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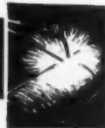


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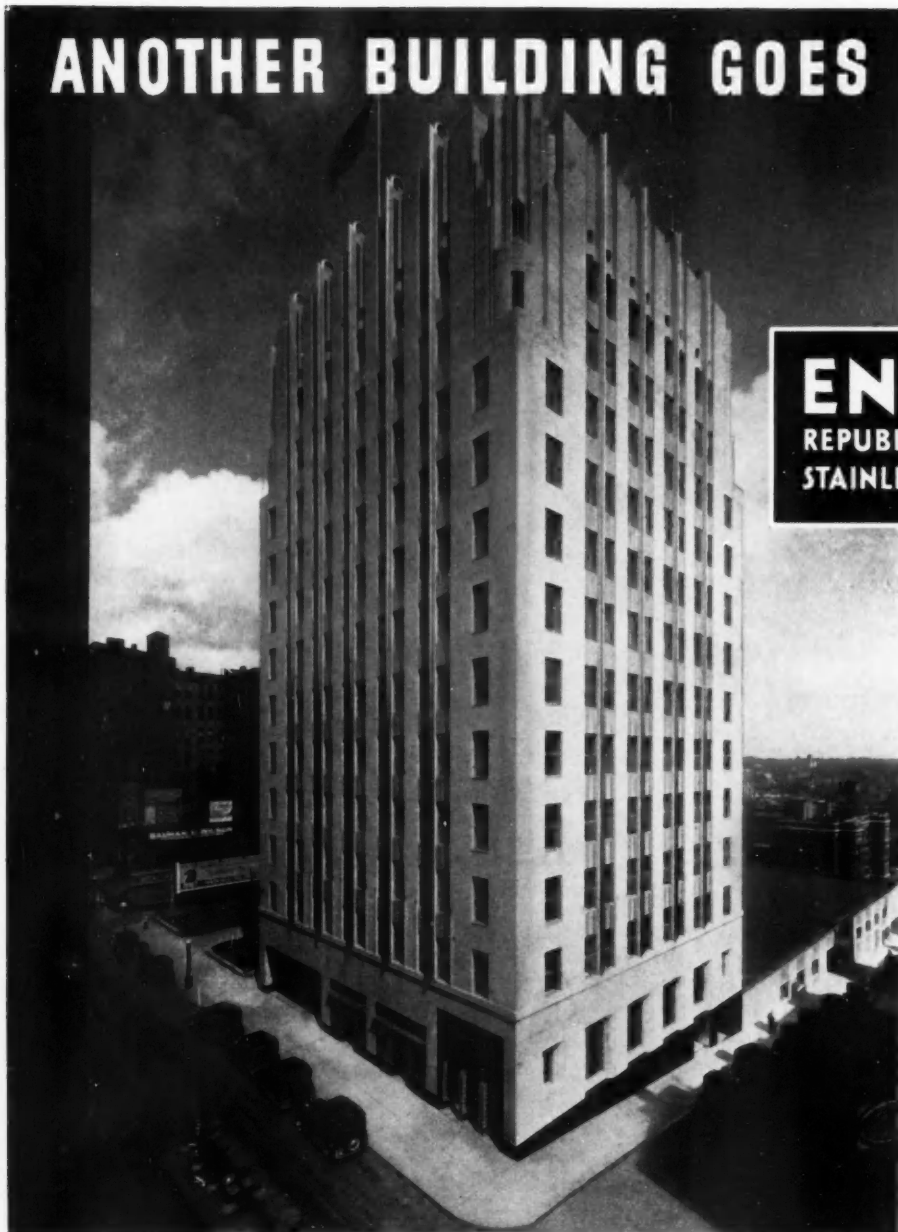
MARCH, 1933

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Yearly subscription: United States and Possessions, \$3.00; Canada and Foreign, \$5.00; Single Copy, 50c. Member Audit Bureau of Circulations and Associated Business Papers, Incorporated. Copyright, 1933, by F. W. Dodge Corporation. All rights reserved. Entered as second class matter May 22, 1902, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

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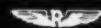
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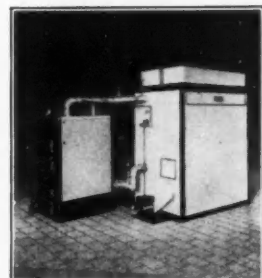
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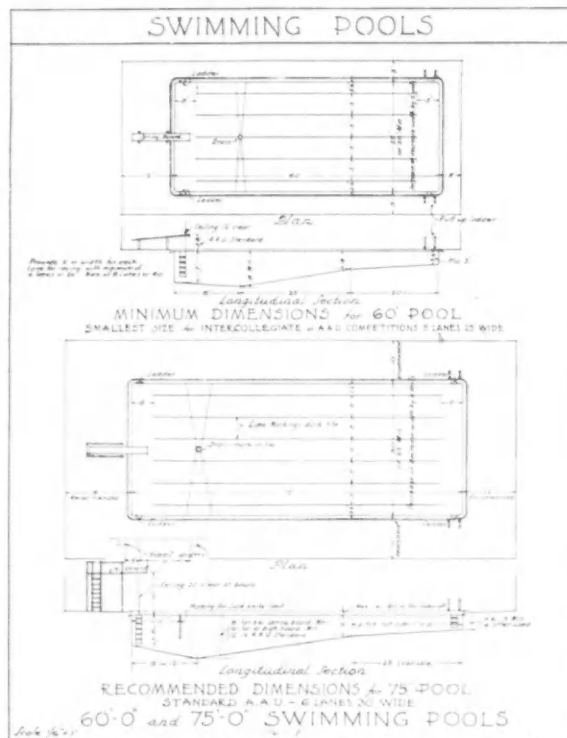
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From Architectural Graphic Standards

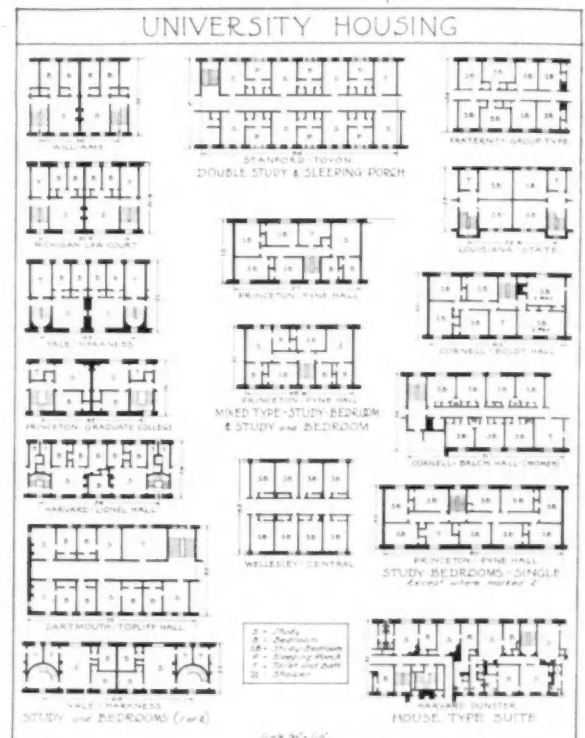
ARCHITECTURAL GRAPHIC STANDARDS. By Charles George Ramsay and Harold Reeve Sleeper. Published by John Wiley & Sons, Inc., New York. Price \$6.

If we were to analyze the way in which a building is designed, we would find that a large percentage of the detailing is memory of common practice. There has been no single compilation of details showing standard and approved construction that could be used by the architect and draftsman as a detailing guide.

Architectural Graphic Standards is a compilation of working drawings which will serve this purpose. It gives the dimensioned sizes of building materials of all kinds and indicates the way in which good construction can be translated into working drawings. Masonry, wood framing, flashing, wiring, hardware, bathroom accessories, planning of special game rooms, swimming pools, seating, road construction, heating, stairways and a hundred other items are illustrated as scale drawings with the standard method for their indication.

The book also contains a complete listing of dimensions which should be followed by specification writers and detailers—for equipment, room sizes and other building parts. Herein is the true basis for design since the dimensions of the required parts of a building and equipment constitute the elements that compose the building itself.

No architectural book of recent years has approached this volume in usefulness to the architect. Students in schools of architecture should add this book to the head of a list for their working library.



ELECTRIC WIRING FOR LIGHTING AND POWER INSTALLATIONS. By Arthur S. Cook. John Wiley & Sons, Inc. New York, 1933. Third edition, thoroughly revised. Cloth: 463 pages, illustrated. \$3.

Numerous changes in lighting practice and in the National Electrical Code have made necessary the rewriting of a large part of this book, particularly the sections on incandescent lamps, calculation of DC and AC systems. This new edition also omits the discussions of arc lamps and outdoor lighting which appeared formerly. A chapter on grounding of circuits has been added. Otherwise, the subjects covered—electric lighting systems, electric power systems, and interior wiring for the supply of these systems—are substantially the same as in the earlier editions.

This book is intended primarily as a guide for electrical workers, but should be useful for architects when planning electrical installations. Numerous working tables are included.

ARCHITECTURE ET ARTS DECORATIFS, collection publiée sous la direction de M. Louis Hautecoeur.

Le Gout du Moyen Age en France au xviii^e Siècle, par René Lanson.

L'Art Décoratif au Temps du Romantisme, pour Pierre Schommer. Les Editions G. van Oest. Paris et Bruxelles.

In the years after 1650 the word "romantic" first appears in English and with a distinctly deprecatory meaning, although as applied to scenery and objects of the past it might have had as well a certain sort of commendation—as "old-fashioned" today. Thus started in its path with Evelyn's description of "a very romantic" country-seat on

the side of a "horrid Alp" near Bristol, the term made more and more fortune and in the eighteenth century passed into German and French to become in 1830 a literary and artistic battle cry. Today, except in literature, in music and in the painting of Géricault and Delacroix, Romanticism is all but forgotten and its movements denigrated.

Indeed in the arts, especially in architecture, Romanticism was largely a history of disintegration and to look on the architecture of the mid-eighteenth century and then on that a hundred years later is almost to discourage one from ploughing through the period between. But to a century—for the romantic movement in the arts begins shortly after 1750, although it is largely obscured for over half a century by the great strength of Baroque tradition—the visual arts were of little importance except as in the case of engraving where they served literary ends or because as in the case of gardens where they served a wholly new art dependent on a literary theory. Architecture which had been with music—itsself then architectonic—perhaps the most characteristic expression of the age before, was in that special form of Romanticism with which the books here reviewed deal, quite the least important of the arts and admired solely when it was venerable.

Ridiculous as must appear to our sounder archaeology Strawberry Hill or Percier and Fontaine's decorations, these two supplementary books of Lanson and Schommer display how widespread and how important was the medievalist side of Romanticism. While in architecture the men of the day built chiefly ruins intended to lend a poetic antiquity to their Rousseauistic parks, this passion for the flimsy, this attempt at the reconstitution of a little known past had a completely disintegrative effect on the strong tradition to which even the extreme Classicists were forced to make some concessions. The Romantic period is a sad one for the student since historical and artistic importance go not at all together. Mr. Lanson's book, which is distinctly the more important and valuable of the two, illustrates that the process had been going on gradually for some seventy-five years.

Henry-Russell Hitchcock, Jr.

AESTHETIC JUDGMENT. By D. W. Prall. University of California. Crowell.

The author does not attempt any special contribution to aesthetic theory. His intention is a systematic survey of the field for use as a textbook by college students.

An architectural work must define itself to the purpose it serves and the material it employs; but since it is a spatial structure, it serves as clearly as a type for beautiful expressiveness as the human body. The ugliest building in the world may serve to keep off rain, and that is a function. As expressing that function, which it cannot altogether avoid doing, it is potentially beautiful. For "the technique of architecture is not of surface design only, but of building. A sculptured group of figures must be supported and balanced physically so as not to collapse, but its physical stability is a

subsidiary requirement." In architecture, however, physical structure is integral. Further, though it lacks the temporal rhythm of music and the depth of poetry, architecture may be said to be the completest expression in art of man's whole life, and may be assumed to have the firmest hold on his nature.

Arthur W. Colton

EAST HEREFORDSHIRE. British Commission on Historical Monuments, London, 1932. \$6.80.

The British Commission on Historical Monuments has carried on a systematic investigation of the ancient monuments of England. Ancient and historic buildings have been studied and are being recorded in a series of valuable publications. The latest volume is on East Herefordshire.

Herefordshire is rich in prehistoric earth-works, and also in mediaeval secular buildings and examples of sixteenth and seventeenth century domestic architecture. Many old timber-framed houses of the fourteenth or fifteenth century are scattered through the county. Among the finest parish churches of East Herefordshire are those of Much Marcle (thirteenth century) with its fine effigies, Bromyard and Marden. The district contains several fine twelfth-century fonts particularly that at Castle Frome, and also a fairly large proportion of mediaeval bells. The volume is illustrated with scores of photographs of old cottages and houses, churches, doorways, effigies, fonts, architectural details, furniture, etc., which make it a revelation of the antiquarian riches which part of a single English county is capable of providing.

JOSE CLEMENTE OROZCO. Introduction by Alma Reed. Delphic Studios, 9 East 57th Street, New York City. \$5.

A selection of the works of the Mexican painter from the beginning of his formal training in 1909 to the present day. The illustrations include frescoes painted in this country: Pomona College, Claremont, California; New School for Social Research, New York City; Dartmouth College, Hanover, New Hampshire. The book is distinguished for the fine quality of the printed reproductions.



From OROZCO

New York Subway

Charcoal Drawing, 1929, by José Clemente Orozco

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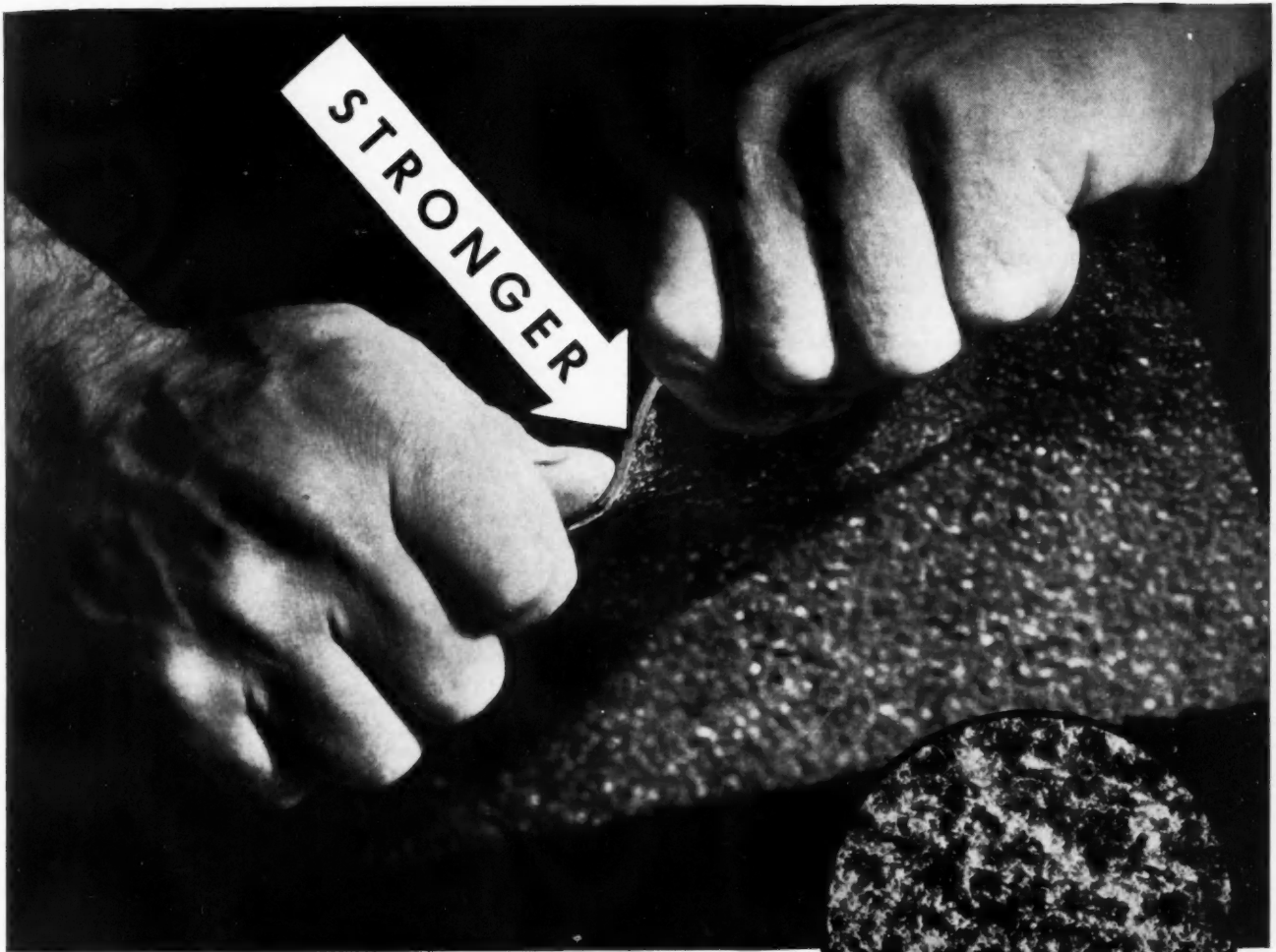


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ARCHITECTS' ANNOUNCEMENTS

Alvin E. Harley and Harold S. Ellington announce the formation of the firm of Harley and Ellington, Inc., architects and engineers, 1507 Stroh Building, Detroit, Mich., for the general practice of architecture and engineering.

The Department of Architecture of Armour Institute of Technology, in preparing a permanent collection of building materials for use in the study of construction, will appreciate receiving from manufacturers samples of their standard products. Such samples should not exceed twelve inches in any dimension and should be properly labeled with full information as to the materials, gauge, etc. All samples should be addressed to the Department of Architecture, Chicago Art Institute, Michigan and Adams Streets, Chicago.

K. Martin Westerberg, architect, of 16 Norr Mälarstrand, Stockholm, Sweden, desires connection with a large architectural firm or architect of standing. Mr. Westerberg, who is consultant in the Royal Building Department of Sweden, was awarded honorable mention for his Stockholm Community House project at the Olympic Exhibition of Art held in Los Angeles, California, in 1932.

Joseph R. Fallon and E. E. Mills of Fallon and Mills, architects and engineers, announce the opening of their office at 309 First National Bank Building, Richmond, Indiana.

William Gehron and Sidney F. Ross announce that the partnership of Gehron and Ross will continue for the completion of work already contracted for, but from and after October 28, 1932, all new business contracted for by William Gehron and Sidney F. Ross individually will be for their respective individual accounts. The office of William Gehron will continue in his own name and at the same address, 101 Park Avenue, New York City.

FURNITURE COMPETITION

The American Walnut Manufacturers Association announces a competition for the design of modern furniture with prizes awarded as follows:

Bedroom suite—First Prize—\$500

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Bedroom Suite—Second Prize—\$200

It is intended that prize-winning designs will be manufactured and on display at the Chicago Exposition in June, 1933.

Information can be obtained by writing to the American Walnut Manufacturers Association, 616 South Michigan Boulevard, Chicago, Illinois.

CALENDAR OF EXHIBITIONS AND EVENTS

March 8	A. S. T. M. New York Regional Meeting.
March 6-10	Group Meetings of A. S. T. M. Committees, New York.
Until March 11	Forty-eighth annual exhibition of The Architectural League of New York, to be held in The Fine Arts Building, 215 West 57th Street, New York City.
March 15	Closing date of a competition in typography for an exhibition announcement. Apply to Philip Johnson, Chairman of the Department of Architecture, Museum of Modern Art, 11 West 53rd Street, New York City.
March 30	Closing date for receipt of drawings from contestants in competition for improvement of Queens Boulevard Queens, New York.
March 31	Closing date for receipt of drawings or sketches in the Modern Furniture Design Contest sponsored by the American Walnut Manufacturers Association.
April 23-30	Better Homes week, an educational movement under auspices of Better Homes in America, 1653 Pennsylvania Avenue, Washington, D. C. Demonstrations of new and remodeled houses, lectures, contests, etc., are urged.
May 6	Opening day of the Second Philadelphia International Salon of Photography. Last day for receiving prints is April 21. Address communications to Philip N. Youtz, Curator of Exhibitions, Pennsylvania Museum of Art, Philadelphia.
June	"A Century of Progress," International Exposition at Chicago.
June 1	Closing date of competition sponsored by the Scoville Manufacturing Company, Waterville, Connecticut.
June 1-10	International Congress for Modern Architecture to be held in Moscow.
June 26-30	Thirty-sixth annual meeting, A. S. T. M., Chicago.

COMPETITION

A competition, open to all architects and to men or women who have been members of a recognized architect's organization at any time since March 1, 1932, is sponsored by the Scovill Manufacturing Company.

Class A: Cash Award \$100: Problem, An essay, not to exceed 1,500 words, on modernizing an apartment house, hotel, office building, residence, or any building involving plumbing specifications. In the introduction state briefly: *First*, the value of modernization to the architect and to the building owner. *Second*, the importance of plumbing modernization as an integral part of such projects. *Third*, your opinion as to the most important points in specifying plumbing equipment.

Class B: Cash Award \$75: Problem, an essay, not to exceed 1,500 words, following the same conditions outlined in the Class A problem.

This competition closes June 1, 1933. Information may be obtained by writing to Scovill Manufacturing Company, Plumbers' Brass Goods Division, Waterville, Connecticut.

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READING LEFT TO RIGHT, FIRST ROW: ROYAL BARRY WILLS, ARCHITECT; MRS. WILLIAM BROWN MELONEY, PRESIDENT HOOVER, DR. RAY LYMAN WILBUR, SECRETARY OF THE INTERIOR. BACK ROW, LEFT TO RIGHT: MR. EDWARD C. KEMPER, EXECUTIVE SECRETARY OF THE AMERICAN INSTITUTE OF ARCHITECTS; MR. FRANK C. BALDWIN, SECRETARY OF THE AMERICAN INSTITUTE OF ARCHITECTS; MR. JAMES S. TAYLOR.

APRIL ISSUE

A Radio Broadcasting Studio in Philadelphia. An outstanding treatment of broadcasting studio interiors, designed by Robert Heller, New York City.

Two bank buildings, one remodeled, the other a new structure, are illustrated and discussed.

The first of a series of articles on Materials of Construction will appear in April. New developments in woods, wood products and fabrics will start the series which we consider to be of much value to architects and draftsmen.

New Construction Methods for Low-Cost Housing will be the subject of an article recording progress in new systems of construction applicable to the low-cost house.

The Port Authority Commerce Building (Inland Terminal), New York City—Abbott, Merkt and Company, architects and engineers.

Office Interiors of L. C. Chase and Company, New York City, by Eleanor Le Maire, interior architect.

THIS ISSUE

The March issue of *The Architectural Record*, usually devoted exclusively to apartments, has been broadened in scope to cover the wider field of HOUSING. This issue contains the first complete report on the active housing undertakings throughout the United States. Another feature, published exclusively in *The Record*, is the illustration of the prize-winning designs in the latest Better Homes in America Competition.

President Hoover presenting the gold medal award, Better Homes in America Competition, to Royal Barry Wills, architect. The complete illustrations of the prize-winning designs are in this issue.



Rittase

RADIO BROADCASTING STUDIO IN PHILADELPHIA
DESIGNED BY ROBERT HELLER

NIGHT SCENES OF NEW YORK
BY SAMUEL H. GOTTSCHO

FORTY-SECOND STREET
S E E N A T D U S K



Photograph by Carl M. ...

THE ARCHITECTURAL RECORD

MARCH, 1933

VOLUME 73—NUMBER 3

PROGRESS IN HOUSING

A SUMMARY OF ACTIVITIES BY ARCHITECTS AND ASSOCIATIONS

The Emergency Relief and Construction Act of 1932 brought to the architect a unique opportunity to sponsor projects of a community character. Low-cost housing projects and slum clearance are looked on with favor as suited to Federal aid. The American Institute of Architects prepared for general distribution a document called "Principles Which It Is Recommended Should Be Embodied in a State Housing Law." This has awakened local interest in the study of housing conditions and slum clearance possibilities. "For a long time," said Robert D. Kohn, "the isolated house designed for an individual owner solely was considered by the architect as his field. But today it is not the house but housing which is the opportunity of the architect."

Since the passage of the Emergency Relief and Construction Act of 1932 architectural societies and Chapters of the Institute have sponsored State housing acts necessary to make possible an R. F. C. loan.

Much of the activity among architects has been in the direction of surveys, involving real and extended effort. Information has been sought as to needs for housing, office space, public buildings, parks, recreation and schools.

The summary follows:

Pittsburgh, Pennsylvania

The Executive Committee of the Allied Architects of Pittsburgh, consisting of Frederick Bigger, Stanley L. Roush, and Raymond M. Marlier, advise that their organization is making housing studies, partly at the request of the Pittsburgh Housing Association (John Ihlder, Director) and partly on their own initiative. Twenty-three local architects are cooperating in the organization, about half of whom this far are actually active. The architectural group and the Director of the Housing Association are committed to making no disclosures as to the number or location of the sites being studied—at least until these studies have been carried to the point of ascertaining reasonable practicability. The studies are directed first to determining the possibilities of building group buildings of the single-family party-wall type or duplex type; the multiple dwelling type being reserved until it shall have been demonstrated

whether the first groups are practicable. The several project subcommittees have been directed to complete their first reports about March 1.

Meantime, there are now being reintroduced into the Pennsylvania Legislature two Housing Bills similar to those which failed of passage at last summer's second special session, and a new third Bill. The first bill provides for a State administrative board; the second for limited dividend companies, with the exercise of eminent domain granted therein; and the third and new bill, applicable throughout the State except within Philadelphia (which has no zoning ordinance), would permit demolition of slum areas, and new building in the cleared areas of a suitable type, conforming to the needs of the community and the provisions of the city plan (if any) but not necessarily restricted to housing at all, or to the housing of low income groups.

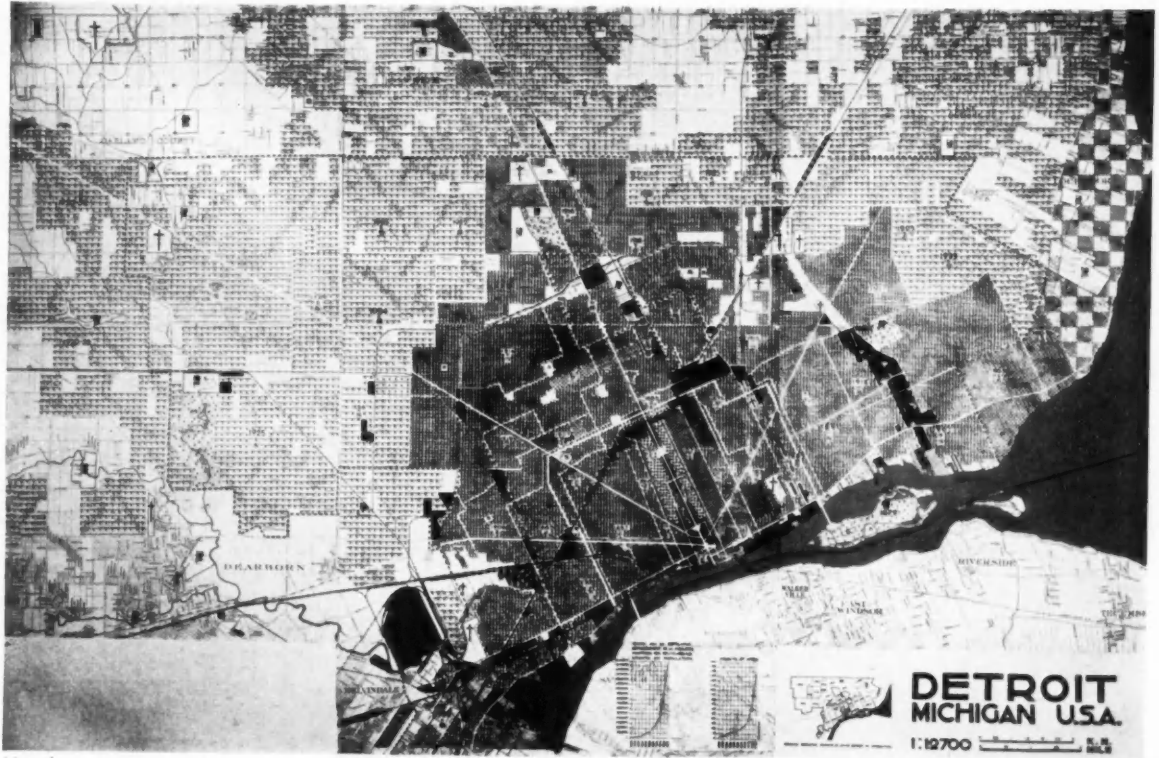
Boston, Massachusetts

The Emergency Planning and Research Bureau, Inc., sponsored jointly by the Boston Society of Architects and the Engineering Societies of Boston, Inc., has assembled basic data on population density in the inner and outer districts of Boston. A table has been developed to show what density of population, in families per net acre, is required for a given average cost of lot and given cost per square foot of developed land. This study has been conducted under the direction of William Stanley Parker.

Providence, Rhode Island

A general inventory of Providence, Rhode Island, is being made under the guidance of Frederick L. Ackerman, architect. This general survey is seeking to discover how people live, how they are housed and occupied. Tabulations have been made of available rooms in dwellings and as office space, their condition and rental valuation. Detailed calculations are under way to determine the capacity of the zoning envelope. If the envelope were filled, what would be the increase in dwellers and workers?

This survey is being carried forward by unemployed architects, draftsmen, engineers, and statisticians.



Lincoln

Growth and distribution of population and industry.



Lincoln

Transportation facilities.

CITY PLANNING SURVEY OF DETROIT, MICHIGAN
 FOR INTERNATIONAL CONGRESS FOR NEW BUILDING, MOSCOW, 1933
 PREPARED BY K. LÖNBERG-HOLM, OTTO SENN AND S. WASHIZUKA

New Haven, Connecticut

Mr. George H. Gray of New Haven has sponsored an A. I. A. Chapter resolution indorsing an enabling act providing for slum clearance and housing in the State of Connecticut, under the conditions of the Reconstruction Finance Corporation.

New York City

Analysis of building supply and demand in New York City has been conducted in the past by various agencies for different purposes. The oldest of these agencies, The Tenement House Department, has kept a record of multiple family dwellings on hand, new buildings erected together with demolitions, since its inception in 1901; and a record of apartment house vacancies since 1920. In 1924 the Regional Plan of New York and Its Environs, was organized and has since published a complete report covering the Metropolitan area. The report shows the number, use, and heights of New York buildings and makes recommendations as to future planning for that area.

More recently the New York Building Congress has appointed a Committee on Land Utilization, composed of architects and economists, who will study and amplify where necessary, the studies already made and relate them to economic and population trends. Numerous districts have been thoroughly studied. In the first report of this Committee the following immediate program was recommended to the Executive Board of the Building Congress:

(1) A continuous real property inventory such as has been established in Cleveland, Ohio.

(2) A zoning study which will review the present zoning laws and including the development of zoning principles shaped to present and future economic factors.

(3) An economic analysis of small areas with detailed economic data for practical neighborhood development.

(4) A review of proposed planning projects so that such plans may be fitted to a coordinated scheme for the entire metropolitan area.

Detroit, Michigan

A city planning survey of Detroit has been made by K. Lönberg-Holm, Otto Senn and S. Washizuka for the International Congress for New Building to be held in Moscow in June, 1933. American delegates to the Congress are Richard Neutra of Los Angeles and K. Lönberg-Holm of New York City.

Purpose of Survey: To study the laws which govern growth and structure of cities in order to formulate constructive recommendations. The survey deals with the primary functions of cities: shelter, work, recreation and transportation. Surveys of typical cities (industrial, trade, administrative, etc.) are being prepared in comparable form

for analysis of relations between functional factors and city plan.

Scope of Survey: Growth and distribution of population. Growth and distribution of industries. Relations between residential and industrial districts. Recreational facilities. Transportation facilities. Relations to region. Historic evolution. Real estate ownership. Incomes. Administration. Obstructions to free and planned development. Suggestions for improvements. Trends: centralization, decentralization, social and economic trends. Health, death rates, birth rates, etc.

Data have been compiled with the assistance of federal, state and city administration boards and commissions, real estate boards, Chamber of Commerce, newspapers, public utilities, and through field work.

Similar surveys of Los Angeles, Boston and Baltimore are being prepared by the U. S. A. groups of the Congress.



F. S. Lincoln

Metropolitan area.

CITY PLANNING SURVEY OF DETROIT, MICHIGAN
FOR INTERNATIONAL CONGRESS FOR NEW BUILDING
MOSCOW, 1933

PREPARED BY
K. LÖNBERG-HOLM, OTTO SENN AND S. WASHIZUKA

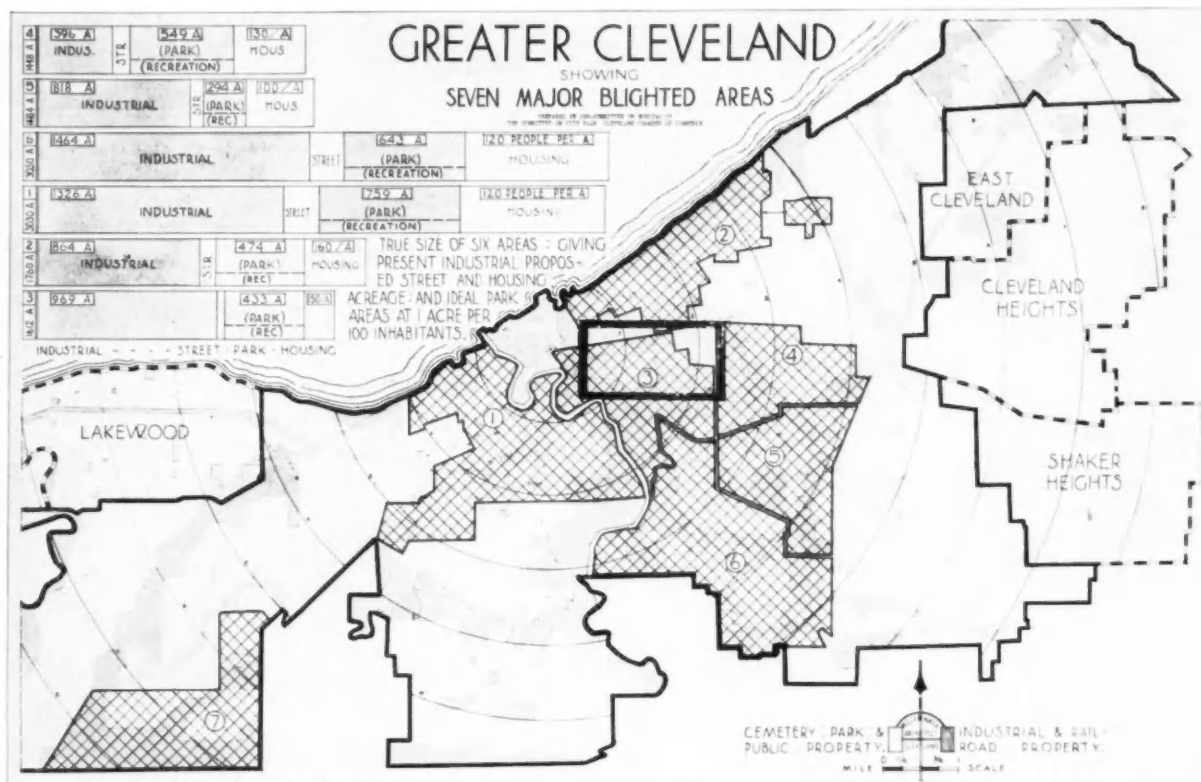


CHART NO. 1—SEVEN MAJOR BLIGHTED AREAS

CLEVELAND HOUSING STUDIES

By WALTER R. McCORNACK, Architect

Mr. Abram Garfield, Chairman of the City Plan Commission of Cleveland, called attention in 1928 to the problem of blighted areas in a paper read before the Ohio State Planning Conference. The paper received wide recognition as a challenge to all cities to give attention to the rapidly decaying areas surrounding their downtown business sections. In October, 1930, a letter was addressed to the Cleveland Chamber of Commerce by a group of Cleveland banks, calling attention to the blighted areas of Cleveland and suggesting that a study be made of conditions in these areas with the object in view of finding a way to eliminate them. The Cleveland Chamber of Commerce in October of the same year appointed a committee to pursue such a study. This article is an outline of some of the work of the committee.

First, it was necessary to determine the blighted areas geographically. This was done partly by natural boundary lines, such as the river, railway lines and principal streets, and partly by nationalities and by economic conditions reflected in rent and income.

The study revealed seven major blighted areas. These contain the lowest economic groups, with a median rental of \$25 a month, and cover 22 of the 71 square miles of the city. Chart No. 1 in-

dicates these areas, which are, for the most part, in the center of the city. The seven areas contain a population of 321,000, in about 75,000 families, or approximately one-third of the population of the city.

Having determined the major blighted areas the next step was to discover all the facts possible regarding the people living there. Certain basic facts are necessary in order to state the problem in a broad way. Fortunately the 1930 census, as conducted in Cleveland by Howard Whipple Green, provided most of the data necessary to get a picture of the entire blighted area problem, and the chart on page 152 gives a great amount of information in detail.

It is shown that these seven blighted areas have a net population per acre of only 42.4 persons, which indicates that there is no overcrowding, so far as density is concerned, and this points to the fact that the same number of people could be housed on much less land by modern housing methods. Only 28 per cent of the homes in these seven areas are owned, and in area (3) only 9 per cent are owned. In the seven areas, only 10 per cent of the population are native white of native parentage, 51 per cent are foreign born, 18 per cent are native white of foreign or mixed

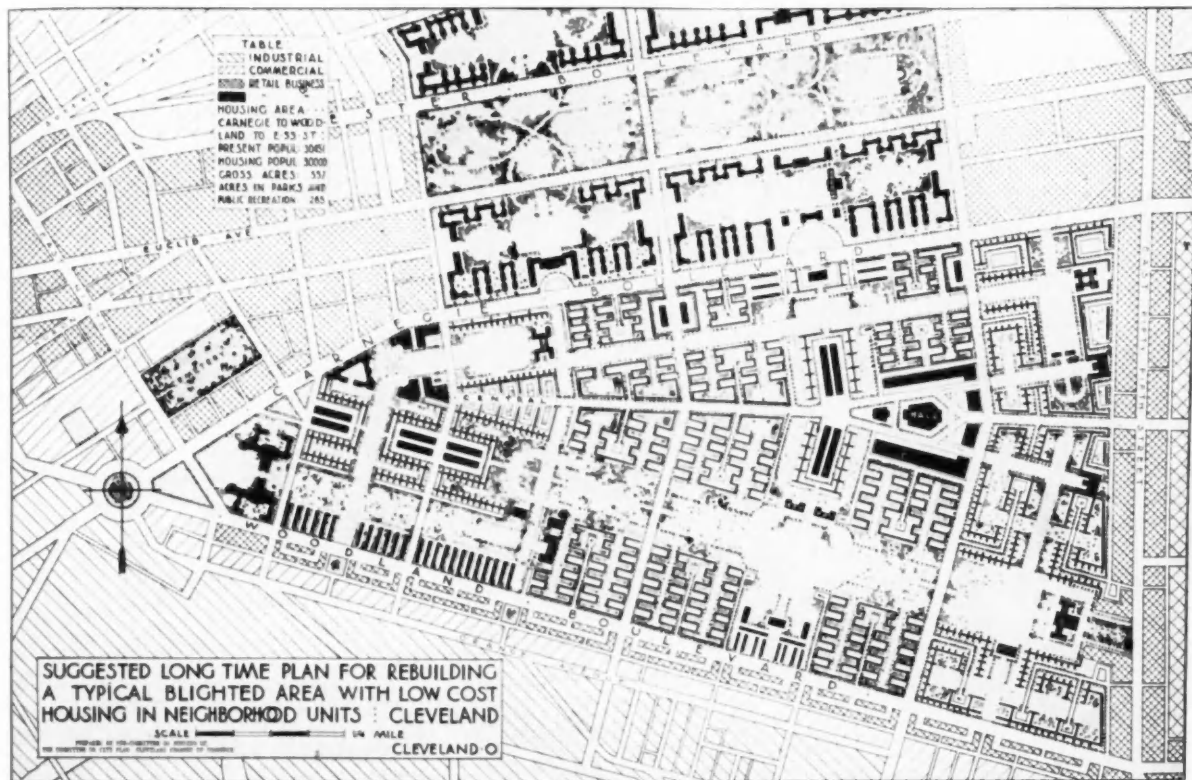


CHART NO. 2—AN AREA PLANNED FOR MODERN HOUSING

parentage, and 21 per cent are negro. In areas (3) and (4) the negro population is 66 and 67 per cent respectively of the total population in these areas. The average number of persons per family is 4.2. There are 16,026 families with two members; 13,283, with three members; 12,039, with four members; and 8,901, with five members.

There has also been assembled a large amount of information regarding crime, health conditions, delinquency among children, charity cases, etc., which need not be summarized here; that slums are breeding places of crime, disease and poverty is well known. The problem is to rid ourselves of slums.

How have these blighted areas grown? There has been no rebuilding. The areas have been allowed to deteriorate for various reasons, such as the inroads of industry, the changing of population, and other well-known causes of blight. With blight came the reduction of value, the lowering of income to the city from taxes, and when the blight spread over as wide an area as the Cleveland studies show, the condition became serious from the standpoint of the city. While we may never see the disappearing city of Frank Lloyd Wright, we are facing disaster unless some action is taken to rebuild blighted areas and make them once more revenue producing.

These areas are being emptied of population. Our studies show that 51 per cent of the population of the seven slum areas is foreign born. Much of our city growth in the past has been

through immigration, and immigration has been practically suspended, due to regulation and other causes. The factories are moving out of the blighted areas, and the workers are going with them. The better classes are moving away to less blighted areas. Birth control is having an influence, so we may expect our cities to decrease in total population, and the blighted areas will show a more marked decrease than the city as a whole. When the population decreases there will be no need for as many stores, and since industry seems inclined to move out of these areas we are faced with the problem of what to do with them.

Rebuilding them seems to be the only way out, for our cities cannot exist without taxes, and taxes cannot be levied where there is no value.

By using modern housing methods double the number of people can be put on any given site, which means that one half of all the area used will be available for parks and recreation, and it is probable that this area for parks and recreation can be bought and maintained by the city from the increase in income from taxes from the improved property. Chart No. 2 shows an area planned for modern housing with recreation spaces.

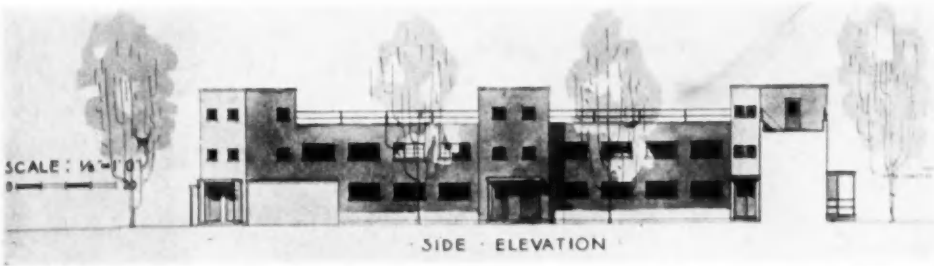
Before any great rebuilding program is put before a city there are fundamental principles to be worked out. One is, of course, a definite city plan, which should be in charge of a city or metropolitan planning commission with power. This should include the control of the layout of all streets and boulevards, transportation facilities, public utility

THE SEVEN MAJOR BLIGHTED AREAS IN CLEVELAND

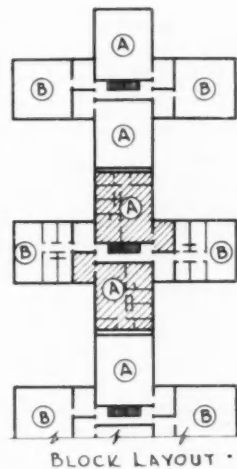
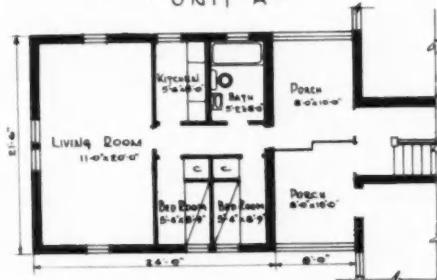
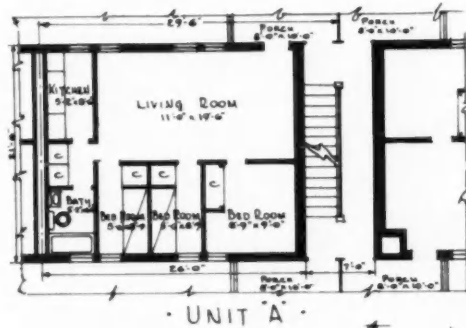
Comparison of Each with Cleveland Proper and with the Total for Cleveland, Lakewood, Cleveland Heights, E. Cleveland, Shaker Heights

	DISTRICT 1		DISTRICT 2		DISTRICT 3		DISTRICT 4		DISTRICT 5		DISTRICT 6		DISTRICT 7		TOTAL		CLEVELAND		FIVE CITIES	
	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%
POPULATION - TOTAL	75,047	100	47,473	100	43,291	100	47,058	100	39,404	100	64,317	100	4,176	100	311,566	100	900,429	100	1,079,333	100
UNDER 15 YEARS	23,258	31	13,091	28	10,960	25	11,936	25	10,259	26	21,160	33	1,454	36	92,949	30	237,304	26	276,689	26
SCHOOL AGES - 5 TO 17 YEARS	21,449	28	13,245	28	9,348	22	10,095	21	9,574	24	20,143	31	1,322	32	85,176	27	216,144	24	251,643	23
SINGLE MALES PER 100 SINGLE FAMILIES, 15 YEARS AND OVER	17,053	32	12,100	36	10,986	34	9,418	27	6,110	32	14,629	34	860	32	71,155	33	208,633	31	247,668	31
HOME AREA IN ACRES	153	-	176	-	194	-	163	-	162	-	146	-	164	-	164	-	133	-	181	-
NET AREA IN ACRES	3,030	-	1,760	-	1,612	-	1,235	-	1,484	-	3,050	-	2,046	-	14,217	-	45,395	-	60,222	-
DENSITY PER NET ACRE	1,704	-	896	-	643	-	869	-	666	-	1,586	-	992	-	7,356	-	29,380	-	41,875	-
DENSITY PER HOME ACRE	85.0	-	27.0	-	26.9	-	32.1	-	19.8	-	21.1	-	21.0	-	21.9	-	19.8	-	17.9	-
NUMBER OF FAMILIES	18,406	100	11,141	100	9,528	100	11,185	100	6,671	100	14,468	100	868	100	72,267	100	221,502	100	270,424	100
FAMILIES IN FAMILIES	74,684	-	46,512	-	38,038	-	46,191	-	29,323	-	63,949	-	3,973	-	302,604	-	876,270	-	1,054,460	-
PRESSES PER FAMILY	4.1	-	4.2	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.2	-	4.0	-	3.9	-
OWNED HOMES	5,885	32	2,625	24	2,824	29	3,195	28	2,039	31	6,628	46	600	70	20,628	28	61,355	37	105,009	39
RENTED HOMES	12,331	68	8,316	76	6,704	71	7,990	72	4,632	69	7,840	54	268	30	51,639	72	139,747	63	165,415	61
EQUALITY MONTHLY RENTAL	825	-	825	-	824	-	831	-	822	-	823	-	825	-	825	-	836	-	839	-
FAMILIES HAVING A RADIO SET	6,034	33	3,378	30	1,113	12	3,452	31	1,134	17	4,738	33	313	36	20,568	29	106,294	48	144,277	53

* Indicates less than .05.
CLASS A, refers to persons out of a job, able to work, and looking for a job.



PROPOSED HOUSING
FOR CLEVELAND
DESIGNED TO RENT
FOR \$15 OR LESS PER
MONTH PER APARTMENT
WALTER R. McCORNACK
ARCHITECT



lines, and the division of the city into neighborhood units. All housing and building projects should be subject to review and rules of the commission. Parks and playgrounds should be a part of this plan.

To those who say this is giving too much power to one group, the reply is that our present plight is due to the fact that the individual has been permitted to pursue the freedom of individual action, supposed to be the right of men in a free country, but which, in our cities, has resulted in the acts of a few interfering with the rights of the many.

During the last twenty-five years the city of

Cleveland has spent approximately \$125,000,000 on non-revenue producing public structures, and since none of them produce sufficient revenue to retire the bonds, this amount will be more than doubled in cost to the taxpayers. In other words Cleveland will have spent nearly \$300,000,000 in a quarter of a century in the construction of buildings, bridges, etc., which produce little or no revenue, but which increase taxes. Is it asking too much for the city to consider a long-term rebuilding program, over a period of fifty years, in order to save the city from disintegration? This building program would consist of self-liquidating projects.

THE PLAN OF BOULDER CITY, NEVADA

By S. R. DE BOER, City Planner

Boulder City is the small town laid out by the Department of the Interior near the Hoover Dam. It is built for the purpose of housing construction workers during the period of building the Dam and to house the families of permanent employees after the Dam is completed. The maximum population during the first period was estimated as five thousand and the permanent population as fifteen hundred.

The site of the Hoover Dam is Black Canyon, 30 miles from Las Vegas, Nevada. It is located in the desert of Southern Nevada where temperatures reach extreme heights, where rainfall is down to $4\frac{1}{2}$ inches a year, and where no shade is available for relief from the excessive light. There is nearly no vegetation on the desert.

The selection of the best site for the town resolved itself into the finding of a site where heat was least oppressive, where the distance from the Dam was not too great and especially where soil was available on which the town and its gardens could be built. Recording thermometers were placed at five points and it was found that the site on a saddle overlooking the proposed lake was approximately ten degrees cooler than the lower sites. This is due partly to the higher altitude which at this point is 2,500 feet above sea level and to the circulation of air over the site. The fact that the site is more or less of the character of a pass between two low hills is responsible for the air movement.

The location is about $6\frac{1}{2}$ miles from the Dam and about $2\frac{1}{2}$ miles from the future lake. It was felt that this distance was not excessive, especially because the other available sites were all at least 4 miles away from the Dam. The selected site was the only place where soil of sufficient depth was available for practical building and this matter became one of rather great importance.

The topography of the new town site runs more or less fan-shaped from the center of the saddle. This gave the opportunity to build a fan-shaped town with traffic arteries centering on the main office building of the government, which is placed directly in the saddle where it overlooks the lake and all surrounding country. The main streets are focused on this building and the town is spread out in a quarter circle between the two outer diagonal streets. (Figure 1.)

The main traffic line entering the city from the west is placed in such a way that it does not go through the business district but by-passes it at the edge of this district and continues to the highway leading to the dam.

After the general lines of the town had been laid down to fit the topography of the site the following general principles were embodied in the plan:

1. *Orientation.* The main axis of the town was selected to be about 9 degrees from a true north and south line in order to get a good distribution of light and shade. This placed the two outer main lines of the fan-shaped design at angles of approximately 40 degrees from the north and south line. These angles were carefully worked out so as not to get a too great exposure of sunlight on any one building wall. The plan contains no blocks with direct south exposure.

2. *Off Street Parking of Autos in Business District.* One of the greatest sources of congestion in our cities today is the curb parking of automobiles in the business district. The Boulder City plan is based on the principle that no automobiles are allowed to park at the curb but parking space is provided in an open plaza in front of the business houses. This means that every business house will have space for three times the usual number of parked cars. (Figure 2.)

3. *Loading Courts in Alleys.* The crowded and often inefficient operation of alleys in a business district has been circumvented by the provision of setbacks in alleys where trucks can load and unload behind the stores. (Figure 2.)

4. *Separation of Through Streets and Business Streets.* This separation is accomplished by leading the main traffic artery from the west by the edge of the business district, to continue into the highway to the Dam. (Figure 1.)

5. *Corner Setbacks.* These are provided in the the business district for the sake of easier traffic circulation and of architectural design. (Figure 2.)

6. *Street Width.* Widths of streets were laid down as follows: Main traffic lines, 112' with roadway of 56' with possible widening to 76'. Business streets, 92' with roadway of 56'. Residential streets, 60' with roadway of 30'.

7. *Open Plaza.* A direct outcome of the principle of off-street parking was the creation of open plazas around which the business houses are grouped. (Figure 1.)

8. *Architectural Control.* All buildings erected according to defined architectural design of Spanish character. (Figure 7.)

9. *Classifications of Stores in Business District.* All stores grouped according to the principles of natural zoning which cause business houses of one type to remain in the vicinity of one another. In other words clothing stores are in one group, groceries in another, hardware and furniture in another, etc.

10. *Residential Blocks.* Residences of the duplex type are to be laid out in blocks with a width of 252-266 feet and a length of not less than 900 feet. In the single-family district a new subdivision design was worked out for the location of homes away from traffic lines. (Figures 3 and 4.)

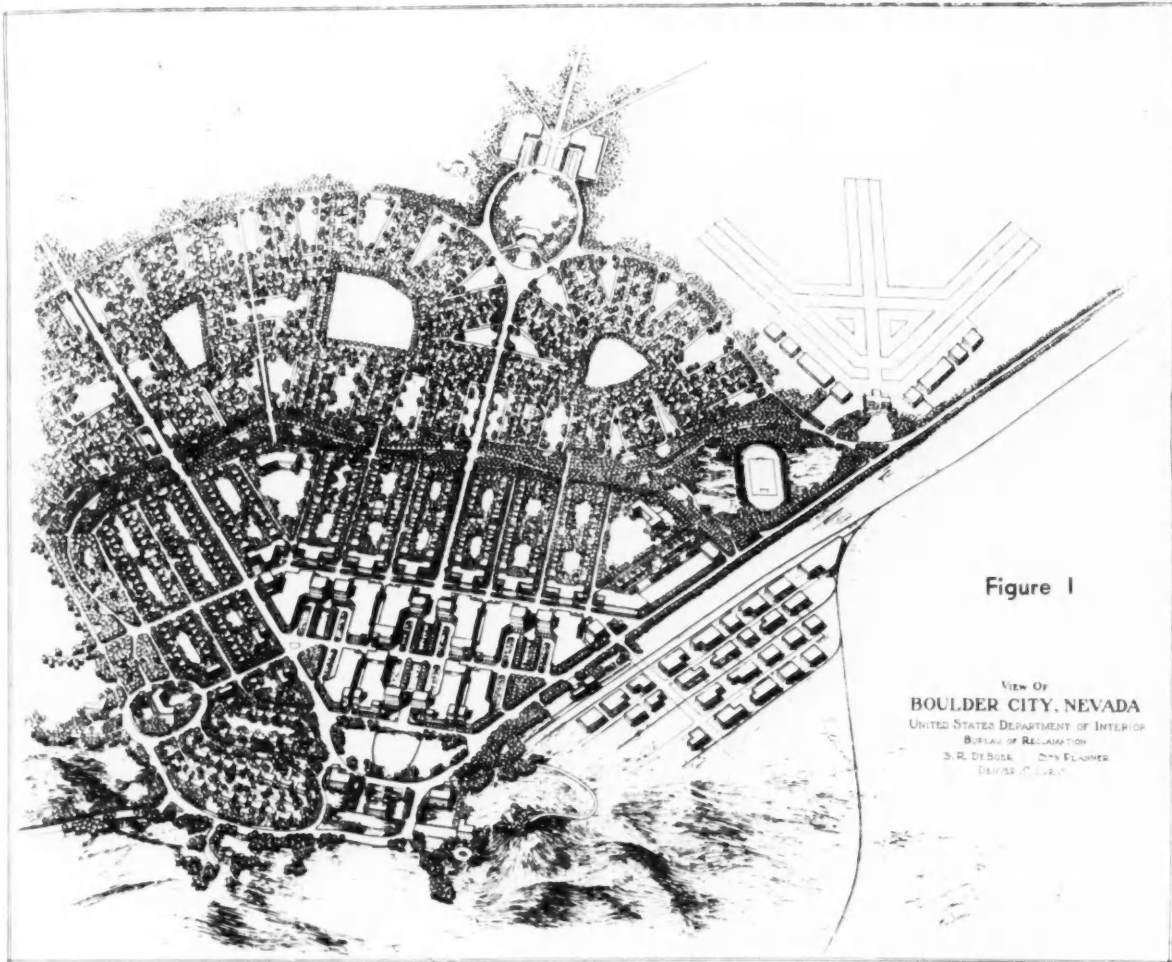


Figure 1

VIEW OF
BOULDER CITY, NEVADA
UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF RECLAMATION
S. R. DEBOLD ARCHT. PLANNER
DAVID C. CLARK

11. *Playgrounds.* The interior of all residence blocks to be set aside for play space and in the open residential areas a general play space to be in the interior of a 40-acre tract. (Figures 3 and 4.)

12. *Civic Center.* The surroundings of the government building group to be treated as a civic center and park. (Figure 6.)

The architecture in the business district is Spanish. The store buildings will all be arcaded over the sidewalk to provide shade for shoppers. Modern architectural design was considered but the Spanish type was finally selected. The arrangement of the stores is such that stores of one type will be grouped together as they usually are in the large cities. The frontage on traffic arteries was reserved for filling stations, garages and general automobile service.

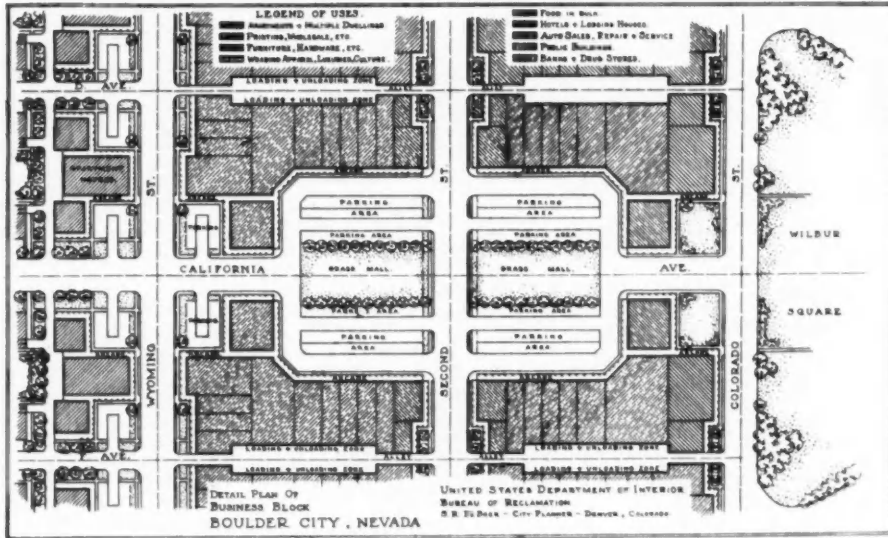
On the above general principles the plan of the town was designed. As mentioned before, the three main streets all focus on the office building of the Government. This building is placed on a slight elevation above the town proper. In front of it is a small park or civic center sloping to the first cross street. See Figure 5. On this first street will face any of the small hotels the town may have.

Other government buildings are grouped around

the main office building. To the east of the main group of these buildings, two blocks were set aside for homes of government employees. These blocks have very attractive vistas and will overlook the future lake. In carrying out the plan a change was made in orientation to avoid excessive grading. This change of the main axis of the town made land available to the west of the town against the south side of the mountain on which the water reservoir is located. The houses of government employees were built here against the south slope of the mountain and not on the place indicated on the plan.

The first ring of residential blocks adjoins the business section of the town on the south. This ring consists of blocks 900 feet in length with a cross walk through the middle. The blocks are parallel to the center main street. The buildings are given very shallow front yards. This leaves considerable space in the middle of the block which is kept open for play space. All movement of traffic is kept out of the interior of the blocks and kept on the street. This zone calls for multiple-family dwellings and has a tier of apartment houses on the city end of the blocks. (Figure 3.)

School buildings are fitted into the triangular spaces created by change of street directions.



**BOULDER CITY
NEVADA**
S. E. DeBoer, City Planner

Figure 2
Detail plan of business block.

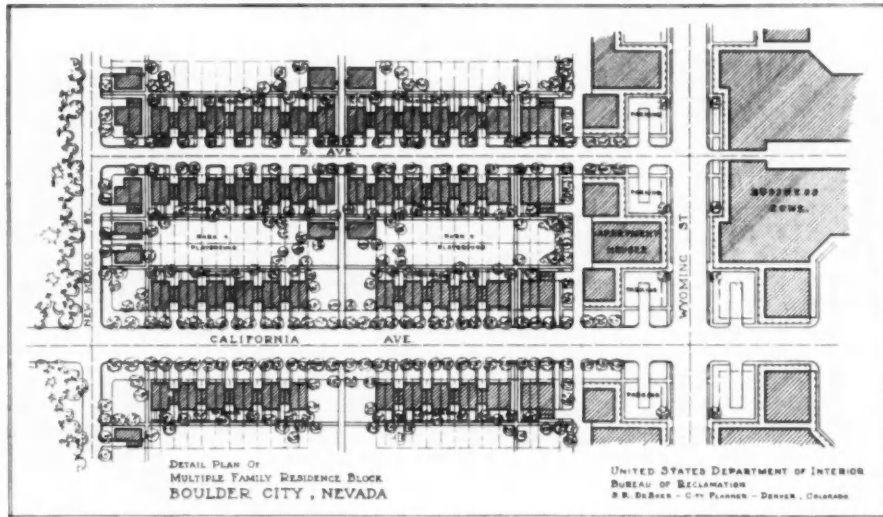


Figure 3
Detail plan of multiple family residence block.

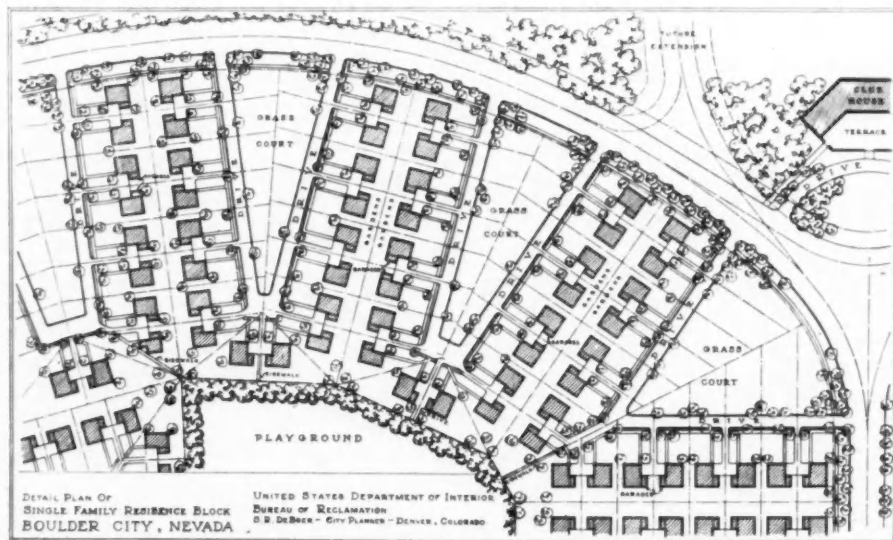


Figure 4
Detail plan of single-family residence block.

Tracts of five or six acres are provided for play space around the school buildings. (Figure 1.)

A wide strip of tree-planted land surrounds this first part of the town. This strip is to be a forested area and not a park. Trees can be maintained rather cheaply but a grassed park is expensive maintenance in the desert area. It is expected that after the construction period is over the town will be reduced to the triangle inside the forest belt.

The belt of forest land is widened at one place to take in ground for an athletic field near the high school building. The tree belt is to be used temporarily for laborers' cottages which are to be removed after the Dam is finished, leaving a belt of trees around the town. (Figure 1.)

After the main contract was let, the contractors created a site for their buildings in the southwest corner of the town. Store buildings and recreational buildings have been built in this section. These buildings are of a temporary character and will naturally be removed later. They have, however, detracted from the development of the main business district which has had to be built by private capital and is, therefore, building rather slowly.

Outside of the forest belt is a ring of blocks for one-family homes. A new idea in design has been worked out here. None of the homes will front on the traffic arteries and yet every one has an easy connection with the main traffic lines. Large tracts consisting of more or less circular areas of approximately 50 acres have been used as units. These are subdivided into building blocks of a "V" shape. Semi-private roads run through the interior of the "V" blocks. These roads are for one lane of traffic only and on them front the homes. The inside of the "V" becomes a small community park but belongs to the adjacent building lots and is maintained as a front yard by the owners. All the houses have easy access to main traffic lines without the accompanying danger and disturbances of traffic.

The circle of "V"-shaped blocks arranged in this way leaves in the middle a 7-acre tract which can be used for a block playground. This play area is removed from all traffic streets and is, therefore, safe for children even without supervision. It is connected with the house blocks by sidewalks leading to all homes. (Figures 1 and 4.)

On account of the elimination of cross streets, calculations have shown that this type of arrangement can be put in at no greater cost, and perhaps slightly cheaper, than the usual rectangular blocks. The cost of land in Boulder City was, of course, negligible.

This outer ring of residential blocks has not been built and may not become necessary during the construction period.

Beyond the outer ring of residential blocks, space is reserved for a golf course and an airport. In case the town should have an unexpected growth there is shown on this side a general idea for extension.



Figure 5. Government Administration Building.



Figure 6. Plaza and Government Buildings.



Figure 7. Post Office Building.

The industrial area of the town is laid on the west side along the railroad where it enters from Las Vegas, Nevada. The water reservoir is on the mountain to the west of the government buildings. Churches are all grouped together in an unusual group in the east end of the town. It was thought that the proximity of all churches to each other would promote stronger religious life. A large tourist hotel is shown on the plan on a small hill east of the town. This site was later set aside for hospital use.

Studies were made in regard to many details for the construction of the town. The possibility of putting all service lines into a tunnel was considered. In towns of Spanish architecture, with low buildings, the poles on which wires are carried are much more conspicuous and unsightly than in other types of towns. For this reason it was proposed to put the wires underground in a specially designed tunnel. It was found, however, that this treatment would be too costly.

So far, little has been done toward tree planting. In the sunny region of the Nevada desert trees are hard to grow, selection of varieties is difficult and growth is dependent on artificial watering. On account of the bright sunlight, however, it was felt that trees are more important here than anywhere else and the plan contemplates the planting of a large number of trees along the streets, in parks, and in the forest belt around the city.

The plans of Boulder City were approved by the Department and the Reclamation Service. While the plans were followed in a general way some modifications were made. The general axis of the town was shifted to save grading expense. The result was that the street lines which on the plan were carefully oriented in regard to sunlight are not exactly that way on the ground. Residential blocks were added which are not at all designed according to the principles of city planning

and do not fit the ideas of the plan. The contractors built store buildings and dormitories in a separate part of the city, and by having practically a monopoly on retail business created a business district away from the center of the city. This has made the growth of the city's business district not only slow but nearly impossible. Until these business buildings are removed after the completion of the work on the Dam, the business district of Boulder City cannot amount to much.

Several changes were made in the residential blocks of the city. One change was mentioned in the location of the residences of government employees. These residential blocks were shifted from a very sightly and high location to the base and south slope of the hill on which the water tank is located, a hot and sunny spot.

In the residential areas of the town the blocks were laid out according to the general plan as approved by the Department. In the details of the location of residences, little attention was paid to the plans. The contractor built hundreds of cheap cottages which do not at all carry out the ideas of play spaces and interior yards.

The business plazas, however, are followed out to a considerable degree and it will be possible to see in Boulder City to what extent the principle of off-street parking will relieve congestion in a small city. Much was expected of the architectural control embodied in the plans as approved by the Department. Due to the unhappy building of another district, so far architectural control has amounted to very little in the business district.

As time goes on and the work at the Dam is completed, we may expect elimination of many of the temporary features which have marred the carrying out of this plan and we may see on the desert of Nevada a small city in which have been applied the principles of city planning as they were understood by L'Enfant.

THE AMERICAN HOME IN THE 1930 CENSUS

The 1930 Census of the United States is completing the publication of its data about homes and families. It contains several new classes of facts, some of which are quite exciting. Especially interesting are the figures on rents of rented homes and values of owned homes. These ought to be decidedly helpful in connection with large-scale housing plans since they show what rentals people are actually paying which is, in the long run, not very different from what they are able to pay.

Of the 10,503,386 owned nonfarm homes in the United States, the median value is \$4,778—18.1% being valued under \$2,000; 33.4% between \$2,000

and \$5,000; 31.3% from \$5,000 to \$10,000; and 15.2% \$10,000 or over.

Of the 12,351,549 rented nonfarm homes, the median rent is \$27.15—34% being under \$20; 46.4% \$20 to \$50; 14.9% between \$50 and \$100; and 2.1% \$100 or over.

The figures are given by states; they vary widely. The median rent in three southern states is under \$40, while in the state of New York it is \$41.94 and for Illinois, Michigan and New Jersey in the high thirties.

EDITH ELMER WOOD,
Housing, December, 1932



A CHICAGO HOUSING PROJECT

By GEORGE FRED KECK AND
ROBERT PAUL SCHWEIKHER, Architects

NO well-planned housing project today can be considered apart from its relationship to a general neighborhood plan, involving proper land uses, adequate educational and recreational facilities, and so on. The adaptability of the accompanying housing scheme to almost any type of planned community is apparent. The architects have assumed at the outset that a general neighborhood plan has been worked out in collaboration with a city planner, and have for the present devoted their efforts to the emphasis of the physical characteristics of orientation, building plan and sturdy and economical construction.

Since no definite site was available for development, certain broad hypothetical assumptions have been made, as follows:

1. A neighborhood that requires a concentration of approximately 250 apartments or 1,000 people per block of approximately 300 feet by 600 feet.

2. Streets in place, paved and functioning. The proximity of street car lines, buses and other forms of rapid transportation.

3. Utilities installed and functioning.

4. North as shown on plans.

5. Location is Chicago.

The Chicago Code has been revised and will shortly allow a four-story walk-up and basement apartment.

An advantage of this plan is its flexibility. Concentration of apartments can vary without changing layout and construction, by widening or narrowing court areas. There are possibilities of closing off certain obvious streets, which could be converted to recreational or gardening uses.

The architects are primarily interested in developing a slum rehabilitation project. In order to deepen construction further than the plans indi-

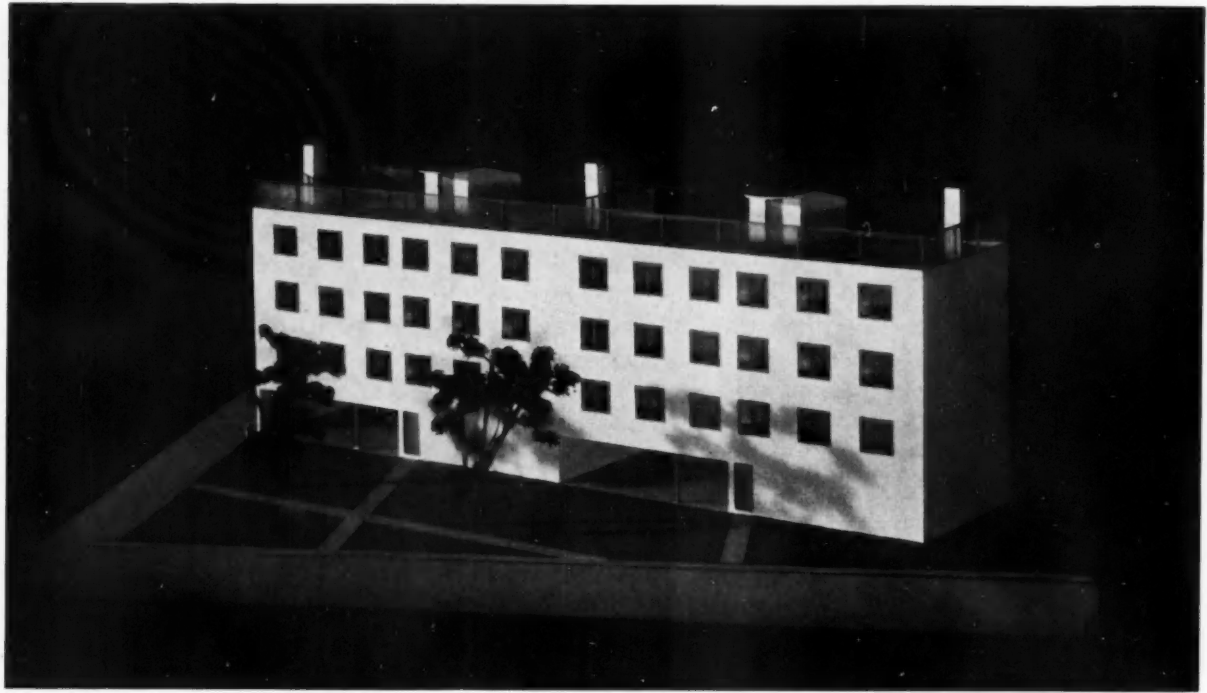
cate, interior partitions may be omitted, except around bathrooms. Plywood partitions may be used, with doors, except bathroom door and front door, omitted and curtained. Other reasonable ways of cutting out conveniences can be found.

Layouts were developed with an eye to pre-fabrication, duplication, use of standardized parts, and rapidity of construction, using materials and facilities available today. The frame is of structural steel. Exterior walls are of large lightweight insulated blocks held in place by shelf angles at the window heads. Interior partitions are of the same material. Floor construction is of the block type, reinforced for a span of approximately 13' 6", all spans uniform, one size block necessary. Stairs are of steel with cement treads, typical throughout. Sash is stock type steel anchored in place. Blocks and windows are pointed with stickum. Exterior is painted with waterproof paint.

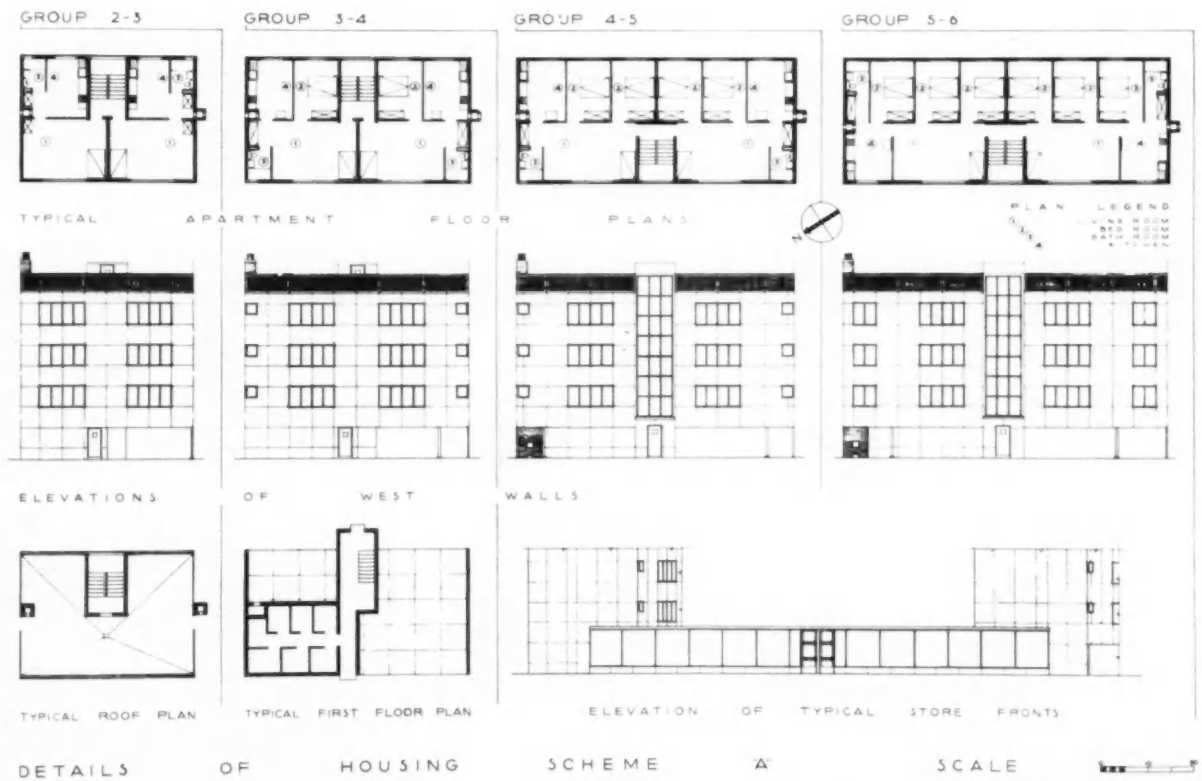
Heating is gas-steam, each apartment individually metered, with thermostat control and pilot lights set on one radiator to prevent pipes from freezing in unoccupied apartments in cold weather. One incinerator stack serves each six apartments.

Bedrooms face east and living rooms west. Wardrobes are all movable, and can be placed where desired. Each apartment has full facilities for cross-ventilation. Stair halls generally are grouped together so that a single court can be given over to the entrances and alternate courts for the exclusive use of tenants, small individual vegetable plots, grass areas, and play space.

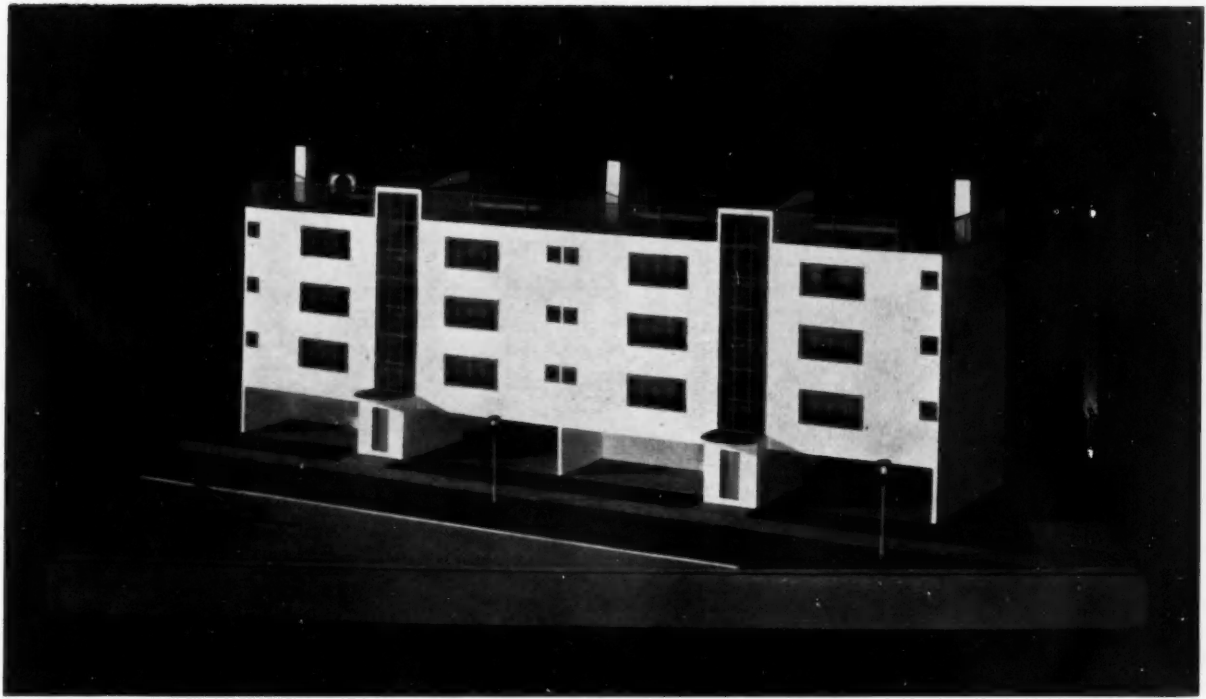
In each block provision is made for the necessary retail shops to serve the population of that block. In other words, each block is made self-sufficient for everyday necessities. A child sent on an errand is not compelled to cross streets.



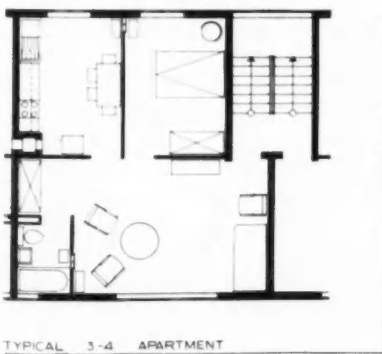
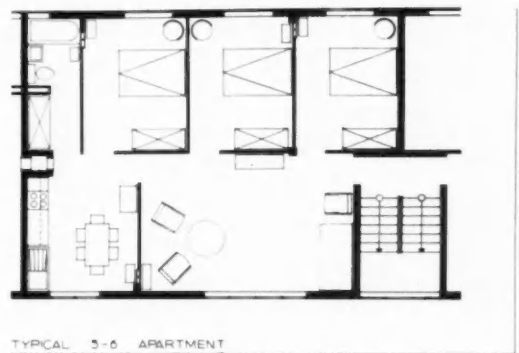
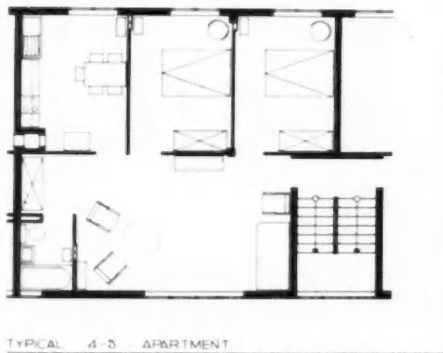
MODEL OF 4-5 GROUP, BEDROOM ELEVATION — EAST WALL
 GEORGE FRED KECK AND ROBERT PAUL SCHWEIKHER, ARCHITECTS



Apartments labeled 2-3 are two-room apartments, having the possibility of converting the living room into a sleeping room, thus giving a three-room efficiency. Apartments labeled 3-4 and 4-5 and 5-6 have additional bedrooms. The apartments have no dining rooms. The kitchen is comparatively large on the assumption that the apartments will be maidless. Meals are served at the table in the kitchen. Each kitchen is attractively arranged and will have ample storage space. For occasional guests the large living room will serve for dining. It is possible to convert one of the bedrooms into a permanent dining room.



MODEL OF 4-5 GROUP. LIVING ROOM ELEVATION—WEST WALL
 GEORGE FRED KECK AND ROBERT PAUL SCHWEIKHER, ARCHITECTS

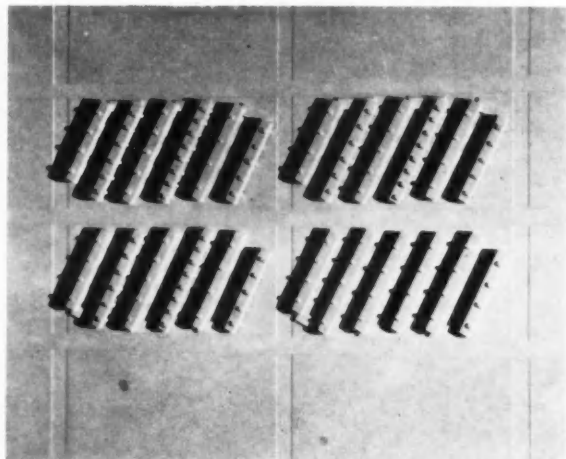


TYPICAL APARTMENT FLOOR PLANS SCALE

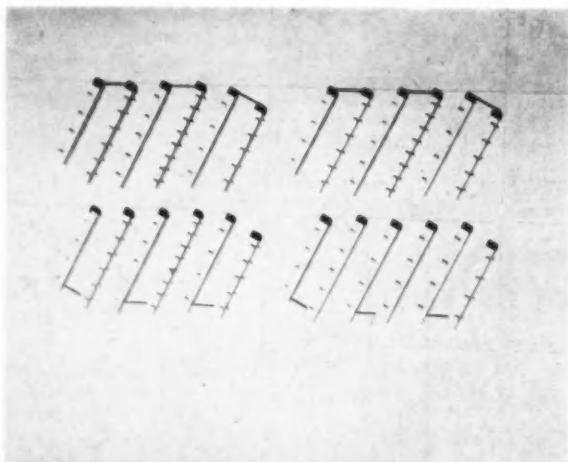
Laundry work is to be done in the kitchen; the kitchen sink is convertible into tubs with a space in the kitchen for a washing machine and other laundry accessories. Wet wash is then taken to the roof and hung to dry in the allotted space. The remainder of the roof is given over to lounge, recreational and sun areas. On the ground floor are entrances, covered play areas, and a small storage space for each apartment. There is no basement.

J

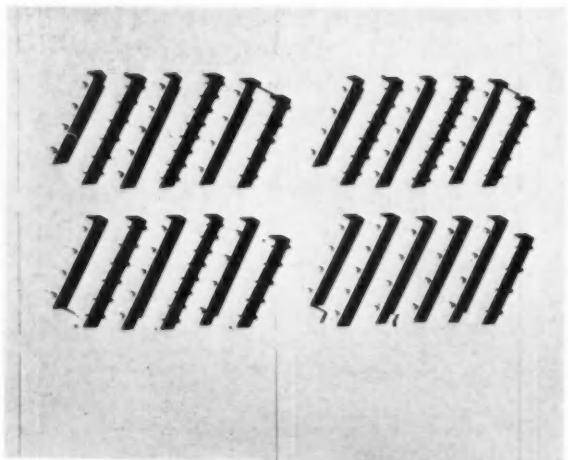
**ORIENTATION SO AS TO ATTAIN THE UTMOST
ADVANTAGE OF SUNLIGHT**



1. Shadows at summer solstice, June 21, 3:00 A.M., C.S.T. Position of sun: 37° altitude, 2° N. of east point.



2. Shadows at summer solstice, June 21, 12:00 A.M., C.S.T. Position of sun: 71½° altitude.



3. Shadows at summer solstice, June 21, 4:00 P.M., C.S.T. Position of sun: 37° altitude, 2° N. of west point.

The relatively wide seasonal differences in weather and temperature, the high relative humidity in the Chicago area, and the difficulty of mitigating the extremities of these conditions through mechanical means (due to the present prohibitive cost of air conditioning apparatus for low-cost housing) make important the advantageous use of natural phenomena.

The oblique alignment of the buildings, limited somewhat by the boundaries of the chosen site, helps to accomplish this purpose.

Weather conditions at other times of the year than near the solstices, though deserving consideration, are not so critical and therefore are omitted here.

With respect to this site, the sun at the winter solstice rises at 7:30 A. M. 33 degrees south of the east point and by 9:30 A. M. (approximate) has reached an altitude sufficient to light all east or bedroom windows of each building.

Shortly before 2:00 P. M. the sun moves across the long axes of the buildings and shines on all west or living-room windows until 3:30 P. M. (approximate). From this hour until shortly before sunset (4:30 P. M.) the decreasing altitude of the sun obscures it from each succeeding story.

Winter sunlight between the approximate hours of from 7:30 A. M. to 9:30 A. M. and from 3:30 P. M. to 4:30 P. M. is partially or wholly obstructed by neighboring buildings in areas demanding similar coverage. This arrangement, therefore, assures uninterrupted sunlight on the buildings over the greatest number of available hours and full sunlight on garden and play spaces at some time of the day.

At the summer solstice, the sun rises 33 degrees north of the east point at 4:30* A. M. and by 8 A. M. has reached an altitude sufficient to light the entire east face of each building. It continues on this face until 2:30 P. M. (approximate). This sunlight floods buildings, garden and play spaces during these earlier and cooler hours and as the warmer hours of the day approach, the sun swings across the long axes of the buildings and is still shining at a definite angle to the buildings at 4:00 P. M. when its own position is almost due west. The rays of sunlight become perpendicular to the buildings only toward 7:30 P. M. or sunset.

It should be noted that, though the position of the summer sun at the solstice is the most difficult for orientation, the warmest weather actually occurs about one month later. Observation, however, will show that the position of the sun at this time with relation to the west faces of the buildings is even more favorable than at the solstice.

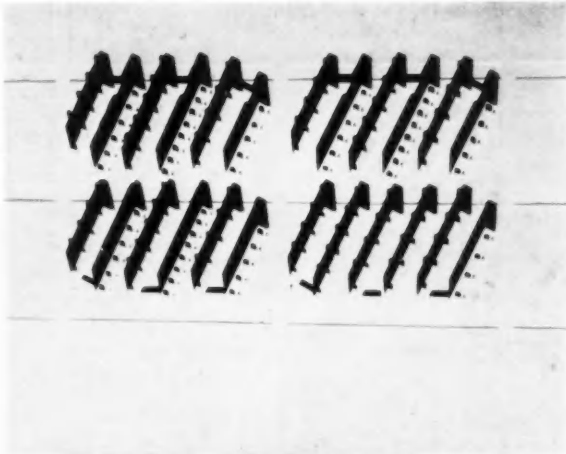
Prevailing winds in the Chicago area for the months of January, March, July, September, October, November, and December are southwest; for February, west, and for April, May, June, and August, northeast. Thus the obliqueness of the garden and play spaces in the northeast-southwest direction leads them to act as corridors or flues for eleven months of the year, drawing the circulation of air through the apartments when windows are open and avoiding direct blasts.

It is apparent from the block plan photographs that the orientation of the buildings as shown gives a wide angle of vision in every direction at street intersections.

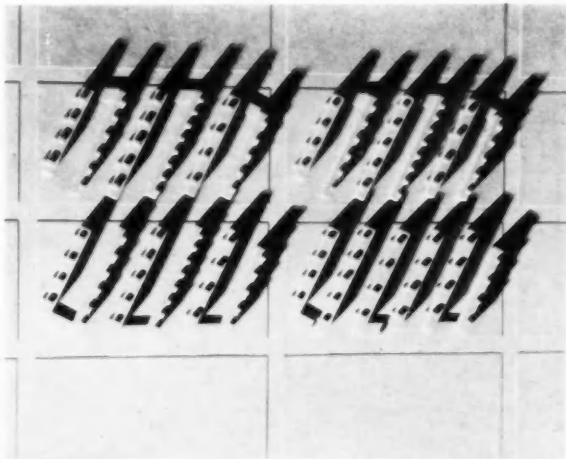
*Central Standard Time.



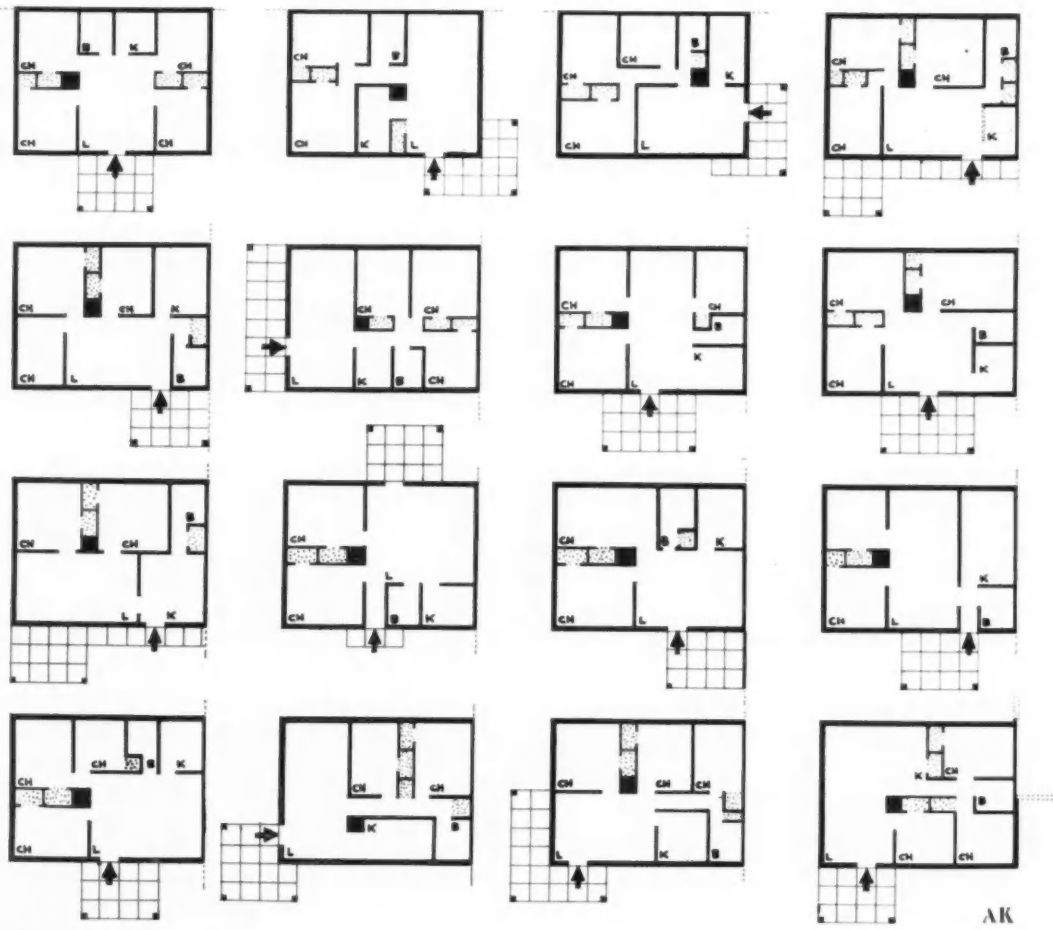
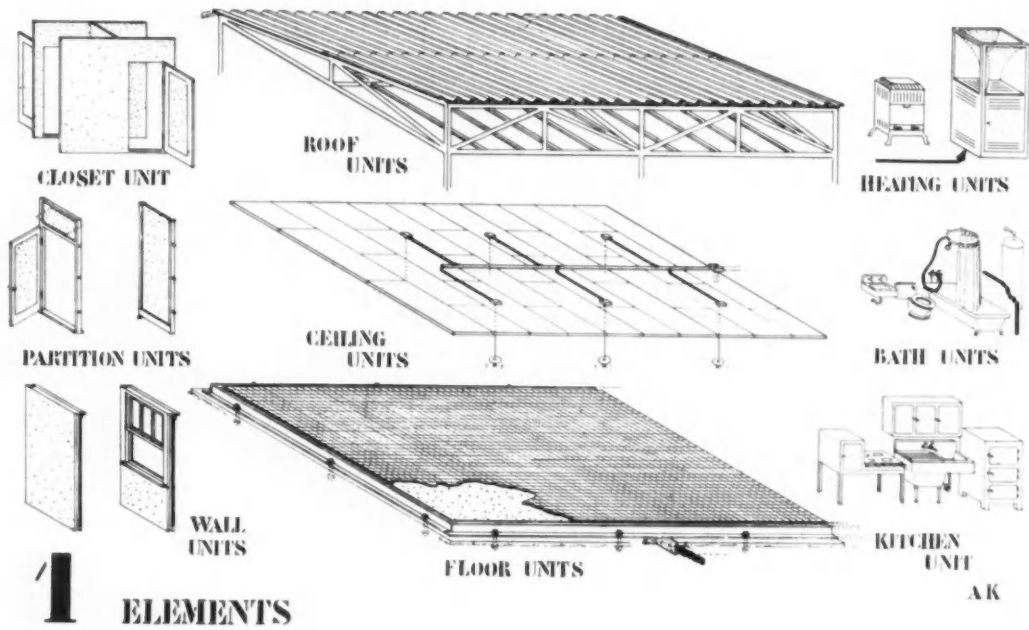
4. Shadows at winter solstice, Dec. 21, 9:00 A.M., C.S.T. Position of sun: 12° altitude, 50° S. of east point.



5. Shadows at winter solstice, Dec. 21, 12:00 A.M., C.S.T. Position of sun: 23 1/2° altitude.



6. Shadows at winter solstice, Dec. 21, 3:00 P.M., C.S.T. Position of sun: 12° altitude, 50° S. of west point.



2 VARIATIONS

- LEGEND :
- ▲ ENTRANCE
 - HEAT UNIT
 - ▬ WALLS
 - ▬ PARTITIONS
 - ▬ CLOSETS
 - LOT LINE
 - L LIVING RM
 - K KITCHEN
 - CH CHAMBER
 - BATH

BASIC ELEMENTS OF NEGRO HOUSING PROPOSED BY ALFRED KASTNER, ARCHITECT



NEGRO HOUSING PROPOSED FOR RICHMOND, VA.

By ALFRED KASTNER, Architect*

The various reports prepared by the President's Conference on Home Building and Home Ownership show how inadequately great masses of people are housed. The picture is dismal. A great industrial machine is stagnant while millions of citizens are living wretchedly and are not provided with even the elementary necessities of hygienic shelter.

The student of these reports must despair that a solution of this crucial problem will be found under the present scarcity of work.

I believe that a solution is possible if the labor available through shortened hours is invested directly into the production of those dwellings thereby creating additional work instead of taking it away from others. In Austria, Germany and Sweden emergencies of this type have been met in a businesslike way and without much ado. Stockholm alone encouraged the building of 5,750 houses† for individual owners by applying methods similar to those set forth in this article. Inasmuch as our building industry is much further developed than that of Europe, we could go that much further in adapting cooperative schemes and use them even with greater advantage to the owner and the builder.

Let us for simplicity assume that our fellow citizen is an unskilled worker living in a city where

*Mr. Kastner's proposal has been published and sponsored by OPPORTUNITY: A Journal of Negro Life.

†The cost of these buildings (2 stories and basement) is 11,500 kr. (\$2,041.25) carried by the City Loan of 10,350 kr. (\$1,837.25). The difference, 1,150 kr. (\$204.13), represents the owner's own labor which he pays to other building workers directly if he does not do the work himself. The City Loan represents 9,150 kr. (\$1,624.13) in material and 1,200 kr. (\$213.00) in cash, and the full amount is amortized in 40 years. The payments in the first 16 years are annually 1,020 kr. (\$181.05) or monthly (\$15.88). After that 930 kr. a year (\$165.08) or monthly (\$13.75).

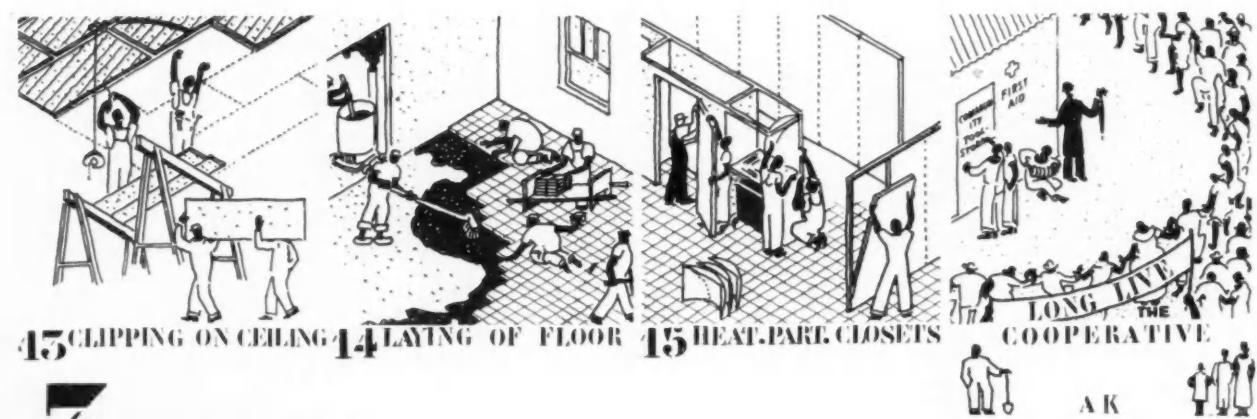
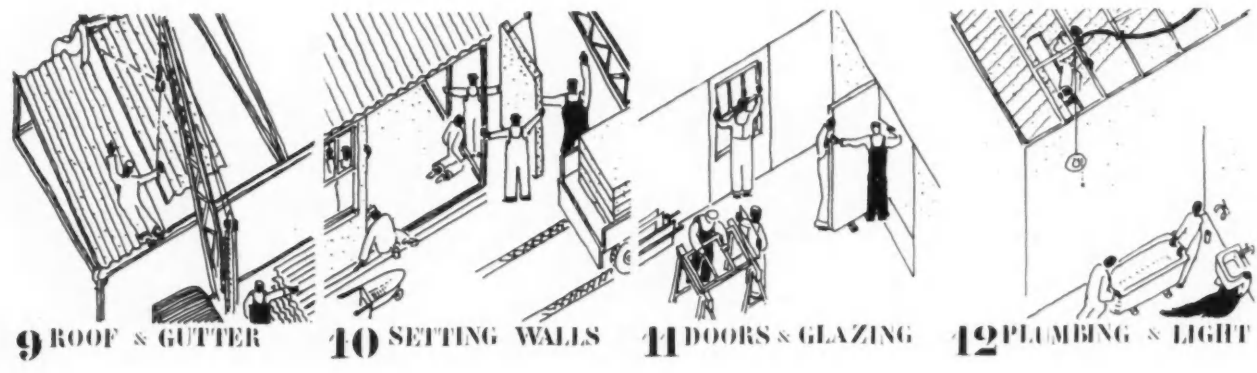
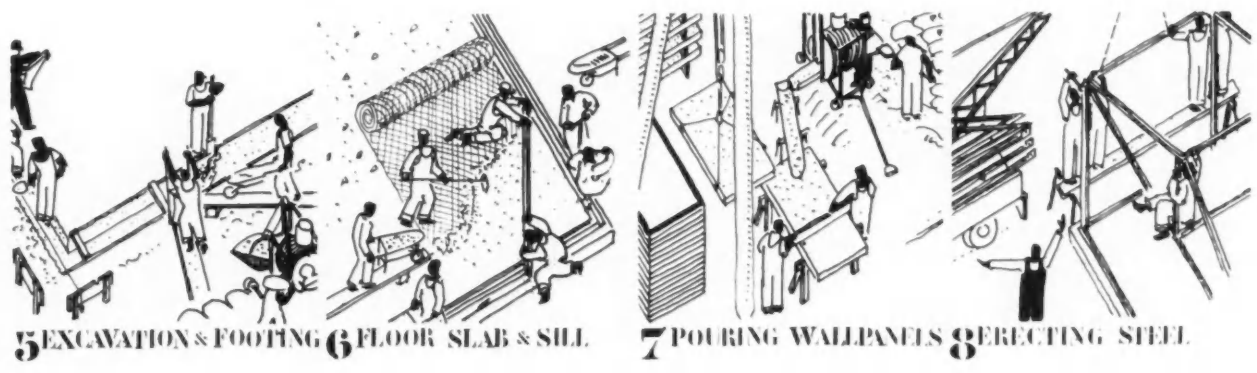
he finds employment and that home ownership is the desired answer to his housing problem. Here, as in Europe, he cannot earn a full week's wages throughout the year, therefore building activities are sporadic because of the shortage of equity money among those most urgently in need of adequate houses; and yet without such equity money no mortgage investors can be persuaded to loan their capital towards building the desired house. Both the equity and mortgages are expended for the purchase of the three essential factors involved in the production of a house, namely, land, material and labor.

Of labor he has sufficient. It is therefore a question of making his labor, which we must assume is unskilled, adaptable to the project. Material and land he must buy.

In order to illustrate the cooperative method we must examine the purchase of land, the financing of building material and skilled labor, and the application of unskilled labor which we possess. These factors we apply separately to three definite steps: the acquisition of land, the improvements necessary to make land suitable for building purposes, by provision for street, sewers, etc., and the erecting of the house.

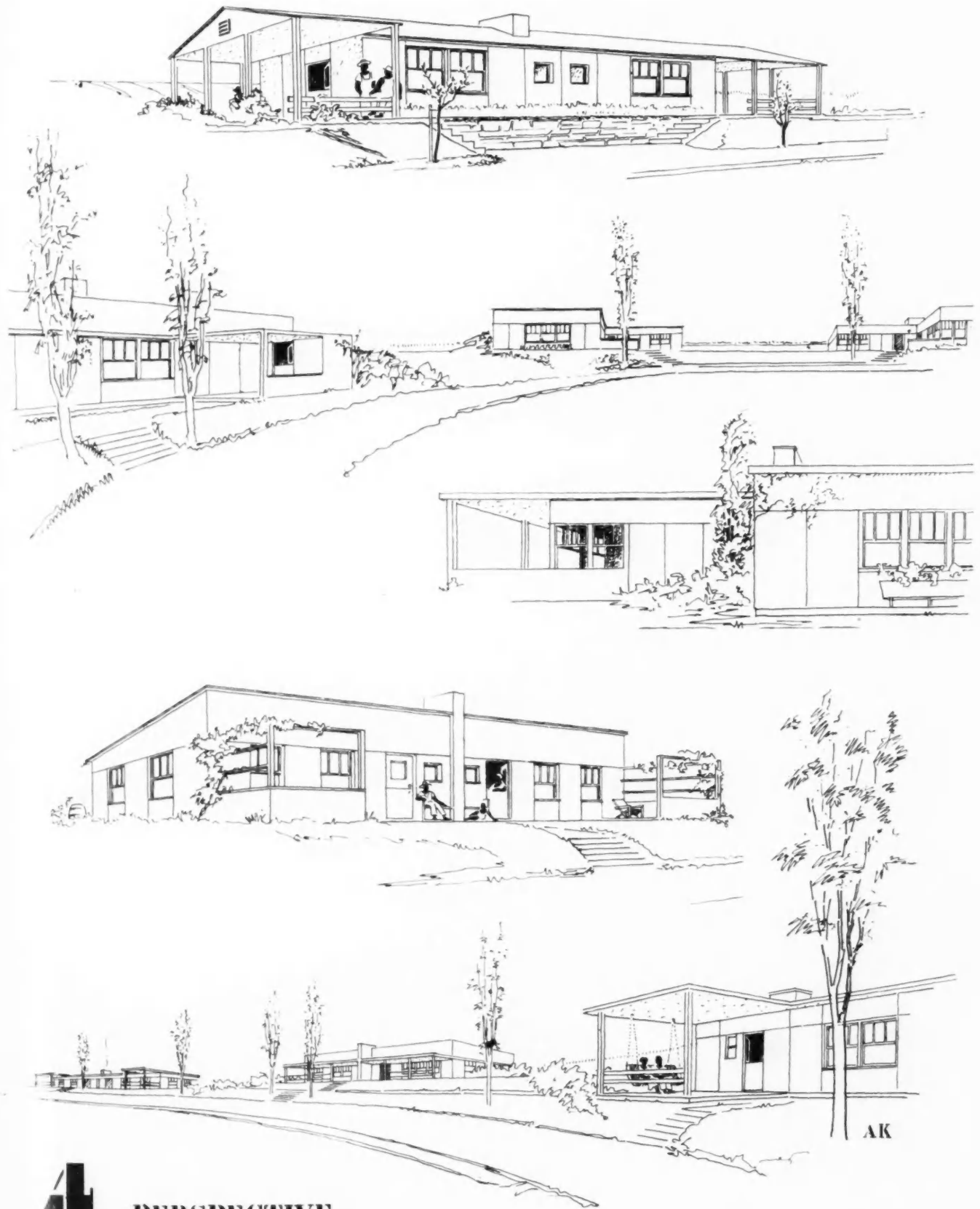
Let us now assume that one half acre of land is necessary to hold our home seeker's house comfortably and at the same time provide it with sufficient garden land to grow enough vegetables for himself and for his family.

There is adequate land in the vicinity of many of our cities which costs about \$300 per acre if bought in quantity. But our proposed home owner



3 OPERATION

NEGRO HOUSING PROPOSED BY ALFRED KASTNER, ARCHITECT



4

PERSPECTIVE

NEGRO HOUSING PROPOSED BY ALFRED KASTNER, ARCHITECT



LOW-COST HOUSING DESIGNED BY ALFRED KASTNER, ARCHITECT

is living on an income which permits him only about \$10 a month for his entire housing budget.

He knows that the lowest price goes with the largest quantities and in order to make this price available he proposes the formation of a Cooperative with 500 others who are in the same predicament. Each member of the Cooperative pays into the treasury his hard-won savings of \$20 which, with those of the others, swells to the respectable sum of \$10,000 in cash. With it 250 acres of land at a price of \$75,000 are promptly purchased, leaving \$65,000 unpaid at an interest rate of 6 per cent. This interest requires an annual payment of \$3,900 for the huge tract, or \$7.80 a member. By this, or a similar operation, the land question is disposed of, with the equity in the ratio of 1 to 6½ on the purchaser's promise to improve the land as speedily as possible.

At the next Cooperative meeting the plans for the immediate improvement are considered. It is finally decided to divide the whole tract into plots of 100-foot frontage and to install a one-way street system so that the future traffic problem is thus solved by a single lane. With a plot on either side of the street, each member has a 50-foot length.

The estimates readily submitted by the local contractors are carefully analyzed and it is found that for the required 25,000 feet of street \$75,000 or \$150 per plot is a reasonable bid. Of this the detailed estimate shows that the sum of \$50 is for wages of unskilled labor, overhead, and profit on this labor. Since the finding of jobs is for the majority of the members a more immediate problem than hiring labor, they will approve the estimate on the condition that their own labor be sub-

stituted for that proposed by the contractor, and that the overhead and the profit on their own labor be stricken out of the estimate, claiming this 10 per cent of \$50 per lot or \$2,500 for themselves as overhead to the Cooperative.

The contractor takes this approved bid for street building to the Reconstruction Finance Corporation, a Federal mortgage institution for self-liquidating projects, and shows that the equity required—one third of the total cost—is represented in the labor of the Cooperative. Since it might be inferred that the town, the county or the state is sympathetic to this effort, a wise government would grant the requested loan of \$50,000 to the Cooperative for a period of 10 years at a rate of 6 per cent which would be \$3,000 or annually \$6 for each plot owner.

At this moment the work starts and those members of the Cooperative who cannot report to work because they have steady jobs, hire on half time an unemployed man elsewhere and reasonably pay him his wages directly every night. In two months, because done on half time, the future community is equipped with street, sewers, waterpipes and conduits. The equity for this is in proper balance with the mortgage (1:2). The equity ratio on the original land deal is now in much better shape because this improvement makes it a safer risk to the original owner who now is the mortgage holder on the land.

For a short time now, presumably a month, all action must be suspended to give the members who invested their time or wages the chance to catch up with their budget. The interest charges on their property for these months for land and improve-

(Continued on page 30, advertising section)

PORTFOLIO OF CURRENT ARCHITECTURE

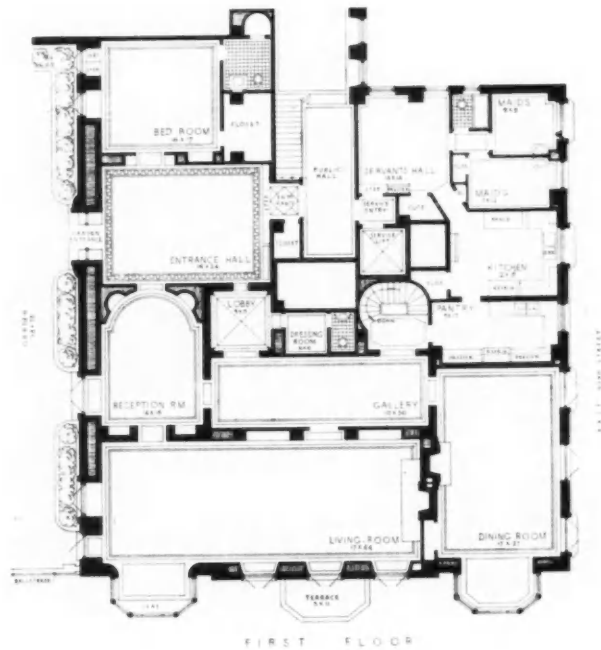


Gottscho

APARTMENT OF ARCHIBALD M. BROWN, RIVER HOUSE, NEW YORK CITY
PEABODY, WILSON AND BROWN, ARCHITECTS



Gottscho



APARTMENT OF ARCHIBALD M. BROWN
 RIVER HOUSE, NEW YORK CITY
 PEABODY, WILSON AND BROWN, ARCHITECTS



Gottsch



LOWER FLOOR

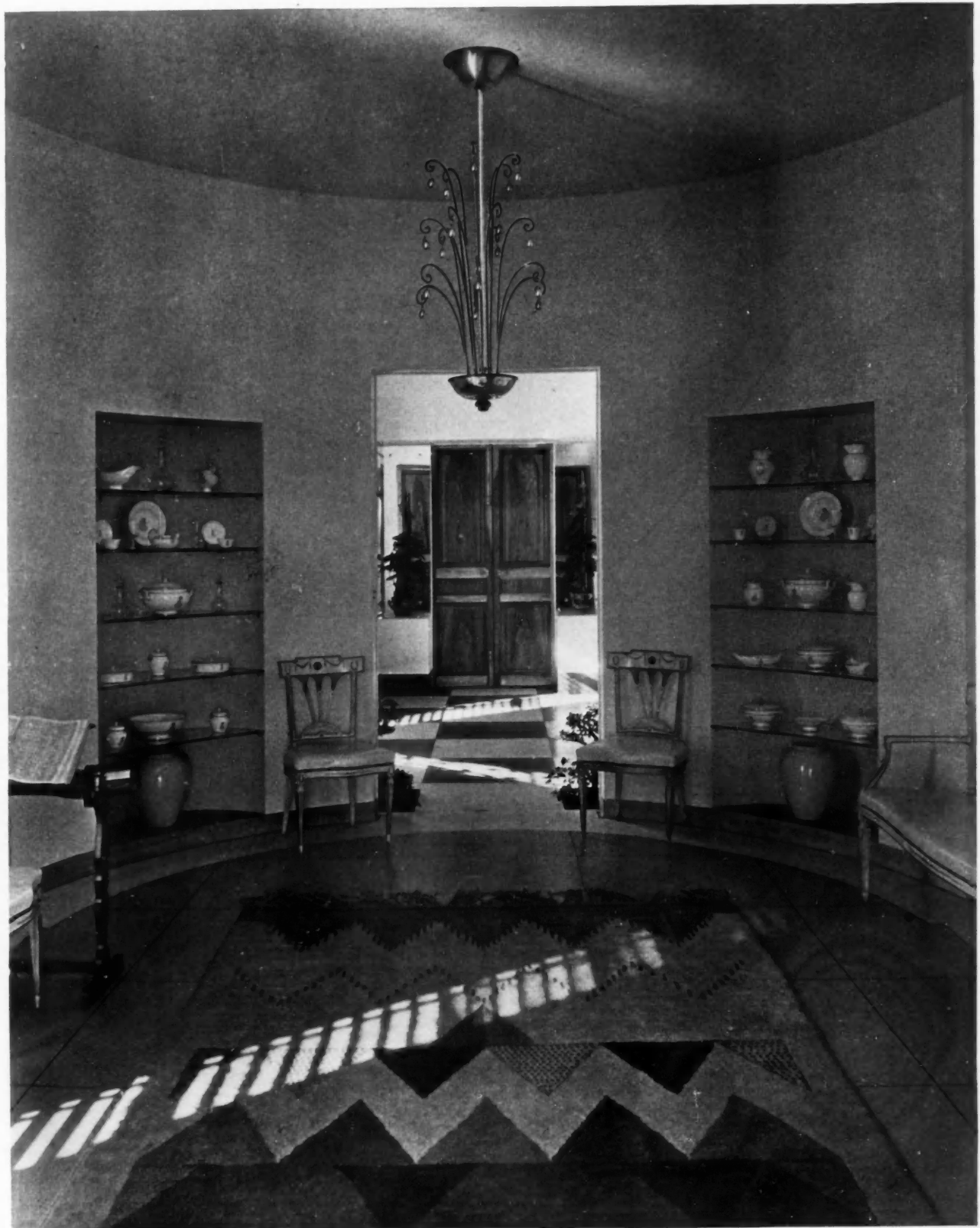
RIVER

APARTMENT OF ARCHIBALD M. BROWN
 RIVER HOUSE, NEW YORK CITY
 PEABODY, WILSON AND BROWN, ARCHITECTS



Gottscho

APARTMENT OF ARCHIBALD M. BROWN
RIVER HOUSE, NEW YORK CITY
PEABODY, WILSON AND BROWN, ARCHITECTS



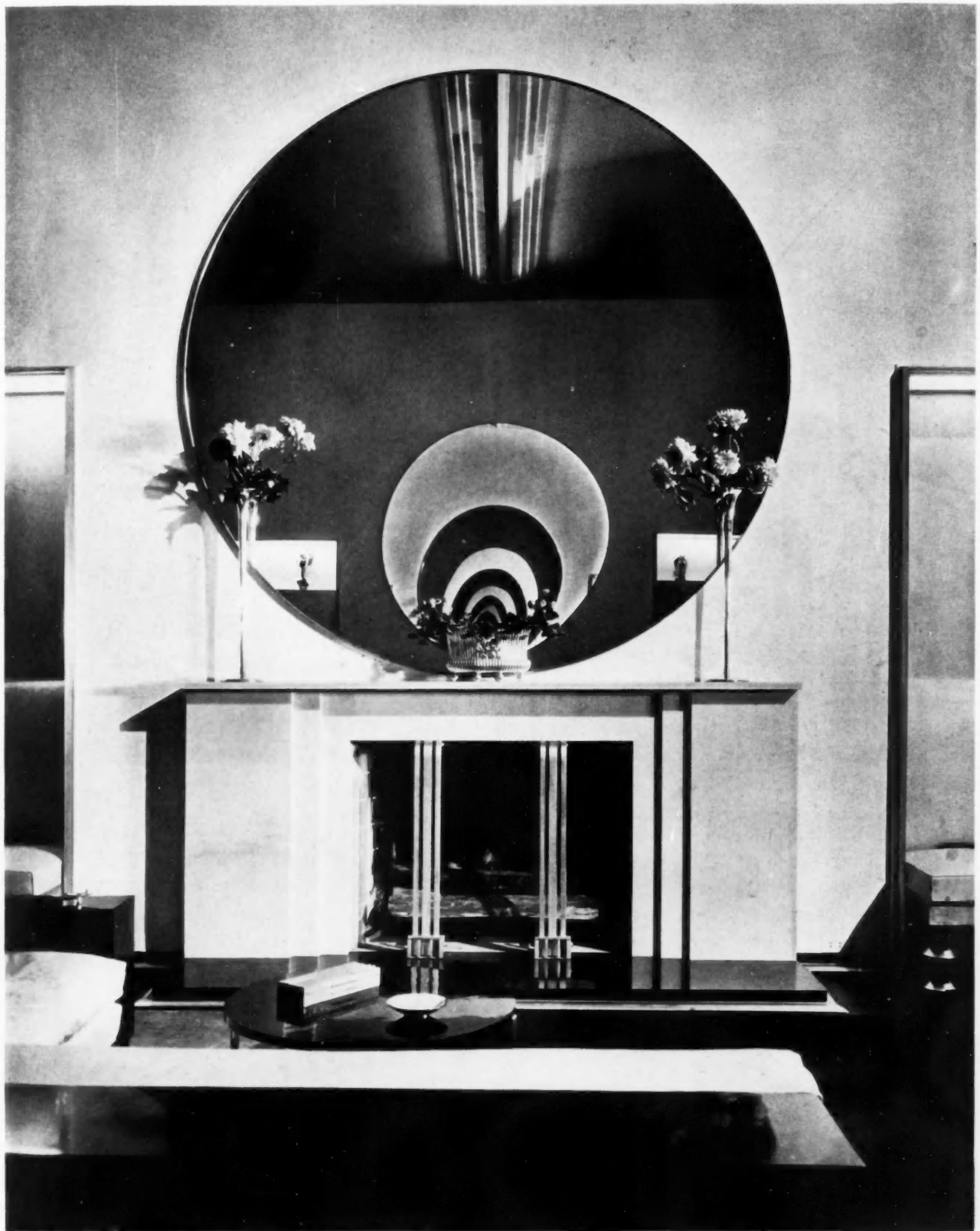
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APARTMENT OF ARCHIBALD M. BROWN
RIVER HOUSE, NEW YORK CITY
PEABODY, WILSON AND BROWN, ARCHITECTS



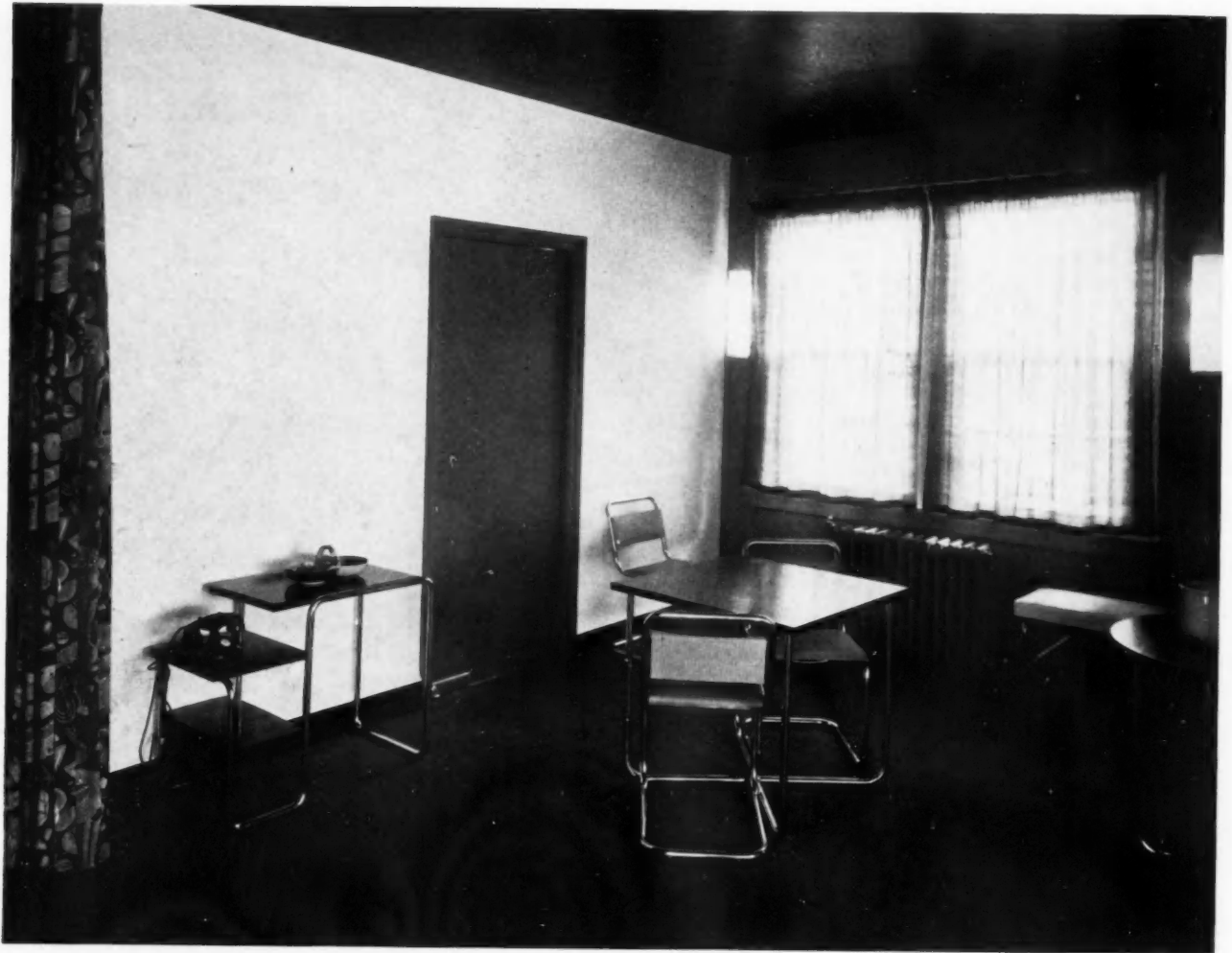
Fay S. Lincoln

APARTMENT OF KATHERINE BRUSH
NEW YORK CITY
JOSEPH URBAN, ARCHITECT

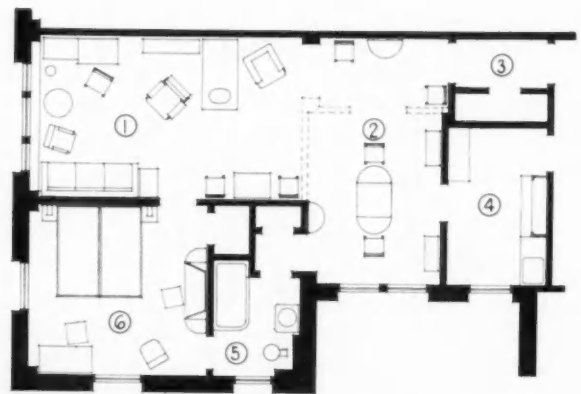


Fay S. Lincoln

APARTMENT OF KATHERINE BRUSH
NEW YORK CITY
JOSEPH URBAN, ARCHITECT

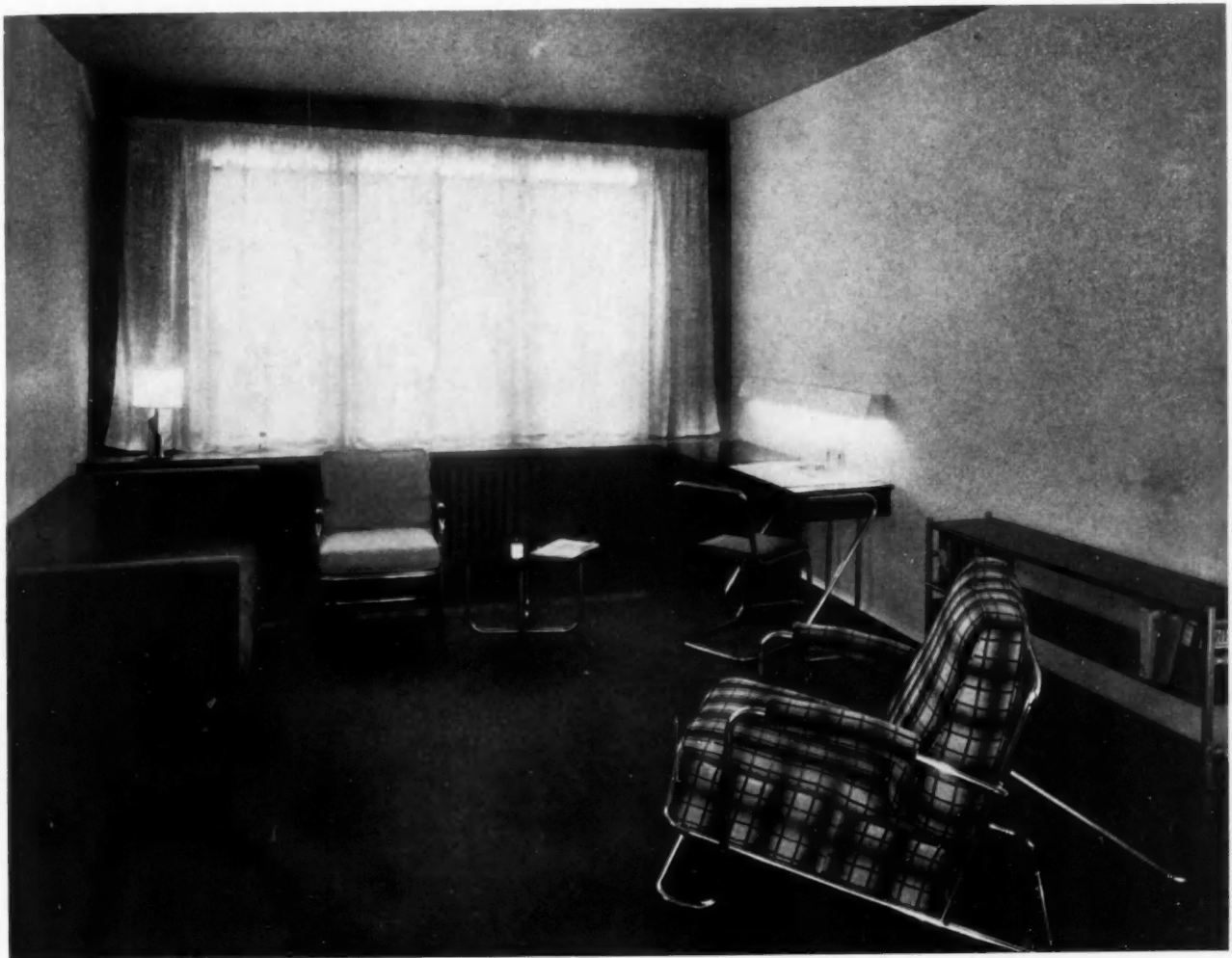


Bonde and Sons



- | | |
|----------------|-------------|
| 1. Living Room | 4. Kitchen |
| 2. Dining Room | 5. Bathroom |
| 3. Vestibule | 6. Bedroom |

TILDEN GARDENS APARTMENT
 WASHINGTON, D. C.
 PAGE AND VOGELGESANG, ARCHITECTS



Vestibule—Entrance wall and door, Indian red; closet door, orange; other walls, white.

Dining end of living room—gray-blue window; wall, deeper blue; ceiling wall next to vestibule, Indian red; wall with entrance arch, gray-blue; door to kitchen, Indian red; other walls, white. Metal furniture with orange canvas seats and backs.

Living Room (shown above)—ceiling, orange; window wall, Indian red; all other walls, white; Metal S chairs, blue canvas seats. Metal armchair, black and white plaid. Couch, Indian red tapestry fabric. Carpet throughout, gray pepper and salt. Window curtains, white china silk. Double curtains separating dining from living room are German printed cotton in Indian red, orange, yellow and blue.

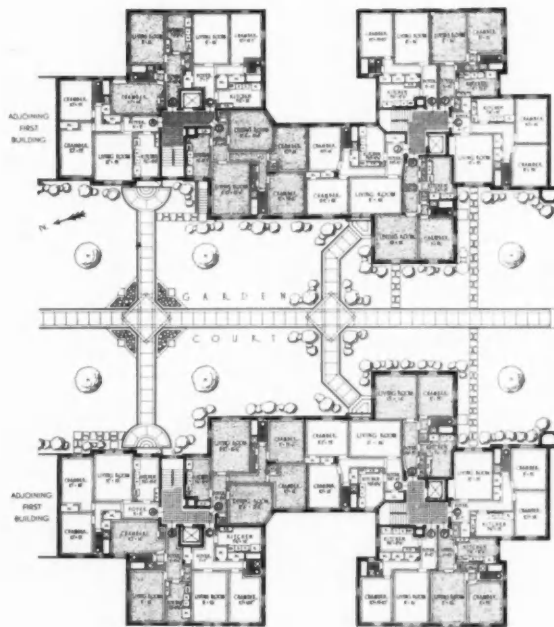
TILDEN GARDENS APARTMENT
WASHINGTON, D. C.
PAGE AND VOGELGESANG, ARCHITECTS



Bonde and Sons



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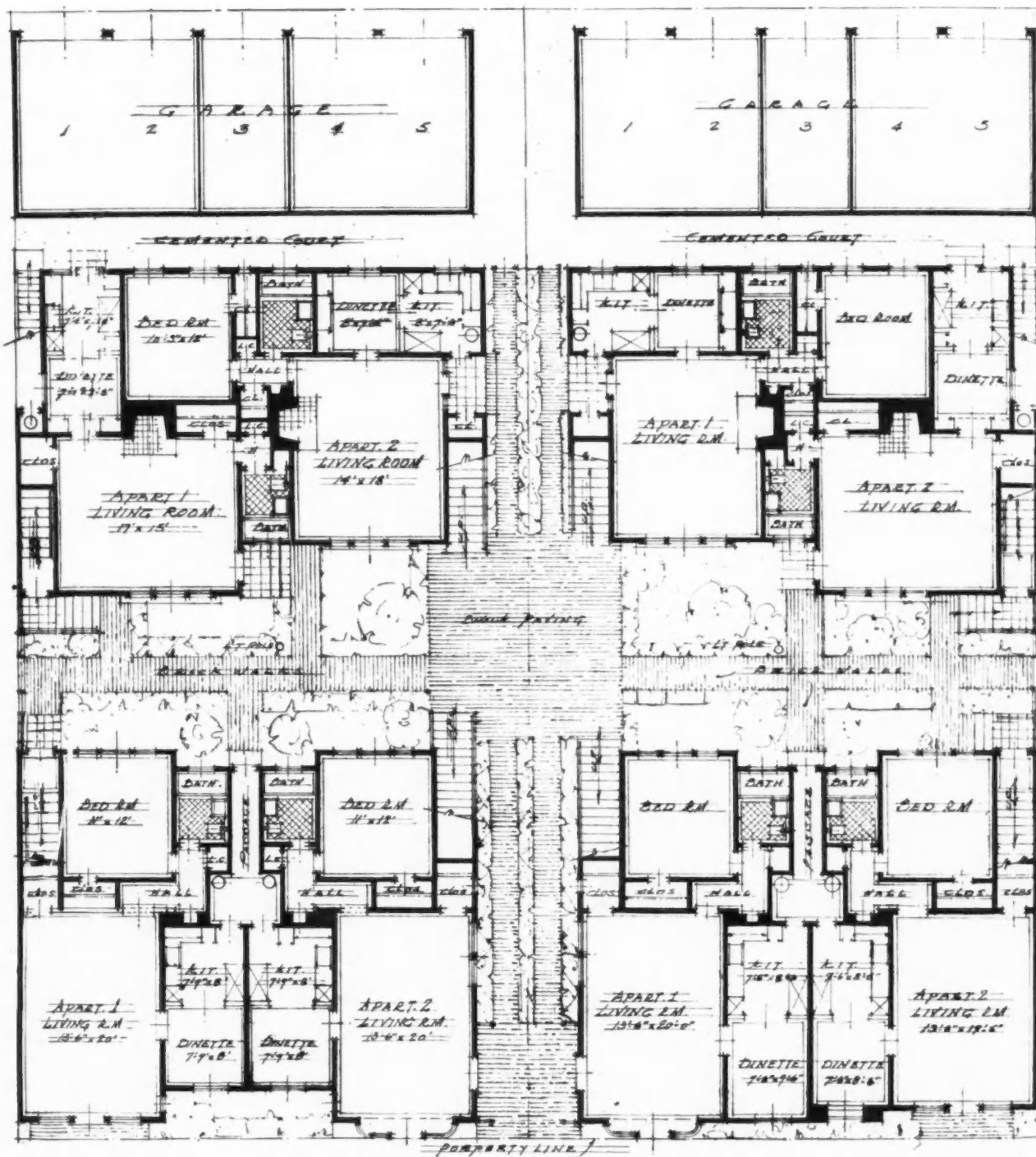


CELTIC PARK APARTMENTS
 LONG ISLAND CITY, NEW YORK
 SPRINGSTEEN AND GOLDHAMMER, ARCHITECTS



Gottscho

CELTIC PARK APARTMENTS
LONG ISLAND CITY, NEW YORK
SPRINGSTEEN AND GOLDHAMMER, ARCHITECTS



A grouping of informal, two-story apartments with business court. Living rooms on ground floor serve as shops for interior decorators, dealers in novelties and others.

APARTMENT HOUSE AND BUSINESS COURT
 WESTWOOD VILLAGE, LOS ANGELES
 J. E. DOLENA, ARCHITECT



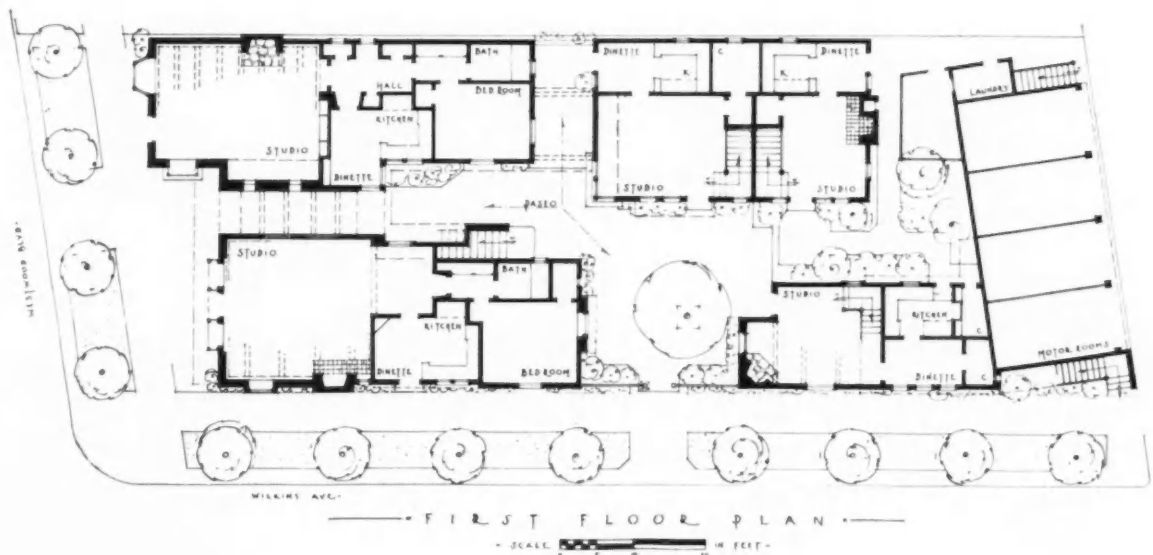
Cawood

Interior Court, Shop-Apartments.

APARTMENT HOUSE AND BUSINESS COURT
WESTWOOD VILLAGE, LOS ANGELES
J. E. DOLENA, ARCHITECT



Cawood



APARTMENT HOUSE AND BUSINESS COURT
 WESTWOOD VILLAGE, LOS ANGELES
 J. E. DOLENA, ARCHITECT



Cawood



— SECOND FLOOR PLAN —

APARTMENT HOUSE AND BUSINESS COURT
 WESTWOOD VILLAGE, LOS ANGELES
 J. E. DOLENA, ARCHITECT



Cawood

APARTMENT HOUSE AND BUSINESS COURT
WESTWOOD VILLAGE, LOS ANGELES
J. E. DOLENA, ARCHITECT

Entrance to Shop-Apartment.



Temple

KATHARINE HOUSE, NEW YORK CITY
 MORRIS AND O'CONNOR, ARCHITECTS
 E. RITZEMA PERRY, ASSOCIATE

The Katharine House is one of seven self-supporting homes operated by the Ladies Christian Union for working girls earning small salaries. It was planned to provide a residence as homelike in character as is consistent with economical construction and operation on low rentals. This building houses 91 girls in 65 single and 13 double rooms, three resident superintendents and a trained nurse in addition to service accommodations.

On the ground floor the office is located for control of both main and service entrances, small reception rooms are provided for guests, and a large dining room seats 104 girls at tables of eight as indicated on the plan. The kitchen is planned and equipped to minimize personnel required for its operation and to permit cafeteria or waitress service, the latter being employed at luncheon and dinner.

The U-shape bedroom floor is planned to attain a protected view on a single court. The main roof above the seventh floor is tiled and includes a pergola which in summer is covered by an awning and, in addition to the second-floor court, provides recreation facilities.





Hewitt

The Lounge



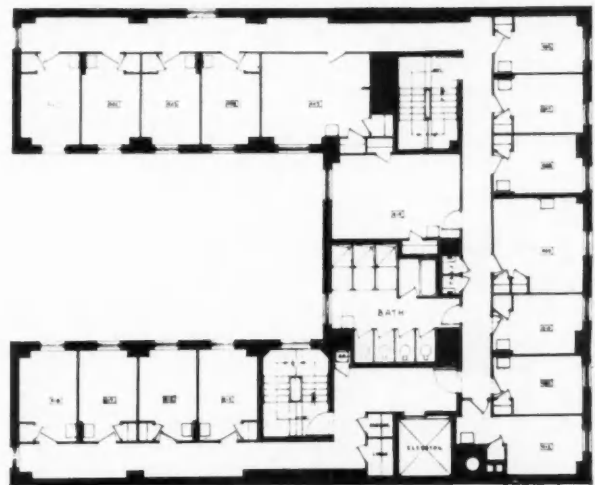
Basement Floor at left. Second Floor and Typical Upper Floor on opposite page.

KATHARINE HOUSE, NEW YORK CITY
 MORRIS AND O'CONNOR, ARCHITECTS
 E. RITZEMA PERRY, ASSOCIATE

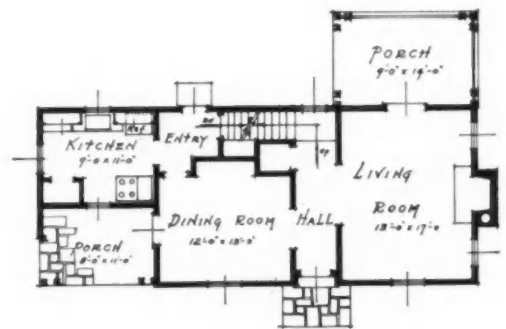
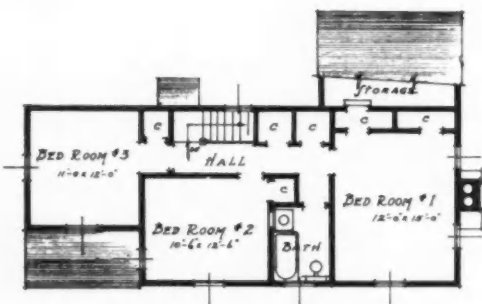


Hewitt

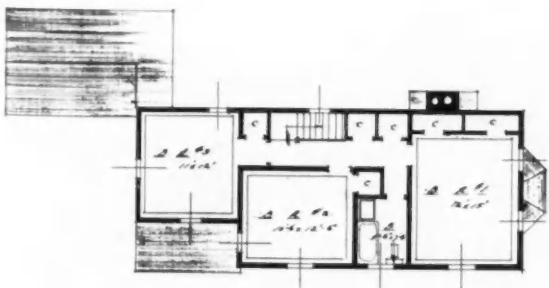
The Lounge



KATHARINE HOUSE, NEW YORK CITY
 MORRIS AND O'CONNOR, ARCHITECTS
 E. RITZEMA PERRY, ASSOCIATE



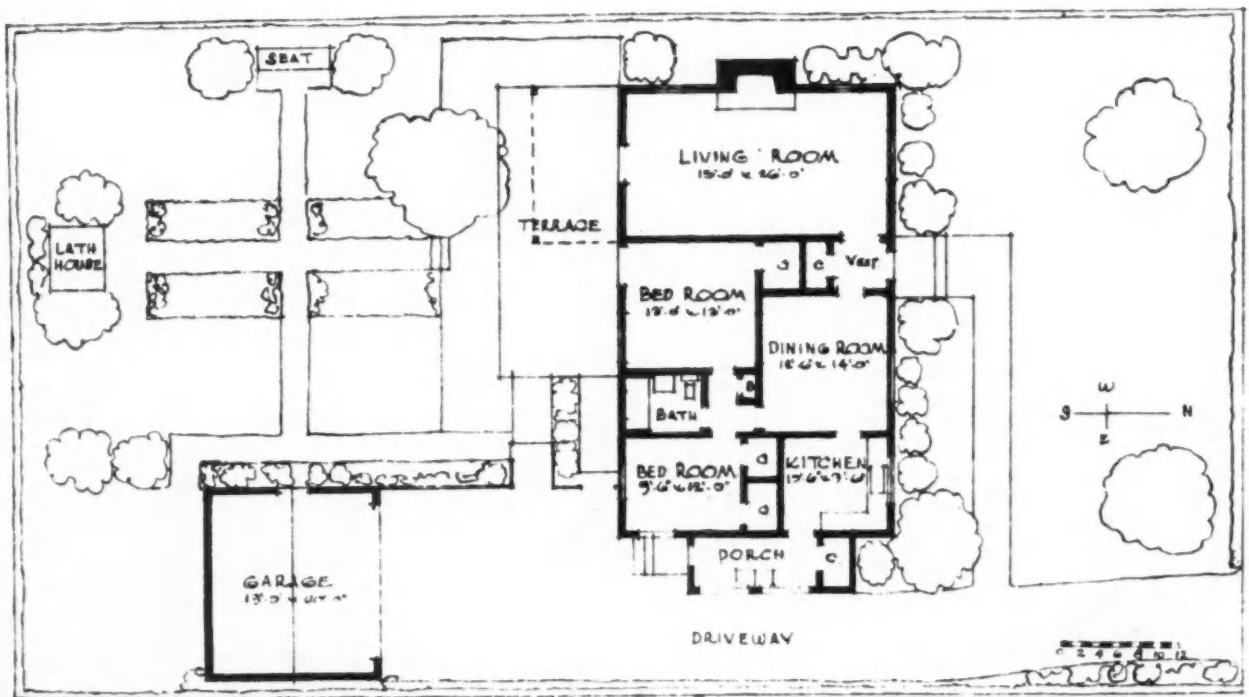
HOUSE OF RAYMOND WALKER
 SHORT HILLS, NEW JERSEY
 KENNETH W. DALZELL, ARCHITECT



HOUSE OF RAYMOND WALKER
 SHORT HILLS, NEW JERSEY
 KENNETH W. DALZELL, ARCHITECT



Haight

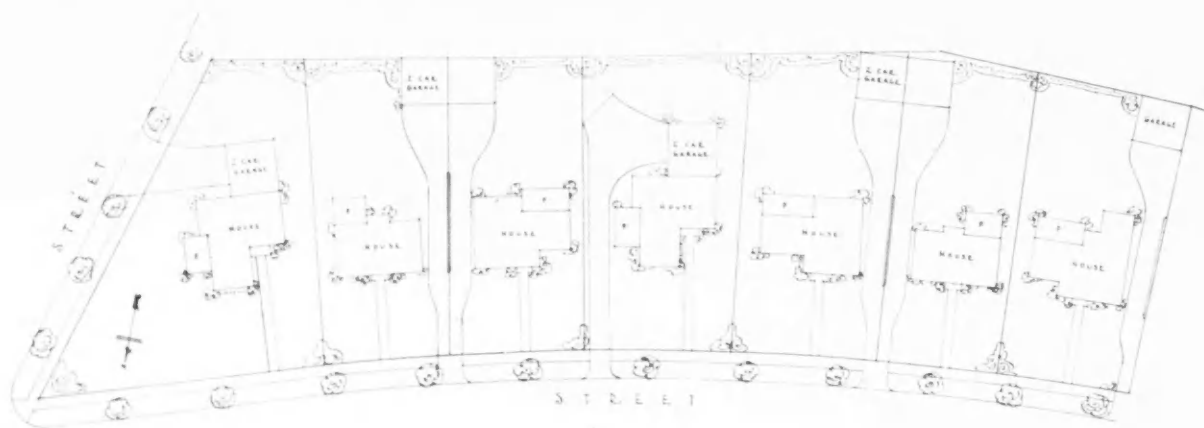


HOUSE OF HERBERT YOUNG
PASADENA, CALIFORNIA
DONALD D. McMURRAY, ARCHITECT

Honor Award



Tyner & Murphy



"COLONIAL VILLAGE" DEVELOPMENT IN KANSAS CITY, MO.

Edward W. Tanner, architect, has designed this group of twelve houses in accordance with the architecture of the early New England Colonies. The three typical plans (illustrated on following pages) are the result of intensive study to develop a north front level lot of minimum width. The lots in no case exceed 60 feet in width.

To avoid monotony in the use of only three plans, variety was attempted in the treatment of each house. In addition to the use of different exterior materials, the plans were reversed from east to west and maids' rooms and garages were added in some instances. There is little repetition in interior decoration.

Each house includes a full basement having a recreation room finished in knotty pine with a wood-burning fireplace; hot-water heat supplied by a gas-fired boiler and concealed radiation; tile to a 4-foot height in all bathrooms and a generous amount of tile in the kitchen.

The zoning ordinances in this particular district provide that dwellings shall cost in excess of \$7,500. These houses comply in all respects by ranging in price from \$12,750 to \$16,750. These figures include the cost of the ground, house, grading, sodding, planting, walk and drive as well as all interior decoration, light fixture equipment and financing. The development was built by the J. C. Nichols Company.



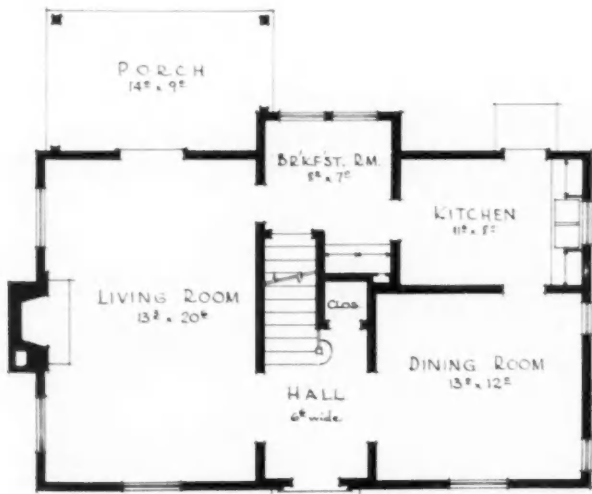
Tyner & Murphy



"COLONIAL VILLAGE" DEVELOPMENT IN KANSAS CITY, MISSOURI
EDWARD W. TANNER, ARCHITECT—J. C. NICHOLS COMPANY



Tyner & Murphy



FIRST FLOOR PLAN



SECOND FLOOR PLAN

"COLONIAL VILLAGE" DEVELOPMENT IN KANSAS CITY, MISSOURI
 EDWARD W. TANNER, ARCHITECT—J. C. NICHOLS COMPANY



Tyner & Murphy



"COLONIAL VILLAGE" DEVELOPMENT IN KANSAS CITY, MISSOURI
 EDWARD W. TANNER, ARCHITECT—J. C. NICHOLS COMPANY



Tyner & Murphy

"COLONIAL VILLAGE" DEVELOPMENT IN KANSAS CITY, MISSOURI
EDWARD W. TANNER, ARCHITECT—J. C. NICHOLS COMPANY



Haskell

Gold Medal—Story-and-a-Half Class

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF MAURICE A. DUNLAVY, BROOKLINE, MASSACHUSETTS
ROYAL BARRY WILLS, ARCHITECT



HOUSE OF MAURICE A. DUNLAVY, BROOKLINE, MASSACHUSETTS
ROYAL BARRY WILLS, ARCHITECT

1932 BETTER HOMES IN AMERICA SMALL HOUSE ARCHITECTURAL COMPETITION

By JAMES FORD

In inaugurating its annual small house architectural competition, Better Homes in America has sought to interest leading architects in the problems of designing and planning small residences, and to create a "consumer demand" for homes of good design. It has hoped also that builders, contractors, realtors and subdividers would have their attention attracted by the quality of designs submitted in these competitions and would recognize the need of employing competent architects to draw the plans for the houses which they build.

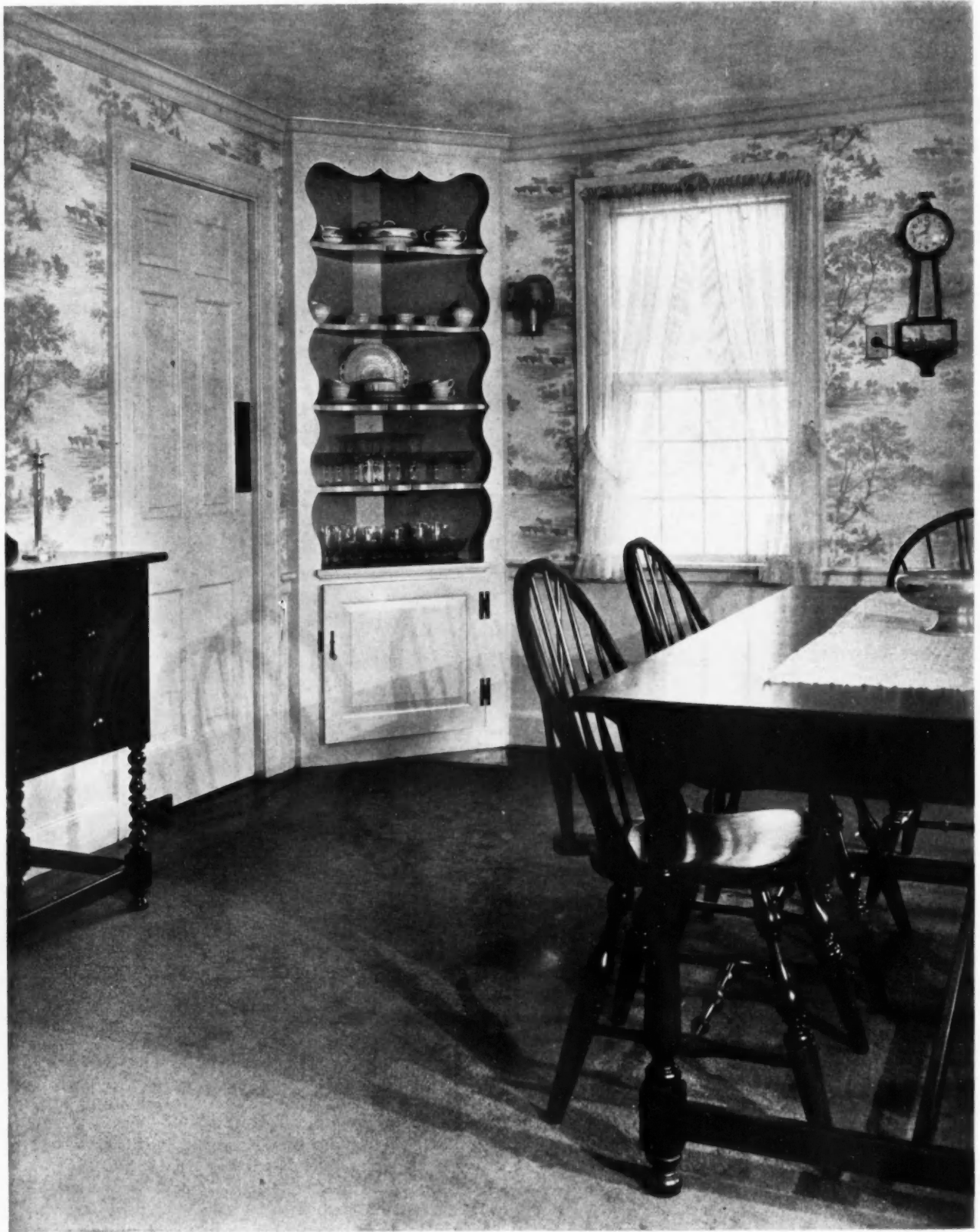
Better Homes in America was organized a decade ago with the help of President Hoover, who was then Secretary of Commerce. President Hoover served first as Chairman of the Board of Directors and still serves as Honorary Chairman. The organization is supported by philanthropic funds and was established primarily to help every American family in the improvement of their own homes. In 1932 it had 9,772 local committees. In many states every county organized Better Homes campaigns. The programs conducted by the local committees included home improvement contests of various types, lectures and discussions, tours to improved homes, and house demonstra-

tions. Dr. Ray Lyman Wilbur, Secretary of the Interior, now serves as Chairman of the national organization. The architectural representative on the Board of Directors is William Stanley Parker.

Three years ago Mrs. William Brown Meloney of New York, Vice-Chairman of the Board, secured the services of Mr. Gutzon Borglum to design gold medals to be awarded at each annual architectural competition. The president of the American Institute of Architects appoints the committee of judges. An unusual feature of the competition is that the awards are made for houses actually constructed within the five years immediately preceding the annual competition.

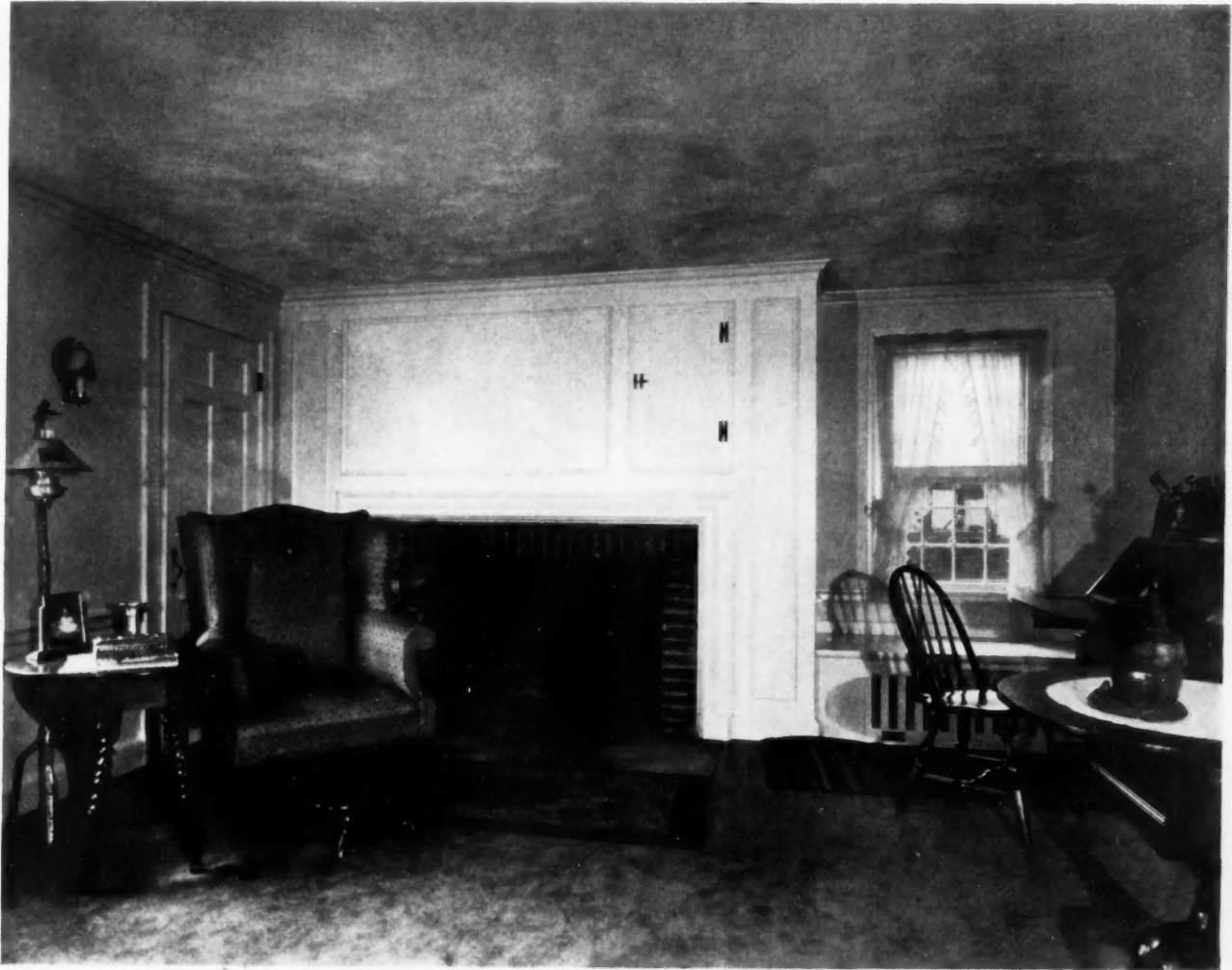
In the 1930 Competition Reginald Johnson of Los Angeles won the Gold Medal. In 1931 Gold Medals were awarded to Dwight James Baum of New York and Winton L. Risley of California. The medals were presented by President Hoover at the White House.

The Committee on Awards for 1932 consisted of Dwight James Baum, Chairman, Edward L. Palmer of Baltimore, Horace W. Peaslee of Washington, Philip N. Stern of Fredericksburg, Virginia, and Waddy B. Wood of Washington.



Haskell

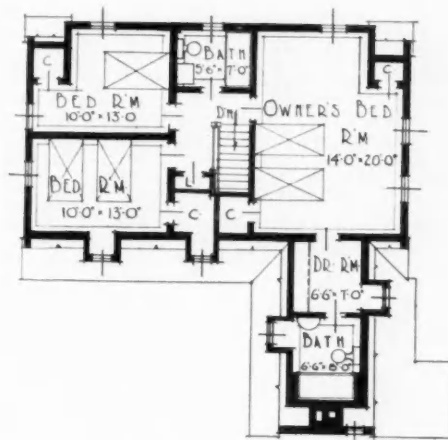
1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF MAURICE A. DUNLAVY, BROOKLINE, MASSACHUSETTS
ROYAL BARRY WILLS, ARCHITECT



Haskell



• FIRST FLOOR PLAN •

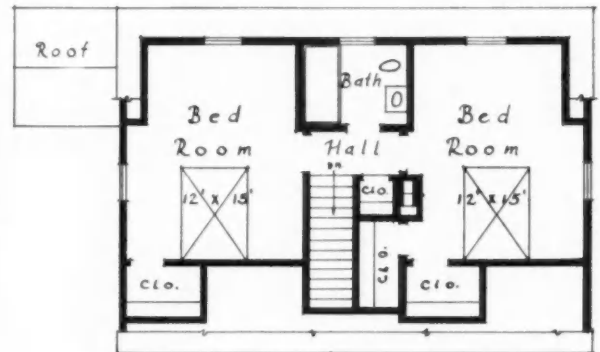
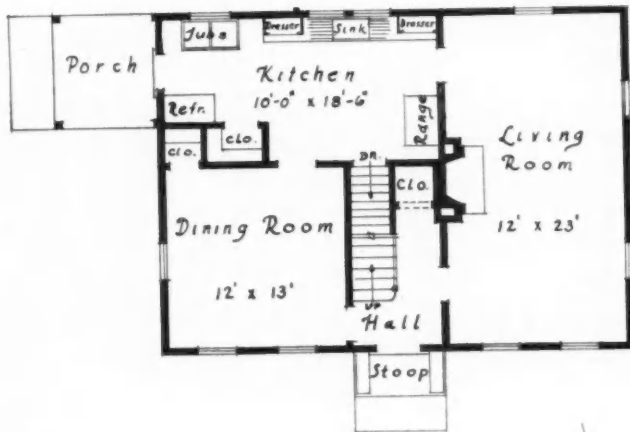


• SECOND FLOOR PLAN •

1932 BETTER HOMES IN AMERICA COMPETITION
 HOUSE OF MAURICE A. DUNLAVY, BROOKLINE, MASSACHUSETTS
 ROYAL BARRY WILLS, ARCHITECT



Dreyer



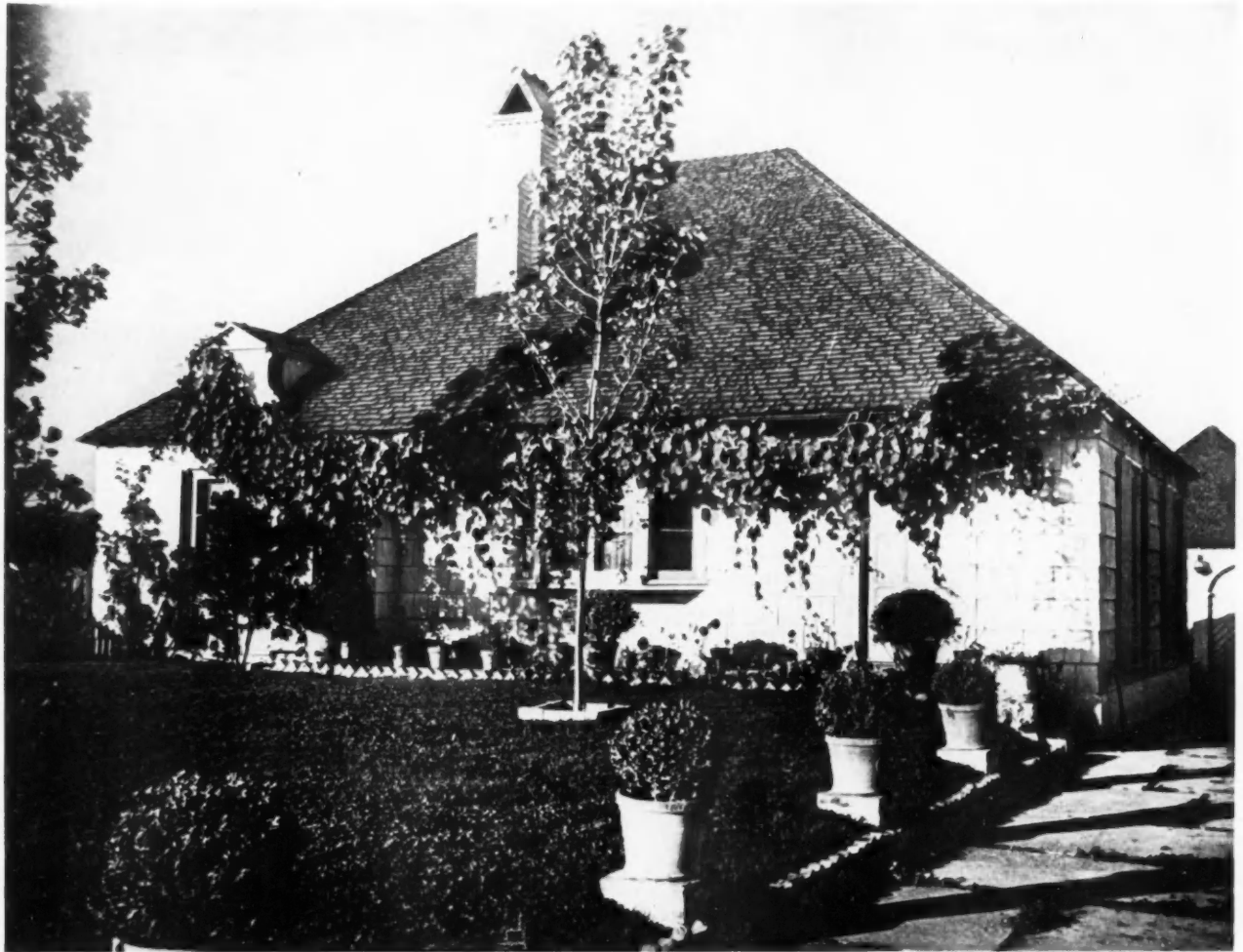
Honorable Mention—Story-and-a-Half Class

1932 BETTER HOMES IN AMERICA COMPETITION
 HOUSE OF JOHN J. FARRELL, DARIEN, CONNECTICUT
 CHARLES S. KEEFE, ARCHITECT

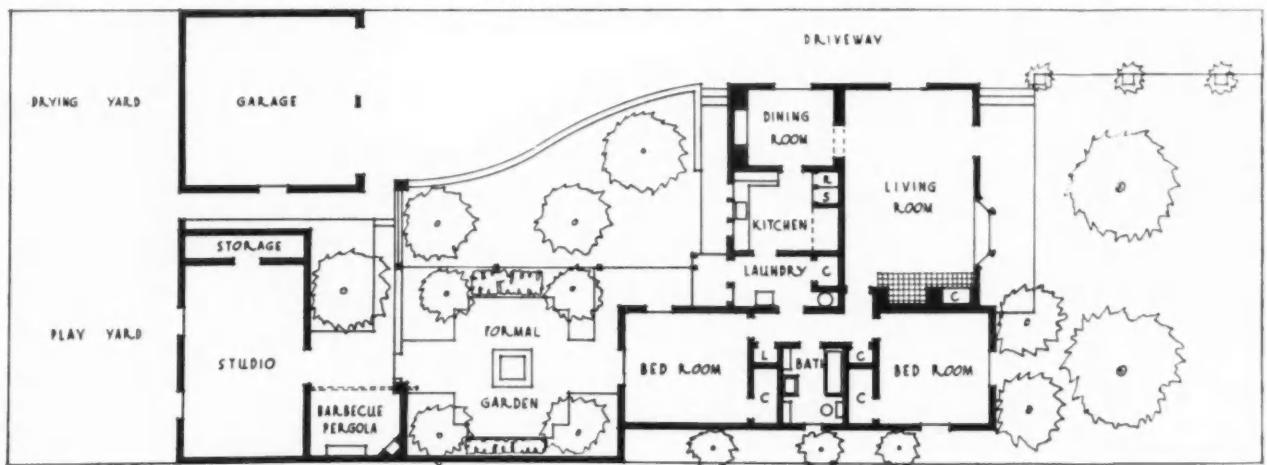


Dreyer

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF JOHN J. FARRELL, DARIEN, CONNECTICUT
CHARLES S. KEEFE, ARCHITECT



Clarke



0 10 20
SCALE IN FEET

Honorable Mention—One-Story Class

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF LELAND F. FULLER, SANTA MONICA, CALIFORNIA
LELAND F. FULLER, ARCHITECT

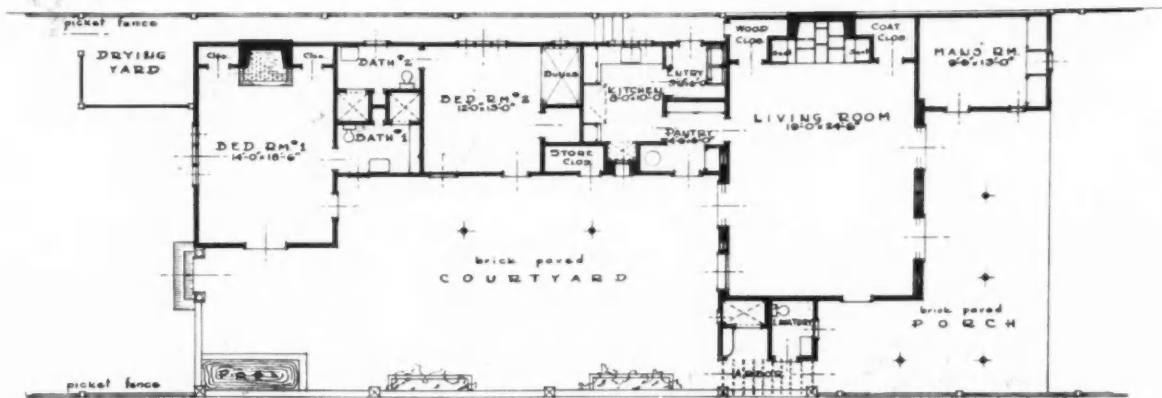
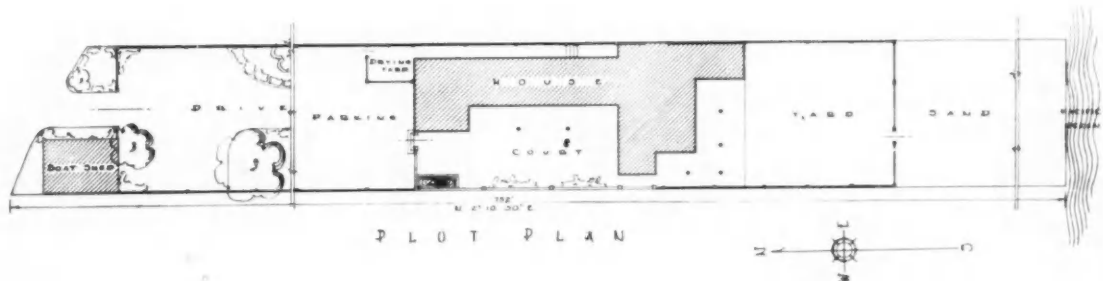


Clarke

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF LELAND F. FULLER, SANTA MONICA, CALIFORNIA
LELAND F. FULLER, ARCHITECT



Clarke



Honorable Mention—One-Story Class

1932 BETTER HOMES IN AMERICA COMPETITION

HOUSE OF DR. SEELEY G. MUDD, SANDYLAND COVE, SANTA BARBARA COUNTY, CALIFORNIA

RALPH C. FLEWELLING, ARCHITECT



Clarke

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF DR. SEELEY G. MUDD, SANDYLAND COVE, SANTA BARBARA COUNTY, CALIFORNIA
RALPH C. FLEWELLING, ARCHITECT



Clarke

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF DR. SEELEY G. MUDD, SANDYLAND COVE, SANTA BARBARA COUNTY, CALIFORNIA
RALPH C. FLEWELLING, ARCHITECT

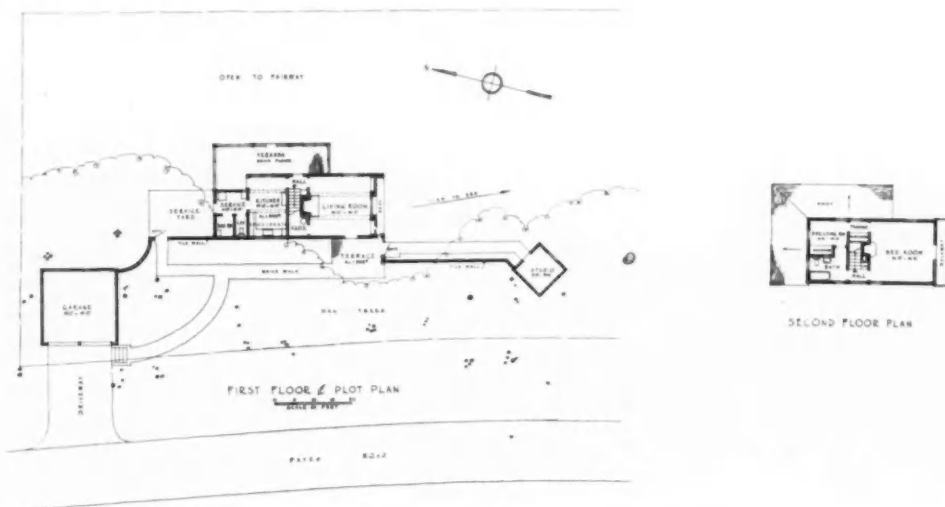


Clarke

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF DR. SEELEY G. MUDD, SANDYLAND COVE, SANTA BARBARA COUNTY, CALIFORNIA
RALPH C. FLEWELLING, ARCHITECT



Sturtevant



Honorable Mention—Two-Story Class

1932 BETTER HOMES IN AMERICA COMPETITION

HOUSE OF DR. ALISTER MACKENZIE, PASATIEMPO ESTATES NEAR SANTA CRUZ, CALIFORNIA

WILLIAM WILSON WURSTER, ARCHITECT

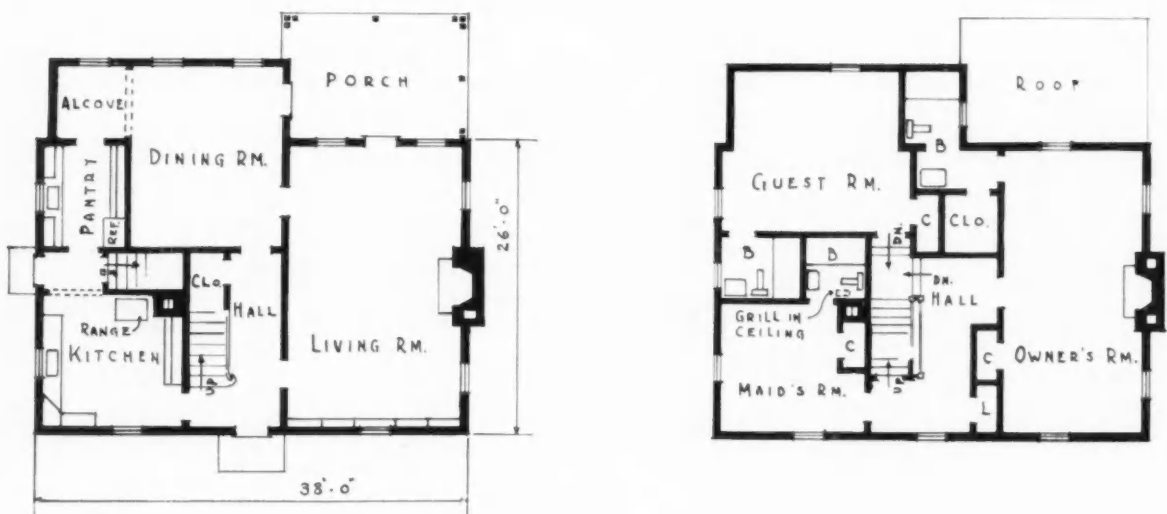


Sturtevant

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF DR. ALISTER MACKENZIE, PASATIEMPO ESTATES NEAR SANTA CRUZ, CALIFORNIA
WILLIAM WILSON WURSTER, ARCHITECT



Van Anda



Honorable Mention—Two-Story Class

1932 BETTER HOMES IN AMERICA COMPETITION
 HOUSE IN NEWTOWN, CONNECTICUT
 WILLIAM WEBB SUNDERLAND, ARCHITECT



Van Anda

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE IN NEWTOWN, CONNECTICUT
WILLIAM WEBB SUNDERLAND, ARCHITECT



Van Anda

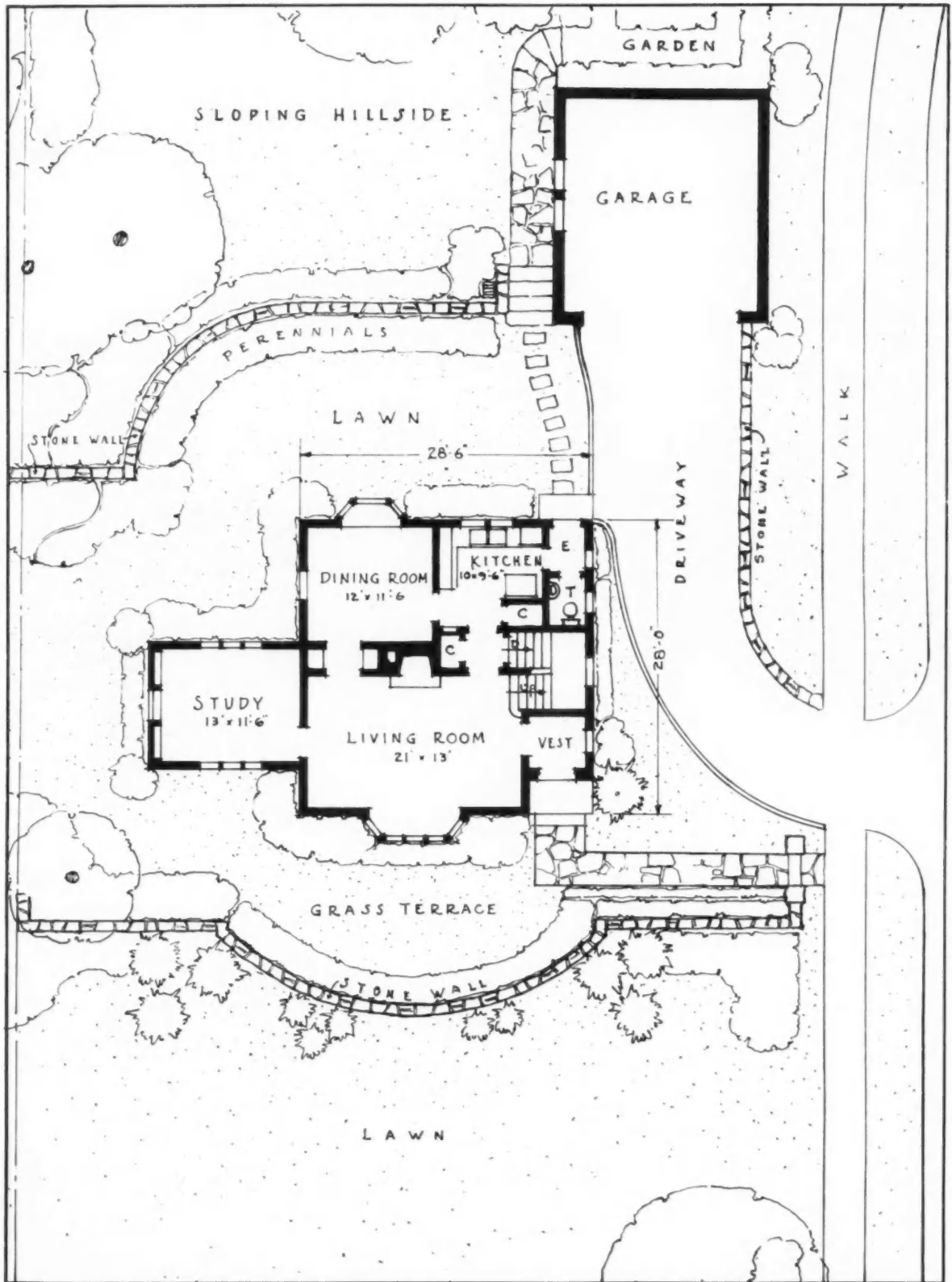
1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE IN NEWTOWN, CONNECTICUT
WILLIAM WEBB SUNDERLAND, ARCHITECT



Kammerdiener

Honorable Mention—Two-Story Class

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF ROLLIN C. CHAPIN, MINNEAPOLIS, MINNESOTA
ROLLIN C. CHAPIN, ARCHITECT



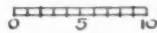
1932 BETTER HOMES IN AMERICA COMPETITION
 HOUSE OF ROLLIN C. CHAPIN, MINNEAPOLIS, MINNESOTA
 ROLLIN C. CHAPIN, ARCHITECT



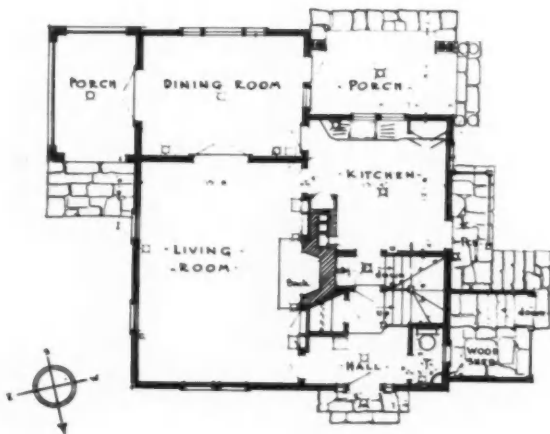
Kammerdiener



SECOND FLOOR PLAN



1932 BETTER HOMES IN AMERICA COMPETITION
 HOUSE OF ROLLIN C. CHAPIN, MINNEAPOLIS, MINNESOTA
 ROLLIN C. CHAPIN, ARCHITECT



FIRST - FLOOR - PLAN -
SCALE
0 5 10 FT



SECOND - FLOOR - PLAN -
SCALE
0 5 10 FT

Honorable Mention—Two-Story Class

1932 BETTER HOMES IN AMERICA COMPETITION
HOUSE OF MISS ANNA VAN NORT, CROTON HEIGHTS, NEW YORK
MISS ELIZABETH COIT, ARCHITECT

A BASIS FOR PROCEDURE IN SLUM CLEARANCE

By ARTHUR C. HOLDEN, Architect

IT is my purpose in this paper to suggest a method of getting at facts which will enable us to use the various special agencies, such as the Reconstruction Finance Corporation together with the older established lending agencies with their sources of credit, and to go ahead with a definite program for the rehabilitation of distressed real estate, in a way that will not bring economic chaos but raise us out of our present condition of impotence and start us on the road to self-respecting recovery.

The Federal government has placed nearly a billion and a half dollars at the disposal of the Reconstruction Finance Corporation for loans for low-rental housing and for the rehabilitation of blighted areas. These credits should long ago have been put to use. One of the chief reasons for the delay lies in the absence of a satisfactory method of procedure.

The Census District as a Unit of Study for Allocation of Loans

It is my belief that an advisory board made up of architects and other qualified housing experts should be immediately requested to map such eligible "improvement areas" as are proposed by local authorities. Data should be requested of the local districts adequate to permit the relative needs to be classified properly. The board should make recommendations as to the validity of the need within each area and draw up a tentative schedule for the distribution of available funds. These funds should be assigned by district rather than by project. For convenience of administration the "improvement areas" should be subdivided into districts, and tracts. The latter should coincide with census tracts because of the value of the economic data available. No district should be permitted to qualify for a loan unless the improvement proposed can be shown to be an integral part of a definite district plan of development. The terms of eligibility should be clearly stipulated. The organic relationship between the larger district and its subdivisions or tracts should be recognized. Care should be used in the apportionment of funds so that an award may be made to at least one census tract within each district. Definite time limits should be set within which to qualify, followed by an immediate reassignment of funds not called for.

Interests to Be Reconciled

For the sake of clarity let us assume that we are considering an assignment of \$1,000,000 which has been made to a census tract comprising eight city blocks. The number of individual plot owners in an average city block runs between 40 and 80. Multiply this by eight and we are confronted by 320 or more individual owners, each anxious to

receive the largest possible slice of the \$1,000,000 credit which has been assigned for the rehabilitation work of the whole tract. Take into consideration also the usual number of mortgage holders involved and we find that there are in the eight blocks at least 600 conflicting separate interests. The hopelessness of the task of reconciling these interests has been a deterrent to all programs of rehabilitation. Most "practical" men have refused to face this problem or to attempt its solution. They have been misled by two assumptions. On the one hand, they have assumed that they can "buy out" present owners for a price; on the other, they have assumed that the price would be too high, and they have accordingly gone out to look for "vacant" land.

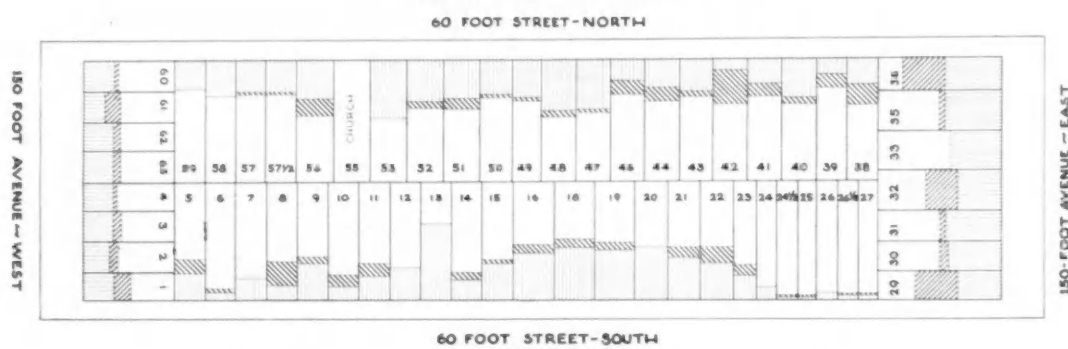
Let us take the next step in the accepted method of approach. When asked to cooperate, each of the forty or more owners in a block will declare himself willing. Further examination will reveal that this willingness means that he expects to sell property for what he considers the right price. What does this mean? The average city lot contains 2500 square feet, more or less. Very few city lots, with what are called improvements upon them, can be bought for \$2,500 or at the rate of \$1 per square foot. Assuming, however, that the purchase can be made at this price it would cost just \$800,000 to acquire 320 lots. Obviously, this would make too large a hole in the allotted \$1,000,000 and would leave too small a proportion to be applied to rehabilitation. The alternative is to purchase less property. Let us assume that \$200,000 is allotted for land and the balance for construction. This will buy 2 blocks comprising 80 lots at \$1 per square foot, or at \$2 per square foot, which is nearer to reality, one block (200 ft. by 50 ft.).

Under existing legislation the Reconstruction Finance Corporation might make such a loan provided a reasonable cash equity were put up by a group willing to take stock in one of the housing corporations provided for under a state or local housing law. The N. Y. State law has been accepted as the pattern. One of the chief stumbling blocks heretofore has been the difficulty of attracting equity money. Assume, however, that it can be overcome, there are other difficulties that confront us. How are the owners and mortgagees of the other seven blocks of the tract in question going to take the improvement which is projected in their neighborhood? Especially, how are they going to take the low interest rate which is essential and the limitation of taxes to land value only, even if it is admittedly good public policy? Five years ago they would have welcomed the improvement and they would have considered the governmental incentives warranted and reasonable. Why? Be-

ECONOMIC ANALYSIS OF A CITY BLOCK

DIAGRAM N^o 1

Present Contract Income Shown by Light Shading
Vacancies at Present Market Rate by Dark Shading
Arrears not Indicated



Prepared thru the Architects Emergency Committee
For the Land Utilization Committee of the New York Building Congress—December 1932
Drawn by Lawrence Norton
& Oscar Fisher Under direction of Arthur C. Holden

cause five years ago there was a sales market for real estate. An improvement then meant the possibility of profitable sales turnover for property in the immediately adjoining neighborhood.

Since the New York State Housing Law was drafted the situation has changed materially. Today a housing project in the hands of alien owners set down in a depreciated district means competition which, in the majority of cases, it will be a little short of impossible for surrounding owners to meet. I have deliberately used the words "alien owners," for if the surrounding owners can be given an interest in the new project, if the new ownership is not entirely alien, then the complaints about inequalities in taxation and the undercutting of the interest rate by government credits can be answered and these advantages utilized in a manner fair and equitable. Our task is to find a method of procedure which will appeal to the common interests of the 600 parties involved.

I am under no illusions as to limitations of what is frequently called "human nature." I shall, notwithstanding, attempt to amplify and clarify the suggestions advanced by me in *THE ARCHITECTURAL RECORD* for February a year ago, for it is my firm belief that along these lines lies our best hope for a progressive policy of slum clearance.

Recognized Purposes of Housing Credits

There were two underlying motives in the setting up of housing credits. The primary motive was the creation of work to relieve the present emergency. The secondary motive was to do away with slums. If possible every dollar of the Reconstruction Finance Corporation loans should be applied to creating work. This means that every

dollar spent for land leaves just so much less to be applied to rehabilitation. Furthermore, low rents cannot be provided, if capital must be paid out for expensive land. It is not to be wondered at, therefore, that the earliest proposals, in order to keep land cost at a minimum, should have been put forward for housing projects on new and undeveloped land. That is one way to get around the high land values which have been left to us as the legacy of congestion. While it may seem "practical," it is at best an indirect method of slum clearance. It leaves the slum where it stands. In theory it draws the population away, exposing the slum to further economic decay. In practice it draws population away from other districts because it offers improved facilities for less money, while the slum continues to retain a large portion of its population merely because of its cheapness.

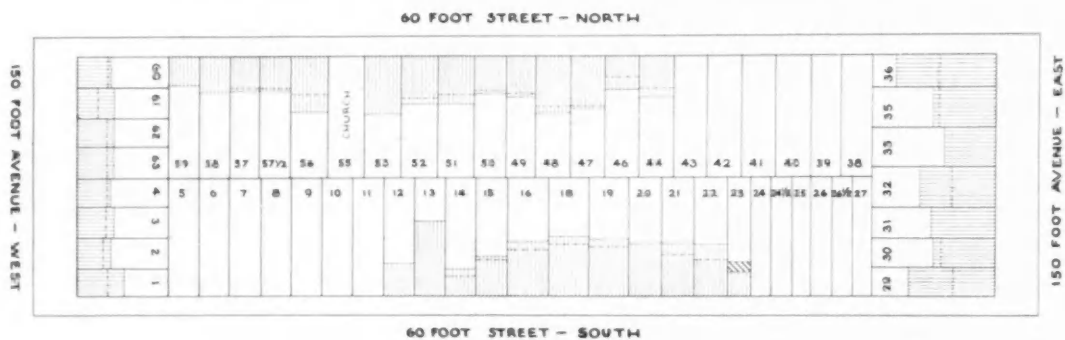
It is my belief that both purposes desired by the Reconstruction Finance Corporation, namely the providing of work and slum clearance, can be served by apportioning funds for purposes of rehabilitation within definitely mapped areas. Credits and other forms of government aid should only be used when property owners cooperate to achieve the social end sought. This means in brief "take it or leave it." If the district can cooperate then it will definitely get credits for its use, if not the credits will be placed elsewhere.

It remains to be demonstrated that a method can be worked out for the administration of property within an improvement area, so that unfair advantages will not accrue to certain owners within the subdivisions to which credit assignments are made while at the same time harm is done to the interests of other owners.

ECONOMIC ANALYSIS OF A CITY BLOCK

DIAGRAM Nº 2

Rearrangement, Concentrating Occupancies in Most Desirable Properties
Vacated Properties to be Demolished Shown Unshaded



Prepared thru the Architects Emergency Committee
For the Land Utilization Committee of the New York Building Congress - December 1932
Drawn by Fritz Kruger
H. Mohr Under direction of Arthur C. Holden

Benefit of New Credits Should Be Proportionate to Present Interests Involved

No one can object to the use of government credits providing the benefits of these credits are distributed equitably among the property owners who are affected.

Diagram I shows a typical city block containing 60 lots of various sizes. It happens to be an actual block located in that section of New York City known as Harlem. This is one of the eight blocks in a census tract. I have laid off on the diagram at the graphical scale $\frac{1}{8}'' = \$50$ the recorded income upon each piece of property for the month of December, 1932. The light shading represents rents actually received. The dark shading represents rents lost because of vacancies. On Diagram II, I have concentrated the vacancies of this single block upon what appear to be the least desirable properties. I am assuming that if we set aside a very small sum for painting and for plumbing repairs we can put the better buildings into such shape that the actual tenants in the less desirable buildings would be glad to move into the apartments which are vacant in the better buildings. Hence there will be no change in the actual income of the block although we have succeeded in clearing approximately 22 per cent of its area. Each of the original parties at interest will continue to receive the same proportionate share of the block income.

It will now be possible for us to demolish the undesirable buildings indicated by the concentrated vacancies on Diagram II and with the new government credits proceed to the erection of modern buildings of a type to command a better rental and yet not out of range of the possibilities of the

neighborhood. It should be apparent that by such a procedure it is possible to clear depreciated properties for slum rehabilitation without expending any part of the available government credit for the acquisition of land.

Adjustment of Mortgage Interest Within Designated Improvement Areas

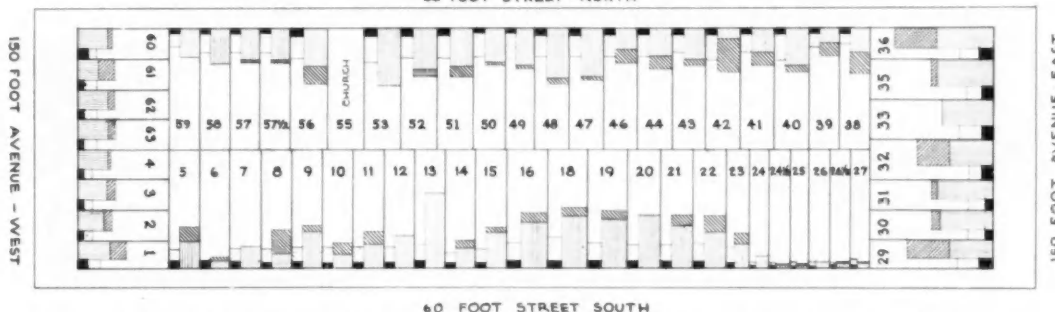
A word should be said as to the adjustment of technical difficulties. I have referred to the fact that in the 8 blocks comprising this Improvement Tract there are approximately 600 separate interests involved. Among these we have the prior mortgage interests, secondary mortgage interests, and the owners of equities. However, before any income may be enjoyed by either mortgagees or owners certain charges against the property must be met. These are taxes, insurance, administration, and upkeep. I am well aware that when incomes are depleted some of these charges are not met. Upkeep is frequently neglected to a shocking extent. Nevertheless, I have indicated upon Diagram III by a graphical scale the proportion of total amount that either is or ought to be assigned to take care of the above charges. This is placed as a narrow debit graph alongside of the wider income graph. The balance, where such exists, is indicated by the distance between the end of the narrow graph and the losses due to vacancies. This balance is all that may be distributed between mortgagees and owners and applied toward the retirement of the mortgages.

Now a mortgage contract by its very nature sets up a special relationship. Technically a mortgage is the transfer of real property as the security for a debt, and a fixed amount of interest is due to be

ECONOMIC ANALYSIS OF A CITY BLOCK

DIAGRAM Nº 3

Narrow Strip in Each Lot Indicates Monthly Outgo;
Taxes Shown in Black, Operating Expenses in Dotted Shading
Wide Strip Indicates Present Contract Income by Light Shading
Vacancies at Present Market Rate Shown by Dark Shading



60 FOOT STREET SOUTH

Gross Contract Income for Block = \$19,551.* Total Taxes \$3,953. Total Operating \$9,330.
Balance After Taxes and Operating Costs Available for Mortgages, Interest,
Amortization and Owners Profit \$6,268.
Arrears Not Indicated —

Scale Reads Front to Rear in Linear Units of \$50 Per Month of Income

Prepared thru the Architects Emergency Committee
For the Land Utilization Committee of the New York Building Congress - December 1932
Drawn by G. Casazza
R.C. White Under direction of Arthur C. Holden

paid until the debt is refunded. In another sense, however, a mortgage is a preferred partnership. The mortgagee purchases as an investment a prior interest in the income of real property. He cannot get out of the property more than it will yield, even though he can compel the owner to make good from other resources. This is far more obvious today than it was before the collapse of the active sales market for real estate. It is therefore to the interest of the mortgagee to increase the yield of the property in order to insure the stability of his own income, even if a temporary concession on the interest rate and on amortization is necessary. Our present mortgage procedure is in great need of liberalizing legislation in order to bring it up-to-date. If the yield of the property is insufficient to meet mortgage charges and the owner has lost his other resources, the mortgagee technically has no redress except to take the property on foreclosure and hope for better times. As a matter of practice he hesitates to take over property which may cause him expense for maintenance and taxes, therefore he frequently enters into new agreements with the mortgagor granting temporary reductions in the obligation. For this reason it would be to the interest of the mortgagees in blighted areas to make temporary concessions if by so doing they could be sure that government credits would be used in their entirety for the improvement of the properties upon which the security of their investment depend. We are in need at the present time of additional legal sanctions to permit trustees and other investors in mortgages to negotiate special revisions of present agreements in lieu of resort to foreclosure proceedings. It should

be possible to draw such legislation governing adjustment procedure in general terms which will permit reasonable freedom of action and yet prevent the inequitable exploitation of either party.

The "Ratio" as a Basis of Appraisal

Obviously it is most important when there are a great number of conflicting interests to be considered, that any adjustments which are to be made should take into consideration the maintenance of equitable relationships between the various parties. In the past the relationship established between mortgagee and owner has been the result of an appraisal made prior to the writing of the mortgage contract. Mortgagees are accustomed to extend credits varying in amount from 40% to 60% of appraisals for which they themselves are responsible. Once this ratio is translated into dollar values however, it becomes incontrovertibly fixed as a dollar obligation, irrespective of changes in the value of purchasing power dollars or changes in value of the property itself. At this point it is not my purpose to discuss the inflexibility of the mortgage. I prefer to emphasize the fact that the original dollar value is set on the basis of a ratio. Wherever participating claims are set up, the ratio is the fairest means for expressing the relative value of the shares. All corporate stock is issued on the basis of a ratio. Stockholders participate in various degrees of ownership by holding different numbers of shares.

If the 600 individual property interests in the 8-block Tract which we are considering held equal shares, namely 1/600 of the original property, each would be entitled to 1/600 of the net benefit from

the new credits. Of course none of the shares of these participating owners are exactly equal. Their correct relationship can only be determined by exact appraisal. I do not mean appraisal in dollar values based on the usual method of arriving at a market or sale price. What I advocate is detailed economic analysis of the property wherein all of the factors which govern value will be expressed in terms of percentages, that is to say as a ratio of the individual property to total for the Tract. When we have obtained a series of representative ratios, we may, by properly weighting them, work out the resultants and thus express the values of the individual properties in terms of fractional ownership in the Tract. Each owner may then be given an Equity Trust Certificate which will establish his participation in the slum rehabilitation project. Thereafter anything that is done to improve the property will be enjoyed by each of the fractional owners in direct proportion to his percentage of ownership. There can be no complaint that low interest rates on government credits or limitation of taxes to land value only will set up inequitable advantages in the neighborhood because all persons interested will receive their proportionate share of benefit.

Conclusions

Where have we arrived? What is the import of the suggestions which I am putting forward? They sound new and strange because we have not been accustomed to thinking of units as large as eight-block census tracts as an organic entity. This conception of the census tract as the entity for improvement instead of an individual plot is the chief innovation in the proposal. I don't propose to accomplish the impossible by trying to rebuild the entire eight blocks at one time. What I propose to do is just what any corporate group of stockholders would do in the rehabilitation of a single building. First of all they recognize that each owns a share in the entire building, second they recognize that their common welfare depends upon the efficiency and prosperity of the whole building and that they can only keep it prosperous by doing a little to it continuously and progressively.

I am well aware that in an eight-block census tract, each of the 320 equity holders hangs with tenacious pride to the fact that he is lord and master within the boundaries of his 25-foot lot. This is a laudible sentiment irrespective of what the 300 mortgagees may think about it. It is time however for the 320 owners to wake up and face the facts lest their sentiments fade into illusions. Group ownership can conserve the fading interests of despairing property owners. They have only to grasp the conception of the thing, to make certain that the necessary details will be worked out. It is possible to be absolutely fair. Proportionate shares can be determined by economic analysis. Where groups of owners put themselves into such a position it will be possible for them to utilize the great credits now available for housing with-

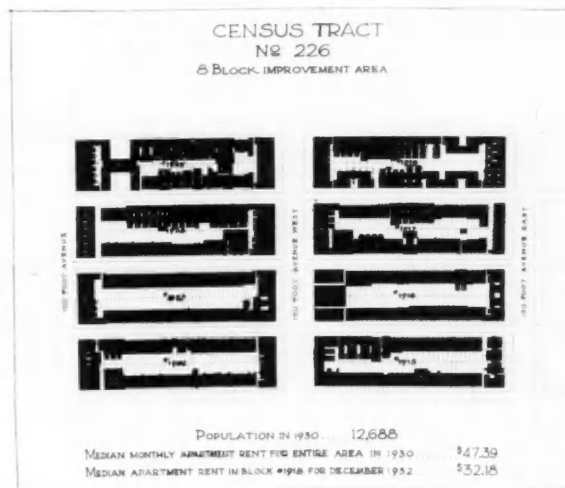


DIAGRAM IV

The new units shown in block No. 1918 are designed to occupy the space which is shown cleared on diagram II. Instead of separating the units in order to place them "exactly" upon the location of the least economical present buildings, the new buildings are shown grouped near the east end of the block in the interest of a coherent plan of future development.

The five new Z-plan units contain a total of 420 rooms, and would cost today, including carrying charges, \$325,435. Therefore the erection of these new units will increase the carrying costs of the block per month as follows:

LAND—owned already by the group of owners in the tract	0
BUILDINGS—interest @ 4% on entire cost; monthly charge of	\$1,084
Amortization on same @ 2%; monthly charge	542
OPERATING EXPENSES—including insurance, administration, fuel, etc., @ \$4 per room; monthly charge	1,680
Total additional monthly costs	\$3,306

The 420 additional rooms would, after deducting the above expenses, bring in the following additional monthly incomes dependent upon the rents charged for rooms:

\$11 per room per month leaves net of	\$1,304
\$12 per room per month leaves net of	1,724
\$12.50 per room per month leaves net of	1,934

From Diagram III we see that from the present operation of the block \$6,268 is available monthly to pay interest and amortization charges on present mortgages and profit on equities, after deducting taxes and operating expenses. At the same average this would leave \$50,000 for the 8 blocks.

If \$1,000,000 of R. F. C. money is put directly into new housing, 15 units with 1,260 rooms could be built. At \$11 per room per month this would leave, after charges on new capital and operating costs, a balance of \$3,900 monthly. In other words, \$1,000,000 of new capital, if applied directly to construction, will, after earning its own way, add 8% to earnings on present capital.

out fear of disastrous dislocations in real estate.

It should be known that the diagrams published herewith have been made possible by the Architect's Emergency Committee. The diagrams are a part of the studies undertaken by the Committee on Land Utilization of the New York Building Congress. It should be made clear, however, that the Congress does not advocate any specific policy. All suggestions in regard to group action by owners and mortgagees are made solely upon my own responsibility.

OUTLOOK FOR RESIDENTIAL BUILDING

By L. SETH SCHNITMAN

With the possible exception of 1918, a year when requirements of war surmounted all other activity, residential building construction during 1932 was probably lower than in any year since the beginning of the present century. For the 37 states east of the Rocky Mountains residential contracts awarded during 1932 totaled \$280,067,900. This figure represented a decline of almost 66 per cent from 1931 and was only 10 per cent of the dollar volume reported during the peak year, 1928. The loss in the quantitative volume of residential building was not nearly so great if allowance be made for the drastic decline in construction costs during the interim.

Normally residential building represents between 40 and 50 per cent of our total annual construction bill. During 1932, however, residential work accounted for only about 21 per cent of all construction that was undertaken. Before any genuine sustained upward movement in construction may be expected residential building must, it seems, begin to regain its position of relative primary importance. It is not likely that this can be done during 1933; nor is it at the same time likely that the proportion of residential work to total construction in 1933 will fall materially below the ratio of 21 shown for last year.

Analysis of the residential contract record for 1932 shows that out of a total of \$280,067,900 for the 37 eastern states, \$233,336,700 went into 1- and 2-family houses while the remaining \$26,731,200 went for apartments, hotels, and dormitories. During the peak construction year for small house building, 1928, contracts for 1- and 2-family houses aggregated \$1,409,052,600 in the 37 states east of the Rockies while awards for apartments and hotels during the peak year for these types, in this case 1925, totaled \$1,447,588,700. From these data two important points are apparent: (1) that at their respective peaks apartment and hotel construction attained a higher contract level than did small houses and (2) that in 1932 small house construction receded considerably less from its peak than did apartments and hotel construction which at this writing is almost at the vanishing point.

Money cannot be expected logically to flow into enterprises where the speculative hazards are indefinable. What then is the prospect for residential building in the light of the imponderables of the times?

Residential building during 1933 may quite possibly not attain the dollar total volume reported in 1932. The progressive acceleration in the annual rate of decline in residential building since 1928

appears, however, finally to have been broken. This circumstance is a condition precedent to revival. Though it is becoming increasingly doubtful whether residential building recovery can make headway in the current year, it is at the same time quite probable that the contract record for 1933 will mark the low point of what until now has appeared as a bottomless pit.

The processes of economic readjustment have been accelerated and in this factor is to be found the most hopeful signs of the cataclysmic period through which we are passing. Real estate adjustments, general debt moratoria—to say nothing of present banking difficulties—are but transitory and though they have brought with them many hardships, afford a reasonable basis for hope for 1934 and beyond.

In the meantime what residential building will occur in 1933 will be largely of the necessity types to meet real demands wherever they may exist. Small house construction will probably fare relatively better than apartments and hotels, though in this latter category a sizable amount of modernization work can reasonably be expected to swell the otherwise negligible indicated total of new construction.

Whatever the residential building contract total for the current year may turn out to be it will be definitely below minimum requirements, with due regard for fire losses, the needs arising out of population increases, and abandonments of outmoded, hazardous dwelling units.

In addition, the economic and sociological studies of housing conditions, community needs, city planning and the possibilities for architectural activity undertaken in such centers as Pittsburgh, Cleveland, Boston, Richmond, Providence, Kansas City and Detroit give large promise for the future of residential building.

It is probably too soon to expect any important nearby impetus to residential building to result from the creditable researches which are now in progress throughout the country. Nonetheless the current crisis in the banking and financial world may, it seems, be counted upon to focus attention on methodic plans for the rehabilitation and clearance of slum areas, wherever they may exist, as one of the many means of restoring balance to our paralytic business and industrial mechanisms.

All in all the present low level of residential building seems to take on many of the aspects of recuperative power, which when once started should provide a logical basis for a firm and genuine revival in construction activity generally.

SERVICING APARTMENTS FOR LOWER RENTALS

By HENRY WRIGHT, Architect

Although building costs are lower, maintenance costs have not declined proportionally. Mr. Wright compares European and American practice in central plant versus individual unit heating, and concludes that by considering maintenance items it may be possible to offer lower rentals and yet allow larger expenditures for the original construction. An itemized procedure directed toward this objective is proposed.

The earlier apartment house articles of mine which have appeared in *The Record* were not intended to constitute a connected series. They presented, rather, such aspects of planning or of community relationships as seemed of current interest or were suggested by some particular experience at the time. However, one may trace in them an evolutionary development of the use of analytical processes in connection with architectural design. The development may be followed in the articles of March, 1929, December, 1931, December, 1932, and March, 1932.

It is gratifying to know that these articles have been noted by technicians both at home and abroad, particularly in Germany. I am told that plates from the 1929 article were enlarged for exhibit at an exposition of that year in Breslau, and a translation of the full December, 1931, article appeared in *Moderne Bauformen* of June, 1932. Both the intent and limitations of these articles seem to have been generally appreciated—they laid no claim to completeness or finality, but attempted to place before the architect the principles underlying an analytical approach by which he might advance more safely and directly towards effective and economic planning of moderate-cost housing. The need for a scientific procedure was never more urgent than at present.

Extensive studies of plan efficiency, of circulation and household arrangements within the apartment unit, have been made by German architects, particularly Dr. Alexander Klein of Berlin. However, I do not find in recent German work any greater consciousness of the important relationship which exists between the factors of building design and those of depreciation and maintenance than I find in our own. It is doubtless true that the demand has been, for the most part, to produce the best possible space within the smallest original capital costs, while the opportunity to finance the best ultimate product where first cost would be increased has, as with us, been limited. This has definitely retarded progress on the part of the architect in developing the relationship between "first costs" and "use costs" which must underlie a permanently sound solution of our housing problem.

It is for this reason that I am in the present article undertaking to bring forward a step further the analysis of last year in which this basic relationship was studied, with particular reference to the feasibility of taller and lower-storied buildings

within the range of "walk-up" apartment and group dwellings.* The inconclusive indications of that analysis that certain new forms of apartmentized dwellings in three-story structures, without common halls or other janitor services (except heat) might compete favorably with four-story apartments on land up to \$5 have been subsequently strengthened. New evidence has been compiled by preparing plans and taking bids on a unit similar to that shown on page 155 of the March, 1932, issue, and by investigating the possible use of automatic gas-fired individual hot-water heating for small apartments.

A thorough consideration of the low-cost apartment is, in my judgment, one of the most important matters in connection with future housing for the wage-earning groups. For them well developed communities of detached single-family houses will be no more possible in the future than in the past. On the other hand, the large apartment is neither desirable nor necessary, especially under present more reasonable land costs combined with a full development of the possibilities of lower than four-story buildings which eliminate unnecessary common services. The immediate importance of this matter seems to warrant its being carried on to greater length, both analytically and as to its community application.

We may take as an example the recent experience of a housing company which has built successive apartment units, one just before the beginning of the depression and two in subsequent years, and has succeeded, doubtless through more efficient planning as well as lower cost of labor and materials, in reducing the first cost of apartments considerably more than 20 per cent, although retaining similar design and improving the equipment. However, maintenance costs have remained practically stationary. This means that attention has been centered only on building cost reduction, although reduction of maintenance cost has become of proportionately greater importance as the capital costs of the building have been reduced. Without asserting it as a fact, it is at least reasonable to suppose that a more thorough consideration of use costs throughout the process of design might have suggested a construction in which some added building cost would have been more than offset by reduced operating cost. (See Plate "A," which is an assumed typical, not actual,

*A "Group Dwelling" is one with more than two suites, all of which are accessible without common halls or stairs.

representation of the two methods of procedure.)

In the limited observance of recent German practice which has been possible at the time of writing, I have a distinct impression that here, as with us, greater progress has been made in planning than in adjustment of the factors which enter into building maintenance as well as into the family budget, in fuel and other incidentals. German experience in planning large related communities of group and multi-family dwellings during the active building years of 1925-1931 reached very extensive proportions and the results provide a wide range of characteristic building types, which seem in the more recent years to have trended toward the three story, two apartments per stair, standard for urban housing. Their most striking phases of evolutionary development have, however, taken place in regard to building exposure and grouping rather than in regard to building plans, and it is difficult even now to find any clear-cut conclusions or unanimity of opinion as to the relative merits of dwellings of various types or numbers of stories. Especially in recent work, the excesses or oddities of the modern mode have been considerably more restrained than in the earlier period, and except for adjustment to an entire lack of window reveal, the outward form of such work strikes one as both satisfactory and appropriate. Inwardly, however, although the plans are for the most part orderly, there are many features which leave one in doubt as to the advance or modernization of German methods, or the attainment of a fully balanced handling of all the factors involved.

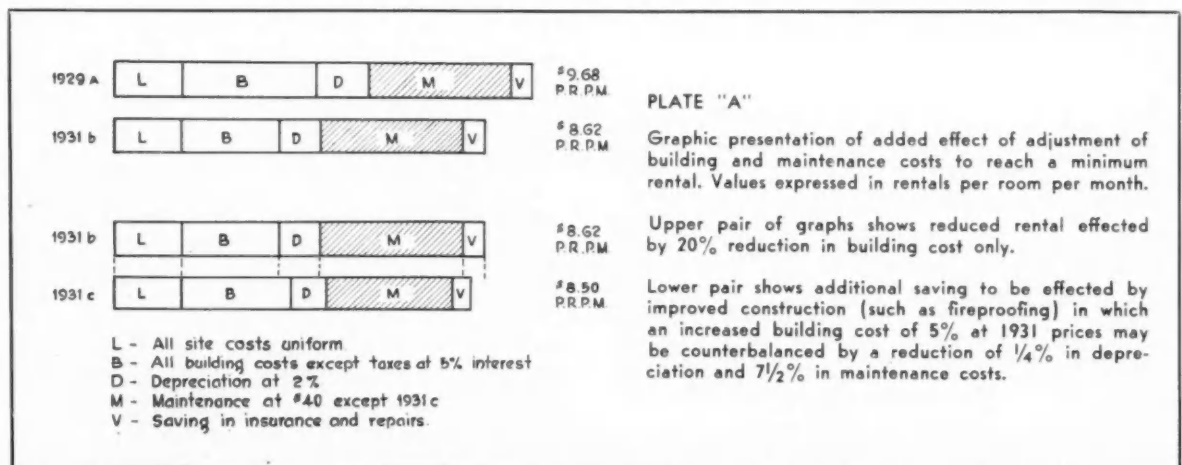
The retention of individually applied heat in some of the nicest recent buildings devoted to otherwise efficient small apartments would seem to be questionable. Each four-room apartment thus requires three stoves, and each double four-room unit four chimneys, or three chimneys and two halves, as well as such heat as is produced in heating hot water and cooking in bathroom and kitchen. (Incidentally, a specially efficient quick hot-water heater is used and this is located in the bathroom, thus avoiding overheating the kitchen.) It would seem possible that the cost of two stoves and two half chimneys for each apartment of this

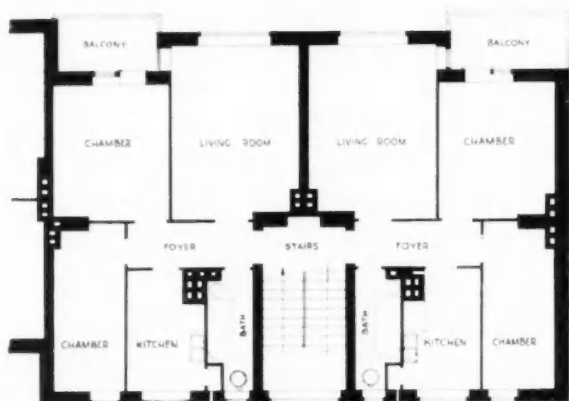
size, not to mention the space occupied including the cellar coal storage, might be replaced by some form of central or automatic heat if all the combined first costs and use costs were considered. The inconvenience of stoves in the apartment is, however, mitigated by the general use of clean coal briquettes and the very attractive and inconspicuous square glazed tile stoves, such as one would like to ship home for the farmhouse. (See plan Plate "B"—B. Tout, architect.)

An interview with the manager for one of the largest owners of modern rental apartments in Berlin seems to run counter to my assumptions in this matter. He assures me that even in first cost it has proved cheaper to build these chimneys and install stoves than to provide central heat. I am still, however, in doubt as to the full consideration of all factors, including furniture space in rooms and the possibility, with the customary top-story storage space, of eliminating basements now required for coal bins for tenants.

The factor of providing heat is probably the largest and most complex in the whole subject of housing development. It is also one which will, at least in the United States, most determine changes in the form of large-scale projects of the future. The matter of various possibilities for the supply of heat has, therefore, been taken to illustrate the analytical balancing of capital and use costs in the following study. As already suggested, the availability of a practical, automatic, individual heating plant is the most important factor in the development of the three-story, otherwise non-serviced group dwelling. The installation of such a form of heating may be retarded if we fail to contrast this factor with the complete costs of the new form.

Central heat implies at least the following items. The construction or capital costs of all boiler, piping, and other installations, together with any added building space required or space which might otherwise be employed, now used for boiler room, stack, fuel storage, or spoiled by the passage of large pipes. This must be capitalized and extended to include taxes and depreciation (at a considerably higher rate than the building structure)





TYPICAL FLOOR PLAN

PLATE "B"

Three-story apartment groups in Britz-Ideal Siedlung in suburbs of Berlin. Bruno Taut, architect.

Standard 2½-room apartment comprises living room, two bedrooms, kitchen and bath. (The smaller bedroom, measuring 7'x13', is counted as ½ room.) One separate chimney between bath and kitchen; two half chimneys. Three tile stoves furnished by renting company.

and reduced to annual capital charges; to this must be added fuel and all janitorial and engineering costs, actual or contributory; and, finally, that part of management made necessary by supervising and accounting. This latter item becomes increasingly important as other types of common service are eliminated by automatic installations. We cannot in America conceive of a general return to stove heat, but on the other hand the factor of heating shortly becomes the only factor requiring daily building owner services. Even more may then be paid for the annual heat bill if it finally eliminates all daily janitor or other service and with it all managerial services connected with providing apartment space, except those services customarily performed by any good rental agency:—inspection, contracting for repairs and renovation, and renting items which comprise 35 per cent or less of the present management costs of serviced apartments.

The accompanying chart, Plate "C," reveals the large number of complex factors which enter into the provision of heat from a central plant for any given project. When all factors of capital cost, depreciation, services and management are consid-

ered, the actual fuel consumption, even in automatically-controlled oil-fired boilers, becomes a matter of only 40 per cent to 50 per cent of the total charges. The indirect costs arising from all this complexity are enormous and retard the direct and effective approach to a rational solution of the problem.

It will not be out of place to study the implications of Plate "C," which may encourage similar analysis of other factors. The upper diagram, I, shows roughly the full capital costs to the left and the janitorial and attendant management costs to the right of the cross hatched space representing fuel consumption. Out of a charge of \$21 per room per year, not including loss in rentable space due to boiler room and piping, only \$9 is devoted to actual fuel. It has been assumed, as shown by recent investigation in relation to a large New York project, that at the local price of gas with no concession for a greatly increased consumption, heat supplied by individual apartment gas hot-water (radiator) installation, now practicable with existing equipment, would cost somewhat more than centrally developed steam heat. The amount assumed is \$22 per room per year, no actual experience being available.

Taking \$21 and \$22 as average costs, the directly generated heat has these contributory advantages: (1) the tenant wishing to economize in his use of heat will be directly benefited and can probably bring the average cost well below the \$22; (2) the owner of the apartment may be able, in case of vacancy, to burn no more than a

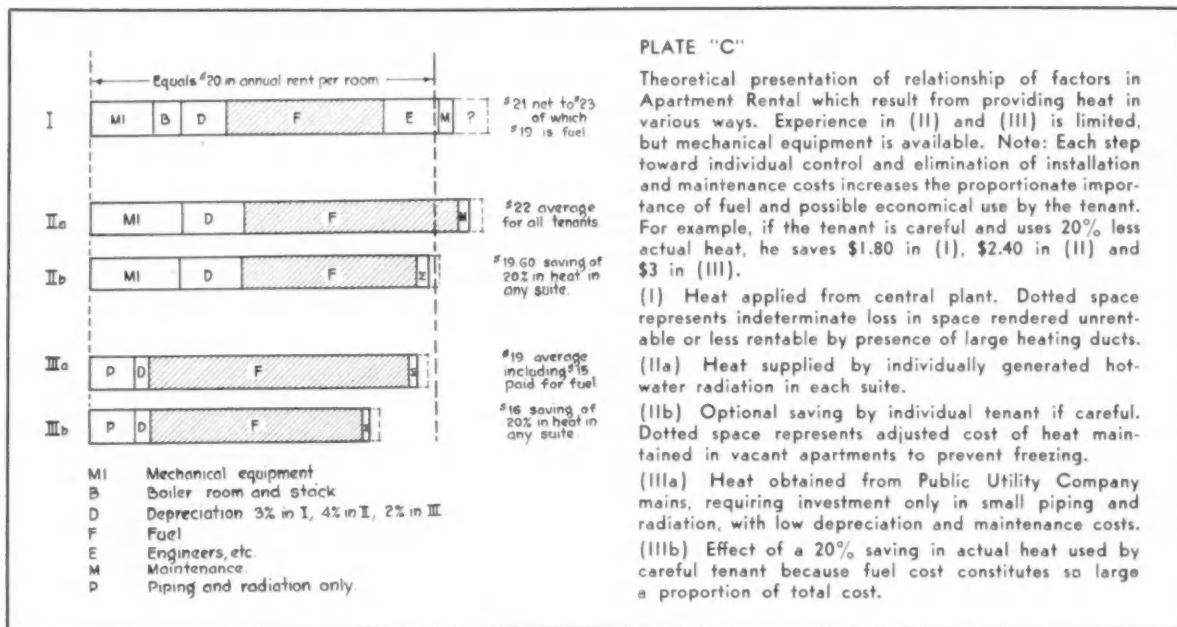


PLATE "C"

Theoretical presentation of relationship of factors in Apartment Rental which result from providing heat in various ways. Experience in (II) and (III) is limited, but mechanical equipment is available. Note: Each step toward individual control and elimination of installation and maintenance costs increases the proportionate importance of fuel and possible economical use by the tenant. For example, if the tenant is careful and uses 20% less actual heat, he saves \$1.80 in (I), \$2.40 in (II) and \$3 in (III).

(I) Heat applied from central plant. Dotted space represents indeterminate loss in space rendered unrentable or less rentable by presence of large heating ducts.

(IIa) Heat supplied by individually generated hot-water radiation in each suite.

(IIb) Optional saving by individual tenant if careful. Dotted space represents adjusted cost of heat maintained in vacant apartments to prevent freezing.

(IIIa) Heat obtained from Public Utility Company mains, requiring investment only in small piping and radiation, with low depreciation and maintenance costs.

(IIIb) Effect of a 20% saving in actual heat used by careful tenant because fuel cost constitutes so large a proportion of total cost.

small pilot light to avoid freezing in water pipes naturally close to the heater, thus saving \$11 of the \$13 devoted to fuel in II. Two dollars more is saved if he entirely turns off heat as in I.

Each of these advantages is augmented if heat is piped from public utility mains in the street. Both plant equipment owned by the apartment owner and depreciation of expensive boiler room installation are eliminated, and average fuel cost, even at a total of \$19 per room per year, amounts to \$15 as compared with \$9 in I. The result will be that the careful tenant saving 20 per cent in his heat requirements in I (which could only with difficulty be credited to him), would actually save only \$1.80, while in III the same tenant saving 20 per cent would save an actual \$3.88, which could readily be credited to him by the provision of meter service. It seems altogether possible that the cumulative factors of saving, the reduction of complexity in design and management, the release of space for other use, the encouragement of care on the part of the tenant, might if taken all together warrant an apparent net monthly average allowance for heat under plans II or III considerably greater than for the usual method of central project heat in example I.

But heating, as important as it may be, is only one of many similar items of cost and upkeep which penetrate into the whole rent structure. If, as now seems entirely feasible, we can evolve a type of desirable multiple dwelling which will accomplish the conveniences for which the apartment has heretofore been thought necessary, and yet avoid the multiplied complications of installation, maintenance and managerial costs, it is possible that a very considerable increase may be allotted to original building costs, and rentals still be reduced.

Each element in the following list contributes to the desired result, but it is the cumulative effect

in releasing community design from present restrictions, combined with the final elimination of practically all owner services and their attendant managerial costs, which make it possible to forecast a reduced rental for an amount of increased convenience which we have hesitated to believe possible for the low rental groups.

In the larger cities mechanically generated refrigeration has been practically accepted as essential for all rental dwellings at any price range. In spite of the present considerable maintenance and depreciation cost, the elimination of handling ice, the improvement in food preservation, and the release of plan limitations seem to warrant this convenience. Waste disposal is becoming continually more readily handled by means of the incinerator; the very character of the daily menu is being altered in a manner reducing the volume and fluidity of normal wastes. As incineration becomes more general, the bi-weekly care of the firing chamber may readily become the task of a neighborhood caretaker or even a public service organization. Heat or fuel in any of the probable new forms can reach the individual building or dwelling through pipes at some distance from the delivery truck. These three principal services may, therefore, be provided (a) without necessitating street frontage for a given building unit, and (b) with a reduction, if not almost full elimination, of services on the part of the owning and managing company beyond those of renting, inspection and such new and desirable supervision of community and self service activities as may be retained or introduced.

In considering the effect on rentals as between the four-story common hallway and three-story individual stairway types proposed last year, deductions were made for the upkeep of the stair halls only. Now we may safely add to the counter savings from the full automatic services, (a) a

new efficiency of site use, particularly on large city blocks; (b), if desired, the holding of all land in individually cared for gardens (previously indicated), and finally, (c) the much larger and more significant elimination of costs of management of daily services. To demonstrate the results which might be anticipated from this complete new organization of the rental problem would necessitate the treatment of many additional items in the same manner as we have treated the item of heat. All that can be attempted here is to set down a graphic representation of how the factors seem to be roughly disposed.

In the 1932 studies a comparison was made on the basis of eliminating certain items from the usual maintenance budget, with no consideration for the accompanying reductions in management and incidentals. Having, however, now eliminated practically all services requiring managerial supervision, the cumulative results of the new organization can be effectively demonstrated in chart D-2.

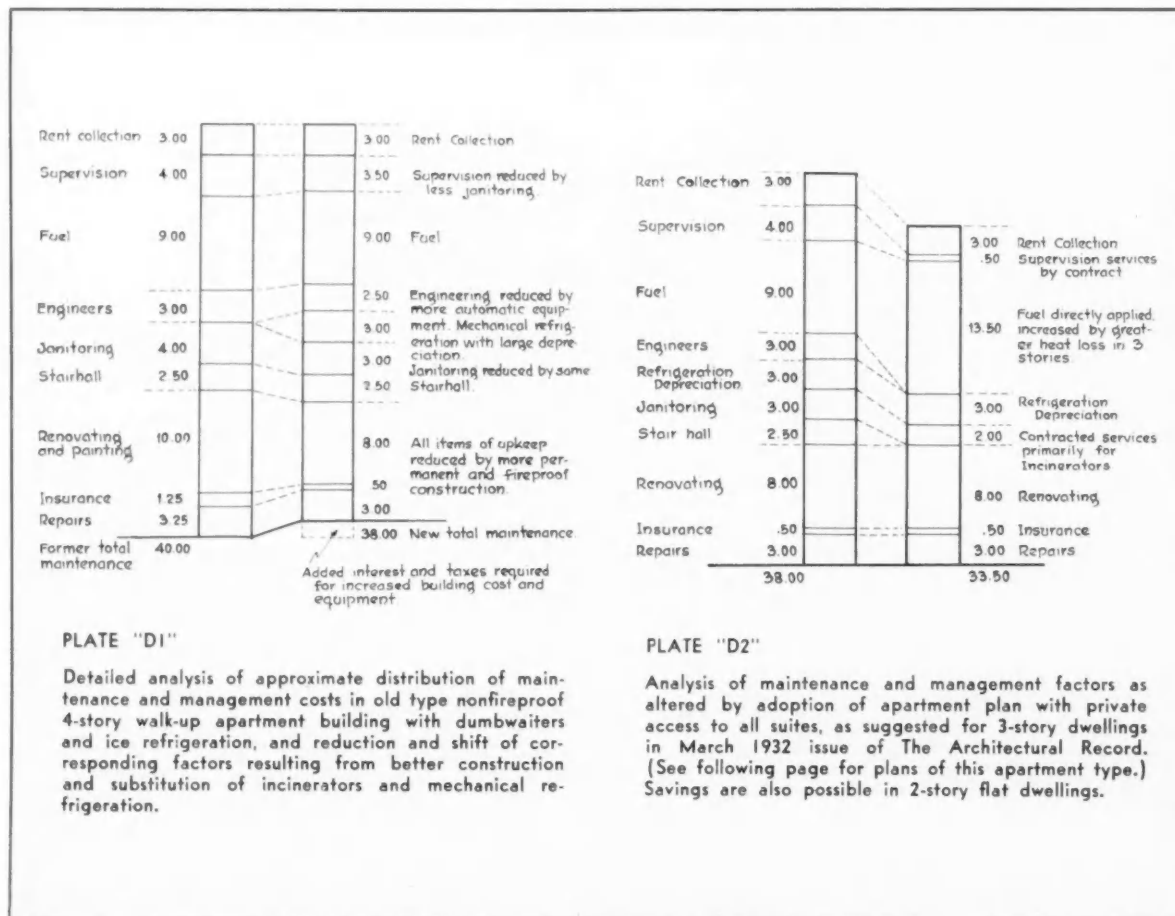
The first diagram on Plate "D" represents in detail the probable combined shifts in the annual rent schedule resulting, in the case of a similar four-story walk-up apartment, from (a) fireproofing the construction, (b) introducing more automatic firing of central heating plant, and (c) introducing the mechanical refrigerator and incinerator, the latter offset in cost by eliminating the dumb-waiter. The added costs are capitalized be-

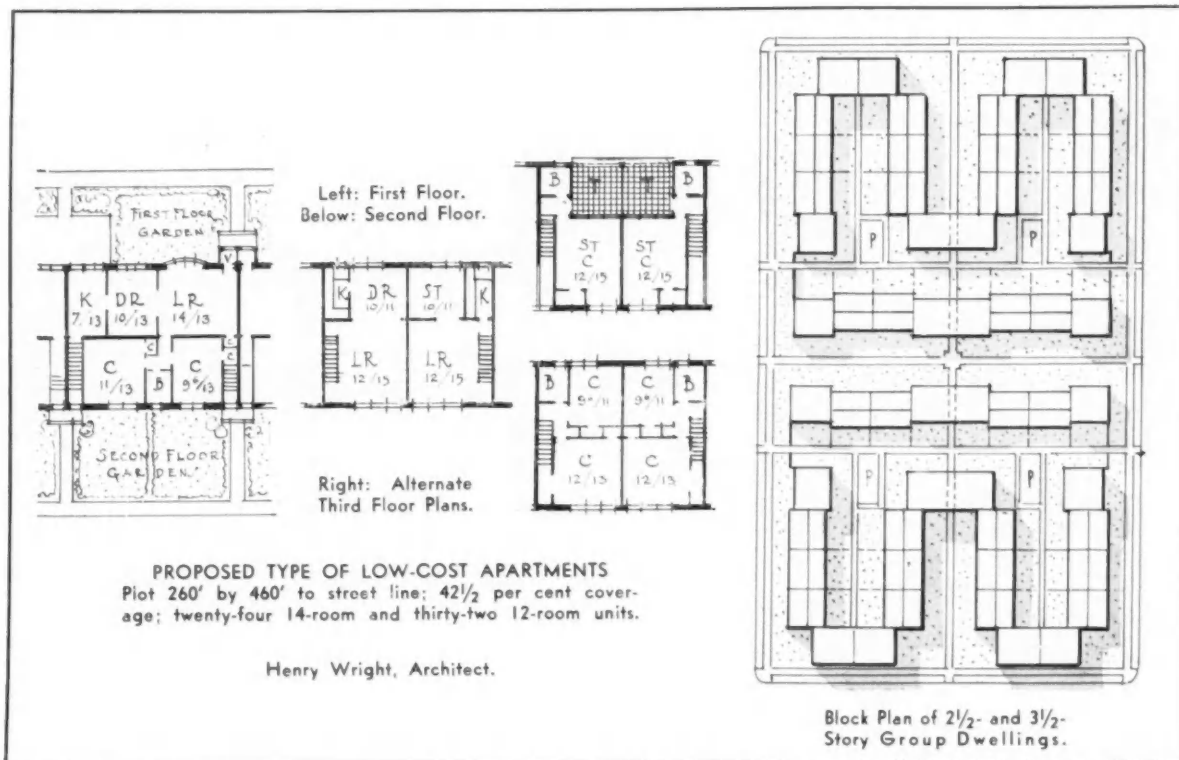
low the maintenance line (\$38) and with decreased depreciation should not quite equal saving in maintenance as follows: reduced insurance, repairs and renovation; reduced janitoring; and reduced management. An increase occurs in depreciation on refrigerator, but part of this should become a special service charge offset by food saving.

While in the case of the four-story building the net result is small, we have added to the comfort of the tenant, reduced the annoyances of the management, eliminated noises and passage of vermin through the dumb-waiter and, most important of all, have released the problem from various complications which now most interfere with setting up the nonserviced three or two-story apartmentized group dwelling.

The second part of Plate "D" shows these final savings aimed at in the 3-story type in further management and maintenance savings resulting from the elimination of all central services through the complete automatization of all conveniences and the elimination also of internal common halls and stairs and the maintenance of all green space by the various tenants.

Janitoring disappears altogether and is replaced by a small contract service for the incinerators. Only a very small management allowance is maintained on the assumption that heat instead of requiring engineers will be provided in either one or the other plan shown as II or III on plate "C."





While the probable savings directly effected seem to be small (\$5), they are sufficient to balance increased land charges for three stories above four, on land at \$2 per square foot as shown in chart "E."

Recent information indicates that three-story construction is cheaper than four-story on the basis of a similar common stair plan. This was indicated by technical studies in March 1932 and recently confirmed by bids taken on three and four-story (identical plan) studies for a large project to be executed in all metal exterior construction and insulated metal surface materials, thus indicating a continued advantage even under pre-fabricated methods. However, it may be that certain slight losses in plan efficiency incidental to the independent stair three-story type may equalize these savings. We need but assume the same amount (here \$750 per room) for the two forms to show even the cost advantage of the three-story type on land up to \$2 per square foot. In column (2) Plate "E" the \$33 total maintenance cost for the three-story type, combined with a land cost resulting from ¾ as many rooms in three as compared with four stories, and the elimination of common landscape costs, results in a rent of \$1 per room less per year than the four story, column (1). This small advantage may be used to provide for common maintenance of part of the landscape work either for the individual small tenant plots or for throwing much of the space into common lawn.

Two, or two and one-half-story group types may be developed which, having less loss for stairway space and greater plan freedom, can probably

be built for less construction cost than either the three or four-story types. Placing the differential at \$50, an equal rental may be maintained on \$2 land. Architectural interest might then be obtained with an average of 2½ stories, by combining two and three-story buildings. Column (3) Plate "E" is the rental chart for the simple 2½ story construction.

In order to complete the analysis of the more usual problems involved in current developments, it may be well to associate with this study the simplest elements in the comparative cost of four-story walk up and six-story elevator apartments. It is now permitted, in New York, to build in non-fireproof construction six-story as well as four-story apartments. There is usually somewhat less than \$50 difference in favor of construction cost of the six-story structure, excluding costs for elevator installation (except shaft and penthouse). About the same ratio would be maintained for fireproof construction in both cases as here assumed. The saving, however, in capital costs, landscape and land costs, combined with the same maintenance costs, is only half enough to offset the added capital and maintenance costs for the elevator where land is assumed at \$2 per foot and equal coverage. At \$4 per foot the costs are practically equalized, again assuming an equal ground coverage and that no extra space for the elevator is provided in the assumed gross area per room. However, no such favorable showing for the elevator building can be shown in reality, since to secure 108 rooms in a six-story elevator unit, or 18 rooms per floor, necessary to reaching the \$14 per year charge, a more wasteful plan can not be

avoided, and the cost per room for the structure in the six-story building is more likely to equal if not exceed that of the four. This is too complicated a study to introduce here, but the relationship of the factors involved can at least be projected on the basis of Plate "F."

The significance of these principles will be readily appreciated in relation to the future design and development of modern communities. There is no lack of indications that the pressure of artificial land values is being and will continue to be relieved. The wholesale foreclosure of mortgage bonds and even first mortgage losses on large highly-serviced apartment structures of the boom period will eliminate such dwellings from new investment in such buildings for many years, leaving the field open for these simpler new types. But most important of all, the tall apartment dwelling has been a precipitous and illogical transition from our traditions of scattered small homes to a too highly

artificial form of living. The apartment was a forced plant created to meet the demands of a favored few who could pay for its complexity and waste. But now the conveniences until lately expected only in the apartment are demanded and reasonably expected by the average family and, fortunately, they can be met without resorting to the apartment of the high building, central serviced type, but instead with the more desirable and pleasing low group building, automatically serviced. In addition, the quantity of service individually required may be more readily adjustable to the varying needs and fortunes of the individual occupant. Incidental to these mechanical possibilities, the range of opportunity for architectural interest in building and community design has been enhanced at least a hundredfold and the student has been offered a chance to develop new forms of housing to replace those which have so imperfectly served the requirements of the average family.

PLATE "E" (Right)

Chart shows combined effect of increased land costs, counterbalanced by reduced upkeep costs in (1) four-story common hall apartments, (2) three-story private entrance, and (3) two-story flats in which building economies due to ease of erection of new pre-fabricated units may be anticipated and which may equalize the increased land cost for 2½ stories or for 2- and 3-story grouping.

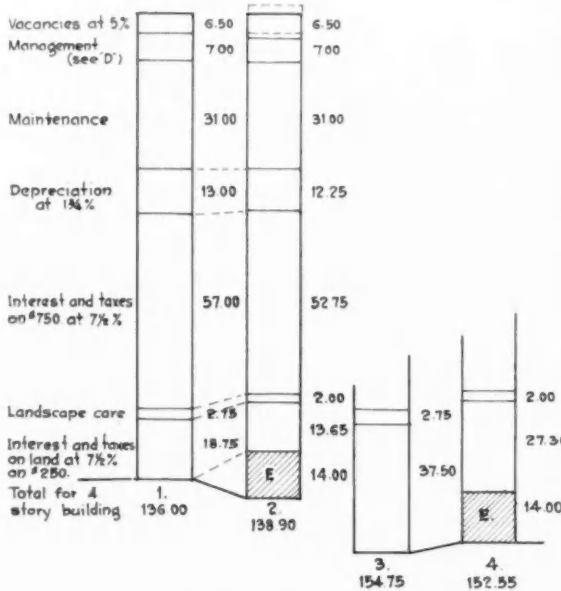
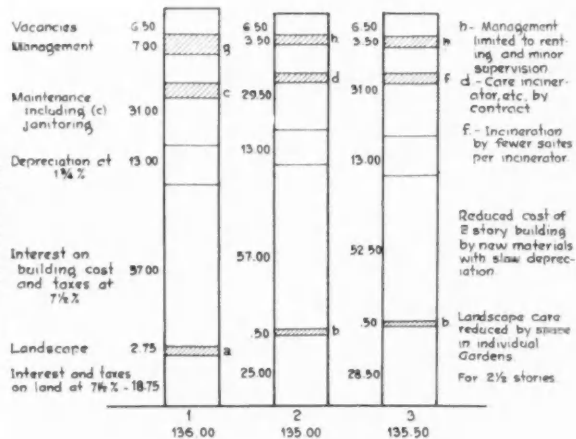


PLATE "F" (Left)

Chart shows complete annual charges per room for: (1) Four-story walk-up apartment, 200 square feet per room, 40% coverage on land @ \$2 per square foot. (2) Six-story elevator apartment, same gross room size and coverage. Extra space occupied by elevator or extra management not considered. All elevator costs in item "E" based on \$1,500 a year for 108 rooms. (3) Same as (1) except land cost is doubled to \$4 per square foot. (4) Same as (2) with \$4 land, indicating equalization of land and elevator costs if no account is taken for added space occupied by elevator and reduced exposure in 6-story buildings with same coverage as 4-story buildings.

Factors assumed as unchanged, although there should be some theoretical increase owing to extra management and elevator maintenance, as well as an increased charge for vacancies with a larger total as indicated by dotted lines.

Building cost, except elevator, assumed as \$50 per room less in 6-story than in 4-story buildings. Both considered as fireproof.



A NEIGHBORHOOD UNIT FOR RADBURN, N. J.

By LEO LEVINE*

Purpose of Study

To develop a residential Neighborhood Unit having proper housing, within the means of those in the \$1,500 to \$3,000 income bracket.

The Property

The site selected is an actual piece of property at Radburn, New Jersey. It is 158 acres in extent and is surrounded completely by important arterial highways.

Transportation Facilities

New York City, Paterson, Passaic and other important business centers are easily accessible by means of railroad, motorbus and taxi. The development is large enough to warrant the operation of a bus system of its own for the convenience of commuters to the metropolitan New York area.

The Street System

The major interior streets are relegated to the low land in order to provide a natural and easy flow of the sewage, which leaves the property at the northeast via Radburn Road South; these interior streets subdivide the property into super-blocks of suitable size for further development. Provision is made for fast and slow traffic. All roads are designed for their intensity of use. The wide arterial roads and the staggered openings to the property discourage unnecessary traffic from entering the Unit. The interior streets are 40 feet wide with 24-foot roadbeds; service roads to the cul-de-sacs are 30 feet wide with 18-foot roadbeds.

Recreation Facilities

The extensive system of interlacing park area provides play space for young and old just out-

side the door. Numerous interior footpaths give access to all parts of the development without the hazard of a single street crossing. Organized athletics centers around the boys' playground. A girls' playground and still another one for younger children are provided adjacent to the schoolhouse. A bowling green, an open-air swimming pool and 17 tennis courts offer further opportunity for play. Cricket, clock golf and kindred lawn sports may be set up throughout the park.

Social Facilities

The Memorial Square forms a center of activity. The schoolhouse, with its maximum service radius of one-half mile, occupies the position of honor. The community house with clubs and shops and a pre-school kindergarten offer good opportunity for spontaneous organization. With such facilities as a permanent outdoor theater and allotment gardens, dramatic art and vegetable gardening may flourish side by side. The allotment gardens are 25 feet square.

Shopping Facilities

Most of the business services are confined to the Market Square. Through this concentration of shopping facilities unnecessary duplication of stores is avoided. The Market Square serves as a site for motion picture theater, hotel, local newspaper, library, bank, restaurant, etc.

Housing

Individual free-standing houses, houses paired in twos or grouped in rows of from three to nine, rows of two-family houses, apartment houses—all are used to provide ample accommodation for various income groups as well as for individual preferences.

*Student thesis, School of Architecture, Cornell University.



LONGITUDINAL SECTION THROUGH MAIN AXIS FACING WEST

ILLUSTRATED NEWS

ELEVATED HIGHWAY AROUND MANHATTAN

New York City has made a start on the construction of the marginal elevated express highway. Sections so far completed cannot perform their greatest usefulness until the highway is completely extended around the island of Manhattan.

According to the general plan, the highway would have no crossings, would follow the waterfront, and would be reached by ramps running from the street level (which would be occupied by slow moving traffic), to feed North and South flows of traffic. This plan has been followed on the section now constructed on the Hudson River from Canal Street northward to 22nd Street, between 22nd and 38th Streets, now nearing completion, and the section from 59th to 72nd Street. All sections will be consolidated as rapidly as the stretch between 38th and 48th Streets, and 48th and 57th Streets, where piers are being constructed by the dock department; and 57th to 59th Streets are completed.

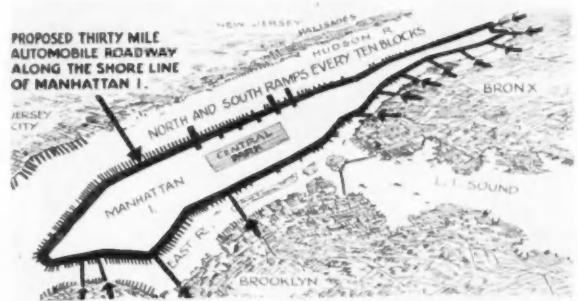
HOME MODERNIZING CAMPAIGN

With the assistance of architects, the Building and Real Estate Divisions of the Elmira, New York, Association of Commerce are sponsoring a home modernizing movement. A housing survey was made to determine types of families in the Elmira area, the size of families, occupancy and housing needs.

MODERN DRIFT IN CHICAGO

"As an evidence of the drift of tendencies among Chicago artists," says the *News Letter* of the Art Institute of Chicago, "it may be mentioned that the voting majority of them favor the 'modern' viewpoint. This was revealed when the entries were sent in for exhibition at the forthcoming annual showing of work by the Artists of Chicago and Vicinity." This exhibition opened at the Art Institute on January twelfth and will remain on view in the East Wing Gallery until March fifth. Every artist wishing to enter work in the show had to choose either a "conservative" or a "modern" jury by which his work should be judged. Many thought the "conservative" would be the favorite, but it turned out that the "modern" jury had more of the judging to do by some five per cent.

The American Magazine of Art,
February, 1933



Wright

Proposed elevated highway around Manhattan.

WATERTIGHT TERRA COTTA MASONRY

On comparing a terra cotta wall, with a unit size 12 x 24 inches and having a $\frac{1}{4}$ " joint thickness, with a standard brick wall, we find a 1:7 ratio in mortar area and a 2:7 ratio in linear contact between mortar and the unit. Although these facts indicate a reduction in the opportunity of moisture passage, nevertheless where exposure is severe, especially with copings and with horizontal band courses, it is important to take suitable precautions, including:

1. Design of mortar which will properly balance plasticity, flexibility and water-retaining capacity with bond and compressive strength and durability and reasonable speed of setting.
2. Joints ranging from $\frac{3}{16}$ to $\frac{1}{4}$ inch where the uniformity of the unit will permit.
3. Mortar plastered on ends and units shoved into place.
4. Joints tool-finished at point of initial set.
5. Back-up of hollow units with webs vertical, designed to go with terra cotta, in order to provide drainage, ventilation and some heat insulation.
6. Coping units should be provided with a mechanical seal for all vertical joints.
7. For tuck pointing, use a mortar that has stood for about two hours.
8. For glazed surfaces, use a retempered mortar or paint the surface about two hours before laying with portland cement paint.

Synopsis of Report by Dr. F. O. Anderegg
Before the American Ceramic Society,
February 14, 1933.

• THIS HOME, GLAZED WITH
LIBBEY · OWENS · FORD QUALITY GLASS,
 WAS AWARDED A

First prize



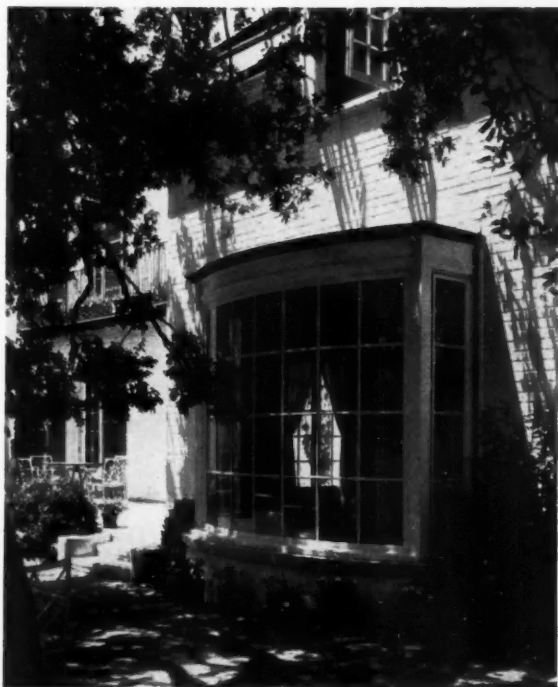
It is significant, though hardly surprising, that so many prize-winning homes are glazed with Libbey-Owens-Ford Quality Glass. Of course, the glass itself very probably has comparatively little to do with these awards, but the way in which fine glass emphasizes and enhances the architectural design and the way in which it blends the completed structure into a harmonious unit certainly makes an appreciable difference from every standpoint. Because Libbey-Owens-Ford Quality Glass is more brilliant and more beautiful, many architects specify it to insure the last detail in their planning . . . the *atmosphere* they seek to create.

● LIBBEY · OWENS · FORD GLASS COMPANY, TOLEDO, OHIO, manufacturers of Highest Quality Flat Drawn Window Glass, Polished Plate Glass and Safety Glass; also distributors of Figured and Wire Glass manufactured by the Blue Ridge Glass Corporation of Kingsport, Tennessee.



**LIBBEY · OWENS · FORD
 QUALITY GLASS**

This residence, the home of Mrs. Richard B. Fudger, Beverly Hills, Cal., was awarded first prize in the sixth annual small house competition, western group, conducted by the magazine, "House Beautiful". Roland E. Coate, Architect, 701 Architects Building, Los Angeles, Cal. Eric Barclay, Contractor, Beverly Hills, Cal. • Above: General View, Street Elevation. • Below: Exterior, Dining Room Bay Window.





Acme

A view of the new Chicago Post Office, on Canal Street between Van Buren and Harrison Streets in downtown Chicago, the largest post office in the world, which was recently dedicated and put into operation. It was constructed at a cost of \$21,000,000. Graham, Anderson, Probst and White, architects.

INTERNATIONAL CONGRESS FOR MODERN ARCHITECTURE

The fourth International Congress for Modern Architecture is to be held in Moscow from June 1 to June 10. The subject to be discussed is "The Functional City."

All the work shown and the papers discussed at the previous congresses will be exhibited. In connection with this there will be a very rigorously selected survey of modern building in all countries. In addition to these exhibits the Soviet Government has planned a complementary "Exhibition of Contributions to New Form of Existence."

The Congress, which now represents 20 different countries, has been officially invited to Moscow by the Soviet Government. Arrangements have been made by which nonmembers and nationals of countries that are not officially represented who join the "Circle of Friends of the International Congresses for Modern Architecture" will be able to participate under the most favorable conditions as regards traveling facilities, board and lodging.

All inquiries should be addressed to the General Secretary of the Congress: Dr. Siegfried Giedion, Zurich, 7, Doldertal, 7, Switzerland. American delegates: K. Lönberg-Holm; Richard J. Neutra.

HISTORICAL MONUMENTS

The Western Pennsylvania Architectural Survey has been established for the purpose (1) of locating buildings erected in this section before 1860, insofar as these buildings are of importance architecturally and historically; (2) of compiling and collecting available pictures, drawings, and historical information of these existing buildings and any which have been demolished; (3) of making measured drawings and photographs of a representative selection of these buildings for ultimate publication together with historical studies of the buildings and of the development of architecture in the region. All material collected will be assembled and permanently preserved in the collections of the Historical Society of Western Pennsylvania.

MIDGET CITY FOR DWARFS

A colony of miniature dwellings is planned for a suburban tract in Berlin, Germany, according to news reports, to house more than 100 families of dwarfs, all circus people out of work because of the depression. Rooms, furniture and cooking equipment will be small and so will be the gardens and golf links.

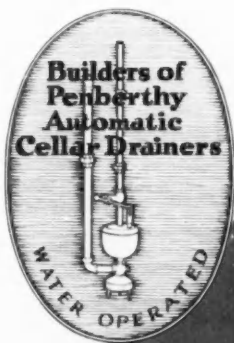
IT STANDS ALONE

in its
excellence of design
quality of materials

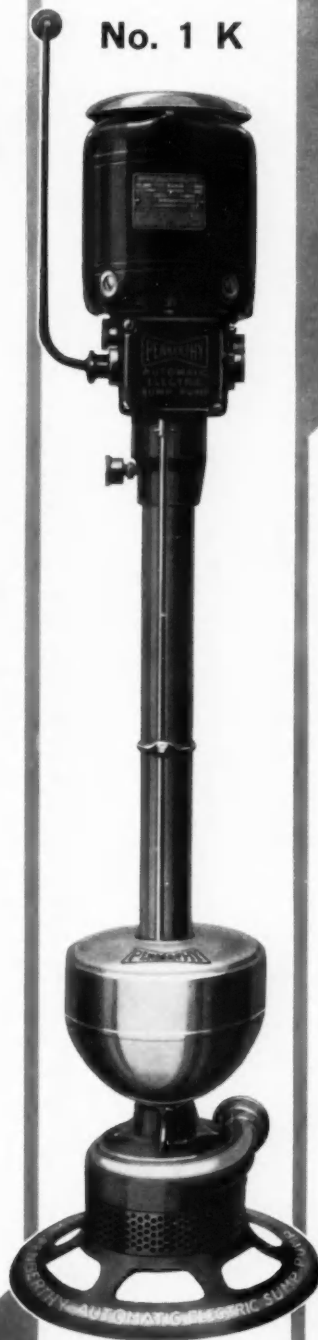
high grade
workmanship

performance

dollar value



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AND BRONZE
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\$65⁰⁰

1/4 h. p. repulsion-
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Maximum capacity
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Established in 1886 **DETROIT** Canadian Plant Windsor, Ont.

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BUILDING TRENDS AND OUTLOOK

By L. SETH SCHNITMAN

January contracts for all classes of construction awarded in the 37 Eastern States totaled \$83,356,000. This is in contrast with \$81,219,300 for December, 1932, and \$84,798,400 for January a year ago. Gains over December were shown in nonresidential building and public utilities of sufficient size to more than counteract declines in residential building and public works. Increases over January, 1932, in public works and public utilities were not large enough to offset important losses in residential and nonresidential building.

January contracts for residential building were less than half as large as those reported for January, 1932; relatively, small house work fared better than did apartments and hotels.

Of the thirteen territories east of the Rocky Mountains, four showed construction contract gains between December, 1932, and January, 1933; the Metropolitan area of New York, Southern Michigan, the Kansas City and New Orleans territories. Contrasted with January, 1932, gains were shown in five territories: the Central Northwest, St. Louis, Kansas City, New Orleans, and Texas districts. For the Metropolitan area of New York and Upstate New York territories, the declines from a year ago were confined within relatively narrow limits; while for New England, the Middle Atlantic States, the Pittsburgh area, the Southeast, the Chicago district, and Southern Michigan the losses were relatively large.

MATERIAL PRICE MEASURING ROD*

The prices in this tabulation enable one to visualize at a glance the main trend of the material market. Their significance does not extend beyond that point, and the explanation below should be read carefully.

F. W. Dodge Corporation Composite Prices as Indicated in Explanation—

Material	This Month	Month Ago	Year Ago
Portland Cement...	\$2.05	\$2.05	\$1.93
Common Brick....	11.70	11.73	12.00
Structural Steel...	1.60	1.60	1.50
Lumber.....	15.47	15.50	16.46

Prices given in this comparison are composite and do not in all cases refer to one item. For instance, the price of structural steel is the composite of prices of shapes and plates f.o.b. Pittsburgh; the price of lumber is a composite of five items of Southern pine and five items of Douglas fir f.o.b. mill; the price of cement is a composite of prices in fourteen different cities per barrel, carload lots, to contractors; price of brick is composite in fourteen cities per M, delivered on the job.

*As previously published in *General Building Contractor*.



Clear away that **ROOF-TOP JUNGLE!**

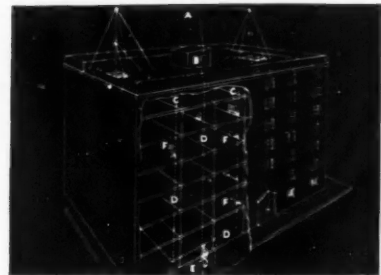
In drawing plans for modernization projects,
let one antenna serve all radio receivers . . .

Plans for constructing or altering hotels, apartment houses, schools, hospitals or other large buildings should include a Western Electric Radio Frequency Distribution System, or a Program Distribution System.

The Radio Frequency Distribution System furnishes antenna facilities for as many as 3000 radio receivers of any make, but requires only *one* aerial. Each set owner enjoys complete freedom of program selection, while reception will not be affected by interference from near-by electrical sources.

The Program Distribution System supplies building-wide music or other entertainment from a central location. The source of programs may be Western Electric Radio Receivers, for receiving broadcasts; a Music Reproducer Set, which plays records; one or more Microphones, to pick up the programs of artists in the building. Loud Speaking Telephones, with selector facilities, distribute the programs to rooms or apartments.

Selecting one or both systems depends upon the type of building and tenants to be served. Sound transmission specialists will gladly assist you.



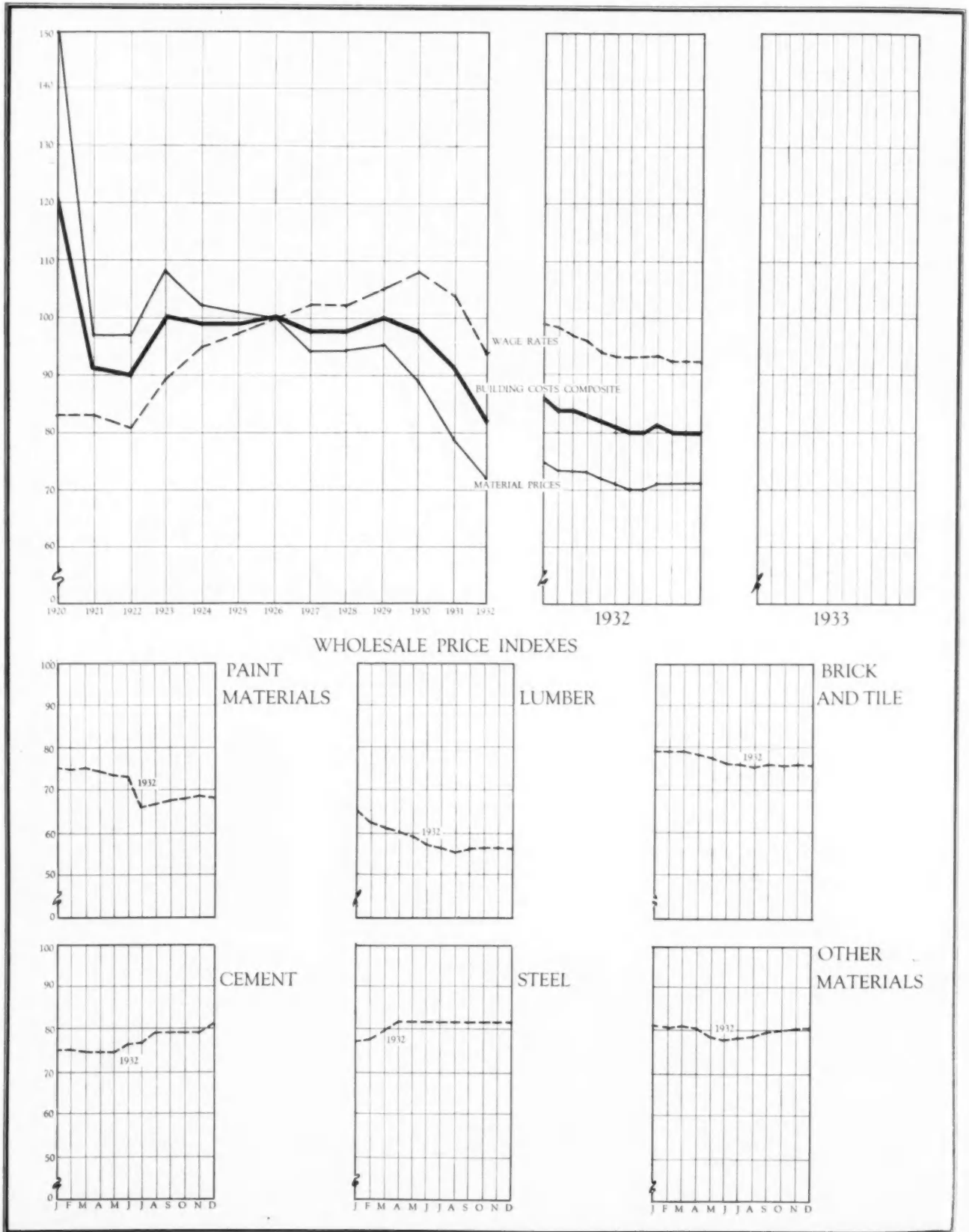
A—Only one antenna required. B—Antenna terminal equipment. C—Outlet box containing device to prevent receiver interaction. D—Coaxial conductor transmission line in conduit prevents noise pick-up or other interference. E—Amplifier. F—Individual radio receivers.

Western Electric
RADIO FREQUENCY
DISTRIBUTION SYSTEMS

GRAYBAR ELECTRIC CO., Graybar Building, New York, N. Y.	AR 3-33
Gentlemen: Please send me complete information on:	
Western Electric Radio Frequency Distribution System <input type="checkbox"/>	
Western Electric Program Distribution System <input type="checkbox"/>	
NAME.....	
ADDRESS.....	
CITY..... STATE.....	

MATERIAL PRICES, BUILDING WAGE RATES AND BUILDING COSTS COMPARED

1926 Monthly Average — 100



How



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non-magnetic and is austenitic, hence highly ductile.

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WAGE SCALES IN THE BUILDING TRADES

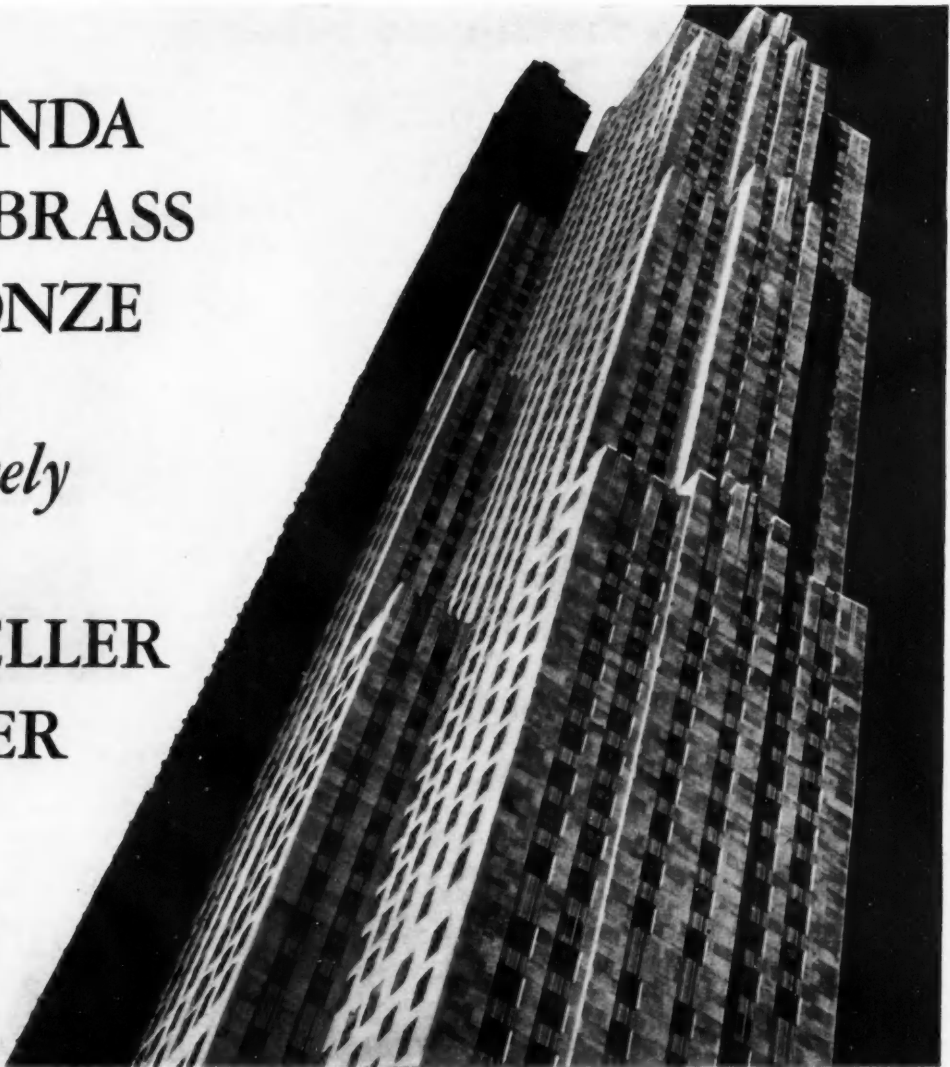
Information Furnished by National Association of Builders Exchanges and Compiled by Division of Statistics and Research,
F. W. Dodge Corporation, as of February 15, 1933

	Asbestos Workers	Bricklayers	Bricklayers' Tenders	Carpenters	Cement Finishers	Electricians	Rodrigue Engineers	Iron Workers —Ornamental	Iron Workers —Structural	Laborers	Leathers	Painters	Plasterers	Plasterers' Tenders	Plumbers	Roofers— Composition	Roofers— Slate & Tile	Sheet Metal Workers	Steamfitters	Stone Masons	Tile Setters	Tile Setters' Helpers			
Akron.....	\$1.00	\$1.25	\$0.45	\$0.70	\$0.70	\$0.75	\$0.70	\$0.60	\$0.60	\$0.40	*\$0.87½	\$0.65	*\$1.00	\$0.62½	\$0.85	\$0.80	\$0.80	\$0.80	\$0.85	*\$1.25	*\$1.25	*\$0.50			
Atlanta.....	1.00	1.25	.30	.70	1.25	.90	.60	.35	1.85	1.25	.35	1.00	.35	1.25	.75	1.25	.30	.45	1.25	.80	.80	1.00	1.25	1.25	.40
Baltimore.....	1.12½	*1.25	1.00	*1.00	*1.25	*1.12½	*1.25	*1.65	*1.65	.20	*1.50	*.90	*1.25	1.00	*1.00	1.00	1.00	*1.12½	*1.25	1.25	1.25	.72			
Boston.....	1.25	*1.30	.70	*1.17½	1.17½	*1.37½	1.17½	*1.20	*1.20	.70	*1.25	*1.12½	*1.37½	*.95	*1.25	*1.17½	*1.05	1.17½	*1.25	*1.30	*1.30	*.95			
Buffalo.....	1.12½	*1.25	*1.00	1.12½	*1.30	1.00	1.12½	1.12½	.30	.60	1.12½	*1.00	1.25	1.25	.85	1.10	1.10	*1.25	*1.25	*1.18¾					
Chicago.....	1.37½	*1.37½	*1.31¼	1.31¼	1.50	1.31¼	1.31¼	1.35	.82½	*1.37½	*1.41	*1.37½	88¼	1.37½	1.37½	1.40	1.37½	1.37½	1.37½	1.37¼	1.37½	.96½			
Cincinnati*.....	1.15	1.37½	.70	1.20	1.02½	1.25	1.25	1.25	1.25	.45	1.31¼	1.10	1.37½	.70	1.25	.92½	1.07½	1.07½	1.25	1.25	1.25	.81½			
Cleveland*.....	1.17½	1.37½	.72	1.12½	1.12½	1.25	1.12½	1.25	1.25	.72	1.37½	1.12½	1.37½	.72	1.25	1.15	1.37½	1.12½	1.25	1.37½	1.25	.81½			
Columbus.....	1.00	1.30	.62½	1.00	.80	1.00	1.15	1.25	1.25	.40	1.00	.80	1.00	.62½	1.00	.80	1.00	.80	1.00	1.30	1.25	.50			
Dallas†.....	10.50	10.00	.50	8.00	10.00	*11.00	10.00	10.00	10.00	.35	10.00	*9.00	*10.00	*.50	12.00	8.00	9.00	*10.00	12.00	10.00	*12.00	†7.75			
Dayton*.....	1.25	1.30	.80	1.00	1.15	1.55	1.25	1.35	1.35	.35	1.10	1.00	1.25	.80	1.15½	.85	1.00	1.00	1.15½	1.30	1.50	.60			
Denver†.....	9.00	12.00	6.50	10.00	10.00	10.00	10.00	10.00	10.00	4.00	11.00	*10.00	12.00	7.00	11.00	8.00	8.00	9.00	9.50	12.00	10.50	†6.2½			
Des Moines.....	1.00	1.25	.65	1.00	1.00	1.00	1.00	1.00	1.00	.55	1.00	1.00	1.25	.75	1.25	1.12½	1.12½	1.12½	1.25	1.50	1.25	.80			
Detroit.....	1.37½	1.25 max.	.60	1.00	.90	1.40	1.00	1.20	1.25	.55	1.37½	1.00	1.25	.80	1.50	.90	1.00	1.00	1.50	1.50	1.25	.80			
Duluth.....	.85	1.10	.35	.75	.75	.90	.80	.80	.90	.35	.85	.80	1.10	.70	.95	.70	.70	.80	.95	1.10	1.25	.80			
Erie.....	.80	.90	.50	.75	1.00	1.00	.60	1.10	.60	1.10	.75	.75	.30	.60	.60	.60	1.00	1.00	1.50	1.50	1.25	.50			
Grand Rapids.....	.80	1.25	.40	.60	.65	.90	.75	.80	1.00	.35	.80	.60	.80	.40	.90	.50	.70	.70	.90	1.25	1.25	.50			
Houston.....	1.00	1.00	1.00	1.00	.95	1.00				.50	1.00	.62½	1.00	.75	.60	1.00	1.00	1.00	1.00	1.00	1.00				
Indianapolis.....	1.32½	1.62½	.90	1.22½	1.17½	1.50	1.37½	1.45	1.45	.40	1.37½	1.25	1.57½	1.00	1.00	.90	1.27½	1.22½	1.50	1.62½	1.50	.60			
Kansas City.....	1.05	1.32½	.80	1.12½	1.12½	1.50	1.12½	1.12½	1.12½	.70	1.25	1.12½	1.32½	.80	1.25	.92½	.92½	1.12½	1.25	1.12½	1.25	.75			
Los Angeles†.....	10.00	8.00	6.00	7.00	8.00	7.00	8.00	9.00	10.00	4.00	10.00	7.00	9.00	6.11	9.00	7.00	7.00	8.11	11.30	8.00	6.00	†7.5			
Louisville.....	1.12½	1.25	.50	.80	1.00	1.00	1.00	1.00	1.00	.35	1.12½	.90	1.00	.50	1.12½	.50	.85	.85	1.12½	1.25	1.00	.50			
Memphis.....	1.00	1.37½	.50	.50	.50	1.00	.75	.75	.75	.20	1.00	.75	1.25	.50	1.25	.40	1.12½	1.12½	*1.25	1.37½	1.25	.50			
Milwaukee.....	1.00	1.00	.90	.85	1.00	1.25	1.15	1.05	1.05	.50	1.00	1.00	1.00	.90	1.00	1.00	.92½	.92½	1.00	1.00	1.00	.65			
Minneapolis.....	1.06¼	1.10	.55	.75	.75	.90	.80	.90	.90	.45	.85	.80	1.10	.70	.95	.70	.70	.80	.95	1.10	1.25	.65			
Nashville.....	1.00	1.00	.65	1.00				.30	1.00	.80	1.00	.30	1.00	.65	.65	.65	1.00	.90	1.25						
New Haven*.....	1.40	.50	.80	.80	1.16¾	1.27½	1.37½	1.37½	1.37½	.60	.80	.50	1.00	.65	1.06¼	.65	1.50	1.06¼	1.06¼	1.40	1.40				
New Orleans.....	.65	.80	.55	.75	1.00	1.25	1.25	1.25	1.25	.35	.75	.75	1.00	.90	1.00	.90	1.05	1.05	1.50	1.25	1.25	.35			
New York City†.....	11.20	13.20	8.80	11.20	c11.20	13.20	13.20	11.20	13.20	6.60	11.20	11.20	12.00	8.50	c12.00	10.28	12.62	11.20	11.20	13.20	11.50	8.50			
Oakland†.....	6.40	9.00	5.60	7.20	7.20	8.00	9.00	7.20	9.60	4.00	8.00	7.00	8.80	6.00	8.00	7.00	7.00	7.50	9.00	9.00	8.00	5.00			
Oklahoma City†.....	8.00	8.00	4.00	8.00	8.00	8.00	8.00	8.00	8.00	3.50	8.00	8.00	.80	4.00	.80	6.00	6.00	8.00	8.00		11.00	†6.2½			
Omaha.....	1.32	1.00	.45	.80	.90	1.00	1.00	.90	.90	.35	1.00	.80	1.00	.45	1.00	.72½	.87½	.87½	1.00	.90	1.00	.60			
Philadelphia.....	1.00½	1.50	.35	1.00	1.05	1.18½	1.37½	1.37½	1.37½	.40	1.37½	.80	*1.37½	.90	1.04	1.00	1.25	1.25	1.04	1.25	1.25	6.00			
Pittsburgh.....	*1.50	*1.50	*1.25	*1.56¼	1.43¾	*1.37½	1.37½	.70	*1.50	*1.18¾	*1.50	1.50	*1.25	*1.50	*1.31¼	*1.50	*1.40	1.33¾	88.						
Portland, Ore.†.....	8.00	*12.00	4.80	7.20	*7.20	*8.00	9.60	8.80	8.80	7.20	*8.80	7.04	*9.60	*7.20	*8.80	7.20	10.00	*8.00	*8.80	*10.00	10.00	6.00			
Reading.....	.80	.90	.75	.75	.85	.75		.35	.75	.70	.85	.75	.90	.80	.80	.90	.90	.75	.90	.75	.90	.50			
Richmond.....	.65	1.25	.40	.90	1.00	.80	1.25	1.50	1.50	.50	1.25	1.00	.80	1.00	1.00	1.00	1.00	1.00	1.25	1.25	1.25	.35			
Rochester.....	1.01¼	1.12	*.90	*1.12½	*1.15½	1.00	.80	*1.00	.80	.55	1.00	*1.00	*1.12½	*1.17½	*.90	*.90	.90	*1.17½	*1.12½	*1.12½	47½				
Salt Lake†.....	7.20	9.00	6.2½	9.10	1.00	1.00	1.00	1.00	1.00	1.50	1.25	.90	1.25	.80¼	1.00	.90	1.00	1.00	1.00	1.12½	8.00	4.00			
San Antonio†.....	6.00	6.00	2.00	3.00	3.00	4.00	4.00	1.75	5.00	1.50	4.00	3.00	4.00	2.00	5.00	5.00	5.00	5.00	5.00	5.00	4.00	2.00			
San Francisco.....	6.40	9.00	7.00	7.20	7.20	9.00	9.00	9.60	5.00	8.00	7.00	8.80	7.50	8.00	8.00	8.00	8.00	7.20	8.00		8.00	5.00			
Seattle†.....	8.00	9.60	5.28	7.20	7.20	*8.80	8.00	8.00	8.80	4.75	*8.80	*7.20	*9.60	*6.40	*8.80	7.20	7.20	8.00	*8.80	9.60	8.00				
Sioux City.....	.90	1.50	1.00	.75	1.00			1.00	1.00	.40	.90	.80	1.15	1.00	1.00	1.00	.90	1.25	1.00		.60				
St. Louis.....	1.25	1.50	1.00	1.25	1.31¼	1.67½	1.47	1.47	.78¾	1.25	1.25	1.50	1.06¼	1.43¾	1.17½	1.25	1.25	1.43¾	1.25	1.25	.65½				
St. Paul.....	1.18	1.10	.75	.75	.90	.80	.90	.90	.45	.85	.80	1.10	.70	.95	.70	.70	.80	.95	1.10	1.25					
Washington, D.C.....	*1.50	1.75	.50	*1.37½	1.25	*1.65	*1.37½	*1.65	*1.65	.75	*1.62½	*1.37	*1.75	*.75	*1.50	*1.37½	*1.37½	*1.50	*1.50	*1.25	*1.50	.75			
Wichita.....	.60	1.25	.40	.75	1.00	.87½	.75	1.00	1.00	.40	1.25	.87½	1.25	.50	1.00	1.00	1.00	1.00	1.12½	1.25	1.00	.40			
Youngstown†.....	*1.37½	12.00	6.80	10.00	9.00	11.00	10.00	12.00	12.00	12.00	10.00	12.00	6.80	11.00	10.20	10.00					10.00	.70			

NOTE.—Where two figures are shown they are the minimum and maximum. All figures are for hour rates except as indicated. †8-hour day. †Rate per hour. *On 5-day week basis. †Correction. Asterisk after city indicates all trades on five-day week basis.

ABOVE DATA ARE WAGE SCALES AND DO NOT NECESSARILY INDICATE ACTUAL WAGE RATES BEING PAID IN THE RESPECTIVE TRADES.

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NEGRO HOUSING FOR RICHMOND, VA.

By ALFRED KASTNER, Architect

(Continued from page 168, editorial section)

ments will be \$1.15 each and \$2.05 for tools, etc.

In the meantime an architect has been interested in this development, has studied the site and is working up a plan of spotting it with houses. As an architect, this man has accepted the responsibility of this housing problem as a doctor accepts the responsibility of a problem of public health. He knows that just as the doctor in a community is indirectly responsible for the standard of health, he as an architect should guard standards of housing. It is his business. He therefore meets the individual prospects and acquaints himself with their special problems in a professional manner. Knowing that he has to work toward standard dimensions, he readily points out the limitations involved, but knowing also that he can develop hundreds of variations of plans within the simple rectangular space, he can provide for the special needs of each family and for the whims of particular housewives. Plate 2 shows variations of such a standard plan and Plate 1 shows the building elements which can be assembled by unskilled labor. Flexible partitions permit the house to be readily altered should the owner get tired of his original choice or should family changes warrant it. Extensions to the house also are easily possible later on by purchasing the necessary wall, roof and partition units.

By studying the latest industrial development in these units, the architect has found out that putting two houses back to back, he can assemble 250 double houses for \$2,000 each, or \$1,000 per residence. Of this, \$700* is for materials and skilled labor, \$15 per house, architectural and supervising fee, and the remaining \$285 is for wages for unskilled labor including the overheads and profits on those wages. Similar to the street contract \$285 is deducted for the members' work, the balance of the architect's fee not being due until the completion of the project, \$700 per residence is left to be negotiated for mortgages, a total of \$350,000 with an almost adequate equity rate. During these negotiations the work has not stopped. The Cooperative members, divided into gangs, have made an inventory of the trees and shrubs which can be preserved. Under the supervision of the architect they are now protecting them from possible damage during the expected building period. They grade one place for parking, others for the storage of expected building material and build a first aid room. In fact everything is made ready. This work will take approximately two more months at half time, the financial charges for the two months are again \$2.30 per member and \$4.10 for tools, etc.

As soon as the mortgage is obtained the work on the houses is begun. Of course, the manufacture

*During November, 1932. New York newspapers advertised complete 3-piece bathrooms for \$49.50 excluding installation, and complete oil heaters at \$2.50. Both are retail prices and include delivery.



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of the industrial units will take some time, but this time is utilized to dig the foundations, pour the concrete, allow it to cure.

The members of the Cooperative by now have undergone many experiences formerly strange to them and are following more eagerly the different moves and schedules, for they see their own labor invested in their own product. This spirit is a new element for the former slum dweller. It provides him with something he cannot get if he moves casually from one quarter to another—the growing interest in his homestead, the factor determining the future community. Let us presume another month has passed and again examine his financial status. For this month he owes for land and improvements \$1.15, for the interest on the new and final mortgage (6 per cent on \$700 is annually \$42) \$3.50, together \$4.65.

The next month the building material arrives at a nearby railroad station. The transport to the site, the unpacking and the distribution of the factory units, and the setting up of the fitted parts begin. Plate 3 shows these various operations graphically. The men in black overalls symbolize mechanics working full time paid by the contractor, those in white overalls 250 unskilled laborers (500 Cooperative members divided into special gangs working half time because they must earn their living besides), the tools shown are to be purchased, and remain the property of the Cooperative for future work. The ratio of this difference in work is important because it illustrates the most important point of this proposal: the valuation of labor as equity. That is, all three, the land, the labor and the capital being equally necessary, since nothing would result if one of those factors were missing, it is quite logical that money could be borrowed upon each factor. If mortgages can be loaned upon land as security in proportion of one third, or upon capital in the same proportion, then it is just to borrow it upon labor, provided the total operation is within the same ratio.

Let us examine how the different factors stand in our budget. We purchased the land. This cost \$150, of which we own \$20, or a little less than one seventh. This land has been improved with \$150 worth of equipment in the form of streets and utilities to which we contributed \$50 in labor. The total land is now worth \$300 on which our share is \$70, or a little less than one fourth. The houses cost \$1,000 each of which we contribute \$285 in labor. The total value is now \$1,300 of which our share is \$355, a fraction less than one third. One third is considered a sound equity.

The missing fraction we have also produced, and more, because we invested our labor in an organized way, thus promising a well-organized community. Upon completion* our development gives promise to become a garden city—made possible by participation of the home owner.

*The erecting and finishing of all buildings will take more than six months because this too is done on half time. But 250 buildings will be set up after two months and without being finished; they will be ready to accommodate all families, two families in each house temporarily subdividing it and sharing the kitchen and bath. After the remaining houses are completed, all families move to those, allowing the former unfinished houses to be completed.