

THE AMERICAN ARCHITECT

VOL. CXIII

WEDNESDAY, MARCH 27, 1918

NUMBER 2205

Methods of Office Accounting for Architects

By W. F. ANDERSON

THE subject of accounts or bookkeeping as applied to the office of an architect has too often been considered as a thing apart—too cold-blooded a proposition to have a part in the daily routine of practice. That this is an unfair way of looking at it is now beginning to be realized, and, as a matter of fact, there is no reason why it should be considered a bore.

I take it that at the bottom of his heart there is no architect in business to-day but who wants to make money from his practice, however much he may talk about "Art for Art's sake" or some similar fetich. From the standpoint of good business the architect cannot afford to neglect business principles if he wishes to make a good impression on his clients; nor can he afford to run his office on a hit-and-miss system if he expects to make a success of it.

Viewed from the side of the owner this fact stands out very prominently: In placing in the hands of the architect the control of a certain sum of money to build a structure according to certain accepted plans, you can be sure that the owner will want to know how that sum is being disbursed, and how his financial relations stand, with both architect and builder, from time to time during the progress of the work.

Let us assume as a starting point that the preceding premises are fair and reasonable and that a system of accounting is to be started in an architect's office where the employed staff is small and the architect himself must perforce do the work of a bookkeeper. Under these circumstances the number of books should be reduced to the minimum, yet be of a form permitting such expansion as may be required with the increase of practice.

In the first place it must be agreed that everything except the artistic ability must be reduced to terms of dollars and cents; that, like any other business, architecture has its losses as well as profits; and that the products of the draughting room, i. e., finished drawings, must be treated as merchandise, with this difference, however:

The merchant can accept a returned C. O. D. package with some reasonable expectation of reselling the article, but the architect can hardly count on a second sale of returned sketches, even if it were ethical.

In these papers it is intended to treat the subject under the general headings of:

The records of office costs compared with fees received.

The client's account with the architect.

The records of builder's contract with the client.

FIGURE 1
TIME SHEET R. A. JOHNSON

From Jan. 7		To Jan. 12, 1918	
Day	T. S. Smith, Res.	Hrs.	
7	Detail Din. Rm. Chimney Detail Stairs	4 7	
8	Checking Framing Plans	7	
9	Detail Living Rm. Chimney Detail Kitchen Chimney	4 3	
10	Interior Finish Den and Liv. R.	7	
		TOTAL Hrs. 28	
		RATE 89.7	
		TOTAL AMOUNT 25.12	

The following forms or account books, which will be illustrated, will be required:

Draughtsman's time card.

Office record card or loose leaf book.

Cash book.

Journal (if desired).

Ledger.

Contract book.

The first requisite is to determine the totals of overhead and actual manufacturing, or labor, cost. The draughtsmen's salaries, and the proportion of time spent by the principal in draughting, would constitute the latter, and all other expenses would be

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grouped under the former. If the preparation of specifications is in the hands of one man, that cost also should be entered with the labor cost.

Taking the first of the subjects we will organize an office staff, consisting of:

- Architect.
- Chief draughtsman.
- Two assistant draughtsmen.
- Stenographer.
- Office boy.

in each week. The use of one card for each job simplifies the labor of entering in the job book, or in the loose card system. Both sides of the card can be used, if desired, by recording overtime on the back in the same manner.

With only two draughtsmen employed the labor of entering the weekly totals in the following form is very small.

Items entered under the sub-headings of draughting and specifications (where done by a man spe-

FIGURE 2

OFFICE RECORD NO. 7 CLIENT *T. S. Smith, Esq., White Plains, N. Y.*

1918		JOB EXPENSE				CLIENT'S EXPENSE				
Wk. End'g	Drft'g	Spec. Sup.	Prints	Total	Fees Er'd	Travel	Tel. & Telp.	Express	Prints	Miscell.
Jan. 5	25.30	3.50		28.80	1640.00	2.32		.28	.75	
12	46.96	5.00		51.96						
19	30.25			30.25			.26			
26	25.16	3.50		28.66	1805		1.85			

A statement made out on the following lines will show these percentages, worked out on a weekly basis:

OVERHEAD

Rent at \$650.00 per year.....	\$12.50
Int. on investment of \$500.00	
at 6%	.57
Depreciation at 10%.....	.96
Stationery, etc., at \$50.00.....	.97
Telephone, at \$40.00.....	.77
Postage	5.00
Stenographer	15.00
Office boy	5.00
	<u>\$40.77</u>
Architect drawing account.....	50.00
	<u>\$90.77</u>

ACTIVE

Draughtsman	\$30.00
Assist. draughtsman	25.00
Assist. draughtsman	18.00
	<u>\$73.00</u>

This overhead charge, equally divided between the three draughtsmen, and reduced to an hourly unit (on the basis of thirty-nine hours per week), shows that 78 cents per hour must be added to each draughtsman's time to carry the overhead.

As a sample time card the form shown in Fig. 1 is very simple; the filling in is done by the draughtsman himself each day and the completed card turned

cifically employed on this work) should include the overhead percentage.

The present schedule of the American Institute of Architects provides that the client pays for all

FIGURE 3

1918		CASH	
Jan. 1	To Balance forward	2.10	
2	Cash received from Arch't	25	
	By postage stamps		5.00
	Carfare messenger		.10
3	Blue prints, Smith job		.75
	Express, Smith job		.28
5	Traveling exp. Smith job (JAC)		2.32
	Glue		.15
23	Telephone Dec. 20-Jan. 20, per		
	Co.'s bill, Smith job		1.85
25	Magazines		1.00
26	Photos for office		.75
28	Two balls twine and wire		.50
30	Ink, 75c, pens, 15c.		.90
		27.10	13.60
	Balance		13.50
		27.10	27.10

prints; but, if it is not the custom in all offices so to charge them, the cost can be placed in the job book, by using the column indicated.

For comparison the fees due and payable should

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FIGURE 4

FILE NO. 7 T. S. Smith, Esq., in account with B. S. Williams, Architect

Date	Items	Page	Amt.	Date	Items	Page	Amt.
1917							
Oct.	1 To fee on contract, 6% ac.		1500	Oct. 10	By Fee		1500
Nov.	1 To petty cash during Oct.		10 50				
Dec.	1 " petty cash during Nov.		15 30				
	5 " fee on acct. at 4% on Cert.		140	Dec. 10			165 80
1918							
Jan.	1 " petty cash during Dec.		12				
	7 " fee on acct. 4% on Cert., 1% on balance		305				

be entered in their proper places as the work progresses, the actual figures being taken from the contract book. Again referring to the schedule of A. I. A. professional practice you will note the percentage of fee allowable at different stages of the work which will act as a useful guide, although after the 6 per cent fee on general drawings and specifications has been reached it is the writer's opinion that the balance should be under-estimated rather than over-stated in figuring the commissions due. Generally speaking, the architect is entitled to receive the full percentage of fee on such sum as he has certified to in the contractor's favor.

The cash book is a most useful "carry all," which a competent stenographer can be trusted to look after at times. In this is to be placed every item of expense, entered daily, and once a week transferred or posted in its place.

Figure 3 is a sample page:

I mention this now as the cash book has a part in all sub-divisions of this article.

THE CLIENT'S ACCOUNT WITH THE ARCHITECT

A preliminary understanding of the nature of the contract between client and architect is essential to the development of this portion of the system.

Let us assume a country house project at a contracted cost to complete of \$25,000, without any special cabinet work or decoration, and that the owner agrees to repay to the architect his petty cash disbursements for traveling expenses, blueprints, express charges and long distance telephone calls, and the like, as well as the 10 per cent fee for professional services.

In the writer's opinion it is an excellent idea to have printed on the back of the architect's bill forms a clear and complete statement of the conditions under which he furnishes his services.

The ledger carrying the owner's account can be made to show at a glance the actual balance due at any time and, by a reference to the contract book,

FIGURE 4A

OFFICE OF
B. S. Williams, ARCHITECT

STATEMENT NEW YORK, December 5th, 1917.

T. S. Smith, Esq.,
30 East 72nd Street, City.

IN ACCOUNT WITH
B. S. Williams, ARCHITECT

Date		Cr.	Dr.
Oct. to Dec.	To professional services rendered, preliminary studies, general drawings, specifications and part details, RESIDENCE AT WHITE PLAINS, N. Y. on account		\$140.00
	To petty cash disbursements, Month of October, \$10.50 Month of November, 15.30 -----		25.80
			\$165.80
	Previously received, \$1500.00		

the ultimate total in fees to which the architect will be entitled.

The sample page shown in Fig. 4-A will illustrate the point, being made up at a time when the contract has been signed and the work started. The first

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payment has been made by the owner, but he is still indebted to the architect for certain items of petty cash, and the outstanding statement. A copy of the architect's statement just previously paid is also shown (Fig. 4) to explain the journal entries and the ledger account.

FIGURE 6
ACCEPTANCE

Office of B. S. Williams NEW YORK, Jan. 10, 1918
ARCHITECT Contract for General Work
Owner T. S. Smith, Esq. Location of Work White Plains, N. Y.
To W. M. Thomson, White Plains, N. Y.

This is to notify you that I am authorized, on behalf of the owner above mentioned, and relative to work on his premises, located as above, to accept your estimate of Jan. 5th to furnish all labor and material required to erect the lattice around drying yard in accordance with scale and full size details Nos. 15 and 16, following the existing specifications as to material and painter's finish for Outside Trim for the sum of One Hundred and Thirty-five (\$135.00) Dollars.

This acceptance is given on the understanding that, except it is specifically herein provided to the contrary, any work authorized hereby in connection with work already under contract by and between you and the above mentioned owner is to be executed within the time of completion of the original contract and otherwise in full accordance with the terms of THE GENERAL CONDITIONS OF THE CONTRACT forming a part thereof.

Signed B. S. Williams, Architect

As an alternate to the usual form of ledger a very good form of account sheet is that illustrated in Fig. 5. This shows simultaneously the actual state of the architect's account with the client, and the total of the contract with the builder. With this system the loose leaf form of binding should be used for ease in handling and filing on completion of the work.

As the business grows it may be advisable to introduce the journal as a stop, or check, between the cash book and the ledger. This is merely touched on here, as its only function is to collect under their respective headings the cash disbursements for entry in the ledger.

It is understood, of course, that the architect will keep a general ledger account of his entire business, entering monthly all receipts and expenses.

THE CONTRACTOR'S AND OWNER'S ACCOUNTS

While in the preceding articles and diagrams of bookkeeping methods the details of the building contract appears only in summary, it is equally necessary that an accurate record be kept of the contract amount as first written and any variations that may be made during the progress of the work.

There are four matters in connection with the subject of contract finances which should be incorporated by every architect in his book of office rules, to become automatically a part of his daily routine.

First—Never give an order which will involve additional expense to the owner, except in writing.

Second—Wherever it is possible ask the contractor to submit an estimate on such work, based on definite written instructions, with explanatory drawing if necessary. When the estimate is accepted these instructions can be copied and bound into the specifications as an addendum, making the contract record complete.

Third—Before any additional work is authorized obtain the owner's written consent thereto. If authorized verbally by owner, refer to such conversation in a letter to the owner accompanying his copy of the order.

Fourth—Make all orders in triplicate, issuing one

FIGURE 5

OFFICE RECORD No. 7 CLIENT T. S. Smith, Esq., White Plains, N. Y.

Items of Contract			BUILDING COSTS TO DATE		BUILDING PAYM'TS TO DATE		ARCH'T'S FEE	
			Contract and Extras	3/4 Fee	Certified	3/4 Fee	Dr.	Cr.
1917								
Oct.	1	Original General Con.	25000	1500			15000	15000
Nov.	7	" " "	25000	1500	1500	60		
Dec.	5	" " "	25000	1500	2000	80	140	140
1918								
Jan.	7	" " "	25000	1500	3000	120	120	120
	10	Lattice for Drying Yard	135	25135				
Feb.	8			25135	4000	160	160	
Mch.	8			25135	3150	50 126 02		

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FIGURE 8

ACCOUNT No. 7 LOCATION OF BUILDING *Residence, White Plains, New York* SHEET No. 1

OWNER *T. S. Smith, 30 East 72nd Street, N. Y. City* CONTRACTOR *W. M. Thomson, White Plains, N. Y.*
ADDRESS ADDRESS

1917		CONTRACTS					1917			PAYMENTS	
Date		Amount of Allowance	Amount Paid of Allowance	Dr.	Cr.	Total	No. of Payment	Date	Cert. No.	Amount of Certificate	Amount of Contract
Oct. 1	General Contract				25000		1	Nov. 7	20	1500.00	25000
	C. A. Funds. Fireplace Facings	175	150				2	Dec. 5	21	2000.00	25000
	Mantels	175					3	Jan. 7	24	3000.00	25000
	Hardware	500					4	Feb. 8	26	4000.00	
	Weather Strips	200									
	Screens	500									
	Toilet Accessories	100									
1918											
Jan. 10	Lattice for Drying Yard		500		135	25135	5	Mch. 8	27	3150.50	25135
17	Finishing Hardware										

FIGURE 10

OFFICE OF
B. S. Williams
ARCHITECT

CERTIFICATE

FILE NO. 7
CERTIFICATE NO. 27

AMOUNT \$ 3150.50

DATE OF REQUISITION Mar. 1st, 1918.

To *T. S. Smith, Esq., 30 East 72d Street, City.* Owner.

THIS IS TO CERTIFY: That under the terms of the contract, dated Oct. 1, 1917
for Residence - General work at White Plains, N. Y.

M *W. M. Thomson, White Plains, N. Y.* Contractor

for this work is entitled to the fifth payment, amounting to the sum of
Three thousand one hundred and fifty and 50-100 Dollars

In accordance with the following STATEMENT:

Amount of original contract.....	\$ 25000 00
Amount of contract as amended by last supplementary contract No.....	
Net amount added to this total since date of last supplementary contract No..... by acceptances up to but not including date of requisition.....	135 00
Total of contract thus amended up to but not including date of requisition.....	25135 00
Amount of this certificate.....	\$ 3150 50
Amount previously certified.....	10500 00
Total certified to date inclusive of this certificate.....	13650 50
Leaving balance uncertified under contract as amended up to but not including date of requisition.....	11484 50
Certificate issued March 8th, 1918.	Architect

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RECEIVED, as per above certificate and statement, the sum of

Three thousand one hundred and fifty and 50-100 dollars.

Contractor.

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copy to owner, one to contractor, and filing the third with the original contract. When an outside superintendent is employed supply him with a fourth copy.

There may be a great divergence of opinion as to the form in which such orders are to be prepared, but, whatever the wording, use some form which will be distinctive.

Fig. 6 shows a form which, in the writer's opinion, is as flexible as any that has come to his notice.

By substituting the words "you are" for "I am"

FIGURE 7

CASH ALLOWANCE ORDER

OFFICE OF NEW YORK, Jan. 17, 1918
B. S. Williams
 ARCHITECT No. 2 CONTRACT for General Work
 Owner *T. S. Smith, Esq.* Location of Work *White Plains, N. Y.*
 To *W. M. Thomson, White Plains, N. Y.*

THIS is to notify you, relative to the work above described, of the following order hereby given by me, as provided for under the c'auses in the specification for the above described work which require you, as contractor, to provide certain cash allowances that may be expended at the discretion and by the direction of the Architect.

To accept the estimate of Jones & Brown of 28 William Str et, N. Y. C., dated Jan. 12, 1918, and to make proper form of contract with them to furnish all finishing hardware required by the General Drawings, of proper size to suit detail drawings, and of the finish and design described in their Schedule of Hardware attached to said estimate for the sum of Five Hundred (\$500) Dollars. To be deducted from the Cash Allowance balance.

On receipt of this order you will please check your own accounts and notify me immediately if they do not correspond with the following Statement:

STATEMENT

Total of all cash allowances provided under original contract.....	\$1650.00
Unexpended balance remaining of such allowances as amended in accordance with supplementary contracts and last previous cash allowance order No. 1.....	1500.
Amount of deduction from this balance made by this order, as above.....	500.
Leaving unexpended balance, subject to future order, or if unexpended, to be credited to owner's account.....	1000.

Signed.....*B. S. Williams*.....
Architect

the form can be adapted to making subcontracts in a cost and percentage contract.

If the nature of the work is such that the contractor cannot give a flat estimate do not waive the written order form but use one requiring him to perform the work on a cost and fixed fee basis.

To digress for a moment. The old uniform contract reads, "No alterations shall be made in the work except upon written order of the architects," without mentioning any agreed percentage. A newer form reads, "The contractor furthermore agrees that at the option of the owner, and on written order from the architect, the contractor will execute any additional work required by the owner, at the net cost of the same to the contractor and 10 per cent commission thereon."

On completion of the work in question, the architect issues to owner and contractor, in duplicate, an acceptance order placing the total cost on the contract record.

The subject of cash allowance funds is one often debated and frequently misunderstood among architects. Reduced to simple terms, it means including in the contract sum total, by inserting them in the specifications, certain specified sums to cover certain definite objects.

You ask why not specify them outright. This is not always possible at the time the working drawings and specifications are prepared, particularly when they are articles of standard manufacture from which the owner may wish to make definite selection later. For example, stock mantels, fireplace facings, hardware, toilet accessories, screens (for what windows), lighting fixtures, and sometimes even plumbing fixtures.

A sample list is shown in Fig. 8, illustrating the contract book.

The allowance to the contractor may be either gross or net, according to the wording of the specification. In the first case the contractor would be entitled to his agreed commission as if it were extra work; in the latter he would not, as by the wording of the specifications he would be instructed to include his profit on the total fund in his general estimated profit on the whole work. In writing this clause in the specifications, however, it should always be stated clearly that any unexpended balance in the fund shall be credited to the owner at the time of making final payment.

In the actual handling of the fund the architect obtains the bid, either direct or through the contractor, in its original form; he consults with the client and then issues the order to the contractor on a blank similar to the one shown in Fig. 7, filing a duplicate with the contract.

It will be noted that the actual balance of the entire fund is shown on each form, and by means of the serial numbers a double check is obtained.

Having now described the general conditions likely to arise (as typical examples) a sample page of the contract book is presented (Fig. 8) to show how it is filled out from day to day.

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FIGURE 9

REQUISITION

To be filled out by contractor and forwarded to
B. S. Williams, Architect

File No. 7

Owner's Name *T. S. Smith, Esq.*

Location of Work *White Plains, New York*

Kind of Work *General.* Date of Requisition *March 1, 1918.*

Dear Sir:—In accordance with the terms of the contract for work as above described, the undersigned hereby makes the following requisition for the payment on account thereof, and submits the following itemized estimate of the proportionate value of all labor and materials incorporated in the work from the signing of the contract to, but not including the date of this requisition, as above, INCLUDING ALL CLAIMS AND ACCOUNTS WHATSOEVER, against the above owner in connection with the above described premises and work thereon to said date, as follows: detail statements, bills, vouchers or other information being attached to page 3 of this Requisition:—

HEADINGS UNDER REGULAR CONTRACT	Allowances under contract as amended to but not including date of Requisition					Totals of amounts asked for under separate headings by this and all previous Requisitions				
\$						\$				
1. Excavation, Drainage, Filling.....		8	0	0			8	0	0	
2. Mason Work (<i>Brick work</i>).....	2	5	0	0		2	0	0	0	
3. Structural Concreting.....		5	5	0			5	5	0	
4. Waterproofing.....		1	0	0			1	0	0	
5. Sidewalks and Paving.....			7	5				7	5	
6. Structural Iron and Steel.....			7	5				7	5	
7. Iron Work, Exclusive of Structural.....		1	2	5						
8. Structural Block Walls.....										
9. Fireproof Flooring.....										
10. Fireproof Partitions, Furring, etc.....										
11. Stone Work.....										
12. Ornamental Terra Cotta.....										
13. Metal Lathing and Furring.....		5	0	0			4	0	0	
14. Plastering.....		7	0	0			5	0	0	
15. Stucco.....										
16. Sheet Metal.....		2	0	0			1	5	0	
17. Roofing (<i>Slate</i>).....		5	5	0			5	5	0	
18. Kalameined Iron.....										
19. Marble Work.....										
20. Tile Work, Mosaic, Terrazzo.....		6	5	0			5	0	0	
21. Rough Carpentry.....		3	3	7	5		3	2	0	0
22. Finished Carpentry and Joining.....		5	6	0	0		2	0	0	0
23. Window Frames.....										
24. Special Trim or Cabinet Work.....										
25. Glazing.....		3	0	0			3	0	0	
26. Painting.....		1	8	5	0		4	0	0	
27. Plumbing and Gas Fitting.....		2	2	5	0		1	5	0	0
28. Heating.....		2	0	0	0		1	2	0	0
29. Electric Work.....		8	0	0			6	0	0	
30. Elevator Work.....										
31. Miscellaneous to Complete, Insurance, etc.....		3	5	0			2	0	0	
32.....										
33.....										
34.....										
35.....										
36. Cash Allowances, Unappropriated.....		1	0	0	0					
37. Cash Allowances, Appropriated.....		6	5	0			1	5	0	
38. Supplementary Contracts and Acceptances.....		1	3	5						
39. Totals of Contract and Requisitions, exclusive of Work under Items 40 and 41, to date.....		2	5	1	3	5		1	5	1
40. Unit Price Work.....										
41. Extra Work under Special Orders.....										
Total Estimated value of Labor and Material incorporated in the Work to Date.....							1	5	1	7
Less 10% to be held back as provided under Contract.....							1	5	1	7
Making Net Total Estimated as Earned to Date.....							1	3	6	5
Less Total of all Previous Payments Received on Account.....							1	0	5	0
Balance, or Amount asked for under this Requisition.....							3	1	5	7
Leaving Balance to be Earned under Contract \$11477.50.....										
Submitted and Signed (in long-hand) by <i>W. M. Thomson</i> ,.....										
										Contractor

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The subjects of requisitions and certificates deserve a brief discussion.

All building contracts should contain a payment clause, defining the terms or conditions under which the architect's certificate will be issued. The comparative size of the contract will usually determine the matter, but, generally speaking, one of two systems will be followed: First, that under which a specified sum shall be paid when the building reaches a specified stage of completion. In the case of a country residence, for example, first payment when foundations are completed; second payment when frame is erected, and so on until completion. Under this form of payment clause a reasonable amount, equal to 10 or 15 per cent of the total contract price, should be withheld until the completion of the contract, and the previous payments proportioned accordingly in making out the schedule.

Second, that in which the payments are made monthly on the basis of the value of labor and material built into the building during the previous month, subject to such percentage of hold-back as may be agreed upon in the contract terms.

Under this form the contractor should be required, as a precedent to receiving his first payment, to present a detailed statement of his total bid to the architect. This statement should show the amount allowed by him for the cost of the work under each of the several headings in the specifications or the trades covered in his contract.

This statement is, of course, for the architect's confidential information, and enables him to act more fairly to the contractor in passing upon requisitions than he otherwise might in his zeal to protect the owner.

Just how far the subdivision should be carried is a matter for the individual architect to determine for himself, and, purely as a sample, Fig. 9 is shown to reproduce a typical form which the writer has used successfully for some time in the office with which he is connected. The form submitted is filled out in its blanks to show a payment when the contract has reached approximately a state of half completion.

If the reader objects that this form is cumbersome it can easily be simplified to meet his own needs.

Certificate forms are printed by various architects' supply houses, so that no detailed comment on them is needed in this paper.

The form shown in Fig. 10, however, has always proved satisfactory, and it has a considerable advantage in showing on its face a complete statement of the contract at its date of issuance, to which the contractor agrees in receipting it.

In these pages the writer has endeavored to lift the subject of accounting up from the obscure, if not neglected, position which it occupies in many offices and to show it as the strong and virile, nay even interesting, subject that it actually is.



War and Industrial Housing—Part II

By HENRY ATTERBURY SMITH

THERE is to-day a pressing demand for a comparison of types that are available for the housing of our industrial army in suburbs. The constant drift away from our country districts and from food production, and now the shortage of labor for the production of anything, should cause us as architects to consider more seriously our "bit" in the problem. Living in the country, in the village, has become more and more arduous in comparison to life in the city; hence one cause for the constant growth of our cities. There is no reason, as was shown in a former article, why the "flat" in the country is not feasible; in fact it has, I think, the greatest possibilities as far as housing is an influence in preventing people from flocking to the great centers; it induces outdoor interests and constructive recreation, and perhaps even truck gardening.

However, some people are prejudiced against living in multi-family houses. Let us consider another type—the terrace type. This is the scheme upon which Philadelphia and Baltimore are built. It is considered by many as most applicable to industries in suburbs, villages and country. It must be heated from a central plant to economize fuel, expense and effort. This is done in many developments.

Let us compare the characteristics of the various examples of this type, and then I want a moment's attention on the question of eliminating the road or street entirely so that the gardens and grounds come right up to the house at back and front, making it safe for the children to play on either side without fear of being run over, and convenient for the occupant to step right into his garden at the *front* as well as at the back. The uses of the street hardly make it worth while. The children use it about 65 per cent; people walking on the sidewalk because of no better place to go or spend one's leisure, 15 per cent, and transportation and deliveries 20 per cent. There is no fun in joy riding among children

playing marbles, jacks, tag or baseball—it is a constant nervous strain on those whose business it is to thread one's way among a lot of youngsters trying to have fun on a concrete or asphalt pavement, making mud pies from the dirt of the street. The boulevards, parkways and thoroughfares for joy riding and through transportation will be elsewhere, and the residential sections laid out somewhat perpendicular to the main arteries. The "street" as we know it need be no more in residential zones—it has no friend there. Only deliveries, not transportation, will come through this section of homes and,

as most business is now "Cash and Carry," the people themselves will walk with their purchases.

The terrace type can be adapted easily to modern purposes. But to pass the requirements of health, light, ventilation and air, the home can be but two rooms deep, which is the acid test of good housing, no matter of what sort.

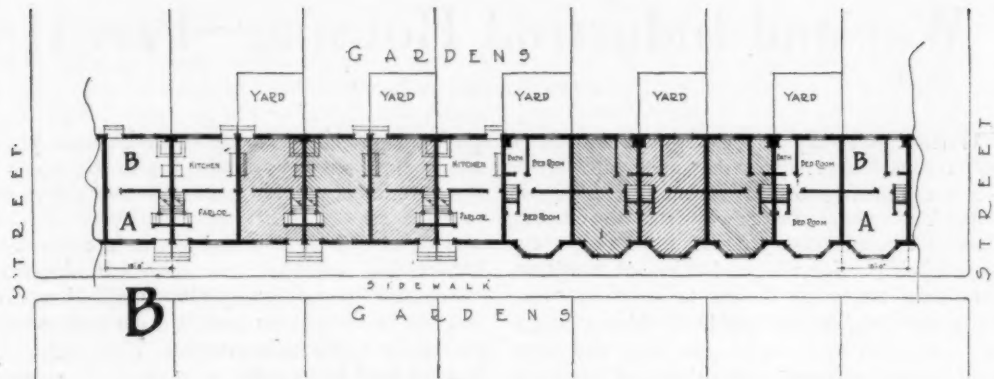
The illustrations which I take are from various bulletins of the National Housing Association and from the City of Washington. It



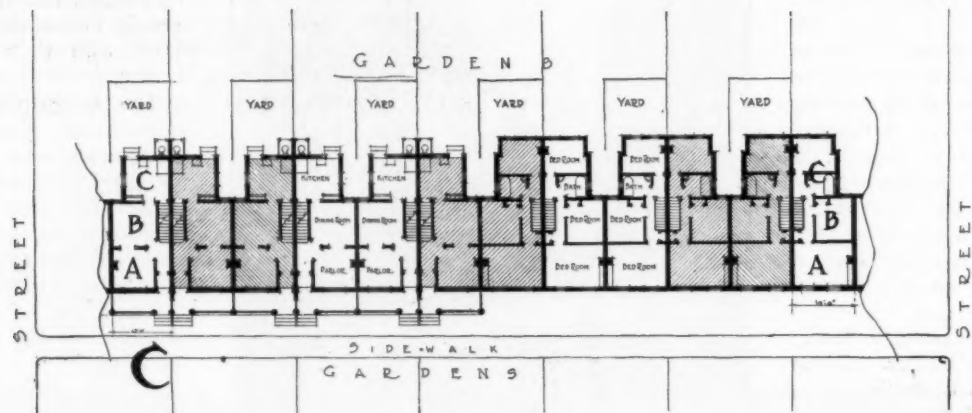
WHY WIDEN THE USELESS STREET AT THE EXPENSE OF GARDENS AND PLAY GROUNDS IN THE REAR?

is obvious that plan B is excellent; plan C is decidedly inferior due to rooms C; and plan D is still inferior due to addition of room D. All of these houses are capable of different architectural treatments from the front, but their rears vary considerably, and the more the light and air is prevented from playing freely about room B, the second from the "front," the less desirable the premises become and the more slovenly they are kept. Some of the surroundings of these "alleys" and yards, with wooden steps in the rear, become depressing and usually look untidy. In most building ordinances we are prevented by law from extending a building beyond a given line in the front, and inasmuch as it is seldom advantageous to set back from your neighbor, the street has a sameness and uniformity which is hard to treat esthetically if the benefits of light and circulation of air

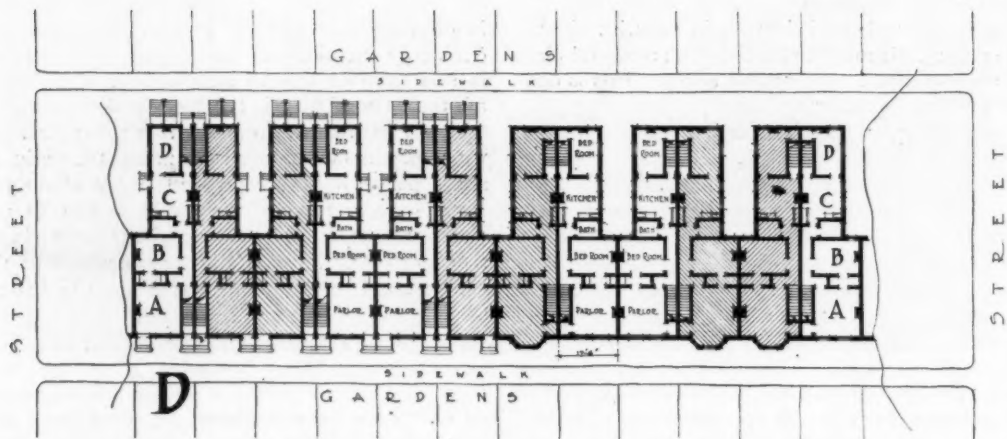
THE AMERICAN ARCHITECT



TWO ROOMS DEEP—PERFECT TERRACE TYPE



THREE ROOMS DEEP—SHOULD BE DISCOURAGED



FOUR ROOMS DEEP—A POSITIVE MENACE TO HEALTH

THE AMERICAN ARCHITECT



A STEP IN THE RIGHT DIRECTION. PLAY GROUNDS AND GARDENS PROMINENT—STREET ENTIRELY SUBORDINATED

are carefully observed. Usually no such ordinances apply to the rear, and as a result there are apt to occur dark, dank holes and pockets almost as bad as airshafts.

The front of the Philadelphia type is charming when artistically and individually handled. It is really the colonial type of the Eighth and Ninth and Tenth Street houses in New York of red brick and

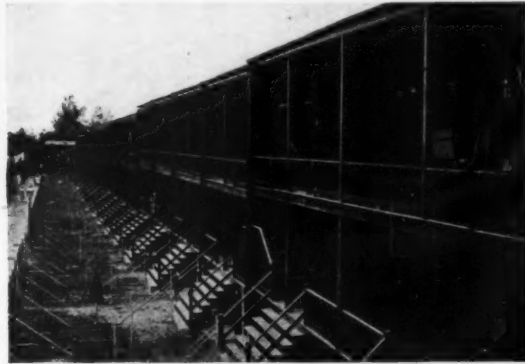


THE STREET WITH ITS OBVIOUS DANGERS—IMAGINE THE REAR

white trimming which make Greenwich Village so homely and attractive in comparison with the majority of New York homes. As long as it is but two rooms deep it is excellent. Even when it is built wholesale it need not be so unattractive as the developments along the route of the Pennsylvania Railroad from Jersey City to Washington. In fact, if the same thought and care were expended upon the necessity of the workmen's homes as is expended upon the practicability and permanence of the fac-

tories that are springing up along this route we might see a beautiful result in housing even with the difficulty of straight, continuous lines.

Several firms of architects have adopted this terrace type of late for the industrial town; in fact, nearly all who have not built individual houses have embraced this type in one form or another—some-



A REAR VIEW—TOO APT TO BECOME A NUISANCE. BALCONIES PREVENT LIGHT, AIR AND SUNSHINE FROM PENETRATING TO THE HOUSE

times two or three houses together, sometimes several, with a sort of pavilion treatment at the ends. Any number of very suitable and beautiful designs for the fronts have been forthcoming, and the appearance of the rear can be made beautiful as well.

Now the present necessity of economizing fuel, of conserving and producing food, lessons the war



WHY NOT GARDENS FROM THE CURB OUT, AND IN THE REAR?

is teaching us, makes us further question the utility of the individual furnace. If we have heating, domestic hot water and sewage systems from central plants, and no roadway to maintain, a great

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STREETS ARE USED VERY LITTLE FOR TRANSPORTATION—MOSTLY FOR DISTRIBUTION AND VERY LITTLE OF THAT

economy results, and we may have ample time to devote to gardening. Given a comfortable home (one's own, let us hope), with gardens and playgrounds nearby, the whole family will take heart,



NO STREET. A STEP TOWARD THE SOLUTION OF THE PROBLEM

and the call to the congested city with its superficial attractions may not seem so alluring. But first we must give the occupant everywhere the same opportunity of housekeeping as easily as is usual in the city, so that he and his family have all the leisure provided by labor-saving devices. Then we must do more; we must present in alluring form opportunities for the economic, pleasant and instructive use of that leisure for children as well as adults upon the land.

Among the younger architects into whose hands this journal falls, some one of taste and with a strong sociological trend will work out for some industry somewhere a scheme that will astonish the rest of us with its refined practicability. Eliminate the street—it's a waste. We architects take the street for granted—it is usually there before we



A MAGNIFICENT BOULEVARD. BUT WHAT FOR?

come on the scene. Who wants it, with its sewers and water supply and other public utilities out there, most inconveniently located for repairs, extensions or connections? It is a source of expense, danger and unsightliness, which only its entire elimination by the architect will prove to the less imaginative mind and eye.

For those who cannot afford to support the expense in time or money of an individual house let



A PLEASANT OUTLOOK IF OPENING UPON GARDENS, REAR AND FRONT

us architects offer some other means of providing as many of the characteristics of the individual homes as is possible, in the terrace type or multi-family type of house.

THE AMERICAN ARCHITECT

THE AMERICAN ARCHITECT

Founded 1876

PUBLISHED EVERY WEDNESDAY BY

THE ARCHITECTURAL AND BUILDING
PRESS, INC.

No. 243 West Thirty-ninth Street, New York

E. J. ROSENCRANS, PRESIDENT AND TREASURER
WILLARD C. HOWE, VICE-PRESIDENT

JAMES KNOX TAYLOR—WILLIAM H. CROCKER
Editors

ARTHUR T. NORTH, Engineering Editor

Subscriptions in the United States and Possessions,
Mexico and Cuba, TEN DOLLARS. Other Countries,
TWELVE DOLLARS

SINGLE COPIES (Regular Issue) 25 CENTS

CHICAGO OFFICE, Mallers Building
Page A. Robinson, Western Manager

ST. LOUIS OFFICE, Wright Building

Owned by United Publishers Corporation—H. M. Swetland, President;
Charles G. Phillips, Vice-President; W. H. Taylor, Treasurer;
A. C. Pearson, Secretary. Entered as second-class matter January
6, 1909, at the Post Office at New York, New York, under the Act of
March 3, 1879.

VOL. CXIII MARCH 27, 1918 No. 2205

Why Did He Do It?

THE things men do are actuated largely by the influence of contacts with their fellows. This applies to men collectively as well as individually. Collectively when the contact is made with an organized body, because one organization or class viewpoint necessitates a counterbalancing organization to maintain an equilibrium. Labor is divided into two general classes, one of which works indoors and uses the employer's building and equipment, the other works in the open with its own equipment. The machinist, textile worker, shoemaker, and other multitudes are dependent on the employers' buildings to house them and the machines which they operate, and in that respect they are dependents. The bricklayer, carpenter, plasterer, and other building craftsmen are independent of the employer's equipment, as they own their own tools, and if the working conditions are not satisfactory on one operation they carry their few pounds of tools to another. This freedom of movement has made this class of craftsmen the best paid, most independent and best organized of all the trades.

During the past decade the relations between the indoor operative and his employer have changed to the betterment of his condition. This is due to two

conditions. One is a growing realization of such a thing as the right of the operative to live the life of a human being, and the other, and maybe more efficacious reason, is the increasing scarcity of qualified man power. Instead of two men waiting to work at one machine, as was once the case, the machine may now be idle through lack of operatives.

Loyal and effective labor is essential to satisfy the requirements of the day, and it can be procured. Elsewhere in this journal is described a plant which was erected in sixty days during the most severe winter weather. During its construction one pipe-fitter, who was erecting the overhead outdoor heating mains, froze his hands in below-zero weather. Inspecting the plant, a visitor saw a mechanic run from one building to another and back. The unusual incident caused a question to be asked as to who the runner might be. He was a steamfitter.

Why did one man stay with his work until his hands were frozen and the other man run? On how many works do you see a steamfitter run? To go with the person directing this operation and see the human interest displayed in the greeting or the knowledge of the operatives personally, as evidenced by a question or direction, tells the reason. Human interest and fair treatment were the fundamental factors, and withal a strict, almost military, discipline. The work must be completed in sixty days; it was done and one man had frozen fingers and the other ran.

The architect delineates his conception of the structure on a plan and describes by the written word of the specifications. That plan and specification are the representation of the future structure. If adequately represented and honestly interpreted, the human contacts involved in the transaction are satisfactory. But if not adequately represented, and requirements are exacted that were not shown or reasonably implied, the contact is not satisfactory. In his function as the final arbiter of the intent of the plan the architect assumes a judicial character to interpret his own case, and this should cause him to be exactly right and just in the decision given. When this work is delegated to others, along with the dealings with the contractor, sub-contractor or material man, such assignment of authority should be made with the utmost care, insuring intelligent and honest action.

Any other condition causes the estimator, the contractor, and the material producer to penalize the project with added amounts to cover the probable interpretations of inadequate plans. The importance of the estimator is often under-rated and it is often forgotten that he measures the material quantities involved and very often fixes the estimated cost. Being human, he appreciates a clear, understandable plan and a courteous interpretation,

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if in doubt. Without this he naturally allows for things suspected but not seen.

The judicial function which the architect has attached to his purely creative work places him between and above the owner and the contractor. In this position he is responsible for the proper expenditure of vast sums of money, which should represent an adequate return in structural and artistic value. With the decreasing purchasing power of money these investments will be closely scrutinized by the investor. It may be that the architect must run to prevent a more close and direct contact between the owner and the contractor and then be placed in the position of a mere drawer of plans. The elimination of non-effective intermediaries is one order of the day. The changing and improved character of contracting organizations, the increasing importance of the engineering factors and the engineer, all indicate a readjustment of constructional activities.

One element will eventually dominate the situation, and the one which does so will be that element for which the others will be willing to run. We have seen why the steamfitter ran and it was for a purely human reason. An artificial barrier of exclusiveness, a failure to realize the power of the lowly estimator, a dictatorial and unreasonable interpretation of not clearly defined data, the relegation of the engineer to a purely utilitarian position, a forgetting of the most independent and powerful labor we have, will each conspire to bring about an unwelcome change in conditions. The one for whom the greater number of people will run will be the one who controls the situation.

Essential Industries

THE Chamber of Commerce of the United States has issued a bulletin incorporating a statement made by Mr. George N. Peek, Industrial Representative of the War Industries Board, regarding essential and non-essential industries.

The first industrial problem confronting the Government, as indicated by this statement, is "to secure the necessary supplies for the conduct of the war without too seriously interfering with the production of necessities for the public welfare. The

second problem is to insure continuance of our industrial strength after the war.

"Shortages of many classes of raw materials and of labor in different lines are evident. Transportation, both water and rail, is obviously short, and the need of industrial readjustment is apparent to make room for the war requirements of our Government and our Allies.

"These problems may be solved by making provision for the entire requirements of the Government in such a manner as to utilize to the fullest extent present productive capacity. In many cases the facilities of less essential industries should be converted to essential production."

The close inter-relation between industries and the bearing which all industry has upon the welfare of workman and capital employed, is to be considered in making a discrimination as to what it is necessary to maintain.

On the other hand, our industrial equipment is limited. We do not have materials, machinery, transportation, labor or capital sufficient for fighting the great war and for normal business at the same time. The war must be prosecuted to the utmost, and business must shrink to provide the necessary equipment with the least possible injury to the business of the country.

Where necessary business must be diverted from its established channels, or if absolutely necessary, the flow must during war times be entirely stopped in order to provide adequate labor and material for war needs. "It does not follow, however, that there will be less business than usual, but rather more unusual business."

The Commercial Economy Board of the Council of National Defense is working on the theory that there are considerable needless uses of labor, materials, equipment and capital in all businesses, and that in most cases this element can be eliminated to meet Government requirements, and to conserve commercial resources to a maximum.

In the reorganization of industry, which is taking place, the plan is to divert the energies of non-war industries as far as possible to the production of the essentials for war, so that each industrial organization may be disrupted to a minimum.





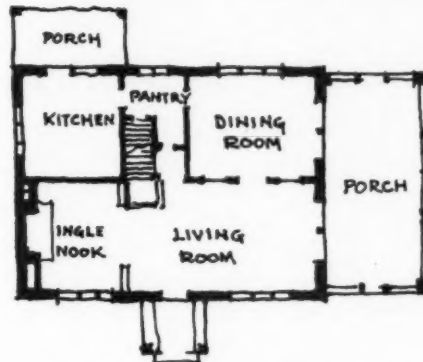
PLATE 107

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS



PLATE 108

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS



FIRST FLOOR PLAN BEFORE ALTERATIONS

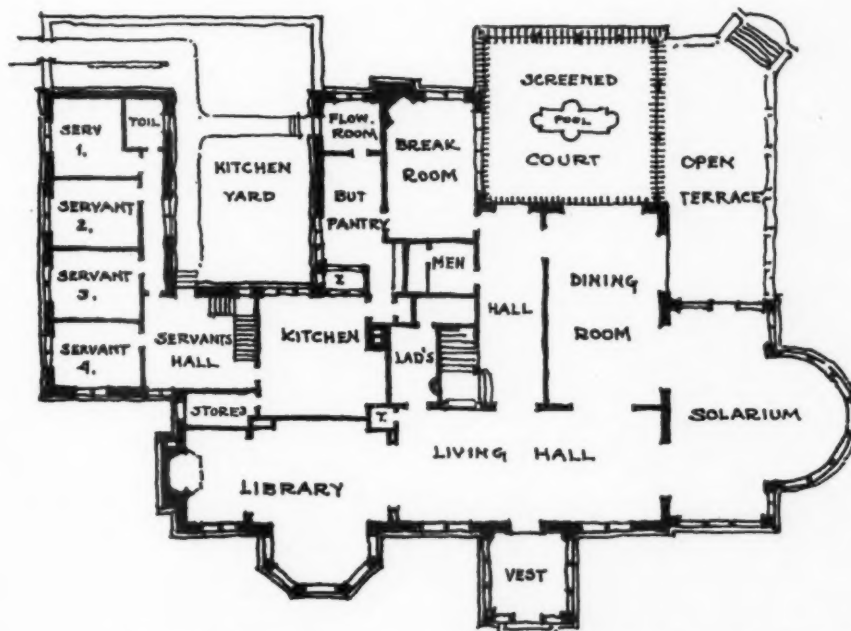
FIRST FLOOR PLAN RESIDENCE OF MR. E. L. GLASER
MARSHALL & FOX ARCHITECTS

PLATE 109

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS

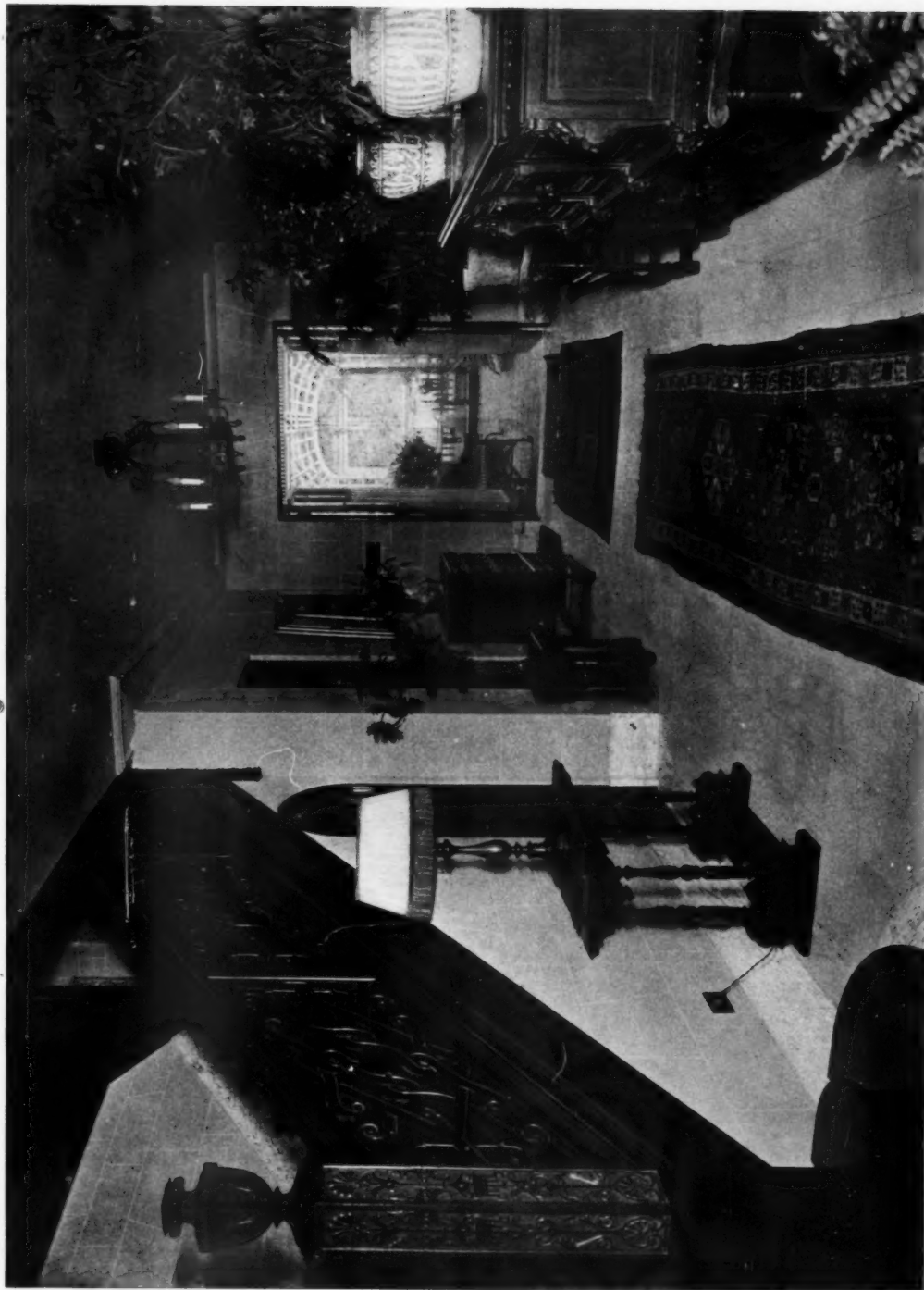


PLATE 110

VISTA TO THE COURT

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS

THE AMERICAN ARCHITECT

MARCH 27, 1918

VOL. CXIII, NO. 2205



LIBRARY

PLATE 111

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS



THE SOLARIUM

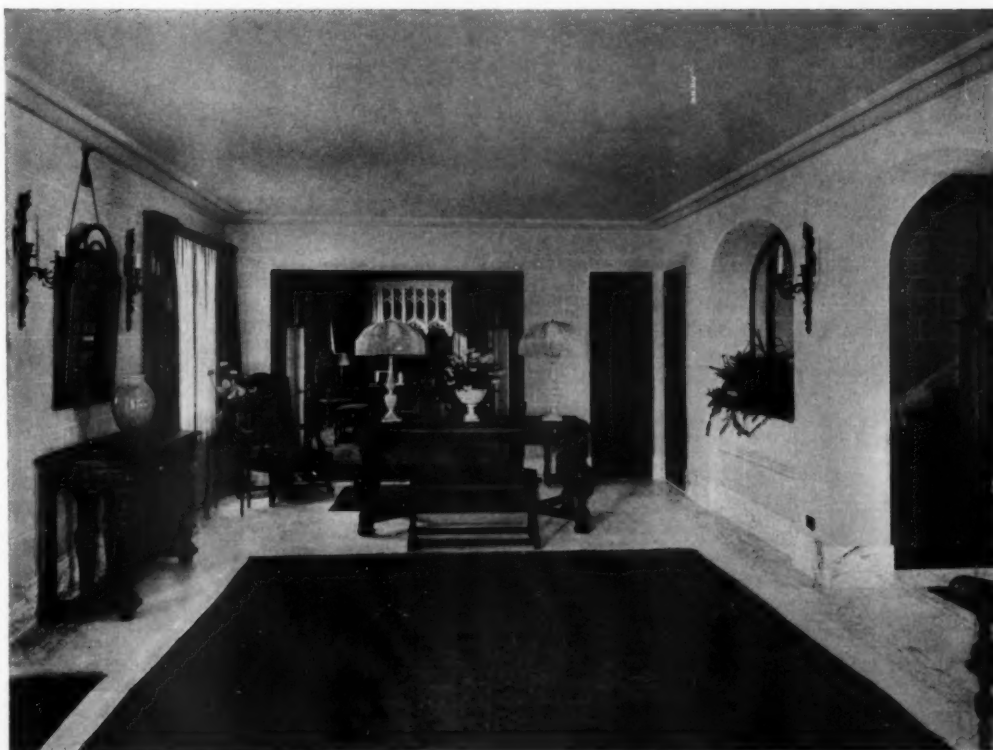
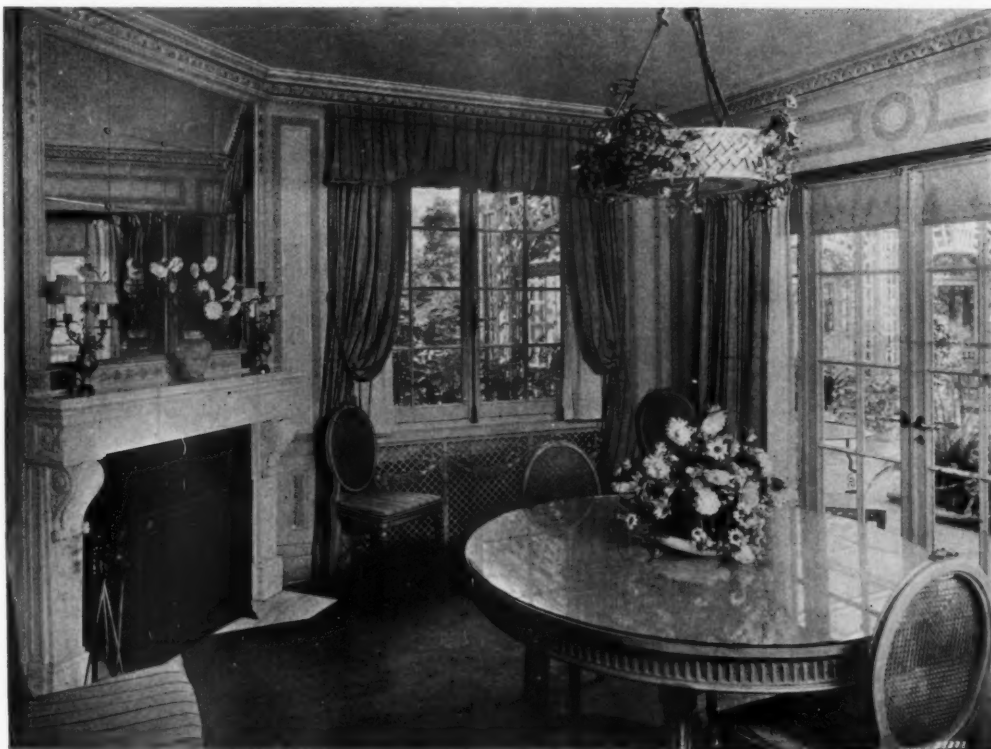


PLATE 112

THE HALL

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS



BREAKFAST ROOM



PLATE 113

THE STUDY

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS



PLATE 114

THE COURT

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS
MARSHALL & FOX, ARCHITECTS

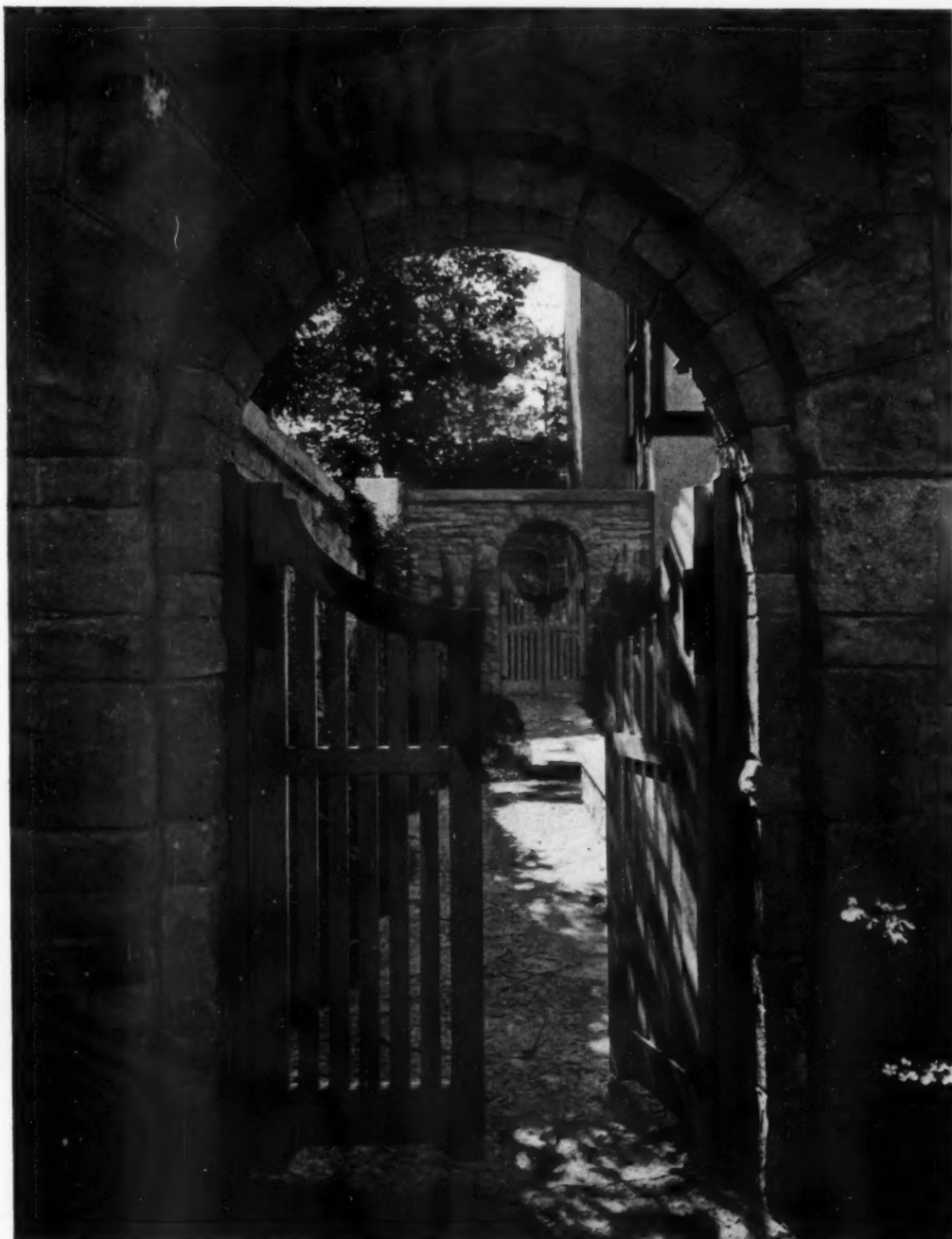


PLATE 115

ENTRANCE TO KITCHEN YARD

ALTERATIONS TO HOUSE OF E. L. GLASER, GLENCOE, ILLINOIS

MARSHALL & FOX, ARCHITECTS



THE AMERICAN ARCHITECT

Alterations to the House of Mr. E. L. Glaser, Glencoe, Illinois

MARSHALL & FOX, *Architects*

"New lamps for old" has been an alluring offer even before the days of the Arabian Nights Entertainments. The opportunity to exchange something old and worn for that which has the attractiveness



HALL, BEFORE ALTERATION

of being new is always eagerly seized. But it is an even greater satisfaction to be able to rehabilitate and render capable of further usefulness something that has become, in a sense, valuable through long years of intimate association. It is doubtless for this reason that many clients seek to transform some old and originally well-built house; they wish to have it more readily conform to modern living conditions, yet hope that while clothed in a new dress it will



SOLARIUM BEFORE ALTERATION

continue to suggest the many traditions and memories of long years of earlier service.

Rehabilitating the old house is often an accomplishment of greater satisfaction to an architect than originating a new one. As a painter will place

on his easel some old and long-forgotten canvas and paint into it newer phases of the motive that prompted the old one, so will an architect take over the old house—building up here, tearing down there, adding and subtracting, he gives "new lamps for old" until in the end he has accomplished the true purpose of every alteration. And this purpose will be the renovation of an old house so as to enhance its architectural excellence inside and out, to bring its conveniences up to the present time, and to retain its associations undiminished.

In the alterations to Rosemor Lodge, the house of Mr. E. L. Glaser at Glencoe, Ill., illustrated in this issue, Marshall & Fox, the architects of the alteration, show in an interesting way how thoroughly they realized the essential purpose of a task of this kind. A hitherto sombre interior has been transformed into one of sun-lit open spaces and pleasing vistas all characterized by restful seclusion and the most perfect domestic refinement.

Louisiana Clays

Louisiana has an abundance of clay that is suitable for use as building material. The increasing cost of lumber must soon bring other building materials into more general use, and Louisiana is fortunate in having large quantities of clays that are adapted to making brick and other structural materials. Clays suitable for the manufacture of common building brick can be found in the vicinity of nearly all the cities and towns in the state, and terra cotta for fireproofing can be made from the clays of Baton Rouge and Slidell, which are near the city of New Orleans, where fireproof material should find a ready market. Some of the clays, notably those at Slidell and Winnfield, burn buff instead of red and therefore furnish a pleasing product for ornamental work. Doubtless similar clays could be obtained at other localities. The clays at many places in Louisiana can be used for making paving brick and drain tile, and some of the clays of the state are suitable for making sewer pipe. A brief description of the clays of Louisiana is given in Bulletin 660-E of the U. S. Geological Survey, Department of the Interior, by Geologist George C. Matson, with a description and table giving results of tests made at the Pittsburgh laboratory of the Bureau of Standards, Department of Commerce. Copies of this bulletin may be obtained free by application to the Director of the Geological Survey, Washington, D. C.

Tapestry as War Memorials

In the course of a discussion in the architectural press of England, relative to war memorials, a correspondent, writing to the editor of *The Architect and Contract Reporter*, makes an interesting and, it is believed, valuable suggestion. He states:

"Many students of literature, the drama, music, architecture, painting and sculpture, honorably disabled through the war on sea, and land, and in the air, will probably be unfitted to return to the art they studied and loved when they answered the call to arms. These men would gladly associate themselves with work, such as tapestry weaving, which would give congenial, remunerative, and less exacting employment than that which they practised in the time of peace.

"The introduction of panels of tapestry as war memorials and rolls of honor, to hang in churches, in the halls of universities, public schools, and public corporations, as well as in private houses, would not only be valuable historical records in the future, but they could be lent and publicly exhibited from time to time to inspire patriotism throughout the Empire.

"If the idea meets with a sympathetic and tangible response, training centers for tapestry weaving under the best masters, and studios with looms, silk and wool and other materials will be established as soon as a sufficient number of orders for work are given or promised, so that employment and the building up of a sound and solid foundation for the continuance and future welfare of the workshops shall be insured.

"It is intended that the artists and artist-craftsmen engaged in production, whatever their position, shall participate in the proceeds after all legitimate claims have been discharged.

"Several families might like to combine, if they had the opportunity, to present to an institution a memorial panel of tapestry containing the names of their sons, their escutcheons, together with symbolical figures commemorating the deeds of their heroes on the field of battle.

"Such memorials in our schools would encourage the youth of this and future generations to emulate the splendid, sterling virtues of the old boys who so bravely fought in the great war, and no better or more lasting tribute could be paid to their glorious memory than a beautiful panel of tapestry conceived and made by the comrades of those fine men who fell for the honor of King and country.

"Only the finest designs and perfect weaving are contemplated, work that shall be equal to and rival the most beautiful tapestries of the past, and to attain this end several of our most distinguished artists, George Clausen, R.A., Charles Sims, R.A.,

and Frank Brangwyn, R.A., have most generously acceded to the invitation to be connected with the scheme. This speaks eloquently for its future, and any communication with reference to it will be welcomed by the author of this appeal."

Some Facts as to the Law Affecting Architectural Practice

The following interesting statements were made by Mr. Richard J. O. Culver, attorney, in a discussion following an address before the Southern California Chapter of the American Institute of Architects:

The fact that a contractor becomes insane after commencing work on a job does not relieve his sureties.

An owner who has caused to be filed a 50 per cent bond with sureties who are well worth the amount of the bond at the time the bond is recorded, but who afterward become bankrupt, is entitled to the protection of the law to relieve his property from mechanics' liens.

The completion which starts the time for the owner to file a notice of completion is a substantial completion and will not be postponed because of some trivial imperfection; each case rests on its own merits and the architect should be guided by his own good judgment as to when the building is completed.

An architect is entitled to a lien for his services in superintending the construction of a building, and has ninety days from the date of the actual substantial completion of the building, if no notice of completion has been filed, and sixty days from the date of filing a notice of completion, if one is filed, in which to record his lien, if he is employed by the owner.

An owner is not entitled to lock a contractor out of an uncompleted building, if the contractor is proceeding in good faith but with too small a force, under the so-called "three-day clause" in the usual building contract, but is authorized only to furnish an additional number of workmen.

An architect is responsible only for usual or ordinary care in the selection of his assistants and employees.

An architect who has not the skill which he represents himself as having and who fails to draw plans and specifications sufficient for the proper construction of a building which he has undertaken to erect, by reason of his lack of such skill, is liable for any damages thereby caused.

A penal clause in a contract for a failure to complete on time will not be enforced if the actual dam-

age can be ascertained, but for such failure the contractor is liable for the actual damage caused. In rare cases, where the damage cannot be ascertained, a penal clause will be upheld as liquidated damages.

A contractor can recover a bonus in a contract for completing work ahead of time and is entitled to a mechanic's lien therefor on the ground that it is a part of the original contract price.

A premature payment of a part of the contract price, made without the knowledge of the sureties, will exonerate the sureties on the common law bond to the owner.

A notice of non-responsibility must be recorded as well as posted on the premises.

A Polytechnic School for Special Student Work

For the benefit of young men who have been denied the privilege of a college education, a polytechnic school to offer equivalent courses is now to be opened in Cleveland, Ohio. The school will be open at night and will cater to architects, advertising artists, printers and engravers who wish to acquire skill in commercial designing free of charge. The school is the gift of the late John Huntington, one of the principal founders of the Cleveland Museum of Art. Well-known architects and artists have accepted appointments as instructors.

War Greatest in Cost

This war, comments *The Annalist*, the greatest of all, is greatest especially in its cost. It is estimated that the money cost alone, for all nations, is upward of \$100,000,000,000. Each week it costs as much as did the entire Boer war; each month as much as the entire Russo-Japanese war; each two months as much as the entire Civil War, which hitherto had held the record.

Never before in history has an understanding of the simple principles of economics been so sorely needed. Although much is being done to supply this need, we find the public confused and vacillating between two economic philosophies—the simple, direct, old-fashioned, correct philosophy of saving and working and the fallacious philosophy, perhaps best epitomized as “business as usual.”

So far as we let our “business as usual” impulses prevent the needed saving and economic shifting we shall pay a terrific penalty in higher cost of living, as well as in national inefficiency and maladjustment.

French Comment on After-the-War Costs

One of the leading building trades publications in France, *Le Batiment*, contains an interesting study of the probable cost of building materials in France after the war. The author opposes the view, sometimes expressed, that the prices of materials may be expected to return to approximately the level of 1914. He states that a simple examination of the underlying causes of present high prices is sufficient to indicate future tendencies. The increased price for stone and sand, raw materials extracted directly from the soil, is due to the increased cost of labor and of fodder for traction animals. The increased cost of labor will not disappear, for there have been no examples in the past of an average decrease in wages coinciding with an increased demand for labor. After the war the demand for labor will be urgent and there is likely even to be an increase in various categories of labor.

The Rebuilding of France

In the rebuilding of France the aid of this country will undoubtedly be sought. Not only raw materials, but ideas also, and actual aid in construction will be needed.

It is proposed to reconstruct ruined towns that they may as far as possible preserve their former aspect of charm. Houses and barns, inns and dairies will be built to conform to their old picturesque-ness, with the addition of good sanitation and comfort. A very large opportunity is here presented to America for architectural performance.

Shipping Board to Commandeer Housing for Shipbuilders

The Shipping Board is arranging to commandeer all available hotels and other dwelling places in the vicinities of shipbuilding activities before undertaking any new construction for housing shipyard workers. The \$500,000,000 housing bill signed by the President vests the board with authority to confiscate not only land and houses, but transportation systems as well. It is expected that some of the electric railways leading from larger cities to shipyards may be taken over, and some ferry and excursion boats also may be used to establish connections between shipbuilding centers and points within city limits.

In taking possession of houses under this law, the board will investigate suburban houses and summer

THE AMERICAN ARCHITECT

resorts which have been vacant during the cold months, many of which have remained unoccupied because of the exorbitant rates asked for them. It is believed that the land upon which commandeered houses lie will also be taken in order to prevent this sort of overcharging.

Payment for the commandeered houses is to be determined by the Emergency Fleet Corporation's division of public service under J. Roger Flannery.

Department of Architecture, Ohio State University

The Department of Architecture of the Ohio State University announces that Howard Dwight Smith, who has been connected with the office of John Russell Pope for the past eight years, has accepted the position of designer in the office of the Ohio State University Architect at Columbus, Ohio. This office has to do with all building on the campus and at present is contemplating an extensive expansion of plan, including provision for military, aviation and athletic purposes.

Mr. Smith will also hold the position of Professor of Architecture in the University Faculty in charge of advanced design.

Annual Meeting of National Fire Protection Association

The twenty-second annual meeting of the National Fire Protection Association will be held in Chicago, Ill., on Tuesday, Wednesday and Thursday, May 7, 8 and 9, respectively. By courtesy of the Chicago Board of Underwriters, of which H. H. Glidden is manager, it is probable that the meetings will be held in the auditorium of the Insurance Exchange, 175 West Jackson Boulevard.

Architects' Registration in New York

The second annual report of the Board of Examination and Registration of Architects of the State of New York shows that the total number of applications received in the two years since the law went into effect is 1991. Of these 175 were withdrawn, 1367 approved, 358 disapproved, while 89 remain to be given further consideration.

The Board of Examiners, after two years' experience, is confirmed in the belief that the most important function of the registration law is to

raise the standard of education and of technical qualifications.

The registration law does not prevent engineers and others doing building work, but it does forbid any new practitioner to assume the title of architect without the qualifications which make the term "Architect" a degree, and the certificate a diploma of achievement.

Personal Shipments to Our Soldiers and Sailors Abroad

The War Trade Board announces that a special license, No. R. A. C.-43, has been issued through the Customs Service and the Post Office Department covering such shipments as may be made by persons in this country to, and for the personal use of, individuals serving in the United States Army or Navy or the American Red Cross abroad. This license does not permit any shipments by persons in this country to American prisoners of war, but has been issued in order to facilitate small personal shipments to our soldiers and sailors and Red Cross workers by doing away with the necessity of securing an individual export license for each exportation. Shipments by mail under this license must be made in accordance with the rulings and regulations of the Post Office Department, shortly to be published. If it becomes necessary later to limit this license to certain specified commodities, notice will be given through the press.

Rotch Traveling Scholarship

On account of the war conditions and the difficulty of any continued travel and study abroad, it has been decided not to award the Rotch Traveling Scholarship this year but to hold the preliminary examinations as usual, the final examinations being deferred until conditions become more normal, at which time some different arrangements may be made regarding limits of age and eligibility for the Scholarship. The examinations will be held at the office of the Secretary, No. 20 Beacon Street, Monday and Tuesday, April 15 and 16.

Mr. Witton, the 32d holder of the Scholarship, is in the Air Service, American Expeditionary Forces in France, and is doing excellent work in constructive lines.

Mr. Batchelder, the 31st holder of the Scholarship, is about to enter the Red Cross work in Italy, having nearly completed his second year.

Mr. Walker and Mr. Holden, the 33d and 34th holders of the Scholarship, are engaged in war work on this side of the ocean.

Great Army Building Program

Many new construction projects for the army, including munition plants, ordnance depots, storage plants, port terminals, hospitals, aviation work, cantonments and housing were disclosed in a statement given the Senate Military Committee recently by the War Department. The work will cost a total of \$268,650,000, and while some of the projects have been announced before, in most cases the location and cost have not been given.

The statement shows that \$37,000,000 will be spent in building a gas-making plant at Edgewood, N. J., while forty interior storage depots, to cost an aggregate of \$30,000,000 are to be erected at unnamed points. On aviation work, including a new cantonment, the location of which was not given, \$46,000,000 will be expended. Ordnance depots are to be built on the South Atlantic Coast and at some seaport at a cost of \$4,000,000 each, and one on the Middle Atlantic Coast at a cost of \$6,000,000. An ammunition depot at some seaport is to cost \$7,500,000, and a like sum is to be expended for an ordnance depot in Central Pennsylvania.

Hospitals for soldiers suffering from tuberculosis are to be built at Denver, Col., and Asheville, N. C., at a cost of \$500,000 each, and \$12,800,000 is to be spent on hospitals at thirty-two army training camps. A division cantonment for the regular army is to cost \$8,000,000, but its location was not given. It may take the place of the regular army training camp at Charlotte, N. C., which soon is to be abandoned because of the unsuitability of the ground on which it is located.

Eight million dollars will be spent on a port terminal at Boston, and \$10,000,000 on a similar terminal at Charleston, S. C. Two million dollars is provided for three powder bag loading points at sites not yet selected. For housing the Shipping Board to relieve congestion in shipyard communities, the department plans to expend \$35,000,000.

Small Price for An Historic House

A fifteenth-century house in Nicholas Street, Ipswich, England, in which the father of Cardinal Wolsey lived, and in which the Cardinal was born, was sold by auction for about \$5,000. At the entrance to the house is an old Tudor corner-post, the finest and most ancient in the borough.

Big Building for the Navy

The new structure to be built for the United States Navy Department on the Bush Terminal property in South Brooklyn will, it is said, be the

largest business structure in the City of New York. It will be 700 by 1280 feet and eight stories in height. It will be practically fireproof, and will cost \$10,000,000. It will have a floor space of 7,168,000 square feet, or over 165 acres. This building will be used for the storage of naval supplies and for the manufacturing, packing and shipping of goods for United States war vessels.

British Museum Not to Be Used for Government Office Purposes

The storm of protest aroused by the proposed taking over of the British Museum for Government office purposes has resulted in a decision to commandeer accommodations in Kingsway.

It would seem that this was a commendable decision, since the removal of the treasures in the Museum could hardly be effected without damage and mutilation and possible loss.

Henry J. Hardenburgh Dies

Henry Janeway Hardenburgh, architect and designer of many large hotels in New York and elsewhere, died at his home in New York City March 13. He was born in New Brunswick, N. J., in 1847, and began the practice of architecture in New York City in 1871.

Mr. Hardenburgh was a founder of the American Fine Arts Society, and was president of the Architectural League in 1901 and 1902. He was a member of the American Institute of Architects and of the National Sculpture Society.

Personal

R. L. Gamble, Topeka, has been appointed State Architect of Kansas to succeed the late Charles L. Chandler.

John R. Nevins, B. S., and Earl L. Park, A. I. A., announce that they have opened offices at Suite 1708, Hoge Building, Seattle, Wash., for the general practice of architecture and engineering.

Owing to the fact that the Government has taken over the offices in the Hamburg-American Building at 45 Broadway, New York, recently occupied by Carl L. Otto, Mr. Otto has moved to the Park Row Building, 15 Park Row, New York.

Industrial Information

Artistic Roofing Materials

The Creo-Dipt Company of North Tonawanda, N. Y., issues from time to time series of photographs, illustrating the use of their "Creo-Dipt" shingles on country houses. The use of their thatched shingle effects is particularly fortunate in the English Cottage type of house, in conjunction with stone or stucco. Their 18-in. and 24-in. shingles are also very successfully used on side walls of houses of colonial types.

The little folder accompanying these photographs states that Creo-Dipt stained shingles are:

- "—all always uniformly and permanently stained.
- "—all thoroughly dry before they are dipped.
- "—all perfect, thus avoiding the necessity of a brush coat.
- "—all dipped over three-fourths of their length in the best creosote and linseed oil stain.
- "—all bundled and ready to use saving the unnecessary cost of double handling.
- "—twice as durable in color and wearing qualities.
- "—all square sawed, vertical grain and free from sap.
- "They will save you disappointment, waste, labor and money."

Scientific Ventilation

The scientific production of good ventilation is taken up in a recent booklet on Globe ventilators. The design of these ventilators, which are manufactured by the Globe Ventilator Company of Troy, New York, is said to afford great efficiency in this direction. It produces a powerful upward current, drawing out the impure air, while its curved inner and outer surfaces make for a rapid movement of the air outward. The ventilator is so constructed that wind cannot enter the pipe and cause a downward draft.

The Globe ventilator is made of heavy gages of galvanized iron of the best quality, and is also available in heavy weight copper, Toncon or ingot

galvanized iron, and with glass tops when desired. The construction is simple, strong and silent. Nothing moves but the air, so there are no parts to creak or get out of order. There is no expense for power, yet the system affords efficient operation and consequent satisfactory ventilation.

Specifications for Slate Roofs

The Vendor Slate Company, Inc., Bangor, Pa., has issued specifications for slate roofs. There is a specification for use over board sheathing, and one for use over concrete. Details of these installations are also given, showing very clearly the method employed. The company states that special specifications will be furnished upon request for installations when the incline exceeds one inch to a foot, and that full information concerning grades and sizes suitable for different uses is also available on request.

Reinforced Concrete in South America

The Northwestern Expanded Metal Company, 37 W. Van Buren Street, Chicago, Ill., makes the interesting statement in its monthly bulletin, *Expanded Metal Construction*, for January, that the reinforced concrete buildings in use in San Francisco at the time of the earthquake were the only buildings which remained uninjured through it all. If this statement can be taken as a generalization it would appear that reinforced concrete was particularly desirable in those places where "quakes" are likely to occur. The bulletin referred to gives some interesting examples of South American architecture in reinforced concrete. Adaptations of the old Spanish or Moorish types are prevalent, particularly in residences which are built around the inevitable court and have the usual romance-inspiring second-story balconies.

Department of Architectural Engineering



PLANT OF THE OLIVER LOADING COMPANY,
OLD BRIDGE, NEW JERSEY

Built in Sixty Days

THE appearance of a loading plant is not of great interest as it consists of rather small and widely scattered buildings, making no pretense to architectural design. It is the arrangement of the parts, construction and some phases of mechanical equipment that are of interest. The plant described, as far as public interests permit, is that of the Oliver Loading Company at Old Bridge, New Jersey, and consists of thirty-five buildings.

The buildings are constructed of wood, the sills of which rest on wood posts and footings. The walls are sheathed with boards on both sides except where wall board is used on the inside. Where exterior walls are liable to be displaced by explosions the interior sheathing is omitted. A prepared roofing material is used for the roofs and the exterior walls are covered with a heavy waterproof fabric.

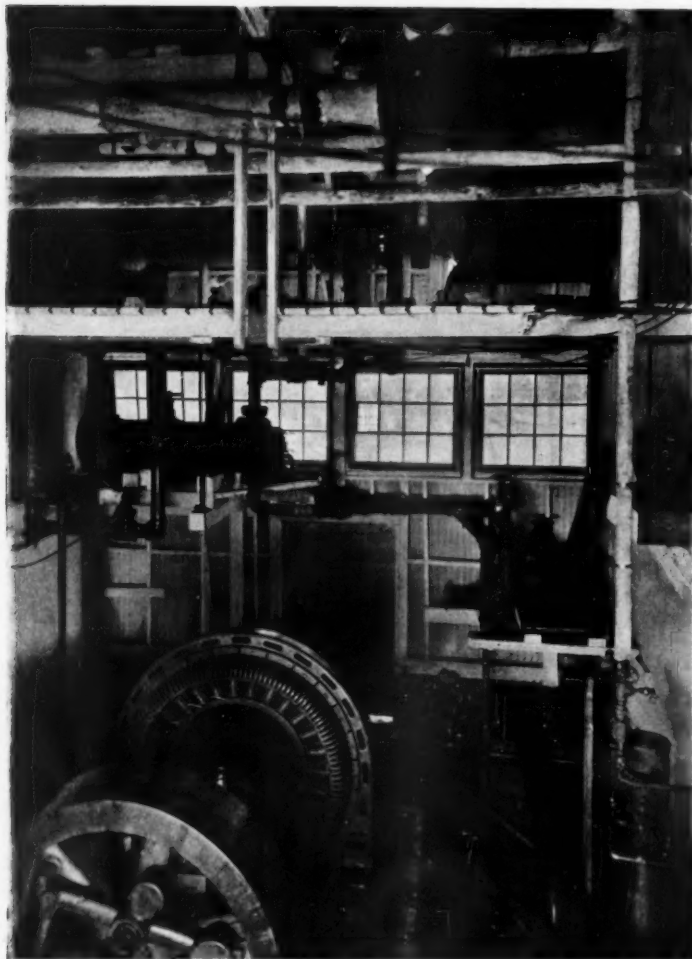
Rooms in which explosions may occur are walled on three sides with bulkhead partitions. These bulkheads are made of wood according to a special design which has proved to be very effective in other plants designed by the same architect. In plan there is no direct opening into these rooms and they are approached through a passage, both walls of which are made of bulkhead construction. The door leading from the room faces a passage wall and the passage makes several turns before opening into the

main room. The object is to present resistance to the expansion of the gases and baffle their travel from the room. The outer wall will blow out, and at some distance away is a high board fence, which so acts as to deflect the air current upward.

The grounds are enclosed with a high barbed wire fence with steel posts. At each corner of the property is a guard house on which are installed powerful electric projectors that illuminate the entire extent of the fence at night.

Outside of the grounds are the staff headquarters, consisting of the administrative offices and sleeping quarters on the second floor for such officials as are required to reside there. At the main entrance are the garage, guard house and commissary. The guard house contains the offices of the receiving and shipping departments, room for guards and their sleeping quarters in the second story. Adjoining this are the waiting room, employees' entrances and time clocks. The commissary is a two-story building containing dining halls, kitchen, locker, wash and toilet rooms, matron's quarters and officers' dining room. The women use the second floor which has separate entrances. The recreation ground for the women is enclosed by a high board fence.

The other buildings consist of an emergency first-aid hospital, store and tool house, house containing



ENGINE ROOM, SHOWING GENERATOR, PUMPS, HEATERS AND STEAM MAINS
OLIVER LOADING COMPANY, OLD BRIDGE, NEW JERSEY

high duty pump and apparatus to wash boosters, house in which boosters are loaded, assembling houses in which the boosters are prepared for shipment, chemical laboratory, electric repair shop, pipe fitting and forge shop, power house with engine room and machine shop, house in which to dry fulminate of mercury, houses in which detonators are charged and various magazines for storing explosives.

A booster is a small steel cylinder about $\frac{3}{4}$ inch in diameter and 5 inches long. This is drilled from one end, leaving the other end closed. The open end is tapped and a steel perforated plug is affixed. This hollow cylinder is loaded with Tetrol or T. N. T. and the detonating apparatus or fuse is attached to the steel cap. After being assembled,

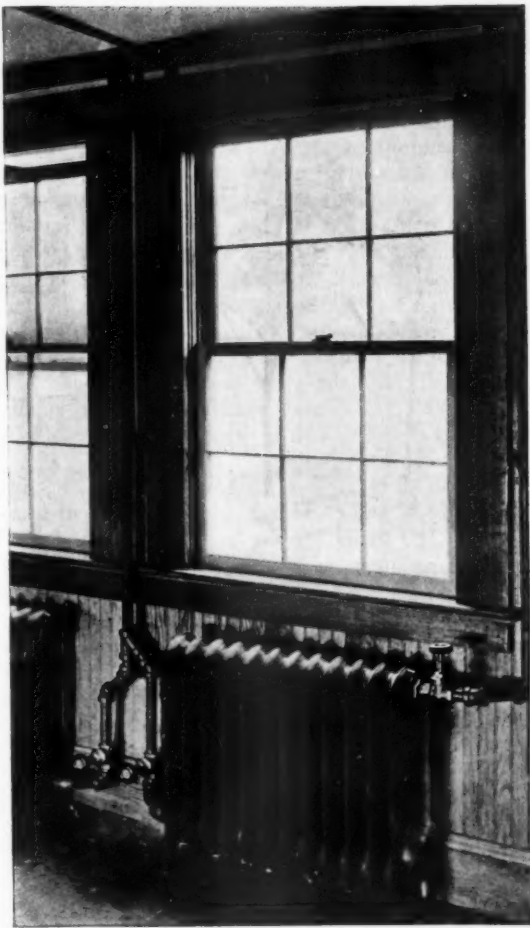
the detonating apparatus is water-proofed by covering with soft sheet metal, adhesive tape and varnish. This protection is removed in the field immediately before the booster is used.

Before loading, the booster is washed in an alkali solution to remove the grease and oil. This is done in the revolving barrel of a concrete mixer to which has been fixed a special wood lining. The washing solution is re-circulated with a pump. In the loading house there are presses operated with a hydraulic pressure of 5000 pounds per square inch. This water pressure is brought to the pressroom by means of a supply and return pipe from the pump located in the building where the boosters are washed. The pressure applied to the charge varies with the kind of explosive and the particular use for which the booster is intended. This hydraulic line is supplied through a high duty, electrically-driven pump which works against an air-accumulator governor. These high pressure water lines between the two buildings are kept from freezing by a hot water pipe, the three lines being enclosed by one insulating covering. The rooms in which the loading press is operated are lighted by one window, outside of which is installed an electric light with a reflector which lights the interior at night. These rooms are surrounded by bulkhead partitions as

before described.

In the building where the caps or detonators are charged the pressrooms are protected by bulkhead partitions. These presses are of special design, reducing the danger to the operative to a minimum, and the only element of hazard is carelessness. The fulminate of mercury, with which the detonators are charged, is dried in a building having the walls lined with wall board on the inside and the air space filled with mineral wool. The drying is done by placing trays of fulminate of mercury on two long tables under each of which are placed nine radiators, installed in pairs and so connected that units can be cut out as required. This room is kept closed, as the material, when dry, is easily moved by air currents. In order not to afford a lodgment for

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SUPPLY AND RETURN CONNECTION TO RADIATORS
OLIVER LOADING COMPANY, OLD BRIDGE,
NEW JERSEY

the explosive, all horizontal surfaces are beveled. This room is frequently cleaned with a special vacuum cleaner, which deposits the material in a vessel filled with water.

All lighting is done by electricity generated at the power house. The heating is done by hot water and is supplied to the various buildings by means of overhead supply and return mains. These mains are supported on cross-arms attached to poles, as shown in the illustrations. On each cross-arm is a pipe roller on which the main rests. The mains are insulated with a heavy air cell covering which is carefully wrapped with a waterproof fabric. Eventually a double-pitched roof will be placed over the mains to shield them from rain or snow. The branch lines are taken from the mains, as shown, and expansion joints are installed as re-

quired. These heating mains enter the buildings at the ceiling and the supplies and returns drop to the radiators on the floor. Air traps are provided on the return mains in each building at the high point where they leave the building. The mains are cross connected at points where branch lines occur and at other points. By this means it is possible to cut out any particular building or branch line and maintain a circulation through the balance of the system. In order to reduce friction all bends are made with 45-degree fittings. Each radiator has a drip pipe with valve, for use in emergencies when steam is used instead of water. About 10,000 sq. ft. of radiation is installed.

The pole line is made of trees cut on the premises, and at intervals long poles are used to carry the lighting and telephone wires. This pole line is over 2000 ft. long and the water leaves the power house at a temperature of 190 deg. Fahr., and returns with a drop not to exceed 20 deg. The buildings heated are on various levels and the difference



TERMINUS OF BRANCH LINE HEATING MAIN ENTERING
BUILDING

OLIVER LOADING COMPANY, OLD BRIDGE,
NEW JERSEY

THE AMERICAN ARCHITECT



POWER HOUSE
OLIVER LOADING COMPANY, OLD BRIDGE,
NEW JERSEY

in elevation is about 37 ft.; this head with the friction resistance requires about 20 lb. pressure for circulation. This circulation is secured by means of two belt-driven centrifugal pumps. One is operated by steam engine and the other by electric motor. The water is heated in closed heaters by exhaust steam which passes through a steam separator in the usual manner.

Engines, pumps, heaters, boilers, etc., are installed in duplicate for emergency use. The commissary, guard house and hospital group can be heated by an independent boiler placed in the basement of the

commissary building. Another independent boiler plant is placed in the basement of the staff building, which has sufficient capacity to care for the assembling buildings. These independent boiler plants are intended for emergency use only.

The contour of the grounds would make it necessary to use several pumps and receivers to return the condensation if the mains were underground and steam used for heating. As this plant was installed during the most severe winter weather, when underground work would be extremely expensive, the overhead system was adopted. Another advantage of the plant as constructed is in being able to control the temperature in the buildings by regulating the heat of the water at the power house.

A complete sewerage system and water supply service is installed with hydrants and hose cabinets, located near each building.

The building of this plant was started on January 1, 1918, and on March 1 was 90 per cent completed. The plans for the buildings and the general arrangement were prepared by R. L. Oliver, who is an architect and also president and general manager of the company. The mechanical equipment was designed by Alex. V. Jensen, who also had charge of the construction work. These gentlemen have been retained by the Government to plan and construct a similar plant at once.



TRUNK LINE HEATING MAIN SHOWING EXPANSION JOINT, BRANCH LINE AND CROSS CONNECTION
OLIVER LOADING COMPANY, OLD BRIDGE, NEW JERSEY

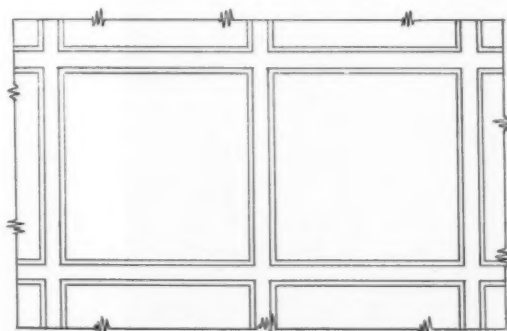
An All-Glass Front

Some Day-lighting Features of the Hallidie Building, San Francisco, Cal.

WILLIS POLK & Co., Architects and Engineers

UNDER some conditions it is desirable to secure the maximum of daylight for interior illumination, and this is secured by eliminating all possible obstructions. The Hallidie Building, recently constructed in San Francisco, is a building of this type and has approximately a 100 per cent glass surface in its Sutter Street elevation.

Naturally the two elements embodied in the design are the structural details and the architectural treatment of the elevation. The construction is quite simple and has been accomplished as shown in the illustrations. The center line of the columns and spandrel girders is located 3 ft. 3 in. inside of the building line and the skeleton of the structure is entirely free from the front wall. At the floors the spandrel girders extend 2 ft. 2 in. above the floor line, from the top of which a thin concrete



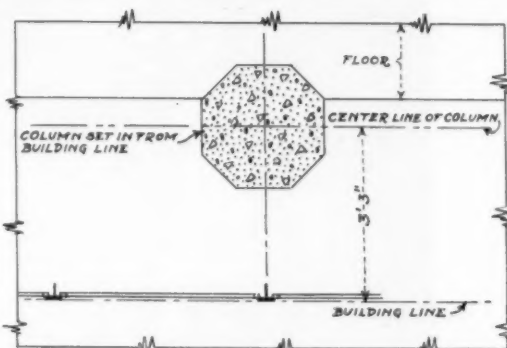
ELEVATION

slab extends to the building line, thus cutting off connection between the stories. It will be noted that brackets are installed under the slab, connecting the frame for the sash and the girder.

The framework of the front is of metal with all the sash movable by being side-pivoted. This will permit of sufficient ventilation and the washing of the glass. If the front is to be made fire-resisting it would be glazed with wired glass and the sash automatically self-closing. In this case catches would have to be provided at each corner to prevent the warping of the sash under fire conditions. The ability of the metal construction to resist fire equally with the wired glass is the essential feature of such a design, aside from structural strength.

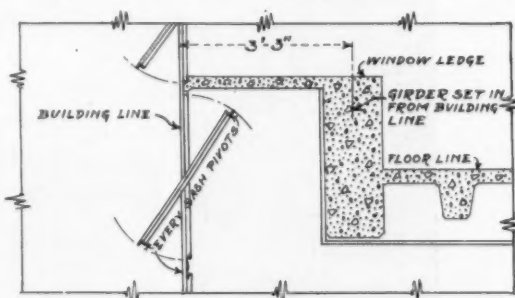
The architectural treatment of this type of buildings presents a new problem to the architect. In

this case the architect has designed the exterior envelop without attempting to preserve a concordance with the structural skeleton, except in some horizontal members. This divorce of the external



PLAN

covering from the skeleton is very unusual and by its adoption the designing of the elevation is done with a freedom not otherwise possible. While it is true that the divisions of the ornamental belt courses do not correspond with the column spacing, the effect is not displeasing on account of the very apparent separation of the two elements of the structure. A color could be applied to the columns

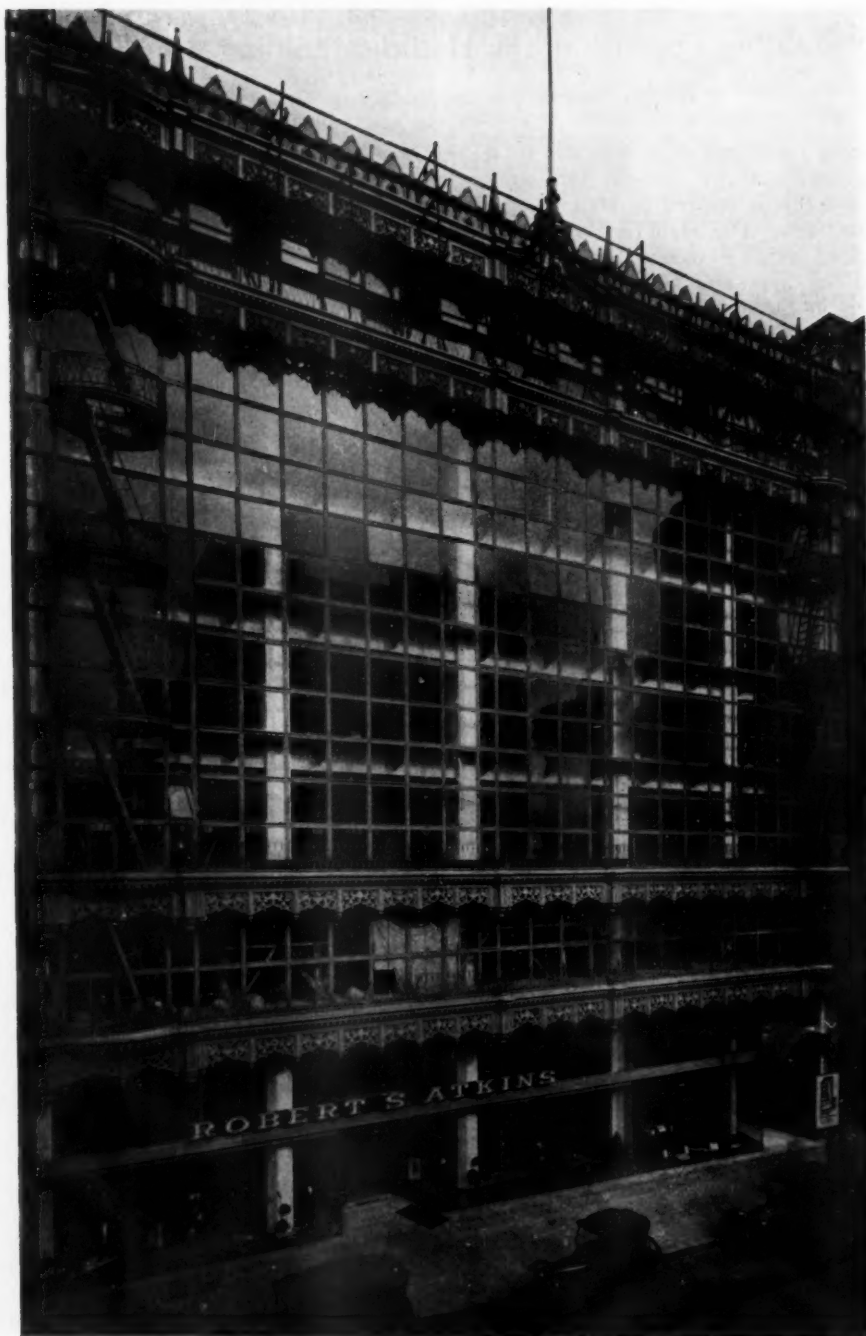


SECTION

which would make them almost unnoticed from without.

The treatment of the fire-escapes is interesting, and they give the effect of flanking pavilions to the elevation. This is a welcome departure from the ordinary box-like appearance that they usually have.

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HALLIDIE BUILDING, SAN FRANCISCO
WILLIS POLK & COMPANY, ARCHITECTS

Lighting Curtailment

THE Illuminating Engineering Society on February 14, 1918, discussed a paper by Mr. Preston S. Millar, in which he presented data concerning the amount of coal consumed in producing electric current used for illuminating purposes. As illumination is visible, the impression is general that its production consumes a vast tonnage of coal, but an analysis of the facts shows that it is not the case.

It is found that the cost of artificial illumination of all kinds is one-half to two per cent of the total expenditure of the people. It compares with certain other expenditures as follows:

Illumination	\$500,000,000
Liquors	665,000,000
Tobacco	490,000,000

The significant figures to have in mind when discussing this subject are as follows, all being rough approximations:

APPROXIMATE COAL CONSUMPTION FOR 1917

Total coal output of the country...	640,000,000 tons
Total employed in production of electric light and power (traction excluded)	36,000,000 "
Total employed for production of light by electricity.....	12,000,000 "

According to these estimates, about 2 per cent of the coal consumption of the country goes into electric light. Some comparisons may assist to provide a proper perspective for the consideration of these data.

Coal shortage the equivalent of which must be saved.....	50,000,000 tons
Estimated saving in coal during 1914 if all private plant power could have been replaced by central station power.....	13,000,000 "
Estimated saving in coal by maintaining temperature of building Interiors at 67° F. instead of 70° F.....	10,000,000 "

It is evident therefore that the total consumption of coal in the production of all electric light is relatively not a very large item in the coal consumption of the country. If the entire electric lighting of the country were cut off the saving in coal would be only 24 per cent of the required saving and no more than would be accomplished by a reduction of readily practicable extent in the heating of buildings. In considering lighting curtailment therefore it is important to bear in mind that even if every candlepower of electric lighting were wasted the loss of coal involved would not be the great out-

standing coal waste of which this country is guilty. As relatively little light is wasted, it is evident that the amount of coal which can be saved by curtailment of electric lighting is small. This discussion has to do with the saving which it may be possible to effect in the 2 per cent of the country's coal which is consumed in electric lighting.

Before the present period of fuel stringency the employment of artificial light had increased rapidly. In some classes of service it had attained a stage which in the present state of the art was considered by experts to be reasonably satisfactory with respect to intensity though not so in respect to the manner in which the light was used. Such a condition, however, was exceptional. Upon the whole, artificial lighting has been inadequate, considering the best advantages to the public. Safety, conservation of vision, economy in production, commercial success, and aesthetics, singly and in various combinations, require improved utilization of artificial light, which in many, if not in most cases, involves the production of more light.

The consensus of opinion among illuminating engineers is that the present-day ideas concerning the adequacy of illuminating practice just preceding the war can be expressed as follows:

Classes of lighting service.

Street (civic, not white way).....	+ 70%
Public buildings (schools, colleges, institutions, etc.).....	+100
Industrial	+175
Protective (outside and inside).....	+400
Commercial (offices, stores, etc.).....	+ 40
Residence (including hotels, clubs, etc.)	+ 30
Recreational (churches, theatres, saloons, etc.)	0
Advertising (signs, white way, show windows, etc.)	0
Miscellaneous	+100

Assuming a distribution of illumination among the several classes of lighting service named (see following table) it develops that according to the consensus of opinion that electric lighting as a whole ought to be increased by about 73 per cent in order to conform to the consensus of their opinions as to desirable intensities.

In relatively few instances has more artificial light been employed than the circumstances warrant. There is occasionally encountered a popular opinion that artificial light is used more largely than is necessary. The phrase "over illumination" appears to have found some place in popular parlance. The origin of this impression is to be found not in the

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use of too much artificial light, but rather in the glare of exposed light sources which are excessively bright and which create the impression of high illumination. Good illumination involves correct practice in respect to intensity, diffusion and color of light. When the artificial illumination is correctly designed as to diffusion and direction there is no suggestion of over illumination.

The adjustment of illumination intensities, which, according to expert opinion, ought to be made from standards existing before the war, in view of the war and fuel shortage, is as follows:

Class of Lighting Service	Per Cent Distribution	Desirable Adjustments in Intensity
Street	15	— 5%
Public Building	3	— 10
Industrial	18	+ 50
Protective	1	+200
Commercial	20	— 20
Residence	26	— 20
Recreational	7	— 40
Advertising	5	— 80
Miscellaneous	5	— 10
	100%	Net — 7%

The final adjustment of artificial light which ought to be made at the present time depends on the one hand upon the need for obviating extravagant lighting and eliminating waste, and on the other hand upon the importance of promoting industry and safeguarding lives and property. The net adjustment based upon the estimates and opinions summarized in this table appears at the foot of the table and is of the order of — 7 per cent. Adjustments in particular classes of service range from a maximum curtailment of — 80 per cent in advertising lighting to a maximum increase of +200 per cent in protective lighting.

Various methods of reducing artificial lighting as a war measure have been proposed as follows:

1. Remove unnecessary lamps.
2. Extinguish all lamps when they are not needed.
3. Extinguish some of the lamps when possible.
4. Substitute smaller sizes of lamps.
5. Replace inefficient by efficient lamps.

It has been shown that the net reduction in the

use of electric light, which in the view of lighting experts it is desirable to make in the present circumstances of war and coal shortage, is of the order of 7 per cent of the total electric light produced. If a proportional amount of coal saving be assumed, this would mean a reduction in coal consumption of 840,000 tons per annum. This is the maximum extent to which it is believed that the best interests of the public require coal to be saved through electric lighting curtailment. Such a saving compares with other possible annual savings as follows:

Total saving which must be accomplished	50,000,000 tons
Net saving thought desirable through curtailment of electric lighting	840,000 "
Saving if one degree lower temperature is adopted for building interiors; i.e., 69° instead of 70° F.	3,000,000 "
Saving if each family decreases by one shovelful its daily use of coal.	15,000,000 "

The saving which is possible in the heating of buildings looms large. Our practice in this respect is to heat buildings to a considerably higher temperature than is done in Europe. The coal which might be saved by operating buildings at the temperatures which prevail in Europe instead of at the temperatures which we affect would be more than the equivalent of the entire consumption of coal in electric lighting. Even the saving of one shovelful of coal per day makes any practicable saving through electric lighting curtailment seem very small.

The discussion developed the fact that many of the lighting companies find that one-half of 1 per cent of the current used for illumination is consumed in street white way and sign illumination. The restriction of illumination has resulted in the increase of crime and accidents. As steam plants, considered as a unit, develop only 80 per cent of the power stored in the coal and domestic use develops only 60 per cent, it is in those places that the great waste occurs. It was the opinion that fuel conservation should be obtained along the lines that have been so effective in food saving and where the waste really exists.





THE UNIVERSITY OF CHICAGO PRESS
CHICAGO, ILLINOIS 60637
U.S.A.



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