HE ARCHITECTURAL R

JANUARY 1941

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JANUARY 19

FARM SECURITY ADMINISTRATION

Decentralized, regional design set-up of this little-known U. S. home building agency proves its advantages over centralized bureaucracy in a series of stimulating, low cost projects for farmers and farm laborers . . . A prime il-lustration of the contribution the architect is prepared to make to defense . . . Migratory Labor Camps . . . Chandler Farms, Ariz. . . Community Buildings . . Individual Houses.

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Federal architecture and federal art housed in glisten granite A chest-high counter screen replaces traditional peep holes.	ing the
BUILDING FOR DEFENSE	

Headway and Headaches—a candid view of what the de-fense program is doing for Building and vice versa . . . Raw Materials Aplenty, Fabrication a Problem—an expert on trends examines the staples in Building's basket Defense Housing program gets under way with the Navy far out in the lead; weather, cloudy; track, slow.

HOUSES

More case histories in the small house series. Interior-exterior photographs . . . floor plans . . . critical com-ment . . . cost data . . . construction outlines.

THE ARCHITECT'S WORLD

Thoughts on mural painting, architecture during and after the war, and St. Paul's under the bombs.

THE DIARY

Random thoughts and observations from a personal viewpoint.

STUDENT ALUMNAE BUILDING, WHEATON COLLEGE

The winners of the Wheaton College competition for a library and art center demonstrate their ability and the advantages of the functional approach with a combined recreation and office building.

BUILDING MONEY

Building activity forecast for 1941-THE FORUM considers the governing factors, collects informed opinions, concludes that total construction will advance 19 per cent to \$7,795 million, then shows where the money will go . A new construction loan procedure analyzed—Cleveland's Second Federal Savings & Loan Assn. looks before it lends . . An attractive Boston subdivision comprised solely of LIFE houses-sponsors: a builder and a lumber dealer who know the value of smart promotion and get it for nothing.

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Defense jobs architects .	to a	rchitects and engineers medals for wards to plastics Stuff and Guff.	

BOOKS

LETTERS

Editor, Howard Myers; Munaging Editor, Ruth Goodhue; Associates, Paul Grotz, Joseph C. Hazen, Jr. C. Theodore Larson, George Nelson, Henry H. Saylor, Henry Wright; Assistenses, John Beinert, Anna De Cormis, Richard E. Saunders, Madelaine Thatcher, Nadia Williams, The Ancentrecornan Fourt is published by Time Inc., Henry R. Luce, Chairman; Roy E. Larsen, President; Charles U. Stillman, Vice President and Trassure; Howard Black, Allen Grover, Eric Hodgins, P. I. Prentice, Vice Presidents; David W. Brumbaugh, Secretary, Publication and Subscription Office. Eric Ave, F & G Streets, Philadelphia, Pa. Subscriptions may also be sent to 330 East 25 and Street, Chicago, Illinois. Executive, Editorial and Advertising Offices, Time & Life Building, Rockefeller Center, New York, Business Manager, H. A. Richter, Advertising Manager, George P. Shutt, Address all editorial correspondence to Time & Life Building, Hockefeller Center, New York Mailed Flat. Copyright under International Copyright Convention. All rights reserved under Pan American Copyright Convention. Copyright, 1941, by Time Inc. Printed In U. S. A. VOLUME 74-MUMBER ONE

THE MONTH IN BUILDIN

TRENDS. After a comparatively poor record the month before, when the residential classification alone tried vainly to uphold the total, building permits during October were almost double the volume for the corresponding month of 1939 (see tabulation, right). Most of the glory went to the non-residential building types, particularly industrial, which advanced 235 per cent over last year's comparable figure. Only laggards: additions, alterations and repairs. At October's end, total 1940 construction activity was 15 per cent above last year's mark. For a summary of complete year-end estimates and 1941 forecasts, see below. PERMITS

(Source: U. S. Department of

	1	Monthly Da	First Ten Mo		
	Oct. 1940 (millions)	Compare Sept. '40	rison with Oct. '39	1940 (millions)	Com
Residential	\$143.6	+ 17%	+ 54%	\$1077.5	-
Non-residential	. 163.0	+148	+235	645.1	
Additions, repairs .	. 29.1	- 6	0	292.4	
TOTAL	. 335.7	+ 53	+ 96	2015.0	

BEST YET. Last week Building rang out the best year it had enjoyed since 1930, rang in a still better one. Thus, according to preliminary year-end statistics released by the Department of Commerce, \$6,565 million was spent on building materials and labor last year—an increase of 8 per cent over the 1939 level. Private residential construction was up 13 per cent to \$2,100 million.

Patting itself on the back for having predicted a year ago that these figures would be \$6,558 million and \$2,109 million, respectively, THE FORUM this month crosses its fingers, climbs out on another limb and forecasts construction trends for 1941 (see p. 63, et. seq.) Highlights:

▶ Private residential building, up 4 per cent to \$2,184 million.

▶ Private manufacturing building, up 31 per cent to \$459 million.

▶ Public housing, up 108 per cent to \$416 million.

▶ Military and naval construction, up 131 per cent to \$980 million.

▶ Total publicly financed construction, up 32 per cent to \$3,360 million—the most Government has allotted to the industry in the nation's 165-year history.

▶ Total construction, up 18 per cent to \$7,755 million, the biggest splash in Building's bucket since 1930 when Government tried to stem the Depression tide by spending its second largest building sum.

Obvious stimulus behind these predicted upward trends is the national defense program which promises to be one of Building's major markets in 1941.

HOUSES AND FAMILIES. Although they have just begun their colossal task, Census Bureau tabulation machines have already ground out many a significant statistic for Building. Among them are the facts that, as of April 1, 1940, there were 37,211,463 dwelling units in the entire nation and that 2,438,790 or 6.6 per cent of them were vacant. Since the latter figure includes resort houses normally unoccupied in April, farm houses, dilapidated houses, etc., it does not shed true light on the housing problem. More informative is the census finding that in the 357 cities of 25,000-and-up population only 4.8 per cent of all dwelling units were unoccupied.

Closely related to the dwelling unit supply are statistics on the number and size of U. S. families. While the population increased only 7 per cent between 1930 and 1940, the number of families expanded 16.3 per cent to about 34.7 million. Thus, the average number of persons per family dropped from 4.1 to 3.8 during the decade. Result: today it takes 7.9 per cent more dwelling units than in 1930 to accommodate the same number of people. Looking still further back, it now takes 70 per cent more dwelling units than it did in 1850 (when the average family was comprised of 6.5 persons) to house the same number of people.

FHA HORSE SWAP. For one reason or another, the Federal Housing Administration seems to make more news than any other Government building agency and most of it is good news. Last month came announcement that FHA's mortgage insurance capacity had been jacked up to \$4 billion (ARCH. FORUM, Dec. 1940, p. 2). This month comes word of FHA's midstream horse changing. Out on his own accord went ex-Administrator Stewart Mc-Donald; in on the President's nomina-



Ex-FHAdministrator Stewart McDonald

tion went new Administrator Abner guson (see cut, p. 1).

Although less colorful and impr than his two predecessors-"Big 7 Jimmie Moffett, now a Standard Oi and "Salesman Sam" McDonald, one automaker and now at Jesse Jones' hand as Assistant Federal Loan Adr trator-FHA's new boss is equal t task. Born 60 years ago in the town of Paris, Va., at the foot of the Ridge Mountains about 50 miles Washington, Abner Ferguson has since been further away from the Na Capital-at least in a business sense was educated a lawyer (LL.B in 190 Washington's Georgetown University until December 1934 was a memb Washington's legal quartet of Ellis, guson, Houghton & Gary. At that when FHA's machinery was just l ning to turn, he was appointed its . tant General Counsel and nine m later was raised to General Col Through both his private and publi periences Lawyer Ferguson has earne reputation of being one of the cour foremost authorities on home fina laws and foreclosure proceedings. As a man of the Central Housing Committ Law and Legislation, he contributed to the uniform foreclosure law which American Bar Assn. has approved recommended for adoption by every Legislature.

Transfer of the FHA driver's sea Ferguson marks the beginning of the r gage insurance agency's third phase. it was the formative period when Jin Moffett looked well to FHA's organiz and the development of skilled perso Then came the promotional stage the building industry and the bui public needed to be sold on FHA. To job McDonald brought those talen salesmanship which had long characte his successful business affiliations, in ing the directorships of two banks and industrial companies. One of the latter the Moon Motor Co. which he devel from a bankrupt carriage concern, sol \$4 million in 1927. A better horse than public speaker, McDonald for nately made but few speeches, ac

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A BATHROOM with lots of space. The walls are Presdwood Temprtile with eight-inch squares. The board's smooth, hard surface can be painted white with a dark color in the grooves. It's easy to fit Presdwood Temprtile in such odd-shaped spaces as the tub alcove because it can be cut or sawed to any size or shape with ordinary carpenters' tools.



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WHEN your budget's hard-pressed by countless costly extras, let Masonite Presdwood Temprtile come to the rescue. This grainless wood-fibre hardboard provides all the beauty and charm of lovely lustrous tile-effects-and makes possible a sizable cash saving. Presdwood Temprtile is a permanent wall surface easy to decorate and redecorate. And it has this advantageit will not crack, warp or split and there is no breakage when it's properly applied. The two rooms shown here have been designed expressly to demonstrate the great latitude of design and arrangement you can take advantage of when you specify Masonite Presdwood Temprtile.

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JANUARY 1941

VOLUME 74 Number 1

THE MONTH IN BUILDING

plished his salesmanship by building up a press-wise public relations department—a trick some other Government housing agencies have yet to learn.

With FHA sold to financial institutions, builders and buyers the country over, the agency's promotional phase is about complete. And, thanks to Salesman Mc-Donald's energetic push, the program is running at a fast clip—with enough momentum to carry it for many months to come.

At the helm of this high-speed organization today is a level-headed, deliberate lawyer who, if he put on striped pants would look like a plate passer in church, and has more tenaciousness than one would expect upon first encounter. Courteous and impartial to all his underlings, Abner Ferguson is the kind of man who keeps plugging, and it is a sure bet that if once he launches a new policy he will not back down at the first sign of criticism. Before making a move, he will deliberate long and, afterwards, will not easily be diverted.

Meanwhile, his close friend McDonald may keep a finger or at least an eye on FHA-one of the Federal Loan Agency's children. But probably not for long. Mc-Donald for several months has itched to return to private business. When he originally suggested resigning his FHA responsibilities, President Roosevelt begged him to sit tight until after the election and, later, until after Congressional adjournment. When it began to look as though Congress would hang on until the bitter end, McDonald decided to move immediately. His next move will undoubtedly take him completely out of the Government circle, put him in the Maryland Casualty Co. where he has already served as Chairman of the Board without salary.

READY-CUT. Even when spread over two dozen years, the production of 10,000 houses is big business. Such is the business experience of the latest contender for a place in the prefabrication sun—Houston Ready-Cut House Co. Up until last month Ready-Cut had contented itself with producing only the pre-cut lumber parts of houses, had worried little about their design, financing and merchandising. Prominent among its many customers have been the Southwest's large oil companies; 400 Ready-Cut houses were built in Baytown, Tex., a few years ago, and 60 went to the Caribbean Islands in August.

This year, however, Houston Ready-Cut has also experimented with total prefabrication for more sophisticated markets, now produces three complete houses of four to six rooms with "ready-installed" heating, plumbing and wiring. Known as "Liberty Homes," the three models feature bolted plywood panel construction and steel casement windows. The smallest model (see cut) boasts a sales price of \$2,185 in Houston, a field erection period of only one-and-a-half days, is demountable and 90 per cent salvageable.

Last month, Ready-Cut's line of prefabricated houses was approved by FHA for mortgage insurance, one prerequisite to participation in the prefabricator's field day soon to be sponsored by the Government's defense housing program at Indian Head, Md. (see p. 29).

2 HOURS AT \$7 MILLION. One of the most powerful local building organizations in the country, New York City's Building Trades Employers Assn. fights for and against many industrial reforms and through its monthly mouthpiece, News and Opinion, chants many a battle cry. The current slogan is "Labor Beware Your Friends." To show what it means, BTEA in November published the startling results of a nation-wide poll conducted by the Federated Press of labor editors-the men who run labor publications and mold labor opinion. Asked, among other things, their attitude toward Government operation of manufacturing plants, six out of ten labor editors replied that they favored the move. Commented News and Opinion: "Poor deluded Labor. . . ."

Last month, BTEA had the results of a much more important survey on which to base its argument. Complete was a report of the National Industrial Conference Board, top-notch independent research organization, on the effect of the short workday on the building industry. Noting local building labor leaders were gaining ground in their drive to a the work day from eight to six and the work week from 40 to 30 BTEA last summer called on NIC survey the field and submit a repo the movement's merits and demeri

Based on a detailed examination comparative building costs of the typical New York projects under a day of eight, seven and six hou NICB's findings were entered on the merit side of the ledger. Thus, if bu a six-hour day schedule, the thirteen ects would have cost the owners million, \$6.8 million more than had worked the more customary eight per day. About 70 per cent of the in was attributable to the boost in l payroll, compensation insurance and security taxes; 10-15 per cent, to men's compensation and social securi added to the payroll; the 15-20 pe balance, to higher contractors' ove taxes, interest, etc., which would l neither the builder, the owner nor

In the light of these and other s cant findings which covered close pages in their report to BTEA, researchers came to six conclusions ▶ "There is no indication of any inc productivity per hour resulting find shortened work day in the building to Norsensus of employers of building to labor is that eight hours is the most nomical work day....

"The application of a uniform sizeday would result in an increase in costs of construction in New York of approximately 15 per cent over existing under an eight-hour day...
 "The market for construction is elastic, and . . . increased costs diminish demand.

▶ "While the current effects of a tion in hours would be to spread without any substantial increase in man hours, the longer-term effects present conditions would be to curta volume of construction and reduce ployment in the industry.

▶ "Wage rates in the building trad New York City are already high in tion to wages paid similar trades in cities. Rates in skilled building trad now about 30 per cent above the Ja 1926 level; the purchasing power of wages has advanced 62 per cent." (1 while building activity dropped 2 cent, building costs, about 6 per cen





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FORMICA TOPS, REALWOOD Bickfords PANELING

N COMMERCIAL installations where attractiveness must be combined with durability and urdiness, Formica becomes steadily more popur. The picture shows the new Bickford Restauant, 505 Fifth Avenue, New York.

he wainscoting is "Realwood," a sheet in which an ctual veneer of wood is incorporated in the For-

mica plastic sheet and attains thereby all the hardness and durability, resistance to staining, and the permanent finish that are characteristic of Formica. The table tops are Formica also-as they are in nearly all of the leading trains, ships, hotels and restaurants.

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Trane Teamwork at N. U. OMPACTLY located in a small l equipment room is the Turbo-Vacuum Compressor which furnisbes chilled water to meet the air nissies contret needs of beautiful Scott conditioning needs of beautiful Scott Hall at Northwestern University, Evanston, Ill. The cylindrical casing is visible behind the pillar. In the foreground are the gentlemen who teamed to achieve the desired results. (L to R) D. Warner, Trane Company; C. E. Crone, Jr., of Charles E. Crone Co., Ventilating Contractors; R. C. Wray, Jr., Davis Construction Co., Heating Contractors; W. A. Marriott, Supt. for R. C. Wieboldt Co., General Contractors; M. F. Hayford (kneeling), Supt. of Buildings and Grounds, Northwestern; R. E. Hattis, Consulting Engineer; G. F. Mannion, Trane Chicago Manager.

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lamazoo County Building; Architects Smith, Hinchman & Grylls, Detroit, Mich. Associate Architect Milton C. J. Billingham, Kalamazoo, Mich.

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A typical toilet room in e Union Central Life iilding. After 27 years of vice, the Carrara Glass tils and partitions are ust as good as new." hat's why Carrara is beg specified for anew addim to the old building.

Cincinnati's first large yscraper, the Central nion Life Buildg, erected in 1913.

AS GOOD AS NEW after 27 years of service!

Carrara toilet room walls and partitions stand test of time in Cincinnati's Union Central Life Building

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*The new Suede-finish Carrara is subjected to a special treatment after grinding and polishing to soften its surface reflections.



FORUM OF EVENT

DEFENSE PROJECTS AWARDED TO ARCHITECTS AND ENGINE













7







Washington at long last learns that decentralization is the road to speed. Launching the defense program without much outside professional advice, the Federal departments and bureaus are now showing some recognition of the independent practitioner, whether architect or engineer. Hope persists that others will follow Navy's lead, which Department, as usual, got off on the right foot.

Herewith is an unofficial and possibly incomplete list of Army and Navy projects entrusted to private practitioners up to December 20, 1940.

- Allen & Webster, Chicago—Swimming Pool, Great Lakes Naval Training Station.
- Alvord, Burdick & Howson, Chicago—7th Corps Area Training Center, Newburg, Mo.
- Archer & Co., E. T., Kansas City, Mo.– Camp Claiborne, La.
- Ballinger Co., Philadelphia—Philadelphia Depot.
- Barbour, Frank A., Boston-Fort Devens, Ayer, Mass.
- Benham Engineering Corp., Oklahoma City-Camp Livingston, La.
- Betchel, McCone & Parsons, Los Angeles— Heating Plant for Base, Anchorage, Alaska.
- Black & Veatch, Kansas City—Camp Joseph P. Robinson, Little Rock, Ark.
- Buell, Temple M.; Prouty Bros., Denver-Ordnance Department, Fort Wingate, N. M.
- Burge & Stevens, Atlanta—Savannah Airport.
- Carneal, Johnson & Wright, Richmond— Cantonment, Fort Belvoir, Va. Houses for employes of Hercules Powder Co. Plant, Radford, Va.
- Constantine, Augustus E., Charleston— Addition to Administration Building, Fire and Police Station, Navy Yard, Charleston, S. C.

1—Harrison & Fouilhoux. 2—Shreve, Lamb & Harmon. 3—Holabird & Root. 4—Voorhees, Walker, Foley & Smith. 5—Myron Hunt of Myron Hunt & H. C. Chambers. 6—Paul P. Cret. 7—Alfred Shaw of Shaw, Naess & Murphy. 8—Albert Kahn. 9—Albert Simons of Simons & Lapham. 10—Livingston Smith of Walter T. Karcher & Livingston Smith. 11— Francis P. Sullivan associated with Marshall & Gongwer; Weschler & Cleary. 12—L. W. Robert, Jr. of Robert & Company, Inc.



- Cret, Paul P., Philadelphia—Ne and other changes in Naval A Annapolis, Md. Ward Buildings Quarters Hospital, Corps Quar Officers Quarters, Medical Cente ington, D. C.
- Delano & Aldrich, New York-H ters Building, Balboa, C. Z.
- Dickey, C. E., Honolulu, T. H.– stration Building, Dispensary anlor Officers' Quarters, Pearl Harl Edmunds, Jr., James R.; Lucius F
- Jr., Baltimore—Additional Build Juan, P. R.
- Francisco & Jacobus, New Yor tinny Arsenal, Dover, N. J.
- Fraser-Brace Engineering Co., New Weldon Spring Ordnance Works Spring, Mo.
- Freese & Nichols, Fort Worth Hulen, Tex.
- Gannett, Eastman & Fleming, Ha —Military Reserve, Indiantown (
- Giffels & Vallet, Inc.; Charles W Son, Detroit—Loading Plant, Un ter, Ind., Aviation Shore Facilit folk, Va.
- Greiner Co., J. E., Baltimore—For G. Meade, Md.
- Handeyside Co., C. A., Detroit—E of Machine Shop and Relocation Norfolk, Va.
- Harrison & Fouilhoux, New York tional Aviation Shore Facilities, and Coco Solo. Canal Zone Privi
- Havens & Emerson, Clevelan Knox, Ky.
- Hedman, Ferguson & Carollo, Pl Fort Hauchuca, Ariz.
- Hedrick, Wyatt C., Fort Worthment, Fort Bliss, Tex. Power Engine Storage, A. & R. Shop Building, Barracks, Quarters and sories, Roads and Services, Pe Fla.
- Helland, H. R. F.; F. D. Drought, tonio—Galveston Replacement Tex.
- Hentz, Adler & Shutze; Newco Boyd, Atlanta — Replacement Macon, Ga.
- Holabird & Root, Chicago—Camp Ill

(Continued on page 44) Other Forum of Events pages—1.





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ORE FRONT MAGAZINE. "The Kawneer Front," published 10 ear, illustrates new store fronts, new Kawneer products, new ends. We'll gladly add your name to our list—WRITE TODAY! RESILIENT STORE FRONT SASH Protect show window glass!

FORUM OF EVENTS





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ANDREAS PALLADIO P. Girometti, Sc.



VICTOR LALOUX Sicard, Sc.



JEAN LOUIS PASCAL J. C. Chaplain, Sc.



From an exhibition in the Museum of the A Numismatic Society, New York City, th examples speak for the hundreds in the Collection. Gathered over many years by Mrs. Robert J. Eidlitz and recorded in a p printed folio volume, the bulk of the collec now been presented to the Society.



CHARLES GARNIER J. C. Chaplain, Sc. and the plan of his Paris Opera House Jean Lagrange, Sc.



JOHN M. CARRÈRE G. A. Heber, Sc.



CHARLES A. PLATT Paul Manship, Sc.





RAGNAR ÖSTBERG Sv. Nillson, Sc.



BERTRAM GROSVENOR GOODHUE Lee Lawrie, Sc.



Interested in Radiant Heating?

Here's NEW information to share . . .

You may have seen the first edition of the bulletin, "Wrought Iron for Radiant Heating," as over 5000 copies were distributed to Architects and Engineers. A revised and enlarged edition has just come off the press. Sections on theory and design have been expanded. A number of recent installations are illustrated and described. And a new "Question and Answer" section, based on queries from the field, has been added. We will gladly send you a complimentary copy.

WHY WAS THIS BULLETIN PRODUCED? As a matter of policy, Byers investigates any new developments that promise a market for corrosion-resisting piping materials. The study of radiant heating revealed much information not directly connected with corrosion, but of interest to architects and engineers.

WHY IS BYERS INTERESTED IN RADIANT HEATING? For best results, the pipe coils used in Radiant Heating must have certain physical, thermal and corrosion-resisting qualities, which we know from many years' experience wrought iron possesses to an unusual degree.

WHY SHOULD WROUGHT IRON BE USED FOR RADIANT HEATING? First-for corrosion resistance. Repairs to imbedded pipe are difficult and costly. Service records of Byers wrought iron pipe in skating rinks (where external corrosion problems are similar) and heating lines (where internal corrosion is similar) prove wrought iron is the safest material.

Second—because wrought iron transmits maximum heat to the heating surfaces.

Third—because wrought iron's excellent forming properties, superior weldability and thread-ability facilitate economical fabrication and field assembly.

* * *

A letter will bring you the new bulletin, "Wrought Iron for Radiant Heating."

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

BYERS WROUGHT IRON

FOR <u>EXTRA</u> SERVICE IN CORROSIVE APPLICATIONS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

FORUM OF EVENTS





Resnprest, a Durez resin-bonded plywood, brought the only Special Aw to M & M Wood Working Co., Portland, Ore. Orville Johnson, archit



Plastics Winners. In *Modern Plastics*' 1940 Competition, main awards in lighting group went to John C. Virden Co. for their "Fluorogrill" (top), designed by Norman H. Vacha; and to Miller Co. for their fluorescent fixture of embossed cellulose acetate, designed by Edward Weber of the Company's staff.



In the business and office equipment group, a main award went to Speed-O-Scop bottom-lighted tracing desk of Bakelite, designed by David Lammi. Crystalite do knobs in color (Rohm & Haas Co., Inc. and Standard Products Co.) received hon able mention in the architectural group. Knobs designed by H. A. Husted.



Stuff & Guff, bell ringers for 26 years atop McKim, Mead & White's former Herald Building, together with Minerva and the owls, are back in Herald Square, in a new setting provided by the Park Department (a man by the name of Moses) and designed by Aymar Embury II.



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FOR FURTHER INFORMATION SEE OUR CATALOG IN SWEET'S

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CONDITIONING

way to do it: specify Mueller furnaces on every job.

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HEATI

BOOKS



Kaufmann Guest House, Frank Lloyd Wright, Architect

GUIDE TO MODERN ARCHITECTURE: NORTHEAST STATES. Edited by John McAndrew. The Museum of Modern Art, New York. 127 pp., illustrated. 5½ x 8. Paper 25 cents. Cloth: \$1.00-

In bringing out this guide to modern buildings, the first to be published in America, the Museum of Modern Art has not only performed a service whose importance requires no elaboration, but it has also produced concrete evidence of the impressively rapid growth of the contemporary movement in architecture. The book covers only the Northeast States, from Maine to Maryland, and lists 297 buildings. Few of these structures existed before 1930, and the overwhelming majority are less than five years old. When it is considered that California alone could show at least an equal number of examples, and that work of excellent quality is being done throughout the Middle West and Pacific Northwest, the total number of modern buildings in the country becomes a very substantial figure. The Guide is subdivided according to States, and the towns in which examples are located are also arranged alphabetically. Information given includes owner's name, address if it is located in a city and road directions if outside, name of the architect, and procedure for obtaining permission to visit. In addition there is generally a brief description, indicating the general character and salient features of the building, and occasionally a plan or a photograph. The alphabetical arrangement and a judicious selection of type faces makes its use exceedingly simple.

An unfortunate omission, from the architect's point of view, is the absence of magazine references, since most of the buildings have been published in the various architectural magazines. Since the book was designed primarily for the use of laymen, and since the price of twenty-five cents put a premium on space the lack cannot be considered a serious defect.

Also admirably designed for the intelligent layman is Mr. Mc-Andrew's introduction, which in a few pages gives the background of modern architecture, its essential aims, and the fields in which it has had the greatest influence. The quality of the Guide and its low cost remove the two major obstacles to wide circulation. In the foreword Mr. Philip Goodwin states: "It is only by seeing a good deal of modern design that one can really come to understand and like it." If extensively used, the Guide can materially increase this appreciation and become an important aid to architectural progress. THIS IS THE WAY WE BUILD A HOUSE, by Creighton Henry Holt & Co. 126 pp., illustrated. $8\frac{1}{2} \times 11$. \$2.00.

A picture book for children, illustrating all stages of the struction of a conventional frame house. An excellent pie photographic reporting, and suitable for use by the layman wishes to become familiar with the details of house cons tion. The quality of the reproductions is extremely poor.

MANUAL DE URBANISMO, by Karl H. Brunner. Vol. 2 prenta Municipal, Bogota, Colombia. 364 pp., illustrated. 10 \$8.00.

The second volume of Professor Brunner's work on city p ning, covering urban building types, land subdivision, str and parking places. About 115 illustrations refer to exan in the U. S., and the 350 which remain show examples Europe and South America. The book contains a quantit information useful to the planner, and it is unfortunate the only edition is in Spanish. A third volume is in prepara

FRANCE WILL LIVE AGAIN, by Samuel Chamberlain. Has House, New York. 173 pp., illustrated with etchings, lithogr sketches and photographs. 7 x $9^{1/2}$, \$3.00.

A collection of Samuel Chamberlain's sketches and photogr of French architecture, with an introduction by Donald Me Much of the material has been previously published in b and architectural magazines, but the volume amply illust the character of rural and urban France and Mr. Chan lain's extraordinary virtuosity in the various pictorial m

A HOUSE FOR THE WEEK ENDS, by Virginia Kirkus. I Brown and Company. 252 pp., illustrated. 5¹/₂ x 8. \$2.50.

A practical book for the city dweller interested in cou week ends on a limited budget. Using her personal experie with a Connecticut farmhouse as a basis, the author described how to make an old house comfortable without too great pense or experience. There is no attempt to detail actual remo ing operations, but the book is confined to sensible suggest on finding the house, selection of agents and local contrac financing, heating, and the score of other problems which the urban house hunter. There are excellent chapters on niture, week end housekeeping, gardening, and "Guests, and Pests." Also included are recipes, a glossary of garde terms, specific information on "the costs of a double life" a four-year plan for remodeling and landscaping. At the of each section is a check list in tabular form of what to for and what to buy, ranging from furnaces to five and cent store utensils. A selective bibliography is appended.

COLORING, FINISHING, AND PAINTING WOOD, by A. Newell. The Manual Arts Press, Peoria, III. 480 pp. 6¹/₂ x 9. \$

A very thorough discussion, by a recognized authority on woo It covers proper methods of preparing wood surfaces and use of abrasives. Every type of paint, stain, lacquer and varr is described. A valuable feature is the bibliography which lows each chapter. Designed primarily for the cabinet ma and manufacturer, it is nevertheless a very useful manual the architect who makes extensive use of wood walls and bu in furniture.

(Continued on page 58)



CE IN BOULDER, COLORADO atington, Architect



ONE OF A SERIES OF OUTSTANDING INSTALLATIONS OF ANDERSEN LIFETIME WINDOWS IN ARCHITECT-DESIGNED HOMES.

ANDERSEN CASEMENTS With Horizontal Bar Sash Add Emphasis To The Modern Lines Of This Western Home.

In a setting of rugged grandeur that borders on the spectacular, Architect Huntington has made excellent use of Andersen Complete Wood Casement Units in this modern home. Horizontal muntin bar sash add to the general horizontal sweep of the well-proportioned mass. The bay (left) was dictated by the breathtaking view. The deep shadow lines made possible by wood windows add a touch of character often needed in this type of design.

ASEMENTS CAPTURE A LIVING PICTURE



Y WINDOW DETAIL: owing section through mulsash, using straight sash edge of sill and head staff any radius. Furnished only der.



SECTION THROUGH JAMB: shows Metalone weatherstrip, removable double glazing attached to the outswinging sash, and inside wood screen. Special frame and sash design eliminates sticking and binding. Mortar clinch grooves assure weathertight joining with wall.

SEE SWEETS ARCHITECTURAL CATALOG-SECTION 15 NO. 24 FOR FURTHER DETAILS OR WRITE FOR COMPLETE SET OF INSTALLATION DETAILS.

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In this region of the United States where both extremes of temperature are the rule, the architect has selected a window unit known to the profession for its superior weathertightness. Designed by window specialists, the Andersen Casement is built on the double contact principle of a refrigerator door. Weatherstrip is Metalane. Inside double glazing and special condensation vents help to control the condensation problem. Built on the basis that windows are a Lifetime Essential in every home, the Andersen Wood Casement has justly earned its name and reputation as the "architects' window".

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Panel heating—latest radiant heat achievement finds in Hoffman Hot Water Controlled Heat an able aid to maximum effectiveness. For obviously, in this type of heating, greater importance than ever is attached to adequate control of the heat supply.

Marvelously accurate, Hoffman Hot Water Controlled Heat is basically simple in both equipment and system operation—

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Kesling Residence, LaPorte, Indiana, showing panel heating installation laid under floor. Samuel R. Lewis, Consulting

RETURN IN ATTIC

Engineer.



For complete design and installation data, write to the Hoffman Specialty Company, Inc., Dept. AF-I, Waterbury, Conn.





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• Today all your homes can be on "Comfort Street" because "Comfort Street" is any street where homes are insulated with KIMSUL*. KIMSUL is highly effective, yet low in cost. The soft, flexible KIMSUL blankets are clean, light in weight, and lasting. KIMSUL'S conductivity is only .27 B.t.u./hr./sq. ft./°F./inch (Peebles). KIMSUL is one of the easiest insulations to install, and, once in place, does not sag, sift, or pack down inside walls. Moreover, KIMSUL is highly resistant to moisture, and being nonburning, is in the "safest insulation class."

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KIMSUL²Quickly, Easily Installed Usually a one-man job. KIMSUL fits standard stud spacing, can be easily cutfor narrow spacing, corners, etc.



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KIMSUL Does Not Settle Rows of strong stitching keep the expanded KIMSUL blanket at proper density. KIMSUL stays "put".

J. T. Davidson, Detroit builder, using KIMSUL in a 300-home project at St. Clair Shores, Michigan, says: "... the cost of installing KIMSUL is considerably lower than other types of insulation...I am thoroughly convinced KIMSUL is the best."

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HOW TO ESTABLISH THE PRACTICAL INSULATION THICKNESS FOR EACH JOB

Heat Loss Stopped in Walls

Maximum heat loss stopped with insulation.

Heat loss stopped by Standard (Approx. 1 in. thick) KIMSUL.

KIMSUL is available in three thicknesses: Commercial (nominally ¹/₂ in. thick), Standard (nominally 1 in.), and Double Tbick (nominally 2 in.). Standard KIMSUL stops the greatest proportion of heat losses in winter and of heat infiltration in summer.

In a normal frame wall, Standard KIMSUL stops 54% of the heat which would normally be lost through an uninsulated wall. Double Thick KIMSUL stops 65% of the heat loss. Wall-thick insulation stops 73%.

The first inch of insulation does the most work. Taking the maximum heat stoppage through walls as 100%, it is readily calculated that Standard KIMSUL stops 74% of all the heat that can be stopped with any insulation.

GOING TO NEW YORK? Visit the KIMSUL insulated "House of Ideas," Rockefeller Center, New York City. Also see KIMSUL at the Architects' Permanent Exhibit, Architects' Samples Corporation, Park Avenue and Fortieth Street.

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JANUARY 1941

LETTERS

Building For Defense-Pro

From among the letters and telegrams which greeted the appearance of The Forum's Building For Defense issue the following have been selected to indicate the breadth and depth of the interest in our Number One National Problem .- ED.

Forum:

Now that I have had a chance to study the November issue of THE FORUM, I want to tell you how very remarkable I consider it. To have collected so much pertinent material on the National Defense is an achievement which the entire profession will value....

ALBERT KAHN

Detroit, Mich.

Forum:

. . . it is literally packed full of interest, meat and thought-provoking material. I particularly marvel at the scope of the work in view of the limited time at your disposal . . . you have brought out of seeming chaos a tremendous amount of factual, to-the-point information that should be invaluable to your readers . . .

W. BURKE HARMON New York, N. Y.

Forum:

. . what FORUM has done is something akin to marching up to a barnyard full of jumbled jackstraws and carefully selecting and arranging them into an orderly pattern . . .

VOLNEY B. FOWLER General Motors Corp. Detroit, Mich.

FORUM DEFENSE ISSUE TIMELY INFORMING AND COMPETENT. CONGRATULATE YOU HEARTILY ON SHOWING US ALL WHAT IT TAKES.

New York, N. Y.

R. H. SHREVE

Forum:

I still think that the floor plan you have published in the upper left corner of page 375 of THE ARCHITECTURAL FORUM might, at times, prove of value to an enemy who had occasion to be interested in the facilities shown. Aside from that-and seriously-I think you did a wonderful job in your November issue.

(Col.) R. B. LOVETT Office of the Chief of Staff War Department Washington, D. C.

Con Forum:

Fired not only by the great reputation of Mr. Andrews and the great reputation of your journal, but as well by the timely title, "Defense of the City," I read and studied the article under that heading. Being, so to speak, a layman in regard to such matters, I was in a position to examine with perhaps too naive admiration the letters to the "Mayor" and accompanying diagrams, etc., prepared by the Messrs. Andrews and Bennett. Thus it is no spirit of carping criticism that leads me to ask a number of questions . . .

Question 1: If a 2-mile circle is drawn around the chemical plant (which is "to be expanded to manufacture explosives") it is discovered that within the confines of this geometry is the fort, the railroad station and freight yards, the power plant, clock factory (to be used for the manufacture of ammunition components), the main bridge over the river, and what appears to be a nice number of gasoline storage tanks. In addition, the main traffic density falls neatly within this area.

Thus, the location for this explosive plant could hardly be better chosen for an aerial attack, sabotage by enemies of the people, or even by those more reasonable prospects-static electricity or a careless workman. Under these conditions and in view of the recent explosions in similar plants, is it quite safe to expand to manufacture explosives?

Question 2: If the answer to Question 1 is "no" would it not-in view of all the problems raised by the expansion of the plant such as pollution of the "river," etc.; in view of the fact that the chemical plant should not be expanded as much as the chemical company wishes (all as pointed out by Mr. Andrews) and, finally, in view of the fact that a considerable amount of new building is required-perhaps be a worthwhile idea to suggest moving the plant out of the city?

Question 3: Wouldn't it have been better, in fact, to have written the "Mayor" a letter pointing out the objections to creating a military objective of a town containing "94,000 people" of which perhaps not more than 15 per cent are engaged in war occupations; the objections to putting an explosives plant where it can possibly do more damage than a "Coventry" raid; in fact, pointing out all the things which experience in the latest world war has demonstrated.

A plan might have been suggested of the sort which pointed out the absolutely treasonable character of any proposal to create such conditions as mentioned above, with a brief note covering the various elements which make this scheme undesiral by practically every social, civic, econom and military standard. Mr. Andrews mig have demonstrated the present concre value and necessity for the creation satellite towns to house these new indu tries. He might have explained an eve larger possibility with its future peac time implications-a method whereby t workings of the defense program could the beginnings of a regional plan for the United States; a plan which would mal that great country west of the 95th M ridian of Longitude an empire to be se tled.

PERCIVAL GOODMAN New York, N. Y.

To date, but one dissenter has been hea from. Unable to believe that this dispr portion is truly representative of read reaction, THE FORUM will welcome furth letters from those who side with Archite Goodman.-ED.

Art Appreciation

Forum:

Recently there came into my possessio a letter from the Postmaster of Pleasan Hill, Missouri, which I hope will appeal you as it does to me.

PHILIP ENDER

Baltimore, Md.

Treasury Department Procurement Division Washington, D. C.

I wish to report that Mr. Tom Lea ha installed one of his murals upon the sout wall of the Pleasant Hill, Mo. post offic building.

We, which is intended to include the en tire office force and a goodly number of local citizens who have been in to inspec the painting, which, whether correctly s or not, has been titled, "Back Home," hon estly believe the Treasury did our peopl a splendid turn in putting this, our firs work of art, within the easy eye reach o all of us and especially the students of ou school. The mural has already become a matter of community pride and interest both of which will grow with the passing of time. As laymen view the work, it' great. Doubtless fellow artists and ar critics would concur. . . .

In behalf of the many smaller cities wholly without objects of art, as ours was may I beseech you and the Treasury to give them some art, more of it, whenever you find it possible to do so. How can a finished citizen be made in an artless town?

Respectfully yours, BASIL V. JONES, Postmaster Pleasant Hill, Mo.

sn't it logical that this "Best-Seeing" Light can be the "Best-Paying" Light for your clients?

"50 FOOT CANDLER" offers

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Investigate New MILLER FLUORESCENT TROFFERS, Too ... A far better general overhead illumination of offices, stores, factories, schools, drafting rooms and similar locations having acoustical or other hung ceiling constructions, is provided by MILLER TROFFERS. This companion-piece to the "50 FOOT CANDLER" represents recessed continuous trough lighting in its most advanced form. Write for new Troffers bulletin Sec. 2G. YOUR greatest concern is that your clients get the most efficient lighting system possible for their specific needs, and at a cost that does not eat up too large a proportion of their total building costs. Isn't it just as simple as that?

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We suggest you let us send you full details about the "50 FOOT CANDLER", or more usefully, make an appointment for you with a Miller Lighting Engineer.

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in Sec. 2G.

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Do you know what type of Douglas Fir Plywood re-2 sists boiling . . . is waterproof when used for building exteriors or boats?

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Do you know the many new finishes that have been created, making Douglas Fir Plywood one of the most beautiful woods for interiors.

If you can't pass this quiz with flying colors, read the Douglas Fir Plywood section in Sweet's Catalog . . . or send for Sweet's Reprint and other literature. Douglas Fir Plywood Assn., 1500 Tacoma Bldg., Tacoma, Wn.

How to use **Douglas** Fir Plywood in homes Finish roofing

5/16" Plyscord sheathing

1/4" Plywall ceiling

Insulation

3/8" Plywall

Asphalt paint vapor barrier

5/16" Plyscord sheathing

EXT-DFPA exterior finish

Furring strip

1/2" Plyscord sub-floor

Concrete formed with 1/2" Plyscord, which is used for sub-floor after stripping.

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D. F. P. A



THE MORE you know about Douglas Fir Plywood, the more problems it will solve for you. There is now a grade of this "modern miracle in wood" for every possible building and engineering use. Each panel is made in strict accordance with U. S. Commercial Standard CS45-40 and stamped with a distinctive "grade trademark" to make specification easy and identification positive.

Particularly suited to today's need for accelerated building is the Dri-Bilt with Plywood method of construction. Because the big, sturdy panels take less handling, cutting and fitting . . . because there is no time lost waiting for plaster to dry ... residences, stores, barracks and other structures built the Dri-Bilt way are often finished as much as 6 weeks sooner than if they had been built conventionally.



• This smart new Seattle, Wn., restaurant is Douglas Fir Plywood inside and out. The exterior is the waterproof outdoor grade of plywood, EXT-DFPA, covered with plastic paint. George W. Groves was the architect.

• The interior of this restaurant shows how walls and ceilings can be beautiful yet crack and puncture-proof. Plywood handled so that the joints are hidden by a plastic finish is highly practical for both commercial and residential work.

EXT. - D. F. P. A.

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PLYPANEL D.E.P.A.

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Marcel Villaneuva, Architect

Owner satisfaction is paramount in the selec-tion of the materials and equipment for the fine homes built by General Properties, Inc., in Madison and Short Hills, N. J. This is one important reason for its continued success and high professional standing.

OLD SHORT HILLS ESTATES

of

Merrick

CROSS GATES-AT-MADISON

GENERAL PROPERTIES, INC. Operating Office SIXTY TWO MAIN STREET MILLBURN, NEW JERSEY MIL 6-0442 December 13, 1940

General Electric Home Bureau 570 Lexington Avenue New York City Attention: Mr. George Ellis We feel it high time that we report to you regarding the reaction that we are receiving from the buying public, o our use of General Electric equipment in our homes. Gentlemen:

our use or weneral Electric equipment in our homes. As you well know we first decided to go *G. E.* not merely from a standpoint of sales appeal but purchasers with principle that we would be furnishing our purchasers a finer piece of merchanise, the real value of which would be more tangible in years to come when upkeep and depreci-ation set in. We are very firmly convinced of the sound ness of this practice. Ness of this practice. In addition to our own satisfaction in building more quality in our homes, we have been tremendously pleased with the immediate and enthusiastic acceptance by our purchasers of your products. The G. E. label seems to have a rather magic ring to oit in the eyes of a home owner and this coupled with our complete satisfaction from a stand-potent factor in our decision to go "G. E."

May we take this opportunity of thanking you and your organization for your pleasing sales approach and the efficient technical assistance furnished.

Assuring you of our continued business as well as our wholehearted approval, we are)m. M. Merviel

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CANTON, OHIO



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BUILDING OF THE MONTH ... in this corner, the winner



PROJECT OF THE MONTH . . . less wrath, more grapes








Farm Security Administration was established in 1937, taking over the functions of the Division of Subsistence mesteads, the Resettlement Administration and several other agencies. Its activities include the management of three enbelt towns and 161 other Resettlement projects, the administering of rural relief, the granting of loans to needy farm illies, and to tenants and sharecroppers who are trying to become farm owners. Its broad general purpose is to be farmers to become permanently self-supporting by teaching farm-management methods, by checking the increase cenancy, and by resettling migrants on the land. The architectural aspects of these activities are illustrated in these es.

st interesting of all Farm Security's accomplishments in the building field is the quality and thoroughly American racter of its design. The freshness and inventiveness displayed in its best work are due, in part, to the fact that re was no architectural precedent for Southern farm buildings to precondition design, in part to the absence of eaucratic control.

m Security's organization consists of a group in Washington and twelve regional offices. The number of architects any one regional office varies with the amount of work on hand. To Washington falls the work of allocating projects hin the budget, and of checking final plans and cost estimates. All of the architectural design, engineering and site nning is handled locally, independently—and intelligently. Since the regional offices are in constant touch with local ditions, the programs are established in these offices. In addition, there is an interesting device known as a plan l, whereby all architects in the field can study the solutions arrived at in other parts of the country.

o virtually unique in Government is Farm Security's willingness to experiment, a reflection of the large measure of al autonomy enjoyed by the planners. In five years of trying solutions to minimum house problems there have naally been mistakes, but the large scale adoption of successful methods has more than paid for them.

lay, in face of a national emergency, Farm Security stands out as the agency most experienced and successful in the k of building houses quickly and cheaply. Also, its accomplishment lends credence to the view that local architecture ally arrived at, whether private or public, achieves results in speed, quality and cost.

D M I N I S T R A T I O N

F. S. A.-Lange



ects. HT, a typical portable migratory labor p, in the Imperial Valley, California. The ers are used for the health service and manager's living quarters and office. se trailers follow the harvests as part mobile camp.



FARM SECURITY ADMINISTRATION



POWER UNIT

SHOWER TRAILER

INSIDE

MIGRATORY LABOR CAMPS

The Shafter Camp (below) is one of the camps for migrants. To on wood platforms shelter the families, while the utilities for was laundry, administration and community services are housed in inexsive, permanent structures. Where it is possible to take some far out of the stream of migrants and settle them with reasonably st employment in the neighborhood, a group of permanent homes is a constructed.

For the so-called portable camps, all utilities must be mobile, such the power and shower units illustrated above. The power unit h diesel generator and oil is also used to fire the hot water boiler. In camps even the lighting standards are demountable, making it posto follow the workers from one farming area to another with all reqservices. The cost of this equipment is about one-half that of permautilities, only a fraction of what would be needed to maintain chain of camps otherwise required.

CAMP AT SHAFTER, CALIF.

F. S. A







CLINIC, ELEVEN MILE CORNER, ARIZONA

UNITY BUILDING, AGUA FRIA CAMP, ARIZONA





METAL SHELTER, TULARE CAMP, CALIF.

TY BUILDING, AGUA FRIA CAMP, ARIZONA





H WATER

GARBAGE DISPOSAL

SEWAGE DISPOSAL



Current practice in the migratory labor camps is to replace tents with the metal shelter shown directly above. While an exceedingly simple structure, it has been beautifully designed: typical is the rounding of the edge of the roof for greater strength and better appearance. The community service buildings show similar examples of first-rate design under strict budgetary limitations. At the left is an interesting and economical scheme for garbage disposal: the water drains into the sewer and the rubbish is later taken away and burned.



MODEL OF CAMP, FIREBAUGH, CALIF.

MULTI-FAMILY APARTMENTS



1. Row Shelters, six families each. 2. Central Utility Building, Si Laundry, Drying Yard. 3. Quarantine or Isolation. 4. Clinic. 5 House, Warehouse, Office. 6. Assembly Hall. 7. Manager's Hou Six Multi-family apartment houses. 9. Homemaking and Laundry ing. 10. Farm Land. 11. Farm Group, Dairy, etc. 12. Cam ployes, Watchmen, etc.

The type of planning currently followed in Farm Security m projects is clearly illustrated by the model above. Largest of the consists of six-family row shelters for migrants. These are equivity with the necessary parking spaces, toilets, showers, etc. The living group contains multi-family garden homes of the type u Yuba City. A farm group for these permanent settlers is ad Community services jointly used by both groups are conver located in between. The multi-family homes contain six apart each with dormitories at both ends which may be used by large fa or rented to unmarried farmers. Frame construction is used wit wood interiors and party walls of plasterboard. Exteriors are in redwood and wall board. The sliding doors between bedroom for better ventilation during the hot months. Overhangs at the provide covered play space for children and a place for laundr hot water heating equipment.

FARM SECURITY ADMINISTRATION



MULTI-FAMILY APARTMENTS, FIREBAUGH, CALIF.





KITCHEN

MULTI-FAMILY APARTMENTS, YUBA CITY, CALIF.



CHANDLER FARMS, ARIZONA

Chandler Farms is a community-type subsistence farming project for migrant families, with about 350 acres of land. Here is seen for the first time the unique type of multi-family dwelling subsequently used at Yuba City, Firebaugh and other localities. Each unit contains eight four-room apartments with bath, and the direct construction cost per unit, including the garage, was \$2,097. Native adobe was used to produce these structures whose architectural treatment and general arrangement form a distinguished example of contemporary design. The effect, it will be noted, stems directly from the construction: the overhangs, window flaps and heavy buttresses are all essentials, part and parcel of the requirements of materials and climate.



FARM SECURITY ADMINISTRATION



CATTLE SHELTERS





CHANDLER FARMS, ARIZ.



GARDEN SIDE



ENTRANCE SIDE

FARM SECURITY ADMINISTRATION







SECTION

effect of spaciousness achieved in the Chandler is perhaps its most pleasant characteristic. ly interesting, however, is the vigor of the esses which terminate the adobe party walls and indow flaps which admirably solve the problems ht, shade and ventilation. The rigid economy e construction is perhaps best illustrated by the interiors shown on this page. In every instance ment, hardware and materials have been kept to the minimum consistent with durability.



LIVING ROOM-KITCHEN

RS, STORAGE



KITCHEN



FARM SECURITY ADMINISTRATION



CASA GRANDE VALLEY FARMS, ARIZ.

COMMUNITY BUILDIN

Structures for community services typical freshness of expression. Ther arbitrary use of style or plan, loca and materials determining to a lar tent the design. In the Southwest has been used extensively as shown handsome community building at Grande Valley Farms in Arizona building at Tulare shows an equally tive use of wood. At Sonoma is a example, admirable for its econom flexibility. It serves as nursery, ass room, office, and, when the bar doors are open, as the stage of an air auditorium.





SONOMA, CALIF.





OOO INDIVIDUAL HOUSES have been built to date by Farm Security and the agencies it has a over. While most are of unusual interest for the quality achieved at phenomenally low prices, significant is the freewith which experiments have been conducted. Illustrated below are some of the results.



houses at Camelback Farms are typical of many built in the Southwest in their of adobe, an eight-inch exterior wall being standard construction. Roofs are of inum-painted sheet metal with ventilators built in at the ridge. An economical square is used, with kitchen and living room forming a single unit. The detached car er is somewhat unusual, and less successful than those designs in which it has been porated within the main body of the house.





ELBACK FARMS, GLENDALE, CALIF.



FARM SECURITY ADMINISTRATION



MINERAL KING RANCH, CAL

The Mineral King development has acres planted to alfalfa and cotton, operatively farmed by eighteen fam The houses, built from a standard p will sleep five or six comfortably and arranged on the site to give an appear of variety in the group. The unusual treatment arises from the provision clerestory to light and ventilate kitchen and bath. A car shed is prov with minimum additional expendit The plan shows good closet space and arrangement of sleeping porch and li room which permits considerable flexib of use.





F. S. A.-

<image><image>



\$499 cottage, built in southeastern Missouri. This low has not been achieved without serious sacrifice of sary living space. According to officials, "These builddo not constitute really adequate homes; they are y an effort to provide some kind of shelter for families extremely low annual incomes."





Type C" house, also built for Missouri sharecroppers. It simple wood frame construction, has a small screened a, a living room with kitchen alcove, a storage pantry three small bedrooms. The house cost \$750, is rented a garden tract at about \$4 per month.





r a hundred prefabricated wood houses have been built New Madrid, Missouri, for an average cost of about 00 including planning costs and overhead. Both four five-room types were constructed, are considered by m Security to be among the most satisfactory yet proed. For additional technical data and construction photoobs see the November 1938 issue.



FARM SECURITY ADMINISTRATION



COTTON HOUSE



THORNTON, CALIF.



CASA GRANDE VALLEY, CALIF.



The cotton house was an experiment in the use of a l produced material. Cotton duck, stretched over ply backing and painted with white lead and oil, is the exfinish. It is estimated that the average cost of \$1,280 be reduced 20 per cent by mass-production methods type, however, is not being continued since its original is appreciably greater than that of a wood house. It prove cheaper to maintain, may be re-introduced.



A wood frame house built in California, at a contract of \$2.30 per square foot. The plan is typical of man the detached garden homes built for permanent use. rent for house and land is \$8.20 a month, and in a cases this price includes utilities.



An adobe house for the Southwest, showing an interest mass achieved through the use of shed roofs. The scree porch is used for laundry, dining and sleeping. Two I rooms, each accommodating a double bed, are provided, additional sleeping space could be provided in the liv room if necessary. The average cost per house in project was around \$2,000. UNITED STATES POST OFFICE, MADISON SQUARE STATION, NEW YORK





Two elements differentiate this building from post offices of this and previous generations: 1) the material of the main front; and 2) the low counter screen in the public space. With the aim of keeping the exterior clean in spite of the inevitable city grime, a highly polished three-inch veneer of Dakota mahogany granite was chosen. Incised lettering above the piers is lined with gold leaf and the five sculpture groups in cast iron are similarly picked out from their black spandrels. Three central groups are by Amateis, the two ends by Slobodkin. Contrasting with the typical post office public space, where the counter screen extends to the ceiling and shields the working space, this one is in the nature of an experiment developed in collaboration with Floyd Williams of the Post Office Department. Although this branch office is among the busiest in the city in volume of mail-particularly in parcel postits work space seems to lose nothing in efficiency by being exposed to public view. Banking rooms seem to have accepted the low counter screen; post offices may follow the practice.



24TH ST.

UNITED STATES POST OFFICE

MADISON SQUARE STATION, NEW YORK, N. Y.

TREASURY DEPARTMENT: LOUIS A. SIMON, SUPERVISING ARCHITECT;

LORIMER RICH, ARCHITECT

EDMOND AMATEIS and LOUIS SLOBODKIN, SCULPTORS

KINDRED McLEARY, MURAL PAINTER

SPANDREL DETAIL LOUIS SLOBODKIN, SCULPTOR



All photos, Robert M. Damora





LIC LOBBY

PARCEL POST SECTION

ter walls are terra cotta in color; ng, white; floor, black terrazzo. Light ghs of glass and bronze are less obive than the photograph (above) gests.

ven the parcel post section, blood her to the commercial shipping-room therefore seldom aspiring to clean rliness, is here opened to public view ve its broad weighing counter. ve, on the second floor, is the pneuic tube station, maintaining constant sfer of mail uptown, downtown and er the river to Brooklyn.





DESK DETAIL



UNITED STATES POST OF

MADISON SQUARE BRANCI

TREASURY DEPARTMENT: LOUIS A. SIMON, SUPERVISING ARCHITECT; LORIMER RICH, ARCHITECT

EDMOND AMATEIS and LOUIS SLOBODKIN, SCULPTORS

KINDRED McLEARY, MURAL PAINTER

Memories of scarred wood shelves the notorious "post office pen" stirred by the creation (above bronze and black plastic, recesse the wall of the parcel post sec

Eight mural panels along both of the public lobby depict ty everyday scenes in New York. U the direction of the Fine Arts Sec Public Buildings Administration Treasury Department when the b ing was designed, but now in Fe Works Agency), Kindred McI was selected after having been run up in a competition for another n project. Subjects range widely Manhattan: Harlem, Park Ave the East Side and the Docks, Street, Greenwich Village, the and the Great White Way. Wain and counter screen are of Ca green marble.

ILDING FOR DEFENSE HEADWAY AND HEADACHES

NTONMENT CONSTRUC-N DELAYED

hen ill-starred presidential candidate dell Willkie last fall accused Govern-'s Army housers of tardiness, he spoke hetically but out of turn. With progstatistics, Secretary of War Stimson red him, set him right. But, last month, tary Stimson admitted that he too spoken out of turn, for, since Willkie given his verbal spanking, the Army's onment construction had bogged down ably-25 of the 40 large camps are here from two to ten weeks behind lule. Result: of the 90,000 men to have inducted into Federal service by mber 2, only 20,000 have been called. essed by pressmen for the reasons bethe Army's troubles, Stimson offered f-dozen: 1) unexpectedly difficult site itions, 2) changes in camp locations, aterial shortages, 4) labor troubles, 5) ficient water supplies, 6) and most rtant, water conditions. At Fort Dix, e construction is two months behind , water was close to the surface of the y soil, made excavation difficult; and bor strike added to the toll. The nth Corps Area training center, now and a half months late, was moved to ouri from Iowa, where the water supproved to be insufficient. A month's 7 at Indiantown Gap was caused by grade rock and shale which made r and sewage trench digging difficult. cal lumber shortage combined with weather to put Fort Devons back one . Construction at Fort Claiborne has ed about a week, first, because it was ssary to determine the presence of cient water and, then, because it rained nts.

ith figures prepared by the Labor artment's famed Statistician Isador n, War Secretary Stimson proved that, rary to general belief, labor troubles responsible for not more than "1 per ' of the delays.

nother more basic reason for the cannent program's lag, not mentioned at by Government spokesmen but obsly apparent in several of the more ediate reasons, is the fact that the y's much-tooted M-day plan was not pletely water tight. Twenty-two years eace would seem to be ample time in h to check the water supply and soil litions of its prospective camp sites.

espite construction delays, however, son is not discouraged with his pron's progress. Says he: "I knew that a ain amount of delay was inevitable. mates beforehand are only estimates. one who has built a house knows " Lesser Army officials still believe they will meet their original goal to finish housing accommodations for all the 1.4 million men scheduled to be under arms by June 30. But the odds say "no."

BILLIONS FOR DEFENSE, BUT . . .

By mid-December, not too great encouragement had come to architects who hopefully looked to the defense program for jobs. Probably not more than fifty firms had been called by Government to siteplan, design and supervise any of the hundreds of projects which engineers, contractors and manufacturers were and are turning handsprings to produce. In Washington the notion persisted that existing Bureau personnel could do the job better, or if not better, faster. Most roundly criticized was the placing of all Army and Maritime Commission defense housing on the drafting boards of the Public Buildings Administration. This agency (formerly the Supervising Architect's Office of the Treasury), normally concerned with post offices, overnight found itself in the role of a small house expert. Willing enough but not expertly, dozens of site and house plans were produced feverishly, studied, revised, studied and revised again. Meanwhile at least five hundred architects across the nation, thoroughly qualified by experience to do this work with a complete understanding of local requirements, sat and waited. The fact that the generally delayed defense program was even further behind schedule on the PBA assignment suggested to some that they might not have to wait much longer. Paraphrased an indignant Texan: "Billions for defense, but no one sent for architects!"

CONSTRUCTION TROUBLE SHOOTER

While not discouraged with the serious delays in his \$1,147 million construction program (see col. 1), War Secretary Stimson is far from satisfied. Proof: Fortnight ago he called to his Department a man renowned for his effective administrative ability and his marksmanship as a keen-eyed trouble-shooter-Lt. Col. Brehon B. Somervell. He moved into the executive office in charge of construction which was vacated two days before when Brig. Gen. Charles D. Hartman entered the Walter Reed Hospital for observation and rest following a long period of overwork.

A slim, grizzled 51-year-old member of the Army's Corps of Engineers, Col. Somervell has a background of practical experience which admirably suits him for his present colossal construction job. Highlights: one-time president of the Mississippi River Commission; construction director of the controversial Florida



Trouble-shooter Somervell

International New

ship canal before this pet New Deal boondoggle was cut short; Engineer Corps officer in the Washington (D.C.) district in which capacity he had charge of the construction of an additional conduit for the local water supply system and made a preliminary report to Congress on the establishment of the Gravelly Point Airport which will be opened to traffic this spring; and, most recently, WPAdministrator for New York City.

First move of Trouble-Shooter Somervell in his new position was one toward both consolidation and decentralization. Thus, he has reduced to five the eleven sections into which his organization was formerly divided: administrative, finance, engineering, construction and real estate.

As the pattern for his decentralization move, Somervell tore a leaf from World War I history which showed that construction proceeds more orderly when under local direction. Soon he will have established nine construction zones coinciding with the Army's nine Corps Areas and will have appointed nine "zone representatives" who will be given power to make decisions without waiting for red tape entangled approvals from Washington.

Indication that Col. Somervell believes Labor has more than a "1 per cent" share in cantonment construction delays (see col. 1) is his announcement that an official of "wide experience" would soon be appointed to deal with labor difficulties. And, indication that even Somervell's vigor and efficiency may be unable to make up the construction program's lost time is his admission that it will take 'every bit of experience, drive and energy we have" to finish the cantonments by the June 30 deadline.

CENTRALIZED BUYING

To cushion the impact of the Federal defense housing program on material and equipment manufacturers and to aid them in scheduling their production, Treasury Department's Procurement Division at mid-November launched a centralized buying program by sending to Building's manufacturers specifications for the desired items and questionnaires concerning their production.

At mid-December, the Procurement Division let the first three contracts under its centralized buying program: 1) to Briggs Manufacturing Co. of Detroit, \$475,582 for steel bathtubs; 2) to Youngstown Pressed Steel Division of Mullens Manufacturing Corp. of Warren, Ohio, \$53,400 for more steel bathtubs; 3) to Williamson Heater Co. of Cincinnati, \$38,885 for warm air furnaces, blowers and automatic heat regulating equipment.

BUILDING LABOR AMPLE

Eagerly awaited and worth waiting for was the address of President John P. Coyne of AFL's Building and Construction Trades Department delivered last month before the U.S. Chamber of Commerce's Construction Industry Conference. After reiterating President Roosevelt's conviction that the social gains of Labor should not be sacrificed at the expense of national defense, Coyne went into the vital subject of Building's labor supply, dispelled fears frequently expressed in the press that there would not be sufficient numbers in the skilled building trades to carry out the defense construction program on time.

On the basis of a survey of all National and International Unions and 510 local Building and Construction Trades Councils, Coyle concluded that last June there were "approximately 370,000 affiliated union skilled craftsmen and building and construction laborers available for employment in the defense program." Commenting upon the use of these men since that time, the labor leader noted "that we have been able to supply the needs in every instance for competent skilled labor on every project on which we have been requested to aid . . . and without one cent of cost to the Government for transportation expense . . . while we still have a number of available skilled men, the supply is reduced radically, but there is still no danger of a shortage. . . .

POST-WAR PICTURE

With airplanes fog-bound, Johns-Manville President Lewis H. Brown was forced to address the same meeting by amplified telephone from New York. Following a thorough exploration of Building's responsibilities and problems resulting from the Defense Program, Brown concluded with an appraisal of Building's part in the postwar period:

"And finally, let me say that the building industry, in keeping with other

branches of industry, must embark upon a program of extensive research of a kind and character which it has not yet heretofore utilized. I do not mean abstract or theoretical research such as has been too often indulged in by our Government 'planners" for an idealistic future or Government spending which is smoke screened as research. We want to avoid any more 'Tugwell Towns.' I mean a practical kind of applied research which creates new longrange patterns which are usable in cutting through the log-jams which prevent drastic reductions in building costs-patterns which can be used in community after community to solve their local problems. We must prepare ourselves for the job of rebuilding America. We must teach every builder, every architect, every real estate agent, every building supply manufacturer, every maker of real estate and construction loans, to think in terms of how better homes can fit into better community development, into better town planning, into more wholesome neighborhoods.

"And from a modernization standpoint, we shall have to learn to think in terms of whole areas and whole sections which must be scrapped and completely rebuilt. Here we must think in terms of salvaging immense investments in public improvements such as streets, schools, utilities and fire protection in the great 'blighted' areas of our cities. We must do this through broad programs of building modernization in entire areas so as to revitalize the income producing power of the buildings in these areas. To move great numbers of people from these 'blighted' sections to new outlying suburbs merely evades, without solving, this serious municipal problem."

LUMBER DEMAND PEAKS

According to word last month from Steelman Edward R. Stettinius, Jr., National Defense Advisory Commissioner in charge of industrial materials, Government's wild lumber consumption spree, which hiked prices by about 10 per cent during the last half-year, has passed its peak. Practically all of the 1.5 billion ft. of lumber needed for the present cantonment construction program has been purchased. Some informed observers predict that the peak-passing will act as a tonic for jittery lumber prices, will at least cut down their upward acceleration.

A two-week survey of the industry conducted by Stettinius at year-end indicated that the 1940 lumber production ran to about 28.5 billion ft., up 3.5 billion from 1939. The increment is substantially more than the defense program requirement. Busiest lumber field is the South which produced close to 8 billion ft. last year. Next came the Oregon and Washington region with a production of 7.5 billion ft. and the western pine region which turned out 5 billion ft.

Although lumber for the Government defense housing program has not yet been purchased the demand will be spread over a period of, perhaps, twelve months and should not, therefore, present the price-boosting problem as caused by cantonment program.

Meanwhile, lumber demand for mestic furniture manufacture, for rai use, and for export to the United King continues heavy.

DEFENSE DOLLARS ANALYZED

With more than half the \$2 billion eral defense construction program us way, a pattern of expenditures is cut. On the basis of this pattern, it is to say that by June 30, 1942 the \$2 b will have been divided about like this ▶ Largest single classification is the k ing of shelter and accessory structure military trainees at a cost of about million. Most of this construction we frame, and, if the Army can maintant already delayed schedules, will be pleted by mid-year.

▶ Second largest allocation is for the struction of so-called "productive fities" including airplane and engine plarmor, tank, ammunition and log plants, shipways and shipyard facili It will total about \$520 million.

▶ Air bases and their attendant han shops, administration buildings and sin Army and Navy utilities will cost a \$337 million.

▶ Coastal defense and miscellaneous struction at military and naval sta (other than air bases) will require \$258 million.

▶ Defense housing, including land of \$240 million.

At a joint dinner of the Producers C cil and the Construction Industry Co ence of the U. S. Chamber of Comm Crane Co.'s Director of Trade Rela Russel G. Creviston translated these lar estimates into impressive employ statistics: 18,000 man-years for carper 8,000 for bricklayers, 4,000 for electric 5,400 for painters and 7,000 for the pi trades. Concluded Creviston: "There single industry that has more at stalmore responsibility of performance."

Another analysis of the \$2 billion ernment defense chest shows that a \$600 million will go into Labor's pay velopes at the sites in return for some million man-hours of work. The total terial bill will be divided about like \$240 million for iron and steel prod \$140 million for lumber and milly \$175 million for brick, tile and cen \$80 million for sand and gravel; and \$80 million for heating and ventila equipment; \$65 million for plumbing terials, \$55 million for electrical sup and equipment; \$20 million for pla and wallboard; \$18 million for ma granite, slate and other stone prod and \$17 million for roofing materials. duction of these and other defense terials will involve an astronomical of 1.3 billion man-hours of labor in mines, forests and factories and in cabs of the locomotives, cabooses trucks which will deliver them.

22

ILDING FOR DEFENSE RAW MATERIALS APLENTY— FABRICATION A PROBLEM

A close-up of Building's staples by Buckminster Fuller



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Will there be shortages of materials as the defense program gets really underway? If so, of what materials? Will there be fabrication or transportation bottlenecks? If so, where? These are the questions that come to mind when one inspects the tremendous schedules thus far released not only for housing, but for military and naval expansion and merchant marine building. The latter three received priority over the former in the last war, and, while it is intended this time that housing shall keep abreast of the other preparedness categories, how are we to know that perforce or arbitrarily it will not suffer deference to the others?

There are several mandatory reasons why construction will probably not be second-fiddled in 1941 as it was in 1917. for instance the many new far-flung naval bases, small cities in themselves, to which new building is as A is to B. But also there are the wide deployment features of air defense tactics which take the production eggs out of a few vulnerable baskets and nest them widely, and individually. This necessitates much high speed house building beyond commuting access of established dwelling and distribution centers, whereas 1917 speed-ups were within the environs of going cities and towns. There is also a concomitant industrial efficiency trend toward this same deployment, or physical decentralization. It is due to industrial specialization and the desirability of placing specialized production at the strategic points most central to raw material source, power and pursuant distribution to decentralized assembly points. Thus the inefficiencies of old centers are bypassed. This trend has been vastly expedited by the tremendous network of road and utilities built during the last quarter century and by the completely new acquisition by the U.S. economy in the same period of its 25 million passenger vehicles and 5 million high speed trucks. These facilities, it will be seen by inspection of the accompanying charts, were virtually nonexistent in 1917, a fact which with many another of equally great importance is easily forgotten in the general fallacial tendency to revert mentally to a notion of reenactment of the 1917 scene as we prepare for today's contingencies.

There are virtually no physical conditions analogous to those of 1917, as we shall presently see. Even the average 21year old U. S. man is 5 per cent taller than in 1917 and 300 per cent better educated. One carload of coal can now produce the same kilowatt hours of electrical power that required five carloads in 1917.

And if there are to be shortages or bottlenecks, are there not alternative ways of obtaining the same end results by the use of alternative design practices employing alternative materials or equipment?

An attempt to answer these questions will be the subject matter of this and an ensuing article in THE FORUM. The present article will deal with the question of shortages and bottlenecks. The second will deal with design considerations springing from the first.

PLENITUDES, NOT PLATITUDES

A theoretically simple method of obtaining answers to these questions would be to call upon the Defense Commission and ask for its findings upon the subject. But for various obvious defense reasons they would not answer you. However, another means of discovering important and incontrovertible facts adequately covering the subject, without in any way giving comfort to the enemy, is open to us. It is a method indeed whose findings may well give considerable discomfort to any enemy of the ideals and will of a mobilized people of the United States-a unique people who biologically, genetically, economically, philosophically and mechanically are, even prior to martial mobilization, inherently the most mobile agglomeration of people upon earth. Yet they represent but 7 per cent of the world population. These are no platitudes; witness that this 7 per cent rides more railway miles, ships more railway-ton-miles of freight, more airway-tonmiles of express annually than all the other combined 93 per cent of the world's population; drives 3,000 times as many automobile-passenger-miles annually; flies a million times as many peaceful airway-passenger-miles as all the rest put together; has a per capita ratio of 88 telephones, 95 radios, 97 motor vehicles, 97 motion picture houses, 98 private non-military airplanes and 99 bathtubs to one each for the persons of the rest of the world.

In a space short of volumes, it is impossible to trace the continual drift of the 92 chemical elements and the myriad of compound materials derived therefrom, from major consumption by one older type of industry to another newer one. Take, for instance, copper's sequence of major patronage first by the shipbuilding industry, next by railroads, next by building, next by communication, then by power utilities and lastly by the automobile in-



BUILDING Indication that the U. S. building industry is capable of handling a much bigger business than now on its books is clearly evident in the above chart of construction activity from 1915 through 1940. Thus, last year Building handled \$10 billion of public and private expenditures (including much for national defense purposes) while in the boom year 1927 it did a \$14 billion job. During the current year, when bulk of the construction funds for the presently scheduled defense program will be spent, this consolidated total of all new construction, maintenance and work relief expenditures will approach the \$12 billion mark still about 20 per cent shy of the Prosperity peak.



HOUSING If all houses were torn down when they reached the age of 75 (and most of them should be), there would be an actual shortage of 3.6 million dwelling units in the U. S. today. Actually, this figure is theoretical, for families are living in these substandard houses. Assuming a less conservative obsolescence rate of 25 years per house, the theoretical shortage would come to the astounding total of 10.5 million dwelling units.

dustry. The shifts have been complete by concurrent secondary employ drifts; complicated still further by history of increasing discovery of raserves; and complicated even further by the integrating history of impabilities of the materials through all and design developments.

But it is eminently feasible to trahistory of the overall economy—its point and low point demonstrations dividual industry abilities—and to pare the trend peak loads with to reasonably certain per capita requirer It is thus possible to witness conwhether our economy is going to be adequately to supply the offensive do demands. This precisely is the m which we shall employ.

SELF-PORTRAIT BY BUILDING

In the large chart to the left we the intimate portrait of the con tion industry 1915 to date-throug last war, through the booming Twent Jesse Jones' latest defense-start figur gives a satisfactory picture of every in the United States which can be construction, be it telegraph lines poles, erection and maintenance th factory, dwelling or a new roof on Mary's barn. Highways, stadiums, 1 WPA, PWA, Rivers and Harbors plums, tunnels, railway tracks, ele removals, dams and power housesare all there, constituting more than 5 cent of what is known as heavy indu The rest of heavy industry consists of removable factory machinery, the r stock on the railways and shipping. ever, the integral machinery of the I ings, their elevators, air conditioning ing and plumbing are part of the cons tion industry herewith pictured.

Number One observation is that de the unit gigantism of individual project the defense schedule, the items do not up to compare importantly with the I Twenties or even to top 1917 figur which date there were 30 million less ple to be housed and serviced. Then the integral mechanics of dwellings only 15 per cent of the total general tract instead of nearly 50 per cent . today. This means that more has added to the dwellings, rather than the cost of dwelling shells has decre And projected new construction estin for 1941 show only an 18 per cent inc over 1940 (see p. 63) wherefor it ma assumed that the construction indu will be far less of a tax upon the ge materials supply economy than in Twenties.

MATERIAL SUPPLY AND USE

Furthermore, many efficiencies have veloped in production design and equipment since those previous greater per There is less waste of expensive and portant materials in rococo ornamen zinc, bronze, lead, etc. Mobile transit crete mixers, tenfold increase in per shovel capacities are but a few straw wind of the interim improvements h promise far less tonnage drain upon nal resources to satisfy the apparentodest demands of the current expan-The possible strain upon steel toncapacity is offset by the considerable ening of sections of structural eles occasioned by the design practice of oying diagonal tension rods between nns. This reduces the latter's stress rements to satisfying only compresoads, instead of the many former, ronal, lateral, and sheer stresses—a depractice less than a decade old.

e charts below and on page 26, which ay the declining peaks of withdrawal ich basic resources as lumber, iron, er and the continual increase in the arance of scrap from obsolete use s, only serve to emphasize the obvious dance of Building's raw materials.

us we may conclude that as far as tonnage and volume of raw materials concerned, the construction industry not approach former peak requires in the immediate future, even grantne long heralded mass production of ing units were to be ushered in for ong climb to family population equince.

ntrariwise, the simplified and more ent status of the construction induswhere the broad trend is from track ackless, from wire to wireless, from 16 alls to $1\frac{1}{2}$ in. walls, from 100 ton integral ornament to 10 lb. mural—promises release of an unrequired reserve of raw resources to other possible claimants. Aluminum which entered the construction field only within the last decade can readily be substituted for by other materials, thus releasing all aluminum to the aviation industry which is ever in fear of a shortage.

FABRICATION ON THE SPOT

That there may well be fabrication facility shortage is, however, another matter. If smaller structural sections are now being required and the older heavier sections not being called for, the older fabricating equipment which was ready to roll the heavy sections is a complete waste in the inventory of production capacity. Furthermore, it takes as long to roll a small section as a large one. And this more efficient lighter section method in building may well run into conflict with shipbuilding section requirements.

Then again, new alloys have entered the field since the last war and in far increased numbers since the booming Twenties, and these new alloys, in ever greater demand for more efficient designs, can rarely be fabricated with the same equipment that fashioned identical dimensions of mild steel. All in all, the untutored critics of fabricators who now belabor the fabricators for not having kept up "capacity" production or for not having fabricated advance stocks in slow times are completely unjustified in so doing. This despite the fact that, as far as steel ingot production goes, one month's 92 per cent U. S. capacity steel operation exceeds the total tonnage of the British Merchant Fleet prior to hostilities and one week's operation could set aside ingot stocks sufficient to duplicate the U. S. and British navies combined.

It is just hard luck that the rate of evolutionary readaptation of industry to the rapidly developing scientific changes has had to be accelerated to the point of fabrication bottlenecking. For, as we can learn from the accompanying charts, this bottlenecking obtains all along the line in almost every department of fabrication, requiring changes in technique due to alloy changes and to new and far closer tolerances. These ultimately improved standards have temporarily diminished rather than increased fabrication capacities, and this despite an actual increase in output efficiency in the last decade for any established production requirement which amounts to anywhere from 1,000 to 10,000 per cent improvement in worker hourly output right across the board. The bottleneck is then to be found in the time lag required to retool approximately one third of the older fabrication industries as well as to equip major freshman industries such as that of the airplane.

From the size of the appropriations of defense sums allotted to the machine tool



ON AND STEEL While the fabrication of steel may nt a national defense headache, the supply of its component rials is not a contributing factor. Thus despite a 7 per cent ine in U. S. population between 1930 and 1940, increased efficiency e design and use of steel forms has cut the per capita consumpof new iron almost in half—to about 325 lbs. Also, the availaof scrap iron (which constitutes about 55 per cent of all new steel ingots) has increased each year and will continue to do so. If the trends posted on the chart above hold true for the next few years, it is apparent that line for the availability (per capita consumption) of scrap will intersect the new iron consumption line sometime in 1942. Its complete height representing 100 per cent, the column to the right shows that of the entire world's iron ore resources per capita, the U. S. has about 85 per cent.





reduce that amount of wood which is put to no use at all (11 cent in 1936, see vertical column). A note of warning is the fact the total amount of wood removed each year is about four time great as the new growth.

Despite the tremendous use of cement in the New Deal's re dam, highway and big building spree, the cement curve (annual umes magnified ten times to be visible on the lumber chart) recently risen only about three-quarters of the way up to the of the Twenties.





crossed each other in 1931, and a tremendous scrap excess has exi ever since (mainly for export purposes). Obviously, then, the nat supply of copper is no national defense problem. But there wil talk of a copper shortage prompted by fabrication limitations. stry, one may appreciate that the cons amounting to thousands instead of ons of dollars, as in the case of all industries affected, are small in the ortion of a key to the door which it ks. And in the machine tool industry which awaits not only steel fabricafor lighter section construction, but whole, aircraft, munitions, and army anization programs, the bottleneck n the scarcity of adequate personnel officiently well informed, and skilled ience coupled most importantly with inventive genius behind the tools. is not as though the tools required stock catalogue items. They are as yet non-existent which is what all natic machine tools must be until the ntor creates them. So Mr. Knudsen inof entreating the machine tool worko speed up might better be asking of the cosmic thinkers what to do. e is indeed a great emergency here emergency of an economy that has I to cherish its most valuable asset, eative imagination.

HOUSING, FOR INSTANCE

own in the smaller chart on page 24 portrait of the signal failure of the truction industry with all its corner ng in the ways of doing old things to ide man himself with adequate dwellfacilities. It shows that he is falling tantly behind even on replacement of lwelling facilities; it shows a 10 million demand that can only be satisfied the inception of a true mass producdwelling industry (now an old story). neither the Defense Commission, nor various Federal housing bureaus, nor ate industry is doing anything at all about this.

\$100 million appropriation for reh, experiment and tooling up of this stry should be jointly sponsored at by Government and private industry; is, jointly if private enterprise expects e able to justify its claim to the fruits itiative. That there exist many valid ons of a political and selfish nature h oppose such a step in no way alters fact that, as is self-evident from the charted on page 24, the construction stry and heavy industry as a whole therefore the whole national economy never be flying with more than one until that mass production dwelling stry is flying along.

great "out" to many of these fabricabottlenecks would be an accelerated slopment in reenforced plastics to make ible their use as larger units (such as he automobile body, a development well under way) in boats, airplanes dwelling unit assembly parts. Plastic ing equipment is far simpler to tool is the machinery required for similar ctures rendered in metals.

he metals fabricating group themselves not making many strides to alleviate fabrication bottleneck, taking the posithat the emergency requirements at suddenly cease and catch them with



EFFICIENCY Dramatic testimony to man's genius are four of the five lines posted on the charts above. Thus, both the number of kilowatts of electricity squeezed from each pound of coal and the amount of automobile the consumer gets for his dollar have multiplied seven-fold during the past 25 years. Formability of mild steel has jumped 500 per cent. These tremendous increases in efficiency (and dozens of other examples could be cited) mean that today it takes much less material than in 1915 to do the same work. Note that, while the productivity of industrial workers has advanced 300 per cent, the efficiency of building labor has shown no improvement. Reason: large scale unionization following 1915.

the over-expanded position they encountered immediately after the last war. The plastic industry and others loom up to increase their hesitation.

To relieve this condition the Government would eventually have to underwrite any such additions to plant capacity, a step which is liable to lead to the Government's being in post-war competition with practically every business. That latter point presents part of the picture of the headaches now vibrating behind the scenes.

A TYPICAL HEADACHE

To explain that headache further take the contemporary bottleneck in zinc. There is no shortage of ore, U. S. producers, owning and controlling about 60 per cent of the world's ore supply, have produced up to 70 per cent of the total world production in the past. Zinc, almost a drug on the market in recent years, is suddenly in high demand because Great Britain's former large sources in Poland and Norway have been cut off. Zinc is also a war baby, being used in the making of brass for cartridges and shells and has certain other new ballistic uses. It also is the best metal for new die-casting developments essential to airplanes.

Since the last world war a new electrolytic process of producing zinc has been developed which makes a 99.9999 per cent pure zinc as contrasted with a 99.98 per cent pure product as furnished by older methods. This new purer zinc makes a considerably superior alloy in brass, rendering the brass far more workable in forming operations. It is demanded by fabricators. The bottleneck in zinc is the need for a 30 per cent increase in electrolytic tank capacity, but no one wants to put up the money for the equipment in view of the pre-war slack which might easily become even more aggravated after the present rush. This would be particularly true if the general practice of steel galvanizing by zinc were to be shifted to parkerizing or to other carborizing processes of steel sheets (such as the painting of them cheaply as in the automobile industry) simply because the zinc bottleneck as a war baby has curtailed the galvanizing operations and in turn held up much galvanized sheet metal construction. Despite customer willingness to pay premiums for guaranteed deliveries, the zinc industry is fighting to keep its prices down. Reason: the basic metallic-zinc producers know that the large domestic resources of the metal will not justify a rise in price simply because of the fabrication bottleneck, which, if relieved by Government underwriting, might easily provoke the Government into a competitive yardstick operation, either by direct operation of the equipment as an arsenal unit or by tax measures.

TRANSPORTATION NO CHOKE

The chart presented below portrays some of the more important data relative to transportation and communication, showing that there should be no bottleneck in this direction. The charts on page 27 show a few of the typical efficiency increases that should swing the U. S. economy into high speed of production of everything once the chokes already analyzed have been corrected, whi fortunately must obviously involve or more, but which should be so faced with clearly developed public edge of their existence. If correct given the right of way, the ul smooth flowing speed-up will follow

In the meantime, Building has the light, if its projects are properly de to conform to the plenteously av materials.





the expanding airlines have freed much trackage for freight ment. And, they themselves are carrying an increasing load of freight. Note that communication facilities have grown in step the transportation trend. The increase in the message carrying ca ity of telephone wires is one important reason for the downward of copper consumption graphed at the bottom of page 26.

LDING FOR DEFENSE \$240 MILLION HOUSING PROGRAM

gets under way-but slowly. The Navy takes the lead, while the Army marks time and FWA experiments with prefabrication and cooperative ownership.

ashington insiders it is no secret nose responsible for defense housing aring at each other with the profesgusto of business agents for rival mions out on a jurisdictional strike. Washington newsmen the undersquabbling between various agencies reaus to prevent poaching on their erritories and to push their pet ideas a measly diet of information.

ertheless, out of the smog of conthat overhangs the Capital and exbeyond the conclusion that defense g is suffering from too many bosses, emerge several clear-cut observa-

ter Government appropriations will uired to meet the growing demand ense housing.

lf-hearted efforts are now being by Government to help private ene participate in the defense assign--by pointing out housing needs that e met by private capital and by eng the design of some public projects al architects.

pite the urgency of deadlines neither ntonment program nor the defense g program is proceeding according edule.

ne action has been taken-notably e Navy which has 13,100 defense ng units under construction. Meanthe Federal Works Agency has ed two defense housing experi-: a commendable field test for leadrefabricators and a cooperatively "defense" greenbelt community.

riations. Early estimates of needed nment defense housing are being reupward as U. S. industry continues oand its war goods production. To this demand are available public totaling \$240 million-\$140 million the Lanham Defense Housing Act istered by FWA and primarily for e industrial workers. \$100 million priated for Army and Navy housing about \$35 million from USHA. y conscious of the impossibility of ning this money to cover the calcuneed, Washington officials are cagily ring ways and means of persuading ess to ladle out \$100 million in new to provide defense housing in addicommunities.

s. Obviously, private enterprise is exl to carry most of the defense ig load. Strategically, however, by g ball with private enterprise and ying to hog the whole show, Washofficials are making a smart move:

if the industry is not stifled in its operations, there will be less squawking and Congress can be more easily wheedled into opening the pursestrings still wider.

No go-ahead signal for Government allotment under the Lanham Act is being given by Defense Housing Coordinator Charles F. Palmer until reports from a locality show that its housing needs cannot be provided by private capital in time to meet production demands. Explained Palmer to a national construction conference called by U. S. Chamber of Commerce early last month: "Our object is not to go in and build houses for the workers or for the enlisted personnelour object is to go in and see if we can provide for the need without building new houses." If no other way can be found, "we allocate Federal funds and get one of the Federal agencies to build."

At midmonth Coordinator Palmer had flashed the signal to Federal agencies to move in on only eleven localities where private enterprise is unable to provide housing at sufficiently low rentals or is unwilling to do so because of the emergency's uncertain duration. In the majority of these places, while Government takes care of the \$11 to \$26 rental market, private operators are still relied on to supply additional quarters renting anywhere from \$20 to \$50 per dwelling unit a month.

Also aimed to give comfort to private enterprise are Palmer's two new staff appointments. In as a dollar-a-year consultant comes Chicago's Real Estate Financier Morton Bodfish (executive vicepresident of U.S. Savings & Loan League) to deal with the problems of financing defense housing with private capital. Serving as a special consultant is Los Angeles' Builder Philip Norton (director of Los Angeles Realty Board and other civic organizations), who will aid in establishing vacancy registrations in vital defense areas besides pushing private defense housing in the area west of the Mississippi.

On the program's construction end FWAdministrator John M. Carmody is also cooperating with private enterprise by decentralizing the work through USHA's local housing authorities wherever they appear competent to do the job. In this way local architects, engineers and builders will participate in the program.

Progress. Less easily excused than the delay in cantonment construction (see p. 21), is the lag in defense housing. Outside the USHA-financed projects-two already complete (624 dwelling units), eighteen



First defense housing project designed by PBA for construction with part of the Army's \$49 million housing fund. Scheduled for April occupancy, the 700 dwelling units avoid traditional regimentation by being oriented to the rolling terrain of the site's 70 acres. (See next page.)



PBA-designed four-family house for the Army's \$1.9 million housing project at Fort Knox, Ky. Floor plans reflect more study than the very uninteresting exterior design. To accommodate both large and small families, three-bedroom units interlock with

under construction (5,900 units), six more earmarked (2,100 units), plus four existing slum clearance projects converted to defense use (450 units)—first to get going are those of the Navy.

Army officials have turned their \$49 million share of the \$100 million Army and Navy housing appropriation over to Carmody's Public Buildings Administration. Currently this agency has 66 Army projects under its wing, but at mid-December only twelve, costing approximately \$7.5 million and totaling about 2,600 units, had hatched into contract awards. First to start construction: a 700-unit housing project at Kentucky's Fort Knox (see above.)

Elaborate buck-passing is now developing between PBA and the Army as to responsibility for the delays. PBA officials complain that Army officers change their minds almost daily, citing as an example one project which was first designed to fit an Army reservation site, then revamped for an outside location and finally ordered to be put back inside the reservation again. Each flipflop in orders, they contend, requires a revision in building plans and causes a new delay.

Quietly doing its own work, the Navy scores a more impressive record: out of 47 projects (15,600 units) for which funds have been allocated, 38 (13,100 units) were under construction last month. In addition, the Navy is acting as agent for FWA in building a 1,000-unit project at Oahu, Hawaii.

Last to get started are the Lanham Act projects. Busy protecting the interests of private enterprise, Coordinator Palmer did not release his list of cities with acute housing shortages until November's tailend. Four days later, before Palmer had amplified his original terse statement with additional data on the specific needs of each locality, FWAdministrator Carmody two-bedroom units within a standardized floor area in a one-to-three ratio throughout the project. Main and service entrances open on street front so that each unit's living room faces full on a rear garden, 17 ft. wide and extending to a depth of 50 ft. Each

rushed out an announcement of the first construction assignments.

To PBA went three projects totaling 1,900 units—Maryland's Indian Head (650); New London (300); California's Vallejo, near the Mare Island Navy Yard (950). To local housing authorities, via USHA, were assigned six others totaling 3,350 units—Jacksonville (300); Pensacola (100); Charleston (600); Philadelphia (500); Boston (1,050); Bremerton, Wash. (800). Besides these and the 1,000-unit Oahu Island project turned over to the Navy, a 500-unit project at Camden, N. J., was set aside to be handled by Carmody's own office.

Principal significance of this batch of projects: they include the first that will become available to employes of private industry. Two hundred Electric Boat Co. workers will share the New London project with families of enlisted personnel; 1,000 from Bethlehem's Steel Corp.'s Fore River Shipbuilding Yards, the Boston project; while New York Shipbuilding Corp. workers will occupy the entire Camden project.

Also coming in under Lanham Act money is a mammoth 3,000-unit project for industrial workers in San Diego's local aircraft plants. Although announced later than the others, it is the first to reach the construction stage. PBA's largest, it is going up on an 800 acre site within the city limits, will form virtually a new community complete with schools, shops and other facilities when finally finished ten months hence. Two Los Angeles contractors, sharing a fixed fee of \$300,000, are handling the construction. Estimated cost of project: over \$9 million.

In addition to its present assignments, PBA hopes to get 30 more projects to design and supervise. (Worth passing mention: PBA's regular public works operations are to be severely curtailed during



unit also has its own heating plantpact warm air furnace with ducts lea every room. A specially designed permits the coal bin inside the utilit to be filled from the outside. Hall s excessive.

the next year. Budget Bureau, into conserving funds for military constr has directed the agency not to pla more public buildings on the r which means that its next fiscal funds will be sliced to the bone.)

None of the USHA-supervised I Act projects has yet been put und tract. Local authorities are followi usual routine. All contracts, howev be written directly with FWA, s USHA becomes simply an adviser the local authorities become direct of the Government. New work, it pected, will be shared roughly 50-3 PBA.

Demountable guinea pig. Perhaps monificant for defense housing's future Indian Head project in Maryland. Units are scheduled to become a cotive field day for rival prefabricated manufacturers. Orders will be of among a dozen producers making ditypes of structural panels. These pricated units will then be assembled general contractor, thus providing an test of their relative merits.

All units are to be based on a sta one-story single family house design PBA. Measuring 24 x 28 ft., the will contain two bedrooms, a living kitchen and bath, but no cellar or Sloping roof and general outline wi a conventional appearance. Furthe all specifications will conform to standards.

Prospective competitors are now interviewed by PBA. In selecting pr cation types, officials are depending advice of the Bureau of Standards, has been testing house panels for s years. As a full demonstration of the bility of such housing, a few units o (Continued on page 40)

HOUSES

HOUSE IN LINCOLN, MASS. WALTER F. BOGNER, ARCHITECT



HOUSE IN LINCOLN, MASS.

Professor Bogner, of the Harvard School of Architecture, confesses to two ulterior motives in designing his own house: to build on a restricted budget, and to show the advantages of a modern design over an equally low cost traditional one. Flexibility of space use was a necessity for the family of three and in the occasional entertainment of many guests. Northeast bedroom serves also as Mr. Bogner's dressing room; living room is divided at will by a suspended screen of wooden strips; a scrub-up room serves as laundry and maid's bath. Interior walls are of wallboard or plywood; floors of plywood covered with felt, carpet or linoleum. A sense of openness to the outdoors was sought, but without the sacrifice of privacy and opportunities for reading and concentration-as in the living room and its library alcove.



VIEW I.



THE





WINDOW HEAD WEST ELEVATION

MULLION STEEL SASH AND FIXED GLASS

STEEL SASH OR FIXED GLASS

2-% HOLESIN EACH

WINDOW STODL EAST ELEVATION

3" 6" 9"

WINDOW DETAILS

12 INCHES

R F. BOGNER, ARCHITECT





VIEW 4.

ROOM VIEW 2.



IOUSE IN LINCOLN, MASS. WALTER F. BOGNER, ARCHITECT



GUEST ROOM, TERRACE

SOUTH ELEVATION



CONSTRUCTION OUTLINE

FOUNDATION: Walls-concrete block. Waterproofing-R.I.W., Toch Bros.

STRUCTURE: Exterior walls—framing grid of 2 x 4 in. studs vertically and horizontally at about 3 ft. intervals; where solid wall secondary studs for stiffness of exterior and interior surfaces; redwood outside finish. Interior finish—variety of wallboard glued to studs. Floor construction—joists with plywood underfloors, linoleum or carpet finish. ROOF: Roof joists and boarding covered with tar and gravel.

INSULATION: Outside walls—variety of insulating wallboards. Roof—4 in. rockwool bats, Johns-Manville Corp.

WINDOWS: Sash—Hope's Windows, Inc. Double glazing for all openings. Glass—double strength and plate, Libbey-Owens-Ford Glass Co.

FLOOR COVERINGS: Main rooms—carpet. Kitchen, halls and bathrooms—linoleum, Armstrong Cork Co.

WALL COVERINGS: Wallboards by Homasote Co., Masonite Corp., U. S. Plywood Corp., Armstrong Cork Co. Sanitas in kitchen by Standard Coated Products Co.

WOODWORK: Trim-pine. Cabinets-whitewood. Doors-Johns-Manville Corp.

HARDWARE: By Russell & Erwin Mfg. Co. LIGHTING: Fluorescent lights and fixtures by Lite Control.

KITCHEN EQUIPMENT: Range—General Electric Co. Refrigerator—American Radiator-Standard Sanitary Corp. BATHROOM EQUIPMENT: All fixtures by

BATHROOM EQUIPMENT: All fixtures by American Radiator-Standard Sanitary Corp. PLUMBING: Hot and cold water pipes copper tubing.

HEATING: Warm air including filtering and humidifying, Superfex unit, Perfection Stove Co. Water heater—Lochinvar.

USE IN SEEKONK, MASS. GEDDES AND KELLY, ARCHITECTS

thodox elements of plan are exd by the fact that this house lesigned for a bachelor. Except he door from living room to e, there is but one entrance and leads directly into the living near enough to the .kitchen to te the need for a service door. lines and restful surfaces in-, with an austere avoidance of ation, confirm the bachelor rship. Even the trim around and window openings has been hed, its place taken by the simquarter-round of stainless steel, with the plaster.



5/8 TRIM-

MASTIC² HINGLE LINE INCOFTRIM

SILL LINE .

WINDOW DETAILS

LIVING ROOM

MULLION





TRUCTION OUTLINE

CTURE: Exterior walls—white cedar es, Neponset paper, Bird & Son, fir ing, studs; inside—lath and plaster. Covered with 30 lb. asphalt felt and hingles, Barber Asphalt Co.

LACE: Damper—H. W. Covert Co. ATION: Attic floor—Red Top insublanket, U. S. Gypsum Co. Weatherng—Chamberlin Metal Weather Strip. OWS: Sash and screens—Hope's Win-Inc. Glass—double strength, quality B. R COVERINGS: Main rooms—white Itchen and bath—linoleum, Armstrong co.

WORK: Trim—birch and Milcor Steel etal casing. Cabinets—fir plywood, pine Roddis Plywood & Veneer Co. Doors s-Manville Co.

WARE: By Russell & Erwin Mfg. Co. TS: By Charles F. Richardson, Inc.

TRICAL INSTALLATION: Wiring sys-3X. Switches—toggle. Fixtures—Crook-

HEN EQUIPMENT: Range and refrig-—General Electric Co. Sink—Kohler tchen fan—Pryne & Co., Inc.

ROOM EQUIPMENT: All fixtures by ohler Co. Cabinets—Charles Parker Co. BING: Soil pipes—cast iron. Hot and vater pipes—Anaconda copper, Amerirass Co. Pump—The Duro Co. ING: Steam vacuum system. Boiler

ING: Steam vacuum system. Boller adiators—American Radiator-Standard ry Corp. Oil burner—General Electric Valves—Hoffman Specialty Co., Inc. ioostat—Minneapolis Honeywell Regulab. Water heater—General Fittings Co.







HOUSE IN EAST HAMPTON





G ISLAND, N. Y. POLHEMUS & COFFIN, ARCHITECTS



Eastern Long Island, its houses hugging the sand dunes, prides itself upon architectural traditions as firmly established as those of Connecticut or Cape Cod. Built chiefly for summer occupancy, the plans are invariably long, presenting an extended front to ocean and breeze.

An appearance of height is almost the unforgivable sin, to be avoided even at the cost of dormered bedrooms and varying windowsill heights.

The play room—for adults—with its bar, and the garage have provided convenient justification for the long low wings.

CONSTRUCTION OUTLINE

FOUNDATION: Cement block. Waterproofing—Anti-Hydro Waterproofing Co.

STRUCTURE: Exterior walls—frame, diagonally sheathed, building paper and shingles; inside—metal lath and plaster or pine boarding. Floor construction—wood framing, subfloor felt and finish wood flooring. ROOF: Covered with shingle lath and shin-

gles.

FIREPLACE: Damper—H. W. Covert Co. SHEET METAL WORK: Copper, 16 oz., throughout.

INSULATION: Outside walls and attic floor —rockwool. Cellar ceiling—sheet rock. Weatherstripping—Anchor Weather Stripping Co. Sound insulation (play room and lavatory)—Celotex Corp.

WINDOWS: Sash—wood, double hung. Glass —quality AA. Screens—bronze copper mesh in wood frames.

STAIR: Pine throughout.

FLOOR COVERINGS: Main rooms—carpet. Halls—cak. Kitchen and bathrooms—linoleum, Armstrong Cork Co.

WALL COVERINGS: Living room and bedrooms-wallpaper. Halls-pine plank.

INTERIOR DOORS: Curtis Cos., Inc. HARDWARE: By Ostrander & Eshleman.

PAINTS: By National Gypsum Co. ELECTRICAL INSTALLATION: Wiring sys-

tem-BX. Fixtures-Lewis Smith Co. KITCHEN EQUIPMENT: Range-Pyrofax

gas, Carbide & Carbon Corp. Refrigerator-Ceneral Electric Co. Sink-Kohler Co.

PLUMBING: Soil pipes—cast and galvanized iron. Hot and cold water pipes—copper tubing.

HEATING: Hot air system with fan, boiler, Holland Furnace Co. Thermostat—Minneapolis-Honeywell Regulator Co. Water heater —Ruud Mfg. Co.



3.

2.



HOUSE IN BEL-AIR, LOS ANGELES, CALIF.



1"x4"s-

2"x 6"-2 4" 0-C·

HEADER & BLOCKING WHERE VENTS

RODF EAVE

C7/2"x14" GI-LOUVRE VENT

-1-9"-





VIEW 1

12"

CROSS STRAP & SUPPORT 6-0"0-67

. METAL LATH & PLASTER

3"

0"

24 GA- GALV

24 GA GIDOWNSPOUT

9"

6"
LASZLO, ARCHITECT





ALTERNATIVE TRIM





3.



An unusual T-plan of living room, with dining room and den forming a long vista from bar through the north picture window. The lowpitched roof in its two levels unifies the irregular outline and, by its quirks at the ends and interposed bedroom deck, avoids the possible triteness of the rectangular shed form. Orientation indicates an exceptional set of local climatic factors, with the west exposure chosen for the living quarters and all service kept to the east. Turning the dining room from rather than toward the morning sun, and the ingenious ventilation from under the eaves (detail on opposite page), suggest a healthy respect for the power of California sunlight.

CONSTRUCTION OUTLINE

FOUNDATION: Reenforced concrete. Waterproofing—Anti-Hydro Waterproofing Co.

STRUCTURE: Exterior walls—stucco over galvanized wire mesh, 15 lb. asphalt saturated felt; 18-ga. galvanized over studs; inside—plaster on keyhole lath over galvanized wire mesh. Floor construction—diagonally laid sub-floor and white oak T.&G. finish flooring.

ROOF: Covered with No. 1 red cedar shingles on shingle lath. Deck—covered with canvas.

SHEET METAL WORK: Toncan 26-ga. galv. iron throughout. Republic Steel Corp.

INSULATION: Outside walls and ceilingsrock wool, Coast Insulating Corp. Weatherstripping—Atlas Weatherstripping Co.

WINDOWS: Sash—steel casement, Druwhit Metal Products Co. Glass—double strength, quality A, crystal and plate, Libbey-Owens-Ford Glass Co.

STAIR: Treads and risers-oak.

FLOOR COVERINCS: Main rooms—oak. Maid's room, powder room, pantry and kitchen—linoleum, Armstrong Cork Co. Bathrooms—tile, Gladding, McBean & Co.

WALL COVERINGS: Main rooms and halls— Algonite, California Panel & Veneer Co. Kitchen—Sanitas, Standard Coated Products Co., tile, Gladding, McBean & Co. Bathrooms —Carrara glass wainscoting, Fittsburgh Plate Glass Co.

WOODWORK: Trim-Oregon pine. Cabinets and doors-California Panel & Veneer Co.

HARDWARE: By Beverly Hardware Co. PAINTS: By W. P. Fuller & Co. and Reardon Co.

ELECTRICAL INSTALLATION: Wiring system—flexible metal conduits. Switches—Bryant Electric Co. Fixtures—Pryne & Co., Leo Dorner Co. and L. & Y. Electric Co.

KITCHEN EQUIPMENT: Range—Gaffers & Sattler. Refrigerator—Kelvinator Co. Sink— Crane Co. Garbage receiver—Master Products Co. Kitchen fan—Harmony Mfg. Co.

LAUNDRY EQUIPMENT: Sink—Crane Co. Washing machine—Eendix Home Appl. Co. BATHROOM EQUIPMENT: All fixtures by Crane Co. Cabinet—Hallensheid & McDonald. PLUMBING: Soil pipes—galvanized iron. Hot and cold water pipes—galvanized iron.

HEATING: Forced air heating system. Bathroom heaters—Thermador Electric Co. Water heater—Hoyt Heater Co. HOUSE IN DARIEN, CONN. ALEXANDER HOUSES, INC.



VIEW I.

VIEW 2.





RICE AMON. ARCHITECT

I chimney with stairway winding around it, steeply pitched roof, erhang of second story, austere simplicity of the divided entrance nd its frame, exterior symmetry of openings, bold projecting trim with sill, absence of shutters-even the small diamond-paned case--are authentic echoes of the seventeenth century, but they consort ly with the integral garage, the four baths and other amenities of 1941.



CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls-clapboards, 15 lb. roofing felt, T. & G. diagonal sheathing, studs, insulation bats between; insideherringbone lath, 3 coats plaster. Floor con-struction-T. & G. sub-floor laid diagonally,

red oak finish flooring. ROOF: Covered with Perfection red cedar shingles.

FIREPLACE: Damper-H. W. Covert Co. SHEET METAL WORK: Flashing and leaders-copper. Gutters-wood, calked. Ductsgalvanized iron.

INSULATION: Outside walls-2 in. insulation. Attic floor-4 in. loose wool. All by U. S. Gypsum Co. Weatherstripping-Curtis Cos. Inc.

WINDOWS-Curtis Silentite, Curtis Companies, Inc. Glass-Quality B., Libby-Owens-Ford Glass Co. and Pittsburgh Plate Glass Co.

STAIRS: Main: Treads-oak. Risers and stringers-pine. Attic stair-all white pine.

FLOOR COVERINGS: Main rooms-oak. Kitchen and bathrooms-linoleum, Armstrong Cork Co.

WALL COVERINGS: All rooms-wallpaper. Richard E. Thibaut, Inc. and W. H. S. Lloyd Co.

WOODWORK: Trim and doors-Curtis Cos., Inc. Garage doors-Overhead Door Co.

HARDWARE: By Russell & Erwin Mfg. Co. PAINTS: By Devoe & Raynolds Co. ELECTRICAL INSTALLATION: Wiring sys-

tem-BX. Switches-Harvey Hubbell, Inc. KITCHEN EQUIPMENT: Range-Westinghouse Electric & Mfg. Co. Refrigerator-Universal. Cabinets-Napanee, cabinets installed by Cox Kitchens, Inc.

BATHROOM EQUIPMENT: Fixtures-Kohler Co. Cabinets-Charles Parker Co.

PLUMBING: Soil pipes-cast iron and galvanized steel with galvanized cast iron fit-ings. Cold and hot water pipes—brass.

HEATING AND AIR CONDITIONING: Split system, steam for baths and service portion; warm air for master portion. Boiler and radiators—American Radiator-Standard Sanitary Corp. Water heater-Taco Heater Co. Attic fan-General Electric Co. Kitchen and laundry vent fans-Diehl Mfg. Co.

4.



VIEW 5.



HOUSE IN ST. LOUIS COUNTY, MO.



VIEW I.

Bonnett S. Tu







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K AND AUER, ARCHITECTS

mmonly accepted minimum of living room, kitchen and two bedwith the uncommon addition of a maid's room. Continuing the very stained redwood in fence form to link the garage and extend the front porch, proved to be an effective means of making a very small house reasonably spacious. With the almost black redwood and used brick, erior trim is white and chartreuse. What might appear to be inadevindows under the eaves serve their purposes of lighting the stairway poss-ventilating the main bedroom.



CONSTRUCTION OUTLINE

FOUNDATION: Walls—reenforced concrete. STRUCTURE: Exterior walls (1st. floor)—8 in. brick and hollow tile; (2nd.)—redwood shiplap, studs, building paper and wood sheathing. Interior—plaster on rock lath, U. S. Gypsum Co.

ROOF: Covered with asphalt shingles.

INSULATION: Second floor outside walls and ceiling-4 in. blanket, Fibatherm Insulation.

FIREPLACE: Damper-H. W. Covert Co.

SHEET METAL WORK: Copper throughout. WINDOWS: Sash—wood, double hung. Glass —double strength, quality A, Pittsburgh Plate Glass Co. Glass blocks—Owens-Illinois Glass Co.

STAIR: Treads—oak. Risers—yellow pine. FLOOR COVERINGS: Main rooms—oak. Kitchen and bathroom—linoleum.

Kitchen and bathroom-linoleum. HARDWARE: By Melcher-Schene Co.

PAINTS: By Whittemore Paint Co.

KITCHEN EQUIPMENT: Range-gas. Refrigerator-electric.

BATHROOM EQUIPMENT: All fixtures by American Radiator-Standard Sanitary Corp. ELECTRICAL INSTALLATION: Wiring system—BX.

HEATING: Air conditioned hot air with humidifier and blower.



VIEW 3.

HOUSE IN LAKE FOREST, ILL.





VIEW 2.





NSTON ELTING, ARCHITECT



racteristics of a rather peculiar and beausite dictated the plan. Approximately acre of a former estate is divided from surroundings by natural ravines running to Lake Michigan. By locating the garage ance on the building line toward the I, the maximum of space was reserved the south side for lawn and gardens. All cipal rooms open to southeast or west, a garage, service, hall, entries, all to the h. With the plan thus established, brick redwood were employed to blend the se with the large maples and the birches. re personal considerations of the plan were provision of a folding screen between ng and dining space; the comparative isoon of master bedroom on the first floor, bination of the architect-owner's work e and guest room. One chimney serves e fireplaces, boiler flue, incinerator and dry chute.

HOUSE IN LAKE FOREST, ILL. WINSTON ELTING, ARCHITECT





HEATING COILS

WORK ROOM



PANEL HEATING. Experimenting upon his house rather than risk the comfort of a cli the architect devised panel heating for the ings throughout. Cost was perhaps 20 per over a convection, forced-flow, hot water but was undertaken in anticipation of a 30 cent saving in operation. First winter brou 18° below zero, a test met with perfect com

Radiant coils are of standard seamless to welded into tube turns and reenforced with s braces welded across the lines. Wire clot fastened to the ³/₄ in. channels that parallel pipes and both sets of channels cover al the ceiling area. Lime plaster with plenty hair was used, the rough coat worked through the mesh to key with the pipes th selves. Cow hair was also used in the br coat, and onion bagging, 6 to 8 mesh to inch, was worked into the face of the white of Cold water paint of plaster color was fin applied.

Water temperature control and circula is provided by electrically controlled mixtur water from the boiler with the pump-recircula flow through the system. Maximum water t perature of 130° is the extreme need of the tem, and it fluctuates below that under con of an outside-inside thermostat. When out temperature calls for heat, valve opens to a water to enter boiler. Each coil is manually trolled for aid in balancing the system. An a matic air valve at top of system with a val tell pipe to basement are important element

Humidity has been in the middle fifties, the large single-glazed areas have caused appreciable down drafts. Temperature has b uniform throughout the rooms, laterally longitudinally.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—brick veneer redwood siding, insulating sheathing boards, st Wood Conversion Co. Balsam wool blankets, lath and plaster.

ROOF AND DECK: Covered with 4-ply built asphalt roofing covered with marble dust. FIREPLACE: Damper—H. W. Covert Co.

INSULATION: Outside walls and ground floo Balsam wool blankets, Wood Conversion Co. ond floor—rockwool and metal foil. Roof—Bal wool and metal foil. Weatherstripping—Cham lin Metal Weatherstrip Co.

WINDOWS: Sash and screens—steel, Hope's V dows, Inc. Glass—plate, Pennvernon, Pittsbu Plate Glass Co.; A. and B. Mississippi glass, Mis sippi Glass Co. Glass blocks—Pittsburgh P Glass Co. FLOOR COVERINGS: Main rooms—white

FLOOR COVERINGS: Main rooms—white Halls—Corinco cork tile, Cork Insulation Kitchen, 2nd. floor bedroom and bathroor linoleum, Armstrong Cork Co.

WALL COVERINGS: Living room-Flexwood S. Plywood Corp. and rift sawn oak.

KITCHEN EQUIPMENT: Range—Edison-Gen Electric Appliance Co. Refrigerator—Frigid Corp. Sinks—Kohler Co. and Elkay Mfg. Co. BATHROOM EQUIPMENT: All fixtures by Co Co. Cabinets—Charles Parker Co.

PLUMBING: Hot and cold water—Streamline oper, Mueller Brass Co.

HEATING: Boiler—Pacific Boiler Co. Oil burn JM Electrical pressure atomizing oil bur Thermostat—Hoffman Specialty Co. and Bel Gossett. Incinerator—Ewing Incinerator Co.

THE ARCHITECT'S WORLD

THOUGHTS ON AMERICAN MURAL PAINTING By Julian Garnsey

Spoken at the Symposium of the National Society of Mural Painters, New York, December 9, 1940

the use of mural painting is increast is not yet an essential resource of ecture but rather a luxury to be used gly. Time was, however, when no ng was considered complete without ate and significant decoration. An nation of such a time, the Italian ssance, may uncover interesting comns upon which to base our planning ore mural painting in this country. I see it, three conditions existed in enaissance from which our art drew owth. First, there was a wealthy and gent lay clientele. The Church led, ed by kings, nobles, great families adependent states. Second, there were te messages to be spread abroad, as the Gospel story, the greatness of Iedici or the Fuggers, and the glory nice. Third, painters employed a simechnique, basically naturalistic and ut distortion, which was generally stood.

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turning to the present, we may inwhether, and to what degree, these tions exist today. First, as to possible s. The Church has yielded its place epository of wealth to great commercorporations, rich in stories which not yet been told. We still have rich proud families, though they are less vert than formerly. Kings and States been replaced by our Federal Govern-, at present almost our only patron. day, however, mural painters no r receive commissions directly from lient but rather from the architect, in e hands all decisions on materials and ations lie. While, in the Renaissance, tects, painters and sculptors were y related and understood each other, days each art follows a separate way. architects paint or sculp seriously, fewer painters have more than a suial knowledge of architecture. It is surprising, therefore, that the archipressed by the complexity of modern n and the speed required, should forhe value of our art for lending sigance to his building. This is doubly ctunate in the practice of the modern where, for instance, a hotel, a hospital a girls' school may contain the same ents of corridors, elevators, a few and many small rooms, and may be ically indistinguishable one from the other. Appropriate color and mural decoration would stamp each with the individuality of its own function.

Second, what messages has mural painting to give today comparable with those of the Renaissance? Brave feats of arms abound in our history from Bunker Hill to Chateau Thierry. Civil history is just as full of inspiring events connected with the taming of the wilderness, the trend toward the West, the establishment and growth of great enterprises of commerce, and so on. In fact, every village has its story of a particular minister, doctor, teacher, rural sage or favorite son whose life should be visibly perpetuated for the encouragement of those who follow them. Finally, there are the ancient subjects which never grow old: steadfastness, courage, honesty, faithfulness, industry and thrift,-which must be repeated for each new generation.

Some will say that such messages are now given by the movies and the radio. Both of these are fleeting images which do not remain in the memory, and their aim is amusement rather than instruction. A mural painting, however, remains in place for repeated impressions and becomes part of the mental treasury of the beholder. What lasting influence must Puvis de Chavannes' hemicycle in the Sorbonne have left upon the students who viewed it day after day!

Third, do we use today a simple technique, easily understood by all? Obviously we do not. Many techniques of varying obscurity are in vogue, of which some seem intentionally difficult to understand. Since mural painting is an art for the people, painters will have to find a means of communication which laymen comprehend. Men like Grant Wood, Tom Lea and Thomas Benton have found such a means. Any less explicit defeat the purpose of mural painting.

To sum up, it appears that patrons do exist today, who may be educated by their architects to use mural painting, that appropriate subjects abound and that a simple technique may be evolved, understood by all.

The final difficulty was not unknown in the Renaissance but was overcome short of dispensing with mural decoration. I mean the matter of cost. In this regard the Federal Government has led the way by allotting a small percentage of the cost of its buildings to painting and sculpture, and by paying by the square foot for these arts. There seems to be no insuperable difficulty in the way of adopting that procedure in private practice. Certainly one would search long for a material at the same price which would return more, in the long run, of interest, significance and satisfaction.

May I close with the observation that the future of mural painting depends primarily upon the mural painters themselves. If they show an ability to paint decorations that are worthy to be placed in modern buildings, that hold significance for the clients and the people, that speak a language of technique generally understood, and that can be executed at a reasonable percentage of the cost of the building, they may expect the support of architects and, through these advisers, of the patrons of building. Under those circumstances one might expect the arrival of the American Renaissance.

THE ENGLISH ARCHITECT AND THE WAR

Excerpts from an editorial in The Builder, London, August 2, 1940.

There is no need of a reminder to most of our readers that the entire architectural profession, with the exception of a very few of its members, is passing through a very bad time. The disinclination of the authorities to do anything tangible to meet the situation suggests that there is still plenty to be done in the way of persistent propaganda on behalf of the longsuffering architectural profession. There is no doubt that members themselves are doing their best to help themselves, and probably with greater success now that architecture is no longer a reserved occupation. Many have closed down their practices and have taken salaried jobs—sometimes at very indifferent wage rates, and often on work which represents the least interesting branches of architectural practice. Many of the younger ones have either been called up with their groups or, where still over age, have volunteered in one or other branch of the Forces, and generally in some branch unrelated to anything for which they have been trained. But at least this has thinned the ranks of unemployed architects.

Probably the most perplexing situation is that of the older practicing architect, whose age precludes him from active service, and whose experience is apparently little valued in the technical departments that happen to be recruiting additional staff. In London, such men, in many cases, have seen thriving practices disappear within a few weeks, for the London practice is generally one which depends upon a sequence of a few large jobs at a time, and the eggs of such a practice are thus in a few baskets. In the country the change from peace to war is not quite so complete, in that the country practice covers a very much more general field. Numerous jobs of relatively small size, and the numerous "feed services" which country life demands, make up the stable part of the country practice, to which the occasional large scale job makes the difference between a lean and a better year, and probably constitutes the main source of personal savings.

In one sense, the country architect has the advantage of his London confrère in that a part of his work goes on under most conditions, and his services, on a very small scale, are demanded wherever property changes hands and wherever families seek their means of retrenchment by moving to smaller premises. Often enough these hard-won guineas do little more than pay the expenses of the office, and it is only by a drastic cutting down of such expenses that the country architect can make these minor services contribute to his living.

But the problem of decision faces all architects alike, and the time must come,

Younger members of the architectural pro-

fession have been banding together on the

principle that in union there is strength.

Uncertainty of the times, difficulties of

finding commissions or employment, lack of confidence in their individual powers-

all have helped to form loosely knit units

in some of the larger centers. San Fran-

cisco, New York, Montreal, London and

Melbourne have groups that are becoming

vocal, and doubtless there are others who

Students' Society of the Royal Victorian

Institute of Architects, and for two years

it has published a clever little monthly

pamphlet, Smudges and a more pretentious

annual which they call Lines. Their Hon-

orable Secretary, Ronald Bath, writes:

"We are naturally endeavoring to push

In Melbourne it is The Architectural

will soon be heard.

and has already come for many, to decide whether or not to cut losses and close down for the duration of the war. When it comes to that point we are inclined to think that the Londoner will find it easier to decide than the countryman. An inactive London office serves little useful purpose to its occupier. It even involves him in unnecessary expense in traveling to and from some suburban or country home. To close down means very substantial economies in an enforced idleness. But in the country the architect in a small town is in a somewhat similar position to the family doctor. His townsfolk turn to him in many little matters to which he willingly gives attention, and by his attention he becomes the natural source of help when some really worthwhile architectural work is to be done. If he closes down on that established position, he runs a real risk of losing much which he has labored to build up through many years, and it will be only desperate straits indeed that will induce him to adopt the drastic step of closing down. . . .

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Looking ahead to a return of normal conditions, we think that there again the London architect will find it easier to readjust himself. London is a great center for maintaining contacts, whereas the country district serves only its few inhabitants. We well remember that some of the young men returning from the last war brought with them some valuable introductions and even a ready-made job or two, which set them up nicely in civilian life again. That that will again happen we have no doubt, in the case of those who put up their old plates in London again, whether on the same door jamb or on some other. But the countryman will have to start anew, unless he is very fortunate, and it is for that reason alone that so many are holding on in spite of meagre profits, or sometimes even at some loss.

VOICES OF THE YOUNGER MEN

Australian architecture to higher levels of artistic and ethical merit, but we understand that, underlying all the fine arts, there is the one fundamental, the Art of Design—self-expression. Consequently, our views expressed are as broad as possible, as simple as possible, and as breezy as possible, setting architecture in its true relationship to the full life as we see it."

Have a taste of Smudges .- ED.

THE LOWEST FORM OF ART

An editorial from *Smudges* (Melbourne, Australia) Vol. 2, No. 14, 1940.

"Architecture!" said Mr. Menzies recently, as he was introduced to an architectural student, "Architecture is the lowest form of art in Australia!"

The pitiable part is that one must agree with him. Architecture here is undoubtedly behind the other arts in imag and freedom from borrowed tra-But how annoying that the Prime ister should notice it!

What can be the reason? Where the cure?

Perhaps we need look no farthe the remarks of the visiting Hun architect, Professor George Korody must not copy. You in this country need support from outside. You think for yourselves and build acc to the dictates of your own special tions and climate. Then an Australia will come."

A clear statement, and coming a distinguished foreigner; it is news; is nothing very new to architects, one in the profession above first ye tory must know this as well as he an Egyptian cornice, or better: Eve torical style has been based on its a influences, therein lies its success.

That has been drummed into all yet we continue with our "modern a tions" of Gothic, Georgian, Tudor d or the equally unsuitable "Stock style.

We base every design, consciously consciously, on the latest overseas zines. Our work is, at the best, a copy of the overseas fashion. Is it I initiative or lack of courage that he back? Are we too dull to see the wa better architecture? Probably we a —but we are too frightened to mal move.

And the Editors of Smudges, wi inhibitions, regularly award—

BOUQUET OF THE MONTH

To Architects Fowell, McConnel Mansfield, and Brian O'Rorke, for Orient Line Building, Spring Street, ney.

What? No horizontal lines?

That's not very modern. And not stressed vertically eithe

Good heavens, there's practicall design to it!

BLOT OF THE MONTH

"Corio," Distinctive Flats, Dande Road. Near-Georgianism scrapes the

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THEY SAY-

"The only things worth living for Christian architecture and a boa AUGUSTUS PUGIN.

"There is a boom in the demand fo perienced engineers—caused by the tional defense program. The suppl limited. Therefore, if you have a engineer, treat him well. If you need better start looking."—MASSACHUS INSTITUTE OF TECHNOLOGY. ce, quiet, gardens, esthetic repose are rvatives of architectural designs that them in existence long after their cal period of obsolescence."—LEWIS IFORD.

at I hate is the sort of female percation which gives us Thrift (rather er) and Commerce (not so slender) ving gifts from Plenty (full figure). ed, in a recent bank building you even see Britannia seated between Higher and the Lower Mathematics." S. GOODHART-RENDEL.

ing the next 50 years 75 per cent id-town New York will be torn down. s place will rise beautiful residential office buildings occupying only oneof the land area of Manhattan. The four-fifths will be parks, gardens arrangements of natural beauty."— CHARLES V. PATERNO. "Never before has the vulnerability of great and congested cities and the rapid spread of urban blight given so much point to Sir Raymond Unwin's contention that 'nothing is gained by overcrowding,"—RUSSELL VAN NEST BLACK.

"Government architecture has been much maligned. . . Architects within the Federal Government can and do act with freedom, initiative and taste."—PROFESSOR CARL FEISS.

"Encouraging the young toward adventure and vision by showing them a creative approach towards the phenomena of human life, and putting the emphasis on practical experience, will do arts and letters good. More harm than good is done when the trend of teaching is too exclusively directed towards academic knowledge, booklearning, and intellectual collecting of facts."—WALTER GROPIUS.

SMALL PANES

By James MacQuedy

erpts from an article on Criticism in The Architectural Review, London, for August, 1940.

is it that the one "period" conventhe contemporary architect clings to when he has discarded all the others are subdivided window pane? . . .

still irritates by its fusions and unonableness whoever looks at the averblock of flats or municipal building he hope of seeing a consistent idiom blishing itself. To try and discover this one conventional motif should in so long may throw some light on sort of process by which architectural entions sustain themselves even in sition to reason.

is not my intention in these articles iscuss technical matters, but it must aid-otherwise the question of the etic deficiencies of small-paned wins becomes rather an academic onethe arguments in favour of small s on practical grounds do not seem strong ones. It is sometimes said large sheets of glass are an expensive because of the cost of replacement breakage. In answer, one may first t to the shopkeeper, who has had no ation in discarding the subdivided e altogether, although one imagines he has to watch maintenance costs losely as anyone. He takes a pride in vide, sleek windows and counts plateamong the blessings of civilization. can also safely guess that in practice chances of actual breakage are exely small. In the average building a large proportion of the glass must ive a whole generation without breakso the risk of having to replace a e rather than a small piece of glass wing a mishap cannot be anything like great enough to cancel out the saving of time and labor in cleaning the undivided, as against the heavily subdivided, window, to say nothing of the greater amount of light let in. . . .

So on practical ground the large pane wins, and we can take it that any discussion of the relative merits of large and small panes can be conducted in esthetic terms. The prejudice against the elimination of the small window panes that belongs to various past styles of architecture and to periods when large pieces of glass simply were not obtainable, is so strong that it has led architects who are honestly anxious to free themselves from the misleading associations of historical detail to invent a substitute for the conventional Georgian rectangle in the form of the "modernistic" horizontal rectangle that at least pays tribute to a change of idiom without acquiescing in any change of scale.

This horizontal glazing unit has spread with astonishing rapidity since it was introduced about twenty years ago as a rather arty personal mannerism. Although it has no practical advantage over the vertical Georgian style unit it has even been standardized by metal window manufacturers and has become the hallmark of the jazz-modern. But it is not confined to jazz-modern buildings and is, in fact, the type most frequently employed to achieve that fussy subdivision of window spaces that so frequently ruins the appearance of the decently contemporary, decently simplified building described above.

Presumably this prejudice is due to anxiety about scale-as though scale were a fixed and permanent thing. A theory used to be taught in the architectural schools-and still is, for all I know, in some of them-that window subdivisions "give scale" to a building; but that this is only a recent convention and not, as the pedagogues pretend, a canon of classical correctness, is indicated by any book of eighteenth century engravings in which the classical rules and precedents were set down for architects' and builders' guidance. For invariably in such books as Campbell's Vitruvius Britannicus the voids are indicated by solid black masses; the pattern of the facade, that is to say, is presented for judgment without any window subdivision. But whether this scholastic insistence on "scale" is or is not a true interpretation of the Renaissance ideal, it is certainly out of keeping with the modern one. . . .

*

To return to our subdivided windows, to a previous generation's eyes the difference between the large- and the small-pane treatment would only have appeared as an unimportant variation in the richness of the pattern that covered the building's surface, whereas to our eyes the fussy window subdivision of so many otherwise simply conceived buildings becomes an insupportable blemish....

ARCHITECTURE AFTER THE WAR

Comment from The Builder (London) for November 8, 1940

Professor C. H. Reilly contributes a thoughtful article on this subject to the *Manchester Guardian*. The present war, he writes, may in one particular well hasten on what is already happening. Ferro-concrete will come still more into its own. Already ferro-concrete buildings, with monolithic construction, have proved that they stand up to bombs and blasts better than any other. Besides, we shall all be glad to have a concrete roof over our heads instead of a wooden one. That, in general, means a flat roof, and a flat roof leads to the cubist shapes and the spatial composition so typical of modern types of building. It may also be supposed that the reaction against reproducing traditional ornament will continue with ever greater force. The desire to dissociate oneself from the bad old past, which led to such catastrophes as the present war, may well lead farther in that direction. Forgeries of all sorts will be anathema. The desire for ornament and variety will still be there, of course, but that for ornament may find its outlet in frescoed surfaces and in independent sculpture contrasting with the geometrical shapes of the buildings, as at the Glasgow Exhibition, and that for variety in the curved forms into which concrete as a plastic material can be molded.

*

Again, if buildings may be pock-marked, to say the least, with pieces of bomb or shrapnel, elaborate stone facades built up on steel frames will seem greater waste than ever. Anyone who has seen the indecent state of some buildings in London at the present moment, with the sugar coating of sham stone columns partly melted away and the steel bones grinning through, will in future want an architecture sufficiently truthful throughout not only to live decently and unpretentiously but to die decently as well. A solid brick or stone building does that, or a steel-framed one in which the frame is clearly expressed and only lightly covered from the weather with a thin veneer of glass or other material. It is the monumental shams with which during the last thirty years we have been lining the chief streets of our cities which are now disgracing us.

A small point, little likely to affect the course of architecture, is the provision, if the bomber still survives, of a basement shelter to every building, however small. It will add a little to the cost of the smallest, but it will hardly affect the design as a whole.

A more interesting speculation is what we can do with the destroyed areas of our towns if the bomber is abolished, for it hardly seems worth while considering schemes of replanning if it is to remain. Let us assume a saner world in which it no longer exists, except, perhaps, as a central police force to stop burglarious aggression. If great areas are destroyed, as seems likely, what shall we do? First, we must clearly have a strong Government, strong enough to stop sporadic rebuilding, and strong enough, too, to pull down buildings which the Germans may have left standing if they block the way. We know how the natural desire to rebuild, each on his own little plot and as quickly as possible, prevented the execution of Sir Christopher Wren's fine plan for the little city of his day after the Fire of London. We know, too, how in more recent years the San Francisco plan suffered the same fate after the earthquake and fire.

*

The ideal way would seem to be for each big city first of all to acquire the land and buildings within its boundaries and then to lease the buildings it wished to keep standing. Then, and only then, would the authorities feel free not only to clear great areas, but perhaps not to rebuild them at all.

ST. PAUL'S, LONDON

From "Notes & Topics" by Astragal in The Architects' Journal (London) for September 26,

Since I last wrote about my friend who is one of the Night Watch at St. Paul's, the war for him has begun in grim earnest: no longer are playful practices in mastering the intricacies of the cathedral's behindthe-scenes planning his nightly occupation, followed by a comfortable bed in the crypt; instead, there are continuous patrols of the roofs, watching the city's bonfires and dodging any fragments that fall unpleasantly near.

When I met him last week he talked of the one-ton time bomb that had just been extracted from near the western portico of the cathedral by the justly famous Lieut. Davies, Sergt. Wardrobe and the others. My friend described the event as a heroic piece of dentistry.

*

The Night Watch continued their duties while the bomb was there; but their headquarters, together with the sheltering clergy, had to move to the east end of the building. The sinister aspect of the whole affair, which added to the suspense of waiting and the difficulty of the work, was that, through some freak of sub-soil conditions, the bomb continuously tended to burrow its way nearer the cathedral until the removal tackle took its weight.

No architect, I fancy, can think of Lieut.

Davies' lonely drive^{*} to Hackney M through cleared streets without wish pay him a special tribute.

The threat of the time bomb, of c was only a passive affair for the Watch. Their most active night wa previous Monday, when large fires in the city from Cheapside to C Street, having been first started by a that fell only 100 ft. or so from the end of the cathedral. The Watch sp busy night on the cathedral roofs, a ing them with water, and saw the ha ing sight of three of Wren's best chu simultaneously threatened by fire; b were eventually saved except for ficial damage. Other city churches, lieve, have suffered.

I was told that, lit up by neight blazes, St. Paul's at night achieves scribable majesty; even the inside is times lit by a maroon glare reflecte the dome through the windows, a moving sight. I myself have noticed the extra stature St. Paul's seems to acquired since these night raids beg have seen its dome from the heigh north London poised like a black b above the smoke and flashes of a ra seems magical that it survives.

* See account immediately following the cerpts.—ED.

THE BOMB AT ST. PAUL'S

From The Builder (London) for September 20, 1940

One of the biggest bombs to be dropped on London fell in Dean's-yard, close to the west end of St. Paul's Cathedral, entering the roadway at the edge of the pavement. For three days a Bomb Disposal Section of the Royal Engineers, under the command of Lieut. R. Davies, worked on its removal. When they began to dig they found that a 6-in. gas main had been fractured and three men were gassed at an early stage. The gas company was called in to deal with the main, which had caught fire. No one then knew how close to the flaming main the bomb might have been.

When the gas had at last been cut off the Bomb Disposal Section had to dig for 27 ft. 6 in. into the subsoil before they found the bomb. It proved to be a ton in weight, and looked like a vast hog, about 8 ft. long. Moreover, it was fitted with fuses which made it deadly dangerous to touch or move it.

To save devastating damage to St. Paul's the risk of removal had to be undertaken, and with great difficulty it was drawn up with special tackle, for high polish had been imparted to it in its passage through the soil, making it difficult to handle. Two lorries in tandem were requir haul it out of the hole. The streets cleared by the police from St. I Cathedral to Hackney Marshes. The l was placed on a fast lorry and driven by Lieut. Davies at high speed, the of explosion being imminent at the

At Hackney Marshes the bomb blown up by the Bomb Disposal Sec It caused a 100-ft. crater, and rattled windows, and in one case loosened pla in houses far away on the Marshes.

Only the courage and tenacity of officer, his N.C.O.s and men, preve St. Paul's from being gravely injure not levelled to the ground.

*

We are glad to note the statemer Canon Cockin that the Dean and Cha are taking steps to express their appr tion in suitable form. Special promin has rightly been given to this extra nary act of skill and bravery, but well to remember that it is typical of routine work that the Bomb Disposal tion is doing every day. The nation of a debt of gratitude to these men that never be repaid.

THE DIARY

Strong Sc! Saylor

y, November 15.—They are beginto camouflage their motor cars in nd, but British humor marches on. The British industrial design suggests that one-half of the car, ed longitudinal, should be painted to onize with the country, and the other with the town. If there is a raid in ountry, you drive the town half up at a hedge; if in the town, you drive ountry half up against a wall.

ay, November 19.-I wonder whether architects are as hazy about their registration laws as I find myself. out having studied the statutes. I always thought it perfectly ethical gal for an architect registered in one to associate himself with a registered ect in another State to carry through ject in the latter's territory. That e legal practice between some States, is definitely illegal in others. For v York architect to design a library built in New Jersey, he must be ered in New Jersey, whether assowith a local practitioner or not. The restriction applies to New York Not only is it illegal for the nonnt architect, but the resident associso is guilty, in assisting the other to the law.

*

ne curious and very uncomfortable ions arise from the fact that archipractice under varying laws of the rather than under a single law of the al Government. As an example: tect A, registered in State X, is comned to design an important build-State Y. He associates himself with tect B, registered in State Y, and eds with the job. After the building l under construction, A decides that ght be advantageous in future work ve State Y registration himself, and s application therefor. One of the uestions asked him, as to his citizenreveals the fact that although he has out his first papers, he is still an A status which did not prevent his ration in State X now bars his ration in State Y. He and his associooth eminent and law-abiding memof their communities, find themselves lly recorded, through the filing of , as practicing illegally.

er a long battle through many years, urchitects and engineers have been ed the legal protection that public h and safety justify; full knowledge and meticulous observance of these laws are certainly among our first duties.

Montreal, Friday, November 22.-Province of Quebec Association of Architects is celebrating the fiftieth anniversary of its founding. The year 1890 must have been a fruitful period for architectural organizations, since our own A.I.A. Chapters at Buffalo, Cleveland, Detroit, Kansas City and St. Louis were born in that same year. At an evening session in the Art Museum, to which the public had been invited, it was my task to outline the place of the building industry in national defense, with particular reference to the part that might be played by the architect. In Canada, in England, and in the U.S., the profession has not been formally and collectively summoned from on high to lead the crusade. There has been considerable moaning over that fact in England and in our own professional organizations.

Montreal, Saturday, November 23.—I had forgotten how strongly Montreal is marked by its French settlers and their descendants. Half its many newspapers printed in French, all street signs lettered in both English and French, the Gallic flavor of the telephone book, bargain counters and store attendants treating the two tongues impartially.

The Bank of Montreal drew me down town to see whether McKim, Mead & White's stately interior had lost anything of the impressive grandeur that made the building an architectural milestone for an older generation of architects. No, it holds its own.

Again the emphatic French note this evening in the Association's final banquet. Fully half the toasts and responses were in French, and president Perrault used English or French in gracious conformity with the preference of each man he called upon to speak. In answering to the toast "Our Guests," I was privileged to read a telegram of congratulation from A.I.A. President Bergstrom, assuring the Canadian architects of our sympathetic and whole hearted cooperation in the gigantic effort of continental defense and in the work of rebuilding a war-torn world. My own mental picture of the task we have undertaken, already magnified to heroic proportions by the astronomical budget figures in our press, has taken on a greater sense of reality in this visit north of the border. Canada, good neighbor and friend of long standing, is depending trustfully upon us.

Monday, November 25 .- To Carl Milles' fame as a sculptor must be added his unique powers as a raconteur. Ralph Walker gave a small luncheon in his honor today, during which the artist talked not of his muse nor of the philosophy of created form, but rather of experiences in the great highway of human relationships. Whether he is sharing confidences with a king or a cabdriver, a debutante or an apple woman, Milles delights in the meetings of minds on the broad plane of a common humanity. Some of his characterizations must be held in confidence, but the story of a taxi ride to Brooklyn can be shared. It was a blustery day when he was crossing from Manhattan to speak at the Brooklyn Museum. Milles found the Italian taxidriver sharing his own appreciative view of a lovely young girl tripping along the sidewalk beside the halted traffic stream. The wind experimented with her skirts very much as a sculptor would have done in seeking lines of grace and action. With a glance at his passenger that carried a whole volume of respectful and collaborative admiration, the taxidriver unburdened himself of his entire philosophy of beauty. Milles changed to the front seat for a freer exchange of thought on the joys of living, the beauty showered upon undeserving man by a bountiful Nature, and the ineptness of our appreciation. Arriving at the Museum, the sculptor read the meter and offered a bill, only to be told somewhat brusquely that the cab would wait. Accepting this as probably some American custom with which he was unfamiliar, Milles delivered his lecture, returned to his cab, and was soon back in the thick of a mutual confession of faith in the power of beauty. Back in front of his hotel, and in a momentary lull in the exchange of thoughts, Milles brought up again the crass matter of pay for his transportation. And once more he encountered an unfamiliar American custom-quite unfamiliar to Americans. With the proprietary air of an old friend, the taxidriver said, "I take no money for my own pleasure," meshed his gears and drove away.

Tuesday, November 26.—Ken Murchison's shade must have been hovering over the annual Beaux-Arts dinner tonight. Most of his friends were there, including Tony Sarg and George Traprock Chappel, who brought back most vividly the days when the delightful uncertainty of what Ken might say or do next restrained even the

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hand that held the cocktail, lest precious wit be missed. These annual reunions seldom fail to bring in *anciens* who could not, even if they would, shake off the nostalgia to join once more in singing *Les Pompiers* and recreate at least some faint semblance of life about Deux Magots and the Dome of bygone years. Fred Murphy up from Washington, George Gray from New Haven, Wells Bosworth back from Paris. And throughout a roistering evening the recurring assurance that France will live again.

Friday, November 29.—The Diary does not aspire to recognition as a clearing house for What Have You and What Do You Want, but we cannot resist spreading this bit of news: Duke University has a stock of hand planed, heart pine boards, 7 to 12 ft. long, 7 to 22 in. wide, that have never been painted. They were taken from a house about 200 years old. F. V. Altvater, Superintendent of Duke Hospital, Durham, N. C., will not sell this lot for ordinary purposes; it deserves an understanding and sympathetic use.

Tuesday, December 3 .- Norman Bel Geddes told us at lunch today something of what he is trying to do for the circus. Newspaper headlines and editorials have been using the obvious cliché, "streamlining," in suggesting that the circus may become something like a Max Reinhardt spectacle. Bel Geddes, however, has himself carried water for the elephants, and knows that the circus must never be allowed to grow up. North, who heads the big Ringling organization, came to Bel Geddes and asked him if he could make a big tent without any poles inside. A foolish question, for he should have known that for Bel Geddes there are no impossibilities. Beyond the obvious need for greater efficiency in portability, and an increase in comfort for the audience, in keeping with standards set by all modern entertainment and travel, the circus must remain, Ladies and Gentlemen, the Greatest and Most Sublime Super-Spectacle Ever Conceived by the Mind of Man!

Thursday, December 5.-Hugh Ferriss, as chairman of the Architectural League's exhibition committee, is certainly increasing the daily attendance with his scheme of monthly panel exhibitions in the dining room. Cameron Clark, Walter Teague, Wheeler Williams, Julian Garnsey, Shreve, Lamb & Harmon, Alfred Poor, and Alfred Geiffert do their stuff this month. Speaking of Hugh Ferriss, it would be difficult to overestimate the influence he has had in pointing the way through architecture's present revolution. Credited specifically with no buildings of his own, he will very likely be a stumblingblock for future historians. Many an architect for whom Ferriss has made one of his characteristic perspective interpretations will frankly admit that the charcoal drawing revealed an

architectural individuality that knew not its own father. Hugh Ferriss' drawings have done far more than delineate twentieth century architecture; they have lifted it by its own bootstraps to heights its designers could not have attained.

Friday, December 6.- A new implement in national defense, and one that should fit well the architect's hand, is the local planning commission. Almost unknown in World War I, it is an important element today. As an example, the Regional Defense Council of the Hampton Roads Area in Virginia. With representation from four counties and five cities, it is collecting and mapping data as to land use, population distribution, land ownership and valuations, housing conditions, highways and traffic flow, sanitary facilities, utilities, schools, recreation and hospitals. Or, the Milwaukee Board of Public Land Commissioners-the city planning board which has gathered all data on vacant industrial and housing properties, the available labor supply, transportation facilities. Architects who are still listening for a summons to public service in national defense would do well to put their ears to the ground.

Monday, December 9 .- Julian Levi, founder and honorary chairman of the Architects' Emergency Committee, gave a luncheon today in commemoration of its tenth anniversary. The Committee has become such a basic element in the architectural life of New York that it seems to have been with us always. Established for the dire need of aiding unemployed draftsmen, and supported mainly by the financial efforts of its Women's Committee, it has found or created 7,400 jobs. Its function as a relief agency slowly dwindled at the end of 1936 and early 1937, when it turned to the task of finding men for jobs rather than jobs for men. Today it is the recognized employment agency of the profession in the Metropolitan area. Under the herculean efforts of the women, led by Mrs. Joseph Urban, Miss Amy Aldrich and Mrs. Stewart Walker, \$166,000 has been raised. Beaux-Arts balls, historical surveys and models, the two volumes of "Great Georgian Houses," competitions for civic improvements-to mention but a few of the many projects-furnished both the work and the money to keep architectural wheels turning in a time when they were very nearly stalled. A hundred or more men and women have, over the decade, kept the Architects' Emergency Committee an efficient tool in the service of the profession and of the community-a tool which, under Mrs. Nelson's able handling, will continue in use.

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New York's world of art nearly filled the Church of St. James this afternoon in solemn tribute to a life of completely unselfish service, that of Ernest Peixotto. Men of all faiths, and doubtless many whose faith consists merely of the cotion that man's service to man is the of immortality, came to bear witness life of such service. The City's M Manhattan's Borough President, and resentatives of practically every local fessional group in the Fine Arts, gat in sad but grateful appreciation of artist, a servant of mankind, and a logentleman.

This evening, under the shado Ernest Peixotto's passing, the Socie Mural Painters held its second symp of the season at The Architectural L Edgar Williams, Lessing Williams Julian Garnsey led off with provo papers, after which the discussion warm until near midnight. Centering the question of contemporary Am mural painting-the need for it, st matter, techniques, architectural se -questions and theories from the ranged afar. The lack of a Savon theme in the Italian Renaissance, the fication of billboards, the compa merits of Keokuk and Nashville as ing grounds for painters, the vibrati modern wall surfaces, American h nature as quarrelsome or spoofing or the possibility of interpreting mode vention in allegory-these are but of the outposts skirted in the fast around the course. One problem lef solved is that of finding the painter

Wednesday, December 11 .- Want to a greenbelt town? Uncle Sam will se one on easy terms, with a mortgage tized over 40 years and costing only per cent. Greenbelt near Washingto C., Greenhills at Cincinnati, and C dale at Milwaukee were built to de strate the feasibility of designing a before it was built, rather than allow to grow up by main force and awk ness. Eventual sale of these experim towns has been in the program from start. One does not have to prove the that Government resources can bu model community; the more difficult is to build one that the inhabitant afford to own. Costs of these demon tions, like the cost of a new model n car, were naturally far above the co duplicating them in quantity. Gree cost \$111/2 millions; allowing a dedu for the greater cost of "made" work another for the roads, utilities and I ing, the dwelling units cost \$6,780 a That is high as compared with the age cost of equivalent shelter, but "eq lent shelter" is in most cases a euphemism; it does not possess that w Greenhills was built to secure. Go ment, through its Farm Security Ac istration (successor to the Resettle Administration), should carry through this experiment; if it was successful practicable for further application, country is entitled to know that fac the process has revealed mistakes of cept or execution, we should be told a them.

STUDENT ALUMNAE BUILDING WHEATON COLLEGE

NORTON, MASS.

CALEB HORNBOSTEL AND RICHARD M. BENNETT, ARCHITECTS



STUDENT ALUMNAE BUILDING, WHEATON COLLEGE



SITE PLAN

SCHEME 1. Power. House Rake Rake Rake Fehapee

1. Masses of the building tie in with the axes of the general plan. Ballroom faces powerhouse. View toward lake insufficiently developed.





 Ballroom moved toward west, giving more direct access from campus. Court (X) faces the powerhouse, while court (Y) is too crowded.

REQUIREMENTS:

The site selected was an old tennis court a short dista from the campus, surrounded by a powerhouse, gym sium and an athletic cage. A view of the powerhouse naturally considered undesirable. The student entrahad to be related to existing buildings on the campus, a motor entrance for visitors had to be provided. Most the earlier buildings are brick, in the Georgian style. Requirements for alumnae use: offices, file space, sup closets.

Requirements for both alumnae and students: a la parlor, an alumnae parlor, a ballroom and assembly rookitchens.

Requirements for students: day students' locker room a study space. A small parlor, recreation room, offices the college government association and athletic assotion. Offices for student publications, for student societ and committees.

General services include lavatories, a janitor's suite room for mechanical equipment and storage space.

SCHEME 5.



5. An effort to create some space betw. ballroom and hockey field. Circulation good. Relation to powerhouse still uns isfactory.



6. A variant of 5, using the ballroom to shield the court. The cage becomes part of the scheme. Relation of building to campus not good. SCHEME 7.



7. A developed combination of 6 and 1. Short end of building faces campus. An entrance at point A would locate platform in hall at wall X.





8. Scheme 6 developed. Rooms have s light, view of lake and woods. Co shielded from powerhouse. Acknowle ment of campus axis retained.



PROACH-SEEN FROM SOUTHEAST



In the summer of 1938 a national competition for the design of a library and art center for Wheaton College was held under the joint sponsorship of the Museum of Modern Art and THE ARCHITECTURAL FORUM. It was won by two young New York architects. While funds for the building are still incomplete, another structure by the same architects was recently erected for the college.

The site, as indicated on the preceding page, presented serious difficulties. While the college authorities wisely refrained from insisting on a continuance of the previously established Georgian style, there was no desire for a structure that would disrupt an essentially harmonious and attractive group. In view of the solution shown in these pages, and despite the fact that the competition design has yet to be built, the choice of the Jury has been thoroughly confirmed.

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STUDENT ALUMNAE BUILDING, WHEATON COLLEGE



EB HORNBOSTEL AND RICHARD M. BENNETT, ARCHITECTS



ENTRANCE

COURT



The photograph on the opposite page shows the motor entrance, sheltered by a permanent canopy; it is used by the public when dances and lectures are given. In the view above is shown the foundation wall of a former powerhouse. The courtyard illustrated at the left is a pleasant, sunny space with a terrace directly off the ballroom and the recreation room. A bowling alley is located under the terrace, thus isolating the noise from the main building. Storage space for outdoor furniture is provided in a large closet under the stair. The plans should be examined in conjunction with the preliminary schemes and list of requirements given on page 54.

STUDENT ALUMNAE BUILDING, WHEATON COLLEGE



LIGHT COVE

t Fixtur

The largest room in the building is a combined assembly hall and ballroom, a restrained and handsome interior executed in gray-painted walls and natural birch. The lighting is admirable in its flexibility. During dances, for example, illumination is provided only by the lower part of the wall fixtures. An interesting detail is the large speaker over the platform; this unit is ordinarily projected three feet into the room; here it is flush and the projection occurs on the exterior wall. The chairs, stored under the platform, were redesigned by the architects so that when folded they roll easily on rubber-tired wheels. The wall at the end of the room may be opened, and excellent overflow space is provided both by the hall and by the terrace.

BALCONY & COVE DETAILS





TON HALL





CHAIR STORAGE





LARGE PARLOR

The rooms on these two pages show an admirable integration of lighting, furniture and equipment. Furniture in the Alumnae Parlor includes pieces originally used in the Founder's Room of the college. In the Large Parlor there is a speaker wired to the ballroom so that this space may also be used during dances. The basic colors are those of natural wood and brick, with occasional accents of blue, dark red and lemon yellow. The music unit, which includes an upright piano, radio and record player, has been so designed that any part of the equipment may be taken out and repaired or replaced when necessary.





ENTRANCE FOYER



CALEB HORNBOSTEL AND RICHARD M. BENNETT, ARCHITECTS





FIREPLACE IN PLAYROOM

LAYROOM







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CALEB HORNBOSTEL, RICHARD M. BENNETT, ARCHITECTS



LIGHTING UNIT IN PLIMPTON HALL

CONSTRUCTION OUTLINE

FOUNDATION: Poured reenforced concrete wood forms where exposed. Reenforcing by con Steel Co. Weatherproofing—integral an Master Builders Co.

STRUCTURE: Exterior walls—solid brick, England Brick Co. Interior finish—plaster an clal wood finishes. Interior partitions—gypsu low blocks, U. S. Gypsum Co. Structural Truscon Steel Co. Floor construction: Firston sleepers set in concrete slab; some area crete slab with asphalt tile, cork and carper ond—concrete slab on open web joists covere asphalt tile; some areas exposed concrete. BOOF: Main building—Spaly built_Terraces—

ROOF: Main bullding—5-ply built. Terracesup with Tarvla-Lithic finish. All Barrett Co. r SHEET METAL WORK: Flashing—copper an coated copper, Cheney Co. and Wasco Flashi Gutters—copper.

WINDOWS: Sash and screens—Hope's Wi Inc. Glass—double strength, quality A and Pittsburgh Plate Glass Co. Misco glass for of Mississippi Glass Co. Glass blocks—Pittsburg Glass Co.

STAIRS: Metal with closed flush stringer. Tr Terrazzo Monocork, Armstrong Cork Co.

WALL COVERINGS: Plimpton Hall—birch p panels. Lavatories—linoleum, Armstrong Co FURNISHINGS: Most of furnishings built birch, oak and chestnut woods. Day stu rooms—Dolben Co. Folding chairs—American ing Co. Darkening curtains—Athey Scree Venetian blinds—Ansonia Venetian Blind Co place screens—Bennett Fireplace Co. Bathroo cessories—Charles Parker Co. Dumbwaiter wick Electric Co.

WOOD AND METAL TRIM: Trim—metal, o pine, special, Lumber & Veneer Co. Doors— Lumber & Veneer Co. and Hope's Window HARDWARE: By Schlage Lock Co., Oscar Co. and J. H. Judd & Son.

PAINTING: By Pittsburgh Plate Glass Co., DuPont de Nemours & Co., Benjamin Moore and L. Sonneborn Sons, Inc.

rigid conduit. Switches—Mercury switches. Fi —Kelly & Thompson.

PLUMBING: Pipes: Vent—copper bearing Soil and waste—cast iron. Hot and cold w copper tubing. Toilet fixtures—Kohler Co Crane Co. Kitchen equipment—John Van Ran and Murphy Door Bed Co.

HEATING AND AIR CONDITIONING: Hea connected to college steam vapor system. Uni tilators—John J. Nesbitt, Inc. Fans—General tric Co. and B. F. Sturtevant Co. Radiator grilles—American Radiator-Standard Sanitary Thermostats—Minneapolis Honeywell Regulat Valves—Ashton Valve Co., Kieley & Mueller Jenkins Bros. and Crane Co. Water heaterterson-Kelley Co.

GENERAL CONTRACTOR: Howard W. Ma Co. Inc.

UILDING MONEY



Gottscho, Damora, C. P. Cushing, Mieth

UILDING FORECAST: 1941

Forum examines informed opinion, concludes that national defense will boost total

struction 18 per cent; private and public residential building, about 13 per cent.

pping 1939 by 8 per cent, construcactivity last year totaled a lofty 5 million, stood head and shoulders e every other post-Depression year. the record will not stand for long. On asis of its interpretation of informed ssional opinion voiced in a nationsurvey of business economists and ng leaders, THE ARCHITECTURAL M forecasts that total expenditures ew construction this year will dwarf by 18 per cent, reach an impressive 5 million.*

the every type of construction will cipate in the general upswing, *pub*financed activity will command the ght percentage-wise. Thanks to the asing flow of national defense funds, classification will zoom one third dur-

ess otherwise stated, all construction figfor 1940 and prior years presented on pages are estimates of actual expendifor materials and labor in the entire U. S. epared by the Department of Commerce. 041 figures have been projected by The n on a comparable basis. Expenditures for enance and work relief are excluded from timates. ing 1941 to \$3,360 million—the biggest Government contribution to Building in all U. S. history. (Former record: \$2,777 million in 1930.) Military and naval construction, including Federally financed manufacturing plants, will be the driving force behind the public total; it more than trebled last year and will expand 131 per cent this year to a post-1919 high of \$980 million. Close behind will be public housing, which, under the impetus of the U. S. Housing Authority program, more than doubled last year and, now fired by the new defense housing program, will double again in 1941 to \$416 million.

The Forum's 1941 building forecast is based on the same careful interpretation of sampled expert opinion that has proved encouragingly successful in the past. However, it is conditioned by the assumptions that building costs will not skyrocket, that the national defense program will not be materially expanded during the next ten months, that the U. S. remains technically at peace and that Europe continues at war. Combined with private work, this public housing upsurge will boost total expenditures for residential construction to \$2,600 million, up 13 per cent from last year. But, when considered alone, privately financed residential construction will advance only about 4 per cent to a total of \$2,184 million.

Although they account for considerably smaller parts of the dollar total, other classifications of private building will greatly outdistance residental activity as far as percentage increases are concerned. Well in front will be the construction of manufacturing buildings which is scheduled to expand one-third during 1941. Commercial construction will be up one-tenth; other non-residential, including privately financed school, hospital, institutional, social, recreational, religious and memorial buildings, up 4 per cent. Comprised of all three of these classifications, total privately financed non-residential building is slated to increase one-sixth-to \$1,065 million.

A 17 per cent advance in public utility construction and a 9 per cent gain in farm construction will boost the 1941 total of LUMBER—Private residential, same; total private, plus 3 per cent.—Secretary and Manager Wilson Compton, National Lumber Manufacturers Assn.

BUILDING—While the release of engineering and construction contracts for defense industries has already shattered all previous industrial building records, a conservative appraisal of the immediate outlook has led us to prepare for steadily increasing activity throughout 1941. While the total volume of work in this field cannot fail to be influenced by affairs overseas, an increase of 35 per cent or more above the 1940 total now seems inescapable.—Executive Vice President and General Manager George A. Bryant, Jr., The Austin Co.

DESIGN—Industrial construction, plus 50 per cent.—Louis Kahn, Albert Kahn Associated Architects and Engineers, Inc.

STATISTICS—We are very optimistic on the building outlook for 1941. We look for an increase in residential building for 1941 of 20 per cent. Industrial construction should average some 50 per cent above 1940. The National Defense Program will do much to revitalize the whole building industry. The only danger in the outlook is the possibility of sharply rising material and labor costs. If this upping of costs can be held in line, then the total private and public construction activity for 1941 should run about 20 per cent higher than 1940.—Vice President Leonard Spangenberg, Babson's Statistical Organization.

Improving general business activity in this country, in itself, should be greatly stimulating to factory construction regardless of the war abroad. Operations in this field have remained substantially under pre-1929 levels, and it seems that a large increase could take place without business men becoming unduly expansion-minded. Commercial construction promises to rise to higher levels, but store and office vacancies in this field will keep the rate of gain below that indicated for industrial construction.—Poor's Publishing Co.

The defense program will dominate 1941 construction and industrial production. creased industrial production will bring about increased employment, purchasing power and national income, which, in turn, will tend to increase demand for private construction (commercial, manufacturing and residential buildings and electric utility construction). Two principal limiting factors are possible: 1) Insufficient construction industry facilities for carrying through a much enlarged program of public and private work, 2) rapid rises in building costs tending to curtail the volume of moderate-priced private structures that would otherwise be in strong demand. With regard to the first, it can be said that the industry has not been employed to capacity within the past ten years, and should be able to handle a program substantially larger than that of 1940. The second factor, building costs, seems more problematical. As a consequence, it is assumed in these estimates [for the 1941 value of total construction contracts in 37 Eastern States] that building cost increases during most, if not all, of 1941, will be kept within moderate bounds:

	Million	% change		
Classification	Dollars	from 1940		
Commercial buildings	\$ 370	plus 16		
Manufacturing buildings	440	plus 16		
Educational buildings	160	plus 10		
Hospital & institutional	90	plus 20		
Public buildings	95	plus 12		
Religious buildings	45	0		
Social & recreational	80	plus 14		
Misc. non-residential b'ld'gs	120	plus 50		
TOTAL NON-RESIDENTIAL	1,400	plus 17		
Apartments and hotels	350	plus 9		
1- and 2-family houses	1,200	plus 6		
Other shelter	150	plus 87		
TOTAL RESIDENTIAL	1,700	plus 11		
PUBLIC WORKS & UTILITIES	1,300	plus 16		
TOTAL CONSTRUCTION	4,400	plus 14		
	olden, F	. W. Dodge		

privately financed activity to \$4,395 million, up a comfortable 9 per cent from last year.

REVIEW. In the light of Building's 1940 behavior, these forecasts for 1941 are particularly significant. Thus, expenditures for every classification of private construction increased last year. Contributing most heavily to the total dollar increase, residential building continued the upward course established in the fall of 1938, crossed the 1940 finish line at \$2,100 million, 13 per cent ahead of 1939. This private money launched about 490,000 dwelling units last year, as compared with 408,000 during 1939. But, the distribution of these units among the three principal housing types changed materially during the year. Due in large measure to the hampering amendments tacked on to the rental housing section of the National Housing Act in the summer of 1939, the construction of private multi-family rental projects dropped more than 25 per cent last year, involved an expenditure of about \$240 million, or 11 per cent of the private residential total.

Indicating that the two-family house is gradually working its way back to the popularity it enjoyed during the Twenties, when it accounted for about 16 per cent of all dwelling units, this type of construction more than doubled during 1940, involved an expenditure of \$90 million, or 5 per cent of the private residential total.

Always the backbone of the house building industry, the production of one-family detached houses last year took a firmer grasp on the first place position among the three housing types, advanced about 20 per cent over 1939, accounted for about 440,000 of the 490,000 privately financed dwelling units and involved an expenditure of about \$1,770 million, 84 per cent of the total. Lumped together, private and public funds (see below) put about 550,000 dwelling units under construction last year. Their approximate distribution by housing types:

1-family	440,000	units	80%
2-family	33,000	units	6%
Multi-family	77,000	units	14%

Although it contributed less money to the total private building advance than the residential classification, private non-residential building's increase was proportionately more impressive-up one-fifth during 1940. Engulfed early in the year by a downpour of British and, for a while, French war orders and during the second half by a flood of U.S. national defense orders, manufacturers had spent \$350 million on new construction by year-end, 75 per cent more than in 1939. (Federal expenditures for manufacturing plants-\$75 million, as compared with practically nothing the year before-are included in the military and naval category discussed below.) Following logically the residential trend, commercial construction-primarily retail stores, service stations, small office buildings, etc.—gained 16 per cent year to a total of \$370 million. Other residential building dropped 14 per to \$230 million, the increase in relibuildings having been too small to the decreases registered by most building types in this classification.

Privately financed public utilities brated last year's generally improved ness by spending \$635 million, one more than in 1939. One reason: the ele light and power industry, accountin close to two-fifths of the public u construction total, has enjoyed a con ally increasing consumer demand w fortnight ago boosted electrical produ to 2.9 billion kilowatt hours per weel highest record in history. In line w \$460 million advance (to \$9 billion agricultural income during the past t months, farmers helped swell the 194 vate building total by spending about tenth more on new construction an pairs than they did during the prec year.

Unlike privately financed constru discussed above, public building sagge per cent) during 1940, but totaled a stantial \$2,540 million. Reason for drop was primarily the tapering off of Federal pump-priming program and school building budgets. Thus, the struction of highways and sewage dis and water supply facilities (classific public works) dropped about 15 per and expenditures for the constructi educational, public, hospital, institut social and recreational buildings (clas as non-residential and comprised larg about 55 per cent-of public school ings) came to only about half the total.

Bucking the general public construtrend, were the residential and mi and naval classifications. All of it counted for by the U. S. Housing Auity, the former classification amount only \$81 million in 1939 when the rent public housing program was learning to walk. By last spring, how USHA had learned to run, and during it spent \$180 million, began the constion of some 60,000 units, most of in multi-family buildings. (1939 pr tion: 57,000 dwelling units.) Atop total went \$20 millions of defense ho money, primarily the Navy's.

Immediately stimulated by the nat defense program launched at midmilitary and naval construction skyro ed 240 per cent above the 1939 lev \$425 million: \$250 million for troop tonments, \$100 million for such mi works as air bases, yards and docks \$75 million for manufacturing plan produce powder, ordnance, ships, While these production facilities we financed by Federal funds, some are privately operated under Government tracts. Example: Chrysler Corp.'s tank plant now abuilding near Detroit

All told, private and public construexpenditures last year came to \$6,565 lion, 8 per cent above 1939 and ade's best, but not within gunshot of booming 1926-29 average. (See p. 67.)

ALYSIS. Before examining the mechanics the FORUM's forecast of 18 per cent re construction activity this year, an dysis of the many factors affecting this ivity is in order. Biggest bugaboo on building horizon is the active possity of an abrupt price rise for both maals and labor. If building costs advance rply this year, all forecasts would be ckly kicked into a cocked hat, for comatively unessential privately financed lding activity (residential, commercial, "other non-residential") would level or decrease and, while the more essenbuilding types (privately financed nufacturing plants and most all forms public construction) would be comed, they would involve expenditures atly in excess of those forecast. For mple: prediction of a, say, 20 per cent ease in private industrial construction ld be fulfilled either by a 20 per cent ease in the square feet of floor space duced at unchanged unit costs or by a per cent rise in costs without any inase in the floor area production rate. I this illustrative assumption is not as fetched as it might seem; during a gle year of the previous national emergency (1917) construction costs jumped exactly 20 per cent.

Fortunately, this assumption is more possible than probable. While construction costs have gently risen during the past six months (not more than 5 per cent on the national average) and while a few materials have jogged sharply upward (notably lumber, up about 10 per cent), the general cost picture is much less alarming than during World War I. Today, as never before, the U.S. is familiar with the dangers of inflation, is well equipped to keep tabs on its makings and, once it rears its ugly head too far, is ready to counter-attack with the many price controls now in the hands of business management and Government. While in the past all efforts to sidetrack an inflationary commodity price movement has been fruitless, it is hoped that future efforts by enlightened industrial leaders and economically minded New Dealers will prove more successful.

Moreover, there apparently is nothing in the national **supply-demand** picture of any of Building's basic raw materials to warrant a general run-away price rise now or in the visible future. Thus, to take an extreme example, the current U. S. copper demand can be more than met by the scrap supply alone—without the mining of a

ECTIONAL OPINION as to 1941 dollar volume (compared th 1940) by classifications of privately financed construction:

	Residential	Commercial	Manufacturing	Other Non-Res.	Public Utility
ANTA	+	+	+ 25%	+	
TIMORE	+20%	0	0	0	—30%
TON	+12	0	0	0	+25
FALO	+40	- 8%	+ 45	0	0
CAGO	+12	0	+	0	
CINNATI	+		+		
VELAND	+10	— 70	+ 40	0	-45
VER	+ 2	+ 14	+ 35	+	0
ROIT	+20	+ 10	+ 15	+ 7%	+10
USTON	+ 1	+ 1	+ 10	+50	+ 3
ANGELES	+11	+ 6	+ 10	+ 1	+ 4
MI	+10	+ 10	+ 20	+50	
WAUKEE	+10	+ 2	+ 15	+ 1	+ 3
NEAPOLIS	+10	0	+	+ 5	
ORLEANS	- 4	-	+ 18		
VYORK	+ 3	+ 15	+ 20	0	0
LADELPHIA	+ 8	+ 6	+ 27	+50	
SBURGH	+15	+500	+380	0	·+15
TLAND	+ 2	+ 18	+ 48		+16
LOUIS	+25	+ 10	+ 55	—	
FRANCISCO	+12	+ 3	+ 1	0	+ 1
TTLE	+40	+120	+160	0	25
SHINGTON	+ 6	+ 12	0		+ 8

The percentage increases predicted by several cities in the above summary of local opinions at be discounted. A sharp indicated 1941 drop may reflect the construction of an unusually project last year, while a sharp increase may reflect the almost complete absence of 1940 struction activity in a particular classification. Residential building, . . . is the only field in which I feel confident to make an educated guess [a decrease of 10 to 20 per cent]. It seems . . . likely that the increase in building costs will be considerable during the . . . year and the effect of this increase and the effect of diverting many energies to defense leaves the question of the volume of building in great doubt.—Director of Mortgage and Real Estate Finance Research Ernest M. Fisher, American Bankers Assn.

MANUFACTURING—Adding up the favorable factors—the continued rapid growth in the number of home prospects, the construction industry's ability to produce a house small enough to be cheap yet acceptable, and the coming flow of defense money into consumer pockets—it would be safe to predict an unusually good building year in 1941 were it not for the shadow of unpredictable factors that loom on the horizon. These are chiefly the threat of too rapidly rising building costs, and the economic belt tightening that may come when the armament economy hits its full stride.—Economist W. C. Bober, Johns-Manville Corp. in Barron's Weekly.

INVESTMENT -Amid the more than average number of uncertainties which encompass the building outlook at this time one thing seems sure-that national defense work will dominate construction activity during 1941. There is every indication that private residential construction, in contrast, will decline during 1941 even if no type of direct or in-direct restriction is invoked. The poorest performance will probably be turned in by the multi-family groups where there is already ample evidence of considerable overbuilding. With much of the present effort being directed toward defense work, heavy public works of the type favored by PWA seem likely to suffer during the coming year. Rising material costs and labor shortages promise to bedevil builders in practically every class of construction in most sections of the country. -Statistician E. Everett Ashley 3rd, Tri-Continental Corp.

COVERNMENT-Building costs . . . may be expected to continue upward for some time to come. Rents, on the other hand, have not risen in most areas nearly as rapidly as building costs; hence, the incentive for individuals to build or buy homes will be somewhat reduced. Likewise, in areas not pressed by an influx of workers, new income-producing residential properties will be less able to realize a profit than can existing rental structures. The psychological stimulus of rising building costs on the desire of individuals to buy before costs get out of hand will be more or less offset by the uncertainties arising from our selec-tive service program and from fear of our participation in actual hostilities. With . . qualifications, it is our estimate that the number of privately financed residential units built during 1941 will approximate the number built during 1940, and that the cost of these units will exceed the cost of the 1940 units by 4 or 5 per cent. An anticipated doubling of the number of Government-financed housing units constructed at higher costs would result in an increase of approximately 10 per cent in number over 1940, and an increase in 14 or 15 per cent in the cost of total new residential dwellings built during 1941 .--- Chairman John H. Fahey, Federal Home Loan Bank Board,



Forecast distribution of all private building expenditures will follow closely this pattern cut by the production of dwelling units during 1938 (latest available breakdown which includes a negligible amount of public housing). Ten most important building cities according to 1940 rank (total building permits issued in first ten months): New York, Detroit, Los Angeles, Washington, Chicago, Philadelphia, San Francisco, Seattle, Cleveland, and Baltimore.

single additional ounce. Supplies of iron ore, iron scrap, cement and lumber are smaller comparatively but are still comfortably above the levels of increased demand which the presently conceived defense program will entail (see page 23, et seq.). On the basis of these conditions, many an informed observer predicts that, while lower costs will certainly not soon be seen, the recent rate of increase will diminish once the Army cantonment construction program approaches completion and the attendant demand for building labor and lumber recedes. Adding weight to this argument is the fact that, after three successive comparatively sharp advances, the American Appraisal Co.'s industrial construction cost index marked time during November, no change having been registered in any of the 30 large reporting cities. This index does not, of course, reflect those cost advances which may have taken place in smaller communities near Army construction projects.

Other dark clouds on the building horizon which make all forecasting hazardous include the possibilities of 1) a building labor shortage which would bottleneck all construction activity and dictate higher costs for those projects that would go forward and 2) a system of Government priorities which would stifle non-essential private construction. Neither is an immediate prospect, although conscription will surely deplete the ranks of building labor. The latter possibility will remain on the shelf as long as the U. S. remains at peace. For obvious reasons, a U. S. declaration of war and, to a lesser extent, a European negotiation of **peace** would be ample justification for calling off all 1941 building bets. The effect on building activity of either event would be depressive, but to an unpredictable extent.

FORECAST. Such, briefly, are the discouraging possibilities which, alone, would give Building a sad opinion of 1941. There are, however, many and powerful elements working in the opposite direction. To measure the net effect of all these factors on the probable 1941 trends of the various types of building activity, THE FORUM fortnight ago collected written opinions and predictions from a score of nationally known business economists and statistical agencies and from 140 recognized leaders in the building industry. Representing 23 of the largest U.S. cities from coast to coast, the last mentioned group was composed primarily of bankers, savings and loaners, contractors, subdividers, realtors, architects, engineers and FHA and municipal officials. Pertinent comments on the

TRENDS BEHIND RESIDENTIAL BUILDING ACTIVITY



national picture by a few of the econor are presented as marginalia on page and 65. Confined entirely to private struction trends, all of the local opin are summarized in the table on page

While consensus of the economis that private residential building wi main unchanged this year, the 140 participants in the business are al unanimously more optimistic, predic average increase of about 10 per cent." base their opinion on several heart influences, four of which are graphe the bottom of this page: 1) Due to pulsory military conscription, the vo of marriages-i.e. new families-has se far above normal, aggravating the all acute shortage of decent dwellings After moving sideways for many mo residential rents have jogged slightly ward and may accelerate to the extent apartment dwellers will have more centive to buy or build houses. 3) How costs, while on the march, are not run away-a gently rising trend may pro boon for the industry in that it pro many a hesitant family to hop on building band wagon before it rolls by The level of non-farm foreclosures is to the post-Depression low registered February. 5) The industry is paying creasing attention to the boundless cost market and is tailoring the de and construction of its houses to tap i Built up during the past twelve mo the tremendous momentum in house b ing activity will not be stopped wit good reason.

According to THE FORUM survey, residential building industry will s \$2,184 million of private funds this 4 per cent more than in 1940. As u New York State will run away with biggest share of the total (about 25 cent-most of it concentrated in the cinity of New York City) while Calife and Texas will be content with the biggest parts (17 and 7 per cent spectively-see map, above). Assur costs remain fairly constant, the 1941 cast means the production of some 510 privately financed dwelling units w distribution among the three basic hou types will probably be somewhat diffe from the 1940 pattern (p. 64, col. 2) the expense of the multi-family cla cation in which over-building in the hi rent brackets is apparent, both onetwo-family houses will grow in import -the latter classification being a new defense housing type and an effect hedge against general inflation.

Much more impressive proportion than the private residential building to will be that for public housing—it more than double in volume to \$416 lion. USHA's \$236 million contribution this total will be spent not only on 35,000 dwelling units to be launched year but on many of the 60,000 u begun last year. Balance of the pu housing total (\$180 million) will go defense housing and will come from (Continued on page 34)

NSTRUCTION REVIEW & FORECAST in millions of dollars¹

E OF Struction	1926-29 Average	1939 Actual ²	1940 Estimate ³	1941 Forecast	1940-1941 Change
	\$8 363	\$3 491	\$4.025	\$4 205	- 00/
AL THINAIL	telece	401171	\$1,025	94,000	+ 3%
DENTIAL (non-farm)	\$4,066	\$1,860	\$2,100	\$2,184	+ 4%
RESIDENTIAL ⁴	\$2,413	\$ 760	\$ 920	\$1,065	+ 16%
nmercial	1,187	319	370	407	+ 10
nufacturing	640	200	350	459	+ 31
ial & Recreational	225	98]			
igious & Memorial	180	46			
icational	117	44 }	230*	239*	+ 4*
spital & Institutional	107	38			
er non-residential	••	40)			
IC UTILITY ⁵	\$1,416	\$ 531	\$ 635	\$ 743	+ 17%
6	\$ 468	\$ 340	\$ 370	\$ 403	+ 9%
AL PUBLIC	\$2,339	\$2,598	\$2,540	\$3,360	+ 32%
DENTIAL		\$ 81	\$ 200	\$ 416	+108%
Housing Authority		81	180	236	+ 31
ense housing program ⁷			20	180	+800
	\$ 620	\$ 712	\$ 360	\$ 379	50/
TESIDENTIAL	202	¥ 712	\$ 500	9 910	+ 3%
icational	20	170			
lic Buildings	00	101 (*	*	ste
spital & Institutional	48	42			
nal & necreational	10	42)			
ARY & NAVAL	\$ 14	\$ 125	\$ 425	\$ 980	+131%
op housing, etc.8]	ſ	250	350	+ 40
nufacturing, etc. ⁹	} *	* {	75	330	+340
itary works, etc. ¹⁰	J	l	100	300	+200
IC WORKS ¹¹	\$1,474	\$1,205	\$1,030	\$1,040	+ 1%
R PUBLIC ¹²	\$ 231	\$ 475	\$ 525	\$ 546	+ 4%
				\$7 7EE	+10%
AL PRIVATE & PUBLIC	\$10,702	\$6,089	\$6,565	1,100	10

NOTES:

NOTES: illar values for 1926-40 are estimates millions) of construction activity for the e U. S. as prepared by the Department commerce. For explanation of the de-ion of these statistics and for a more plete tabulation of construction activity 1915 to 1937, inclusive, see ARCH. JM, June 1938, p. 517 et seq. All fig-in the two right-hand columns are d upon THE FORUM'S interpretation of rt opinion obtained in a nation-wide sy; they were not computed by the artment of Commerce, but are com-ple with the official figures for earlier s. Figures in the above tabulation are comparable with those published by /. Dodge Corp. and the Department of r titled "contracts awarded" and "per-issued," respectively, inasmuch as the res in this tabulation cover total actual

expenditures for building labor and materials in the entire U. S. All figures exclude main-tenance and work relief.

2—Revised. 3—Preliminary.

- S—Preiminary.
 4—Excludes non-residential building by public utilities, which is included in the com-ponent classifications listed beneath the total, amounting to \$25 million in 1939, \$30 million in 1940 and a forecast \$40 mil-lion in 1941
- So million in 1940 and a forecast \$40 million in 1941.
 Privately owned railroad transportation, street railway and subway transportation, pipeline transportation, light and power production and distribution, again and power pio-duction and distribution, as production and distribution, telephone and telegraph com-munication. Includes non-residential building by public utilities (see footnote above). 6—Includes repairs, but excludes labor per-formed by farm operators (owners or ten-
- 6-

ants) and regularly employed farm laborers.
7—Construction financed by funds made available to the War and Navy Departments and the Federal Works Agency for housing the families of enlisted personnel, civilian Army and Navy employes and national defense industrial workers.
8—All types of buildings in Army cantonments—barracks, recreational buildings, utilities, sewage disposal facilities, etc.
9—Manufacturing plants and other productive facilities such as arsenals, Navy yards, powder plants, powder loading stations, etc. Excludes manufacturing machinery.
10—Air bases, yards and docks.
11—Highways and sewage disposal and water supply facilities.
12—Conservation and development, miscellaneous public service enterprises, etc.
\$—Breakdown not available.

NEW CONSTRUCTION LOAN POLICY

attracts business, proves a boon to builders, borrowers and material dealers. Cleveland's Second Federal looks before it lends.

With idle money stacked high in every kind of saving account, financial institutions do but little boasting today about the size of their assets and the number of their investors. If they did, Cleveland's Second Federal Savings and Loan Assn. would loudly proclaim its \$5 million assets, the second biggest heap among the city's 40 insured, operating associations, and its 5,000 investing members. Second Federal has something better to boast-it has made 1,800 new mortgage loans in the past six years and now has more than 1,000 borrowers. One leg supporting this record is a unique construction loan program which has upped the Association's mortgage business and, through operation of its "certified inspection" corollary, has given Cleveland 684 soundly built houses, local builders a mark to toe and local material dealers the money they are owed.

A significant contribution to a disorganized industry and to the befuddled home building public, Second Federal's construction loan program merits analysis by every financial institution in the country. Indeed, it has already served as an object lesson for representatives sent to Cleveland by savings and loan associations in all parts of the country. And, like one big mutual savings bank, many of these associations have patterned their construction loan systems after Second Federal's.

Evolution of this much-aped lending program began back in 1934 when Builder C. W. Grove, former head of a sizable general contracting firm operating in Cleveland and Detroit, (C. W. Grove Construction Co., builder of commercial structures, churches, theaters as well as houses) surveyed the mortgage lending business preparatory to establishment of the Second Federal. Now president of the Association, Builder Grove had the assistance of another practically experienced builder, Oscar A. Maeder, one-time general superintendent of several big Ohio contracting firms, including Grove's, and now vice president in charge of Second Federal's construction loan department. Together, they found many a weak spot in the local building business which dictated the need for something new in the way of construction lending.

Not as rosy a picture as professionals would like to see, Cleveland's house building industry is typical. Then, as now, about 95 per cent of all houses were built without architectural supervision. Most of the smaller houses (and Second Federal's have averaged about \$8,300 in value, requiring an average construction loan of \$5,600) spring from plans furnished by the builders who, in many instances, purchased them originally from architects. The builder is thus the most important point of sale in the local house building business.

To operate successfully under this setup, the builder must be more than a good salesman; he must be an accurate bookkeeper, a skilled mechanic, a business man and he must be well financed. U tunately, few are such. Himself a bu Grove knew that most builders are mechanics; but that many are poor men, slipshod bookkeepers and inadeq ly financed businessmen.

A sad but true situation, this burdening of the builder with dutie logically his has important effects the other three principals in the bu of building a house-owner, ma dealer and financier. The typical of knows little about house building he has never built before. He does understand the technical details of prints, much less the vital significan specifications. As a result he is force place his faith in the builder as f. design and construction are concerned the financier as far as the worth of investment is concerned. That faith s be justified.

In the desire to increase his bus the material dealer frequently over-excredit to builders and just as frequregrets it. Sometimes he never get money; other times the heavily indebuilder will pay one bill with funds should be applied to another. Condiare not right when the material dealer not always receive all of the monewhich he is entitled.

Finally, Investigator Grove found the position of most of the financial tutions in the local house building s left much to be desired. They has guarantee that the construction of houses on which they were lending people's money offered ample securit justify the long term mortgages. Un bills were not brought to their atte until material dealers complained or mechanics' liens were filed. Contract tras were not regulated, and owners sometimes disappointed with their pleted houses. It was obvious that safeguard its own position, the new





Prior to construction, each house building case passes through maze of channels charted to the left. Above, five of the docum which act as important cogs in Second Federal's construction machinery: A—Loan application on which are entered the ow vital and financial statistics and a description of the house and B—Appraiser's report serves to check cost estimate. C—Score used to rate the security behind the mortgage. D—Cost breake E—Order blank used to control contract extras and credits.

a would have to take a bigger part actual building of houses than did of its Cleveland competitors and have to offer certain services that missing through the absence of the ect. (The association does not adhis absence; merely recognizes it as .)

enefactors. In developing a program would put his association on a safe ound lending track, Grove wound th a new construction loan prothat benefits the builder, the owner e material dealer as well. In essence, rocedure involves five steps-each check: 1) on plans and specifications construction is begun, 2) on matend construction as the house goes on payments for labor and mate-4) on contract extras ordered by ner after construction is under way, on the completed house before the closed. And, to keep this procedure g smoothly Second Federal has hired of construction inspectors-former s who supplement the Association's personnel-and has devised a set ven documents on which tabs are of every phase of home building. ons of a few of these documents are ed opposite.)

a so many moving parts in its conon loan machinery, even Second I has difficulty in explaining it to ctive builders and has had to pregraphic flow chart with which to as way around (see p. 68). But, his detailed illustration covers only mparatively short period prior to construction.

e details of the program may be d most easily by following step-bytypical case as it goes through the nery. The wheels start to turn when ner fills in one of Second Federal's l loan applications (sheet A, p. 68), It is to be wondered that Second Federal, having gone so far in this direction, does not place more emphasis on architectural design and supervision. It seems reasonable to believe that the task of revising plans which are architecturally deficient and entail extra supervisory burdens could be transferred to professional hands without adding to costs and, certainly, with benefit to the institution's collateral. -ED.

and submits a set of plans and specifications with which both he and his builder (or architect) are satisfied. Not unusual in form, this two-page application makes room for the owner's vital and financial statistics, a complete description of the chosen lot and brief description of the proposed house.

With this in hand, Second Federal orders an appraiser to determine with the aid of another document (sheet B) the current value of the land and the cost of the proposed construction. From the Cleveland Construction Industries Credit Bureau comes a report on the contractor's financial standing and past performance. Along with a photograph of the lot, the loan application, the house plans and specifications and the owner's credit report, these data are sent before the Association's executive committee for review. Among other things, this group compares the appraised value of the entire projected property with the purchase price of the land plus the contractor's cost estimate.

Size of the loan (per cent of property value) is based upon the Association's "physical security rating" of the proposed house and lot and its "personal rating" of the borrower. Implemented by a detailed score card (sheet C), derivation of these ratings is similar to the risk rating system followed by FHA.

After approval of the loan but before construction is authorized, the construction loan department thoroughly checks

all plans and specifications, makes sure that they toe the Association's much publicized minimum standards. For its own protection, design and structural changes may be suggested which will enhance the appearance, soundness and salability of the property and, for the satisfaction of the owner, other changes in plans and specifications may be recommended. When these details satisfy all parties, the owner deposits the necessary cash downpayment, signs the mortgage and, on the reverse side of the cost breakdown form (sheet D), an agreement permitting the Association to inspect the construction as it progresses and to disburse all funds. The contractor signs a similar agreement, submits a copy of the signed construction contract, and, inside the folding cost breakdown, completely itemizes the construction cost under some 50 headings.

Meanwhile, the mortgage is sent to a title search company, whose work is later reviewed by the Association's attorney, and a lien survey, implemented by a photograph, is made to prove that no work has yet been done at the site and that no materials have been delivered. Solely responsible for proper location of the house on the lot, the owner is urged to require that a staking survey be made by the contractor. When these preliminaries have been accomplished, all the documents are rounded up, sent back to the mortgage loan department for rechecking, scrutinized by the Association's President Grove and relayed to the construction loan department for a final review. If everything is in order, this department notifies the owner and contractor that construction may proceed and sends the complete file on the case to the Association's insurance department which arranges for fire and windstorm insurance and then passes the ball to the auditing department where the necessary tax and insurance reserves are set aside.





d product of Second Federal's construction loan machinery is this \$6,000 house—one of ompleted since wheels began to turn six years ago. It includes a full basement.



LIFE HOUSE SUBDIVISION sprouts in

Boston suburb where builder and lumber dealer team up to capitalize on professional design and free promotion.

On a damp Sunday afternoon last month, while newshawks clicked cameras and a crack announcer described the scene to an invisible radio audience, several hundred visiting bigwigs from Boston and vicinity watched Actress Diana Barrymore step up to the door of a small model house in South Natick, Mass. Walls and roof were wrapped in transparent pliofilm, fastened with an enormous red bow and huge holiday stickers, to make the house resemble a huge Christmas package. Lifting a pair of giant shears, Miss Barrymore snipped. The snip opened the dwelling for public inspection, thereby formally inaugurated Oakdale Acres-the first completedly planned community of LIFE-inspired houses to go up in the U.S.

Already dubbed LIFE Village by Boston newspapers, the 100-acre project at present numbers sixteen houses finished and occupied. All follow the basic plan of LIFE House No. 1-a one-story structure of four to six rooms designed by Architect Cameron Clark and featured in the magazine's 1940 presentation of houses for modern living-with minor variations in design and orientation to give the development pictorial variety. All have been snapped up by eager buyers at prices ranging from \$4,500 to \$5,700, including lots. With down payments for eighteen more houses in the till, publicity-smart Builder Sumner D. Hersey and the project's cosponsor, G. Fuller & Son Lumber Co., are currently excavating and laying foundations for 30 additional dwellings, confidently expect that the combination of good design and brisk promotion will easily wind up Oakdale Acres' original schedule of 267 houses within the next two years. So promising is deemed the initial market response that adjoining acreage has been optioned and site surveys are now being made for 2,000 new lots to accommodate the community's future expansion.

Backdrop. The fast-moving tempo of this large scale housing development by private capital is further underscored by fact that six months ago it did not exist even on paper as an idea. However, both the Fuller Co. (a leader in New England's lumber and building materials business for 94 years) and 36-year-old Builder Hersey boast considerable experience in residential construction. Two years ago they joined forces in Certified Homes, Inc., began building houses in Boston suburbs to sell from \$3,750 to \$16,000.

Out of this work grew two strong convictions: 1) that Building's big need is the production of low cost houses within the reach of families with yearly incomes as low as \$1,500; 2) that "low cost" does not mean using the cheapest materials it is possible to buy, but instead implies if low carrying costs as well as low first costs are to be obtained—the selection of high quality building products and a quest for new economies through mass production techniques.

At this point, ripe for action, Builder Hersey and associates came across the July I issue of LIFE, presenting in collaboration with THE ARCHITECTURAL FORUM a series of eight houses designed to meet the demands of various-sized pocketbooks^{*}. Architect Clark's solution, intended for an average family with two children and an income of \$1,800 to \$2,300, immediately stirred an appreciative enthusiasm for its many plan virtues. This house, it was felt, offered a maximum of living facilities for a minimum price.

Alert to the promotional advantages of a subdivision consisting entirely of nationally publicized LIFE Houses, Hersey, together with the lumber company's President Granville Fuller and Vice President George F. Fuller, hopped a plane to New York to discuss the possibility of a LIFE Village with the magazine's editors. Sessions were next held with Architect Clark who was commissioned to prepare several plan variations and a perspective showing a group arrangement of the houses. Land was purchased and first ground was broken in August. Seven weeks later the first house was completed.

Site. Located fourteen miles from Boston, just off the heavily traveled Worcester Turnpike, Oakdale Acres offers easy accessibility. Nearby is a shopping center, and one minute's walk brings residents to the main highway and its public transportation facilities. From there it is only three minutes by auto to Natick's center.

Included as part of the original undeveloped tract, purchased for \$25,000, are three paved streets. Gravel sidewalks are provided throughout. Since Natick has no municipal sewage disposal system, cesspools are used instead.

Wide streets and spacious lots, which take advantage of existing trees and leave much room for individual landscaping, have been platted to give prospective home owners a welcome contrast to crowded city life. Smallest of the 267 lots contains a quarter acre (10,000 sq. ft.).

Design. Small in cubage, each house in LIFE Village nevertheless includes a large living room with dining alcove, kitchen, bath and two bedrooms on the first floor, in some instances two additional bedrooms on the second floor, plus a full basement. Interiors permit flexible furniture arrangements. Dining space can be part of the living room or part of the kitchen, as the buyer prefers. The bath backs up against kitchen for economy of plumbing

* ARCH. FORUM, July 1940, p. 1, et seq.



Pliofilm-wrapped model house at C Acres is snipped open by Actress Bar

lines, can be reached by an ove guest in the living room without d ing bedroom occupants.

All houses built so far duplicate minor variations, the plan preoriginally by LIFE. Principal change troduced by Architect Clark: 1) eltion of folding door between kitche living room; 2) addition of garage porches; 3) an increase of 3 ft. house width to accommodate an stairway leading to upper floor been where so desired.

Construction. Specifications also closely those set forth in LIFE's of presentation. In line with their belie low costs hinge on the use of high of products, the development's sponsor cut no sharp corners on this score. I include even such customarily de equipment as automatic oil furnace electric kitchens replete with dishw

Besides seeking potential savin the owner in operating costs (here hot water are estimated to be as \$59 a year), the builders have striv economies through large scale ope on the job. Foundations, for instan handled in 25-unit batches. First, ments are scooped out with power s Trucks arrive next with concrete, in transit, which is poured to form ment floors. Then a squad of n proceeds from one unit to another pleting foundations at the rate of houses a week.

Wherever possible, power equipm used. Much lumber comes precut the Fuller Co.'s shops and what cut impractical to do there is quickly d the site with power saws. Each hou its own set-up of electric equipme finish carpentry. (Local labor not Government's heavy program of be construction at nearby Ft. Edward Camp Devens has drained the av supply of building craftsmen—carp in particular are scarce.)

Mechanization and the transfer much construction as possible fro site to the shop explain the suc business teamplay between Builder I and the lumber company. The a builder, working independently, cou afford similar facilities for prefabri





I variations in design and ation give LIFE Village table picturesqueness, deuse of only two basic floor Seven of the site's 100 d acres have been set as a private park where owners may enjoy the ties of the adjoining pond. will accommodate 267 a, 46 of which are under uction or occupied.























COST BREAKDOWN

Excavation	\$ 50	
Masonry Materials	270	
Mason Labor	250	
Lumber	700	
Carpenter Labor	340	
Interior Finish	120	
Plumbing	285	
Heating and Burner	650	
Doors and Windows	130	
Lath and Plaster	220	
Rough Electric Wiring	65	
Electric Fixtures	12	
Insulation	75	
Rough Hardware	35	
Finish Hardware	20	
Paint and Labor	185	
Conductor Pipes	9	
Wall Paper and Hangings	21	
Shades and Screens	11	
Weatherstripping	9	
Linoleum	30	
Range	80	
Water Service Connection	25	
nsurance	15	
Window Cleaning	6	
Shrubbery	8	
Architect	25	
Taxes	8	
Attorney's Fees	35	
Total \$3	.689	
	A	

CONSTRUCTION OUTLINE

FOUNDATION: Cement blocks. Waterproofing-asphalt and cement.

STRUCTURE: Exterior walls-No. 1 frame, U. S. Gypsum Co. sheathing board, 15 lb. asphalt felt, Resinprest Weldwood, U. S. Plywood Co.; inside-rock lath and U. S. Gypsum Co. Red Top lime. Floor constructionsub-floor, fireproof paper and oak flooring. ROOF: Covered with shingles, Barrett Co. SHEET METAL WORK: Flashing-lead and Valleys-copper. Gutters-fir, zinc. Weyerhaeuser Sales Co. Downspouts-Ingot iron. INSULATION: Attic floor-rockwool. Roof-Balsam wool blanket, Wood Conversion Co. WINDOWS: Sash—wood double hung. Glass —Pennvernon, Pittsburgh Plate Glass Co. FLOOR COVERINGS: Kitchen and bathrooms-composition tile, Bird & Son. WALL COVERINGS: Main rooms-wallpaper, Imperial Paper & Color Corp. Bathrooms -Sanitas, Standard Coated Products Co.

would thus fail to obtain similar of mies. By such division of workin sponsibilities, tasks like keeping boo also turned over to the experienced staff for expeditious handling.

Buyers. Built to cost the prospective Villager, after a small down payment \$32 to \$42 a month (including modinterest and amortization plus wate surance and taxes), the houses we pected to attract principally families low income brackets. To their surpriproject's promoters have discovered the home owners, mostly young m couples or families eager to get away stuffy city apartments, have annu comes ranging up to \$7,000. The ma are auto-owning commuters who we metropolitan Boston.

Three houses have been bought out for cash. In many instances the purch have forked up varying amounts the minimum down payment dema Written by Boston's First Federal Sa and Loan Association, all mortgage for 20 years at 5 per cent.

Community. Besides tying up with a nation-wide house promotion prograneat local advantage, Builder Herse energetically boosted the idea of integrated community life. Several before the project's formal opening gave a get-acquainted dinner at a sley's Blacksmith Inn to the familie had already purchased houses. R the Oakdale Community Association officers elected by LIFE Villagers.

To this group the project's spe turned over a deed to Pickerel Ponits adjoining seven-acre park. Me in turn have volunteered to assess selves nominal dues. Money so col is to be used to keep the communigood condition, and any surplus acc in the Association's treasury becomkitty to help out residents who temporarily run short of funds. Impuby this display of community sp thereby also demonstrating its effeness as a sales promotion trick—B Hersey has been induced to buy o his own houses.

WOODWORK: Trim and exterior d pine. Interior doors-fir. Garage doorshead type. HARDWARE: By Skillman Hardware Chester & Sons. PAINTS: By Lowe Bros. ELECTRICAL INSTALLATION: Wirin tem-General Electric Co. KITCHEN EQUIPMENT: Range, ref ator, dishwasher sink and cabinets-G Electric Co. BATHROOM EQUIPMENT: All fixtur American Radiator & Standard Sa Corp. Seat-C. F. Church Mfg. Co. Ca -F. H. Lawson Co. PLUMBING: Soil pipes-cast iron. Ho cold water pipes-copper. HEATING: Oil burning boiler with cir ing hot water, General Electric Co. and Thrush & Co. Thermostat-General El Co. Water heater-Taco Heaters, Inc.

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- SAVINGS THAT PAY FOR IT



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BUILDING FORECAST (Continued from page 67)

Army's \$49 million fund and the M Commission's \$2 million fund (h which have been entrusted to the Works Agency for administration) the Navy's \$44 million fund and FWA's own \$140 million fund. Alto some 50,000 defense housing un probably be put under constructi year which, in conjunction with U 35,000 and private enterprise's 510, raise the grand total close to 595,000

Slated for a 10 per cent increa year to \$407 million, the construcstores, offices, restaurants, filling s garages, banks, lofts, warehouses an **commercial** buildings usually lags abyears behind the residential building should therefore advance still more 1942 to service last year's private building boomlet. Only three of t veyed cities anticipate decreased c cial building activity in 1941: Cleveland and New Orleans.

Mention of the magic phrase " defense" is adequate explanation forecast 31 per cent rise in private e tures for manufacturing buildings million and the even more dramatic cent increase in similar public exper to \$330 million. Combined industria ing forecast: up 85 per cent to \$789 There are several indications that producers will contribute heavily total expenditure: 1) Swampe orders of every kind, the industry for ago was operating at 97 per cent retical capacity. 2) Bethlehem President Eugene Grace month a corked plans to enlarge his ingot ou 8 per cent to the tune of \$18 million ping similar but smaller expansio announced earlier by Republic Stee Girdler and Tennessee Coal, Iron road's Ben Fairless. 3) New Deal p predicting a \$90 billion national for 1942, have indicated that a \$7 lion expansion in steel production f during the next two years would ranted and, in fact, essential. financed by private capital, RFC Government built-and-deliver co and outright Federal grants, plant sion is also scheduled for the aircra plane engine, machine tool, ex ordnance, shipbuilding and most war baby" industries.

With increased agitation for a ting of Government purse strings we spect to non-defense construction, the little reason to expect much char "other non-residential" building activiting the year. THE FORUM survey in a 5 per cent rise in publicly finance ects to \$378 million, a little more that the 1939 total, and a 4 per cent private work to \$239 million. Expension for schools and hospitals, as in the will account for the best parts of (Continued on page 36)
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For full information, see Sweet's or write for file-sized booklet.

Armstrong Cork Company, Floor Division, 1203 State Street, Lancaster, Pa.



(Continued from page 34)

dollar totals and of both increments. The same reasoning holds true for **publi** works construction, principally highways which is slated to inch up 1 per cent to \$1,040 million, and for "other public" con struction, principally conservation and de velopment projects, for which a 4 per cent boost to \$546 million is predicted.

Like the participants in THE FORUM' survey, Federal Power Commissioner Le land Olds sees ample justification for marked increase in privately financed public utility building. In a report sub mitted to President Roosevelt last month he indicated that the national defense pro gram may cause an electric power short age of 1.5 million kilowatts (equivalen to the entire electrical production capacity of the state of Michigan) in certain in dustrial areas by 1942. Since expansion of generating capacity costs about \$100 per kilowatt, supply of Powerman Olds predicted shortage would involve expendi tures aggregating some \$150 million in excess of those now contemplated by the industry. Further indication that The FORUM's forecast of a 17 per cent increase to \$743 million in private public utility construction expenditures (including those by railway, pipeline, gas production and communication companies) may prove conservative is the Wall Street Journal's estimate that the private electric power production industry alone will spend close to \$700 million on 1941 construction.

In the light of predictions by Agriculture Department economists that farm income will expand from \$9 billion in 1940 to \$9.5 billion in 1941 and \$10 billion the year following, THE FORUM's forecast of a 9 per cent jump in **farm** construction to \$403 million does not seem out of line.

Of all the various classifications of construction, publicly financed military and naval, for obvious reasons, is due for the largest expansion this year—131 per cent to \$980 million. Expenditures for troop cantonments, the erection of which is running as much as ten weeks behind schedule (reasons: inclement weather, labor troubles and unexpected site conditions), will account for close to one-third the total and will be 40 per cent larger than in 1940. Air bases, yards and docks, collectively dubbed "military works," will cost \$300 million, three times the 1940 sum. Also included in this military and naval category is the forecast for publicly financed manufacturing plants discussed above. As shown on the complete tabular sum-

As shown on the complete tabular summary of THE FORUM's forecast (p. 67), total private expenditures for new construction are expected to increase 9 per cent to \$4,395 million; total public, up 32 per cent to \$3,360 million. Combined, the two categories will aggregate a whopping \$7,755 million, up 18 per cent. Thus, thanks almost entirely to the national defense program, 1941 will be the biggest year for Building since 1930.

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CONSTRUCTION LOANS

(Continued from page 69)

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The Swartwout Company 18617 Euclid Ave., Cleveland, Ohio



already assumed many pounds of the builder's usual burden, has relieved the owner of many of his usual worries and has substantially protected its interests. But, its services have just begun.

Like G-men, Second Federal's building inspectors are on the job as soon as construction begins and during the early stages (when most of the irreparable damage could be done) they are particularly busy. Thus, until the house is plastered, the site is visited as frequently as once a day or once every two days. As soon as the structure progresses above grade and before any disbursements are made, an encroachment survey is secured to verify the fact that the builder is working on the proper site and that the house is properly orientated.

Second Federal's periodic probes are not cursory inspections, but involve, rather, an actual close examination of materials, construction methods and workmanship. Each prober carries a set of blueprints and specifications for the houses he inspects and submits a written, itemized report of each day's findings. Dual in purpose, these inspections not only assure the owner and the Association that the house is going up as planned, but serve as a basis for the timing of disbursements by the Association. If the house enjoys complete architectural supervision, the architect usually makes out the certificates of payment. If not, as is most frequently the case, the contractor submits the certificates. For example, the first disbursement will cover labor and materials for excavation, footing forms, footings, the laying up of the foundation walls to the plate, the first floor joists, etc .- all work accomplished prior to the encroachment survey. The contractor's certificate will show the amounts due or paid to the mason, to himself as the carpenter contractor and to the material dealer. If the Association's inspector and vice president in charge of construction approve the certificate, checks are drawn and given to the creditors upon the signing of affidavits that their labor has been paid. If the contractor has already paid his bills and is requesting reimbursement, he must submit the receipted bills before he is paid.

This disbursement procedure also permits the Association to keep tabs on its money and the house's construction cost. Thus, whenever a payment is made, the amount is entered under the proper heading of the confidential (between contractor and Association) cost breakdown and is subtracted from the foregoing figure. It is thus possible for Second Federal to determine at a glance the amount paid out and the balance due in any account.

For the regulation of contract extras, (Continued on page 40)



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Banker's Life Building gets <u>light</u> and <u>privacy</u> with PC Glass Blocks

PC GLASS BLOCKS are generously used in the new Banker's Life Building in Des Moines, Iowa. Here, the PC Glass Block light-transmitting areas, with clear glass casement insets, may be seen, and large Glass Block panels in the auditorium (foreground). Tinsley, McBroom and Higgins, Architects.



AUDITORIUM INTERIOR, showing PC Glass Block panels. These panels not only help to light the room, but their sound insulating properties help to make the hall quieter by deadening outside noises.

PC GLASS BLOCKS in the stairwells are used effectively for making staircases better lighted and safer.



11

IN THIS OFFICE below ground level, PC Glass Block panels are used to bring daylight into the room while keeping out curious eyes. They assure privacy and freedom from outside distractions for the room's occupants.

Glass Blocks perform many functions in the modern building . . . and perform them extremely well. They cut heating, maintenance and lighting costs. They transmit daylight, preserve privacy, deaden outside noise. And they are attractive enough in appearance to add, rather than detract, from a building's beauty. There are eight patterns and three sizes to choose from. Send the coupon for our free booklet of information about PC Glass Blocks.

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WITH war conditions abroad, and actual instances of sabotage in industry at home, every architect should be prepared to specify effective sabotage protection for industrial plants now standing and under construction.

The experience of the last war shows that these three steps give adequate protection against outside and inside saboteurs with minimum expense for guards and policing. 1. An Anchor Fence completely surrounding the entire plant property. 2. Separate Anchor Fence installations surrounding outside storage yards and unwatched buildings. 3. Anchor Fence enclosures around vital parts of the plant such as power plants, transformer stations, chemical storage, laboratories in order to keep out all except specially designated employees.

Anchor Fence Engineers are glad to give architects the benefit of their experience in helping plan effective fence installations to assure maximum protection against sabotage. Mail coupon for the Anchor Industrial Fence Catalog today—and for the name of your nearest Anchor Fence Engineer.



Name		•
Firm		-
Address		8
Cirry	Seato	

(Continued from page 38)

the Association has developed an equally unique system. Each contractor is armed with a printed booklet-not unlike the sales check pad used by grocery clerkswhose alternate pages are white, yellow and pink (sheet E, p. 68). When the owner desires an extra or a credit involving a change in plan details or specifications, the contractor describes the change and notes the estimated cost on the pad, gives the yellow carbon copy to the owner, the pink one to the Association and retains the white original. If the change involves an extra, the owner is required immediately to deposit with the Association sufficient funds to cover its cost; if it involves a credit, the refund is postponed until all bills are paid.

Upon completion of the house, one of Second Federal's inspectors rounds up the owner and contractor, goes over the building from top to bottom, notes any details which require revision or refinishing. When these have been brought in line, and if the contractor is one with whom Second Federal has had satisfactory experience, he is paid in full. Otherwise, all bills are paid, but any remaining profits are withheld pending expiration of the lien period.

Besides his money, the contractor (or the architect) is handed a detailed statement of every disbursement made by the Association. The owner receives another statement showing the amount of the loan, the amount of the contract, the cost of the loan including reserves and the extent of extras and credits. In his pocket also goes a printed certificate, and on the side of his new house goes a small bronze plaque inscribed "Certified Inspection— Second Federal Savings & Loan Association" and stamped with the date on which the house was completed.

In sum, Second Federal's construction loan program betters the average in these important respects: all plans and specifications are prechecked, construction inspections are more thorough and frequent, payment of all bills is handled directly by the Association, and the owner is required to place sufficient funds in his loan account-over and above the mortgage loan proceeds-to cover the cost of the contract plus all necessary reserves for taxes, insurance and the like. While enforcement of these details has cost good time and money, it has also produced handsome dividends: a high type of mortgage security, owner good will and considerable new business. In fact, Second Federal's promotional efforts have featured the unusual construction loan procedure almost to the exclusion of the usual ballyhoo concerning interest rates and mortgage terms. The results speak for themselves: Second Federal's mortgage loans at midyear were up 643 per cent from 1935, and the Association is now remodeling its offices to make way for still bigger business.

DEFENSE HOUSING

(Continued from page 30)

type will be dismantled immediately a erection and reassembled on adjacent Contest stake: 10,000 to 12,000 additi units to be erected in other commun where there is a similar need for tempo housing.

Besides serving as a demonstra laboratory, the Indian Head project is tended to house civilian workers in Navy's large powder factory on a lo Potomac pierhead 30 miles below W ington. No land is available in town the houses will go up on a field some tance out. Add to this the fact that wor are certain to move away as soon as emergency passes and it becomes clear private enterprise cannot be expected do the job. To avoid building a poter ghost town, PBA necessarily must dem demountable housing, which implies fabrication.

Cooperative guinea pig. Most mystify project is the 500-unit greenbelt be planned by FWAdministrator Carmo own office for Camden's shipyard work Directing operations is a new staff m ber, Col. Lawrence Westbrook, who co from WPA.

Contemplated for a vacant tract Camden's outskirts, the project report involves the sale of stock to tenants. sumably it will follow the pattern of cooperative "Park-Living Plan," w was promoted several years ago by Ho Westbrook for a proposed developm near Jacksonville, Fla. This earlier sch called for the sale of preferred stock private investors while public funds w to be used for public improvements wi appraised value would then be capital as common stock to be distributed am families buying houses, thereby avoid any need for their planking down the tomary first payment.

One disturbing feature at Camden: w Coordinator Palmer's report indicates t a minimum of 2,000 dwellings are nee where private enterprise cannot risk investment because the employment be may last but a few years, the cooperat shipworkers apparently are expected carry the same risk.

Mobile guinea pig. Meanwhile, as a fitt commentary on the status of housing the nation's defense industries, comes no that houseless workers are trying their of hand at solving the problem. Six hund worker-owned tourist trailers were par last month alongside a powder plant be built at Charlestown, Ind. Nearby 1, other workmen were sleeping in autor biles while awaiting delivery of trail they have ordered. (The trailer indust however, reports that it cannot book no business since it is already going full on straight Army orders.)



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Name Address	

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like surface.

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MAKE THE CANDLE TEST—PROVE IT YOURSELF

Let a smoking candle burn. Hold it under Vitramic Siding. Let it get good and black, with the smoke curling around the edges. Then take a wet sponge. Rub it. Use no cleaner—just water. See how Vitramic is restored to pure whiteness.



For more than a year VITRAMIC has been acclaimed in the East! Now...it is ready for distribution all over the nation!

This new siding is really revolutionary! It offers you an astounding number of sales-compelling features that you have long awaited.

You have, first of all, a siding with a beautiful "wood-grain" texture and a tough, resilient, fireproof, time-defying, asbestos-cement base.

But the BIG news is this—you can *now* sell wHITENESS as you've never sold it before—a brilliant *lasting* whiteness! This intense wHITENESS in VITRAMIC has been achieved through the fusing of a remarkable glazeless, vitreous surface to the asbestos-cement base. The brilliant whiteness is an integral part of the siding. It stays white—resists dirt.

This hard, vitreous surface offers more than beauty. It closes all pores. There are no openings for dirt to enter, no roughness for clinging dirt. The surface repels water. Discoloration from dampness is impossible. Rock-hard—rotproof—termite-proof—this fine siding is in a class by itself.

Vitramic conquers these great siding enemies!

Soot, cinders, carbon particles and fumes—every day, they attack the sidewalls of homes, hunt for open pores. Once entrenched with the help of moisture, they seek to soil, smudge or smear—destroying beauty—impairing the life of sidewalls.

They've met their match in VITRAMIC! This extraordinary siding, with its hard, ceramic-like surfacing, offers no foothold for dirt, soot or carbon particles. When particles do stay on Vitramic's surface, rain washes them off, or they may be easily wiped off. Sulphur fumes, ammonia fumes in the air—even when made more active because of moisture—have no effect upon Vitramic surfacing or its brilliant whiteness. Think of the value of all these features.

Get all the facts. Investigate this amazing new siding. Be sure to write today. The Ruberoid Co., 500 Fifth Avenue, New York, N.Y.



FORUM OF EVENTS

(Continued from page 10)

Homes & Narver, Los Angeles-Camp, Nacimiento, Calif.

Hunt, Myron, and H. C. Chambers, Los Angeles—Camp, San Diego, Calif.

- Jackson Co., W. F., Atlanta—Laundry and Bakery Buildings, Pensacola, Fla. Kahn, Inc., Albert, Detroit—Hangars,
- Kann, Inc., Albert, Dettoit—Hangars, Kodiak, Alaska and Dahlgren, Va. Air Bases: Jacksonville, Alaska, San Juan, Quonsett and Guantanamo. Shipfitters' Shop, etc., Pearl Harbor.

Kahn, Julius-Detroit Ordnance Plant.

- Karcher, Walter T., and Livingston Smith, Philadelphia—Receiving Barracks, Navy Yard, Philadelphia.
- Kistner, Curtis & Wright, San Diego—Post Exchange, Dispensary, Overhaul Building, etc., San Diego.
- Koch & Fowler, Dallas—Camp Bowie, Tex. Lawrence & Allyn, Portland—Air Corps Cantonment, Portland, Ore.

Leeds, Hill, Barnard & Jewett, Los Angeles --Camp San Luis Obispo, Calif.

Lest, Jr., William L., Myrtle Beach-Ex-



THERE'S no safer specification to assure concrete cured to superior finish, hardness and strength.

SISALKRAFT, laid over the freshly poured slab, seals in the original mixing water, and protects the surface from dirt and wear as work proceeds. Inspection is easy — the paper is either in place or it isn't. No further attention is required. No sprinkling. No human element — a positive cure insured. It's simple — sure — economical.



tension of Pipe Shop, Charleston, S. C Lippincott, J. B., and O. G. Bowen, Los geles—Marshfield Flying Center, R side, Calif.

- Lockwood Greene Engineers, Inc.—C Shelby, Miss.
- Lozier, Inc., William S., Rochester-Camp, Great Bend, N. Y.
- Main, Inc. Charles T., Boston-Car ment, Camp Edwards, Mass. Arm Springfield, Mass.
- Marsh & Saxelbye, Jacksonville—Back Officers' Quarters, Barracks, Mess I etc., Banana River, Fla. Nine Off Quarters, Black Point, Fla. Dispen Commissioned Officers' Quarters Gatehouse, Jacksonville, Fla.
- Olsen & Urbain, Chicago—Supply and counting Office and Store Building, G Lakes Naval Training Station.
- Pancoast, Russell T., Miami Beach—T graphic and Subsurface Surveys, Ter rary Fire House and Garage, Naval A tion Patrol Facilities, Key West, Fla.
- Robert & Co., Inc., Atlanta—Ger Storehouse, Aircraft Storehouse and O. Storehouses, Black Point, Fla. A tion Facilities, Corpus Christi. Airc Overhaul & Repair Shop, Administra Buildings, Roads and Services, Jack ville. Aviation Facilities, Opa Locka, Aircraft Storehouse, Ground School B ing and Gym Building, Officer of the Building, Pensacola, Fla. Tempo Aviation Patrol Factory, San Juan.
- Roller, Albert F., San Francisco-Housing Units and Accessories, Val Calif.
- Rust Engineering Co., Pittsburgh—G den Shell Plant, Gadsden, Ala.
- Sanderson & Porter, New York—Elv Ordnance Plant, Wilmington, Ill.
- Scholfield, E. L.; Arthur Deimel, New 1 don—Supply Depot, Annex, Repair S Subbase, New London, Conn.
- Shaw, Naess & Murphy, Chicago, N base in Bermuda.
- Shreve, Anderson & Walker, Detroitdition to Barracks, Grosse Isle, Mich Shreve, Lamb & Harmon, New York-4
- lying Defense Base in Nova Scotia.
- Simons & Lapham, Charleston—Cafet Building, Additional Aviation Shore cilities, Riggers and Laborers' Shop, I Offices Navy Yard, Charleston, S. Mess Haul and Gallery Building, Ma Bar, Paris Island.
- Smith, Hinchman & Grylls, Detroit—S Arms Ammunition Plant, Kansas Cit Solomon & Keis, Fort Lauderdale, Fl West Palm Beach Airport.
- Southern Engineering & Architectural Jacksonville—Project, Tallahassee, Fl Starrett & Van Vleck, New York—Ten rary Receiving Barracks, New York. Stone & Webster, New York—Kanks (Continued on page 46)

Another interesting application of "stainless" roof drainage



You can easily visualize how ARMCO Stainless Steel enabled the architects to achieve this desirable end. The rustless qualities of this modern metal insure virtual permanence; and its soft, neutral tone blends appropriately with the walls and roof. And being at least twice as strong as other roof-drainage materials, there is little or no danger of sagging or breaking under heavy snow or ice loads.

Send for a free copy of ARMCo's new booklet, and see for yourself how well ARMCO Stainless Steel gutters, conductor pipe and accessories meet the long-

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desired objectives of beauty, permanence, and low-cost service.



The Sarver Memorial Church House, Butler, Pa. Gutters, conductor pipe and accessories of ARMCO Stainless Steel. Architect, Charles M. Talley, Telford, Pa. Associate Architect, Edwin Howard, Jr., Butler, Pa.

- In roof-drainage systems, stainless steel offers excellent corrosion resistance, non-rusting qualities and long life.
- 2 Its soft, natural tone harmonizes with all color schemes.
- 3 It has great strength and resistance to abrasion.4 It endures in seacoast regions where corrosive
- conditions are severe.
- 5 It costs little more than other premium metals.
- 6 It is the accepted modern metal—used on many famous buildings.

FREE for your files-this new and informative booklet on ARMCO Stainless Steel in roof-drainage systems. It contains design information with useful specification and installation data.



FORUM OF EVENTS

Ordnance Works, Wilmington, Ill.

- Stopper, Eugene A., Philadelphia—Warehouse, Marine Corps Depot of Supply, Philadelphia.
- Sullivan, Francis P.; Marshall & Gongwer; Weschler & Cleary, Washington—Bridge, Extension to Transportation Building, Overhaul Shop, etc., Marine Barracks, Quantico.
- Tipton, Royce J., Denver-Fort F. E. Warren, Cheyenne, Wyo.

Towsley, Irving, Philadelphia-Philadel-

- phia Armor Plate Plant, Tacony, Pa.
- Voorhees, Walker, Foley & Smith, New York—Naval base at Trinidad.
- Vreeley & Hansen, Chicago—Camp Peay, Tenn.
- Widmer Engineering Co., St. Louis-Fort Reily, Kan.
- Wiedeman & Singleton, Atlanta—Fort Mc-Clellan, Anniston, Ala.
- Wiley & Wilson, Lynchburg—Camp Robert E. Lee, Petersburg, Va.
 - Williams, Coile & Pipino, Newport News-



JUST AS the public demands efficiency in service from public utility companies, so do these firms demand efficiency in service from the products they use. So, for a recent remodeling job, the men in charge chose AZROCK Carpet Tile for floors and corridors.

AZROCK has all the qualities desired in a modern floor covering—and more. Either marbleized or plain, it makes a distinctive floor, pleasing to the eye, quiet underfoot. Its exclusive integral wax finish and micro-cut edges mean that it will be simple to keep clean, bautifully polished. And AZROCK "can take it" year in and year out, for AZROCK is durable. The AZROCK mixture—with a base of high-grade rock asphalt—is triple-mixed and triple-tested during manufacture, insuring perfection in the finished tile.

Whatever your problem . . private or public building, office, store, home, theater, hospital or factory . . there is a *proven* AZROCK Tile to serve you.



Uvalde Rock Asphalt Co. (In Business Since 1912) Gen. Offices: San Antonio, Texas; Mines: Blewett, Texas; AZROCK Plant: Houston, Texas; Distributing Contractors: in principal cities of U. S. A. Quarters, Mine Warfare School, Hou etc., Yorktown and Newport News Wunder, Clarence E., Philadelph Frankford Arsenal, Philadelphia. Yonge & Hart, Pensacola—Administr

and Operations Building, Recre Building, Pensacola, Fla.

AWARDS

To EDWIN ARMSTRONG, professor of trical engineering at Columbia Unive the Holley Medal of the American So of Mechanical Engineers, for distingu service in engineering and science.

To KENNETH J. BREHM of Richt Hill, N. Y., the 1940 Sherman Pri Columbia University's School of A tecture.

To WILLIAM B. GREGORY, professor of itus of experimental engineering hydraulics at Tulane University, the cester Reed Warner Medal of A.S.M.E., awarded annually for contions to permanent engineering litera

To DR. GEORGE A. HAWKINS, asso professor of mechanical engineerin Purdue University, the Pi Tau S Award of the A.S.M.E., a gold meda honorarium, as "the most outstar young mechanical engineer for the 1940 who has been graduated not than ten years...."

To CHARLES F. KETTERING, of Ge Motors Research Laboratories, the M.E.'s medal, its highest honor, fo long and pronounced influence on aut bile development.

To ROBERT MOSES, New York, a medal from the National Institute of and Letters "for outstanding achieve in the beautification of New York St

To RICHARD PITMAN, University of S ern California, first award in the s contest held in connection with the tional convention of Scarab, for his w color, "Old Dark House."

To SIDNEY SIMON of Pittsburgh, award of the Abbey Prize, \$1,000, by National Academy, co-trustee with nelius J. Smythe, for the study of r painting. The Jury: Barry Faul Harvey Wiley Corbett, Leon Kroll Arthur Covey.

COMPETITIONS

AMERICAN ACADEMY IN ROME, unab send its Fellows to Rome because of European situation, will make no Fe ship awards next spring. It will hold, (Continued on page 48)





EXTRA VALUES at No Extra Cost

Attractive Residence with attached Garage, using 2 Ro-Way Doors. Zimmerman, Saxe & Zimmerman, Chicago, Architects.



Ro-Way Industrial Garage Doors are widely used.



Burlington Transportation Co. (subsidiary of C. B. & Q. R.R.) uses 13 Heavy Duty Ro-Way Doors in this new building.

Five sound mechanical improvements and refinements back up your judgment in recommending Ro-Way Overhead Type Doors . . . without adding a penny of cost to the finished job. Bear this in mind when you are

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more architects are going a step beyond recommending "Doors of the Overhead Type." They are now specifying Ro-Ways to bring their clients these five extra values: "Crow's Foot" Outer Bearing Support... "Ro-To



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(Continued from page 46)

ever, this year, a series of special competitions for cash prizes totaling \$5,000. A prize of \$1,000 will be offered in each of the arts of architecture, landscape architecture, musical composition, painting, and sculpture. Open to unmarried men only, citizens of the U.S., and not over 30 years of age. Further particulars from Executive Secretary, American Academy in Rome, 101 Park Avenue, New York. Applications to compete must be filed not later than March 1, 1941. AMERICAN INSTITUTE OF STEEL CONSTRUC-TION continues its Students' Annual Bridge Design Competition. Closing date February 10, 1941, at 101 Park Ave., New York. Prizes: \$200, \$100 and \$50. Jury: John T. Briggs, M. W. Del Gaudio, Dr. Shortridge Hardesty, Theodore Reed Kendall, and Walter H. Weiskopf, all of New York.

MUSEUM OF MODERN ART, New York. Jury for the Industrial Design Competitions for Home Furnishings consist of



No. 96 desk table and separate pedestal on casters. No. 10 stacking side chair. Catalog on request.

ARTEK-PASCOE INC. 640 MADISON AVENUE, NEW YORK, N. Y. Alfred H. Barr, Jr.; Catherine K. Ba Marcel Breuer (who takes the plac Alvar Aalto now in Finland); E Kaufmann, Jr.; Edward Stone.

EDUCATIONAL

AMERICAN INSTITUTE OF ARCHITECTS receive proposals of candidates for Edward Langley Scholarships. These awarded annually for advanced wor architecture, the amount of grant each Scholarship being in accordance the need and purpose of the candidate the available funds. Candidates mus proposed in accordance with details t had from the Secretary, A.I.A., Octagon, 1740 New York Avenue, W ington, D. C., and must be in not 1 than March 1, 1941.

EMERGENCY COURSES. Harvard, Ma chusetts Tech, Northeastern Univerand Tufts College offer day and eve courses to train engineers and technic urgently needed in the nation's defindustries. The joint program was ranged to avoid duplication and to as the most effective utilization of teac and laboratory resources of each insition. Applications for detailed informa should be made by mail only, to Engir ing Defense Training Bureau, Room 7-Massachusetts Institute of Technol Cambridge, Mass.

PLASTICS INDUSTRIES TECHNICAL IN TUTE, Los Angeles. Day and night resi courses in plastics engineering, also a h study course, are offered by a staff her by John Delmonte, technical dire Further information from the Institut 186 South Alvarado Street, Los Ang

CALENDAR

January 19, 3:00 p.m. Illustrated lee by Joseph Hudnut at the Metropol Museum of Art, New York on Mo Building and the Art of Painting.

January 26, 3:00 p.m. Illustrated lec by Joseph Hudnut at the Metropol Museum of Art, New York on Moo Building and the Art of Gardening.

January 27-29. Annual meeting of American Society of Heating and Vent ing Engineers, Hotel Muehlebach, Kar City, Mo.

January 29-February 1. Annual meetin the College Art Association of Ame at University of Chicago.

ERRATA

C. B. BALDWIN is the administrator Farm Security Administration, not (Continued on page 54)



In the new American Home

flass has created an

IT'S SMALL BUT BEAUTIFUL. IT'S MORE ECONOMICAL AND LIVABLE. YET IT COSTS LESS THAN \$1.00 A DAY UNDER F.H.A. IT IS BRIGHT, AIRY AND OPEN — WITH WIDER WINDOWS, BUILT-IN MIRRORS, INTERIOR GLASS PARTITIONS. GLASS ADDS TO ITS VALUE AND SALABILITY OUT OF ALL PROPORTION TO ITS COST.

• A new kind of home is being built in America today a home that utilizes to the fullest, all the beauty, utility and convenience that Glass offers. These houses are small but attractive. They're more convenient, more livable, and more economical to maintain. They contain many features formerly found only in more expensive homes yet they can be bought for \$1.00 a day or less under F.H.A.

These houses are *not* hypothetical—not mere dreams on a drafting board. They are actual wood and steel, brick and mortar houses being erected by the hundreds in many American communities. They are being built by builders all over the country, many have been completed and sold, under the banner of "Design for Happiness" Homes—a national building movement supported by a tremendous advertising and merchandising program in national magazines, radio, motion pictures and trade publications.

Much of the charm and beauty of this new kind of home comes from new and generous uses of glass. Wide Windows, Built-in Plate Glass Mirrors, Decorative Glass Partitions and colorful glass wainscotings of Vitrolite Structural Glass in kitchen and bathroom, combine to make a house that is brighter, gayer and easier to keep clean. No longer a luxury, Glass adds to the value and salability of a house out of all proportion to its cost.

WHAT ARE "DESIGN FOR HAPPINESS" HOMES?

"Design for Happiness" Homes is the copyrighted name of the nation-wide home development program sponsored by the Libbey Owens Ford Glass Company. This program is devoted to better and lower cost homes for the home owner-to greater opportunity for the Architect-to quicker and more profitable sales for the Contractor-Builder and Real Estate Operator. This program is supported by Libbey Owens Ford national advertising and by the L·O·F Radio program "Design for Happiness" over the Columbia Network 5 P. M. (EST) every Sunday afternoon. "Design for Happiness" Homes are now being built all over the country. Those connected with the building industry who wish to cooperate in this profitable home-building program can secure complete information by calling the L·O·F Glass Distributor in your neighborhood or by writing the Libbey Owens Ford Glass Company, Toledo, Ohio.

• A built-in plate glass mirror above an attractive bookcase in the living room forms a focal point of interest—"pushes the wall back"—increases the apparent size of the room. For what they add in beauty and utility, the cost of mirrors is small.





• Decorative glass makes a gem of this breakfast bar between the dining room and kitchen. When not in use, the doors may be closed to form a mirrored panel. The cupboard doors are glazed with Louvrex Decorative Glass.

• This disappearing dressing table and mirror saves space in the small bedroom. Both the mirror and the table are attached to the back of the closet door. Always there when you want it, out of the way when you don't.



entirely new kind of home



Mills, Rhines, Bellman & Nordhoff, Architects, Toledo.



• A wall mirror of polished plate glass smartly complements the room design. Often colored plate glass is used for mirrors of this type to add beauty—achieve color harmony.



• This arrangement of 3-Panel Door Mirrors is novel and not costly. The center panel between the doors is a fulllength mirror. The partial-length mirrors on the doors afford ample angle views. The mirrors, of course, are made of L-O-F Polished Plate Glass.



• A kitchen planned to afford the utmost in labor-saving convenience and utility. It's bright and cheerful, too, because of the large window and the sparkling Blue Ridge Louvrex glass in the cabinet doors. Equipped throughout with the most modern kitchen equipment. • In the bathroom, a wainscoting of Vitrolite Structural Glass protects the walls around the bathtub. Vitrolite is impervious to moisture and odors. It is easily cleaned with a damp cloth. Its colors are always new, never fade. See samples at your L·O·F Distributor's showroom—for both kitchen and bath. • Storm windows that are tailor made. They fasten onto the face of each window in a jiffy. Storm windows and storm doors will reduce your fuel bills as much as 30%. In addition, storm windows eliminate fogged and frosted windows, greatly reduce drafts, increase home comfort.

And Glass Sells Houses

HERE ARE GLASS DESIGNS FROM A TYPICAL "DESIGN FOR HAPPINESS" HOUSE



• The glass designs shown here are taken from one of the thousands of actual "Design for Happiness" Homes now being built all over the country. They illustrate the use of Glass in the modern small home. They are not only being *built*, but they are being *sold* even before they are completed.

In one bedroom is a three-way mirror, in another a built-in dressing table and mirror. A built-in mirror adds life and interest to the living room. The wainscoting in the bathroom is of colorful Vitrolite wall glass. In the kitchen the cabinet doors and the door to the utility room are glazed with a gay decorative glass called Louvrex. There's even a powder-puff mirror by the kitchen sink. And the whole house is being equipped in the colder areas with storm windows to reduce heating costs by as much one-third in comparison with houses which don't has storm windows. The result is a home in which every ro has been made more attractive and more useful—at his added cost.

FOR FULL INFORMATION

For all the facts about this great nation-wide hor building movement, and the part that you can play in it how you can profit by building "Design for Happine Homes in your own community—write to Libbey Owe Ford Glass Company, Toledo, Ohio. The complete ste will come to you by return mail.

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1941 by Libbey-Owens-Ford Glass Com

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tegrally with frame and floors of *one* firesafe, money-saving material, the of the water filtration plant at Faribault, Minnesota, derive character and from the board forms. Long & Thorshov, Inc., were the architects; Victorson and Co., builders — both of Minneapolis. Ask your architect or er about concrete. Let us send literature, free in U. S. or Canada, on te for public, commercial and industrial buildings. See Sweet's Catalog.

AND CEMENT ASSOCIATION, Dept. A1-7, 33 W. Grand Ave., Chicago, III. al organization to improve and extend the uses of concrete, through research and field engineering



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FORUM OF EVENTS

(Continued from page 48)

Will W. Alexander, as indicated in the November Forum, pages 14 and 338. Dr. Alexander resigned from this office on July 1, 1940 to become vice-president of the Julius Rosenwald Fund. Shortly afterwards he was recalled to Washington on loan to become a member of Sidney Hillman's staff of the National Defense Advisory Commission, assisting Floyd W. Reeves on youth training problems; and also to serve as assistant to Federal Security Administrator Paul V. McNutt in connection with activities of the educational and work experience organizations in that agency.

U. S. MARINE HOSPITAL at Seattle, Wash., credited in the October Forum, page 280, to Bebb & Gould, architects, was designed by Bebb & Gould and John Graham, architects

In the Guide to Washington's Defense Building Agencies, on page 337 of the November issue, it was suggested that contractors seeking fixed fee contracts from the Bureau of Yards and Docks, Navy Department, address Quartermaster General. Instead, such applications should be made to Chief, Bureau of Yards and Docks, Navy Department, Washington, D. C.

The Uarco machine illustrated on page 290 of the October issue, and there erroneously called a check-writer, is a device on which business forms are executed in duplicate The designer, Robert D. Budlong.

MISCELLANEOUS

ARCHITECTURAL SCHOOLS AND DEFENSE. "A Special Committee for the Defense Program has been appointed by the Association of Collegiate Schools of Architecture to assist in National Defense. We are hopeful that we shall be able to cooperate with the Government so as to utilize to best advantage the special qualifications and abilities of architectural graduates who are subject to the Selective Service

"Our problem has two angles. One, the decision as to which, if any, of such especially trained groups should be exempt from military service; and two, the assignment of those who are called to branches where they can be of most value.

"Our committee has volunteered its cooperation, and received a courteous acknowledgment from Dr. Dykstra Director of Selective Service, but nothing definite has yet developed. We solicit the assistance of all readers of THI ARCHITECTURAL FORUM in suggesting further lines on which we could be of use, contacts which should be made, and sources of information with which we should cooperate."

Signed: SHERLEY W. MORGAN, Chairman,

Princeton University GEORGE YOUNG, JR., Cornell University LEOPOLD ARNAUD, Columbia University

FOR MODEL MAKERS. The growing popularity of scale models, particularly of residential subjects, has brough about the production of a stock of miniature materials and mill work from which models may be built. Siding and shingles are produced in sheets 18 x 36 in. Doors and window frames, shutters, cornices, underpinning and chim ney surfaces of brick are among the elements already pro duced. The material comes already cut for several differen designs and also in lengths for the designer's own specifica (Continued on page 56)

Remember what G-E started when it turned the oil flame upside down?

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FORUM OF EVENTS

(Continued from page 54)

tions. All details are at the scale of $\frac{1}{2}$ in. to the foot, and are made by a division of Architectural Decorating Co., 1600 South Jefferson Street, Chicago.

THE MAGAZINE formerly called *Interior Decorator* has become *Interiors*, since its purchase from Clifford & Lawton, Inc. by Charles E. Whitney. First issue under the new ownership was November. Its new address is 11 East 44th St., New York.

DIED

WILBERT J. AUSTIN, 64, engineer and president of the Austin Company of Cleveland, in an airplane accident. Born in Cleveland, Mr. Austin received his B.S. from the Case School of Applied Science. He was one of the first American industrialists to work in collaboration with the Soviet Russian officials under the so-called Five Year Plan. In more recent years he was active in the development of air terminal facilities and industrial plants.

Tox BRONTE EVERMAN, architect, 62, in Alexandria, Va. Born in Indiana, Mr. Everman was educated at Cornell and served as instructor there following his graduation in 1900. Coming to Washington in 1905 he became associated with the firm of Donn & Deming, and is credited with being the chief designer of the addition to the House Office Building. Mr. Everman was known as architect, painter, and landscape architect, and designed the landscaping for the Washington National Cathedral.

WILLIAM G. NOLTING, architect, 74, in Baltimore, Md. Born in Baltimore, Mr. Nolting passed his youth in Richmond, Va., and was graduated from the high school there, immediately entering an architect's office. While in his early twenties Mr. Nolting formed a partnership in Baltimore with the late J. B. Noel Wyatt, who died in 1926. Among the better known buildings designed by the firm, Wyatt & Nolting, were Baltimore City Court House, and Veterans' Bureau Building in Washington. After Mr. Wyatt's death, John H. Scarff became Mr. Nolting's partner, and the firm designed the Fifth Regiment Armory when it was rebuilt after a fire in 1933. A former member of the Board of Zoning Appeals, Baltimore, Mr. Nolting was a Fellow of the American Institute of Architects, and formerly served as its regional director for the Middle Atlantic District.

FRANK RUSHMORE WATSON, architect, 81, in Philadelphia. Born in Frankford, Pa., Mr. Watson received his Bachelor of Arts degree from Central High School in 1877, began his practice as an architect in 1883. In addition to his widely known abilities in church architecture, he served his profession by acting as a delegate to the Pan-American Congress of Architects in South America in 1923 and again in 1927. He was made a Fellow of the American Institute of Architects in 1930.

CLARENCE EDMOND WUNDER, architect, 53, in Philadelphia. Born in Philadelphia, Mr. Wunder attended the Central Manual Training School, and served as a draftsman for his uncle, Kurt W. Peuckert, architect and engineer, becoming a partner in the firm in 1910. Since 1914 he had carried on an independent practice. Among his better known works are the Temple University Stadium, Hotel Philadelphian, the Cuneo Eastern Press Building, the George Allen store in Germantown, Keebler-Weyl Baking Company plant. He was a member of the American Institute of Architects.

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BOO.KS

(Continued from page 18)

PART II OF THE A.S.T.M. STANDARDS, 1939. Published by the American Society for Testing Materials, Philadelphia 1,217 pp., illustrated. 6¹/₂ x 9¹/₄. \$8.00.

Organized in 1902 the American Society for Testing Mate rials has succeeded in including larger and larger groups of technicians in its membership until today, with a thoroughly representative cross-section of the engineering profession, it stands in an authoritative position with respect to standards for materials. The book under consideration deals with the building trades. The published standards are divided into two main sections, the larger of which comprises the specifications and methods of testing officially adopted by the Society; the second section deals with tentative standards which represent the latest opinions and practices but have yet to be formally adopted. Materials covered are concrete and related products, masonry, glass, pipe, waterproofing and roofing materials, timber and timber preservatives. and paints, varnishes and lacquers. There are also specifications for testing appliances. The book has been so arranged that specifications and tests fall into separate chapters, any one of which can be purchased as a pamphlet. There are numerous illustrations from photographs and drawings, most of which show testing apparatus.

INDEX TO A.S.T.M. STANDARDS, issued by the American Society for Testing Materials, Philadelphia. 152 pp., 6 x 9.

For the convenience of those who are interested in specific products, the Society has published a complete index of all pamphlets issued to date in the January, 1940, issue of its bulletin. Copies of this publication are furnished without charge on written request to the A.S.T.M. office, 260 South Broad Street, Philadelphia, Pa.

HOW TO BUILD, by Daniel Paul Higgins. Published by the National Catholic Welfare Conference, Washington, D. C. 38 pp., $5\frac{1}{4} \ge 7\frac{1}{2}$. 25 cents.

A pamphlet for the layman who is confronted with the problem of putting up a building. It describes the manner of selecting an architect, the way in which work is carried on, fees, owner's responsibilities, the relationship of owner and architect to contractor, engineer and other specialists.

FLOORS AND FLOOR COVERINGS, by Cornelia D. Plaister. American Library Association, Chicago. 75 pp., 6 x 9. 75 cents.

This is the second of a series of booklets dealing with library equipment. It covers all types of flooring very completely, describing the characteristics of the materials and advantages and disadvantages, and lists trade names and the names of leading manufacturers. Instructions for maintenance are also given. A useful publication applicable to a variety of building types in addition to libraries.

THE STRUCTURE AND GROWTH OF RESIDENTIAL NEIGH-BORHOODS IN AMERICAN CITIES, Federal Housing Administration, Washington, D. C. 177 pp., illustrated, 9¹/₄ x 11¹/₄. \$1.50.

A statistical analysis of the characteristics of residential neighborhoods. It contains a wealth of material of obvious value to lending institutions, planners, house officials and others whose work must take account of long-term trends in urban development. Illustrative material includes a large number of maps which show age patterns in residential areas, new construction, average rents, growth of settled areas and the movement of types of residential areas. (Continued on page 60)



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JANUARY 1941



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BOOKS

(Continued from page 58)

THE BUILT-UP ROOF, edited by Bernard Sachs. Harris-Hoffman Corp., New York. 80 pp., 80 illustrations. 5¹/₂ x 8¹/₂. \$1.00.

This pamphlet is presented as a working guide to all phases of the application of built-up roofs, and has been compiled from the material published in The American Roofer Magazine. It deals adequately with equipment and materials, preparation of the deck, flashing and insulation. A number of chapters cover problems of reroofing and repairs, and give instruction on the prevention and repair of blisters. There are also sections on accident prevention, cost estimating and mistakes most commonly made.

THE PROBLEM OF RETAIL SITE SELECTION, by Richard U. Ratcliff, University of Michigan Press, Ann Arbor, Michigan. 95 pp., illustrated. 6 x 9. \$1.00.

A study of commercial areas in cities. The book does not attempt to develop specific formulas for site selection but rather to provide a description of retail business groupings as they exist, and to set forth the economic factors which influence their evolution. Among the subjects treated in the course of the book are site selection practices among chain stores, consumer buying characteristics and distribution of retail store types.

JAPANESE GARDENS, (second edition) by Prof. Matsunosuke Tatsui. Board of Tourist Industry, Japanese Government Railways. 111 pp., illustrated. 5 x 7¹/₄. 35 cents.

Another of the pamphlets put out by the Japanese Government's Tourist Bureau, profusely illustrated with photographs of the country's best gardens. Special characteristics of Japanese landscape architecture and the history of their development are described in a series of short articles.

THE GREATER ENGLISH CHURCH OF THE MIDDLE AGES,

by Harry Batsford and Charles Fry. Charles Scribner's Sons, New York City. 136 pp., illustrated. 51/2 x 81/2. \$3.00.

A book for the layman on the important churches of the medieval period in England. Very well organized to give a clear picture of the methods of construction and planning, manner of use, and type of furnishings. Illustrations are numerous and adequate in size, and show a good balance between general views and important details. While not oriented to the technical reader, material shown is sufficiently comprehensive to permit use of the book as an excellent reference work.

HEATING VENTILATING AIR CONDITIONING GUIDE 1940,

Vol. 18. American Society of Heating and Ventilating Engineers, New York. 1,184 pp., illustrated, 6 x 9. \$5.00.

The new edition of the standard manual on heating and ventilating practice, containing all needed design data for any system of heating and brief chapters on electric and radiant heating. Supplementary information is given in some 250 pages of advertising; there is an index of equipment to facilitate use of this section for reference.

As a service to interested readers, THE ARCHITECTURAL FORUM will undertake to order copies of foreign books or others not conveniently obtainable locally, which have been reviewed in this department. Checks and money orders to be made payable to THE ARCHITECTURAL FORUM.



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Perhaps the considerable labors attending the recent National Defense and Design Decade numbers have softened Forum editors. At any rate, they here permit themselves the luxury of a moment's retrospect. 1940 was a better year. The editors saw more good buildings than ever before. They saw signs that competent handling of contemporary problems was no longer confined to the few. They saw Building shake itself out of its ten year lethargy. And most important, they saw new faith and confidence in the faces of the men who one day must rebuild America. Having looked back, they now look forward to responsible reporting of what is sure to be Building's most momentous year.

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Ohio Rubber Company, The Overhead Door CorporationCover
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United States Plywood Corporation United States Steel Corporation Uvalde Rock Asphalt Company
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Kewazinga Flexwood treatment, entrance to Wisconsin Union Theatre, Memorial Union Bldg., University of Wisconsin, Madison; Michael M. Hare, Corbett & MacMurray, Architects; Lee Simonson, Consultant.

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