple control-handles for water flow are designed in transparent plastic discs—red for hot water, blue for cold.

(9) All under-surfaces of the base metal are sprayed with *Dum-dum*, a mastic and asbestos material used in sound deadening of all-steel auto bodies and airplanes. This eliminates any tinny sound that might otherwise mitigate against the acceptability of a metal bathroom.

(10) A full 2-inch radius cove occurs between all angles of intersecting surfaces and allows easy cleaning.

(11) In the antechamber the walls kick back under the seat, washstand and step to allow full toe-room.

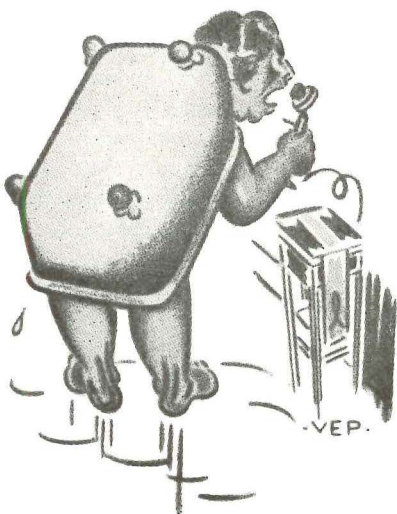
(12) Panels in the under kick-back space of both the toilet and washbasin are removable to allow full access to all pipe connections and traps that are not reachable through the U-piece panel.

SANITATION STANDARDS

The art of plumbing has advanced so rapidly in the last 20 years that even its name is no longer applicable, metallurgically speaking. Based on the Latin "plumbum," the name was correct when lead was the basic material used in plumbing systems. Today, lead has been replaced almost entirely by the ferrous and cuprous materials.

Despite the progress made in sanitary facilities, all major fixtures still have inherent weaknesses. These technical deficiencies are analyzed herewith by C. Milton Wilson of the staff of Clyde R. Place, consulting engineer. New standards of sanitation in public washrooms are set forth and improvements in mechanical design forecast.

The European situation—as viewed by PLAN, Norwegian architects' magazine:



"er . . . is this the architect?"

SANITARY FACILITIES OF THE FUTURE: C. Milton Wilson

The lavatory: The washbasin is essentially an instrument for use in washing the hands and face. Before directly analyzing the fixture itself, let us first analyze the process of washing which this fixture is supposed to simplify.

The usual procedure when using this fixture is to insert the stopper or actuate the pop-up waste and then to manipulate the hot and cold water faucets so that the bowl is partly filled with tempered water. After the washing operation is performed, the waste is opened and the dirty water allowed to drain out. Consider the operation carefully. In the first place the bowl of the lavatory has been used by those who have preceded and is definitely more insanitary than a public drinking cup. Suppose the bowl of the lavatory is not used and the hands are washed under the stream of water emitted from the faucet. Then the hands must be used to turn off the water, thereby picking up the germs which were left there by the original contact together with those left there by the person who preceded the user. This fixture is incorrect and defeats its own purpose.

A fixture with a rose spray instead of a faucet outlet is used in the office building of a large insurance company so that occupants can wash in running water. The lavatory bowl merely catches the waste water and directs it to the sewer. This arrangement, although it eliminates the objection to the bowl, does not eliminate the contact at the faucet but this latter condition can and is being rectified. We refer to the surgeon's wash-up sink where the water inlet is manipulated by means of the elbow, knee or foot. This fixture allows washing in running water without touching the faucets. It is logical, therefore, to predict that the lavatory of tomorrow will be a modified version of the surgeon's wash-up sink.

The toilet: Inventive minds have gradually brought about the replacement of the low down tank with the flushometer type valve. The fixture manufacturers followed suit and provided the side inlet closet for convenient use with a flushometer valve. The resulting combination provided the ideal arrangement for back-siphonage and has been traced as the source of an epidemic of typhoid.

The use of china handles on flush valves is becoming obsolete. The reason for this is that the majority of persons kick the handles of flush valves instead of touching them with their hands. This practice is so universal that even plated

brass handles are no longer used because the plating is kicked off by the abrasive action of the sole of the shoe. Most flushometer valves are now made with handles of solid nickel silver which does away with discoloration due to abrasion. Floor type flush valves operated by stepping on a button are obtainable.

Although the kicking process eliminates one source of contamination, it is minor when compared to the contamination of the water supply which can be fostered by back-siphonage, generally understood as the process of draining back into the water system of a building the contents of a toilet bowl. Back-siphonage can result from lack of water pressure, incorrect piping arrangement, or pipe sizes which are too small. The knowledge that this condition can and does exist has inspired the writers of sanitary codes to require that siphon breakers shall be provided on all flush valves. However, an examination of so-called "siphon breakers" on many types of flush valve makes one doubt their efficiency.

A fixture was recently brought on the market which has a slit on the side, the purpose being that before the water in a bowl can reach the flushing rim it will flow on the floor. The theory back of this arrangement was that it is better to have the waste there than back in the water system.

Another recent development is a water closet with an integral overflow which does not allow the water to reach the flushing rim even when the main trap is stopped. Other similar modifications are being attempted for the purpose of keeping the water below the flushing rim when there is a stoppage in the bowl.

While considering the water closet, careful thought should be given to the seat which is also an excellent medium for transmitting infectious germs. Numerous patents have been obtained on seats provided with devices for sliding paper across the top to present a clean surface for each user. Most of these devices are "gadgets" which are difficult and expensive to maintain.

Another device has been patented which automatically raises the seat into a small chamber and sterilizes it by means of medium pressure steam. This may be the answer to the problem of real sanitation of seats in public toilets.

Looking into the future, we can say that water closets will be of the top inlet type, with foot-actuated flush valves and automatic seat sterilizers.

The urinal: In analyzing this fixture it is difficult to predict whether the wall type, stall type or pedestal type will predominate. Many engineers believe that the stall type has the decided advantage in that it can be used as a floor drain when the toilet room is washed down.

There is no doubt, however, that manually operated flush valves on urinals will be eliminated in the future. This particular piece of apparatus can well be considered a germ transmitter.

Of the several types of automatic flushing devices which are available, the one which is based on thermal action is undoubtedly superior and will probably be the answer. Until its final acceptance the foot-operated flush valve is available.

The shower: This fixture is gaining in importance just as the bathtub is declining, although it is doubtful whether it will replace the tub. The limitations

which are placed on showers are due to the architectural practice of limiting the size of a shower compartment to a space approximately 3 feet square.

For many years thermostatic valves were considered gadgets and justly deserved that title. These valves have been perfected now and should be a part of all shower equipment, especially when the water supply fluctuates in pressure or temperature or in both.

The advantages of hydrotherapeutic treatments are numerous and based essentially on the flow of varying temperatures of water over the body. This is easily obtained by duplicate controls. Eventually the shower will be considered as more than a cleansing device. It will be thermostatically controlled, very large, with a multiplicity of streams, a full control of temperature and pressure, and properly lighted, ventilated and drained.

HISTORICAL NOTE: Back in 1913, when the Sanatorium of the Metropolitan Life Insurance Company at Mount McGregor, N. Y., was built, the architect, D. Everett Waid, designed a special lavatory intended to reduce the possibility of infection. A rose supply permits the water to fall gently, like rain, so that splashing is eliminated. Water consumption is reduced to a minimum. A combination supply regulates the temperature as desired. To encourage washing in running water, the lavatories are provided with open waste and no plug.

STATISTICAL NOTE: The home is one of the most dangerous places on earth, according to Louis I. Dublin, statistician of the Metropolitan Life Insurance Company. Precise figures are lacking, but he estimates that in 1935 approximately 100,000 Americans were killed or injured in bathrooms. Chief hazards are falls, burns, scalds, electrocution. The ordinary bathtub or shower, usually accused of many casualties, directly accounts for less than one-half of one per cent of accidents.

BACK-SIPHONAGE BOOKLETS:

(1) *Epidemic Amebic Dysentery.* National Institute of Health Bulletin No. 166. Copies obtainable at 20 cents each from the Superintendent of Documents, Washington, D. C.

(2) *Report of Research on the Hydraulics of Water Closet Bowls and Flushing Devices.* By Prof. Thomas R. Camp, M.I.T. Copies obtainable at \$1 each from J. Preston Perham, Treasurer, Massachusetts State Association of Master Plumbers, Inc., 26 Cypress Street, West Roxbury, Mass.

(3) *Cross-Connections in Plumbing and Water-Supply Systems.* By Anton A. Kalinske, under direction of Prof. F. M. Dawson and Frank R. King. Copies obtainable from the Wisconsin State Board of Health, Bureau of Plumbing and Domestic Sanitary Engineering, Madison, Wis. Free to citizens of Wisconsin; 25 cents to others.

BACK-SIPHONAGE RESEARCH UNDERTAKEN BY THE INDUSTRY

The full importance of faulty plumbing as a health peril became generally recognized when amebic dysentery broke out in Chicago in 1933 during A Century of Progress. The Public Health Association and the sanitary engineers have called attention to the fact that plumbing arrangements common in many public buildings permit harmful wastes to be siphoned back into the water system whenever a vacuum is created in the distributory pipe. Fixtures with submerged or submersible inlets are definitely under suspicion.

Investigation of this problem has been begun at Iowa State University under the direction of Prof. F. M. Dawson. The research program, sponsored by the National Association of Master Plumbers and by a group of manufacturers, intends to establish the hydraulic and pneumatic laws pertaining to back-siphonage. As stated: "A rigid experimental analysis is to be made of the vacuum conditions that can occur in water pipes, and whether and how such conditions can be eliminated or prevented from producing back-siphonage with the contingent dangers to public health from contaminated water supplies." On the basis of this work it should be possible to know what will be the maximum vacuum condition for any specific installation. With definite testing procedures and knowing what conditions any back-siphonage prevention device must be able to withstand, specifications for plumbing installations can be set up accordingly.

The Back-Siphonage Research Council, with headquarters in Los Angeles, is backed by another group of manufacturers. Original plans have been delayed, but research is expected to go ahead soon, probably at the National Bureau of Standards in Washington, D. C.

A recent research on the hydraulics of water closet bowls and flushing devices was conducted by the Massachusetts State Association of Master Plumbers in cooperation with Massachusetts Institute of Technology. It was found that under certain conditions back-siphonage can occur without the necessity of a submerged rim. Tests made on various protective devices are described in a report by Prof. Thomas R. Camp.

Studies have also been made by the Hydraulic and Sanitary Laboratory of the University of Wisconsin during the past 6 years. Findings are reported in a bulletin issued jointly with the Wisconsin State Board of Health. The publication includes a list of vacuum breakers and anti-siphon devices which meet the drinking water safeguard requirements of the State plumbing code.

The Kentucky Sanitary Survey and Research Committee, which has recently promoted a clean-up of insanitary toilet conditions in Louisville, calls attention also to the danger of sewer gases and the need for thoroughly ventilated plumbing systems, particularly where heavy street traffic makes it impossible for utilities to maintain perfectly tight gas and water lines and sewers.

SANITATION EQUIPMENT

bathrooms and kitchens



after use, toilet seat automatically returns to the cabinet where



Photos by Wendell MacRae

it is sterilized with live steam and remains locked until used again

self-sterilizing toilet seat

Produced by Electric Steam Sterilizing Company, Inc., 30 Rockefeller Plaza, New York City, under the trade name "Sterlette." The sterilizer fits on standard toilet bowls. At present it is being marketed in the New York and New England areas only, but production plans contemplate national distribution within a few months. A fixture combining sterilizing seat and toilet bowl as a single integrated unit is also being developed in conjunction with the Crane Company. Typical installations: comfort stations, theaters, restaurants, stores, office buildings, hospitals, transportation terminals, filling stations.

The Sterlette is sterilized with live steam every time it is used, thus providing hygienic protection. Experimental seats have been in operation since January 1934 in a municipal comfort station at Waterbury, Conn. Other installations have been in operation for a year.

The cycle of operation: When a coin has been deposited (or when a button on the cabinet is pressed), a Westinghouse motor starts action. Through a train of gears, it operates a series of cams, opens the doors of the sterilizing compartment, lowers the seat to a point just above the bowl, closes the doors, and opens the circuit to the motor. After use, the circuit to the motor is closed (by the slight additional travel of the seat to the bowl), and through reverse operation the doors open, the seat travels upward until contained in the sterilizing compartment, after which the doors lock closed. By means of a small steam generator, the seat is sterilized with live steam for one minute, sufficient to wash it thoroughly and destroy any live organisms. A special "steam" lamp, manufactured by General Electric, is used for this purpose: water introduced in a metal tubing coil, which surrounds the tungsten filament, is almost immediately turned into steam by the high temperature of 4,000°F. A fan driven by the Westinghouse motor dries the seat. Finally the vitreous enameled metal seat, which is hollow, is flooded with cold water to cool it to body temperature. The entire operation requires about 90 seconds. Upon completion the seat remains locked in the sterilizing chamber, sanitary and immaculate for the next user. Safety devices have been incorporated in the mechanism and any interference with its operation before the seat is sealed in the sterilizing chamber instantly suspends the entire action of the Sterlette.

automatic control urinal

Produced by Thermo Automatic Specialties Co., 300 Fourth Avenue, New York, under trade name "Tasco."

The urinal consists of a vitreous china or porcelain stall fixture with a thermostat control in the waste outlet. The control, a self-contained hydraulic unit, derives its action from the heat of the urine and automatically flushes the urinal each time it is used. The device can be adjusted to give any desired amount of water for flushing.

A similar type of urinal, manufactured by Fulton Sylphon Co., Knoxville, Tenn., was reported in *Technical News and Research*, August 1936, page 168.

removable overflow

Developed by Briggs Manufacturing Co., Plumbing Ware Division, Detroit, for use with all "Beautyware" lavatory assemblies.

With an ordinary pair of household pliers, the overflow can be removed in a few seconds by simply taking out the four small screws which hold it in place. The upper half is cleaned by holding it under a faucet and letting the water flow through. Soap, stray hairs and other waste that may have collected in the lower half can be easily removed by scrubbing with an old toothbrush.

The Speakman Company, Wilmington, Delaware, also announces that a special line of showers and fixtures has been developed for use with Briggs "Beautyware" lavatories and bathtubs.

porcelain enameled partitions

Introduced by The Sanymetal Products Co., Inc., Cleveland, under trade name "Porcena."

A solid 1" insulating core is sealed between two heavy sheets of porcelain enameled metal. The enamel finish is fused to the steel at such high temperatures that it virtually becomes integral and for all practical purposes is impervious to injury. Used as toilet partitions, the panels can be washed and scoured as frequently as desired.

electric towel bar

Introduced by Prometheus Electric Corp., 401 West 13 Street, New York.

The bar, electrically heated, warms towels for bathroom use. The heating element fits into a 1¼" chromium-plated brass tubing which can be made any size to fit individual requirements.

bathroom utility wall unit

Announced by The Accessories Company, Inc., division of American Radiator Company, 40 West 40 Street, New York. Designed by George Sakier as part of the Arcode System of interlocking wall sections for bathrooms and kitchens. (See "Integrated Kitchens," *Technical News and Research*, October 1936, page 325.)

In addition to a large compartment with shelves for the storage of linens, towels and other bathroom necessities, the wall unit provides a compartment for the water closet tank that is easily accessible for repairs and connections. The panel is furnished with or without a concealed heating unit. Below the tank compartment is space for a convector radiator with 48 square feet of radiation, ample to heat an 8' x 10' room. Louvers in the wall panel are designed to divert the convected heat 4 inches from the wall surface so that, although a warm area is provided near the toilet seat, the heat does not touch the body. The unit has a depth of 8½ inches, thus allowing space for piping where walls are solid or not sufficiently thick to contain pipes. It is made of Armco furniture steel, finished in a choice of colors.

Integrated bathrooms: Mr. Sakier is now working on a bathroom design which will be marketed as a complete "packaged" unit. In plan it measures 5' x 7'-6" and offers a choice of 4 door positions. It utilizes Arcode wall sections, standardized to a door height of 7 feet. Above this height the walls can be finished in plaster or other material. Any lavatory or toilet can be used, but the assembly requires a Standard Sanitary bathtub. If desired, a standard 3-foot steel window can be centered in the wall area along the recessed tub. According to present production plans, the bathroom will be on the market before July.

dishwashing cabinet sink

Produced by The Ebco Manufacturing Co., 401 West Town Street, Columbus, Ohio, under trade name "Ebco-Zephyr 42."

The dishes are first placed in a built-in round dishpan for washing, then racked in a built-in rectangular draining compartment, rinsed with scalding water by means of a "pistol-grip" hose spray, and left in a wire basket to dry. The hose disappears when not in use. Soap dish and tumbler rests are also built into the porcelain enamel metal construction.

group showers with doors

Announced by Bradley Washfountain Co., 2203 W. Michigan Street, Milwaukee.

The new showers have all the advantages of other Bradley group showers, plus the increased privacy provided by the doors. A full circular model accommodates five users at one time and the semi-circular model three, each in a separate roomy compartment. Only three plumbing connections are necessary, two supplies and one drain. The scalding hazard is practically eliminated by a specially designed mixing chamber. Maximum cleanliness, with a minimum of janitor labor, is assured by the absence of dirt-collecting pockets. Made of steel tubing and sheets, the fixtures are finished in baked enamel.

lightweight lavatory

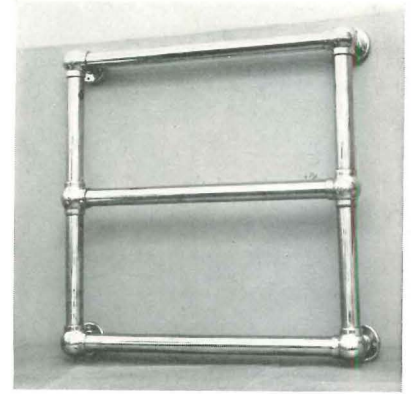
Designed by Briggs Manufacturing Co., Plumbing Ware Division, Detroit, for use in marine, bus, plane, railroad, trailer and other mobile installations where saving of weight is important. Also being marketed for use in small bathrooms and apartments.

This new lavatory measures 17" x 19" and weighs approximately 19 pounds, less fittings, or about one-third the poundage of conventional lavatories. There are two models: (1) cluster type fittings, (2) 8" centers. Made of stamped metal, both models are porcelain-enameled all over, and are available in the full line of Briggs colors. Both have 2¼-gallon basin capacities, and are equipped with an interior overlap as a guard against splashing.

flexible unit kitchen

Now put on the market by appliance and merchandise department of General Electric Company, Nela Park, Cleveland. (See first announcement, *Technical News and Research*, July 1936, page 74.)

The unit kitchen is made up of standardized, prefabricated, interchangeable parts which can be fitted to any kitchen plan. There are six basic sections—range, dishwasher, sink, refrigerator, base cabinet and a corner section. Each section has four divisions—top storage cabinets, lighting strips or molding, back splash wall panel and base units of drawers or appliances. Low in initial cost, the unit kitchen also effects savings in installation. As many sections as desired may be ordered to fit any space for home or apartment. Sections can be adapted to one-wall, L- or U-shaped plans.



Prometheus electric towel bar

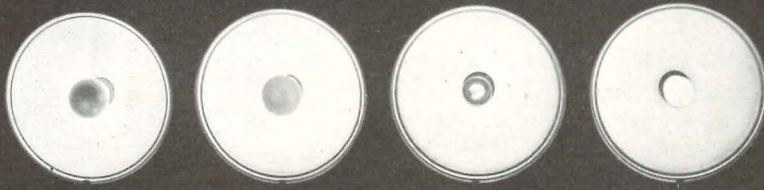


Bradley group showers with doors

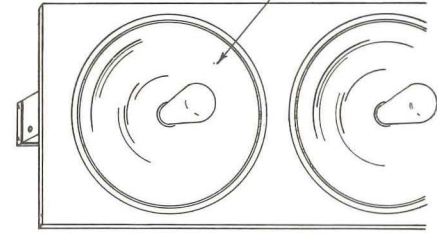


Ebco dishwashing cabinet sink

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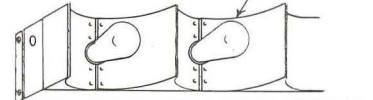
Oxidized Aluminum Parabolic Reflector



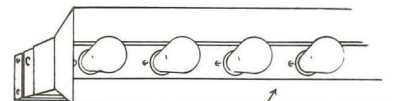
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Specular metal parabolic shapes

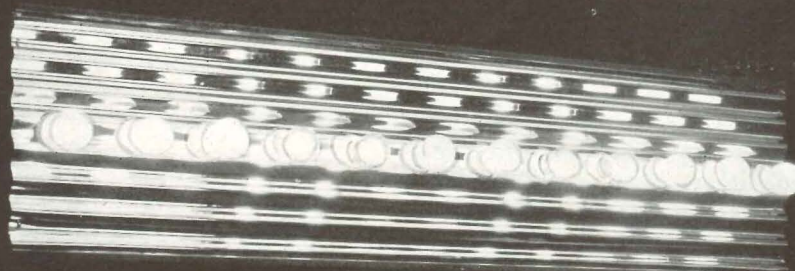


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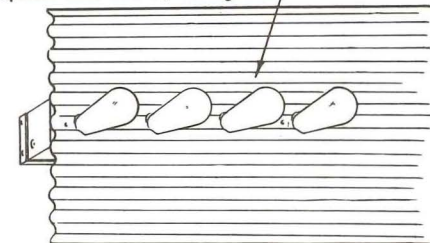


Specular metal reflecting trough

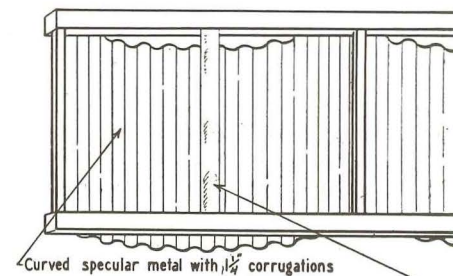
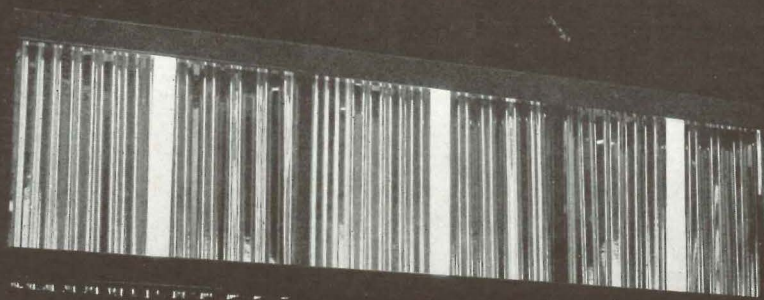
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Specular metal with 1/4" corrugations



5

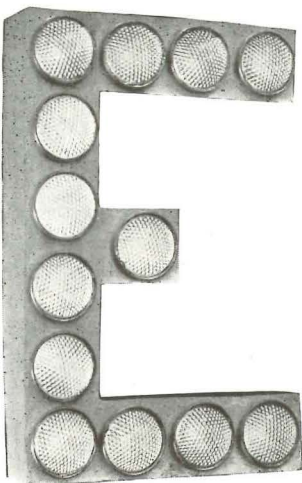


Lumiline lamps

CONTROL OF LIGHT

A wealth of new materials and old materials usable in new ways is available: polished and mat surface metals, often corrugated or embossed or brushed in various ways; glass of every kind, diffusing or configurated, colored or clear, molded into blocks, bricks, or tiles; plastic materials, endless in variety; pressed wood; and many other similar products. With modern lighting technique it is possible to utilize the full beauty of all these new materials.

The integration of lamps and reflecting surfaces to produce new lighting effects finds its fullest expression in the design of theaters. The theater front must attract attention by its predominating brightness and color. Displays must be clearly visible and easily changeable. Some of the new lighting devices now being developed for this purpose are described herewith by Francis M. Falge of the Nela Park Engineering Department of General Electric Company.



Climax reflector design

NEW LIGHTING EFFECTS WITH NEW MATERIALS AND LAMPS

Metal reflectors: The permanent finishes for metal—such as chromium plate on nickel, brass or copper, the Alzak finish on aluminum, the Alcoa lighting sheet—reflect light with high efficiency and are satisfactory for outdoor use. They make possible the design of reflector equipment which will utilize light more efficiently.

Figure 1: For a border or letterstroke design on the theater front, large spun oxidized aluminum reflectors have been devised. With a 10-inch reflector, for example, a low-wattage lamp having its filament at the focal point of the parabolic reflector can be used. (The illustration shows a silvered bowl lamp, next a 25-watt colored lamp, then a 10-watt daylight lamp, and fourth, a 10-watt yellow lamp.) An interesting variation is produced by coloring the end of the lamp. Forty-watt silvered-bowl lamps produce a striking effect, but the re-directed light may be too bright for close viewing.

Figure 2: Usual exposed lamp letters or borders can be made more impressive by the use of simple polished metal inserts between the lamps. The result is a continuous band of light. These strips can be formed of a flat metal or of a diamond-patterned metal.

Figure 3: Another effect can be created by a light-directing trough using a single row of lamps. The slanting sides of the trough should be shaped to follow as closely as possible a parabolic curvature. If a diamond pattern polished metal is used, the reflections of the lamps are broken up. This effect can be applied to the design of letters 4 feet or larger.

Figure 4: One of the most promising developments involves the use of polished corrugated metal with a row of standard lamps placed along the center line. When the lamps are lighted the surface of the metal is transformed into a myriad of sparkling sources. The reflected light from each lamp is spread out in one direction only so that bands of light are produced, in each case, as wide as the source of light itself. This permits the use of those colored lamps which are most effective: for example, yellow lamps which give almost as much light as white; rose, which gives half as much light, and for cooler sparkling sources the daylight lamps which also give half as much light as white. Many design combinations are possible with these lightly-tinted lamps. Brushed stainless steel has a similar effect, producing colored bands of high brightness but less

sparkle than the corrugated metal. Lumiline lamps can also be used with these surfaces to produce wide bands of light.

Figure 5: Another method of using corrugated metal is to bend it into curved sheets with lumiline lamps placed at the focal points. The crest of each corrugation then picks up a reflection of the lamp, producing a series of long stripes.

Climax reflectors: One of the most interesting new developments involves the use of small polished surface reflectors which collect light ordinarily wasted and redirect it, thus increasing the brightness. Natural-colored glass roundels or covers produce a sparkling color effect. The reflectors, marketed by Climax Reflector, Inc., of Canton, Ohio, utilize 3- and 6-watt lamps which in some cases produce color with the effectiveness of 10-, 15- or even 25-watt colored lamps. They are completely self-contained units which can be screwed into standard lamp sockets or built into the theater marquee or signs as permanent fixtures.

Ribbed glass: This material has the property of spreading in one direction only the light from lamps placed behind it, while retaining the width of the source in the other direction. This principle can be used to advantage for ordinary exposed lamp borders or letters. By facing the trough with the ribs across the short width, the lines of light are elongated so as to join each other. With ordinary factory ribbed glass, the glass should be placed about 4 inches from the lamps.

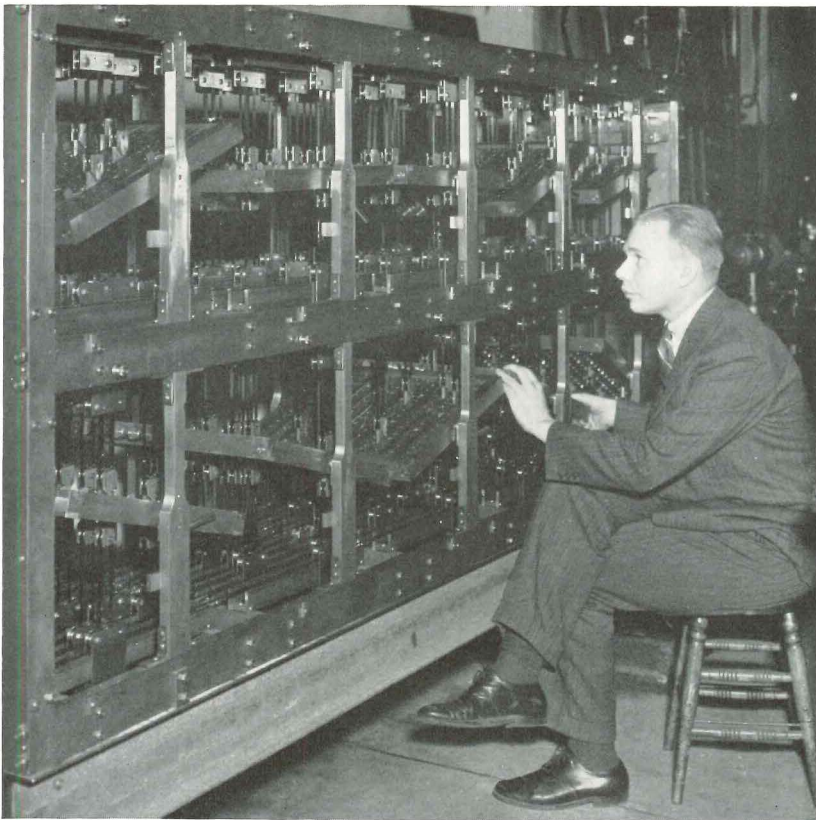
Marble: This industry has perfected a method of improving the translucency of marbles. The result is known as Lumar and is a product of the Vermont Marble Company. By placing lamps in a white-finished cavity back of the marble, the face becomes luminous and the variegated texture is revealed. Designs can also be sandblasted upon the marble.

Glass bricks, blocks, tiles: Fluted and embossed surfaces can perform marvelous transformations with light. Glass bricks, with their flutes at right angles to each other, have proved especially effective when illuminated from behind with either lumiline or regular mazda lamps. A specially interesting lighting effect is obtained by using a horizontal row of lumiline lamps, perhaps yellow in color, near the top of a row of bricks with vertical lumilines along one side of the bricks in a contrasting color. An accent is provided by placing a mazda lamp at the opposite corner.

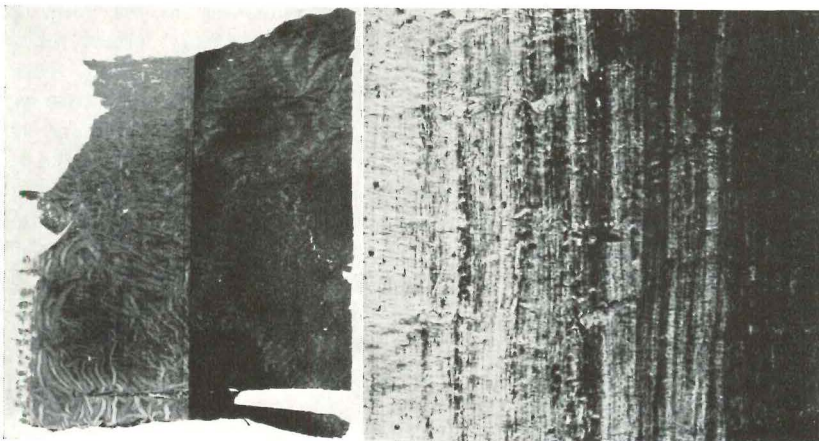
RESEARCH NEWS

simultaneous calculator

A new machine (see illustration) has been developed at Massachusetts Institute of Technology by Dr. John B. Wilbur to facilitate complex engineering calculations, such as those arising in the design of skyscrapers and bridges. Simultaneous linear algebraic equations involving 9 or more unknowns can be solved. Once the conditions of the equations have been set on the machine, a single movement of the mechanism carries out in a few seconds mathematical processes that might require many hours by ordinary methods. The machine weighs 2,000 pounds and has more than 13,000 separate parts, including 600 feet of flexible steel tape. It is the outgrowth of an experimental laboratory model built in 1934. Besides engineering, the calculator is expected to be useful in such diverse fields as nuclear physics, geodetic surveying and genetics.



Dr. J. B. Wilbur (M.I.T.) and his machine for solving mathematical equations



(1) 2" square piece of foil . . (2) 250x photomicrograph of same foil

welded alloy foil

For the first time two alloys have been welded together and reduced, by rolling between steel rolls, to a thickness of only 6 millionths of an inch in the General Electric laboratories. (Gold has been beaten to 4 millionths.) The alloys are Copnic (45% nickel, 55% copper) and Chromel (90% nickel, 10% chromium). The final product (illustration 1) is as delicate as gold leaf. Even when magnified 250 times (illustration 2) the weld can be distinguished only by the color difference of the alloys. Up to the present, this has been entirely an experimental development.

metals from powders

Known for more than 30 years, powder metallurgy is now emerging from its laboratory stages and industry is exploring the commercial possibilities of this new technique. Briefly, the process consists of feeding specially prepared powders into the mold of a power press at a predetermined speed, and applying pressure and heat; the product fuses into a coherent mass without actual melting. Advantages include control of alloy composition, its porosity and grain structure. Articles may be pressed to exact shape and size in mass production. Principal limit is size: as the cross-sectional area increases, the required pressures become enormous. (Present upper limit in forming bearings is about 6".) Different metals can be combined to give different surface characteristics. For plaques and other decorative applications the production of bi-metals offers unusual possibilities in color combination. At present experiments are also being made with spraying nickel powder on paper and fabrics and then burnishing to obtain a lustrous finish.

Courtesy The International Nickel Co., Inc.

Other new products and industrial developments are reported in the Marketing News section of this issue, beginning page 34, advertising folio.

BUILDING TYPES

COMPREHENSIVE REFERENCE STUDIES ON DESIGN AND PLANNING

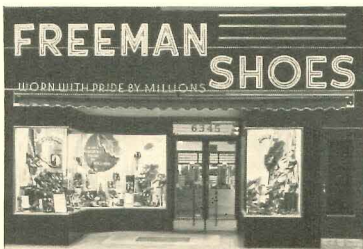
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JANUARY

RETAIL STORES
SPECIALTY SHOPS
• MARKETS •
SHOWROOMS
RESTAURANTS



COMPILED BY A GROUP OF SPECIALISTS • ARCHITECTS, ENGINEERS AND OTHERS

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BUILDING TYPES

REFERENCE STUDIES ON DESIGN AND PLANNING

• EDITORIAL FOREWORD

With this issue we are publishing the first of a series of studies on the planning of building types. Each study will be prepared by a group of specialists—architects, engineers and others—who have recently worked out problems connected with the type of building under discussion. The purpose of the Building Type studies is to review authentic current practice with respect to plan, construction methods, materials and equipment.

Each study will constitute an addition to the customary contents and will be illustrated with photographs, plans and detail drawings. The illustrations for the series as a whole, by picturing architectural features of new significance associated with many building types, will give a fair idea of modern trends in design and of the practical considerations motivating the trends. It is our belief that there is a distinct need by architects and others for practical planning information, collected together in convenient and usable form.

BUILDING TYPE STUDY NO. I

RETAIL STORES • SPECIALTY SHOPS

SHOWROOMS AND RESTAURANTS

A range of establishments typical of retail trade has been selected for analysis in this issue. There has been a notable advance in the construction, facing, equipment and general arrangement of shops, markets and department stores. In the buyer's market of the depression, survival of retail and service stores depended generally upon restudy of merchandising policy and method, together with simplification of overhead. The consequent modification of theory and practice in retail trade has brought about important changes in store design.

• CONTRIBUTORS

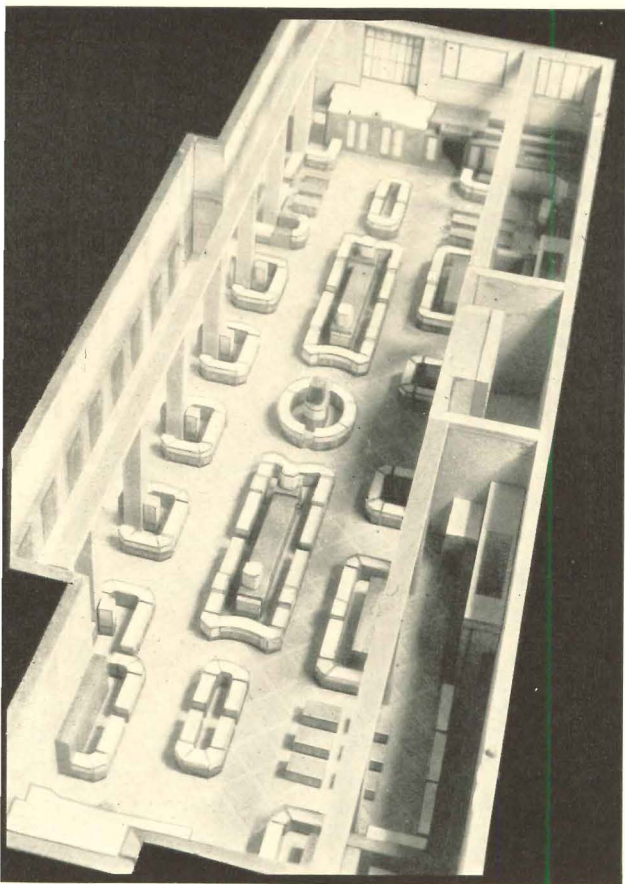
KENNETH C. WELCH, Architect, Vice-President, Grand Rapids Store Equipment Company. ELEANOR LEMAIRE, Department store and specialty shop designer. JOHN R. WEBER, Architect and showroom designer. PERCIVAL GOODMAN, Architect and jewelry store designer. B. SUMNER GRUZEN, Architect and designer of cash and carry markets.

FEBRUARY

DESIGN AND PLANNING OF
INDUSTRIAL BUILDINGS

MARCH

HOUSING MANUAL ON THE DESIGN,
CONSTRUCTION AND EQUIPMENT
OF DWELLINGS. There will be diagrams
and plans illustrating latest practice in
group planning of housing for subdivisions
and communities. A variety of materials,
appropriate for specific use, selection of
approved equipment, and improved planning
will receive extensive treatment.



Model showing part of department store layout with arrangement of counters and aisles. KENNETH C. WELCH, ARCHITECT.

THE DEPARTMENT S T O R E

By KENNETH C. WELCH, ARCHITECT

DEFINITION

THE DEPARTMENT STORE, as it is known today, presents a more complicated problem from a planning standpoint than any other retail establishment. A department store is one which combines in one unit or series of adjacent units a representative line of merchandise in all the eight basic groups as listed below:

SALES SECTIONS

LADIES' ACCESSORIES

Jewelry
Neckwear and Scarfs
Handkerchiefs
Gloves
Hosiery
Bags and Leather Goods
Umbrellas
Millinery
Corsets and Brassieres
Knit Underwear
Silk and Muslin Underwear
Ladies' Shoes

CHILDREN'S APPAREL

Infants' Wear
Girls' Wear
Boys' Furnishings and Clothing
Children's Shoes

DRY GOODS

Silks and Velvets
Woolens
Wash Goods
Linens
Patterns
Blankets
Laces and Trimmings
Ribbons
Notions

HOME FURNISHINGS

Rugs, Carpets and Floor Coverings
Draperies and Upholstery
Lamps and Shades
Furniture
China and Glassware
Appliances
Small House Furnishings
Radios

LADIES' READY-TO-WEAR

Women's Dresses
Women's Coats and Suits
Popular Price Dresses
Junior and Misses' Coats and Suits
Junior and Misses' Dresses
Blouses and Skirts
Sportswear
Furs
Aprons and House Dresses
Negligees and Robes
Uniforms

MEN'S APPAREL

Men's Furnishings
Men's Hats
Men's Shoes
Men's Clothing

MISCELLANEOUS GROUP 1.

Toilet Articles and Drug Sundries
Stationery
Books
Beauty Parlor
Photographic Studio

MISCELLANEOUS GROUP 2.

Sporting Goods
Gift Shop
Luggage
Tires and Auto Accessories
Toys

FOOD SECTIONS

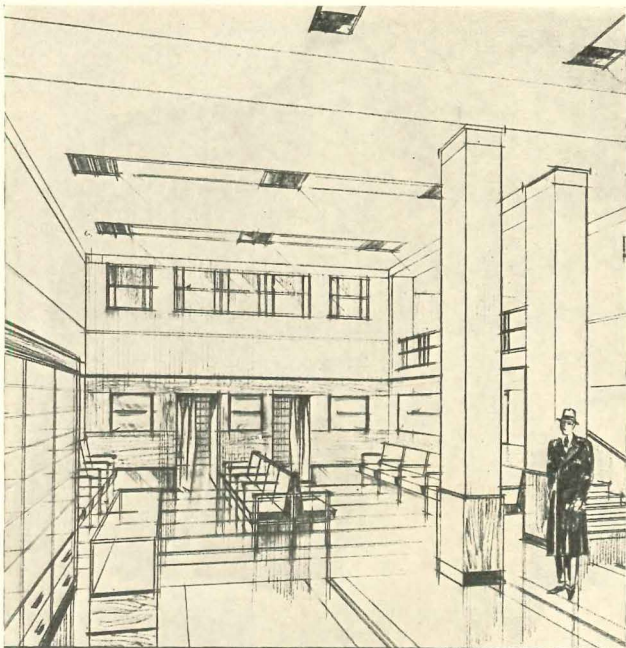
Soda Fountain
Candy
Restaurants
Baked Goods
Groceries
Liquors

DEPARTMENT STORES

Photograph by Charmante Studio, Inc.



INTERIOR, WANAMAKER'S, NEW YORK CITY. KENNETH C. WELCH, ARCHITECT. Note placing of counters and cases for a department at right angles to the direction of aisles. Section shown in the foreground is frequently utilized for so-called "pullers."



SHOE DEPARTMENT OF WALLACH'S STORE, NEW YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.

SERVICE SECTIONS

OFFICES

General
Executive
Credit—Charge Accounts
Merchandise and Sample Rooms
Advertising
Pay Roll
Superintendent
Adjustments
Telephone Orders
Lay-away

WORKROOMS, Etc.

Ready-to-Wear
Men's Clothing
Hosiery, Jewelry Repair, etc.
Kitchen (Food, Candy, etc.)
Bakery
Drapery-Upholstering
Picture Framing
Shoe Repair, Paint Shop

RESERVE STOCK

Generally divided in departments

RECEIVING AND MARKING

PUBLIC REST ROOMS AND TOILETS
Public Telephones

EMPLOYEES

Rest Rooms
Hospital
Locker Rooms
Restaurant
Training
Checking Desk

PACKING AND DELIVERY

Gift Wrapping

STORE PROTECTION

DISPLAY DEPARTMENT

Storage
Sign Writing, etc.

There are listed above over seventy sales sections and thirty service sections. In addition, the great majority of department stores have a basement store comprising a repetition of many of these sections in less expensive merchandise. Also, many of the sections listed above, both sales and service, are further subdivided into sections. For example, men's furnishings comprise many separate sections, such as shirts, neckwear, underwear, etc., with the result that in larger stores it is often necessary to consider as many as two hundred different sections for which to make provision.

All of these sections will have definite requirements as to facilities and area for their proper operation, and many of them have a direct and desirable relation one with the other. It is the store architect's function to first determine the required areas, to dispose of them to insure a logical, convenient and profitable operation, and then to design the required facilities within those areas to the best interest of the store as a whole—to eliminate waste space and particularly waste motion in the store's operation.

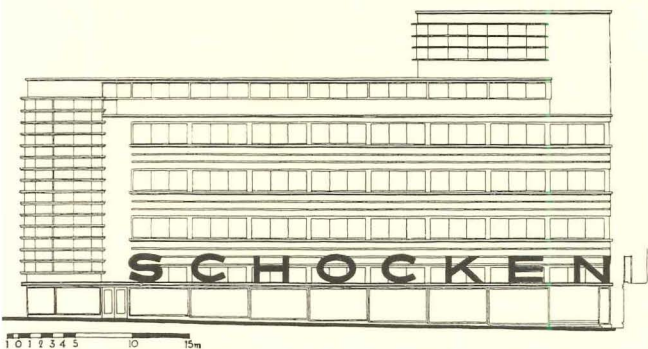
LOCATION

Most large department stores are located in or near the main retail shopping district. In some of the larger cities many stores have built suburban branches, carrying representative stocks in most of the sections, and some chains of department stores have concentrated in the outlying shopping districts away from the main center. As a rule a department store is best located in or near the active retail center, although in a great many cases a successful department store is the dominating factor in creating an active shopping center. This is demonstrated by traffic counts taken of stores on the edge of the concentrated shopping districts, which many times pull in eighty per cent of the women who would normally pass the site.

This concentration of retail stores, while it has some disadvantages in the way of congestion and high rentals, has the advantage of making it more convenient for the customer who wants to "shop" in the sense of making comparisons between stores as to style and price, especially in the "fashion" lines. That many customers, women especially, do a great deal of this is shown by the



BUILDING FOR J. N. ADAM & CO., BUFFALO, NEW YORK. STARRETT & VAN VLECK, ARCHITECTS; EDWARD & ASHLEY, CONSULTING ENGINEERS; CHARLES SWANSON, FIXTURE DESIGNER. This is a remodeled building. The base of exterior is faced with black granite. Yellow Kasota stone is used up to the third story windows, buff and tan brick above. The show windows are trimmed with bright aluminum.



SCHOCKEN DEPARTMENT STORE, STUTTART, GERMANY. ERICH MENDELSON, ARCHITECT. A department store with maximum lighting for show windows, floors and stairways.

fact that in many centralized department stores, sixteen to seventeen customers will enter the store to every ten transactions, whereas in a comparatively isolated suburban store there will be a transaction for every person entering. It is also an important enough consideration that most department stores have corps of "comparison shoppers" who shop their competitor's stores to compare items and prices and make detailed reports of their findings.

Display windows of a sufficient number are a very important advertising medium in department stores. They increase in value in direct proportion to the number of persons normally passing the store. In fact, there are some specialty store chains with A-1 locations that depend entirely on their display windows and customer good will and do not use any other form of advertising.

From these standpoints the value of a department store location can be measured by the number of persons who pass the site on an average day in proportion to the population of the community. Some cities with an unusual concentration of retail stores in a given district have ten or fifteen per cent of the urban population pass a given site during store hours. In such a case the importance of the display windows becomes evident.

PARKING

It is not within the province, nor should it be the duty, of any department store in a congested high-rental district to provide free parking for its customers. In suburban communities, largely dependent on the automobile for transportation, this is not only desirable but generally entirely possible, if the community itself does not make the necessary provision. A good example of this is in Quincy, Massachusetts, where a municipal parking area, sufficient to handle the peak shopping loads, is provided practically the whole length of the main shopping street between the rear of the stores on one side of the street and a railroad. As a result, many of the stores have placed attractive entrances and even display windows at the rear, facing the parking space.

Where centralized department stores have provided parking space in the form of adjacent garages, the actual number of persons entering the store from this service is disappointingly low, to the extent that the cost to the store per customer using the space is exorbitantly high. Even in the case of one active store in Quincy connecting directly with the municipal parking space, only fifteen per cent of the customers entered from this direction, eighty-five per cent entering from the main street.

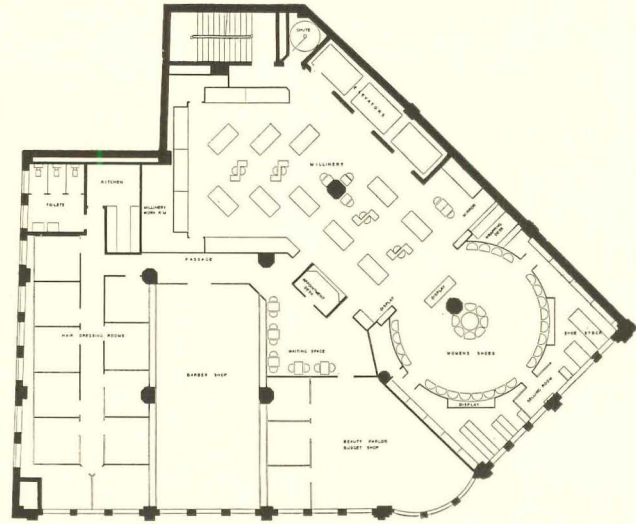
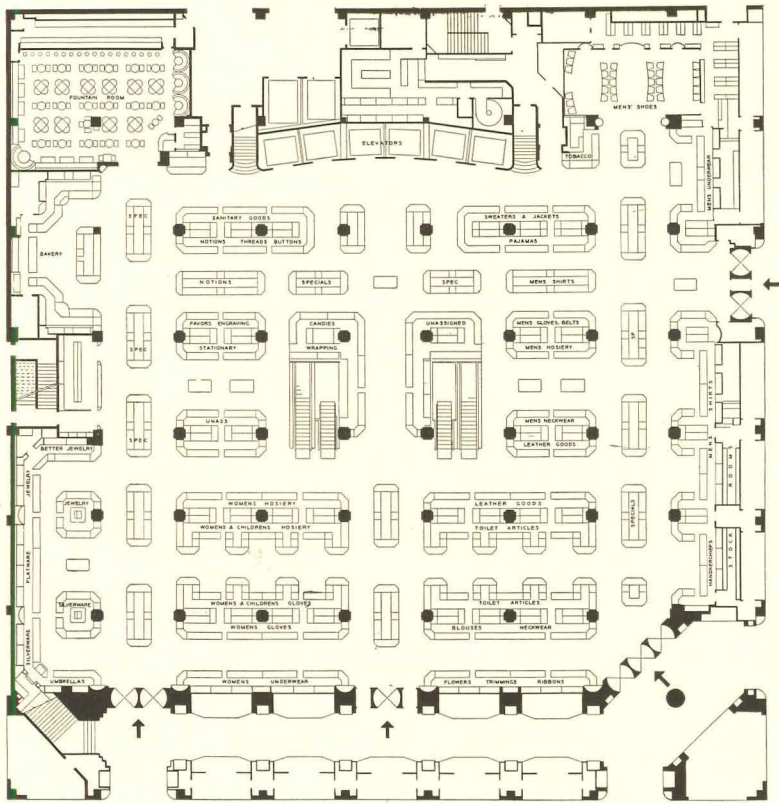
ESTIMATING FUTURE REQUIREMENTS

The volume of business any department store can do is dependent on (1) the spending power of the community, (2) ability of the management, (3) local competition, (4) limitations of space, (5) location of store and (6) layout and environment. The architect has no control over 1, 2, 3 and generally the site of location is fixed. He does have a great deal to do with limitations of space, layout and environment. As a rule a store is built to accommodate a predetermined volume, but a reasonable amount of future expansion should be considered in the initial plan.

This future expansion can be in the form of the acquiring of adjacent property or the adding of more floors. In the former case the location of comparatively fixed services, such as inter-floor transportation, mechanical shafts, etc., should be considered.

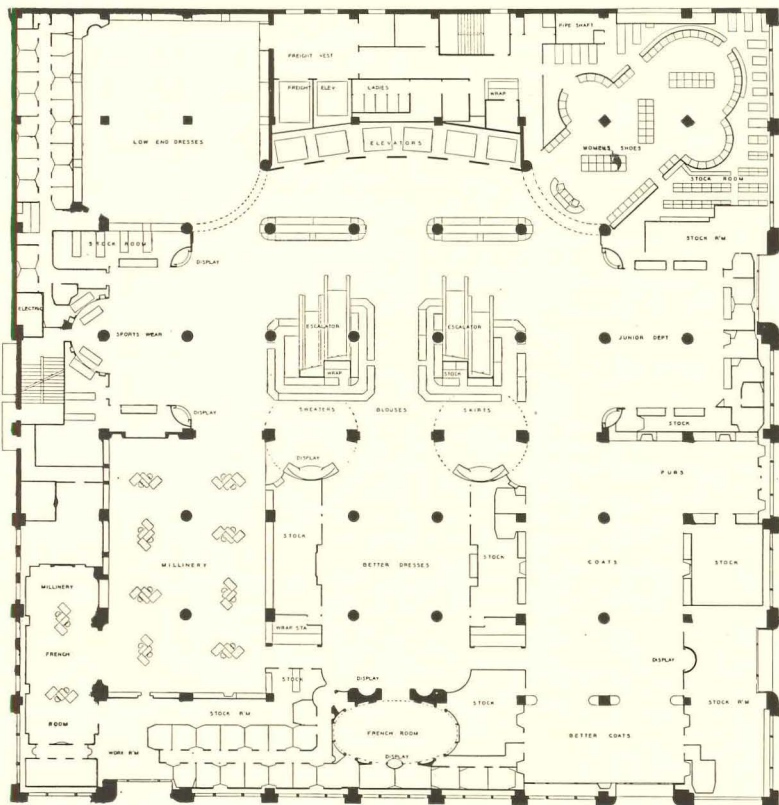
In the event of future "vertical" expansion it is necessary to consider carefully possible location of additional vertical trans-

DEPARTMENT STORES



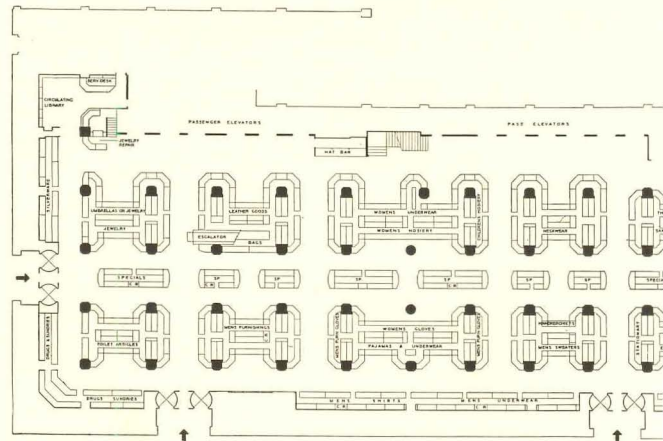
FOURTH FLOOR PLAN, STORE FOR MEYER JONASSON PITTSBURGH, PA. KENNETH C. WELCH, ARCHITECT

FIRST FLOOR PLAN, STORE FOR W. H. BLOCK COMPANY INDIANAPOLIS, INDIANA. VONNEGUT, BOHN & MUELLER ARCHITECTS. The arcade type windows more than double the display space. Compare disposition of ground floor and second floor and note increased size of departments above. Plan shows preferred location of escalators at center and elevators at rear.



SECOND FLOOR PLAN, STORE FOR W. H. BLOCK COMPANY INDIANAPOLIS, INDIANA. VONNEGUT, BOHN & MUELLER ARCHITECTS. Kenneth C. Welch, associated with Pereira & Pereira, Architects for the second floor.

FIRST FLOOR PLAN, ROSENBAUM STORE, PITTSBURGH, PA. Designed by Grand Rapids Store Equipment Company, KENNETH C. WELCH, ARCHITECT. The four entrances are located with relation to principal aisles.



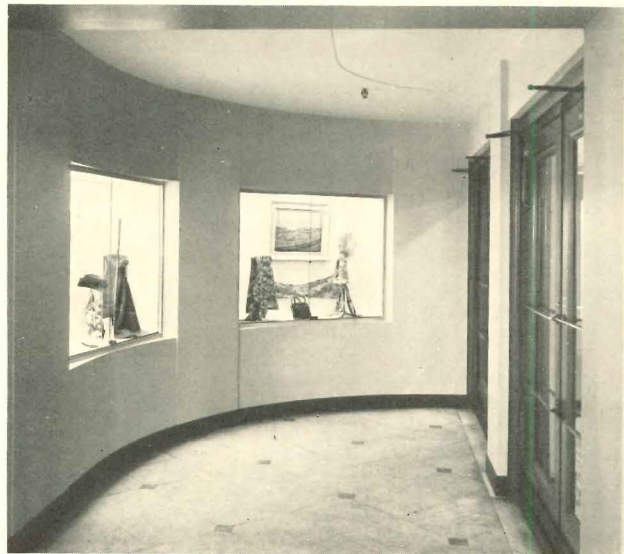
DEPARTMENT STORES

Photograph by Hedrich-Blessing



ESCALATOR, MARSHALL FIELD & COMPANY STORE, CHICAGO, ILL. GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS. To derive greatest benefit, escalator should be centrally located.

Photograph by Charmante Studio, Inc.



SHOW WINDOW IN ELEVATOR LOBBY. WANAMAKER'S, NEW YORK CITY. KENNETH C. WELCH, ARCHITECT. Windows on passageway are given greater sill height than on exterior.

portation and mechanical equipment, as well as making the necessary structural provisions for additional floors.

There is also a limit to the practical height for merchandising in an average department store. Ten to possibly twelve floors of sales is about the limit without losing certain definite advantages of interrelation of selling departments, sufficient display windows, available net area per floor not occupied by vertical transportation and other non-selling areas, and limitation of basement sales area. Department stores merchandising on only five to six floors are less able to incorporate all of the above advantages. Of course the building proper can be higher as the net service area required may be as great as fifty per cent of the net sales area, and the greater proportion of this can be placed on floors above the selling space without unduly affecting the store's efficiency.

PRINCIPLES OF PLANNING

There are certain sections, both sales and service, as well as certain service facilities which are definitely so-called "pullers." These should be so located that they help to direct the traffic past the "impulse buying" type of merchandise which depends largely on traffic and display for its success. It is necessary, however, to consider customer convenience and it must not be made to appear that the customer is forced to travel an unnecessarily great distance, and sometimes, areas too far removed from natural entrance points on any floor are almost impossible to merchandise successfully. It is better to utilize such areas for service sections.

Certain sections as a whole, and certain merchandise within a section, have definite seasons or peaks at varying times of the year. Were it possible to equally distribute the volume throughout the year, each month's volume would present 8.3 per cent of the annual volume, but department stores do from 13 to 16 per cent of their annual volume in December and in July may do less than 6 per cent of their annual volume.

For example, handkerchiefs may do over 35 per cent of their volume in December alone, and some fashion sections will do only half the volume in December that they do in their peak spring or fall seasons. It is therefore obvious that a logical scheme of give-and-take in space should be planned wherever possible, which means that certain areas and certain equipment must be flexible in the interest of economy of space as well as economy of operation.

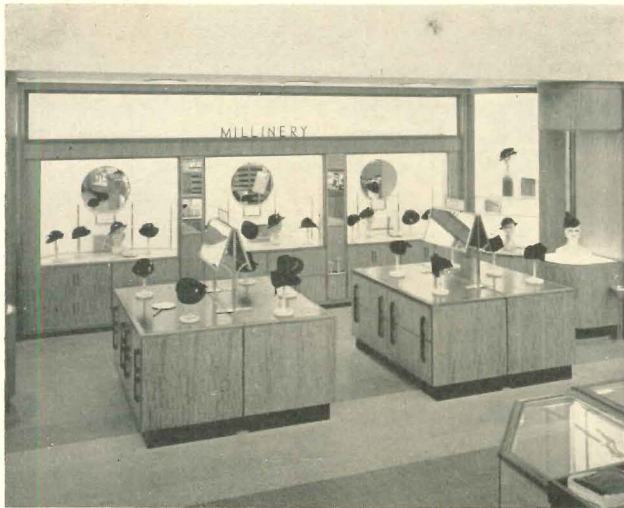
Another desirable feature is to provide the greatest possible maximum visibility from one part of a floor to another. It has advantages of impressing the customer with size, makes it easier for customers to locate departments and tends to simplify supervision.

In addition to possible interchange of space, consideration must also be given in locating departments, once their size has been determined, to what might be called "suggestive selling." This is the placing of sections adjacent to each other that help each other create additional sales. For example, it is generally considered advisable to place furs adjacent to women's coats. Many times, a prospective purchaser of a fur coat can be sold a fur-trimmed coat if she cannot be satisfied or the price of a fur coat is beyond her means. Also, as regards possible interchange of area, the peak monthly volume in furs comes during the August sales while the peak month in coats is generally in October which may double the volume of August business.

If a store does a relatively high percentage of volume in men's clothing it may be better, for example, to place the men's hats on

DEPARTMENT STORES

Photograph by Peyser & Patzig, Inc.



MILLINERY DEPARTMENT, R. A. FREED, INC. (A Specialty Store), NEW YORK CITY. KENNETH C. WELCH, ARCHITECT. Alcove treatment with display in cases and on tables. Many sections have a desirable relation to others such as millinery and scarfs, or skirt section adjoining sweaters and blouses.

Photograph by Charmante Studio, Inc.



HOSIERY DEPARTMENT, WANAMAKER'S, NEW YORK CITY. KENNETH C. WELCH, ARCHITECT. A correct relation of display in counter cases and above stock shelves. Lighting focuses attention on display.

an upper floor with the clothing. If the hat section is conveniently located, it is always logical to suggest a hat when an overcoat is purchased.

EQUIPMENT LAYOUT

Most selling sections, as far as required facilities are concerned, can be divided into three factors: (1) stock carrying, (2) selling, and (3) service. Provision must be made for housing sufficient forward stock to have a complete showing of merchandise easily available without too frequent replacements from the reserve stock, if the latter is necessary. The amount of stock space required depends on the activity of the section, the turnover, the accessibility and means of access to reserve. However, the amount of stock required of any given operation is as a rule one of the most tangible bits of information which can be obtained.

The matter of selling space required may be less tangible. This is dependent on volume, fluctuation of activity (seasonal, daily and even hourly), location, and average sale. For example, in small-wares the typical showcase or counter island with a low back fixture of shelving, display or drawers seen, often may not be the proper solution for every department. The back fixtures, plus what stock may be carried in or on the showcase or counter, represents the stock-carrying facilities. The outside perimeter of showcase or counter space, where customers can stand and purchase merchandise, represents the selling space. This must be sufficient to provide space for customers to stand one deep during a peak condition or, in the case of a high seasonal fluctuation, provision must be made to expand this space. In many sections the typical fixture arrangement mentioned above will provide a great deal more selling space than is actually required and in some cases not enough. The study of these factors has led to new space-saving fixture arrangements which properly balance these two factors.

The third factor, service, is also most important. Every transaction must be serviced. If a cash sale, change must be made; if a charge, the charge must be approved and the merchandise wrapped and if not taken by the customer sent to the delivery department. Time spent by an employee servicing the sale is time lost to selling. Therefore, the distance from the point of sale to the service station is most important.

PHYSICAL LAYOUT OF BUILDING

The location of entrances in relation to exterior traffic and the interior "pullers" mentioned before is important. As a rule it is best to plan for as even a distribution of traffic throughout a floor as is possible. In other words, avoid one or even two very good aisles which have a tendency to create dead areas elsewhere. Plan to have all the aisles for good traffic by not placing important pullers such as vertical transportation directly opposite an important entrance.

Aisle spaces should be of an ample size to accommodate the traffic they will naturally receive. This can fairly well be determined. Too narrow aisles and insufficient space in front of entrances, escalators, elevators, etc., not only make an inconvenient store for the shopper but can actually be detrimental and slow up selling. Main aisles carrying heavy traffic may require, if facing selling counters, as much as ten or twelve feet; minor but still good traffic aisles with selling on both sides, should be not less than 6'-10" to 7'-0", which is the minimum to permit cus-



WEBER & HEILBRONER (A Specialty Shop), NEW YORK CITY.
KENNETH C. WELCH, ARCHITECT.

Photograph by Studio Sun, Ltd.



MEN'S EVENING DRESS DEPARTMENT, SIMPSON'S, LONDON.
JOSEPH EMBERTON, ARCHITECT. The English store stresses an atmosphere of display by a disposition of mannequins and accessories. The counter is less in evidence than in this country.

tomers to stand at the counter on either side and still permit two persons to pass each other comfortably in the remaining space. Minor aisles in comparatively inactive sections may be reduced to 4'-10" to 5'-0" and between tables if spaced apart (end to end) slightly less.

If the store is the type that requires selling tables it is possible, by placing them crosswise in the aisles during dull seasons and lengthwise during peaks, to vary the customers' aisle width to accommodate the varying traffic.

FIXTURES

Modern fixtures are made to fit the merchandise with a minimum of waste space consistent with good display and ample stock facilities. Showcases of modern construction are made generally 22" deep, and 34" to 40" high, depending on merchandise, and of a length to fit the merchandise without waste space and with access doors planned to facilitate the easy handling of the merchandise. It is generally advisable to provide less display and more stock-carrying facilities than in the past, when often too much condensed and needless repetition of displayed stock was confusing.

Clerks' aisles should be from a minimum of 1'-10" in comparatively inactive departments to 2'-3" or 2'-4" in active sections, always checking to see that there is enough room if drawers are provided to fully remove them for cleaning.

Center island back fixtures, when used, are made from 18" deep to 26" deep, depending on the merchandise, and should be kept well below the eyeline in the interest of visibility. How low they can be depends on the amount of stock to be carried in relation to the selling space necessary. If this equipment can be limited to not over two sizes greater flexibility is provided.

Wall fixtures vary with the merchandise, proportion of the room and effect desired. All forward stock, however, should be within easy reach and drawers, if used for stock, should always be below the eyeline. Again it is also well to keep the equipment simple so that it accommodates as many different kinds of merchandise as possible in the interest of flexibility.

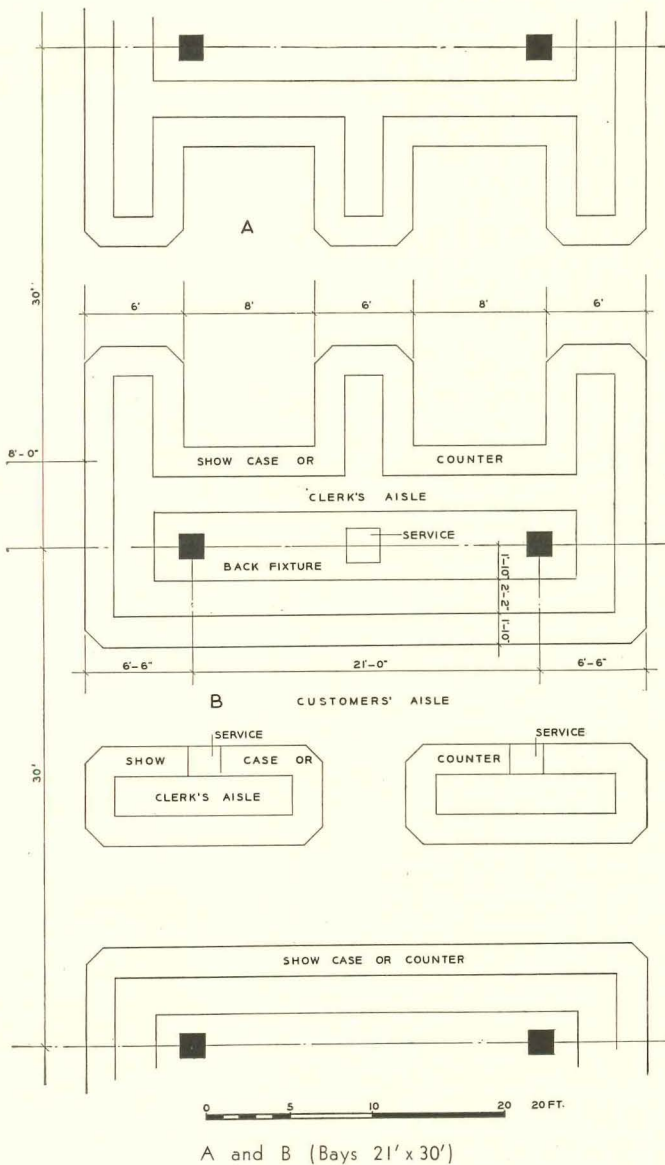
In ready-to-wear the method of selling exposed stock in cases or on racks or concealed stock in stockrooms, or a combination of the two will be determined by the merchant. As a rule the higher priced merchandise is concealed, the popular priced exposed. The trend, however, is exposed stock cases to frame the merchandise better, that is, showing less hang rod and hangers or floor by lowering the cornice and using a baseboard projecting above the floor of the case. Here again the matter of relation to stock space and selling space (the latter represented by open floor space and mirrors or fitting-selling rooms) is important.

In home furnishings, neatness of stock and dramatization of certain novelties is important. Closed-in furniture display rooms are on the wane in favor of open alcoves visible from the floor if a segregation into decorated rooms is desirable. Improvements in the method of carrying and displaying merchandise are being made every day to fit new sales trends and modern selling ideas.

CEILING HEIGHTS

Ceiling heights naturally should vary with the exposed areas considering the importance of the floor, environment desired, type of lighting, and ventilation or conditioning. The fact, however, should be considered that many stores cannot economically provide

DEPARTMENT STORES



A and B (Bays 21' x 30')

AVERAGE RELATION STOCK TO SELLING

A.—Smallwares fixture arrangement for larger stores on connected U-type, similar to lunch counter, plans. The advantages are maximum perimeter of customers' counter space to minimum length of clerks' service aisles and minimum number of service stations.

B.—Provides approximately the same perimeter of selling and stock space as A but requires more clerks to properly cover in dull seasons and also requires more service stations. This type desirable, however, when greater area of customer aisles is necessary as when individual "bargain squares" are desirable. It is possible to plan equipment to be moved easily so that either scheme can be used. Thus, in peak seasons, when clerk coverage is not so important and greater aisle area is advisable, scheme B can be used; in duller seasons, scheme A.

sufficient vertical transportation to handle the few maximum peak loads they get in a year, in which case the stairways, required by law in any event, become a valuable adjunct to handle what is called interfloor traffic (customers shopping from one floor to another). This can amount to as much as 15 or 20 per cent of the capacity of the transportation. Too high ceilings make natural stairway use more difficult. It is also desirable in locating stairways to have them visible and easily seen from the space in front of the elevators to facilitate their use. Another consideration should be to keep ceiling heights to fit the most economical escalator construction.

Floors then can definitely be assigned as reserve stock, can have low ceilings so that shelving can be reached without ladders, or a mezzanine, accessible to freight elevators, can be provided on a portion of a floor, the remainder of the floor being for receiving.

COLUMN SPACING

The larger the spans the more flexible will be possible fixture arrangements on the various floors, and with modern construction, running sprinkler pipes, etc., through the deeper girders, it costs but little more, considering all the advantages, to make large spans. The illustrations show how a 21' x 30' bay can accommodate a great variety of fixture arrangements and still have the columns incorporated in the fixture line. It is advisable to keep the bays uniform in size on the interior as sometimes diagonal vistas and even aisles are desirable.

SHOW WINDOWS

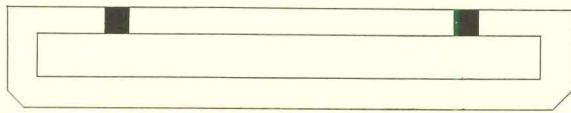
The department store, with its many departments to be represented, requires a considerable number of display windows. Their arrangement is dependent on the frontage and the comparative traffic on the adjacent streets. If the frontage is limited compared with the sales area or if there is one street which carries the great majority of traffic, it is often expedient to provide for the arcade type of window which can more than double the lineal feet of windows as compared with the straight-type front. The dimensions of the windows can vary, there being some permanent small displays used solely for accessories, but the department store must have a certain number of large windows for the display of home furnishings, including furniture, floor coverings, etc. This type of window should be a minimum of 8'-0" deep and can be deeper, if possible. The width of the windows should be governed by the depth so that they do not become too narrow and deep. A ratio of two wide to one deep possibly gives the best results.

FLOORS

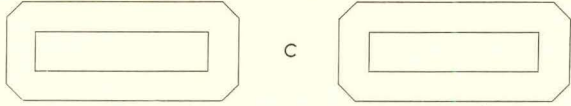
In specifying floor coverings, the type of department, cost, traffic, maintenance and desired environment must be considered. Main floors and basement stores are best covered with flooring such as marble, terrazzo or a composition flooring, depending on the cost. The quite prevalent opinion that a light floor helps the general illumination is not proven in tests. It may make a brighter looking store, but it presents a more difficult maintenance problem and if too light, the fixtures always look as though they are floating around in space.

The better grade fashion sections should be carpeted in the interest of environment whereas the home furnishings sections should have a floor covering commensurate with the commodity: furniture, carpeted; housewares, linoleum, composition tile, tile, etc.

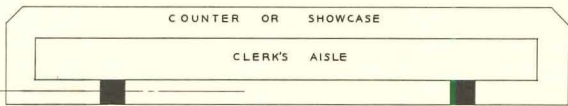
DEPARTMENT STORES



CUSTOMERS' AISLE



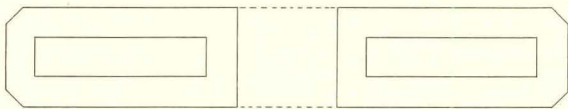
C



COUNTER OR SHOWCASE

CLERK'S AISLE

CUSTOMERS' AISLE



D



CLERK'S AISLE

21'-0"

30'-0"

C and D (Bays 21' x 30')

MAXIMUM SELLING SPACE

This arrangement provides maximum lineal feet of counter or selling space as well as maximum aisle area. It can be installed in same column spacing as A and B. In this type fixture (suitable only for small items such as jewelry, part of toilet articles, etc., where stock space is not important) the clerk has the advantage of being able to serve customers in the adjacent aisles instead of one alone as in A or B.

It is often possible to combine a composition floor in the main traffic aisles with carpeted space adjacent. The design can emphasize traffic, but too much pattern can detract from the primary object of any retail store, namely, to display and sell merchandise.

REST ROOMS

In a department store the traffic to the women's toilet facilities can be as high as 15 per cent of the women entering. If the toilet facilities are all concentrated on one floor in a multi-floored store, the additional tax on the interfloor transportation system can be considerable. In this case it is better to distribute the service throughout several floors but with proper supervision.

RESTAURANTS

The large department store usually has several eating places, generally one in the basement store, a main restaurant on an upper floor, and a fountain serving lighter foods on the main floor or mezzanine. These are generally operated at a loss but are good pullers and considered necessary from the standpoint of service. One bad feature is the fact that they put an extra heavy load on the vertical transportation during the noon hour when shopping traffic is usually at a peak. These sections should be located in areas least desirable for selling sections, to take full advantage of their pulling power.

STRUCTURAL PROBLEMS

The construction used depends upon the locality, spans used, etc., to arrive at the most economical type. It is always well to consider a cantilever construction to permit the maximum footage of display windows on the ground floor.

It is well to condense the structural work and mechanical equipment adjacent to large banks of elevators to permit the greatest possible reduction in the over-all length of the elevator bank. The cabs should be as wide and as shallow as possible with maximum possible width for door openings, as there is a great deal more interfloor traffic in stores than in other types of buildings requiring elevators. When a certain amount of traffic is attained, however, the escalator is the most suitable equipment. Escalators, to derive the greatest benefits from them, should be centrally located and, in order to relieve the elevators to the greatest extent, should be placed in a more prominent position.

FIRE PROTECTION, Etc.

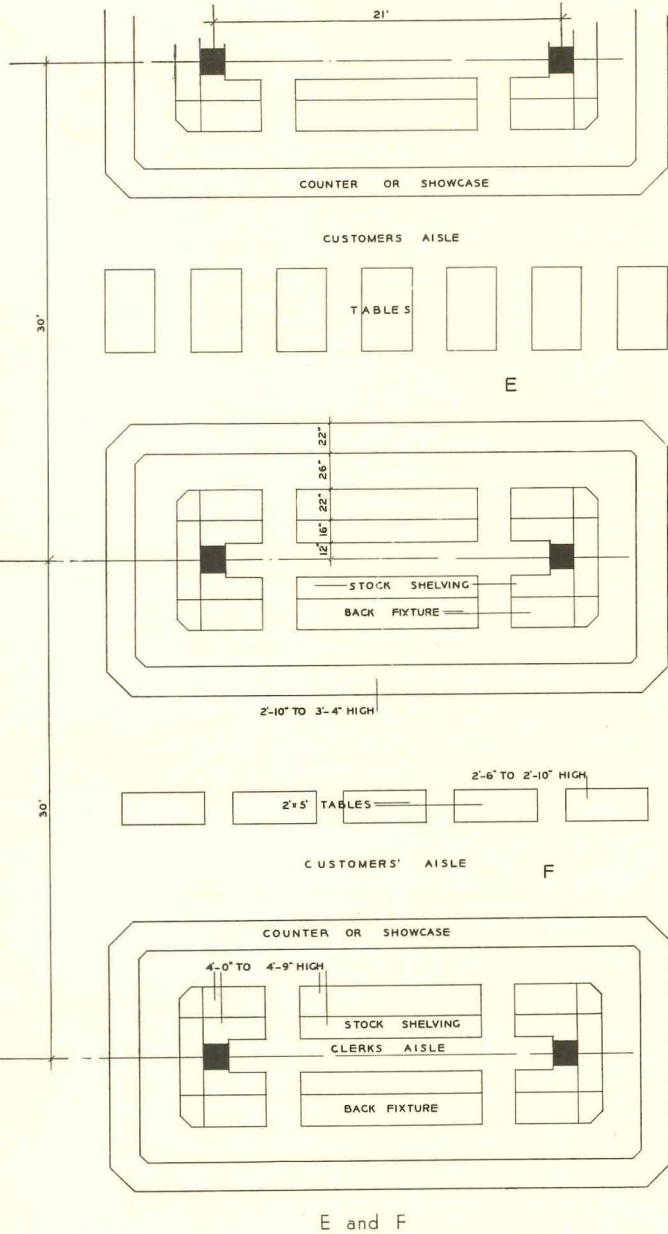
Aside from local code regulations for fire protection, it generally pays, with the concentration of merchandise in department stores, to install sprinklers throughout. Fire stairways should be provided, especially when it is required that exit directly on the street should be protected by means of service desks or watchmen.

In fact, throughout the planning of a department store this matter of protection against shoplifting and pilfering must at all times be considered. There are well-organized bands of thieves looking for "soft" places in any layout. Stock shortage often amounts to over one per cent of the sales volume and, in some sections, several times this amount. Not all of this is due to thieving, but in some sections a good proportion of it is.

LIGHTING

There is, among store owners, a growing aversion to hanging, direct type lighting fixtures, with their distracting glare. With the high intensities found desirable today, they are almost im-

DEPARTMENT STORES



MAXIMUM STOCK SPACE, MINIMUM SELLING SPACE

The fixed center fixture consists of back fixture plus concealed stock shelving. Outside of the tables there is half the counter space per bay that there is in schemes C and D but, of course, considerable increase in stock-carrying capacity. This type of equipment or a variation of it is sometimes desirable in stores away from the market centers in such sections as men's furnishings. Merchandise, better carried in original stock boxes, may be kept in the concealed shelving. With this type arrangement it is generally necessary to expand or gain additional selling space during the peak. E shows table arrangement with 4'-10" customers' aisles for dull times and F, tables with 5'-6" aisles for peak times.

possible. The required intensity, however, in different departments varies considerably so that several different schemes of lighting, each one best adapted to its use, may be used throughout the same store. In the highest intensities, first floor merchandise, fabrics, etc., the combination of concealed direct and indirect seems to be the most efficient. For home furnishings and similar merchandise, lower intensities can be used, possibly straight indirect lighting.

Display illumination is of the utmost importance and those lighting systems which concentrate the greatest intensity of light on the merchandise do the best selling job.

The flexibility of wiring systems to accommodate seasonal and future fixture changes is important because light and convenience outlets for cash registers, etc., are quite essential.

VENTILATION, CONDITIONING, Etc.

Certainly any new store building should most seriously consider air conditioning. Not only is this becoming the accepted thing in department stores, but it has advantages other than customer and employee comfort. It permits, due to its cleanliness, a greater amount of open display, desirable in certain departments. It conserves floor space generally useful for sales and permits placing equipment in areas less desirable for sales.

COMMUNICATION EQUIPMENT

This is most important in a department store as there are many intercommunication calls, return sales and service sections. Provision must also be made for visual or audible signals for executives and sectional for floor managers. Speed in the transmission of this intercommunicating system is essential.

CONVEYORS, Etc.

Conveyors are desirable for picking up sold merchandise from the basement and main floor sections. In an efficient active store, the manual collection of packages is objectionable, especially at a peak time. A conveyor system has the further advantage of feeding into the delivery department a continuous flow of packages instead of by the truck load. This system is combined with one or more spiral chutes from the upper floors. These often have two or even three blades so that they can be used for delivering merchandise to different points.

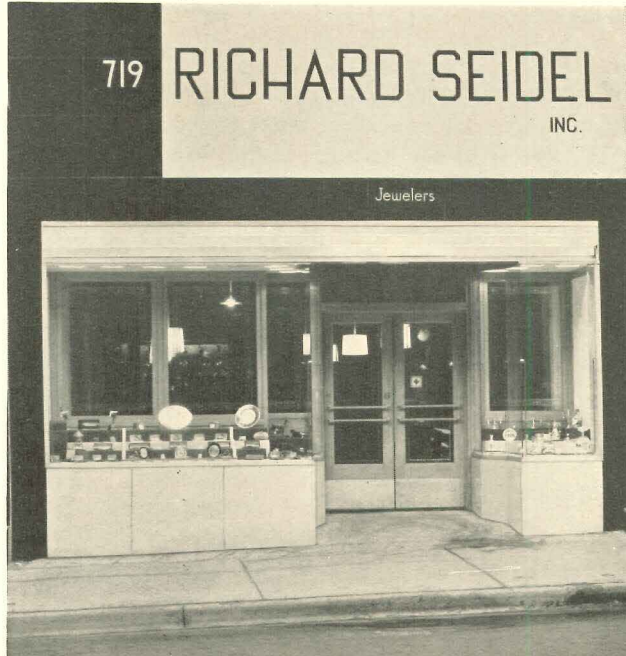
Disposition of waste is another important consideration. A considerable amount of waste paper and other waste accumulates on a busy day. Provision should be made for this in each section and then dirt and paper chutes should be provided.

Electric dumb-waiters may be used to advantage between sales sections and workrooms, thereby saving messenger service.

DOORS

In the event of a bad wind pressure, revolving doors combined with a unit heater solve the problem of chilly drafts with consequent loss of sales space adjacent to entrances, and save actual floor space. Some stores in outlying districts may have a certain amount of "baby carriage" business and provision must be made for getting them in the store or parking space and supervision may be provided outside.

In selecting hardware and specifying any materials that may be roughly handled, it is well to remember that an active department store is really active. This also applies to furniture which will get considerably more use and abuse than in the home.



JEWELRY STORE OF RICHARD SEIDEL, INC., MILWAUKEE, WISCONSIN. WALTER POLLATZ, ARCHITECT.

JEWELRY STORES

By PERCIVAL GOODMAN

TYPES AND STREET LOCATIONS

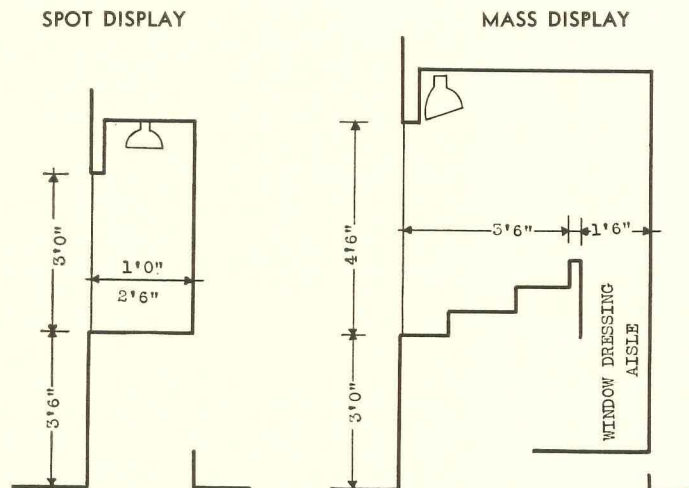
1. **High Class Jewelry Store** (so-called "Fifth Avenue" Jewelry Store), exclusive street.
2. **Medium Grade Jewelry Store** (so-called "Average Corner" Jewelry Store), fashionable retail business street.
3. **Jewelry Department in Department Store**, main floor.
4. **Jewelry Store Selling on Installment Plan** (often chain store), neighborhood business street.

TYPICAL ELEMENTS OF DESIGN, DIMENSIONS AND EQUIPMENT FOR ALL TYPES OF JEWELRY STORES

EXTERIOR:

Show Windows, two types—"Spot Display" or "Mass Display."

Dimensions:



Type "R. B. Invisible Glass" is satisfactory for either of these windows.

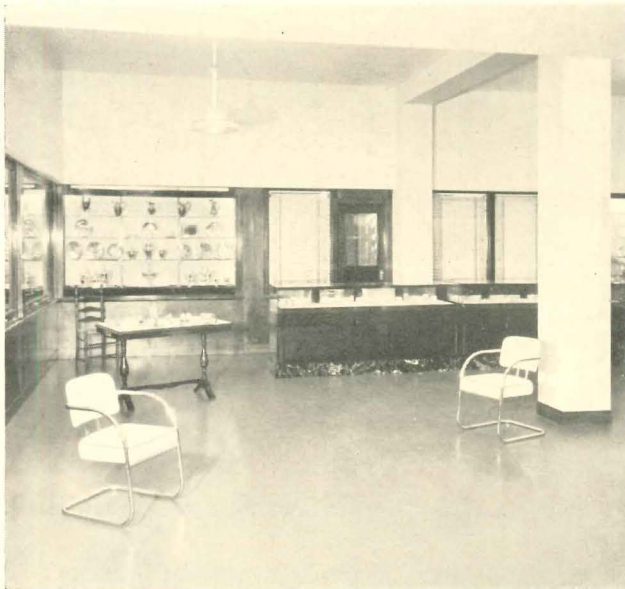
Materials for back, floors, etc., generally dependent on taste.

Lighting: "Mass Display" use reflectors placed approximately 12" on centers, burning 100 to 150-watt lamps. Preferred reflector is of corrugated blue glass with mirror back. Prismatic lenses of the Holophane type or metal louvers are used over the reflectors where source of illumination is visible. "Spot Display" may be lighted by any simple spotlight or by same method as the "Mass Display."



BIJOUTERIE, RUE ROYALE, PARIS. RENE CREVEL, ARCHITECT. A Type I store showing use of selling tables instead of showcases.

Photograph by Brackett



INTERIOR, JEWELRY STORE FOR RICHARD SEIDEL, INC., MILWAUKEE, WISCONSIN. WALTER POLLATZ, ARCHITECT.

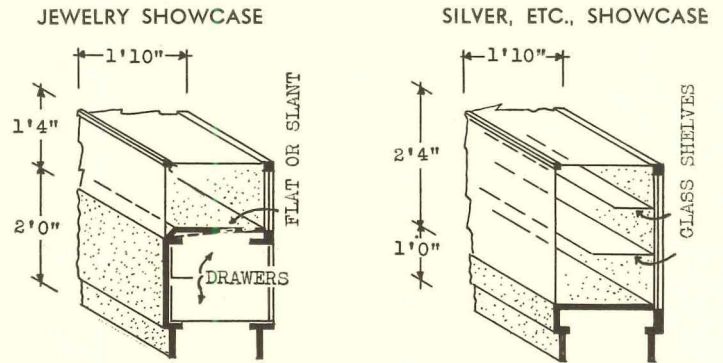
Awnings: Generally provided on all south and west exposure windows.

The Sign and Exterior Facing Material: These elements vary with the type of store; all materials, from translucent glass to the fine marbles, are used for facing. Signs vary from inconspicuous name plate on Type 1 stores to signs of maximum advertising value on other stores.

INTERIOR

Showcases: There are two types. (1) Those used for the display of necklaces, rings, bracelets, watches, etc. The bottom of this type is generally built on the slant and is designed to fit removable trays in which the jewelry is displayed. (2) Those used for the display of larger objects, silverware, clocks, etc. Cases may be island or side-wall type.

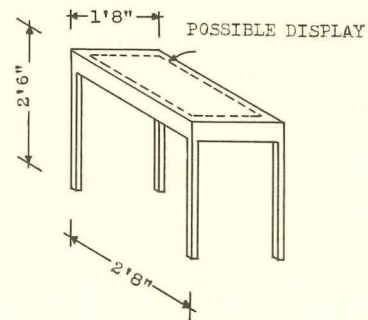
Dimensions:



The frames of the glass showcases are of metal or wood; the finish materials are subject to the designer's taste. Showcases are lighted in the usual fashion. The access (sliding) doors are always provided with locks. The ring trays, etc., mentioned above are generally made of a thin wood covered with padded material, indented to carry the stock.

Selling Tables: These may be made either with glass tops containing shallow displays, with or without illumination, or they may have solid tops.

Dimensions:



The finish materials are subject to the designer's taste. Solid tops are often covered with leather.

Wall Display Case: (a) The type used to display small objects such as clocks, jeweled handbags, etc. This type may likewise be used for necklaces, bracelets, etc., provided there is no showcase to hinder the customer from getting a close view of the objects. (b) The type used to display larger objects, such as silverware, objets d'art, etc.

Photograph courtesy "A.C."



INTERIOR OF JEWELRY STORE, BARCELONA, SPAIN. J. L. SERT, ARCHITECT.

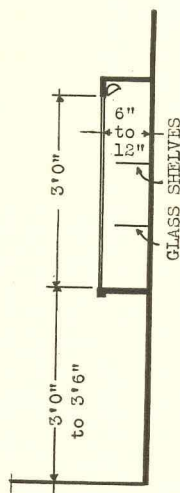
Photograph by William Lyman



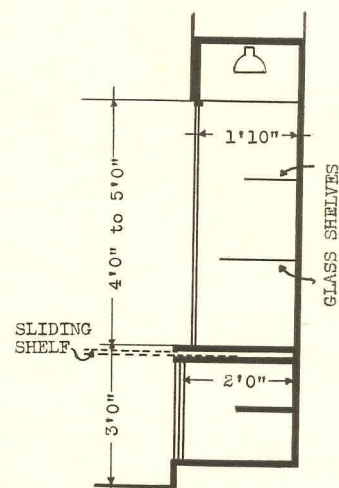
JEWELRY STORE, NEW YORK CITY. PERCIVAL GOODMAN, ARCHITECT. A type 3 store showing watch department.

Dimensions:

SMALL OBJECTS



LARGER OBJECTS

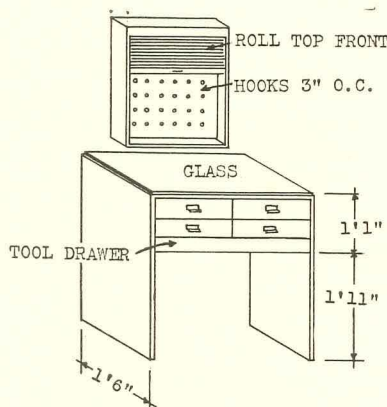


Lighting may be either a glass soffit behind which are placed 2" to 4"-wide continuous reflectors, or by similar exposed reflectors. Shelving is always of plate glass with standard adjustable brackets. Fronts of cases are provided with frameless sliding glass doors, generally having locks. Bottoms of type (b) cases are generally provided with drawers and/or sliding doors behind which are storage bins. A sliding shelf is often provided under the case.

Watch Repair Bench: Used only for such repair work as adjustment of mainspring, replacing of crystals, etc. Storage space depends on requirements of owner.

Dimensions:

WATCHMAKER'S BENCH AND STORAGE RACK ..



The bench is separated from the public by a screen or partition with a wicket in it. The wicket should have a hinged grille. Working top of bench in white translucent glass.

Jewelry Repair, Wrapping: These are always of minor importance. The jewelry repair counter is generally near the office and safe. The wrapping counter is near the office. These counters must be accessible to the public via a grille, except in Type 1 stores.

Office: Generally of customer importance only in credit jewelry stores. (See description under that heading.)

Safe or Vault: The customary procedure in a jewelry store is to remove all objects of value on display or for sale on closing, and to store them in a vault or safe. The safe may be standard type, protected by a "safe cabinet" or a vault built of fireproof materials (generally 6" T. C. walls with reinforced concrete roof and floor arch). The vault is provided with vault door with com-

bination lock. Entire interior is lined with electric burglar alarm protection. Interior of vault over wiring is covered with "presdwood" or wood flooring in removable panels. Shelves are about 12" apart.

Other Protection Against Theft: There are three types of burglar protection service in use in the larger cities. These are: (a) wiring service. This is a system of wiring which is connected to underground telephone lines which in turn connect to the office of the protection service. Contact between the telephone wires and the wiring system is established at certain hours. If this contact is broken an alarm is sounded and the police called. This method, applied to jewelry stores, generally takes the form of a "safe cabinet" (a wood cabinet electrically wired inclosing the safe), or wiring the vault (as described above). If stock is left in show windows after closing, the show windows are wired by what is known as a "tin foil" (a wire protected by tin foil glued to the glass). If stock is not put in vault or safe at night the entire store is sometimes wired. (b) Central station emergency radio alarm. This is a daytime service—a button is pulled out which immediately establishes a connection with police headquarters' broadcasting room from which an alarm is broadcast to police radio cars. (c) Siren alarm. This system is falling into disuse in the larger cities, being replaced by system (b). A button is pressed which establishes a contact with a siren placed at the exterior of the store.

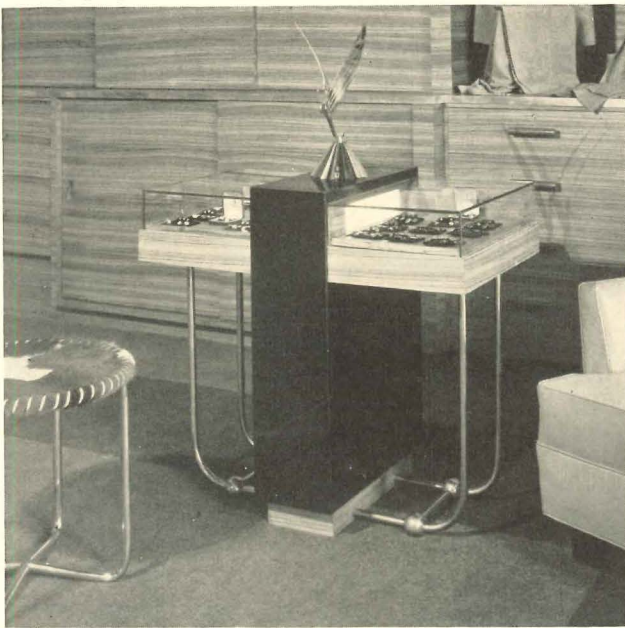
The buttons of systems (b) and (c) are always placed behind showcases or other fixtures at various locations throughout the store. There are generally four or five such buttons to the average size store.

Color and Illumination: Precious stones show their best color under daylight conditions. As the main trade in most stores is in these stones, the lighting and color should be conditioned by them. Theoretically, cool colors should be employed, greens or blues fairly light in tone, as the store should be brilliantly illuminated. The illumination over selling counters and tables and within displays should have intensities of as much as 100 foot-candles. Illumination should simulate daylight, and a certain amount of halation is often desirable. Therefore, daylight bulbs, blue, corrugated mirror reflectors, direct light, and the source of light close to the selling space are all desirable. Diffused lighting may be used for general illumination but is worthless for selling purposes. Very often removable lamps with high illumination value are placed on counters where the lighting is inadequate. Generally these lamps are undesirable as the customer considers them to be "trick lights" designed to fool him as to the color of the stone. Often, however, this is the only possible solution for the department store. The display backs for practically all of a jewelry store's stock should be dark in tone and cold in color. This to contrast the polish and color of the precious stones and metals.

Finish Materials: Floors—Type 1 stores are usually carpeted. In other types of stores the floors are usually covered with rubber tile or linoleum. Walls—subject to taste.

General Dimensions: The only basic dimension is that shown on diagrams J & K. This basic dimension would not apply to the Type 1 or the Type 3 store. In Type 1 any sort of arrangement is permissible provided that the salespeople or watchmen can have an unobstructed view of the entire store or their particular section; in Type 3 the general store layout is the conditioning factor

Photograph by Luckhaus Studio



SALES TABLE FOR MEN'S DRESS JEWELRY. DESIGNED BY J. R. DAVIDSON.

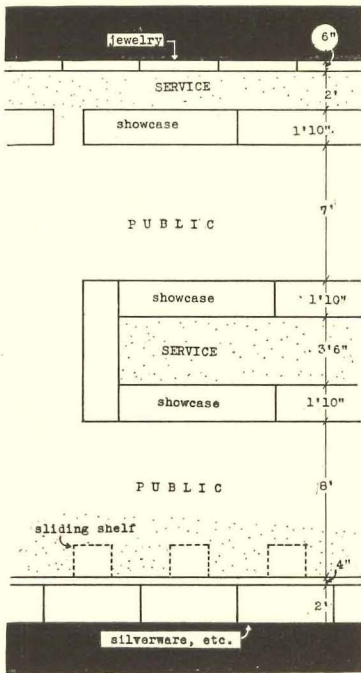


DIAGRAM J. With island cases showing minimum dimensions. The width of aisle increases where sliding shelves are used for silverware.

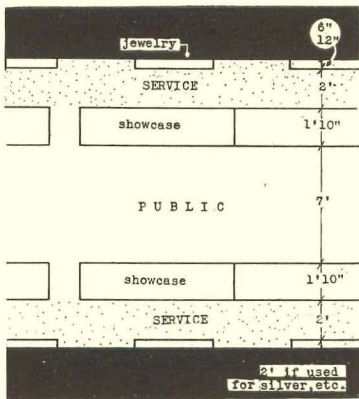


DIAGRAM K. Without island cases. This is an approved arrangement for the narrow store on neighborhood business street.

Minimum Dimensions: for Type 2 and Type 4 stores: see Diagrams J and K.

Other Mechanical Features: Mechanical delivery systems, air conditioning, flasher signals, etc., are similar to those used in other types of store design.

GENERAL DISCUSSION OF VARIOUS TYPES

TYPE 1.

Show Windows: Spot display, sign small, no illumination.

General Effect: "Snooty."

Vestibule: With doorman or with grille opened by salesperson inside store.

Showcases and Wall Cases: Comparatively few in number arranged to give spacious effect.

Selling Space: Small. Occasionally selling tables are used exclusively.

Selling Rooms: Small rooms or alcoves are often provided for showing customers special objects. These have wall displays and selling tables.

Pearl-Stringing Room: Small room is provided for the restringing of customers' pearls. Furniture consists of table and a couple of chairs.

Departments Other Than Jewelry: Silverware, clocks, jeweled handbags, objets d'art, stationery, fitted traveling bags.

Office, Repair Department: Generally concealed.

TYPE 2.

Show Windows: Semi-mass display.

Sign: Prominent and sometimes illuminated.

General Effect: Popular.

Showcases and Wall Cases: Arranged for maximum selling space and combination spot and mass display.

Departments Other Than Jewelry: Silverware, clocks, watch repair, miscellaneous items as under Type 1.

TYPE 3.

Generally consists of showcases and wall cases only. (For jewelry, watches and small objets d'art.)

TYPE 4.

Show Windows: Mass display.

Sign: Prominent and brilliantly illuminated.

General Effect: Flashy.

The variety of items sold in this type of store greatly exceeds those sold in other types of jewelry stores. Departments, in addition to departments mentioned for Type 2, consist of radio, optical department (waiting room, examination room), leather goods, household goods (toasters, electric irons, etc.), typewriters, and the like.

Office and Credit Departments: These are of great importance in this type of store. The office should be in a prominent location at the rear of the store since the merchandise is sold on the installment plan and customers make payments weekly or monthly. The credit department should be accessible but separated from the selling space. (The credit department consists of a series of booths generally about 5' wide and 4' deep, separated by partitions 5' to 6' high. Each booth is provided with a table and two benches.)



Photograph by George H. Van Anda

SHOPPING

BY B. SUMNER GRUZEN, ARCHITECT

THE PRESENT TREND is toward (1) a more compact "SU

TO DIFFERENTIATE the type of enterprise of which I speak from that of any market in a business section, I prefer to call my type of market an Automobile Shopping Center rather than a Supermarket, because here as in the town market the shopper does most of her buying during one visit and does not market daily.

When the saving of pennies became a serious consideration, the large automobile shopping center at the outskirts of cities, because of its low rental overhead and mass sales, offered the housewife the bargains she was seeking. From this the shopping center of today has evolved as the legitimate and proper way to serve the housewife.

Most of the large grocery chains which until a year or so ago maintained their small individual neighborhood store of about 600 square feet are today changing their policy and selling all foods which the housewife requires. Markets of this type occupy 7,000 to 10,000 square feet and sell groceries, fruits, dairy products, meats and, in some cases, wines and liquors. In these markets a combination of self-service and salesmen is employed, the shopper on entering being given a ticket similar to that obtained when entering a cafeteria, except that it is 3" x 5" in size. After passing the turnstile where the ticket is received, the shopper secures a basket and goes from counter to counter selecting her purchases with a salesman in attendance. As each item is purchased the amount is punched on the ticket. At the completion of the shopping tour, the customer has her merchandise wrapped at the exit, at which point also the total amount of her check is determined and paid.

In the automobile shopping center the customer can

purchase almost any article that is a general household requirement such as dairy products, meats, groceries, fruits and vegetables, fish, delicatessen, liquor, dry goods, men's and ladies' apparel, shoes, drugs, hardware, household utensils, floor coverings, automobile supplies, flowers and plants, pet supplies, bakeries, shoe repair, etc. A proper and comfortable place to eat and even a beauty parlor for madam and a barber shop for the gentleman accompanying her are included.

It is naturally deduced that from a traffic point of view the center should not be too near a busy shopping district. The location should be on or near a main automobile artery. A location which possesses these requirements in a well-developed residential area is, of course, assured of a fair business in normally "slow" days during the week.

Located among other stores, its volume of business might be enhanced; away from them its own appeal must be sufficient. Because of its method of bulk sales, it discourages the shopper on foot. Its main appeal is to week-end or bi-weekly shoppers who have means of mechanical transportation.

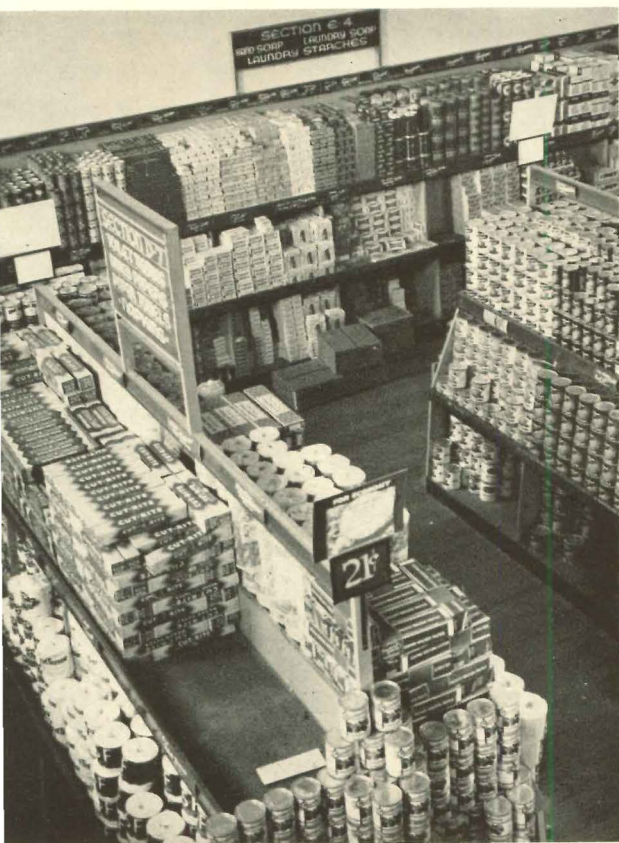
The past few years have developed this conclusion: Market with everything on one floor can be too large. First, it becomes a tedious task to wander over too great a floor area. Second, since up to the present time almost all departments except perhaps several of the food items are subleased to concessionaires, to many different owners, even under a very efficient general management, do not make for the best results.

The tendency, therefore, is for shopping centers to become smaller and for small individual grocery stores to become larger.

The Big Bear Centers, which started with 40,000 square feet and developed into a four-floor enterprise in Darby, Philadelphia, Pa., of 100,000 square feet, have recently experimented with units of only 15,000 square feet as that in Irvington, N. J., where only groceries, meats, dairy, fruit and vegetables, refreshments, bakery, candy, drugs and tobacco are sold. On the other hand, the chain

CENTERS

ET" (2) larger INDIVIDUAL grocery stores



Upper Left: Fruit and vegetable sales are aided by a spectacular display. Interior view of Big Bear Market, Teaneck, N. J. A. Sumner Gruzen, Architect. Above: Same market at Teaneck, N. J. Some markets carry as high as 3,000 different grocery items. Experience has shown that markets with everything on one floor can be too large, hence the present tendency is toward more compact markets; also, for small individual grocery stores to become larger.

grocery store has increased its area in certain sections to as much as 15,000 square feet as those of the A. & P. and American Stores in Trenton and 69th Street, Philadelphia.

The Shopping Center Service Station as outlined in THE ARCHITECTURAL RECORD of December 1934 is, of course, the ideal method of controlling parking traffic and serving the shopper. Under that system, the car is taken from the driver at the entrance to the parking space and brought back to her under the canopy. Her packages are in the car when she receives it. The idea is that the cost of this operation could be absorbed by the profits made from selling gas, oil, and service. In the method now used, the shopper is assisted to her car by "carrier boys."

The nature of the concessionaire type of market does not permit seasonal expansion of individual departments. A means has been developed which has proven adaptable to all seasons.

The **grocery department** will vary in proportion to the size of the market. It can increase from 6,000 to 12,000 square feet. The grocery department of the Darby, Pa., Big Bear is 18,000 square feet, but that is unusual and not desirable. It is more than the shopper can tackle in a buying tour and its 3,000 different grocery items can be reduced.

The **meat department** should be 16' x 50' to 60', unless all cutting is done in the refrigerator when the depth can be reduced to 12 feet. At the hour of greatest sales it is very desirable to concentrate the different operations of serving meat. The cutting rooms, refrigerators, and refrigerated cases should be as closely related as is possible.

Drugs and cosmetics is a varying department dependent on the inventory carried. In many cities, as in New York, only patented drugs may be sold at such a stand. Others carry fuller lines of cosmetics. Some carry all kinds of rubber goods, stationery, etc. Two islands of 12' x 15' ought to accommodate a fairly large inventory.

Refreshment stands will depend upon whether sandwiches only are sold, or whether hot dishes will also be served. The sandwich and refreshment stand can be 12' x 16'; the cafeteria of course will be as large as space permits.

Cafeterias in markets under 40,000 square feet are not feasible and have not proved necessary.

The **dairy department** should be 12' x 40' to 50'. If the refrigerator is 2 feet deep instead of 6 feet, 8'-6" depth only is needed. A 6-foot box permits side doors for entrance to the refrigerator storage room.

Bakery and candy departments should have about 290 square feet.

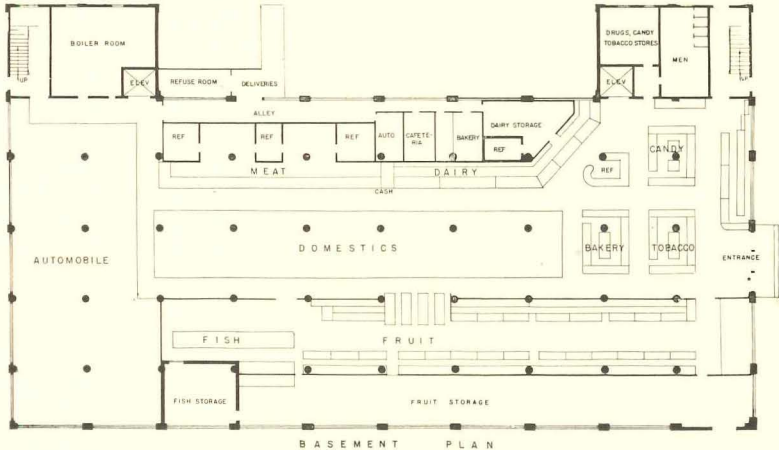
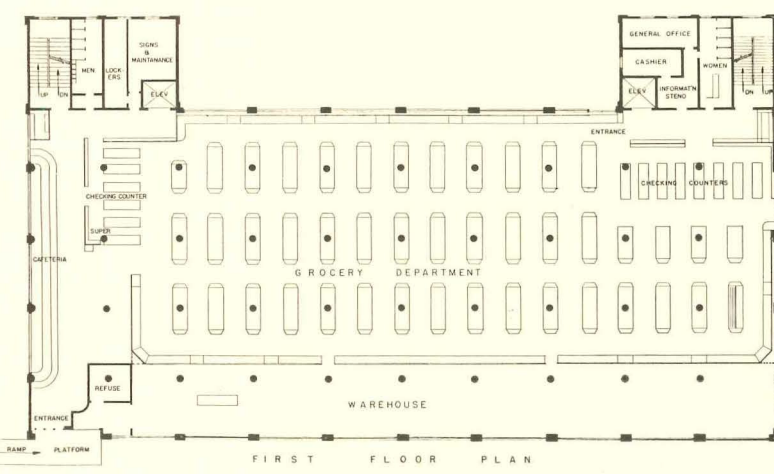
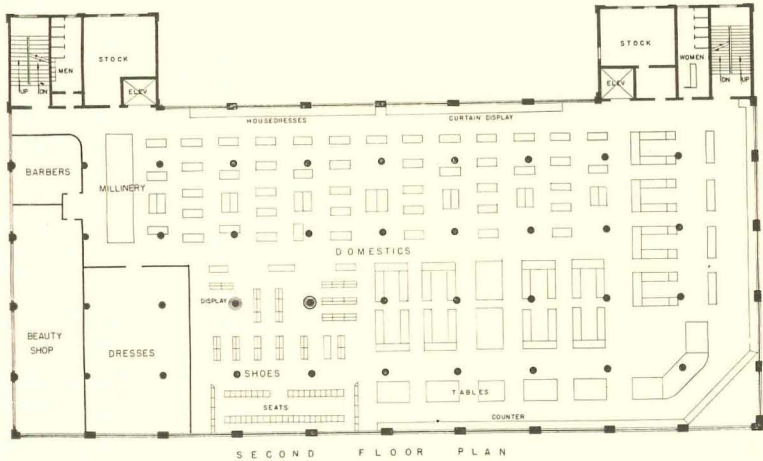
Next to the grocery department, the **fruit department** is most important. Both wall and island displays have their respective advantages. The wall display has its attractive backflash but requires a great deal of work and tying up of stock. The island display has more selling surface.

The average fruit department is 1,000 square feet. A market of 20,000 square feet should have a 1,500 square foot fruit and vegetable department. The fruit warehouse must adjoin the department to prevent trucking across traffic lanes.

All markets of size use baskets for the comfort of the shopper. The wire basket by American Wire Form Co. illustrated here is the most common one in use. The basket carrier they have marketed is of great assistance in shopping.

The various layouts illustrated here give a fair idea of the loca-

SHOPPING CENTERS



tion of primary departments. Correlation of departments is important; food near foods and allied soft lines in close relationship to each other.

Heavy articles such as floor covering and auto accessories should be near the exits.

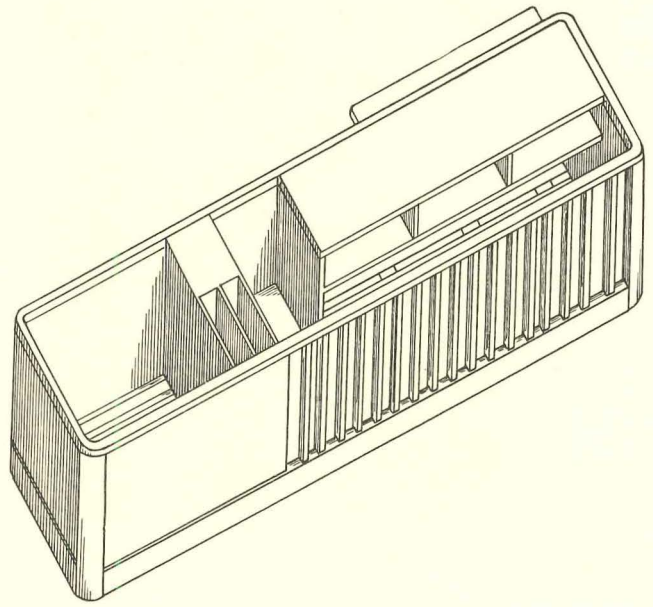
Of the two grocery department layouts, the segregated department in the rear gives a better filtration through other departments before grocery shopping. It is the major department, the largest commodity, and is not an impulse buying article. Except for the main foods, the volume in the departments depends greatly upon the impulse appeal to the consumer and all displays are constructed to attract the buyer as she is on her way to the grocery department.

A maximum height of 4'-6" for island departments permits good visibility throughout. Wall displays should be limited to 8 feet in flat-ceiling stores of 14 feet in height, and 11 feet in trussed roofs.

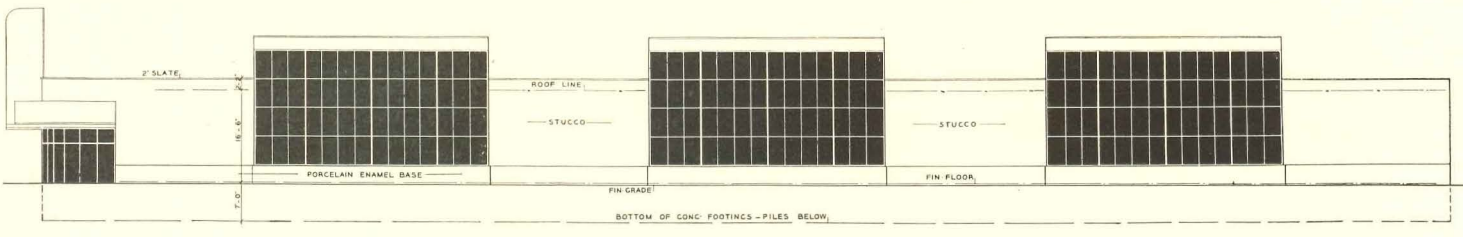
STRUCTURAL DATA

Markets, if possible, should be devoid of columns. Vaulted roofs always make for airy, cheerful atmosphere and good light. Vaulted construction is not, of course, economical and tends to be prohibitive. The new market in East Orange, N. J., illustrates this. Here is the culmination of much study in the proper, natural lighting and ventilating of a market.

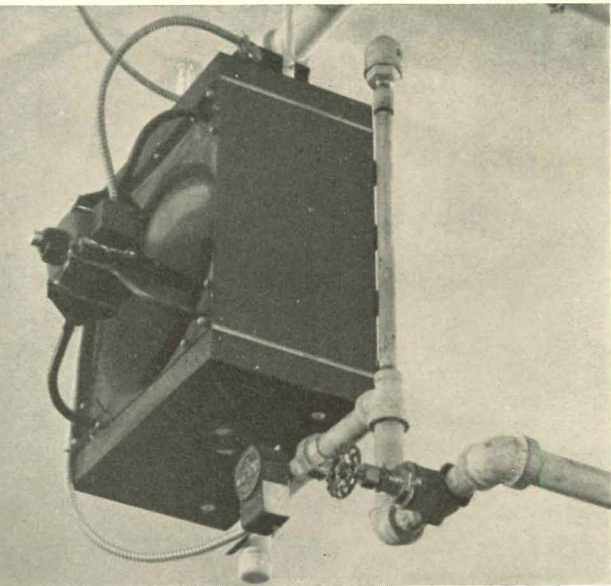
In developing this type of lighting for markets, the writer was mindful of the fact that many times it would be necessary to build the market on an interior



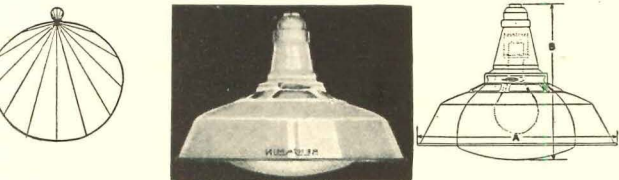
BIG BEAR MARKET, TEANECK, N. J. Above: Floor Plans. Right: Detail of Cashier's Booth. Below: Elevations and Section.



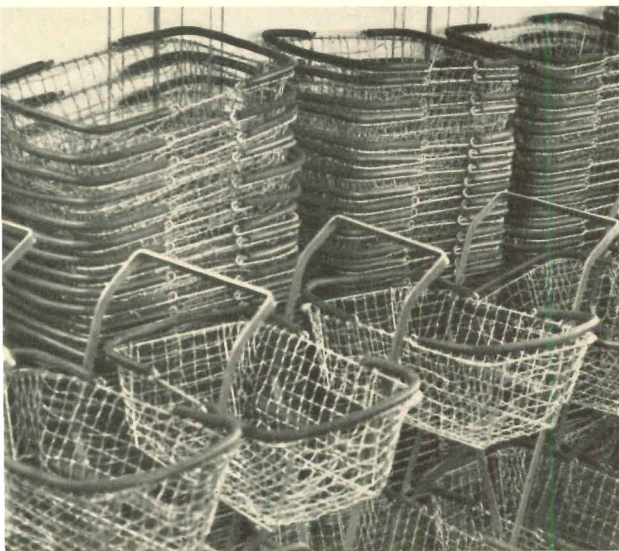
Photograph by George H. Van Anda



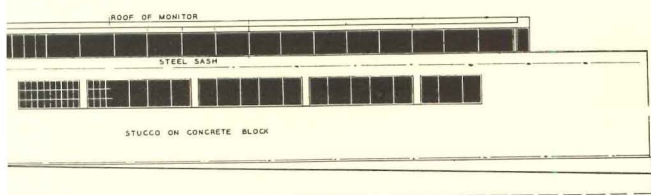
All markets should be heated by unit blowers on wall, above head level. This makes all of lower wall available for display and sales.



Standard glass-steel reflectors are approved for markets. They eliminate the glare of open bulbs.



Markets of fair size loan wire baskets for the convenience of shoppers. Double-tier baskets are on wheels.



lot with no means of side light. A mean of 30'-60'-30' in width has been developed for proper column spacing. It gives, first, good light to the wings, disregarding any side light we may be fortunate enough to have; secondly, it makes for economical steel-work; and thirdly, it is the proper total width for a shopping center and is the width usually secured. The next desirable width is 100 feet, in which case the middle span is reduced to 40 feet.

Concrete roof construction is good for both insulating purposes and as a means of reducing the insurance overhead, an important item when the inventory is so great. No large center should be without an adequate sprinkler system.

If the monitor type of construction is used, a lateral span of 20 feet is best economically and for counter spacing.

The following methods of construction have all proven good.

EXTERIOR FRONT

Market show windows are not important and except in markets under 10,000 square feet are not employed. It is better to have a clear vista into the store, and under the subleasing method all departments cannot display, of course, and cannot be discriminated against.

Windows in the front are necessary only for light in markets where there is not much foot traffic. In the center of cities on main streets where the market has a "front show window" the window display or adaptation should be such that one can have a clear view into the store.

In the south and southwest the open-front market is common and desirable, such as the Sunfax Mart and La Salle Markets in Los Angeles. Markets such as these remain open all night.

PLUMBING

Proper plumbing for refrigerated equipment must be provided. Drains must be provided for each 15 feet of case. Floor drains have been found very satisfactory and necessary. Each front line of fixtures in the meat department must be hooked up for water and waste for fish cleaning.

All food departments require sinks with hot and cold water and they should be provided in the work space.

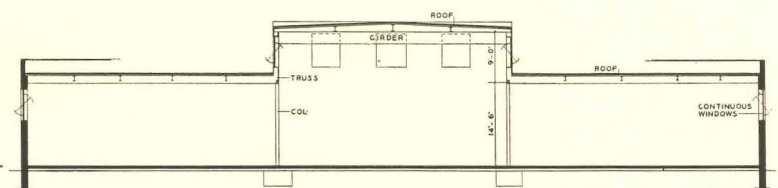
The fruit and vegetable warehouse requires large bathtubs for washing vegetables and large airtight rooms equipped with gas for banana ripening.

WASTE

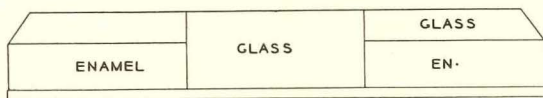
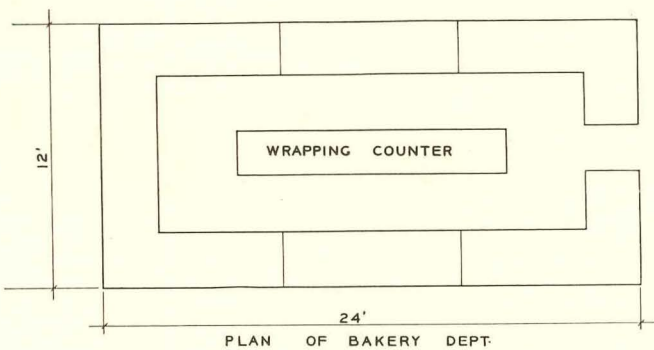
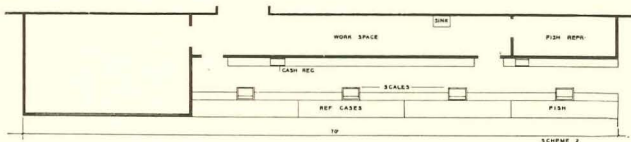
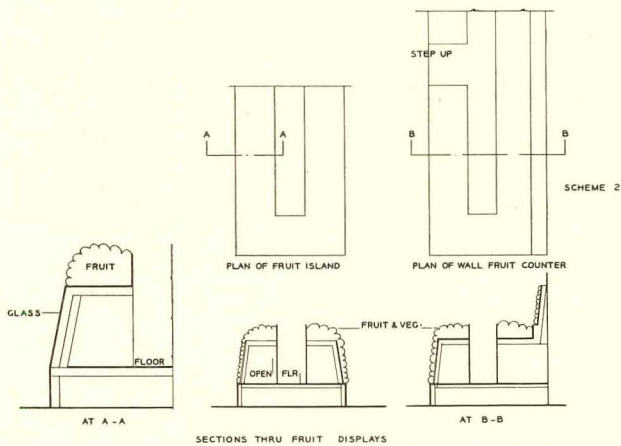
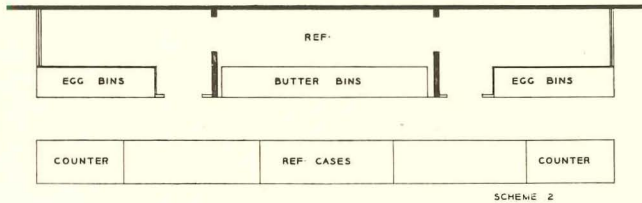
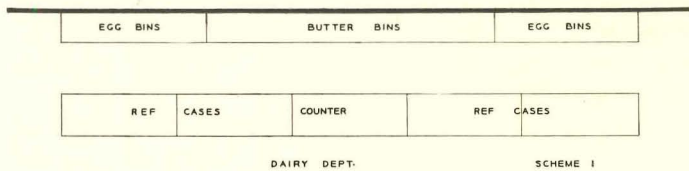
All markets should have large refuse rooms where cartons are thrown, to be baled and carted off. Food wastes are called for twice a day and require no special room allocation.

HEATING

All markets should be heated by unit blowers. No other method is effective because of the utility of the lower 8 feet of the walls. The direction in which the heat is blown is very important. Individual thermostats should control each blower. The foods can



SHOPPING CENTERS



ELEVATION

PLANS SHOWING CASES AND TYPICAL SALES DEPARTMENTS FOR MARKETS.

endure no more than 50 to 60 degrees while the other lines require 70 degrees for comfortable business conduct.

Gas unit blowers have become popular in small food markets. Their advantages are obvious. The disadvantage is a slightly increased cost of operation.

REFRIGERATION

Fresh meats, poultry, cold cuts, delicatessen products, butter and cheeses should always be under full vision of the prospective customer to create the desire to buy.

Refrigeration, if not properly installed or balanced, can and will cause considerable loss both on electric power bills and in the shrinkage of foodstuffs, especially meats. This is vitally important to the merchant and his success or failure depends upon the full cooperation of the architect with the refrigeration engineer who installs the job. Several good refrigerants are being used successfully, each being adapted to the individual need. These refrigerants are methyl chloride, freon, ammonia and sulphur dioxide.

Temperatures are: Fresh meats 34° to 38° F.; delicatessen foods, such as cold cuts, salads, etc., 40° to 44° F.; cheeses and butter in bulk 45° to 50° F.; and vegetables 50° to 55° F. By having the proper temperatures the elements of shrinkage and stickiness are held to a minimum.

LIGHTING

Markets require more lighting than one finds in most merchandising enterprises. Foods are given an added appeal by good lighting.

A candle power reading of 20 foot-candles 3 feet above the floor has been found to be ideal.

Lights should be placed 10 feet on center both ways with a mounting height of 12 feet.

The fixtures found most satisfactory for lighting markets with vaulted or trussed ceilings are those commonly known as glass-steel, as illustrated here. They combine all the advantages of the R L M fixture and still eliminate the glare of open bulbs in R L Ms. The holes in the top of the reflector permit enough light to spread over the ceiling.

For flat ceilings the Holoplane direct lighting unit has a curve that develops excellent distribution. Two hundred-watt lamps will supply the required candle power.

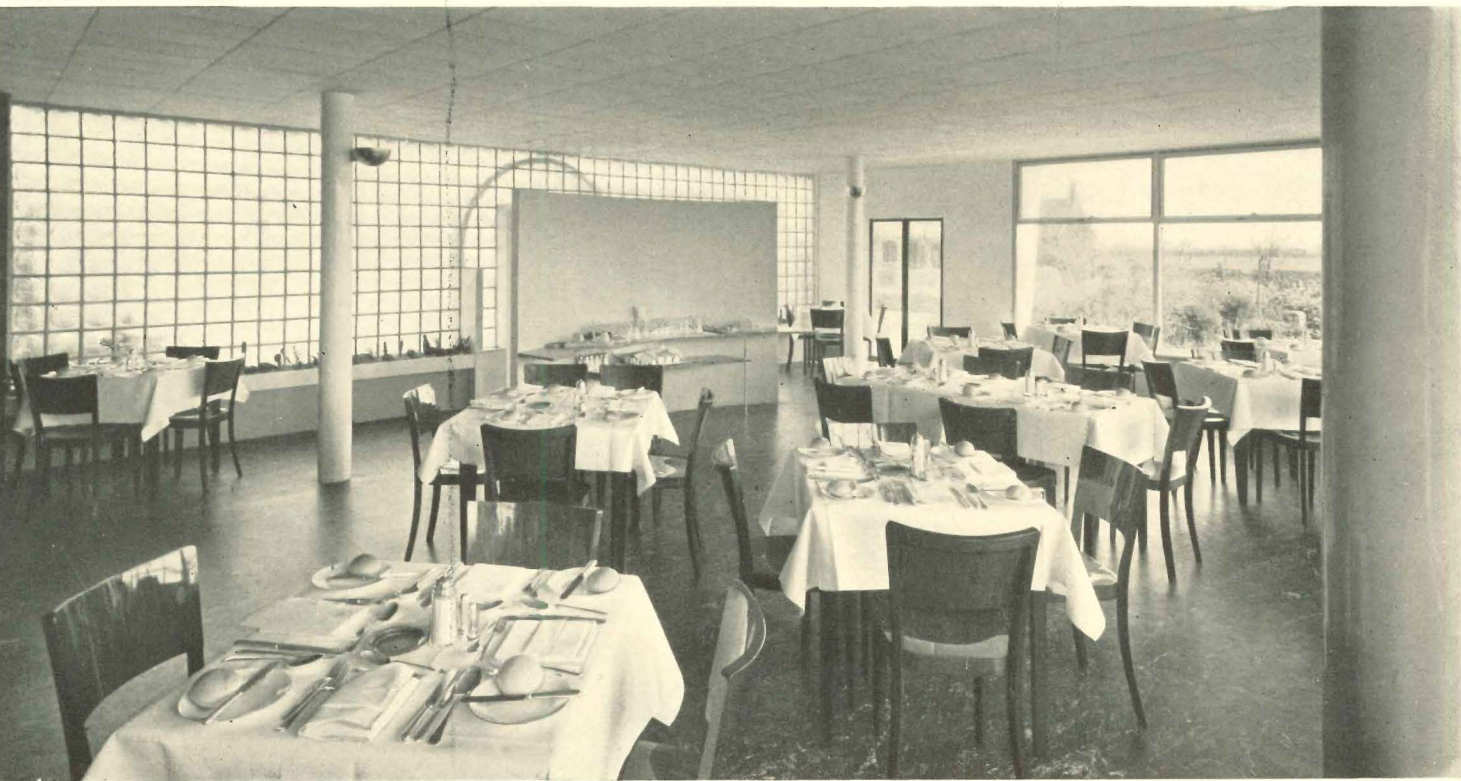
The usual service required is 3 phase 4 wire, 120/208 volts, 60 cycles.

Some sort of sidewalk standard besides the neon displays is advisable for exterior lighting.

The parking lot can be lighted by large reflectors from the roof of the building or by steel poles. Two 1,000-watt reflectors on poles 28 feet apart in the center of the lot longitudinally have been found sufficient to light an area 100 x 200.

The lighting of refrigerated cases, showcase lights, the outlets for neon signs must all be provided for. Each refrigeration unit should have its own feeders of 3 to 6 hp. for showcase and refrigerator cooling.

Most markets of any size have a public address system which is nothing more than a miniature wire broadcasting station. It is particularly adaptable in announcing specials, finding lost children or their mothers and, in very large shopping centers, even music is introduced.



Restaurant at Whipsnade, England. Lubetkin, Drake & Tecton, Architects. Use of contemporary materials; acoustic ceiling, rubber floor, glass brick, etc.

RESTAURANT DESIGN

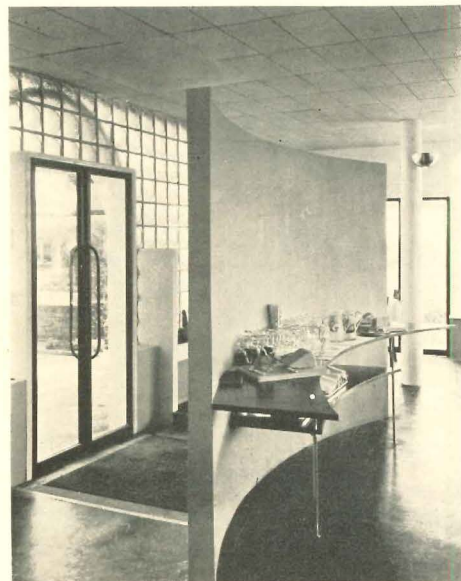
By WILLIAM MUSCHENHEIM, ARCHITECT

THE PROBLEM of designing a restaurant presents the necessity of not only recognizing the numerous practical requirements involved in offering patrons good food, adequate service and comfort at reasonable maintenance costs, but also of developing a surrounding that will gratify their need of relaxation, conviviality or entertainment as the case may be.

Since there are many different types of restaurants catering to different types of clientele or satisfying different wants of similar clientele, the problem is a different one in each particular case, although certain standards do apply throughout, particularly as regards the efficiency of the plan, the seating layout, the materials used for construction or finish and the equipment. The character of the restaurant might further be determined by the site and also by the influence of local habits or even possible change of habits. It follows that the close cooperation of the architect and the managerial interests is essential in order to insure the execution of a successful plan.

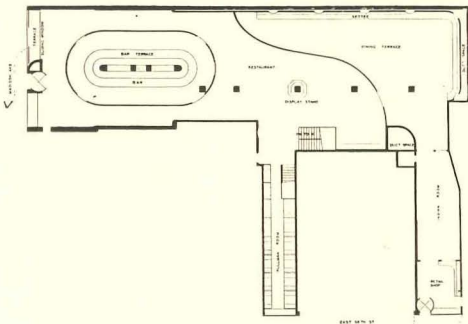
SITE

The selection of the site should be dependent upon a recognition of the conditions of the surrounding property and the conditions relating to the site itself: (1) business, recreation or amusement center; (2) special attraction in location such as proximity of parks and open spaces; (3) access for service deliveries; (4) garage or parking facilities. The restaurant should be planned and equipped in such a way that it will be able to meet the demands for its services



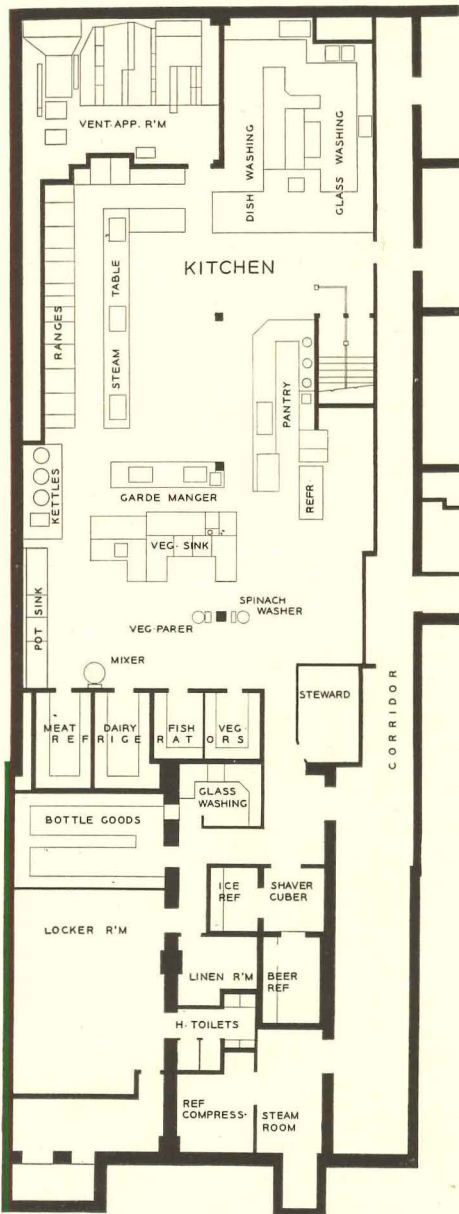
Entrance, Restaurant at Whipsnade, England. Lubetkin, Drake & Tecton, Architects. Combination of plaster partition and service table used as screen to entrance.

RESTAURANTS



Floor plan, Longchamps Madison Avenue Restaurant, New York City. Louis Allen Abramson, Winold Reiss Studios, Architects and Designers. Featuring an island bar on a raised platform. Raised portion at back of room reduces apparent length.

Kitchen plan, Longchamps Madison Avenue Restaurant, New York City. Laid out so that waiters can discard soiled dishes after descending from dining room and pick up ready dishes on way back up to dining room.



Pullman Room, Longchamps Madison Avenue Restaurant, New York City. Use of mirrors to make narrow space appear wider.



Interior, Longchamps Broadway Restaurant, New York City. Louis Allen Abramson, Winold Reiss Studios, Architects and Designers. Wall area above panels becomes reflecting surface for indirect lighting.



Exterior, Longchamps Broadway Restaurant, New York City. Broad horizontal windows and metal lettering containing neon tubes produce effective exterior treatment.



RESTAURANTS

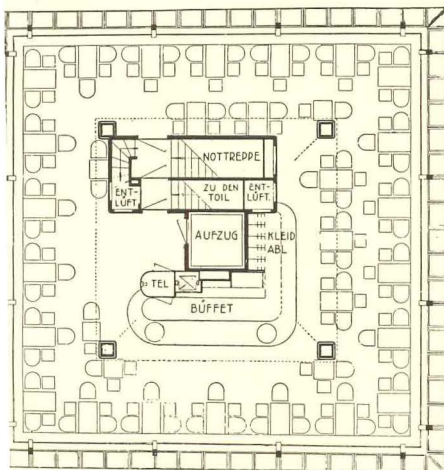
For a period of years without excessive upkeep and replacement costs, yet elastic enough in layout that changes can be made to suit varying exigencies.

THE PLAN

It is always preferable that the kitchen be on the same floor as the dining room, otherwise elevators, dumb-waiters and stairs are necessary. If possible, it should be so located that waiters do not have a great dining room, and so planned that other employees be saved as many steps as possible. This assures quick service and a general saving in time and money. It is also better for the storerooms to be on the same floor as the kitchen and close to it. The area covered by the kitchen and service rooms may be from 25% to 75% the size of the dining room.

The layout in the dining room is dictated not only by the demands of circulation, but also by the location of windows, columns, blank walls and possible changes in level. All these elements should be utilized to create grouping of one sort or another. Long stretches of fixed benches can divide certain parts of the room, or accentuate the separation of areas. Intimate groupings can also be effected by the use of benches or partitions. For convenience, the hat and coat checkroom should be near the entrance and in proximity to the washrooms. It is an advantage for most restaurants to be at the street level, as an invitation to passing traffic and because of the

plan. Funkturm Restaurant, Berlin. Heinrich Straumer, Architect. Showing plan of oblique windows in relation to table set-up.



Pressa Restaurant, Cologne. M. Abel, Architect. Tables at windows with view of Rhine and Cologne Cathedral.

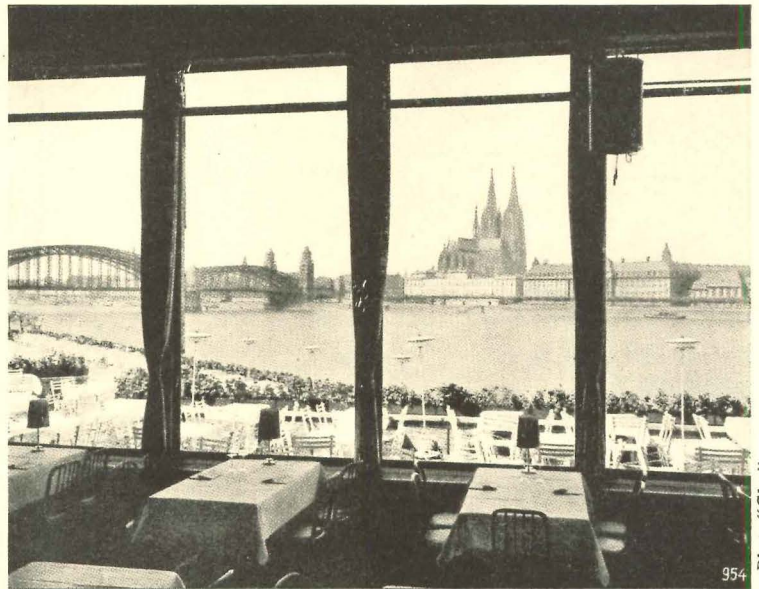


Photo "Glas"

Rainbow Room atop RCA Building, New York City. Reinhard & Hofmeister; Corbett, Harrison & MacMurray; Hood & Foulhoux, Architects. Flowers in space between double windows form foreground to view of city below.



Photo Zimmerman

Funkturm Restaurant, Berlin. Heinrich Straumer, Architect. Oblique windows direct view towards fair grounds below.

Photo "Glas"

RESTAURANTS

greater ease of entry and egress. Frequently only a portion of the restaurant is on the street level, while the main dining space is above or below.

STANDARD DIMENSIONS

In planning a restaurant there are certain standard dimensions with respect to table layouts that must be taken into account. Tables for two vary in size from 2 feet square or round to 2'-6" square or round. Tables for four vary in size from 2'-6" square or round to 3'-6" square or round. Where there are benches along the wall, a table 3' x 1'-10" in size is often used so that two people can sit side by side instead of opposite each other. When more than four persons sit at one table, a round enlargement is used or else two or more square tables are put together. The service passage between tables should always be 3 feet in the clear, and larger for the main circulation gangways. Tables with chairs back to back should be at least 4 feet apart. Two feet must always be allowed for chairs between tables and walls or columns. An analysis of floor area allocated per seat varies from 10 to 18 square feet inclusive of passageways, tables, and so on, but 14 square feet is a good average. Ceiling heights in restaurants and kitchens vary from 12 feet to 18 feet.

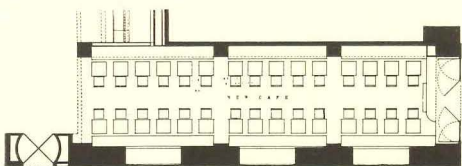
DOORS

In order to avoid collisions, pantry doors should be separated from each other or hinged on posts between the doors. The electric eye can be installed advantageously in many cases, thus relieving the waiters when they are carrying trays. The plan of the pantry and kitchen ought to follow the line of traffic.

BAR

The best location for the bar is near the

Floor Plan, Astor Cafe, New York City. William Muschenheim and Peabody, Wilson & Brown, Architects. Benches along walls in narrow space.



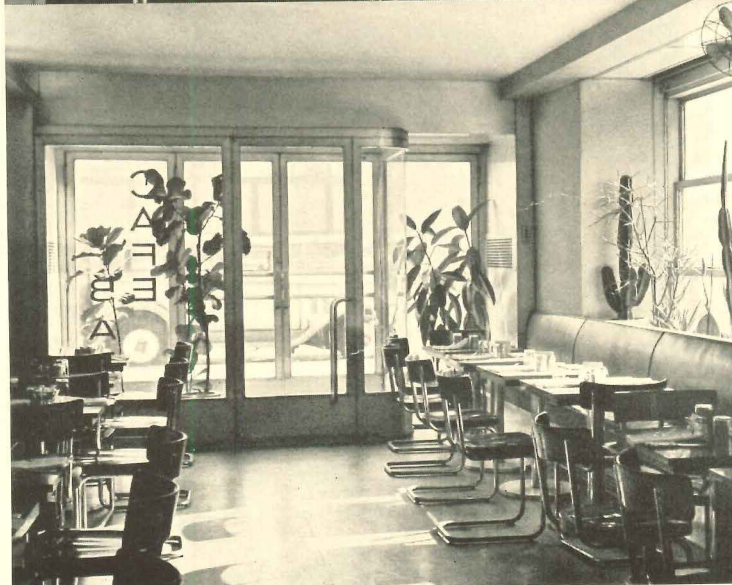
Cafeteria, Alko, Finland. P. E. Blomstedt, Architect. All elements well designed and coordinated.



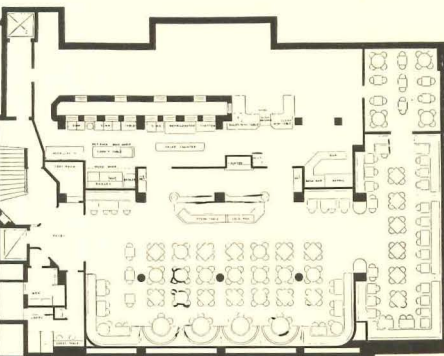
Detail of entrance, Childs Restaurant, New York City. Use of colored mirrors and glass in metal frames.



Astor Cafe, New York City. William Muschenheim and Peabody, Wilson & Brown, Architects. Sheet aluminum used as interior finish.



RESTAURANTS



Floor plan, Mayfair Restaurant, Washington, D. C. Scott & Teegen, Architects. Close connection between kitchen and dining room assures quick service.

entrance. A dumb-waiter from the bar to the wine cellar or storeroom is usually necessary, but should be avoided if a direct connection is possible.

FLOORS

Rubber is a very agreeable floor covering under foot and contributes to the silence of the dining room. Terrazzo is easier to keep clean and is laid with the pouring of concrete floors. Asphalt tile is low in cost and desirable for general floor use.

FURNITURE

Tables that are used without tablecloths should have formica tops with metal bindings. Where tablecloths are used, plywood is light in weight and practical. A heavy three-point base for tables assures more stability in case of unevenness in floor levels.

To insure comfort armchairs are always more desirable when there is room for them. Bentwood chairs, stained and varnished, are the most practical. Painted and enameled chairs have a tendency to chip in constant usage. Seats and backs may be of wood, cane or upholstery. Benches are upholstered in most cases.

KITCHEN PLAN

Diagram on page 32 BT shows the principle upon which kitchens should be planned. Large spaces clear of columns, pillars and supports make it considerably easier for the kitchen equipment specialist to produce an efficient layout. The separate departments such as pantry,

Restaurant, Congress Hotel, Chicago. Joseph Urban, Architect. Mirrored and glass walls with diffused lighting overhead.



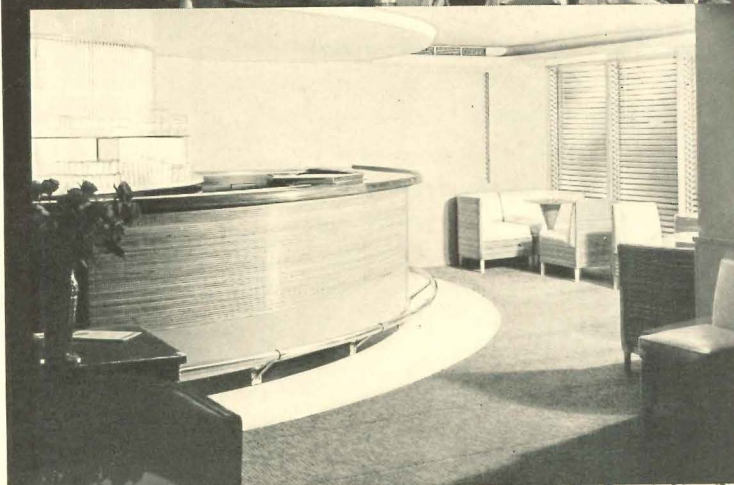
Photo Haveman

Eitel Restaurant, Chicago. Alfred Shaw, Architect, of Graham, Anderson, Probst & White.



Chicago Arch. Photographing Co.

Bar, La Petite Cafe, Chicago. Holabird & Root, Architects. Rattan facing on bar and on backs of chairs.



Hedrick-Blessing

24 West 55 Street Restaurant, New York City. Harrison & Fouilhoux, Architects. Large sheets of curved plate glass with oiled silk curtains behind.

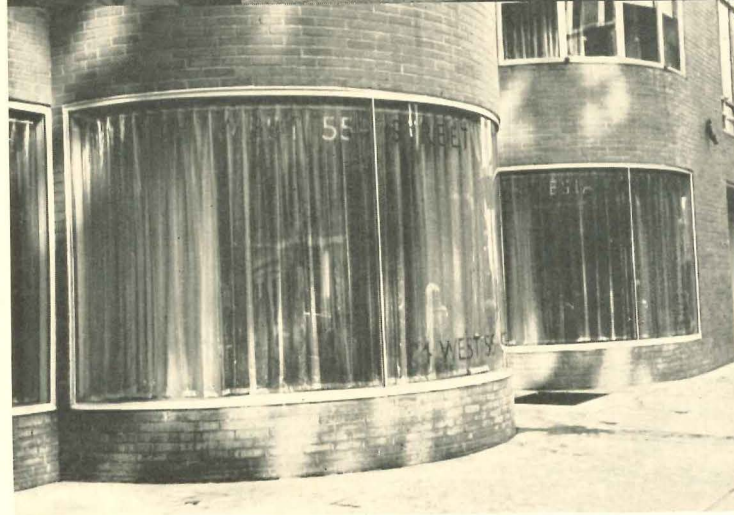


Photo Zimmerman

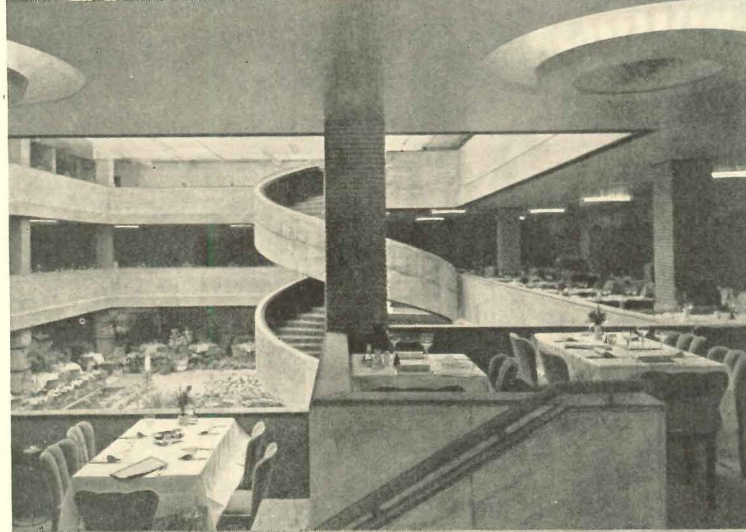
RESTAURANTS

bakery, butcher shop, etc., should be housed in separate rooms and segregated from the rest by means of partitions open at the top so that the entire space can be ventilated as one. Bakery and butcher shops are economical in kitchens handling 300 or more meals a day. If service space is to be provided in a kitchen, a passage at least six feet wide is necessary, and preferably 10 feet where there are many waiters. The service counter consists of hot and cold cupboards, *bains-maries*, etc., in which the food plates and dishes are kept hot or cold as required. A continuous shelf along the counter provides a place where waiters can rest and push along their trays. All corners should be rounded so that there is no place for vermin or dirt, and the floor should incline slightly to floor drains with traps for easy drain. All wall corners where trucking is done should be protected with heavy iron plates 3 inches on each side of the corner. White tile walls and concrete or heavy tile floors are desirable. Doors and door frames should be of metal. In arrangement, the soiled dish table should be near the entrance from the dining room, and the clean dish service counter, pantry and urns in semicircle that leads back into the dining room. There should be no crossing of routes; each service table should be properly placed and the associated divisions in the kitchen should be side by side. Storage is an important section of the kitchen and falls into two groups. First, the local storage in and adjoining the preparation departments; and second, the main bulk storage of goods of all types. These must be cool well-ventilated rooms with concrete floors. The scales should be conveniently located for weighing incoming merchandise. Sometimes the service room or pantry is eliminated. If there is a pantry, it should be between the kitchen and the dining room and large enough for a storage refrigerator, work tables, sinks, urns and necessary machines and utensils. The dish and silver-washing department should be compact but not crowded, so that dishes, silver and glasses

Restaurant, Frankfurt-on-the-Main. E. May & M. Elsaesser, Architects. Atmosphere of sun parlor with space for large plants between two sets of windows.



Gurmenia Restaurant, Berlin. Leo Nachlicht, Architect. Several tiers of dining terraces connected by large spiral staircase, and facing garden and pool in large central open space.



Cocktail lounge atop RCA Building, New York City. Reinhard & Hofmeister; Corbett, Harrison & MacMurray; Hood & Foulhoux, Architects. Mirrors on ceiling reflect large glass doors and panels.



RESTAURANTS

can be cleaned with few motions, and properly stored afterwards. The clean dish storage should be close to the dish-washing, cooks' station and waiters' supply. The potwashing department should be convenient to the ranges—the source of soiled pots. Forced ventilation is essential to control the supply of air and the smell of cooking in the kitchens. The lighting should be simple, direct and economical. The chef's office must be located with a view over the entire kitchen. Garbage is generally collected in bins and trucked away. For this reason there must be a well-ventilated space between the kitchen and service entrance for storage of the bins.

WASHROOMS

Washrooms ought to be on the same floor as the kitchen, but toilets, shower baths and lockers can be in the basement.

ACOUSTICAL TREATMENT

Soundproof construction is necessary between the kitchen and dining room. Two sets of doors check the noise to a certain extent. The dining room itself should have an acoustically treated ceiling in order to reduce reverberations due to the clatter of dishes, banging of doors and general conversation when the room is crowded. It is not necessary to protect the dining room from exterior noises since these are usually drowned out by the noises within. The decorative scheme can be accentuated by different means of lighting.

EQUIPMENT AND FITTINGS

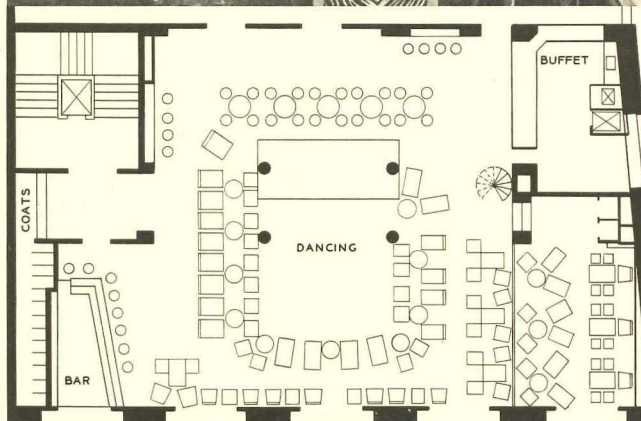
Indirect and diffused lighting is usually popular in most restaurants. The fixtures themselves should, of course, harmonize with the general scheme. Outlets for electric fans and other appliances are commonly required. Air conditioning is now also in general use to preserve a comfortable temperature and atmosphere. This entails the use of revolving doors at the entrances, although swinging doors will be required in addition for emergency exits. These exterior doors are usually of glass in aluminum, iron

Corso Cafe, Zurich. K. Knell and E. F. Burckhardt, Architects. Unusual treatment of sounding board over orchestra platform.

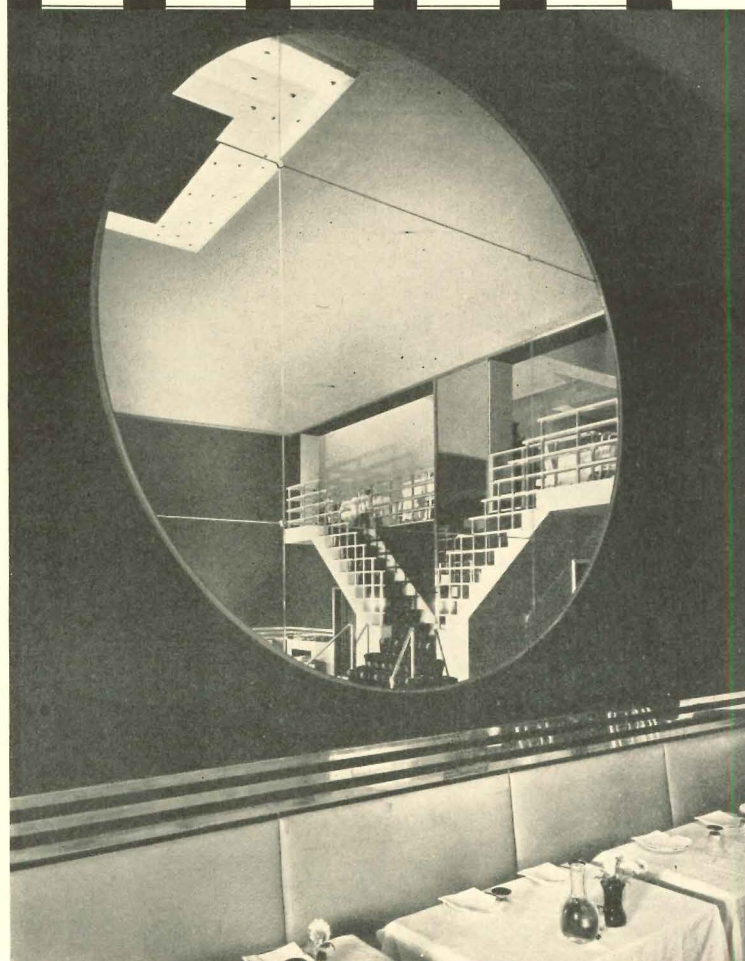


Photo J. Meiner & Son, Zurich

Floor plan, Corso Cafe, Zurich. K. Knell and E. F. Burckhardt, Architects. Easy grouping of tables around dance floor.



Plan and photo "Das Werk"



The Park Avenue Restaurant, New York City. Joseph Urban, Architect. Black wall and green ceiling featured in scheme of room.

RESTAURANTS

or bronze frames. The interior doors should be of metal or flush wood. There are many materials that can be used for partitions, such as block and plaster, lath and plaster, metal panels, plywoods and wallboards of different kinds, glass brick and glass in metal frames. Metal railings, aluminum, brass, bronze, monel, etc., are preferable to wood because of their greater strength and rigidity. Counters should be of monel metal or stainless steel except for displays, in which case different kinds of glass, rubber, plastics or wood can be used effectively. Special care should be given to the treatment or choice of wall surface at table level and level of backs of chairs to guard against damage due to scratching and knocking. Grilles to cover duct openings for heating or ventilating should be of metal.

VENTILATION

Since most restaurants have some form of mechanical ventilation, a great portion of the window area can be fixed or stationary with relatively small hinged transom lights or sliding panels. Side-walk cafes frequently have big glass panels that can be dropped into the floor or folded aside so that they are completely open in summertime.

FINISHES

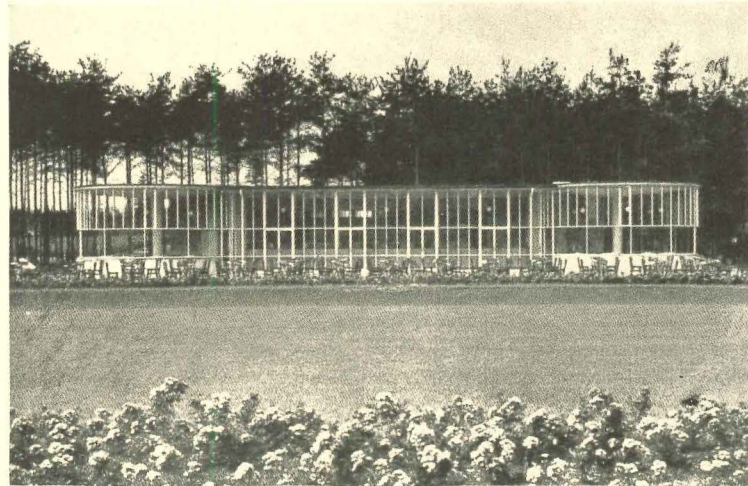
Cold water paints are satisfactory on ceilings, but flat oil paints with or without flat varnish finishes that are washable are preferable on walls. Colors, if properly chosen and used, are of the greatest importance and will intensify the architectural scheme.

Aside from paint, wall surfaces may be treated with mirrors, glass, plastics, metals, wood veneers, fabrics, murals, etc., depending on the effect desired.

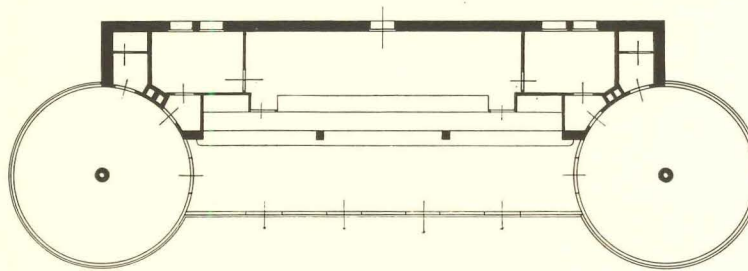
EXTERIOR

The exterior treatment is usually determined by the shape and size of the windows, and by the material used for window trim and frames. Blank wall surfaces can be finished with sheet metal, enameled metal, terra cotta, stucco, glass,

Pavilion at Stadium, Nuremburg. O. E. Schweizer, Architect. Curtain of glass on line of cantilevered reinforced concrete roof plate achieves an airy effect.



Plan of pavilion, Nuremburg. O. E. Schweizer, Architect. Shows position of columns that support cantilevered roof slab.



Cooperative Restaurant, Stockholm, Sweden. Designed by Cooperative Architects Association. Large plate glass windows afford uninterrupted view of street.



Open Roof Restaurant, Hotel Astor, New York City. William Muschenheim, Architect. Stucco walls of penthouses painted in strong colors.

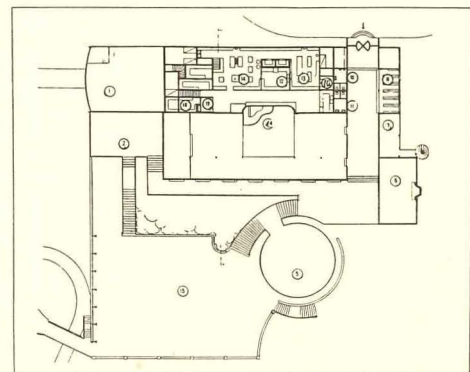


RESTAURANTS

marble, etc. Lettering and electric signs should be an integral part of the design.

The photographs on the accompanying pages show a selected number of different types of restaurants. Each one of them presents a special architectural problem successfully solved in a contemporary manner.

Plan, Restaurant at Week-End Resort, Oslo, Norway. Eyvind Moestue and Ole Lind Schistad, Architects. Shows connection of various terraces with main building.

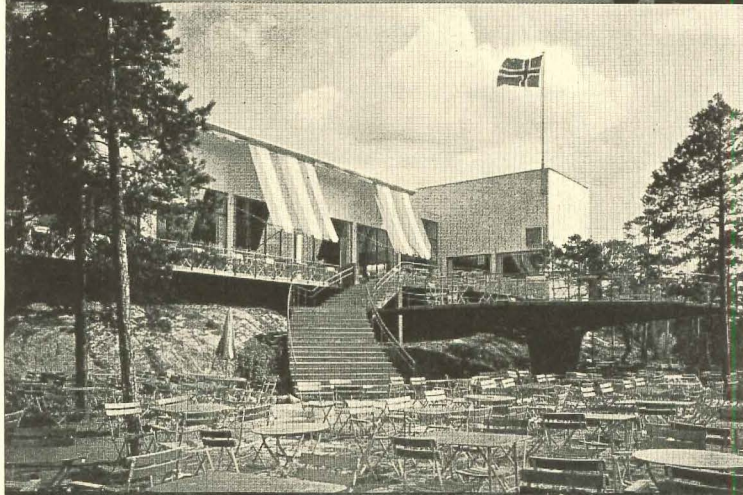


Restaurant, Friedrichstrasse, Berlin. Rudolf Frankel, Architect. Roominess is accentuated by simple treatment of plain surfaces.



Photo "Moderne Cafés"

Restaurant at Week-End Resort, Oslo, Norway. Eyvind Moestue and Ole Lind Schistad, Architects. Circular reinforced concrete plate creates intermediate terrace for diners.



SPACE REQUIREMENTS FOR RESTAURANTS *

Serving	HOTEL	Floor Space Required
100 meals per day....	450—600 sq. ft.	
200 meals per day....	700—900 sq. ft.	
500 meals per day....	1,000—1,500 sq. ft.	
1,000 meals per day....	2,000—2,500 sq. ft.	
3,000 meals per day....	3,000—4,000 sq. ft.	
6,000 meals per day....	7,000—8,000 sq. ft.	

HOSPITAL

100 meals per day....	500—600 sq. ft.
250 meals per day....	650—750 sq. ft.
500 meals per day....	750—1,000 sq. ft.
1,000 meals per day....	1,500—2,500 sq. ft.

INDUSTRIAL CAFETERIA

(Noon meal only)

500 persons per meal..	1,000—1,500 sq. ft.
1,000 persons per meal..	2,500—3,000 sq. ft.

LUNCH COUNTER

300 persons per day..	300—500 sq. ft.
750 persons per day..	900—1,100 sq. ft.

CAFETERIA

1,600 persons per day..	1,500 sq. ft.
-------------------------	---------------

TEAROOM

150 meals per day....	150 sq. ft.
225 meals per day....	450 sq. ft.
575 meals per day....	1,100 sq. ft.
1,200 meals per day....	1,800 sq. ft.

* Kitchen Management. By J. O. Dahl. Harper & Brothers.

Restaurant, Prague, Czechoslovakia. G. Kroka, Architect. Main floor and balcony level are given unity by parallel treatment of exterior glass screen.

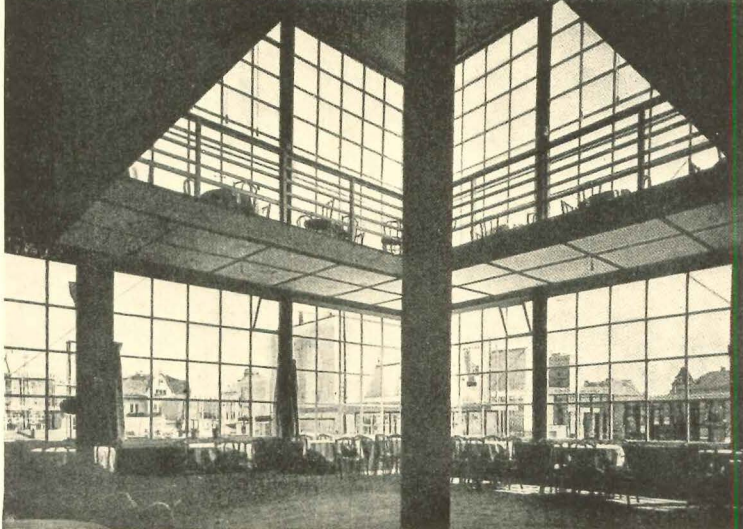
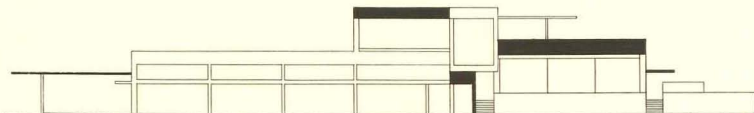


Photo "Glas"



Elevation and plan, Cafe in Recreation Park, Holland. C. Van Eesteren, Architect. Coordination of auto service station and restaurant, partly open and partly inclosed.

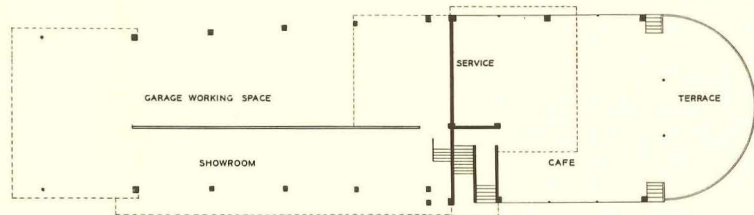


Photo "Moderne Cafés"

RESTAURANTS

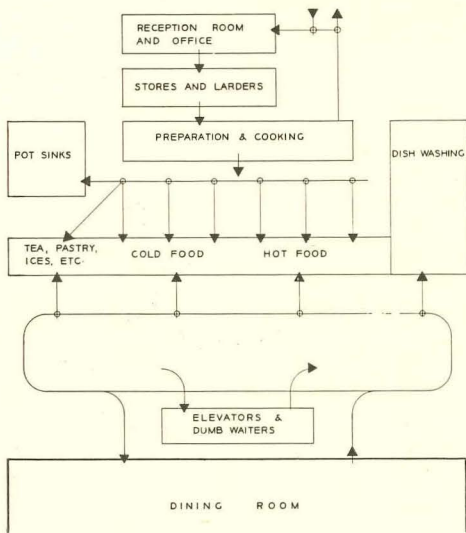


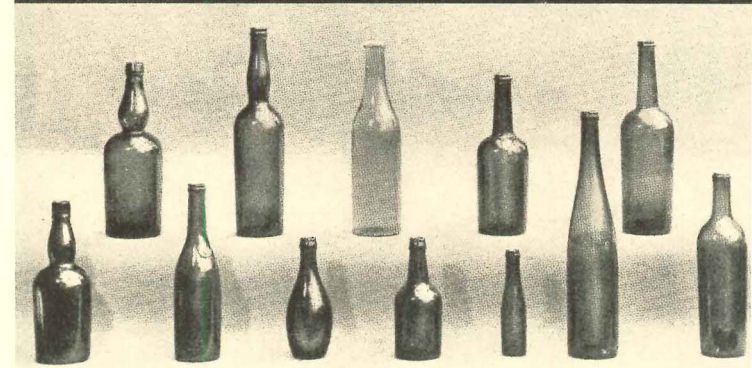
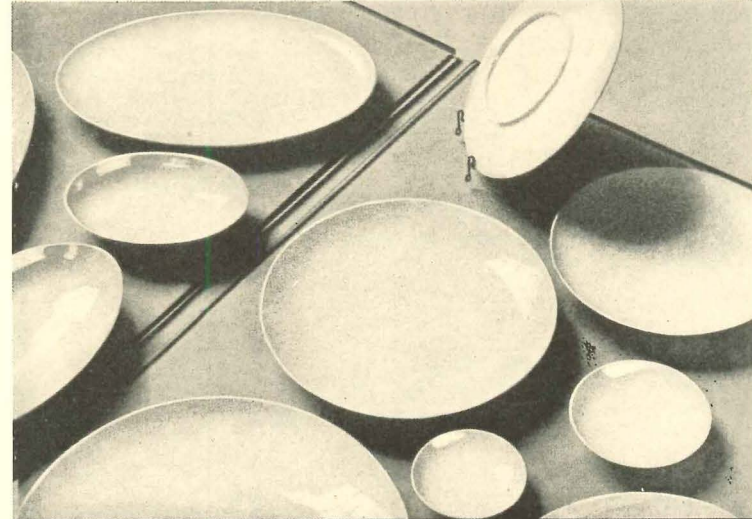
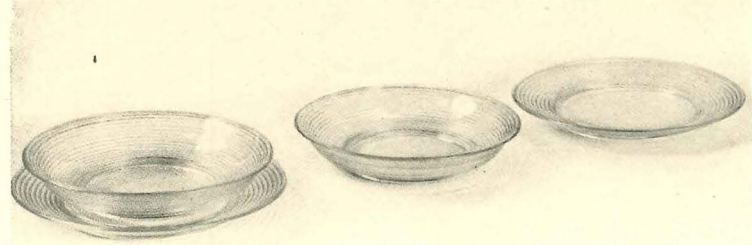
Diagram of Kitchen Circulation.

Dinner and Soup Plates pressed of Tena Glass (Durax).

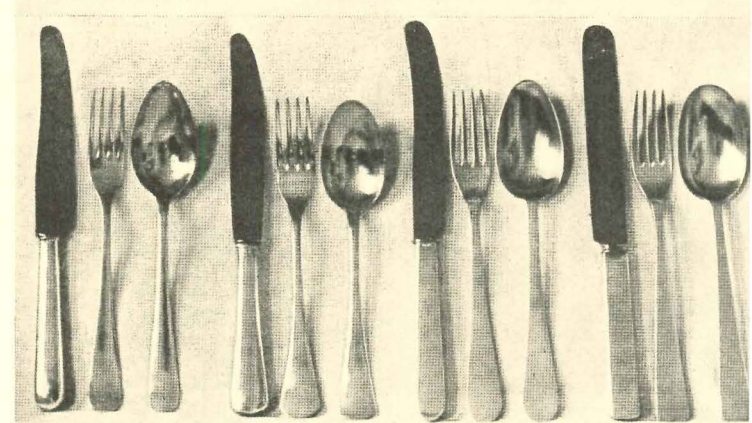
Bowl-shaped Dishes and Oval Dishes, Without Borders. State Porcelain Factory, Berlin.

Porcelain Ware for Hotels. Gebr. Bauscherk, Weiden.

Photos "Die Forme"

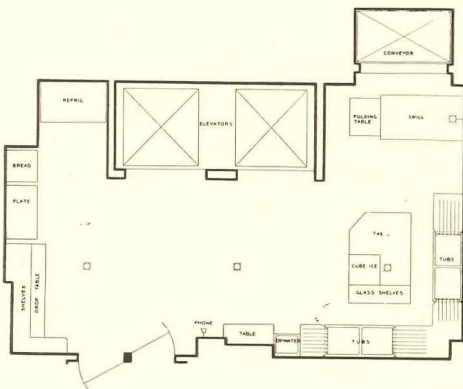


Standard Bottles.



Cutlery, variations of standard forms.

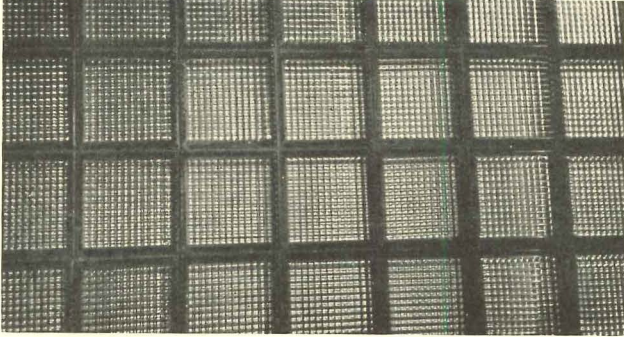
Plan of Pantry, North Restaurant, Hotel Astor New York City. Peabody, Wilson & Brown, Architects. Workable arrangement to suit natural circulation.



P O R T F O L I O

DISPLAY WINDOWS • RETAIL STORES

Photographs by Zimmerman



A



B



C



D



E



F

PORTFOLIO

DISPLAY WINDOWS

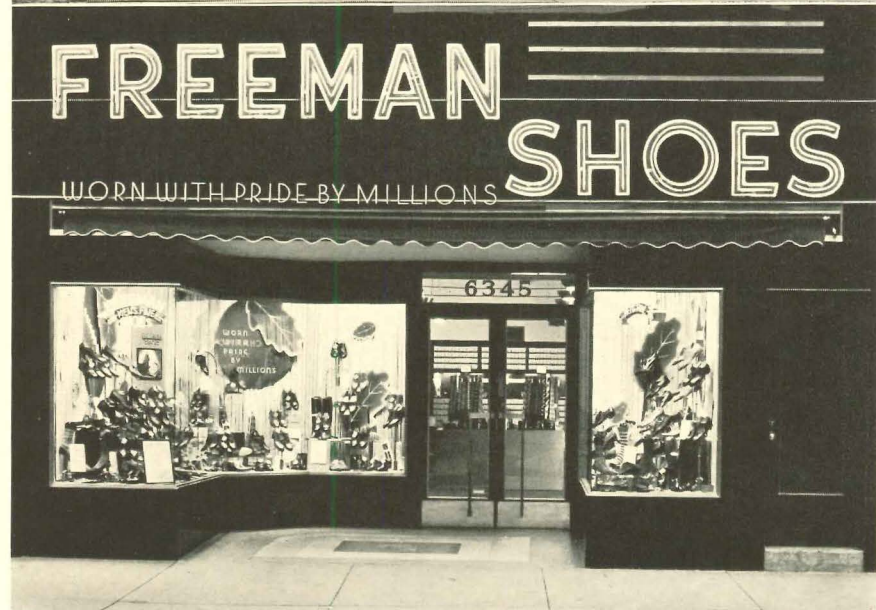
- A . . .** DETAIL OF GLASS BRICK
MANDELL'S DRUG STORE
- B . . .** MANDELL'S DRUG STORE
NEW YORK CITY
NICHOLAS H. WEISS, ARCHITECT
- C . . .** KANE'S RESTAURANT
NEW YORK CITY
DESIGNED BY HYGRADE RES-
TAURANT EQUIPMENT COMPANY
- D . . .** NAT LEWIS MEN'S STORE
NEW YORK CITY
DESIGNED BY DONALD SCHILLMAN
- E . . .** PAN AMERICAN AIRWAYS TICKET
OFFICE, NEW YORK CITY
DESIGNED BY
PAN AMERICAN AIRWAYS SYSTEM
- F . . .** CORK AND BOTTLE LIQUOR STORE
NEW YORK CITY
MORRIS B. SANDERS, ARCHITECT
- G . . .** ANDREW GELLER SHOE STORE
NEW YORK CITY
DESIGNED BY LEE SCHOEN
- H . . .** CUTLER SHOE STORE
OAK PARK, ILLINOIS
SOBEL & DRIELSMA, ARCHITECTS
- I . . .** FREEMAN SHOE STORE
CHICAGO, ILLINOIS
PIOSO & PETERSON, ARCHITECTS



G



H



I

Right: CUSHMAN'S BAKERY, NEW YORK CITY. DESIGNED BY RAYMOND LOEWY.
 Below: ROMAINE PHOTOGRAPHIC STUDIO, SAN FRANCISCO. BLISS & FAIRWEATHER, ARCHITECTS.

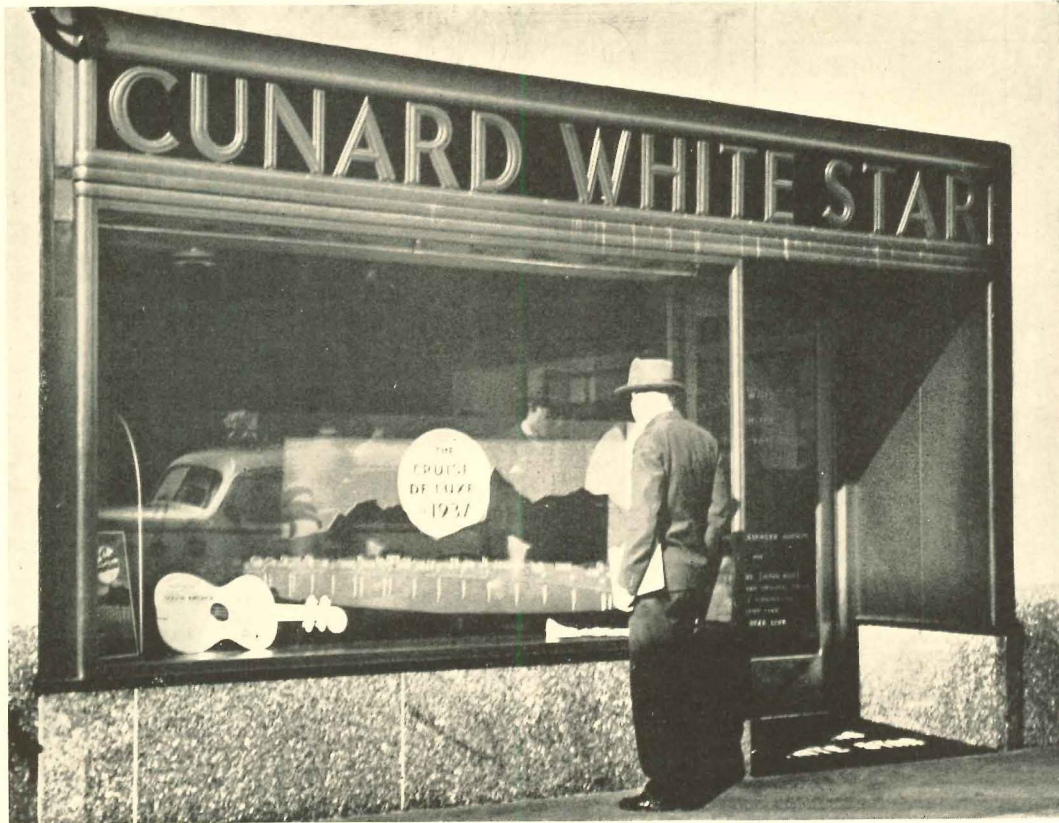


Photograph by Zimmerman

Photograph by P. M. Bruner



PORTFOLIO
DISPLAY WINDOWS



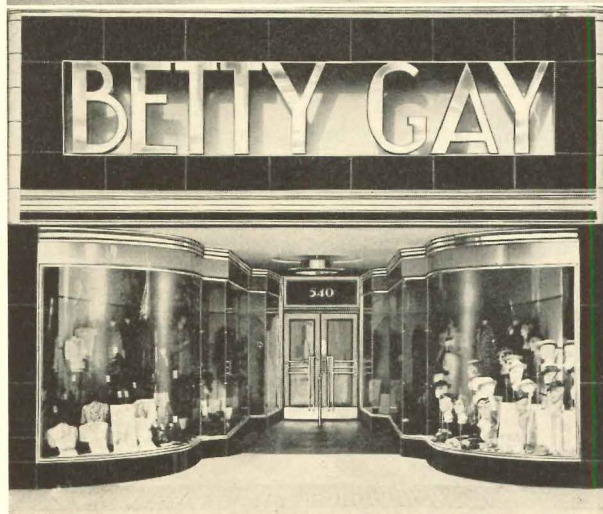
Photographs by Zimmerman

Above: CUNARD-WHITE STAR OFFICE, ROCKEFELLER CENTER, NEW YORK. REINHARD & HOFMEISTER; CORBETT, HARRISON & MACMURRAY; HOOD & FOUILHOUX, ARCHITECTS. Below: PEUGEOT AUTOMOBILE SHOWROOM, PARIS.



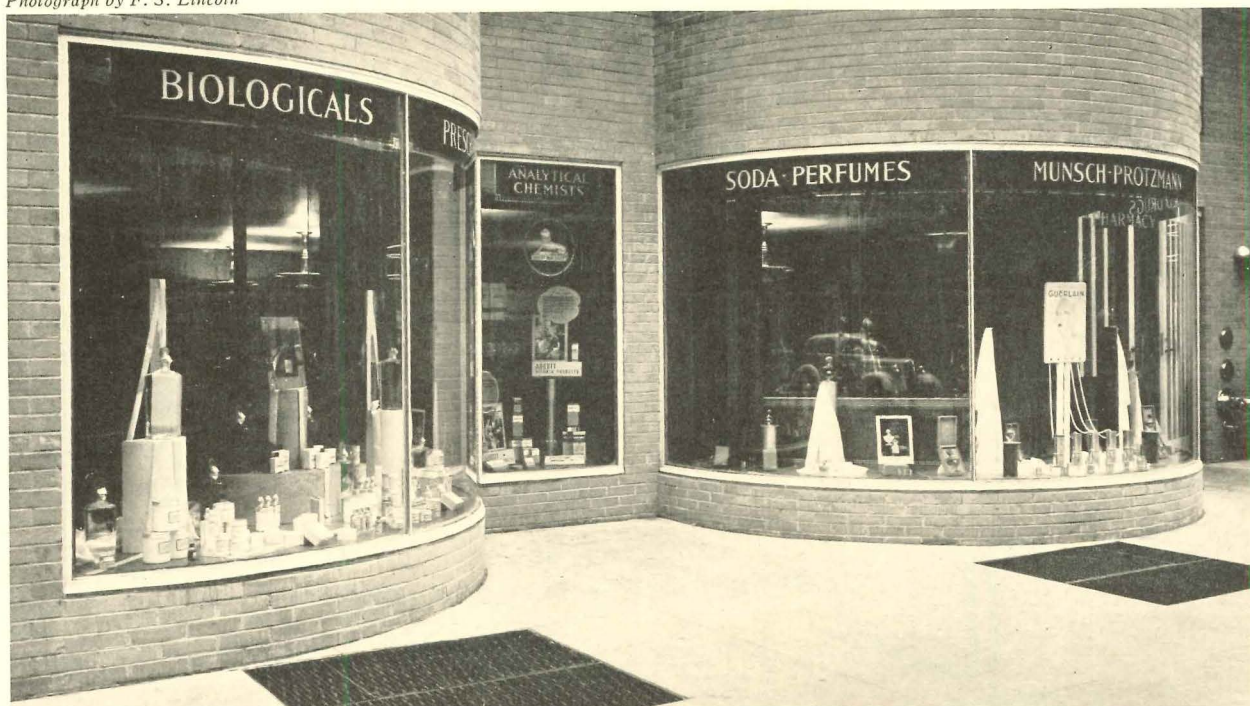


Photograph by Hedrich-Blessing



Above: BARNETT'S SHOP, ELGIN, ILLINOIS. DESIGNED BY GORDON GUNDLING. Right: BETTY GAY SHOP, LOUISVILLE, KENTUCKY. RUBIN & VECHANCEY, ARCHITECTS. Extruded bronze trim together with black and green structural glass. Below: DRUG STORE IN ROCKEFELLER APARTMENTS, NEW YORK CITY. HARRISON AND FOUILHOUX, ARCHITECTS.

Photograph by F. S. Lincoln



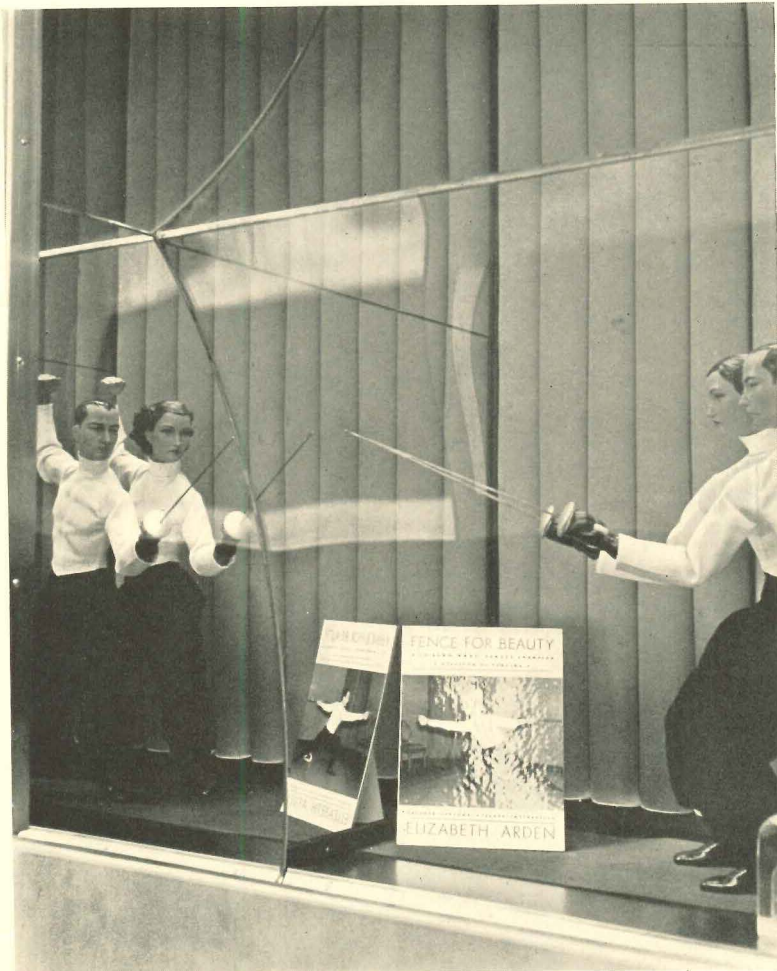
PORTFOLIO

DISPLAY WINDOWS

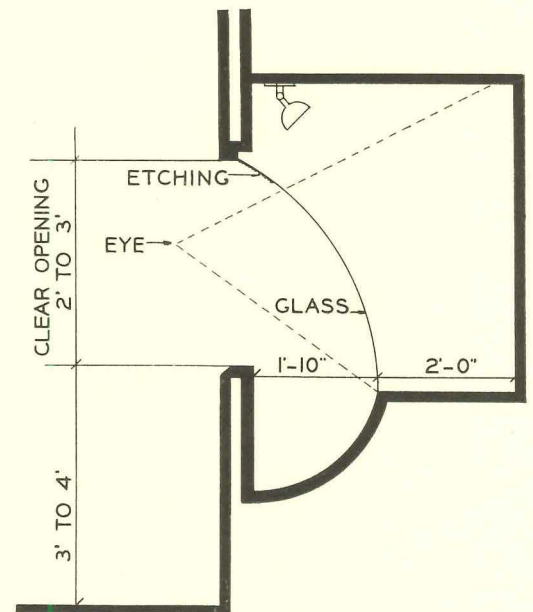
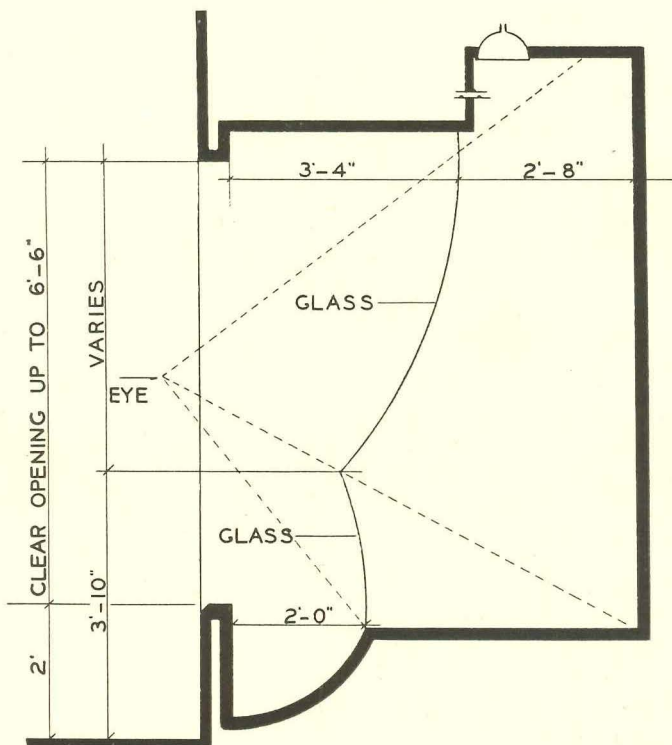


"In Manchester . . . mothers used to stand their children inside the base of the window so that they could feel the glass for themselves and see that it really existed. For this reason crowds collected outside the shop."
 —Note and sketch, *Architect's Journal*, London.

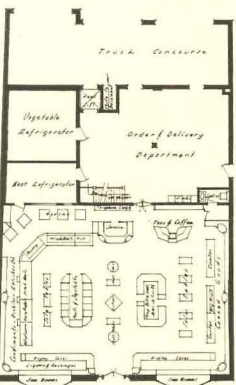
WINDOW DISPLAY, WITH INVISIBLE GLASS, FOR ELIZABETH ARDEN, NEW YORK CITY.



Photograph by Zimmerman



Cross sections of two types of windows with installation of so-called Invisible Glass. Lines of vision show that entire display can be seen clearly. Type at right is made in a variety of sizes.



FIRST FLOOR PLAN
STRAUB'S GROCERY
STORE

1



Photograph by A. Piaget

2



3



4

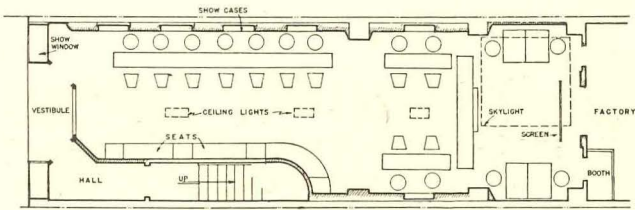


1. STRAUB'S GROCERY STORE, R. PAUL BUCHMUELLER, ARCHITECT. 2, 3. STORE FOR THE C. A. TILLMAN GROCERY COMPANY, GREENSBORO, N. C. 4. COOPERATIVE GROCERY STORE, NORRIS, TENNESSEE. TVA ARCHITECTURAL SECTION AND ROLAND A. WANK, ARCHITECTS.

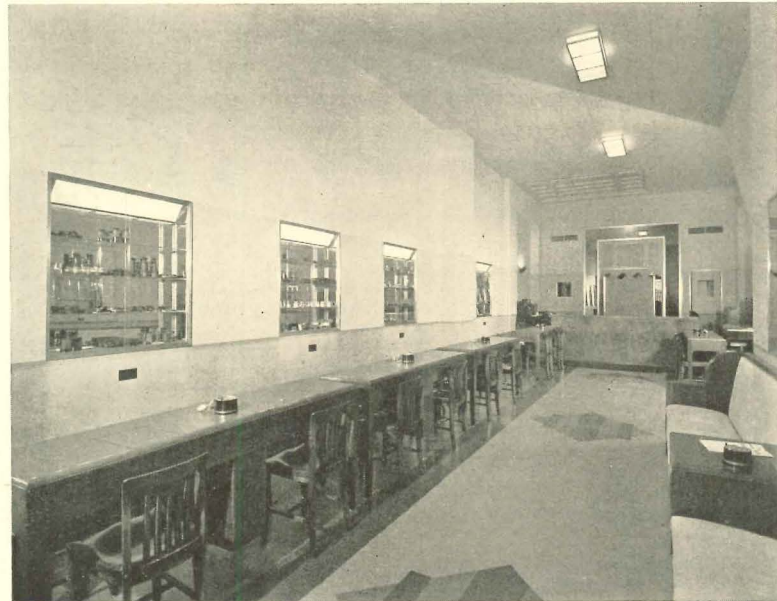
PORTFOLIO

STORE INTERIORS

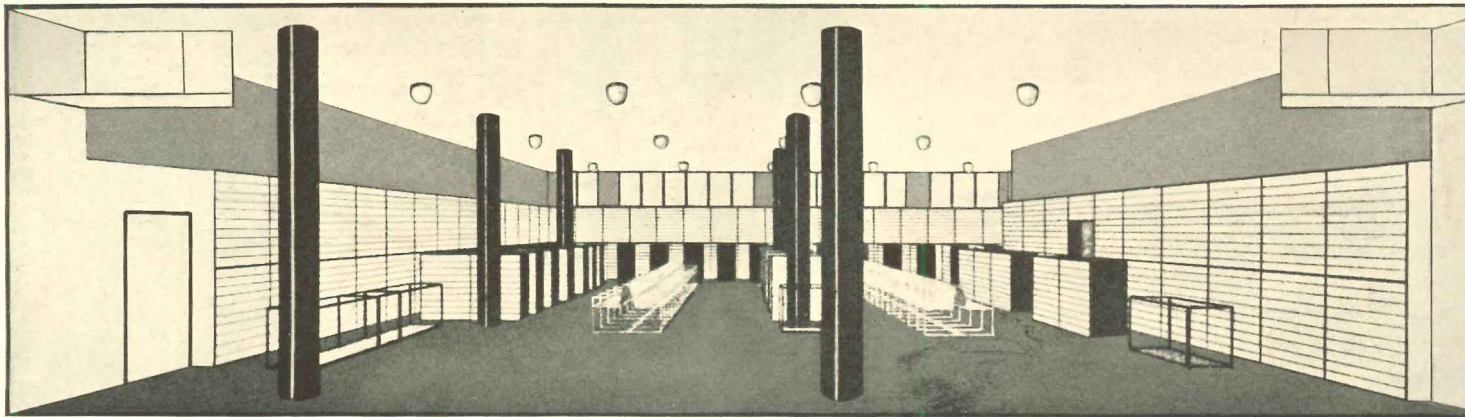
STRICKLAND'S MARKET
OAK PARK, ILLINOIS
DESIGNED BY
STORE ENGINEERING COMPANY



OPTICAL SHOP
PHILADELPHIA, PA.
WARDEN H. FENTON, ARCHITECT



SHOE STORE IN CZECHOSLOVAKIA
LUD KYSELA, ARCHITECT



PORTFOLIO

RESTAURANTS

WRIGLEY RESTAURANT
CHICAGO, ILLINOIS
GRAHAM, ANDERSON, PROBST &
WHITE, ARCHITECTS



Photographs by Chicago Architectural Photographing Co.



INDIAN TRAIL RESTAURANT
INDIAN HILL
DESIGNED BY MARIE STOSSKOPS

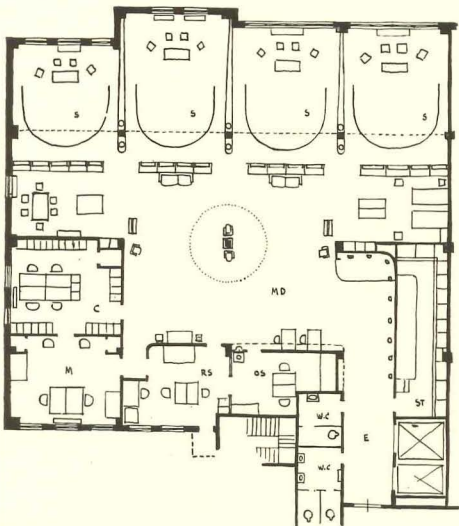


Photograph by F. S. Lincoln

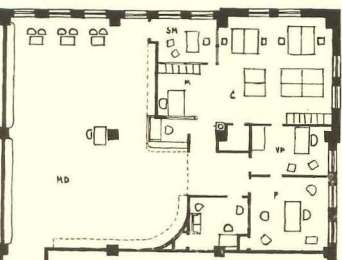
INFORMATION DESK AND TELEPHONE EX-
CHANGE — SHOWROOM FOR PATCHOGUE-
PLYMOUTH MILLS. DESIGNED BY RUS-
SEL WRIGHT.

PORTFOLIO

SHOW ROOMS

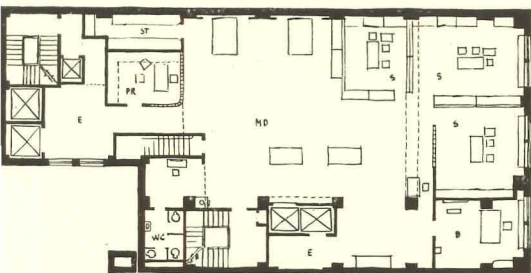


SHOWROOM FOR SCRANTON LACE CO.
JOHN R. WEBER, ARCHITECT



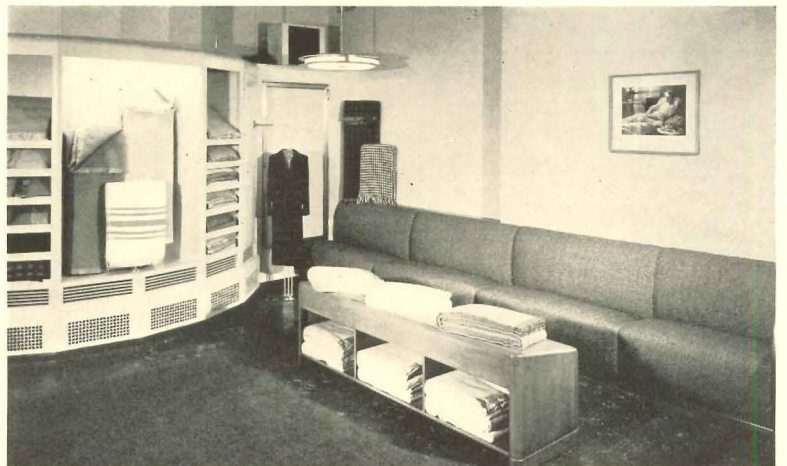
SHOWROOM FOR BONA-
FIDE MILLS, INC. JOHN
R. WEBER, ARCHITECT

- E Entry
- MD Main Display Room
- S Showroom
- PR Private Conference Room
- P President
- VP Vice-President
- M Manager
- SM Sales Manager
- D Designer
- RS Resident Salesmen
- OS Out of Town Salesmen
- C Clerical
- WC Toilet
- ST Stock



SHOWROOM FOR AMERICAN FABRICS CO.
JOHN R. WEBER, ARCHITECT

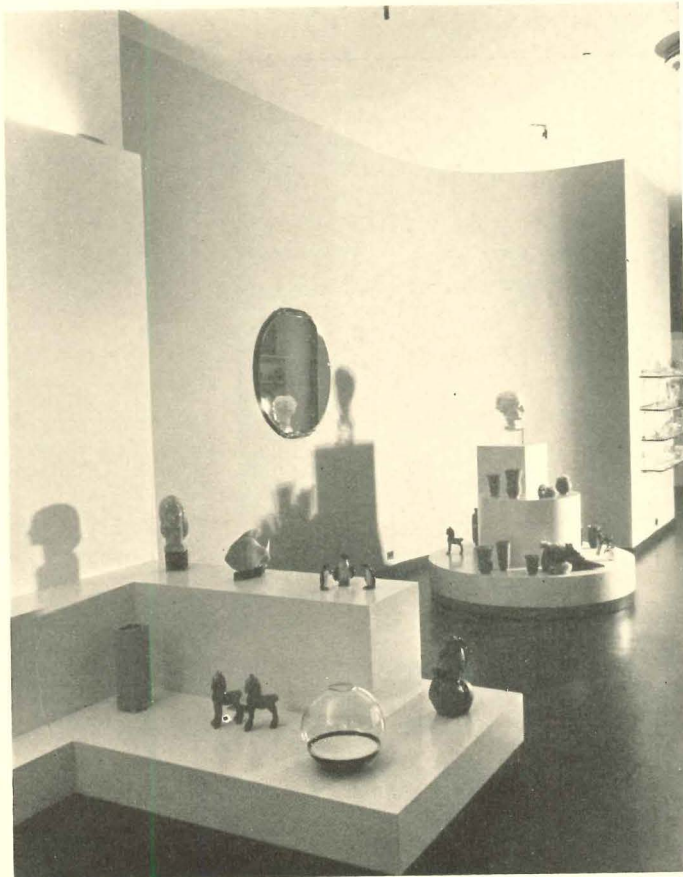
Upper Photos: SHOP FOR KENWOOD WOOL-
ENS, CHICAGO, ILLINOIS. DESIGNED BY
McSTAY JACKSON, GENERAL DESIGNS.
Lower Photo: SHOP FOR WOOLENS, ATHENS,
GREECE. STAMO PAPADAKI, ARCHITECT.
Continuous cases of wood with sliding glass panes
and hardwood ply-covered surfaces. Counters with
open shelves of same plywood, supported by cop-
per tubes, chromium-plated.



Photographs by Chicago Architectural Photographing Co.

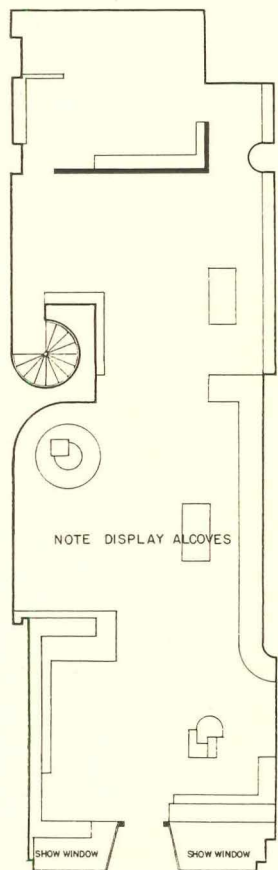
PORTFOLIO

SPECIALTY SHOP



PITT PETRI SHOP, NEW YORK CITY
ELEANOR LEMAIRE, INTERIOR ARCHITECT

Photographs by Zimmerman



SHOWROOMS

By JOHN R. WEBER, ARCHITECT

SHOWROOMS are to the wholesale trade what stores are to the general public. They are the display and salesrooms where the store buyers select merchandise sold later to their own customers.

Just as the retailer is anxious to get his customer in a buying mood, by displaying his merchandise under the most favorable conditions, so are the wholesalers always intent on making their showrooms, and with it their "lines," as attractive as possible.

A buyer requires much greater attention than a retail customer. While some of his transactions may be concluded in a few minutes, the average time he spends in any one showroom is well over one hour. For this reason the buyer usually selects his merchandise in a secluded private room where the manufacturer shows his products.

LOCATION

Showrooms are located at the factory and, more important, in various big trade centers. Temporary showrooms are set up in hotel rooms during a trade show. The metropolitan showroom, however, is where the bulk of the manufactured goods is sold.

The wholesale district is usually close to the central retail area, thus permitting local buyers to make their trips frequently. The manufacturer usually rents space for showroom purposes in some well-located office or trade building.

Since the showrooms are not intended to draw the general public they are most often found on upstairs floors, where rentals are less than on the street level.

Due to the above-mentioned conditions the great majority of all showrooms are alteration jobs. The architect will almost invariably have to accept, not only column spacing and ceiling heights, but the entire outline of the rented area.

DESIGN

With these limitations he then is called upon to create the most suitable background for any one of a thousand different products. With this primary requirement for showrooms is usually associated the design of other facilities, such as offices for managers, salesmen, clerical staff and, sometimes, for a design staff also.

PLAN

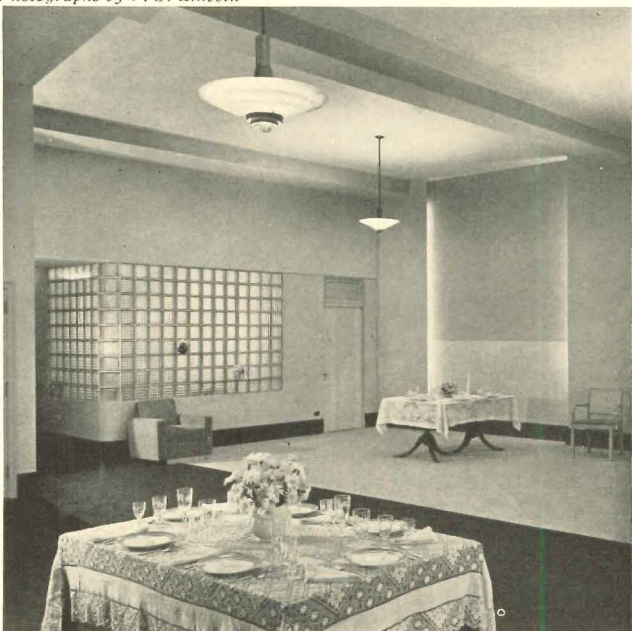
To bring order in this assemblage of heterogeneous units, a plan has to be designed that satisfies the particular organization the manufacturer has.

SEQUENCE

The various elements are grouped in room-sequences—the architectural assembly-line. But here again each project has its own rules and no one standard of efficiency can be applied.

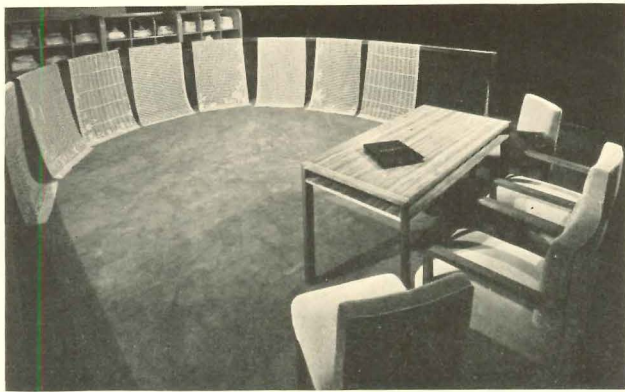
EXAMPLES

1) A wholesale dressmaker will need an entry with an information booth, and the showroom behind closed doors to keep un-



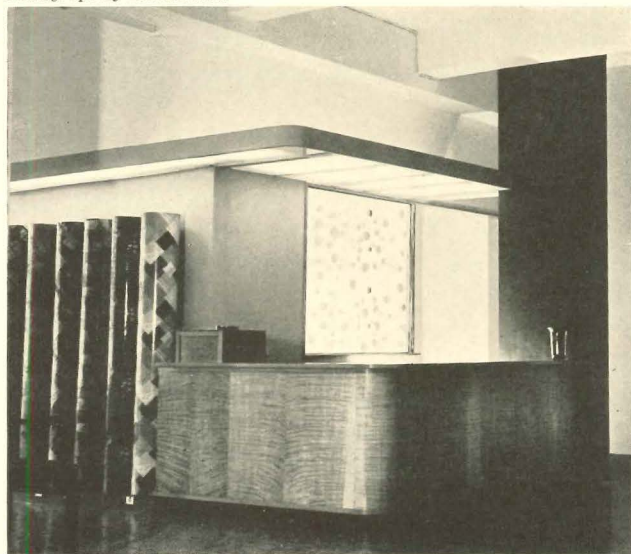
SHOWROOM FOR AMERICAN FABRICS, INC., NEW YORK CITY. . . . JOHN R. WEBER, ARCHITECT.

In showroom design the architect is called upon to create the most suitable background for any one of a thousand products.



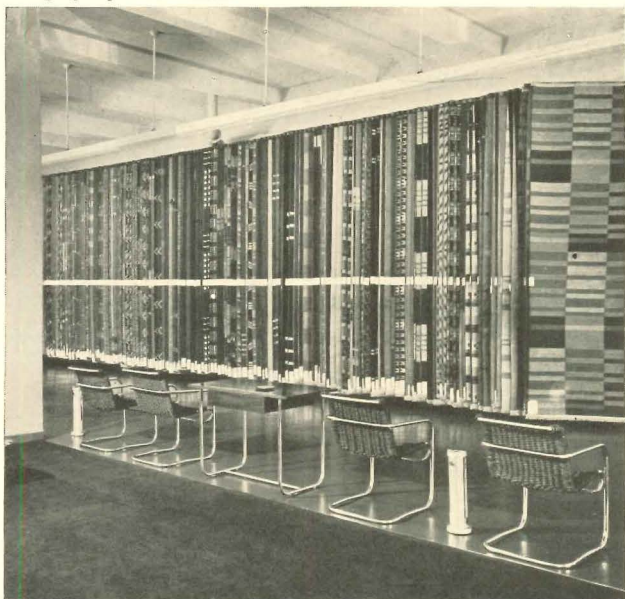
SHOWROOM FOR SCRANTON LACE COMPANY, NEW YORK CITY. JOHN R. WEBER, ARCHITECT.

Photograph by Zimmerman



DISPLAY ROOM OF BONAFIDE MILLS, INC., NEW YORK CITY. JOHN R. WEBER, ARCHITECT.

Photograph by F. S. Lincoln



TEXTILE DISPLAY OF PATCHOGUE-PLYMOUTH MILLS, NEW YORK CITY. DESIGNED BY RUSSEL WRIGHT.

accredited buyers from seeing the new "line." The showroom itself will have a stage or, at least, parade-entrance where the mannequins appear to show wearing apparel to the buyers seated in their individual booths. From the showroom the sales manager's office may be reached as well as the designer's room. This, on the other end, is connected with the mannequins' dressing room and the factory proper. The production room is again subdivided into cutting department, machine seamstresses' units, finishers, steaming and ironing bench, inspection, marking, packing and delivery.

2) A wholesale textile firm will need an entry where merchandise is displayed in retail fashion, and where the buyer may pick up ideas for his own use. There also should be some cabinet where the wholesaler's newest advertisements are featured. The buyer may avail himself of these and may secure the cuts without charge for use in his own advertising campaign. Passing this entry the main show- or display-room is reached, where the different products are in evidence. Off this main room a series of private or semi-private rooms are grouped where the actual selection is made. Here the new sample lines may be shown over a rail, over an easel or on a table, according to the class of goods being sold. The main showroom is also the common hall leading to the offices of the manager, the sales force, the clerical staff, the design department and the stockroom. This list may also include rooms for meetings, for entertainment, for out-of-town salesmen, etc. Washrooms and toilet facilities have to be fitted as conveniently as possible into this general scheme.

MATERIALS

The walls and ceilings are generally gypsum blocks, furred, plastered and painted. Wood paneling, vitrolite facing or glass brick partitions may be introduced to accent a certain feature or produce an arrangement.

FLOORING

The flooring material will be predetermined by the merchandise to be sold. For textile showrooms carpeting is generally preferred, but linoleum or rubber tile may be more appropriate in other instances.

FIXTURES

Special cabinet work invariably has to be designed to suit the special purposes. It may consist of mere shelving, bins, drawer-bases, or racks, glass display cases, sliding tray-cabinets, etc.

FURNITURE

In the private showrooms one sales table with drawer or shelf for sales books, and a few chairs are sufficient. The chairs should be comfortable but not too "loungy."

In the main showroom a few easy chairs and sofas may be desirable, since this room may also be used as a waiting room.

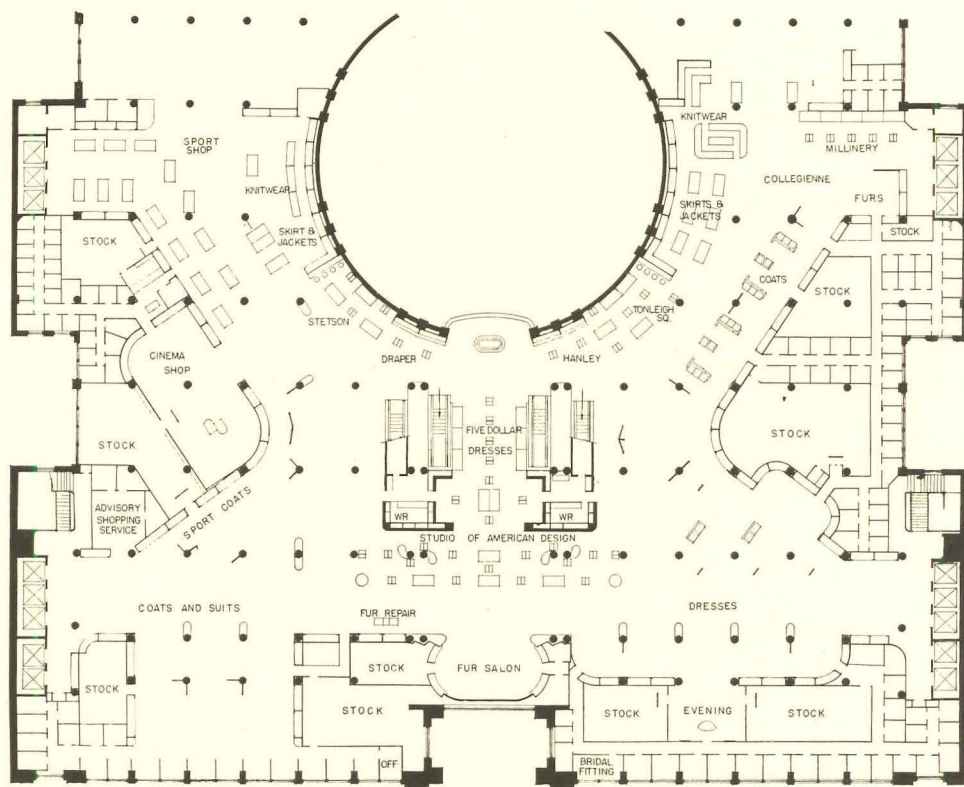
ACCESSORIES

Smoking stands and ashtrays are indispensable. A drinking fountain, preferably in connection with a cooler and ice-cube maker, is another necessity.

LIGHTING

Wherever possible, indirect lighting is the preference.

THE EMPORIUM (A Department Store),
 SAN FRANCISCO, CALIFORNIA. BY
 ELEANOR LEMAIRE, INTERIOR ARCHI-
 TECT. An example of open plan which
 exemplifies a trend toward reduction of
 counters and cases. Location of departments
 and shops is determined by location of
 elevators and newly installed escalators.



SPECIALTY SHOPS

IN THE MODERN DEPARTMENT STORE

By ELEANOR LEMAIRE, INTERIOR ARCHITECT

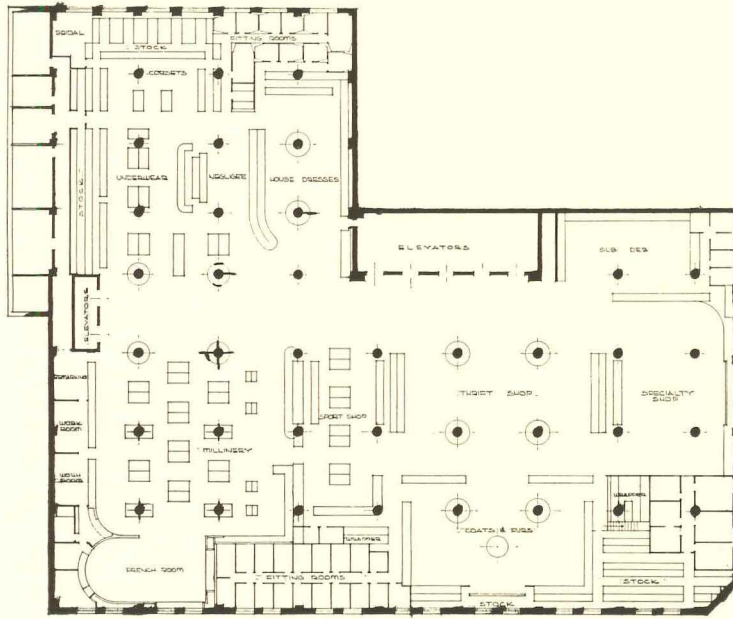
THE MODERN DEPARTMENT STORE is unmistakably a by-product of our particular civilization, just as much so, for instance, as the automobile. Unlike the automobile, the department store is not born entirely anew with each style cycle but continues on in its cellular growth from a nucleus which not uncommonly dates back forty or fifty years. Its early beginnings may have been a china shop, a yardage store, or possibly a notions shop, growing from some such small business to other related types of merchandise and finally into the very complex organization of retail merchandising departments where practically every type of consumer goods is sold.

It is important to establish this since otherwise one might go on a fruitless search of the ideal department store. In the light of things we know today, such a store is practically non-existent.

CLASSIFICATIONS

Department stores are not to be confused with specialty

SPECIALTY SHOPS IN THE MODERN DEPARTMENT STORE



THIRD FLOOR PLAN. RICH'S, INC., ATLANTA, GEORGIA. ELEANOR LEMAIRE, INTERIOR ARCHITECT

Photographs by Samuel Gottscho



SHOW WINDOW AND ENTRANCE TO BURDINE'S STORE, MIAMI BEACH, FLORIDA. ROBERT LAW WEED, ARCHITECT. ELEANOR LEMAIRE, INTERIOR ARCHITECT. Show windows are often the sole advertising medium of a specialty shop.

shops; the latter stock only one major type of merchandise, i.e., ready-to-wear, or men's furnishings, and very closely related accessories. The department store, on the other hand, whatever its size or the volume of its sales, usually deals in all or practically all of the following special types of merchandise:

MAIN STORE DEPARTMENTS

Silks and Velvets	Blouses and Skirts
Woolen Dress Goods	Juniors' and Misses' Coats and Suits
Wash Goods and Linings	Juniors' and Misses' Dresses
Linens (Household)	Girls' Wear
Domestics—Muslins, Sheetings, etc.	Sportswear (Including Sweaters and Knit Apparel)
Patterns	Aprons and House Dresses
Blankets and Comfortables	Maids' and Nurses' Uniforms
Laces, Trimmings and Embroideries	Furs
Ribbons	Men's Clothing
Notions	Men's Furnishings
Toilet Articles and Drug Sundries	Men's Hats and Caps
Silverware	Boys' Wear
Jewelry	Men's and Boys' Shoes
Umbrellas, Parasols and Canes	Furniture (Including Beds, Mattresses and Springs)
Art Needlework and Art Goods	Oriental Rugs
Stationery	Domestic Floor Coverings
Books and Magazines	Draperies, Curtains and Upholstery
Neckwear and Scarfs	Lamps and Shades
Handkerchiefs	China and Glassware
Millinery	Major Household Appliances (Electrical and Other)
Gloves	Miscellaneous House Furnishings
Corsets and Brassieres	Gift Shop
Hosiery	Pictures, Framing and Mirrors
Knit Underwear (All Materials)	Radio, Talking Machines and Records
Silk and Muslin Underwear	Toys
Petticoats and Slips	Sporting Goods and Cameras
Negligees	Luggage
Infants' Wear	Restaurant, Luncheonette and Fountain
Small Leather Goods	Candy
Women's Shoes	
Children's Shoes	
Women's Coats and Suits	
Women's Dresses	
Popular Price Dresses	

BASEMENT DEPARTMENTS

Piece Goods, Domestic	Juniors', Misses' and Women's Dresses
Smallwares	Millinery
Hosiery, Underwear and Corsets	Girls' and Infants' Wear
Aprons and House Dresses	Men's and Boys' Wear
Juniors', Misses' and Women's Coats	Home Furnishings
	Shoes

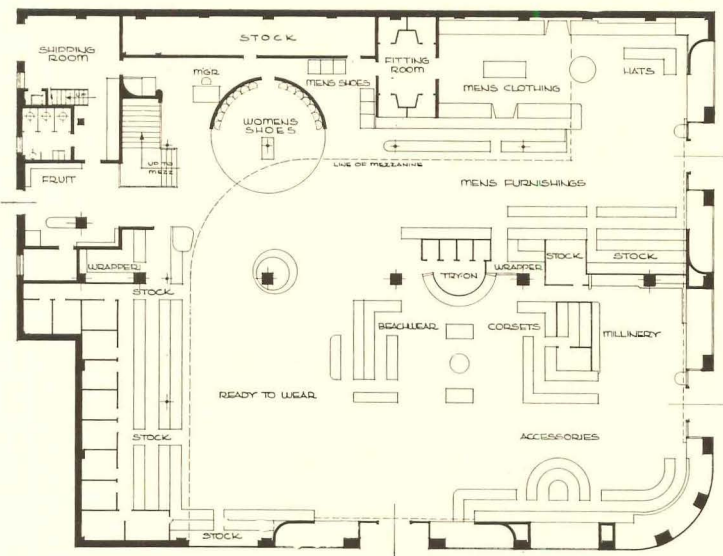
Obviously not all department stores have each of these departments and some may even go beyond this inventory, but in the main the above is their merchandising scope. I shall come to the various nonprofit or "service" and accommodation departments later on.

The gross annual volume of sales therefore becomes rather important as a means of classification. On this basis department stores group themselves in the following five groups:

Group I:	Annual Sales Volume of \$500,000 to \$1,000,000
Group II:	Annual Sales Volume of \$1,000,000 to \$2,000,000
Group III:	Annual Sales Volume of \$2,000,000 to \$5,000,000
Group IV:	Annual Sales Volume of \$5,000,000 to \$10,000,000
Group V:	Annual Sales Volume of \$10,000,000 and over

The department stores which may be said to be nationally known—that is where their sphere of influence goes beyond

SPECIALTY SHOPS IN THE MODERN DEPARTMENT STORE



MAIN FLOOR PLAN. BURDINE'S STORE, MIAMI BEACH, FLORIDA.
ROBERT LAW WEED, ARCHITECT. ELEANOR LEMAIRE, INTERIOR ARCHITECT.



INTERIOR VIEW, BURDINE'S STORE, MIAMI BEACH, FLORIDA. ELEANOR LEMAIRE, INTERIOR ARCHITECT.
This store is almost entirely without interior column supports.

their immediate trading area—are usually in Groups IV and V.

Another important consideration in studying a department store is the average sales check. Where the average sale is a small unit it follows that the store does most, if not all, of its business on its low-end or popular priced merchandise and vice versa. These are factors which in turn become significant in determining the number of transactions which may be expected within a given period of time.

SITE

Since the department store is almost invariably an outgrowth of an earlier, smaller retail business, the location is not always ideal as related to current trends in the community. There are many instances of continued success, the location notwithstanding.

CHARACTER AND SIZE OF STRUCTURE

There is no definite shape to which the department store building conforms which might be offered as ideal or standard, such a consideration being academic at best since this type of store, as we have seen above, is not a new growth but rather an *outgrowth*. In its need for more space it meets with limitations such as the availability of adjoining properties, the depth of the block from street to street, the width of the lot, not to mention restrictions as to heights, set-backs, etc.

The department store will, of course, endeavor to utilize its frontage as much as possible for show windows, leaving only the absolute minimum of its valuable street frontage for receiving and delivery facilities.

The location of the entrances to the store is determined largely by the nature of the site and, of course, by the character of the store. Too few entrances are bad, especially so where the average sales check is low, thus indicating a great number of unit-transactions. Few entrances are also a grave problem during peak shopping times. Too many entrances, on the other hand, are undesirable because they tend to create too many traffic lanes which, in turn, may unnecessarily disrupt the sequence of interrelated departments.

Because of the wide differences in the requirements of the various departments I have found no set rule for pre-determining the most desirable column spacing. There are counters and cases of varying depths, therefore a wide column spacing may work advantageously for one type of merchandise and yet become wasteful (aisles too wide) in other departments. Up to a certain point greater column spacing makes for greater adaptability. With the new, higher stresses allowable for steel columns, spans may run about 28 to 30 feet. This is desirable also in view of the trend to lower building height for department stores and a consequent increase in floor areas. Costs become an important factor in determining the advisability of spans greater than those just given.

VERTICAL TRANSPORTATION

This becomes one of the most important problems of the successful department store. How to get the public to upper

SPECIALTY SHOPS IN THE MODERN DEPARTMENT STORE

Photograph courtesy Otis Elevator Co.



ESCALATOR IN EMPORIUM, SAN FRANCISCO. An escalator can carry sixteen times as many people per hour as the largest passenger elevator in use in department stores.

Photograph John W. Gillies



MAIN SHOW WINDOW ADJOINING ENTRANCE TO L. P. HOLLANDER STORE, NEW YORK CITY. ELEANOR LE-MAIRE, INTERIOR ARCHITECT.

or lower floors, economically, efficiently. The "old school" of layout sought to walk the customer through the various departments, so that while on his way to the escalators or elevators he might be tempted to buy things which he hadn't really come to purchase. The store hoped in that way to realize a gain in "pick-up" sales. A good theory for a slower tempo than exists today. The "new school" on the other hand starts with the thought that the customer expects to be transported from the main floor to upper floors with due regard for the value of his time. The aim here is to think of the customer as being intent on a definite purchase from one of the upper or lower floors and to recognize that it is probably very annoying to walk unnecessarily through crowded main floor traffic on the way in and out of the store. Escalators are therefore being located more forward, that is, closer to the main entrances, than heretofore.

As indicated above, there is the desire now for less building height and greater area per floor. This is due to the vertical transportation problem which becomes increasingly more difficult. Although modern escalators provide remarkably efficient vertical transportation, department stores generally find that it does not pay them to try to go beyond the eighth floor for selling purposes. The time consumed in reaching higher-up floors increases, of course, and so does the amount of valuable floor space which must be given up for such vertical transportation. Technically the elevator and escalator services may be said to be adequate if they are able to transport one customer on every 20 feet of floor space per hour to any of the upper floors. This so-called density-ratio illustrates why escalators become more and more popular. A four-foot escalator will convey 8,000 people per hour whereas the largest passenger elevators in use in department stores do not transport more than 500 people per hour.

AISLES

The widths of the various aisles vary greatly. The main aisle close to the main entrance may have to be fully 20 feet wide, whereas a side aisle 5'-6" wide may be adequate. On the main floor, where most of the accessory department are located, the definite island type of layout is usually adhered to, the customers' aisles and the salespersons' aisles being entirely separated from each other by counters, display cases or tables. On upper floors, customers' aisles while still apparent, are not in between such fixtures and are lined only with display fixtures or individual tables.

CEILINGS

There has been recently a very definite recognition by department stores of the desirability of flush ceilings, but the modernization of ceilings has been rather slow in coming because of the extraordinary maze of ducts, sprinklers and pneumatic tubes which seem to have found a fairly permanent, although most unsightly, resting place below store ceilings.

FIRE PROTECTION

Building laws classify department stores as public buildings and they are therefore subject to the most rigid restrictions and are required to have the most elaborate equipmen-

SPECIALTY SHOPS IN THE MODERN DEPARTMENT STORE

Photographs by Worsinger



DEPARTMENT STORE WINDOW DISPLAY A. Actual room arrangement with furniture and accessories serving as the featured display. R. H. Macy & Company, New York City.



DEPARTMENT STORE WINDOW DISPLAY B. Photography used to supplement the draped mannequin announced by card in window as the "Altman gallery of fine accessories." B. Altman & Company, New York.

or fire protection. Some of the very largest department stores go so far as to maintain their own skeleton fire-fighting force. Department store buildings may be said to be of reproof construction, except in those isolated cases where

some old law applies. Insurance rates have brought about the universal use of automatic sprinkler systems.

AIR CONDITIONING—HEATING

The more progressive department stores all have some type of air conditioning system, if not throughout the building, at least in certain parts of the store. This includes air refrigeration or cooling.

Some stores generate their own power and heat, having their own boiler rooms to provide the necessary heat. Other stores not only buy their electricity but also all their steam from some public utility company.

BURGLAR PROTECTION

A department store may have very limited hours in so far as its selling is concerned, but behind the closed doors of a department store there is activity all through the night. The display men, window trimmers, cleaners—all work either entirely or partly after regular store hours. Night watchmen patrol throughout the store on appointed rounds and schedules. Any telephone will connect such a night watchman with the head watchman; the latter, in turn, is able to call a watchman on his rounds by means of a store-wide loud-speaker system.

COMMUNICATION EQUIPMENT

Telephone central, with individual phones in each section and office, preferably with automatic inter-store hook-up, is used in practically every department store. A call system with bells or colored lights will locate any important executive or service person anywhere in the store.

The pneumatic tube system is almost standard for conveying money and returning change. Credit authorization or its "Depositor's Account" equivalent adds to the quick flow of transactions.

Parcels (purchases) to be delivered are usually conveyed to a central delivery room by means of spiral chutes and conveyor belts. In the central, parcels are marked for the various delivery routes and sent on their way.

DISPOSITION OF WASTE

An incinerator plant is accepted as the best way for disposing of waste. In many cases of course the store has its own boiler room, where certain types of waste may be disposed of.

CLEANING DEVICES

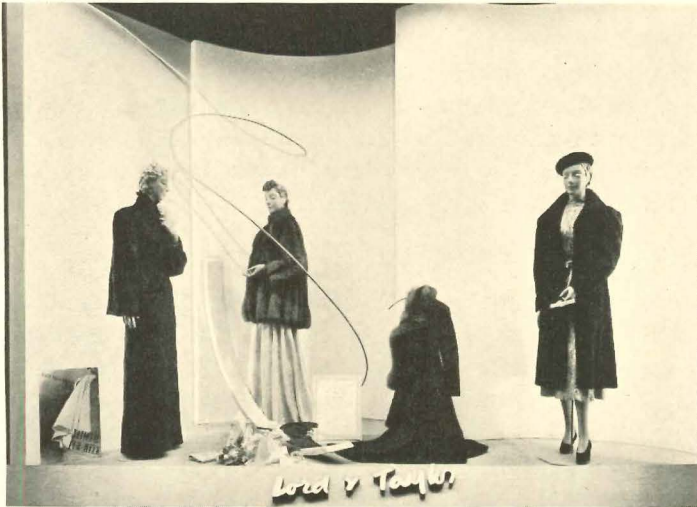
The old type of central vacuum plant with its tube system extending throughout the building with outlets or connections on almost every column has now been almost universally abandoned in favor of the individual type of wagon-unit-vacuum cleaner.

FLOORS AND FLOOR COVERINGS

Different materials are recommended for floor coverings in the various departments. The main floor, with its very heavy traffic, is generally hard surfaced—either honed marble, travertine or terrazzo. The stairways from or to the main floor are of the same material. In the ready-to-wear sec-

SPECIALTY SHOPS IN THE MODERN DEPARTMENT STORE

Photographs by Worsinger



DEPARTMENT STORE WINDOW DISPLAY C. A freely conceived background to a luxury class display. Lord & Taylor, New York City.

tions (one of the upper floors), carpet is preferred as being more in keeping with the merchandise offered for sale. Other departments may have linoleum, linotile, rubber tile or hardwood flooring; but whatever type of floor covering is used, great care must be taken in its selection to make certain that it is not slippery. Department stores are easy targets for damage suits and the resulting publicity is, of course, very disagreeable. Department store equipment must be as foolproof as it is possible to make it.

ELECTRICAL WIRING

Here, too, the department store demonstrates that it is an evolutionary process. In many instances it is only now coming out of the old candle age and almost everywhere it is in a constant state of flux. Lighting intensities are continually being revised upward. It is therefore understandable that practically no store has adequate wiring for a good modernization job. Additional circuits have to be provided. Recently some stores have stepped up their lighting intensities to the point where it is questionable whether the annoyance point has not been reached. (A large new specialty chain shop on Fifth Avenue boasts over 30 foot-candles at counter height.)

Indirect lighting is, of course, the system most to be desired; but great ceiling heights often make an indirect system prohibitive because of excessive current consumption. For the best results indirect lighting should be installed only with furred, flushed ceilings. Semi-indirect lighting is in more general use.

Day Lighting: There are some examples of stores without daylight—there is one, for instance, in Chicago. The exclusion of daylight has these general advantages:

- 1—Valuable wall space is saved for displays or for merchandise stockrooms.
- 2—Much of the dirt and dust which usually penetrates through window cracks is excluded.
- 3—There is the avoidance of unfavorable comparisons which result when manufactured light comes into competition with daylight.

The disadvantages, in general, are:

- 1—A windowless store needs a complete ventilating and air conditioning system the year round.
- 2—Artificial lighting becomes necessary during the entire day.

(Two factors which add very materially to the already high maintenance costs.) Also, there are certain departments where daylight is very desirable, if not indispensable.

SHOW WINDOWS

There can be no fixed height or depth which would be at all times ideally suited to the widely varying requirements of so many different departments. Furniture or appliance windows usually require greater depth so that entire rooms may be simulated. On the other hand, almost a hole in the wall may be adequate for the display of small accessories, cosmetics, gloves, jewelry, etc. Windows, in the main, have been developed by the architect who seems to have been rather more concerned with his exterior architectural problem than with the merchandising use to which the windows are to be put. It should be said, however, that a better knowledge of lighting and dramatic presentation and of composition would go a long way toward making even oversized windows much more effective than they are. It should not always be necessary to cut high windows with deep valances. Some stores have learned how to use their high and deep windows very effectively.

Recently there have been many installations of "invisible glass" windows and they are generally accepted as being good for the display of smallwares and for intimate merchandise.

AWNINGS

Because of unavoidable fire hazards, all awnings should be fireproofed or, preferably, of metal.

EXTRA SERVICES—REST ROOMS, ETC.

As the department store developed from its early small beginning there came into existence, because of the keen competitive struggle, many special services which now are taken for granted in any good department store. To mention only a few, there are: rest rooms, smoking rooms, gift wrapping desks, free delivery and, in certain departments, free alteration service, personal shopping service, post office, etc. I

SPECIALTY SHOPS IN THE MODERN DEPARTMENT STORE



DEPARTMENT STORE WINDOW DISPLAY D. A news arrangement of the Paris market. Lord & Taylor, New York City.

In addition to the above non-profit services, there are also such accommodation services as lunch counters, restaurant, photo studio, ticket office, travel bureau, as well as complete beauty salons for manicures, hairdressing, facials, and even foot care. Some may seem rather far afield, but stores find they cannot get on without them.

PARKING SPACE

This, too, is a service, but one which is very rapidly taking on greater significance and will continue to do so because of the almost intolerable traffic congestion which is found in all cities. The department store, located as it is on very high-priced property in the city's shopping center (this is especially true of stores in Groups IV and V), cannot afford to ignore this problem. Stores are recognizing that they must do something to make shopping easier for their auto-trade. So far, attempts to solve this problem have been rather incidental and much remains yet to be done. Messenger service and "courtesy" busses to and from a parking station have been extensively used by stores in the interests of their auto-patrons, but these systems have generally proved cumbersome and complicated.

ESTIMATED AREAS FOR DEPARTMENTS

Every department fluctuates in its activity—not only seasonally but also in relation to general trends in our economic life. Because of this it has often been said that the ideal department should be on wheels. Secretly, of course, the store owner envies the theater producer his shifting scenes. The desired flexibility is not always possible but the great need for it is quite obvious and it must always be given consideration in any well-planned merchandising layout. Notwithstanding many violent fluctuations in the degree of activity reported for almost any given department, it is an established fact that the proportionate size of a department is surprisingly similar for all department stores in a given group. Of course local conditions may occasionally upset this rule, thus bringing about an oversized or undersized department as compared with normal performance for that group. In general, however, department stores in Group IV, for instance, will do approximately 3% of their total sales volume in cosmetics, about 13% in ready-to-wear, etc., as shown in the following schedules:

Group IV—Typical percentages of sales for various departments for 1935, as reported by member stores of the National Retail Dry Goods Association:

Silks and Velvets	1.6
Notions	1.2
Silverware	0.7
Books and Magazines	0.8
Millinery	1.6
Women's Shoes	2.6
All kinds of Women's Ready-to-Wear Coats and Suits, Dresses, Juniors' Apparel, Sportswear, Popular Price Dresses, Blouses and Skirts, etc.	13.0
Men's Clothing	2.1
Furniture	4.4
China and Glass	1.3
Toys	1.2
Luggage	0.4

The following figures are from the 1935 report of operating results as given by member stores of the National Retail Drygoods Association:

Cosmetics: Sales % to total store sales

Group I	2.7
Group II	3.0
Group III	3.1
Group IV	3.3
Group V	2.8

Hosiery

Group I	4.9% or \$36,750 average
Group II	3.8% or 47,000 average
Group III	3.3% or 115,000 average
Group IV	2.8% or 210,000 average
Group V	2.5% or 375,000 average

MODERNIZATION

Department stores have come to understand the need for change in their store layouts and merchandising backgrounds, both as a stimulus to the buying public and to the sales force. A store which does not rejuvenate itself continuously in this regard finds in time that boredom resulting from uneventful familiarity is a very costly burden to bear; far more costly than change itself—that is, sound change in the right direction.

SPECIALTY SHOPS IN THE MODERN DEPARTMENT STORE

Photograph by Louis Werner



A composed room as window display suggested for an advertising agency.
W. & J. Sloane, New York City.

Photograph by Luckhaus Studio



Sales table for men's evening accessories. Designed by J. R. Davidson.

As we have seen, the growth of a department store has not always been as logical as one might wish. Rarely does one deal with a single unit building but rather with a more or less conglomerate mass of buildings, each of which may

have set out to serve a special, unrelated purpose. Gradually the department store has reached out to absorb one adjacent building after another. The result has often been very disturbing, with differences in floor levels, ceiling heights, column spans, etc. These are the conditions which one has to cope with in any plan for modernization which is more than skin deep.

Also, the needs of department stores vary widely. In one case a store may have so much area per floor that it becomes advisable to re-design the floor so as to give in the aspect of a series of special shops or departments, each flowing logically and accessibly into the next related section. In other instances it becomes advisable to "open up" a floor. Each problem is such a very particular one that we find no single rule, except that whatever is done must be simple, efficient, a "direct" and a functional solution of the particular problem in hand.

DESIGN THROUGH COLOR

We have known the advantage of paint for the purpose of putting a clean or new face on walls; we have, of course, also known color for its purely decorative value. But the very absence of a carefully planned and unified architectural background in department store buildings almost demanded of color that it do something about the architectural dilemma which these interiors presented. At least that was the way I saw it, and once the problem was clear it was simple to recognize that through the proper use of color it might be possible to "wipe out" many architectural incongruities. Walls were definite facts, heights could not be easily altered, columns had to remain; but through color, that is, through the proper use of advancing and receding color values, we found that we could pick up line and form and accent it. Where the job required that some disconcerting architectural elements be subdued, that effect, too, might be achieved through color.

The great floor areas of most department stores usually present very serious problems in any modernization plan. Here again this new technique of painting in terms of color values is making it possible to organize the excessive repetition of certain existing architectural units into more desirable and more understandable units of space. In this way it is possible at the same time to segregate a floor into its desired component parts and yet to give to the whole floor a very delightful aspect of fluidity and dramatic presentation in place of static, uneventful repetition. Through this use of color as "meshing units" it has been possible for us frequently to obtain architectural emphasis even where the building owner, for reasons of economy, etc., may not wish to permit important changes in the physical background.

As against the oil paints, the preference in this new color technique has been for water paints with a casein base, for ceilings and side walls. Water paints give greater color depth because they may be said to have greater porosity than oil paints.

From all of which it appears that department store interiors are very complex and highly specialized problems, each requiring intimate study and its own very special solution.

SUGGESTED LIGHTING FOR THE AVERAGE SHOW WINDOW

BUSINESS LOCATION	SHALLOW WINDOWS	DEEP WINDOWS	VERY DEEP WINDOWS
CITY BUSINESS DISTRICT	200-watt lamps 12-inch centers	300-watt lamps 15-inch centers	500-watt lamps 18-inch centers A second row of units should be placed in ceiling about midway back.
NEIGHBORHOOD OR SECONDARY BUSINESS	100-watt lamps 12-inch centers	150-watt lamps 15-inch centers	200-watt lamps 18-inch centers A second row of units should be placed in ceiling about midway back.

GENERAL OVERHEAD LIGHTING

DIRECTING THE LIGHT

INDIVIDUAL REFLECTORS CONTINUOUS TROUGHS

CONCEALING THE REFLECTORS

CONCEALING THE LIGHT SOURCE

COLOR EQUIPMENT

DEEP WINDOWS SHALLOW WINDOWS VERY SHALLOW WINDOWS ADJUSTABLE FLOODLIGHT REFLECTOR TROUGH PRISMATIC GLASS CONTROL LENSES
 VALANCE IN FRONT OF UNITS RECESSED ABOVE FALSE CEILING BUILT-ON BOX WITH GLASS BOTTOM METAL BOX ENCLLOSING UNITS ABOVE GLASS CEILING PANELS
 INDIVIDUAL LOUVERS CONTINUOUS LOUVERS CONCENTRIC LOUVERS STIPPLED GLASS ROUNDELS STIPPLED GLASS PANELS PRISMATIC GLASS LENS PLATES
 METAL FRAME FOR GELATIN COLOR SGREEN COLORED GLASS ROUNDEL GLASS COLOR CAP REVOLVING COLOR WHEEL FOR SPOTLIGHT

From article on Store Lighting by Frank O. Maltby, General Electric Co.

STORE BUILDING OUTLOOK BRIGHTEST IN SEVEN YEARS

By L. SETH SCHNITMAN
Chief Statistician, F. W. Dodge Corporation

The volume of store building undertaken during 1936 was about one-third greater than was shown for 1935. Of itself this fact is significant. But with the 1936 retail business volume greater than for any other year since 1930 and in some instances even 1929, the stage now seems definitely set for even larger demands for store space. These demands should begin to make themselves felt early in the new year. Department stores, chain stores, variety and specialty shops—all have enjoyed substantial sales gains and profits.

Now that consumer purchasing power has been sizably bettered and store profits restored to levels reminiscent of the 1920's, store operators are again turning their thoughts toward extension, expansion, alteration and modernization. At the same time, speculative builders are becoming active again in projecting new stores of the taxpayer variety; this grows naturally out of improving vacancy conditions in many of our municipalities and generally strengthening rental rates for store space.

The store building volume for 1937 should exceed the total for any other year since 1929. Large store projects such as new department store buildings and extensions should feature in this indicated improvement. Many existing stores in 100 per cent business locations will be completely revamped and modernized. Store fronts, interiors, elevators, air conditioning, escalators built-in fixtures will figure in the picture to an increasing extent. Less favorably situated business locations, too, should witness enlarged activity. Uptown shopping centers, now that public purchasing power is rapidly improving should undergo considerable modernizing and extension.

Altogether the prospects for store building are especially bright with no one type nor no one geographic area holding the spotlight. In a word, indicated improvement for 1937, being well founded upon genuine demands for space will be general and extensive.

STORE BUILDING IS ON THE RISE AGAIN

The swing in store building from the high in 1928 to the low in 1933 has been followed finally by an ascending swing that presages to continue through 1937 and beyond. More consumer purchasing power means larger retail sales. More retail sales mean larger and expanding sales outlets. This, in turn, means **more store building—and more store building** means expanding opportunities for architectural services.

MILLIONS OF DOLLARS

