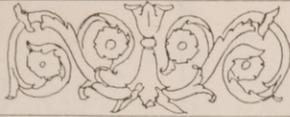


ARCHITECTURE



ENGINEERING

# The Southern Architect And Building News

VOL. XLIX.

No. 11

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H. E. HARMAN, President.

E. R. DENMARK, Editor.

## TO OUR ADVERTISERS

Our advertisers are requested to have copy and cuts for changes for advertisements in this office not later than the 5th, preceding month of publication.

■ We cannot be responsible for changes not made, when copy and cuts are received later, or submit proof.



(By Courtesy of the Metropolitan Museum of Arts.)

## A DUNCAN PHYFE PIANO

The Masterpieces of America's  
most famous Cabinet Maker,

### DUNCAN PHYFE,

have been preserved for a period  
spanning five generations by Var-  
nish from the oldest Varnish Fac-  
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These old time petrified fossil gum  
Varnishes are giving today on  
standard trim and floors in the most  
exclusive homes in Newport and  
throughout the country, that beau-  
ty of tone and generations of wear  
that have always been a distin-  
guishing mark of our old formulas.

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THE answer of the architect to the ever in-  
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school and office building is a provision for more  
windows and better window glass. Here are  
fourteen reasons why our window glass is not  
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7. Our glass is uniform in thickness.
8. Our glass is perfectly annealed and therefore does not break as easily as poorly annealed glass.
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10. Our glass cuts perfectly on both sides.
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12. Our grading is the recognized standard for the United States, and is higher than the foreign standards.
13. Our glass does not break in shipment, on account of the uniformity of flatness, well made boxes, great care in packing, and skillful loading.
14. Our entire process is conducted on scientific principles.



Our elliptical trade-mark together with the grade markings stenciled on every box of the genuine guarantee the quality. Specify "The Best Glass" and be assured of strength, evenness and beauty.

**AMERICAN WINDOW GLASS CO.**  
GENERAL OFFICES: PITTSBURGH, PA. *The BEST Glass* BRANCHES IN PRINCIPAL CITIES

## EDITORIAL COMMENT

### THE ARCHITECT'S SERVICE TO MANKIND!

A principal corner-stone of all civilization rests on the work of the architect! Since the dawn of history his labor has been a guiding genius, an inspiring influence of human progress. Through contributions too vast to recount, he has sublimely enriched the world!

Where the architect serves, harmony prevails, skill and beauty dominate, and economy supercedes waste. Countless homes are here to mark the architect's creative force, his understanding of the true and false in residential forms, his application of those ideals that give character and distinctness to the builder's art.

Behind those evidences which testify to the Nation's material wealth—its factories, schools, churches, theaters—the pride and power of cities great and small—the architect's guiding hand has been ceaselessly at work. All these are living monuments to his usefulness, his vision and productive skill.

There is no substitute for the architect's painstaking service or the knowledge he brings to those he serves. Against the errors and penalties of inexperience and incompetence, he stands as the protecting arm, watchful of his client's interests.

The exactness of his training, his resourcefulness, his keen understanding of the problems that beset the builder's path, his unchanging code—these are the guarantees he brings to his client's aid.

In the absence of the architect, doubt and uncertainty enter the building program. With him order, the benefit of superior craftsmanship, beauty, grace, value and enduring satisfaction inevitably come!

Those who employ the architect serve best their city and themselves!

### THE ALLIED ARCHITECTS OF LOS ANGELES

(The above was published in display type in a recent issue of the Los Angeles Times.)

### CORRECTION.

We take pleasure in calling to the attention of our readers an error which was made in giving credit to the architects for the house of Mrs. B. Ohlman, Atlanta, Georgia, which appeared in our August number.

Owen James Southwell was named as the ar-

chitect with H. Hornbostel as consulting architect, when credit should have been given to Mr. Hornbostel as the architect, and to Mr. James Metheny and Mr. Southwell as associate architects. We regret that this mistake was made and this correction is given in justice to all parties concerned.

### THE MOST COMPLETE AND UP-TO-DATE TIMBER HANDBOOK IN EXISTENCE.

Since the first edition, the Southern Pine Manual of Standard Wood Construction has been used by thousands of architects and engineers, and as a text book in technical schools the country over. Eight editions were insufficient to meet the widespread demand for the practical, comprehensive information the Manual contains. This new Ninth Edition, while retaining the entire text of the Eighth Edition, has been revised and enlarged, thus multiplying its usefulness.

The Ninth Edition of the Manual contains the information needed to solve every-day problems in wood construction. The new material added includes:

The latest requirements for Floor and Roof loads of the largest cities distributed over the various sections of the country.

New material on Wood Block floor and paving construction.

Details for design of light wood roof trusses on spans up to 15' 0".

Timber working stresses and design factors based on recent comprehensive tests of commercial material.

Safe working loads for Bolted, Nailed and Spiked Connections.

Actual size, 4½ x 6¾ inches; 186 pages. Price \$1.50. This book may be had by writing to the editor of this magazine or direct to the Southern Pine Association, New Orleans, La.

### AN ERROR.

In our October issue on page 44 the name of Mr. Bill Reid appeared under an illustration. This was a typographical error and should have been Mr. Neel Reid. We regret this error was made.



MAIN BUILDING, COLLEGE OF WILLIAM AND MARY, WILLIAMSBURG, VA.  
SIR CHRISTOPHER WREN, ARCHITECT. BUILT 1693.

# THE SOUTHERN ARCHITECT AND BUILDING NEWS

VOLUME XLIX.

NOVEMBER, 1923.

NUMBER 11

## COLONIAL ARCHITECTURE OF THE OLD SOUTH

PERHAPS no one thing exerted a greater influence on the character of the architecture of our early houses in America than that of climatic conditions. The fact that our Northern houses show a greater refinement in detail than those of the South may be traced directly to the effect of climatic conditions. Our forefathers in the North found that the fireplace to be the center of the home life, for it was around the fireside that they sought rest and comfort during the long cold winter months, and naturally the designer gave special attention to this part of the house. From the fireplace developed the idea of making the room a seat of refinement, and thus the whole interior of the house was given special attention, and finally the same idea was carried out on the exterior. The doorway being the main feature

of the exterior was worked with careful thought and given great consideration, and from the doorway came the same refinement of the porch. Thus, we can readily see that the processes of development in the Northern houses came from the inside out, while in the South the influence came from the outside, inward, as we will presently see.

Our forefathers in the South had an entirely different problem confronting them in the designing of their houses. There was no need for hot radiating fireplaces, small windows, and little porch, but what they did need most of all was a place where they could rest and enjoy the comforts of an exhilarating breeze during the hot summer months, and the wide spacious veranda, porch, or whatever you might choose to call it, which characterizes our Colonial houses of the



MONTEBELLO—NATCHEZ, MISS.

BURNED 1898.



PROUDFIT HOUSE, MACON, GA.



BULLOCH HOUSE, ORLEANS SQUARE, SAVANNAH, GA.

JAY—ARCHITECT, 1818.



CARTER HALL—MILLWOOD, CLARK COUNTY, VA.

South was the result of this need to meet climatic conditions. Thus, we can understand that the first consideration in the house plan was that of the veranda, for it was here that the southern planter and his family was to spend most of the year, enjoying the beauty of the landscape, and seeking that same comfort and rest which his northern brother found around the fireside. We can see that the development of the southern houses came from the outside, inward, just the opposite of the development of the houses in the North.

The veranda of the Southern house is its distinctive feature and was worked into the general plan of the house so obviously as a necessity that we cannot be offended in the later houses when we see the practice of cutting a great Classic order with the floor and balustrade of the second-story veranda, as in Montebello—at Natchez, Miss., and in Wells Hall—at New Iberia, Louisiana. However, regardless of these discrepancies, which no doubt was due to the fact that the designer had a cold shoulder turned to the constructive features, and finer details in his effort to make the veranda an integral part of the external whole, we must give credit to these early builders for producing houses which taken in their entirety are pleasing

and charming.

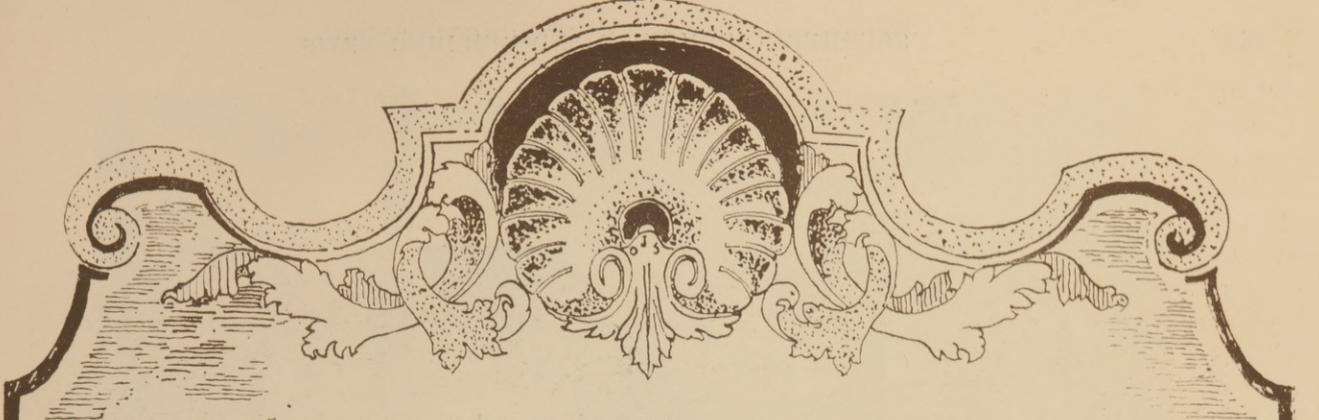
The fact that the plantation districts through the interior of Georgia, Alabama, the western part of South Carolina and, the central portion of Mississippi as well as some parts of Louisiana were settled mostly about the first of the nineteenth century removes the work of this section of the country from what is properly known as the Georgian Period; yet the presence of the white colonnaded houses throughout this section shows plainly that the architectural influence of England continued after the Revolution.

As we have said before the white-colonnaded houses of this section do not properly belong to the Georgian Period, but rather to that period known as the Classic Revival, which was an outgrowth of the preceding styles and comes in for considerable consideration in our study of the old houses of the South. In fact these white-pillared houses form the background upon which our present architectural style must rest.

At the time when the Classic or Greek Revival was raging in England this country was just beginning to recover from the effects of the Revolution and to turn its attention to the building of homes and public buildings. Had it not been for the Greek Revival it is hard to say just what our



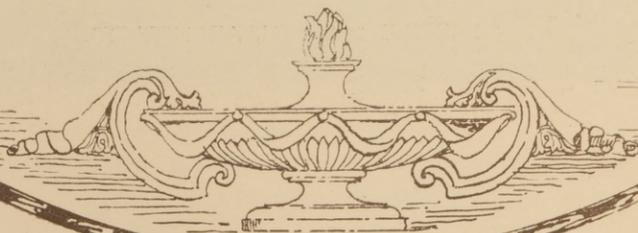
HOMEWOOD—MISSISSIPPI.



REVIEWING  
CURRENT ARCHITECTURE



ENTRANCE DETAIL  
DRUID HILLS RESIDENCE, ATLANTA, GA.  
E. HORNPOSTEL, ARCHITECT.





ENTRANCE AT REAR  
HOUSE OF MR. HAROLD ROGERS, ESQ., ATLANTA, GA.  
PRINGLE & SMITH, ARCHITECTS.



FRONT



HALL

HOUSE OF MR. HAROLD ROGERS, ESQ., ATLANTA, GA.  
PRINGLE & SMITH, ARCHITECTS.

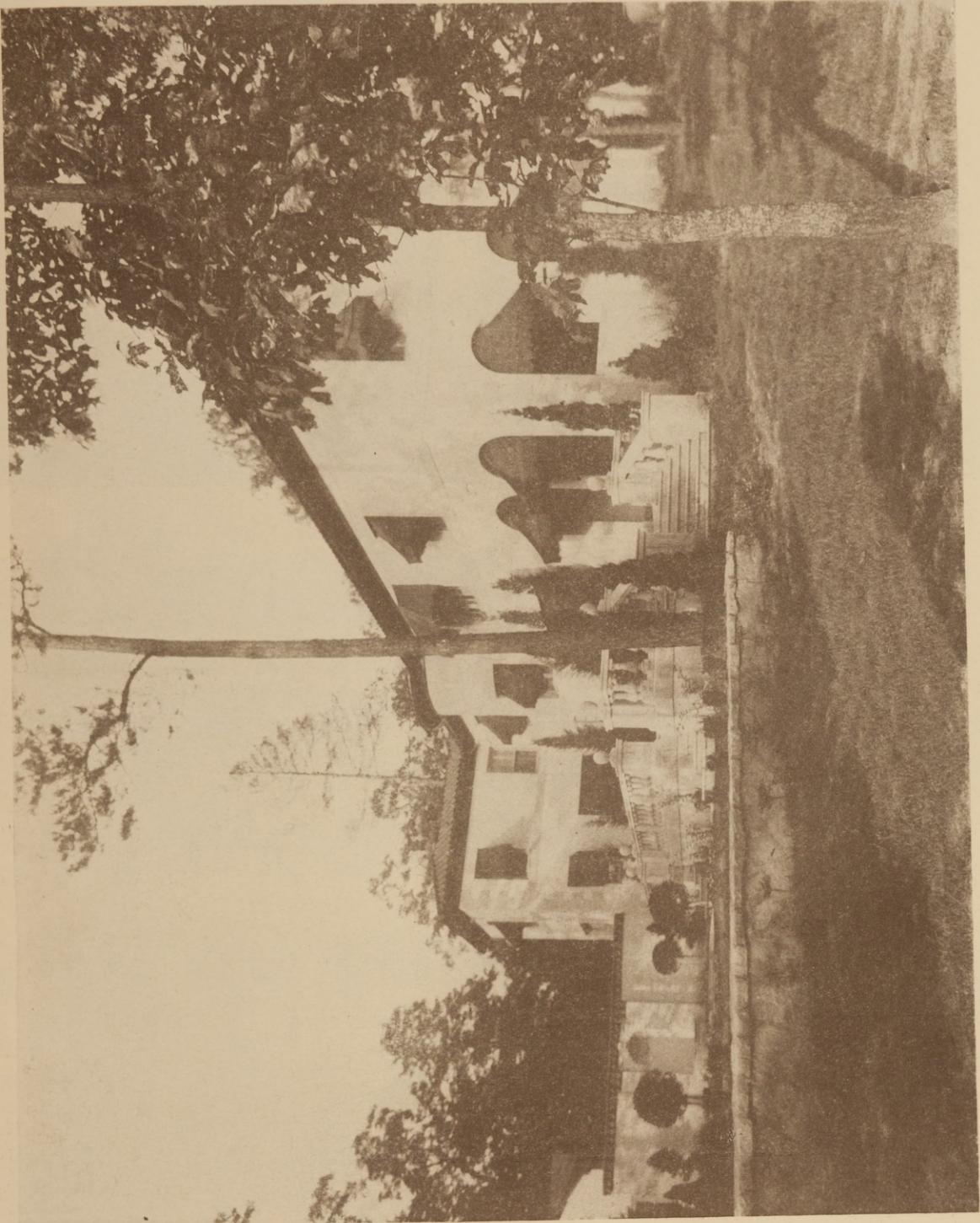


LIVING ROOM



SOLARIUM

HOUSE OF MR. HAROLD ROGERS, ESQ., ATLANTA, GA.  
PRINGLE & SMITH, ARCHITECTS.



GARDEN SIDE

HOUSE OF MR. HAROLD ROGERS, ESQ., ATLANTA, GA.  
PRINGLE & SMITH, ARCHITECTS.

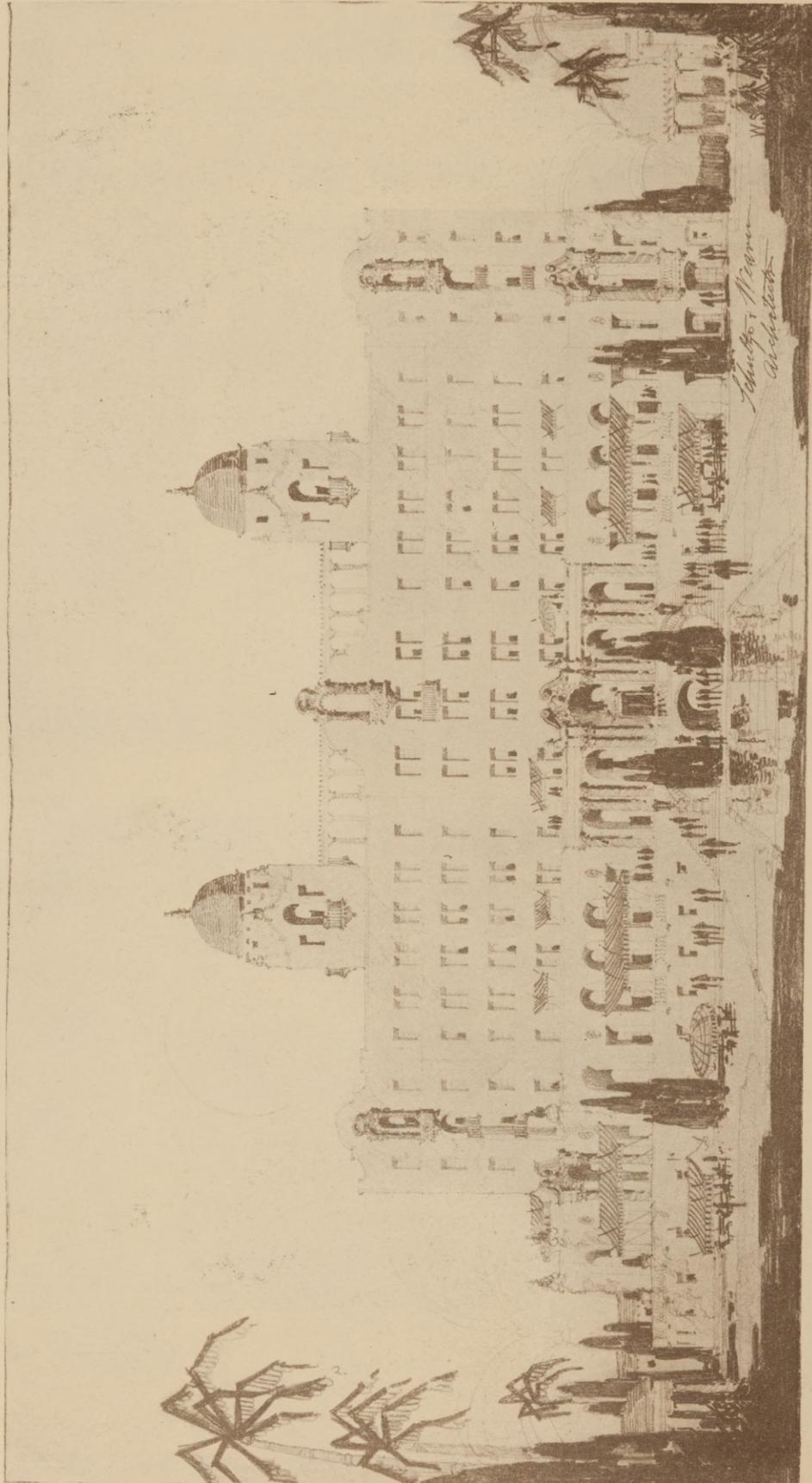


HALLWAY

DINING ROOM  
HOUSE OF MR. BILL REID, ATLANTA, GA.  
HENTZ, REID & ADLER, ARCHITECTS.



BAY SHORE ESTATES CORPORATION BUILDING, MIAMI, FLA.  
HENRY LaPOINTE, ARCHITECT



NAUTILUS HOTEL, MIAMI BEACH, FLA.  
SCHULTZE & WEAVER, ARCHITECTS.

# The Lighting of Theaters and Auditoriums

By A. L. Powell.  
(General Electric Co.)

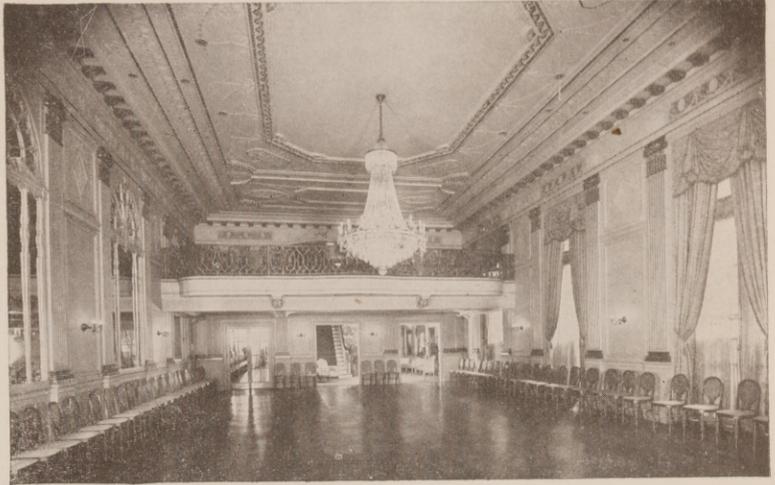
## PART II.

### Concert Hall and Assembly Room.

AS with the theater auditorium, it is again impractical to lay down any general scheme for lighting, as one type of architecture may require an entirely different treatment from some other style.

Overhead lighting from symmetrically placed luminaires is unquestionably the best scheme. Bracket and side wall lamps are generally objectionable for they come within the angle of view. Where they are absolutely necessary as part of the decorative scheme, they should not be depended on to furnish appreciable illumination, but merely to provide a touch of light and color. Small lamps should always be used on such brackets and even these carefully shielded. They should never be located directly behind the speaker or on the stage and if the platform happens to be placed near some side wall units, these should be turned out for the time being.

If the ceiling is dark or very broken in structure, direct lighting is necessary and a wide variety of equipment is available. Where the ceiling is light in color, the indirect systems prove very satisfactory. Semi-indirect bowls and totally indirect luminaires are standard with decorations harmonizing with the various architec-



Utilitarian Methods of Lighting Are Indeed Out of Place in the Hotel Ballroom. Elaborate crystal-glass chandeliers are quite in keeping and flame type candleabra lamps desirable as part of the decorative scheme. Where side wall luminaires are employed, tinted diffusing bulb lamps find application.

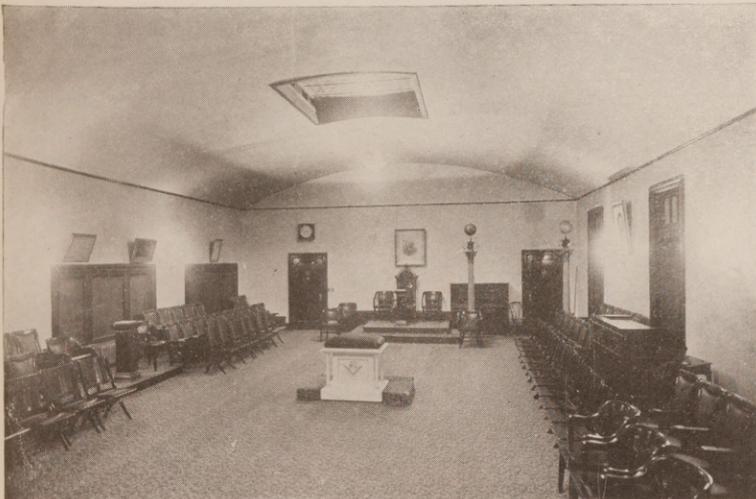
tural periods, Gothic, Adam, Louis XIV, etc.

The auditorium in the school, or room of similar nature, can often effectively be lighted with the same general type of luminaire used in the other portions of the building with possibly the addition of an ornamental hanger and a slight amount of decoration on the glassware.

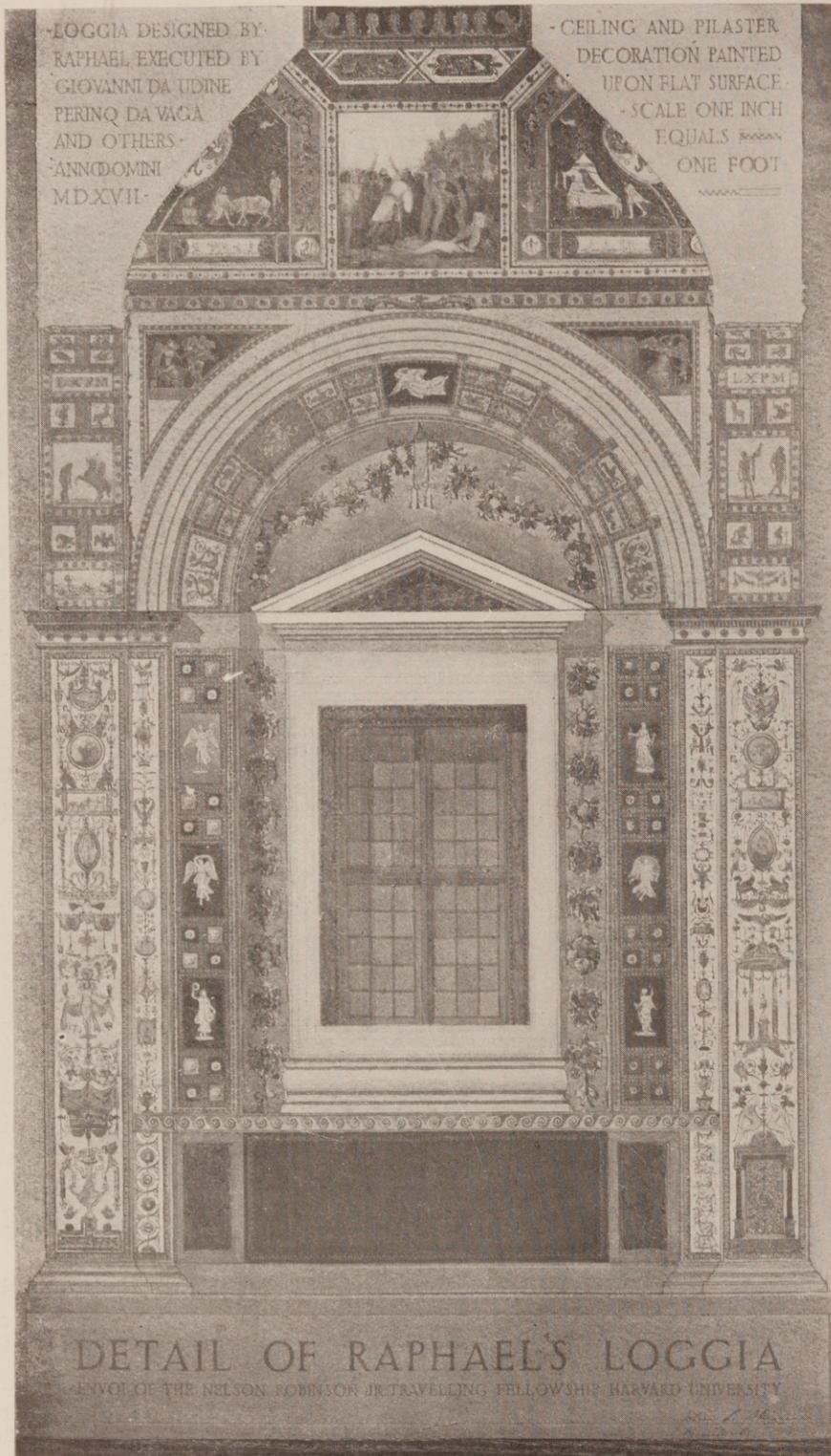
In other classes of meeting rooms, for example, the hotel ballroom, the character of the building demands special, highly ornamental luminaires. Hanging cut crystal fixtures with a multiplicity of clear lamps are frequently employed. While this is not ideal for use during meetings, nevertheless the sparkle produced is especially well suited when the room is used for dancing, giving life and creating the feeling of joyfulness. These two examples indicate the wide range of practice.

No very definite rules can be given with regard to the arrangement of lighting outlets as the architectural features of the room are the determining factors. They should usually be placed symmetrically with regard to the ceiling beams or panels. The number and size of lamps will depend on the dimensions of the room and from a standpoint of economy of operation and simplicity of wiring it is best to use as small a number of luminaires as possible. This arrangement

(Continued on page 59.)



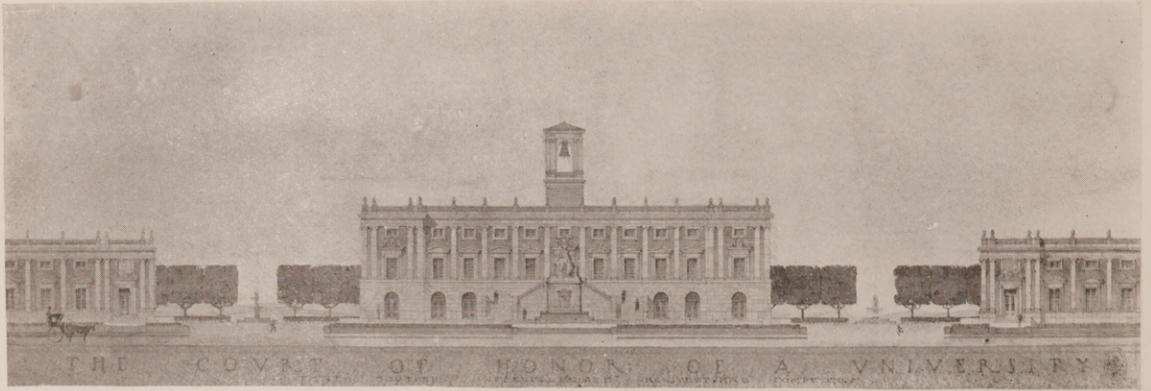
Even Though Local Conditions are Such as to Make It Impossible to Take Advantage of the Full Possibilities of Lighting in the Lodge Room, the Question Should Not be Neglected. This night photograph indicates a very simple yet suitable installation. A fairly high intensity of illumination is furnished by two 300-watt MAZDA C lamps in large opalescent glass semi-indirect bowls. The emblem of the order in blue is pressed in the decoration of the bowl and stands out against the white glass. The decoration of the glassware used with the inverted wall luminaires harmonizes.



Measured Drawing, By Professor John L. Skinner, Ga. Tech., Envoi  
 of the Nelson Robinson Traveling Fellowship  
 Harvard University—1921.



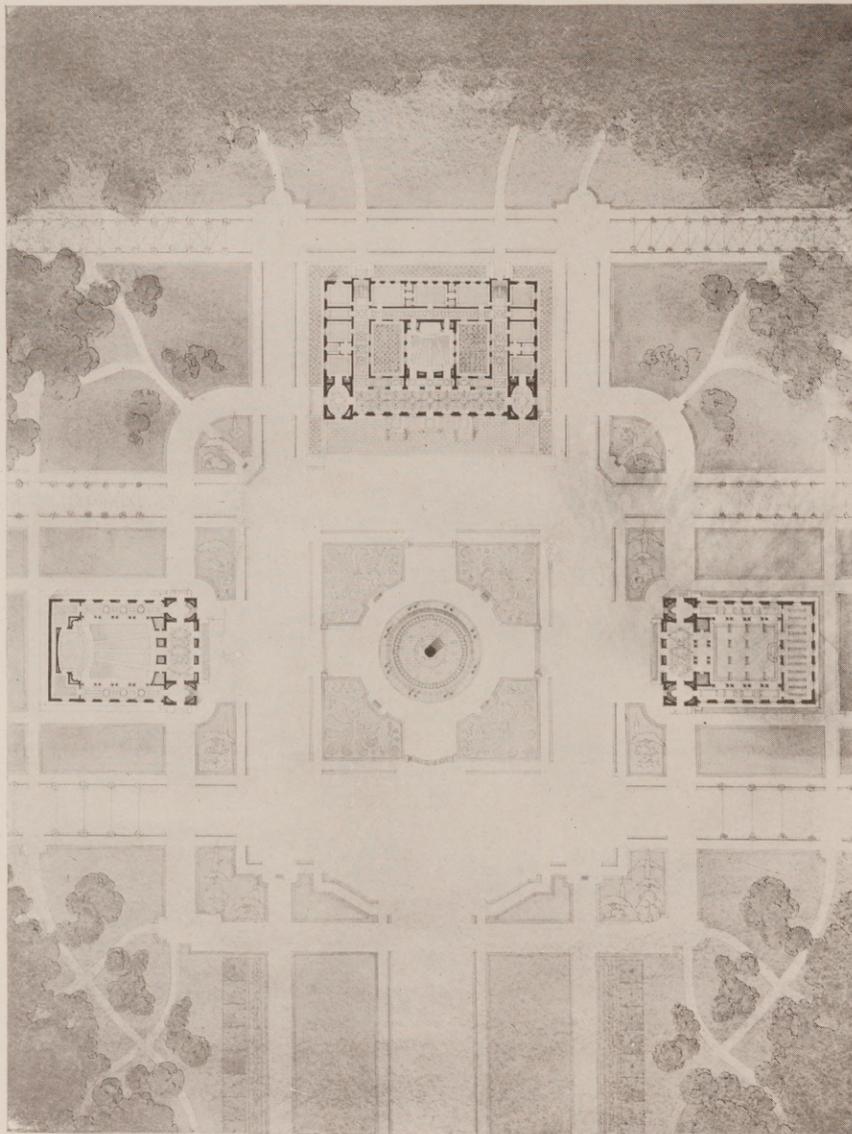
Piazza del Campidoglio—Rome—Drawn by Prof. John L. Skinner, Ga. Tech.  
Envoi of the Nelson Robinson Traveling Fellowship  
Harvard University—1921.



*First Prize*

ELEVATION

*W. P. Graydon*

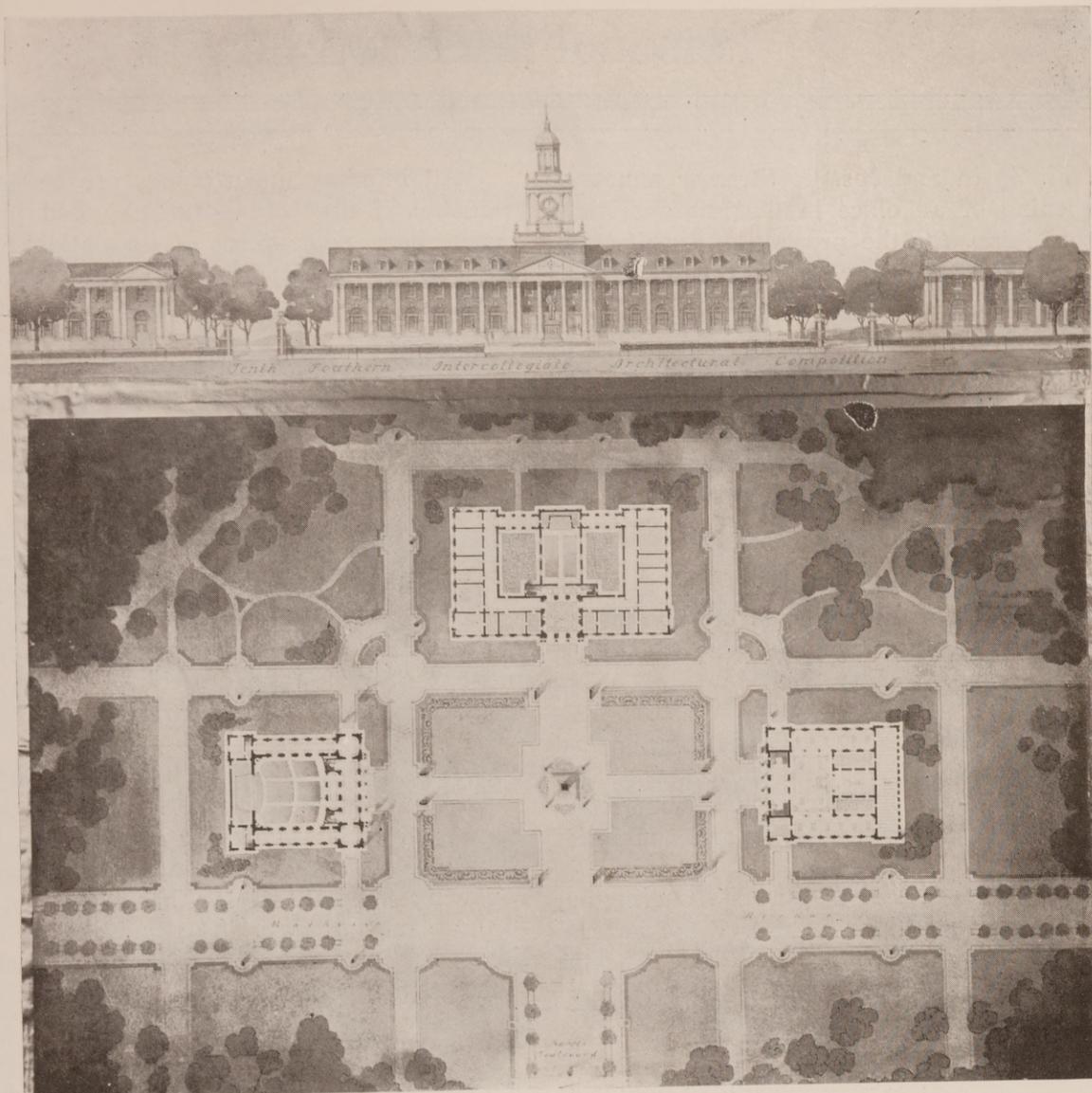


*First Prize*

PLAN

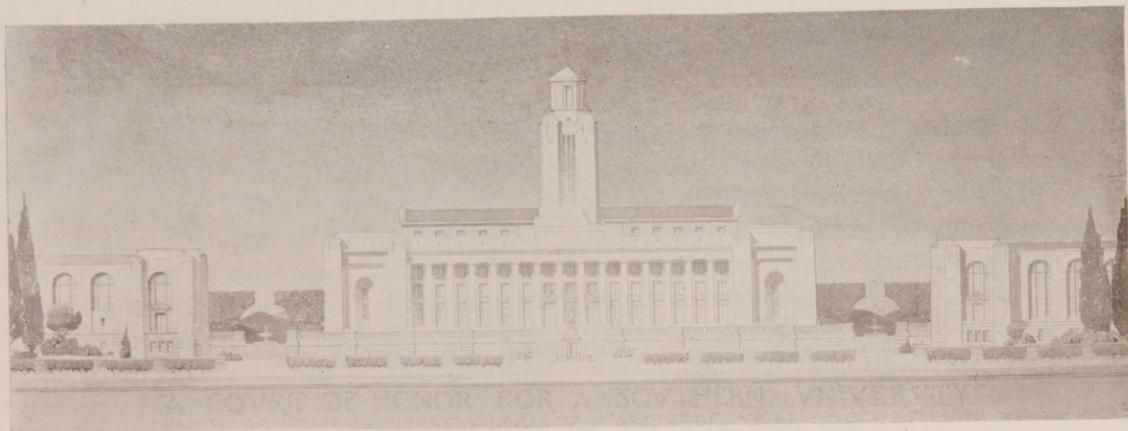
*W. P. Graydon, Ga. Tech.*

“The Court of Honor of a University”  
 TENTH SOUTHERN INTERCOLLEGIATE COMPETITION  
 1922-1923



Mention Number Three

F. W. Manning, Ga. Tech.



Mention Number Four

H. R. Weeks, Ga. Tech.

"The Court of Honor of a University"  
TENTH SOUTHERN INTERCOLLEGIATE COMPETITION  
1922-1923.



## Personal Mention

J. M. Spain and Jos. G. Strasser announce the opening of an office in the Millsaps Bldg., Jackson, Miss., for the practice of architecture. Manufacturers catalogues and samples will be appreciated.

Announcement is made that Louis C. Darnet, architect, has opened an office for the general practice of architecture at 203 Lorain County Bank Building, Elyria, Ohio, where he would be pleased to receive manufacturers' catalogs and samples.

Hare & Hare, landscape architects and city planners, announce the removal of their offices to Suite 712-15 Huntzinger Building, 114 West Tenth Street, Kansas City, Mo.

It is announced that C. E. Garnett has opened an office for the practice of architecture at 186 South Beach Street, Daytona, Fla. Manufacturers are requested to send catalogs and samples.

It is announced that Samuel W. Carrington, architect, has opened an office for the general practice of architecture, at 502 Melba Theatre Building, Dallas, Texas. Manufacturers are requested to send catalogs and samples.

Mr. Courtney S. Welton announces the opening of an office for the practice of architecture at 211 Richmond Trust Co., Bldg., Richmond, Va. Manufacturers' samples and catalogs will be appreciated.

### ALL BUILDINGS A MATTER OF PUBLIC CONCERN.

Mr. W. H. Tusler, a Minneapolis architect, and chairman of the publicity committee of the Minneapolis chapter, American Institute of Architects, recently gave expression to the following, anent public concern in good architecture:

"Every building that is constructed is a public matter and as all buildings are seen, society has a right to demand that none be ugly.

"The building department of any city requires that no buildings be unsafe or dangerous to health; economy requires that they be not wasteful of space or ill suited to the purpose for which they are created. The investor realizes a well designed building is a better investment and a well constructed building is a more economical investment.

"All building undertakings are better, more valuable, if they are beautiful. Bad planning, waste space, poor means of circulation, fire hazards, usually result in loss of income, higher percentages of taxes to income and increased insurance rates.

"The average client is unequipped to design or direct the construction of his building. His attempt to do so is as certain to court disaster as would be his untrained efforts to supplant his physician for his own cure.

"The practice of architecture requires business executive ability of a high order. Inasmuch as the owner's financial interests are deeply involved in the architect's action, the integrity of the latter must be above question. The development of a well equipped architect demands long and careful study and preparation."

### MISCELLANEOUS SPECIFICATION DATA.

In Technical Note No. 200 recently issued by Forest Products Laboratory of the U. S. Forest Service, Madison, Wisconsin, there appears the following suggestions for basic grading rules for structural timber. The publications of the Forest Products Laboratory should be looked to with the same high degree of respect in reference to lumber as the American Society for Testing Materials is looked to for quality determinations made by them. This technical note is in part as follows:

#### Basic Grading Rules for Structural Timbers.

As a step towards standardization and more efficient utilization of structural timbers, the Forest Products Laboratory of the U. S. Forest Service presents the following basic grading rules for softwood and hardwood timbers. These rules are based on the results of hundreds of thousands of tests on small clear specimens and numerous tests on timbers containing defects.

In substance, the new rules provide for a simple classification of any or all species into four basic grades from the standpoint of strength requirements for various structural purposes excepting columns. The difference in inherent strength and character of various species is taken care of in the recommended working stresses. (See Forest Products Laboratory Technical Note 201).

The basic grades are formulated to take care of strength requirements only. It is expected that commercial grades will include provisions for any other properties that may be desirable in timber for particular uses.

# Engineering and Construction

## Danger Signals for Cost Accounts

How Production Costs may be Safeguarded by Graphic Forecasts of Gain or Loss.  
Based on the system devised for the Morton C. Tuttle Company by Clayton W. Mayers, Vice President,  
in charge of estimating.

IF its methods of analyzed cost accounting, American industry is rightfully proud. Such accounting offers the only really sound basis for establishing prices; it is fundamental to assured knowledge of the development of profits or losses in any completed undertaking, or series of undertakings; and it furnishes the data without which estimates as to the outcome of future undertakings are no better than fortunates or—as the case may be—unfortunate guesses.

Yet most industrial cost systems, however painstakingly exact in their analyzed compilations, are weak in at least one important particular: they offer only historical information;—they tell only what has occurred. They are, in short, a good deal like an autopsy,—in that their revelations, while perhaps valuable for future guidance, are of no avail for remedying the immediate lugubrious situation.

It seems, therefore, high time to consider another forward step in accounting progress,—that of so handling cost statistics as to make them serve not only as history, but as really reliable prophecy. Not so much cost keeping as **cost-tendency keeping** is the need of the hour.

### Cost-tendency Keeping Defined.

Cost-tendency keeping should eliminate the regrets inherent in cost accounting as now usually conducted: for its application should mean that, even while work is in progress, the true fi-

ancial status of each operation shall, at all times, be in evidence; so that bad costs may be corrected and good costs improved from the moment when they begin to appear. The importance of this calls for no demonstration: no proof is required in support of the contention that the actual soundness of any industrial enterprise is determined not by the costs of yesterday or of today, but by the ultimate loss or gain which an existing rate of expenditure—if continued—will entail.

To present, at regular intervals, current costs in terms of ultimate results; and to do this so vividly that the indications may be neither mistaken nor ignored, is the function of **cost-tendency keeping**.

### Indispensable in Construction.

As to just how far such a system is necessary, or even applicable, to highly standardized industrial undertakings it would not be safe to hazard opinion. But where important aspects of any product are constantly undergoing greater or less change—as in the manufacture of specialties—cost-tendency keeping offers an invaluable safeguard against losses. In building construction, where many operations are influenced by special local or temporal conditions, it is virtually indispensable; for, in construction, cost-tendency keeping gives instant warning of disorders in job costs which would, ordinarily, pass unnoticed

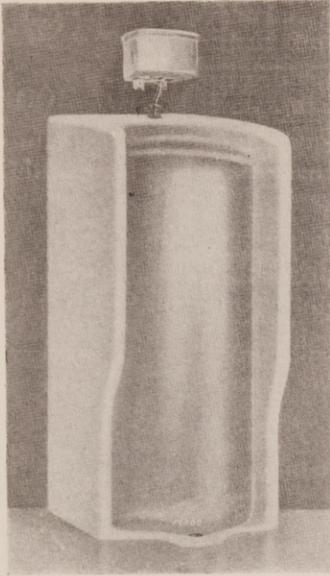
JOB 61 At Boston, Mass. Sheet No. 1

LABOR STATEMENT TO June 16, 1923 First WEEK

Symbol	ITEM	Week Cost	Week Unit	Quantity		Unit		Cost		Saving	Overrun
				Est.	Act.	Est.	Act.	Est.	Act.		
Dass	Steam Shovel Excavation	1.96	c.y.	6500	700.	1.70	1.96	1190.	1372.	182.	
Med	Mix and Place Concrete	1.05	c.y.	1500.	260.	1.20	1.05	312.	273.	39.	
Fed	Make, erect & strip Forms.	1.42	s.f.	3000	1800.	.20	1.42	360.	261.	99.	
Bow	Tend and Lay Brickwork	.31	cf.	10000	2000.	.35	.31	700.	620.	80.	
	Total Saving To Date = \$36.							2582.	2526.	218.	182.

Diagram 1.—A Weekly Statement as it should ordinarily be rendered to show construction labor costs to date.

# Good as It Looks!



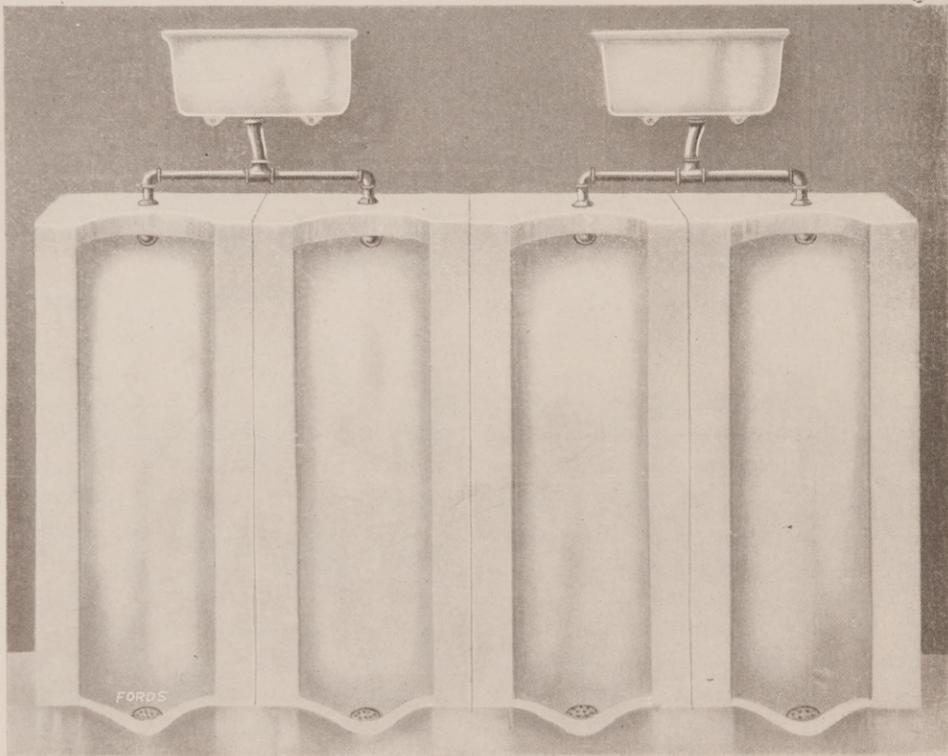
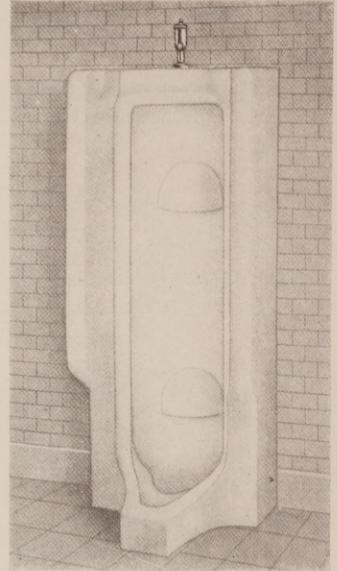
The difference in grade between Fords Porcelain Ware and the ordinary porcelain ware can readily be told at a glance. Its pure white, highly glazed finish, both inside and outside, lends the appearance of cleanliness, sanitation and refinement so much desired for the pantry, kitchen and bathroom.

## FORDS PORCELAIN WARE

carries quality all through, as well as showing on the surface. The materials used in the manufacture are the best that money can buy. We have learned by experience that it pays in the final analysis to spare no expense to produce the highest quality products.

Fords Porcelain Ware costs very little more than other brands and is well worth the difference.

Let us tell you about our special glazing process and other interesting facts regarding Fords Porcelain.



## Fords Porcelain Works

Perth Amboy, N. J.

New York Office: 103 Park Avenue

E. F. Disbrow, General Sales Manager

*Largest Manufacturers of Porcelain Wash Trays in the World*

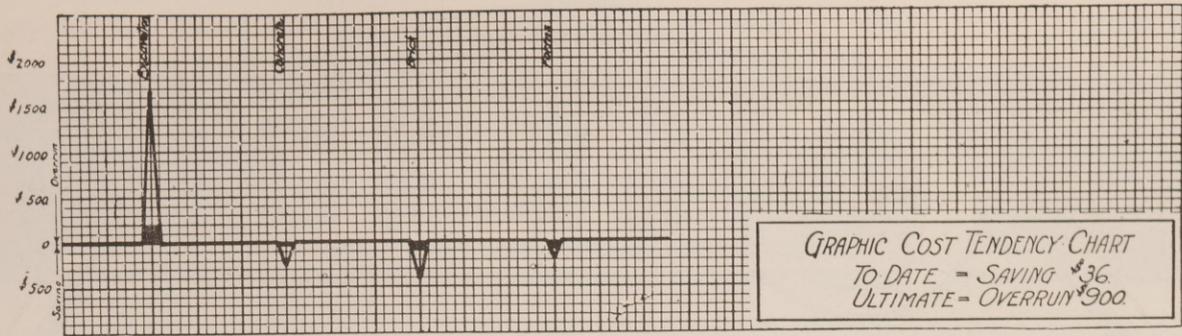


DIAGRAM II.—Graphic Statement of Diagram I, so as to forecast the final outcome of the present rate of expenditures. The medium line stands for the builders' estimate. Deviations to date in excess of the estimate are indicated by the level of the shaded portion of triangles shown above this line. Deviations in the way of savings are similarly indicated below the line. The apex of triangle in each case indicates ultimate loss or gain for the process involved.

because of their apparent insignificance. And because, oftentimes, high costs grow from little deviations, the system may often obviate calamity.

The system of cost-tendency keeping as it is practiced in the building operations conducted under our management is that of maintaining an extremely simple graphic chart—posted each week—whose indications are so clear as to be instantly comprehensible even by those to whom charts in general are anathema. A similar chart could, readily enough, be evolved by almost any factory accountant. Here, however, is an illustration of how it operates in the fulfillment of a construction contract:

Assume that work to be done consists of removing 6,500 cubic yards of earth, at an estimated cost of \$1.70 per cubic yard; placing 1,500 cubic yards of concrete, at an estimated labor cost of \$1.20 per cubic yard; laying 10,000 cubic feet of brick, at an estimated labor cost of 35 cents per cubic foot; erecting 3,000 square feet of form work, at a labor cost of 20 cents per square foot. These estimates will have been based on a careful study of previous cost records, modified by various allowances to meet peculiar conditions. The first statement of costs, rendered in the commonly accepted form, may well stand as follows:

Here is shown a net initial saving of \$36 from the preliminary estimate of probable cost for the week's work. There does appear a single over-run,—\$182; but this is more than counter-balanced by other gains. Why worry?

#### Apparent Gains: Hidden Losses.

In nine cases out of ten such a statement would be viewed in just that light,—favorably rather than with foreboding. Yet if the same actual unit costs which appear in this statement should be allowed to continue,—with a 26 cents over-run on each of the 65,000 cubic yards of excavation, the savings made in the operations of

concrete placing, bricklaying and form work would, ere long, be overtaken and submerged by the loss for excavating. The finished job, instead of showing a proportionate increase in the first week's net gain of \$36, would have developed a net loss of \$900.

The germ of that loss would have been industriously at work when the first statement was rendered. Closest scrutiny would have revealed it. But since the keenest is occasionally a little dull, some method of mechanically precise and automatic magnification is more undeviatingly reliable. Such a method is afforded in the **Cost-tendency Chart** which, taking precisely the information rendered in the Labor Statement of Diagram I, presents it both as history and as prophecy, since it shows what has happened, what is happening and what will happen in the end, if existing conditions do not undergo drastic change. (See Diagram II.)

#### A Chart Easily Understood.

In this Chart the base line is the line of normalcy. It stands for the estimate. Of this line each process of construction controls its sector. As the work progresses and process after process is taken up and carried along, if no deviation above or below the line appear, it is evident that everything is moving according to the estimate. That, of course, never happens. Points begin to develop above the line,—indicating costs in excess of estimates; other points develop below the line, indicating costs lower than estimates.

More than this, these points are drawn as triangles enclosed by lines, within which the level of shaded area shows the exact status of any process in terms of gain or loss at the time when the statement (Chart) is rendered. The apex of the triangle shows what will be the total gain or loss for that process at the end of the job, if the present rate of expenditure continues without change.

Even the briefest examination of Diagram II is sufficient to demonstrate the effectiveness of

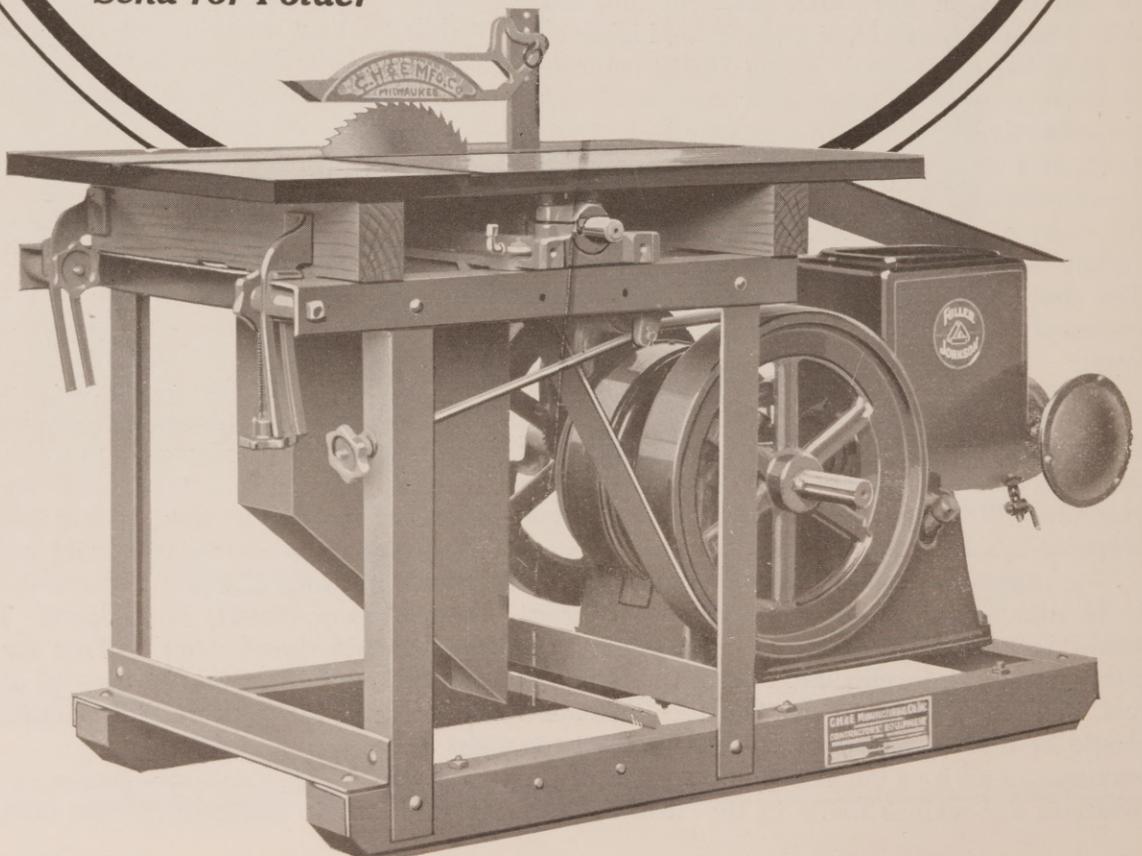
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this graphic method of presentation. It allows for no unfounded complacency. The executive who would experience a glow of satisfaction in perusing the formal statement of Diagram I could not, for even the briefest moment, escape the implications of the sky-scraping triangle which dominates Diagram II.

**Hammering the Points.**

His first concern would be to find a way to hammer down that menacing point. This would imply a systematic investigation of causes and the application of remedial measures. After that he would, probably, verify the accuracy of the glad tidings indicated by the lesser points below the Chart lines, and would do his best to intensify every beneficial influence which he might find responsible for them.

Adequately forewarned by his Cost-tendency Charts, a competent building superintendent is in a fair—barring the completely unforeseeable—to dominate the costs of the operation in his charge. Without such guide, he is, like a mariner without a compass, obliged to proceed largely by dead reckoning. He may come through safely, or he may suddenly find himself in a pre-

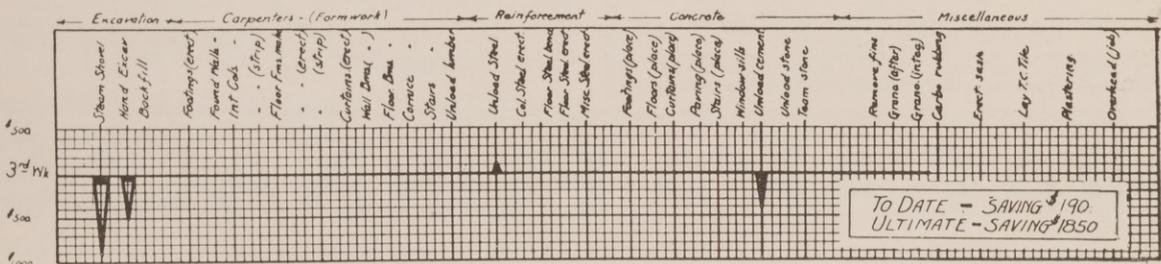
dicament from which he can extract himself only with serious losses.

In actual use, a Cost-tendency Chart for construction includes many more items than the few used for purposes of illustration in Diagram II. Yet it is relatively quite as easy to follow. In the following, Diagram III, are presented three typical cost-tendency statements drawn from the cost records of a building operation precisely as it was carried through and precisely as its outcome was influenced by the heed given to the warnings of the soaring triangles of tendency.

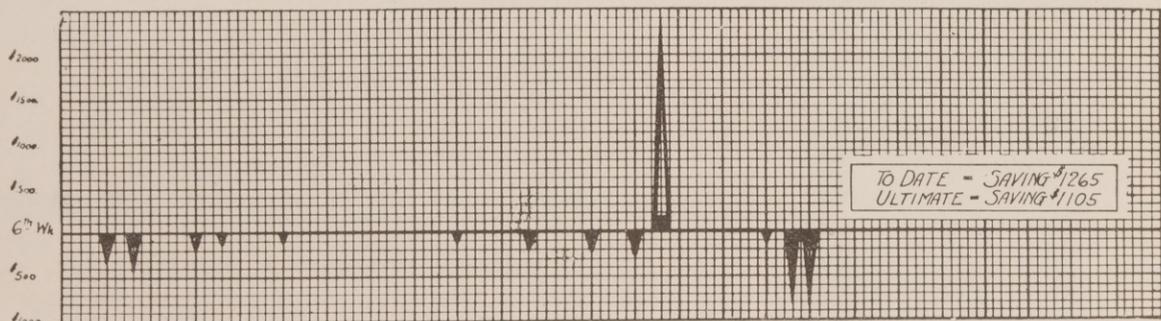
This diagram presents a statement for each of three typical weeks of the same building operation: the third, the sixth, and the twenty-first. The third week shows the work well under way. Excavation by hand and by steam shovel is progressing smoothly and below estimated cost. Unloading steel has run a little above estimate; but the gang has worked better with the cement and has accomplished a saving.

The sixth week, however, suddenly uncovers trouble. Placing floor concrete begins badly. The quantity to be placed and the rate of expenditure both promise a troublesome over-run.

THIRD WEEK



SIXTH WEEK



TWENTY-FIRST WEEK

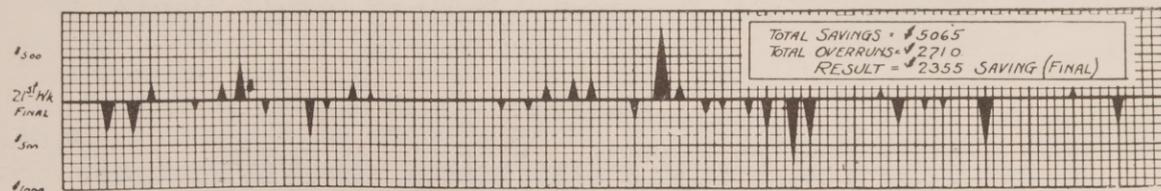


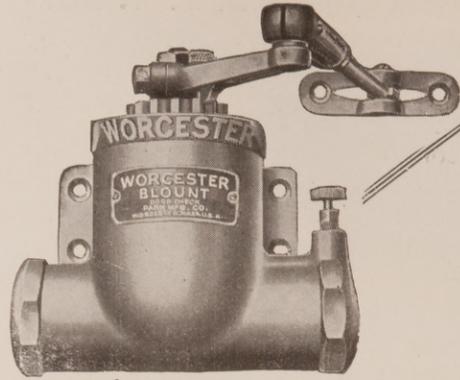
DIAGRAM III.—From an Actual Construction Enterprise. Three separate weeks of a twenty-one weeks program have been selected to show how fluctuations from the estimate will occur and how, by adequate forecasting, they may be controlled.



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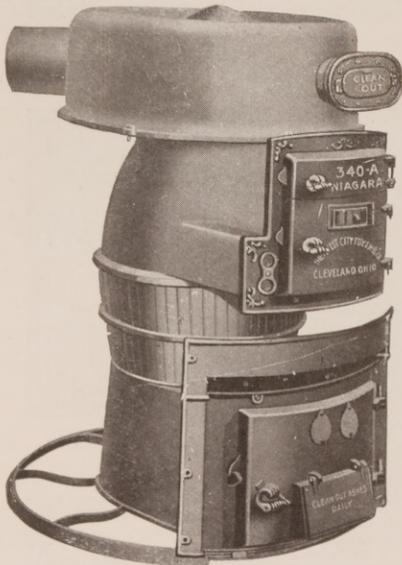
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The end of the twenty-first, and last, week shows the job complete and every triangle above and below the line finally and irrevocable filled with black. The threatening high point of the sixth week has yielded to hammering; but it has not entirely succumbed. Various other and small over-runs have occurred, and have been given each a monument. Excavation has not worked out quite so favorably as the third week's chart portended: but, all told, the saving aggregate \$5,965 and the over-runs but \$2,710. Hence

the final net saving is the very satisfactory sum of \$2,355. That such an outcome could have been accomplished without the constant and timely guidance of a Cost-tendency Chart is very much more than doubtful.

#### Knowledge the Essence of Cost Control.

The graphic Cost-tendency Chart here discussed is but one of the accounting devices used in our construction work to insure such mastery of every situation as complete knowledge of facts makes possible. It is, however, perhaps the most important, as well as the most readily adaptable to other industrial requirements.

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## Floor Loads for Office Buildings

ERNEST consideration of the question of the proper magnitude of live loads for office building floors is being given by the Building Code Committee of the United States Department of Commerce, and facts of great importance to the structural engineer are being disclosed. Observations which have formed the basis of present specifications are being supplemented by careful studies of floor live loads of numbers of buildings in the United States.

Up till the present the most important series of floor live load studies ever conducted was that of Blackall and Everett, carried out in Boston, thirty years ago. According to their observations, which were made on the floors of three large office buildings in Boston, the highest live load found in any one office amounted to 40.2 lbs. per square foot. The average of the ten heaviest loadings in each of the three buildings amounted to only 25.9, 29.8 and 29.0 lbs. per square foot. This directed in a striking manner attention to the remarkable lightness of usual maximum loads on office building floors, and one of the incidental facts established was that a very considerable reduction of live load in the design of columns might be made. This arose from the fact that the greatest maximum average for all floors of any one of the buildings investigated was 17 lbs. per square foot, or 42 per cent of the maximum observed floor load on any one floor. Hence it has followed that most structural engineers are prepared to design the lower tiers of columns for a tall building for a live load not over 50 per cent of the maximum possible live load on all floors above.

The most important of the recent investiga-

tions made by the Building Code Committee is that on the Equitable Building, New York City, regarded as probably the largest office building in the world. As reported by Engineering News-Record, the maximum loads observed varied from 30.7 to 78.3 lbs. per square feet, although in the latter case, if certain bookshelves had been filled, the loading would have amounted for the room in question to 87 lbs. per square feet. The latter load occurred in a room which was selected as one of specially heavy occupancy, being devoted to the housing of a large law library. The above figures relate of course, particularly to the problem of floor design. So far as column design is concerned, the figure to be noted is about 11.6 lbs. per square feet, which represents the average live loads on the three floors particularly chosen for study. Excluding offices given over to a specially heavy occupancy, the maximum floor load observed was 55.4 lbs. per square feet, and comparing the average load on the three floors with this, it is seen that it is scarcely more than 20 per cent of the maximum. In this we have additional ground for liberal reduction of column live loads.

Another investigation undertaken by the committee was on the building of the Union Central Life Insurance Co., Cincinnati. Several large sections of different stories of this building devoted to clerical and filing purposes were studied. The average weight of furniture for these sections was 7.4 lbs. per square feet, and if to this be added the weight of employees not exceeding 1.8 lbs. per square feet, it is seen that the average loading is not above 9.2 lbs. per square feet, although the office floors were designed for 50 lbs. per square feet.

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COLEMAN HOUSE, MACON, GA.  
BUILT 1830.



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architectural style would have been in the South. It is fortunate that we did have the influence of this Classic Revival as we can think of nothing more suited to the climatic and general conditions existing in the South at that time than the use of Greek and Roman columns. It was necessary that the Southern planter have a spacious veranda and a high portico under which he could enjoy the cool exhilarating breezes of the sultry summer days and then it was necessary that he have posts with which to support the roof of the portico and the choice of Greek columns was indeed the most effective selection for setting off the early Colonial mansions, for as one writer says, "You can make white columns absurd, but, try as you will, you can't make them very ugly." The planter of the old South was a man of great purposes and the architectural styles of the greatest monuments met with his favor and so as a result such houses as the Coleman house, Macon, Ga., Carter Hall in Virginia and the great majority of houses of this period were expressions of this idea in one form or another.

Our forefathers in the South used posts and columns so often for providing the very necessary veranda that they acquired much skill and considerable ingenuity in their arrangement and adjustment. In many of the Southern mansions

the designer used a full order and placed beneath his column a complete pedestal as in Wells Hall, around the Teche country of Louisiana. This when a balustrade is introduced between the pedestals, does not appear an unusual and, so, local treatment; but in many cases there is no balustrade and then these pedestals-supported columns become characteristic of the Southern section of the country.

In considering the influence exerted by the styles of the Greek Revival, it is necessary to divide the white-columned houses of the South into two groups—those built by professional architects and those built by the owners themselves. Of the two, the latter were in the great majority. In fact, almost the only white-columned house showing the touch of the student's hand are those found occasionally in the coast cities of the South. One of the earliest of these houses is the Bulloch house, Savannah, Ga., which was built in 1818 and is on the whole, a pretentious piece of work. It was designed by Jay and built, according to tradition, of English brick.

While these houses which were influenced by the Greek Revival are not quite as interesting as the much earlier houses which belong in the Georgian Period, proper, they are worth our study as a natural outcome of the earlier style.



PRESBYTERIAN CHURCH, ATHENS, GA.

BUILT 1820.

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WARREN, KNIGHT & DAVIS, ARCHITECTS.



ENTRANCE DETAIL  
MASONIC TEMPLE BUILDING, BIRMINGHAM, ALA.  
WARREN, KNIGHT & DAVIS, ARCHITECTS.



MAIN BANKING ROOM  
PLANTERS NATIONAL BANK, RICHMOND, VA.  
CARNEAL & JOHNSON, ARCHITECTS,

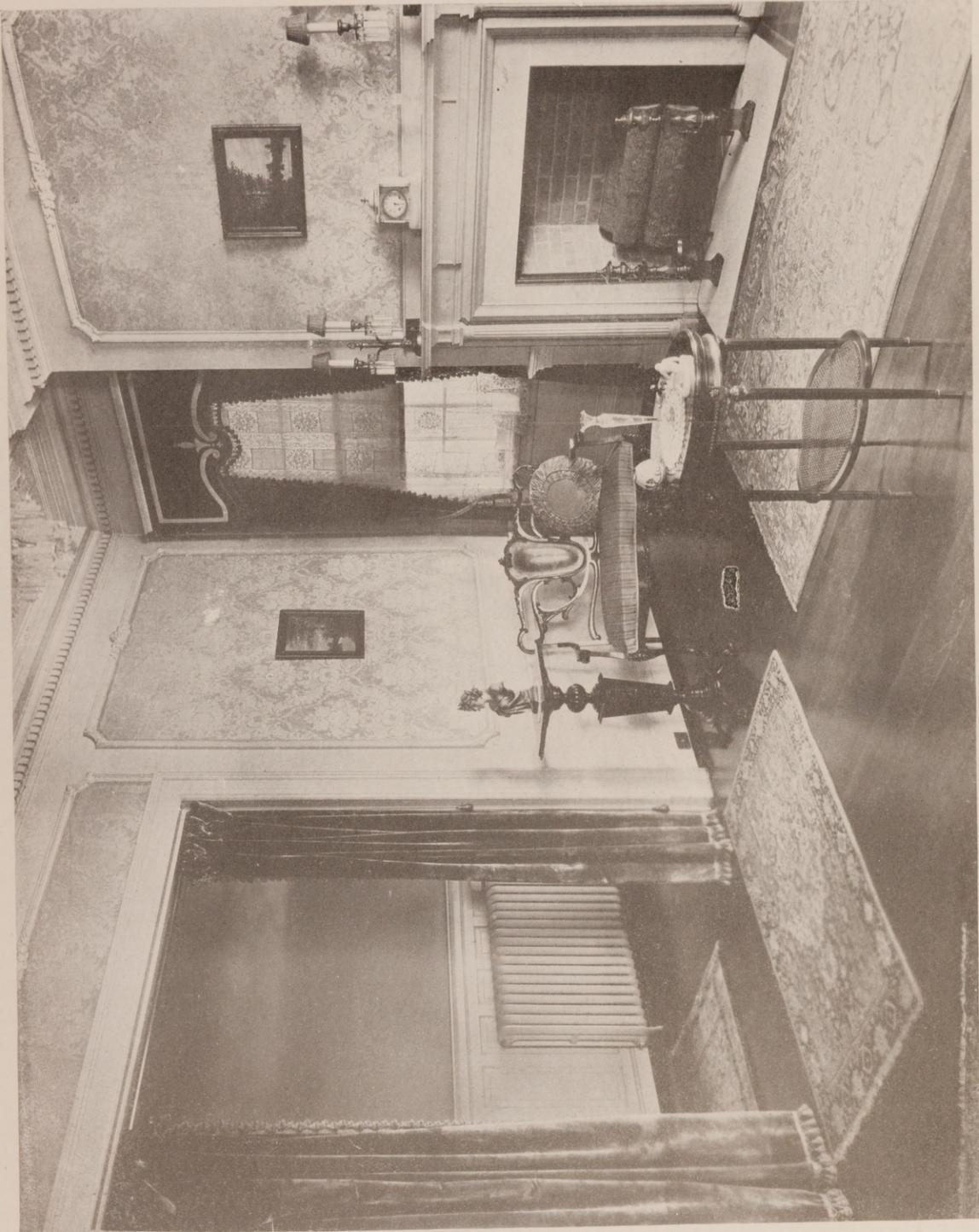


ENTRANCE DETAIL  
HOUSE OF MR. J. B. CAMPBELL, ATLANTA, GA.  
HENTZ, REID & ADLER, ARCHITECTS.

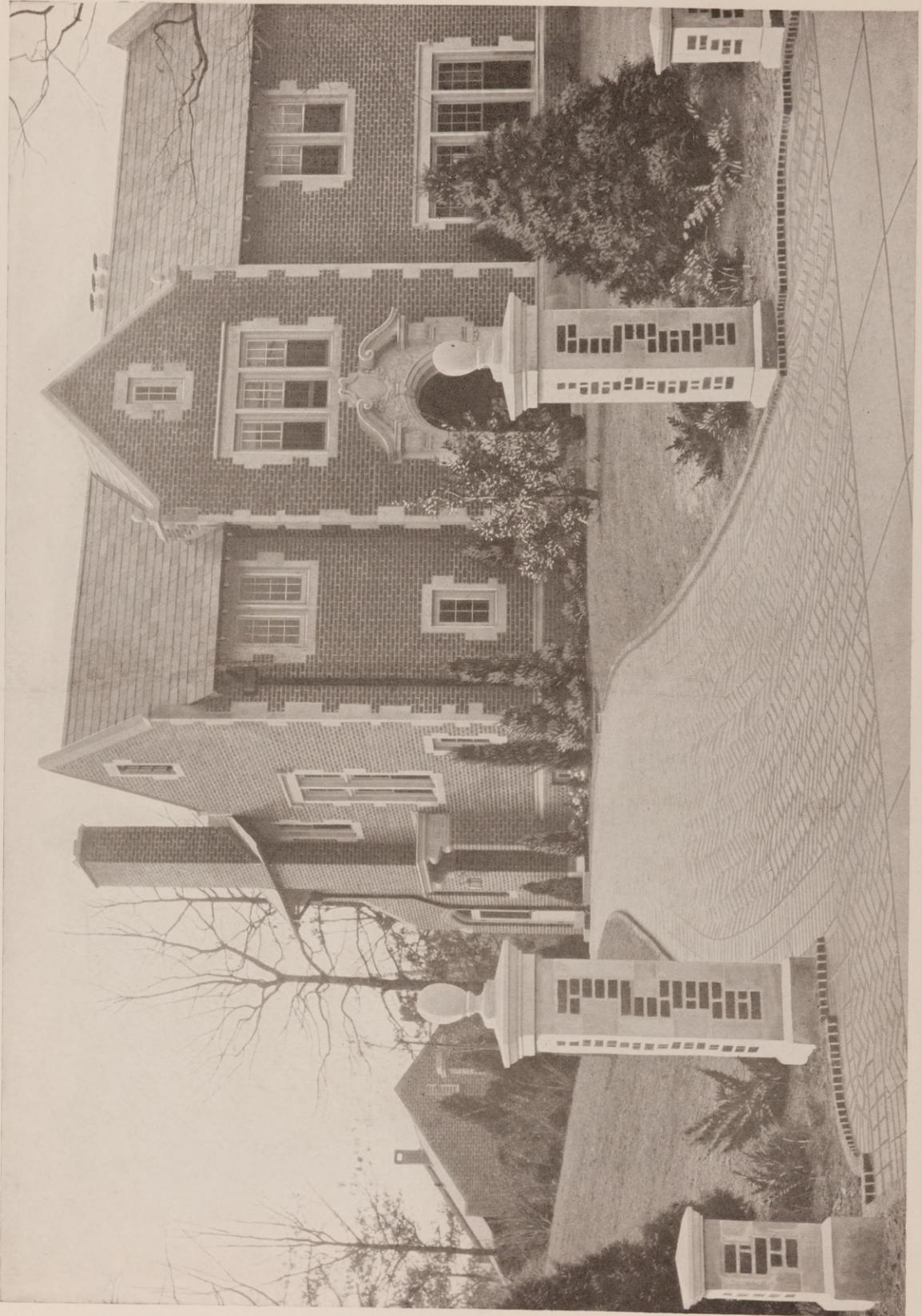


STAIRWAY

HOUSE OF MR. HARVEY SEWARD, PETERSBURG, VA.  
CARNEAL & JOHNSON, ARCHITECTS.



PARLOR  
HOUSE OF MR. HARVEY SEWARD, PETERSBURG, VA.  
CARNEAL & JOHNSON, ARCHITECTS.



HOUSE OF MR. MAX LOWENSTEIN, ATLANTA, GA.

R. S. Pringle, Architect.

# Stairways in Houses of Moderate Cost

## The Colonial Type of Stairway.

By John T. Fallon.



THE predominance of tradition in the history of a nation's architecture is more or less axiomatic. Even with the access to all that has been done in the past which modern artists possess, it is impossible to transplant a style racially different from our own and to cause it to grow and take root. It will inevitably die a natural death, as has been proven by Richardson's experiment with French Romanesque, or, if it becomes a vital element of our own work, it will take on a recognizably different aspect.

Now, from the early days of the colonies, up to the decline of taste in the Mid-Victorian Era, our main outside impulse came from England, from which source we inherited our habits of living and in a restricted sense our ideas of domestic planning. The great accessibility in this country of wood as a building material changed substantially the forms and details of the Colonial house from those of Georgian England, but the stairway is one of the exceptions from this statement.

The hall invariably extending through the width of the house, with the stairs at one end, is distinctly Colonial, as was the same tendency repeated in the simple rectangular planning of the living rooms. However, the Jacobean arcade, shutting off the staircase from the hall, persists in Colonial work. This division takes now the form

of an elliptical arch, now the form of a beam supported by columns with varied spacing or even without support.

In both English and American houses, the stairs usually run in short straight flights, then a quarter landing, then another flight at right angles. The Colonial type of house usually demanded a door under the landing, which influenced their designers to make the first flight of sufficient length to bring the first landing to the proper level to allow for this door height. The width of the hall sometimes operated to suppress the intermediate flight and to make necessary only one landing.

A recent writer has thus summarized the typical Colonial plan: "The first flight rising from the first floor contained roughly two-thirds the total number of steps needed to reach the second. At the top of the flight was a level landing crossing the hall. Thence continuing to the floor above was a second flight containing the remaining one-third of steps. By this means head room was obtained under the landing for a rear entrance to the hall. The scheme adopted in some modern Colonial houses of having a flight on each side of the hall ascend to the landing, with a shorter flight continuing to the second floor from the center of the landing, has no counterpart in Colonial work. But it is not an unreasonable elabo-



STAIRWAY IN HOUSE OF BETTY WASHINGTON LEWIS, FREDERICKSBURG, VA., 1752.



COLONIAL STAIRWAY—GREENWOOD, THOMASVILLE, GA., 1830-1850.



COLONIAL STAIRWAY AND HALL.



COLONIAL STAIRWAY—LEE JORDAN HOUSE,  
MILLEDGEVILLE, GA., 1830.

ration of style; and that we have no example in old house is perhaps only because the arrangement calls for a larger scale of building than the means of the Colonists afforded. The introduction of steps in the landing, causing a break in its level, is only to be seen in a few houses built towards the end of the eighteenth century."

This introduction was not a space-saving compromise, as he has pointed out, but a distinct step towards the elliptical stair that rose in one flight from floor to floor, as may be deduced from the absolute elimination of the newel, already suppressed in importance, and the rounding of the landing corners, carrying rail and string up in one warped line. The full elliptical stair is a development that was reserved for a few late Colonial examples of the early nineteenth century. The increasing technical skill of the stair builder was shown in this last phase, which is comparable in the mastery over materials with the finest efforts of contemporary French stone masons.

Before discussing more fully the details of the Colonial stair, it might be well to call attention to the association of Georgian work with the use of ma-

hogany, and to review the causes that led up to it. This wonderfully colored wood, with its inimitable grain, is indigenous to Central America and the West Indies. Its beauties were first discovered in 1595 by one of the members of an expedition of Sir Walter Raleigh, but it was not until the opening of the eighteenth century that its suitability for cabinet work and furniture began to attract attention. It came rapidly into vogue, primarily through the efforts of Dr. Gibbons, who influenced a wood carver named Wollaston to bring it to the notice of the British public. It was originally imported from Jamaica, where the bulk of the eighteenth century supply was obtained, the exports from this island being 521,300 feet in the year 1753.

The use of mahogany for the hand rails of Colonial stairs was general. This part of the stair is naturally subjected to great wear, and a wood of hard texture and handsome grain is demanded. Mahogany fulfills these conditions admirably. Its use was seldom extended to the spindles and treads, as considerations both of cost and of taste prevented a wider employment. The hand rail became more delicate as the development went on; its profile was generally classic and refined, although occasionally a simple round section was used. It was carried continuously from floor to floor, a suppressed baluster newel being used to



STAIRWAY IN HOUSE OF MR. GAGE TARBER, GARDEN CITY, N. Y.  
AYMAR EMBURY, ARCHITECT.



STAIRWAY IN HOUSE OF ROBERT J. COLLIER, ESQ., WICKATUNK, N. J.  
James Russell Pope, Architect.

turn the corners. A favorite modification was the sweeping rise of the rail at the landings, as if to surmount the newel. A half section of the hand rail was often repeated along the top of the wainscot. This stair wainscot, which is so often omitted entirely in modern houses of the inexpensive type, was inevitable in the old work; in the cheaper houses it was usually preserved in line by a simple wall moulding carried up at the height of the rail. These wood wainscots were never elaborate affairs; generally, they consisted of simple panels with occasionally a balancing of the newels by a flat pilaster treatment.

As mentioned previously, the Georgian development of the baluster led to attenuation and delicacy. A usual treatment was the use of two or three different designs to a tread, although this is not inevitable. Indeed, a favorite variation from the turned types was a square spindle, sometimes without. The start of the rail was made from a small, unobtrusive newel surrounded by a circle of balusters. The other variant, a start from a prominent and projecting newel, although frequently used, was never particularly happy.

The string was always an open one with step ends in console form, sometimes beautifully carved, but more usually with a simple cut in

the flat and applied. The infinite variation in these designs adds great fascination to the study of these old stairways. It was not until the end of the period that the landing newels were entirely done away with and the string continued in one line; in most of the examples, the newel projected down to receive the string and to be ornamented below by some simple drop.

The soffit of the stairs demands some attention. In the older work the first flight was usually supported by a base of paneling, and the soffit so concealed. The soffit of the top flight was filled in flat with plaster on a line with the bottom of the string, sometimes paneled and sometimes left plain. The practice of showing the soffits of the individual steps as if they were solid blocks, common in the late English stairs, was used in very few instances, one being that of Shirley in Virginia.

The painting of Colonial stairways was always white, and any other color now seen on the woodwork of an old building may be safely assumed to be of a later date. The only contrasting notes to this monotone color scheme was the rich tone of the mahogany hand rail and wainscot cap. The wall of the staircase was whitewashed, if a simple house, or papered with imported wall

*(Continued on page 53)*



STAIRWAY IN RESIDENCE OF ADMIRAL PRESLEY M. RIXEY, ARLINGTON COUNTY, VA.  
UPMAN & ADAMS, ARCHITECTS.

## PERSONAL MENTION

The College of Architecture, University of Wisconsin, announces Mr. Eliel Saarinen of Helsinki, Finland, as visiting professor in architectural design, for 1923-1924.

Lawrence A. Kerr and Harold Walsh have purchased the interest of J. C. Berry in the firm of J. C. Berry & Co., Architects, of Amarillo, Texas, and the firm will hereafter be known as Kerr & Walsh, Architects. Mr. J. C. Berry has opened an office in Long Beach, California. Mr. Berry's address there is Suite 2, Horne Building.

### Doctor Waid Goes Abroad.

D. Everett Waid, F. A. I. A., Treasurer of The American Institute of Architects and President of the New York Chapter, is now sojourning abroad. Doctor Waid will visit England, France, Belgium and Spain before his return.

Eric E. Hall, architect, announces the formation of a new corporation, association with A. J.

Lawrence, Fred O. Rippel and H. E. Ratcliffe for the practice of architecture under the firm name of Hall, Lawrence, Rippel & Ratcliffe, Inc., architects, 123 West Madison Street, Chicago, Ill.

Announcement is made that L. Skolnik, architect, has opened an office for the general practice of architecture at 210 Sixth Street, St. Clair Building, Cleveland, Ohio.

David Lynn, since 1910 the Civil Engineer of the Capitol, has recently been appointed by President Coolidge as Architect of the Capitol, to fill the place made vacant by the death of Elliott Woods.

It is announced that Thomas L. Sorey and Walter T. Vahlberg have formed a partnership for the general practice of architecture under the firm name of Sorey & Vahlberg, 212½ West First Street, Oklahoma City, Okla. Manufacturers' catalogs and samples are requested.



W. H. Merriam, Ga. Tech.

# Stairways in Houses of Moderate Cost

## The Colonial Type of Stairway.

By John T. Fallon.

(Continued from page 49)

paper in the larger houses. Here may be said to be another Georgian innovation. Although there were examples before this time, wall paper first came into general use in this century. The early wall papers used in Colonial days were printed by hand on square pieces of hand-made paper from wood blocks, and it was not until 1800 that roller presses began to be introduced. The designs were first copied from figured velvets and brocades, but soon landscape and architectural subjects replaced these and continued in vogue through the period of the Empire.

The problem of the stairs in modern houses of moderate cost can hardly be said to have received the study that our ancestors gave to it. When the traditional types of Colonial stairs are faithfully copied, not merely in detail but in the essentials of planning, we produce examples that are, at least, comparable with the antecedents; but generally in the more inexpensive houses the problem is slighted and neglected.

The illustrations show how eminently suited to our modern life are these Colonial types, and how even in a literal transcript the selective faculty may be exercised to produce not a finer model, but stairways that bear comparison with the high water marks of the eighteenth century. Occasionally, French or Italian detail is introduced into

the design to give a modern flavor or to produce an air of sophistication that our forefathers' work lacked. But, on the whole, it may be said that for practical utility and as an aesthetic inheritance, the Georgian stair is one of the most important influences in American interior architecture. Tastes may veer in one direction or another, but the basic elements of our stairway designs will waver little from the Colonial stair.

The art of the stair builder was in earlier days as important component of the building trades. It is certain that the present day artisans are not less skilled, but, since the architect has laid less stress on the design of the stairway, the artisan has come to have less training in its construction. Discussion has recently centered upon the training of the individual workman as a means towards the elimination of the stereotyped and conventional in architecture. Stair building as a trade has been only imperfectly transmitted to the present generation of workmen, but by a conscious effort on the part of the architect to keep this feature on the high plane to which it once rose, its structural possibilities could be once more easily realized and its design thereby improved.

*EDITOR'S NOTE—For this article we wish to give credit to Mr. Fallon and the publication which was known as "The Brickbuilder."*

## The Oldest and the Newest of American Schools of Fine Art

It is little known that the first university instruction in fine arts given in America was inaugurated by New York University on its foundation in 1832, and that the first holder of its chair of design was Samuel F. B. Morse, more familiar as the inventor of the telegraph. Up to that time Morse had devoted himself to painting, and it was, indeed, as President of the National Academy of Design that he received the appointment. It was in his studio at the old University building at Washington Square that Morse, despairing of public appreciation of painting, constructed his first telegraph; and he continued to hold his professorship of art until his death, although scientific pursuits later left him but little time for instruction.

The work which thus lapsed has now been re-

established through the generous support of Colonel Michael Friedsam and the Altman foundation, and the scope of the department of fine arts has been greatly increased. Through the co-operation of the Art-in-Trades Club of New York City, which has done much to raise the artistic standard in manufacture and trade, the work offered in the decorative arts will be especially important.

The Morse Professorship will be held by Fiske Kimball, formerly head of the School of Fine Arts at the University of Virginia and writer of many books and articles on architecture and the other arts. Mr. Kimball heads a strong faculty including Dr. Richard Offner, in charge of the study of Italian Art, for which he is especially qualified, having spent the better part of ten years in re-

## We Wish to Express Our Thanks

**T**O our many friends, both subscribers and advertisers for the kind letters that have been received during the past few months telling us of the favor with which our publication is being received, and the satisfactory results obtained from using our advertising space.

It is indeed a pleasure to know that so many of our readers find the subject matter and illustrations published each month interesting and valuable to them in their work, and that our advertisers are pleased with the results obtained by using our pages in presenting their products to the profession.

Your suggestions and criticisms are welcomed and requested as a means of helping us to better serve the architectural profession and the manufacturers of building material and equipment.

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search work there. During this time his "History of Florentine Painting," which is now nearing completion, has received frequent commendation through important articles. Lectures on historic textile fabrics, on tapestries, and on oriental rugs will be given by Dr. R. M. Riefstahl, associated with the Anderson Galleries, and well known for his writings on textiles and on Mohammedan art. After long residence in France Mr. William M. Odom, author of the great "History of Italian Furniture" and director of the New York School of Fine and Applied Art in Paris, will lecture on interiors and decorations in France. Mr. Francis Lenygon, author of many books and well known as a decorator in New York and in London, where his firm acts by appointment to His Majesty, will supervise a course in the design of interiors and furniture.

Edwin H. Blashfield, President of the National Academy of Design, will be the first of a number of special lecturers and will inaugurate a series of Morse Lectures. It is interesting to note that his talks, given in the form of reminiscences dating back to student days with Morse in Paris, will be given in the auditorium at Washington Square on the site of the old University building where Morse had his studio.

New York University and the National Academy of Design will offer a combined course for art students desiring also to obtain a liberal college education, thus restoring and enlarging the old relation between the University and the Academy. Four years will be spent in the course—the first three on academic subjects at the University and the fourth exclusively on drawing and painting at the Academy. Thus University students will profit by having instruction by such well known masters as Charles W. Hawthorne, Francis C. Jones, Charles C. Curran and others, under whom they may continue the study of painting at the Academy following their graduation from the University.

Courses in the history of architecture and other phases of painting and the decorative arts will be among the general courses. These are open to the public, especially those engaged in professional or commercial work—as well as to regular students of the University. Women as well as men will be admitted to most of these, a number of which, through the courtesy of the Metropolitan Museum of Art, will be held at the Museum. Other lectures will be held at Washington Square and University Heights, many of them in the evening.

New York with its valuable artistic sources, its multitude of public and private collections and exhibitions, is the obvious location for a great University department of fine arts. It has seemed a great anomaly that there should have been

none there. Now we may hope that the want will be supplied.—"Architectural Record."

### ALUMINUM.

The use of Aluminum in the industrial and household arts has grown with great rapidity in recent years. Its valuable qualities have been known for over a century but its general use for many years was prohibited due to its high cost of production. When a method of extracting the metal from the basic clay by electrolytic processes instead of through chemical agencies, the cost was greatly reduced, making this valuable metal available for commercial purposes.

Heretofore this metal would not have been available as a commercial roofing on account of its high cost, but the modern methods of its manufacture now brings it within the reach.

Another hindrance to be overcome in the use of this metal for roofing arises from its great expansive and contractive qualities. Those features preclude the use of tight joints as the roof plates would buckle and tear apart. Soldering is also out of the question on account of the high temperature and excessive cost of the solder required.

The full solution of these problems has been found in the RIDGDOWN Shingle manufactured by the ALUMINUM ARCHITECTURE CO. of Aurora, Ill. The RIDGDOWN Shingle is provided for expansion and contraction but also for air circulation.

The RIDGDOWN Shingles are applied from the ridge down, eliminating scaffolding. All that is necessary for the workman to have is a foot support (a two by four nailed into the roof boards below) which is moved downward as the work progresses. Considering this and their locking devices the cost of application is very small. They can be applied only in the right way and make therefore an ideal commercial product.

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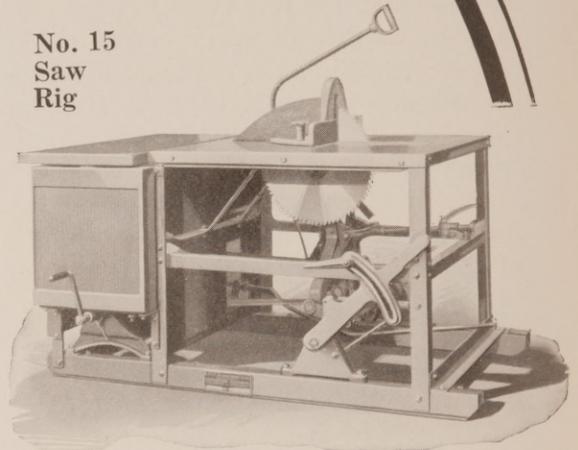
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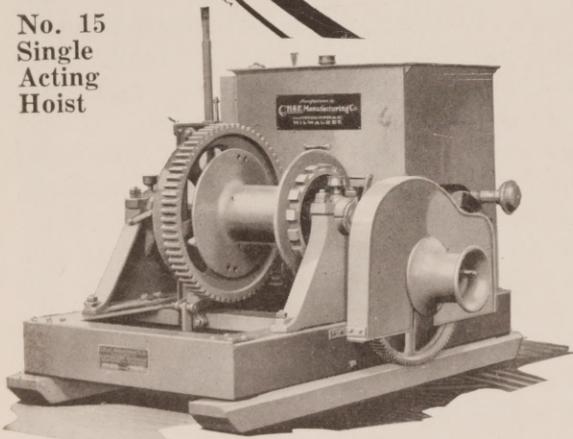
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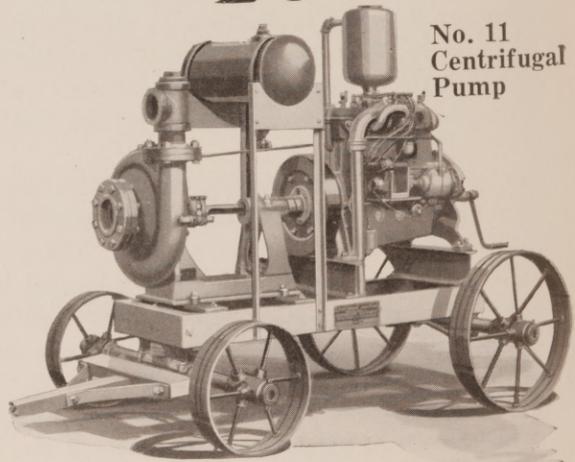
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# Time Values as They Affect Construction Costs

A Tabulation of Actual Cases and a Suggestion of their Bearing upon the Problem of Building Procedure.

By Morton C. Tuttle Co., Boston, Mass.

SOME one has defined perspective as that trick of vision which makes a cent near at hand obscure the more distant dollar;—a cynic's definition, but fairly true both to optics and to human nature. Everyone has his pet economy; everyone is, at times, penny wise and pound foolish; everyone is likely, unless constantly on his guard, to let apparent **Price** overshadow considerations of actual **Cost**.

The expensiveness of bargains most of us more readily admit in theory than observe in practice. Confronted with what appears to be a favorable fixed figure for the rendering of a promised service, we are prone to accept it without very exhaustive consideration of whether or not conditions may be involved which, before the contract is completely fulfilled, will entail expenditures far beyond those nominated in the bond.

## Prices Fixed but Costs Variable.

How this perfectly normal human tendency may operate in the construction field, and how it may result in transmitting low prices into high capital costs finds exemplification in a quite unexpected place.

There may be no question that a building contract undertaken in accordance with the specifications of experienced engineers places the contractor under the severest obligation possible to a fixed-price-requirement agreement. Where an owner insists upon that type of contract, there is, of course, no alternative; and, whatever the outcome, it must be viewed as the best obtainable

within the limitations of the procedure employed. It is this consideration which gives point to the appended tabulation of the course of several contracts placed with various contractors, as they are recorded in the books of a distinguished firm of industrial engineers, to whose courtesy I am indebted for the data supplied.

## A Proverbial Statement an Industrial Fact.

Let me preface the tabulation with the single trite observation that, in industrial construction, **Time is Money literally**. A factory is not an end in itself. It is merely a means: merely one step in a progression whereby raw material is procured; is, by sundry conversions, increased in value, and is eventually distributed to the public in return for money sufficient to maintain the succession of processes as to yield a profit.

Once, therefore, factory construction has been undertaken, every day of unnecessary delay in its completion spells actual money loss: on the one hand, loss of expected profit; on the other, loss through the accrual of overhead charges unbalanced by compensating income. Such losses should properly be reckoned as part of the capital expenditure in behalf of construction. The sum of them, plus the **Price** paid to the contractor for his services, constitutes the real **Cost** of the work.

## The Burden Imposed by Loss of Time.

The heavy burden of cost which the element of lost time may impose upon price is the startling feature of the following tabulation, taken, as I have already stated, from the records of actual

1	2	3	4	5	6	7
Contractor's Price	Agreed Time for Completion of Work	Contractor's Actual Time on the Work	Time Consumed Beyond Date Set for Completing Work	Percentage of Time Overrun	Estimated Money Loss to Owner on this Account	Cost of Work to Owner; ie, Price Plus Loss
\$530,000	8 mo.	12½ mo.	4½ mo.	56%	\$58,685	\$588,685
275,000	8 "	10½ "	2½ "	31%	16,877	291,877
140,000	5 "	6¾ "	1¾ "	35%	6,083	146,083
135,000	5 "	8¼ "	3¼ "	65%	10,673	145,673
135,000	5 "	5¾ "	¾ "	15%	2,566	137,566
608,000	11 "	14½ "	3½ "	32%	52,836	660,836
92,000	5 "	9 "	4 "	80%	8,959	100,959
140,000	5 "	6¼ "	1¼ "	25%	4,350	144,350
\$2,055,000				42% Average		

A Tabulation from Actual Records of Construction, showing how, in building, time overruns may transmute apparently fixed prices into highly variable costs.



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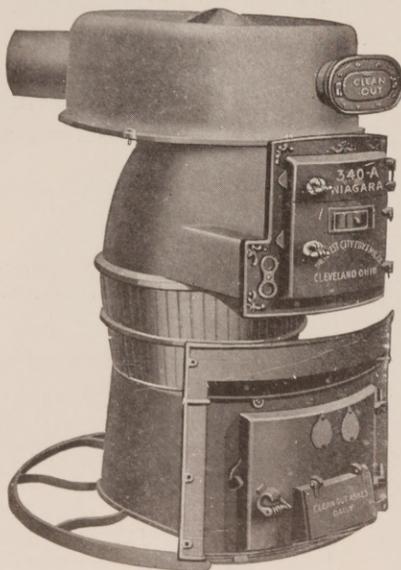
Who is there among those who really appreciate fine furniture, that does not admire the beauty and Colonial dignity of a Governor Winthrop desk? This correct copy of the old original piece is custom built of selected genuine mahogany by skilled cabinet makers. It has a hand rubbed finish, dust proof drawers, two secret drawers and solid brass fittings. There is nothing finer made. We guarantee it as represented or money will be refunded. Sent on receipt of price or C. O. D. with \$20 deposit. Plates of other antique reproductions on request. Ask for Booklet S-10.

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performance. The figures of eight undertakings are given. They have not been selected as horrible examples; but have been lifted as a consecutive block from the engineers' records. They may, therefore, be accepted as representing unusually favorable, rather than exceptionally unfortunate, experience. Here, then, is the tabulation:—

The figures offered above have been so arranged as to show, in each instance, first, the **Price of the Building**: that is, the finally agreed **Fixed Payment** to the contractor. There follows a notation of the **Time Period** within which the completed work was promised. Next is listed the item of **Performance**; that is, of time actually consumed in construction. Since, without exception, there occurs a wide and unfavorable discrepancy between promise and performance, the next listing is devoted to that item, stated first, in terms of **months**, and, again, in terms of **percentages**. Next appears an estimate of the **Money Loss** involved in the time-overruns recorded. This estimate, added to the contractor's Price, shows the real **Cost** of each project.

**The Tabulation Analyzed.**

An analysis of the first instance given in the tabulation will serve as a key to the analysis of the other seven. Keeping, for simplicity's sake, to major considerations, we may view the following as a conservative computation.

1. Contract price of building as awarded to Contractor \$530,000
2. At the end of the agreed period (8 months) the expenditure will be approximately \$465,000, which, though idle, requires interest computation for the overrun period of 4¼ months. Interest on \$465,000, 4½ months at 6% \$10,462.50
3. The balance \$65,000 calls for computation of idleness for an average of 2¼ months. Interest on \$65,000, 2¼ months at 6%. 731.25
4. Money will be tied up in land. More money will be tied up in machinery and factory equipment rendered unproductive for 4½ months by delay. Estimate land and machinery at \$475,000. Interest on \$475,000, 4½ months at 6% 10,687.50
5. Failure to place the plant on a productive basis at the appointed time means failure to pay legitimate returns. The total estimated investment in land, building, machinery and equipment is here \$1,090,500:

Contract price of Building	\$ 530,000
Land	30,000
Machinery and Equip-	

ment	445,000
Installation of above...	35,000
Engineer's Fee, 5%....	50,500

\$1,090,500

It is proper to estimate return of 9% applicable to taxes, insurance, and various other carrying charges; the residue being available for other distribution.

Loss of income on \$1,090,500, 4½ months at 9%		36,804.57
Total of Losses Enumerated		
Above .....	\$58,685.62	\$58,685.62
REAL COST OF CONSTRUCTION OPERATION .....		\$588,685.62

**Additional Considerations.**

This analysis, as has been said, is illustrative rather than exhaustive. The experienced mill man would add to it many items totalling many dollars:—such items, for example, as

1. Storage charges on raw materials purchased for manufacture.
2. Interest on money invested in such materials.
3. Losses due to inability to carry out sales campaign programs.
4. Losses due to inability to meet seasonal opportunities.
5. Loss of trade opportunities, of prestige and of goodwill.
6. Cost of maintaining special personnel engaged to man the plant.

The list might be continued indefinitely. It is, of course, unnecessary to point out the fact that what is true of industrial construction is quite as true of that type of construction which includes hotels, apartments, stores and other buildings where the owner's income is derived directly from rentals. Indeed, the principle involved is of universal application.

**Old Custom Giving Place to New.**

Such, then, are the frequent facts of construction. **Price**, the consideration which governs the placing of many contracts, is evidently something far different from **Cost**. And **Cost**, again, is evidently very largely determined by the contractor's fidelity to his promises of **Performance within a given Time**. That such fidelity is liable to repeated lapses, the figures make quite too clear. And, to all appearances, the party to the enterprise who suffers most is the owner of the building.

If there is any lesson to be drawn from this, it would appear to be that, under modern industrial and economic conditions, a large and complicated construction enterprise involving many unpredictable factors is not capable of satisfactory protection under the old time form of fixed-price contract. It is becoming increasingly important that complete control of various elements—notably that of time—affecting any important building operation should remain in the hands of the owner and his engineers.

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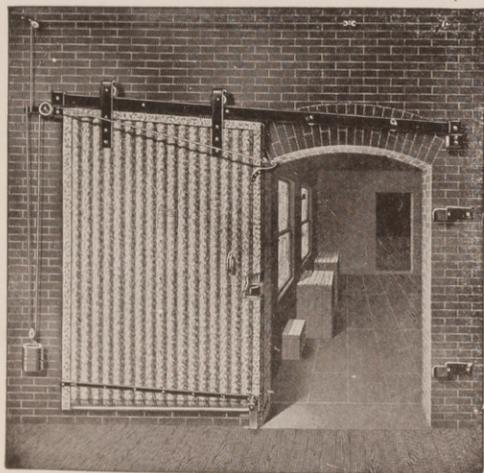
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Probably that accounts for the observable change of viewpoint whereby the idea that a projected building is a commodity to be bought is being superseded by the realization that construction constitutes a service to be discriminately selected. This is the viewpoint in accordance with which certain great financial powers are regularly proceeding. Their need for construction

they meet by the employment of highly competent and well equipped professional agents, all of whose energies are directed to meeting the client's requirements, while, at the same time, safeguarding his interests. The basis is virtually the same as that used in the employment of professional service in any other field. It may be assumed that the results are quite as satisfactory.

## Why Not Incinerators

By Thomas Treganowan

Secretary of the Pittsburgh Incinerator Co.

Why do we to-day have the filthy garbage pail and dirty rubbish basket in our kitchens and back yards, attracting flies and vermin and helping to create unhealthful conditions and spread disease?

Why not Incinerators?

Why not burn the garbage and rubbish.

It was not so many years ago that a Baltimore, Md., master plumber, when approached by Mr. August Buerkle of Pittsburgh, who at that time was connected with the Monarch Water Heater Co. (now the Pittsburgh Water Heater Co.) and was asked to purchase and display a "Monarch" Water Heater and boost the same to his trade, replied:

"I will bet you five hundred dollars that this thing which you are trying to promote will never amount to a Damn."

Sounds funny, doesn't it, when you look at the Pittsburgh Water Heater Co. to-day. Sales offices in all important cities, and according to President Frank H. Knapp, the company is rushed with orders from everywhere.

The same with Ruud—the same with Lawson.

Don't blame the Baltimore plumber; he was probably a good enough fellow—he was like many of us to-day; we lack vision.

We are too hide bound. Sometimes we can see only to the end of our noses.

Look at the Standard Sanitary Manufacturing Co., the most significant example in the sanitary world, of aggressive publicity, of hard work and promotion, of broad conceptions, untiring energy.

When the Standard started about 40 years ago, they made about 4 bath tubs a day.

The enamel bath tub industry was then in its infancy—car load after car load of decorated bath tubs was returned to the Standard in those early days because the enamel would not stay on the tubs.

The Standard business rose from \$4,000,000 a year when Theo. Ahrens was made president, to \$53,000,000 a year in 1922.

Was it luck, or was it hard work, intelligent and well directed effort?

If we were betting, we would place our bets on the latter.

Everybody knows that 40 years ago, only a few houses contained bath rooms, and those only the homes of the wealthy, and at that, not all the wealthy families had bath rooms in their homes.

The credit for this belongs to Pittsburgh—to The Standard and to other progressive Pittsburgh manufacturers.

Pittsburgh put the bath tub on the map. You do not need to go to New York or Philadelphia or Boston for credit for the great spread of sanitation—go to Pittsburgh and you reach home.

Standard Baths and fixtures are in the royal palaces of Europe and Asia and all over the world—why? because the goods were made and pushed and promoted in Pittsburgh and in Louisville and in New Brighton, and nowhere else.

Who put the Hot Water Heater on the map but the Pittsburgh manufacturers—the pioneers, Edwin Ruud, James Hay, The Monarch Water Heater Co. (The Pittsburgh Water Heater Co.), The Lawson Mfg. Co.

Did these pioneers have an easy time at first? Ask them.

They had to fight to get a foothold.

The same with Incinerators.

Nothing worth while comes easy.

Is there any better way of disposing of garbage and rubbish than by burning it?

If so, we never heard of it.

Why does not the National Association of Master Plumbers take up such matters, the introduction of new articles which relate to the welfare of the public and which make for more healthful conditions and more sanitary surroundings.

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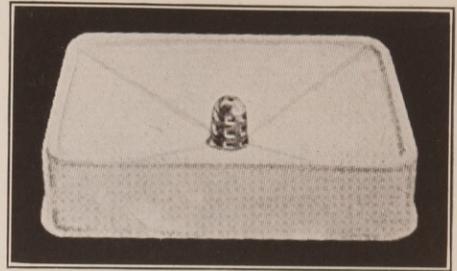
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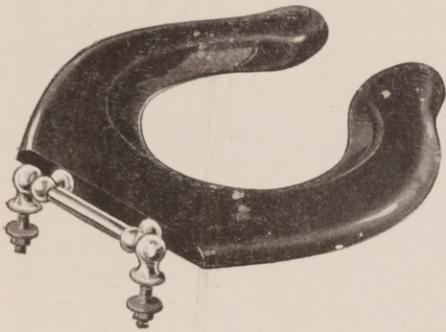
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the necessity of the dirty garbage pail and the rubbish basket.

The Incinerator is coming into more general use every day. Progressive people are already installing them in their homes and factories.

All it needs is a boost and your help.

All it needs is promotion, publicity, advertising.

All it needs is co-operation among the trade, the manufacturer and the public.

Master Plumbers—get busy and enlarge your field by boosting the Incinerator.

## Resolutions Passed by the Board of Governors of the American Construction Council

Annual Meeting, New York City, September, 1923. Construction Congresses.

Recognizing the need of promoting the organization of local building construction congresses throughout the various construction centers of the country where none already exist and with the desire to cooperate in every appropriate manner with such congresses as already exist and to assist in the establishment of others, the Board of Governors of the American Construction Council herewith authorizes the expenditure of such sum as may be available up to \$25,000.00, to be used in the promotion of this work; and the Board requests the officers of the Council to utilize its administrative resources in every way possible in the furtherance of this program.

### Apprenticeship.

With the desire of furthering a sound and adequate program on apprenticeship training for the construction industry and of co-operating in every way possible with the present bodies who are directing their efforts in this field, and who are or in the future may be, inaugurating and conducting agencies for such training, the Board of Governors of the American Construction Council hereby requests the officers of the Council operating especially through its Committee on Apprenticeship, Vocational Guidance, and Craftmanship, to cooperate with employees' and employers' organizations, building congresses, and all other elements in the construction industry, and with the educational bodies, local and national, in providing for apprenticeship which will be attractive to young men and will afford the fullest means for the employment and training of efficient workers as apprentices, and will produce the skilled workmen needed in the construction industry; and the Board further authorizes as the first essential step in this program the making of a national survey on apprenticeship needs and conditions of labor supply throughout the construction industry through the appropriate agencies of the Council cooperating with all organizations within the industry.

### Statistical Program.

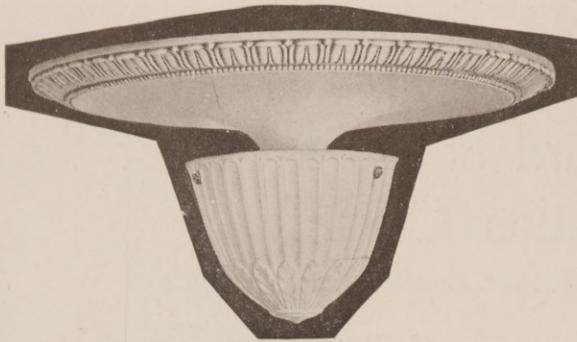
Earlier in the year the American Construction Council called attention to the necessity for securing at regular intervals adequate data that would give the public information which it could use as a barometer of present and anticipated volume of construction by important districts throughout the country. By securing such facts it is the thought that the peaks and valleys in construction activities, which have effects of such a serious nature upon every person in any way connected with the industry, either in contemplating and executing a project or as an owner, would by careful planning be reduced in so far as possible. The need for such information has become all the more apparent with the rapid expansion of the industry in its many angles and the desirability of coordinating its activities toward a better stabilizing of the industry itself. The administrative machinery and the budget required to put into effect a program to accomplish these ends from the very nature of things would be very substantial in size.

After an extended and exhaustive survey of the field and of existing agencies for securing statistics on the construction industry, the Board of Governors of the American Construction Council has decided to defer action by the Council itself on a general program in this regard until such time as may be practicable, without duplication of effort, in expediting the collection, interpretation and dissemination nationally of data applicable locally and at present not readily available to the general public.

The Board of Governors further authorizes and directs its Executive Committee to keep in touch with conditions pertaining to construction throughout the various districts of the nation, and if in its judgment a crisis arises in construction activities, to convene as many members of the Board as possible and issue a statement to the public for its information regarding same, recognizing in its action conditions applicable to the different localities.

# PLANETLITE

"EVERY RAY OF PLANETLITE GIVES SERVICE"



PLANETLITE answers all requirements of modern Commercial lighting.

Architects specify them because PLANETLITES more than fulfill their requirements.

**THE UNIT WITH THE  
82% LIGHT OUTPUT.**

Each unit is packed complete in cartons and "Shipped to the job ready to hang."

WRITE FOR PARTICULARS  
DEPT. B



**PLANETLITE]CO., Inc.**

342 Madison Avenue, New York

—Manufacturers—

## A HOT WATER SERVICE

that is within reach  
of all

Wonderful, automatic gas  
water heater. Hot water on  
the instant at a saving of  
50% of the usual cost.

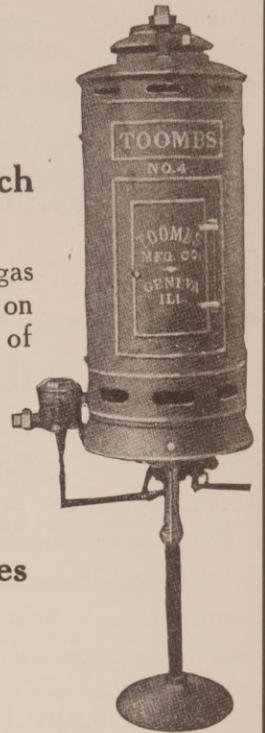
Plumbers!  
Jobbers!

Write for prices  
and details.

**Geneva Heater Sales  
Agency**

262 W. 34th Street  
New York City

Sole Distributors:  
New York & New Jersey



A Granatex  
Apartment House



### GRANATEX

Magnesite Stucco

Granatex Stucco has been purchased by leading builders' supply and lumber dealers during the past two years.

These firms are impressed by the policy of our company co-operating effectively with dealers, placing them in a position to better understand the successful methods used to market our product. The personnel of our company consists of men who have had over ten years practical experience in magnesite construction and application. The most modern methods of mixing are used. Our careful grading of aggregates insures greatest possible density. Our product is made of all pure minerals—nothing to become porous or pervious to the elements. When you are in the market for Magnesite Stucco let us demonstrate our real service to you.

*Our Flooring Department is at your service and will cheerfully forward estimates for installing Granatile composition floors, base and stair treads of a material which is sanitary, resilient, fireproof, durable and economical.*

**NATIONAL MAGNESITE STUCCO CO.**

Mills { River Rouge, Mich.      General Office, Wyandotte, Mich.  
          { Port Clinton, Ohio

### GRANATILE

Flooring Composition

## "INGALLS" FOR STEEL

**STRUCTURAL STEEL  
AND ORNAMENTAL  
IRON WORK FOR  
BUILDINGS**

**The Ingalls Iron Works Co.**

**Executive Offices & Works**

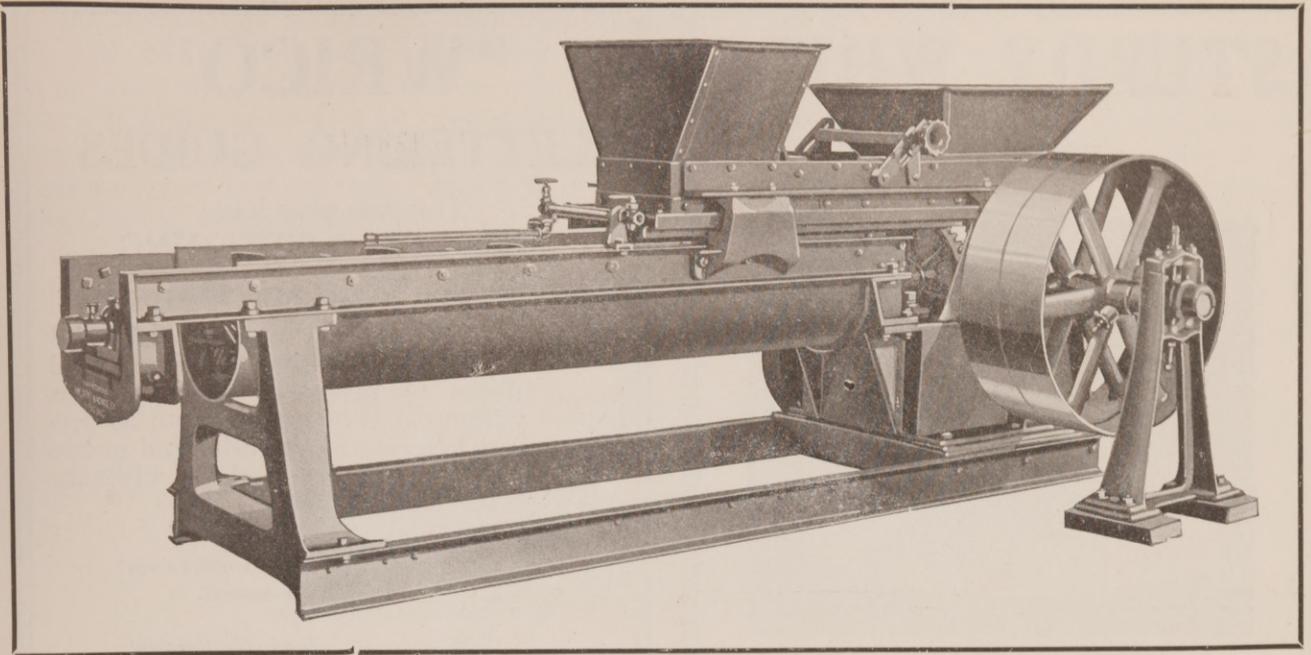
**BIRMINGHAM, ALA.**

BRANCH OFFICES

ATLANTA      NEW ORLEANS      DAYTONA, FLA.

AGENCIES

MEMPHIS      CHARLOTTE      JACKSONVILLE  
TAMPA      NASHVILLE



## A New Kent Continuous Mixer

The increased demand for concrete products of all character has resulted in the establishment of plants the production of which is far beyond anything dreamed of a few years ago. This has made it necessary for concrete products machinery manufacturers to increase the size of their machines and has led to the installation of automatic devices of all character in order that production might be increased and labor, at the same time, might be saved.

The new mixer which has recently been designed and placed on the market by The Kent Machine Company has been manufactured to meet the requirements of large production plants such as have been referred to. A general view of this mixer with belt drive is shown in Fig. 1. From this cut may be obtained a comprehensive idea of the way in which the machine operates. Also, the rigidity and wearing qualities of the design are very manifest.

This machine is similar in action to the continuous mixers which have been made by The Kent Machine Company and which have been used so successfully in cement products plants for the last fifteen years. The sliding feed plate which feeds the aggregates and cement in proper proportions is built of structural steel, is light to operate, and yet sturdy in construction. The trough is especially designed with sufficient length and diameter to give a thoroughness of mix so essential to successful concrete products. The mixing shaft which carries the paddles is of special alloy steel and the paddles are of chilled iron, in order that they may have extended wear. Not only is provision for wear made by introducing

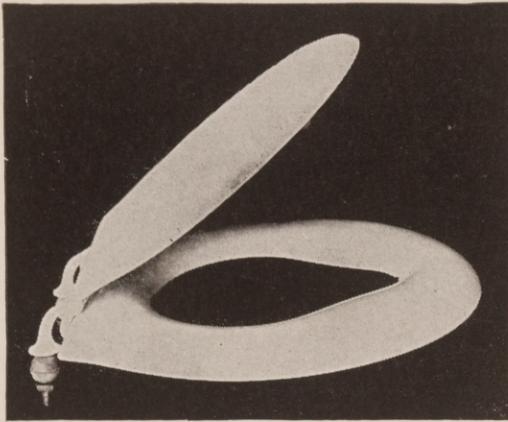
this chilled material, but the paddles themselves are adjustable on the arm so that they may be moved out to take up wear by simply loosening the bolt and resetting the paddle on the paddle arm. There are a series of serrations in the paddle which fit corresponding serrations in the paddle arm, so there is no possibility of the paddle turning on the arm and cutting into the trough.

The adjustment for cement and sand are very similar to, although they differ in refinement from, the devices used on the No. 2 and No. 2½ Kent Continuous Mixers which have been in use so long. The sand gate is of the usual type and may be adjusted to gauge by the clamping of a small hand nut. The cement gate has a micrometer screw adjustment which may be readily adjusted by turning a hand knob. There is an auxiliary apron extended out from the cement gate and over the layer of cement that is being fed through the machine in order that the feed may be absolutely under control, even though large quantities of cement are required. In case it is desired to shut the cement off entirely to clean the trough or for any other reason, an auxiliary gate is provided which may be simply pushed down by hand.

The machine is built with either pulley or motor drive. When the motor is attached, a motor base is placed on the channels supporting the machine, and a silent chain drive is employed to drive up to the shaft upon which the pulleys are located when the pulley drive is employed. It will be noticed that the entire mechanism is supported by channels and is therefore not allowed to weave and get out of alignment by perhaps setting legs on irregular surfaces.

# STURDY WHITE

not celluloid



The Sturdy products mark a distinct advance in the science of sanitation. The STURDY finish is MOULDED over shaped wood. It STAYS WHITE, is acid and alkali proof. Write for catalogue.

**The Sturdy Manufacturing Co., Inc.**

STROUDSBURG, PA.



## Contractors and Builders

Can be assured of getting a fine, pure white and easy working finishing Hydrate, always uniform, by ordering

### MONARCH

We guarantee every pound.

Write today for prices and information.

**The National Lime & Stone Co.**

Carey, Ohio

# "WRICO" LETTERING GUIDES

You can now have  
**PERFECT LETTERING**  
on all your Maps and Drawings

THE "WRICO" LETTERING GUIDE is a simple and practical device by means of which anyone, without skill or practice, can do perfect lettering more easily and in less time than is required for ordinary freehand lettering.

Full particulars will be sent on request.

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154 Nassau Street  
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*Please send Circular giving full details of "WRICO" Lettering Guides.*  
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# INTERNATIONAL STEEL & IRON CO.

Address Dept. 14

**EVANSVILLE, INDIANA**



INTERIOR VIEW OF OUR STRUCTURAL STEEL PLANT.

The GREAT AND CERTAIN STRENGTH of a sturdy frame of steel is a guarantee of permanence in any type of building.

LARGE STOCK OF  
BETHLEHEM AND STANDARD SHAPES  
INTERESTING PRICES—:—PROMPT DELIVERIES

CALL ON US FOR SERVICE

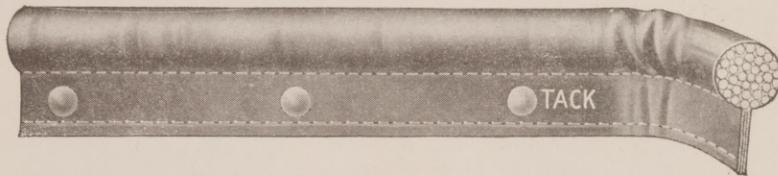
STRUCTURAL STEEL AND IRON, MODERN STORE FRONTS, GARAGES, FACTORIES, WAREHOUSES, COAL TEMPLS, HIGHWAY BRIDGES, STEEL LUMBER, REINFORCING, STEEL WINDOWS, STEEL CEILINGS, ROOF VENTILATORS, CORNICES, ELEVATORS, SKYLIGHTS, ROOFING AND SIDING, MILL WORK AND GLASS.

This is known as the No. 3½ machine and is built with two or three hoppers and with either belt or motor drive. The machine weighs, complete, with pulley drive 4350 lbs., and with motor drive 4700 lbs. A General Electric 7½ H. P. motor is employed where the motor drive is used and pulleys 36" in diameter with 6½" face are used

for the belt drive machine.

This machine has been designed with three ideas in mind: first, rigidity of construction; second, accuracy of feed; third, thoroughness of mix. In all tests, whether in laboratory or in actual practice, it has been proven that all of these results have been accomplished in this design.

## "Home Comfort" Insulated Detachable Weatherstrip



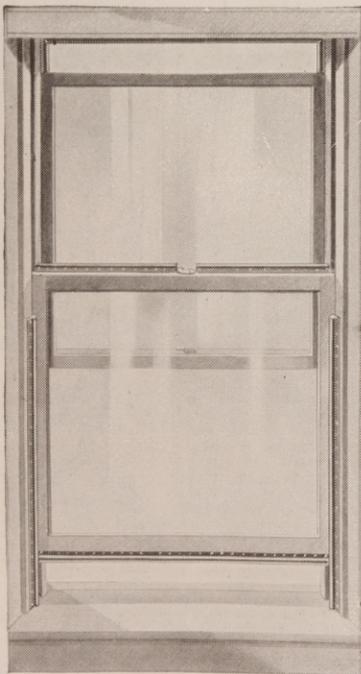
Wirf's "Home Comfort" Weatherstrip.

E. J. Wirfs, 124 S. 7th Street, St. Louis, Mo., is the manufacturer of "Wirfs" Home Comfort Insulated Detachable Weatherstrip which possesses a number of meritorious features. One of the illustrations herewith shows a cross section view as to how it is constructed or built up, thus giving greater weather protection. It is rightfully named as the strip of a hundred uses. It is woodless, metalless, rustless, flexible and adjustable to wavy surfaces or alignment, resilient (cushion) effect; no sawing nor mitering of corners necessary. There are no end pieces as waste. It comes in continuous length—you simply reel off desired lengths like thread off a spool. Anyone can apply it quickly and permanently.

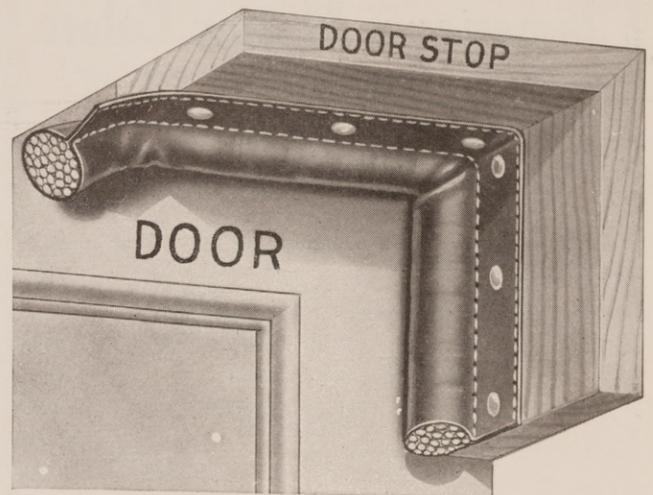
It is waterproof, being made of pure rubber-coated fabric, impervious to moisture, enclosing and protecting the insulation, preventing crystallization and decay.

It is airtight, and when in place forms a resilient caulk or fillet, similar to refrigerator door seals.

It is flexible, never hardens, cracks nor tears and is adjustable to varying surfaces, warped doors, 90-degree angles, etc., without cutting.



Weatherstrip Applied to Window.



Weatherstrip Applied to Door.

It is noiseless, as it has vibratory absorption, that is, a cushion effect on slamming doors and rattling windows.

It is readily detachable, this fact being of interest to people who rent houses, as they can take it off, roll it up and re-apply it.

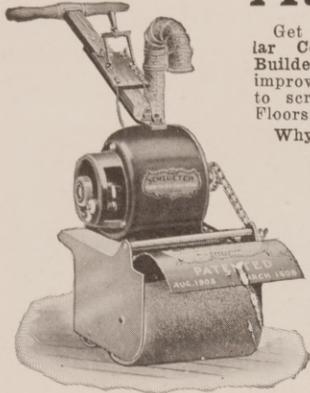
It is dustproof, sealing the doors and windows against dust, vapors, etc., as well as against wind, rain, snow and sand.

It is nonconductive, as while metal weather-

# THE IMPROVED SCHLUETER

Rapid—Automatic—Ball  
Bearing—Electric

## Floor Surfacing Machines Attention!



Get in LINE with all the Regular Contractors, Carpenters and Builders. What you need is an improved Schlueter Floor Surfer to scrape all your old and new Floors.

Why surface by hand and suffer —Loss of Time—Money, and Contracts on account of unsatisfactory work, when you can purchase an IMPROVED SCHLUETER SURFACER—the machine with all troubles left out!

“The SCHLUETER Surfacers are worth their weight in gold” as one of our customers describes them, and he is right.

A few jobs and the machine has paid for itself. In a short time the people will know who and what you are ; you get the

work because you have the TOOL. You advance to a higher grade and are a man of high class work, for that is just what the people of today demand.

We want to send you a SCHLUETER on Trial and let you see for yourself the quantity and quality of work it accomplishes.

### The Improved SCHLUETER Floor Surfer

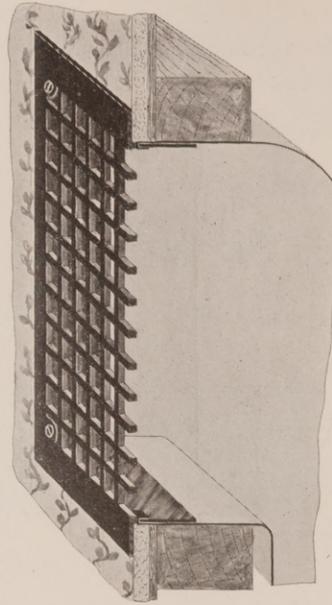
will surface right up to the wall or baseboard without the use of Side Roller. Just the Machine you would want for surfacing all floors whether old or new. Perfect results guaranteed. More than 20,000 of our Machines now in use. Guaranteed against defect in material and workmanship for five years.

Manufactured by M. L. SCHLUETER

221 West Illinois St., Chicago, Ill.

SEND FOR OUR PRICES, ALSO TRIAL PROPOSITION

# SOMETHING NEW



## U. C. S. S. FRAMES

The most approved method of securing Grilles or Register faces to sheet metal ducts.

## WM. HIGHTON & SONS CO.

Manufacturers of Registers, Grilles, Cast Bronze Memorial Tablets and Honor Rolls.

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WRITE FOR CATALOGUE AND LITERATURE

# Jamestown Mortar Colors

Standard throughout  
the U. S.

Mfg. in all shades.

Absolutely non Fading.

Write for Literature.

**Jamestown  
Paint & Varnish Company**  
Jamestown, Penna.



### FOR HOMES, ARCHITECTS AND BUILDERS

If You Want to Get Full Benefit of Your CLOSET SPACE Use the Compact Clothes Hanger Brackets

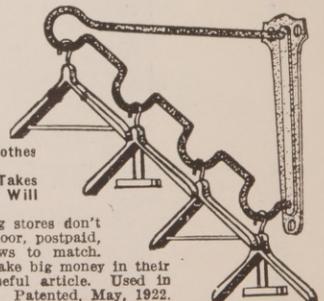
They Keep the Suits Apart. They Save Time and Space. They Keep Your Clothes in Order.

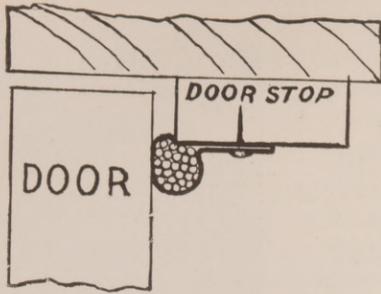
They Can be Put anywhere Clothes Hangers Can be Used. Put one on Your Closet Door—it Takes the Place of the Ordinary Hook and Will Accommodate Four Hangers.

If your hardware or house furnishing stores don't have them, will send direct to your door, postpaid, nicely finished in nickel with screws to match.

Price, 25 cents each. Agents can make big money in their spare time selling this new and useful article. Used in every home. Write for particulars. Patented, May, 1922.

Compact Clothes Hanger Bracket Mfg. Co., 1205 C St., Washington, D. C.





Cross Section Showing How to Apply Weatherstrip to Door.

strip when applied perfectly may keep the wind out, it does not resist the "cold," since metal is a rapid conductor of heat or cold, whereas "Home Comfort Weatherstrip" is insulated, thus greatly lessening the transfer of heat or cold through joints.

Mr. Wirfs, the manufacturer, was in the refrigerator-manufacturing business for many years, and his work was to render a refrigerator, cold storage and freezer doors "airtight," and for this purpose it is now universally used.

So many orders came in for the No. 2 size for weatherstrip purposes that the manufacturer finally perceived that it was highly favorable for that purpose, the fact that he admits he did not recognize for many years. It is now being put on the market for strictly weatherstrip purposes and is meeting with great success wherever it has been tried out. The manufacturer is anxious to establish jobbing and retail connections in preparation for the 1923-1924 business.

This weatherstrip is made in one size. This insulated weatherstrip comes in 50-foot cartons; weight, 1 $\frac{3}{4}$  pounds; 100-foot cartons, weight, 3 $\frac{1}{2}$  pounds; 250-foot coils, weight 10 $\frac{1}{2}$  pounds; 500-foot reels, weight, 21 $\frac{1}{4}$  pounds; 1000-foot reels, weight, 40 pounds. It comes in standard maroon color for general purposes, and in white where desired for white enameled woodwork.

#### ANNOUNCEMENT.

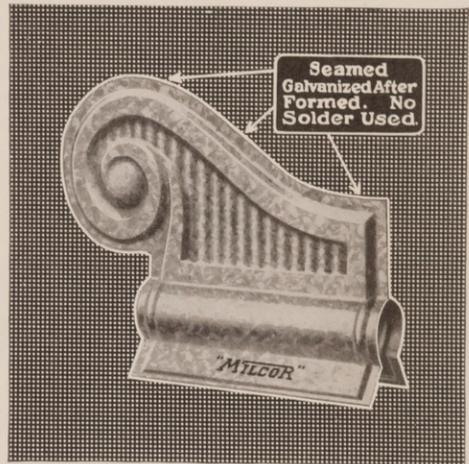
CAL Chemical Company, Inc., Hagerstown, Maryland, manufacturers of CAL concrete accelerator and curing compound, announces the recent opening of sales offices and warehouse facilities in Chicago and New York City.

The Chicago office at 327 So. La Salle Street, is in charge of Mr. A. S. Harrison, who is also Vice President and Chicago Manager of the Minwax Company.

The New York office at 30 E. 42nd Street, is in charge of Mr. M. F. Cavallon, formerly New York representative of the A. T. Malmed Company and the Hy-Test Cement Company.

## A New and Better Gable Finial

AFTER all it is detail that really gives a home that distinctive, finished appearance. Beautiful flowers, trees and hedges all lend their help, but if the necessary trimming details on the home itself are lacking, much of the beauty association of house and grounds is lost.



No. 915 Gable Block Finial.

Too often the all-important Gable Ends of houses are left bare and unfinished and are out of harmony with the surroundings. Proper Gable Finials will set off the gables in bold relief and impart a detailed, finished appearance, in keeping with the premises.

The Milwaukee Corrugating Company, Milwaukee, Wisconsin, for many years leading manufacturers of sheet metal building products, have designed a new Gable Block Finial called the No. 915 Gable Finial. This finial is being heartily welcomed everywhere and bids fair to become even more popular than their No. 5 Gable Globe Finial.

The No. 915 Gable Finial is practically a one piece Finial and is formed by a special process from the best Copper-bearing Terne Plate. The seams are carefully lapped, thus giving it unusual strength and rigidity. It is galvanized both inside and out after formation, so as to give it the longest possible life, and has the additional advantage in that it can be used with 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ ", and 2" ridge roll.

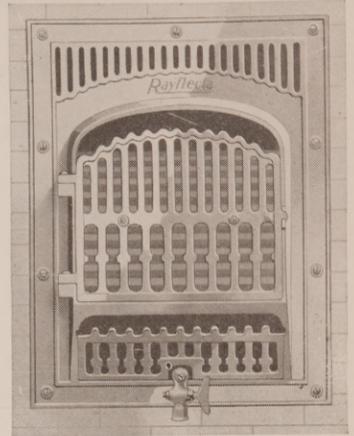


Prominent among the many characteristics of the No. 915 Finial are beauty and distinctiveness. The details are carefully formed, the design carries deep and is very pronounced. Upon request, the Milwaukee Corrugating Company will forward a beautiful two colored circular on the No. 915 Gable Block Finial.

# Rayflecta

## BATHROOM HEATER

Note Its  
Distinctive  
Features



### Not An Imitation But An Improvement

Show your customers the Hinged Door permitting instant accessibility for cleaning. Point out the Continuous Air Circulation by which the entire room is heated Thoroughly and Evenly.

Call their attention to the Superior Appearance and Finish of the Rayflecta. (White Porcelain, Gray Porcelain, and Nickel.)

Lay stress upon the Improved Burners which insure maximum heat without fumes or odor. Let them examine the fire-safe construction of the wall-box.

Then you'll sell more Rayflectas than any other heater of this type you might handle. Shall we send you prices and terms?

**Gas Appliance Division of The Trolley Supply Co.**  
MASSILLON, OHIO

# SPARTAN

CLAIMS CARRY  
CONVICTION



**JAWS:** Drop forged tool steel, hardened and "saw tooth tempered," permitting resharpening with a file.

**TEETH:** Milled at an angle—"UP" and "IN" toward center line of wrench when tool is applied to pipe. This angle tooth gives IMMEDIATE "bite" on pipe even when teeth are dull without "cramping" wrench. The angle teeth force jaws against handle, eliminating "SPREADING" jaws, as in ALL other designs.

The design of teeth on periphery of jaws permit more "grips" for all sizes of pipe within capacity of tool than any other tool of its kind.

**BOLTS:** Made of special alloy steel in standard sizes, insuring greater strength and easier replacement. Two-bolt construction permits use of lower bolt for repair in the field should upper bolt break. BOLT HEADS WILL NOT PULL OFF OR THREADS STRIP.

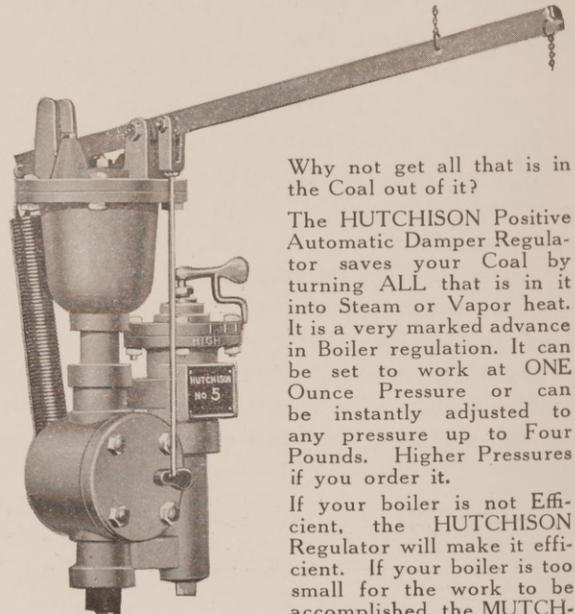
**CHAIN:** Of standard flat link design, made of "SPARTAN" special alloy steel. Guaranteed stronger, therefore more reliable than any other flat link chain made. It is impossible to cramp chain when locking jaws to pipe, as a slight pull toward the operator will lock chain immediately. IMMEDIATE AND POSITIVE "BITING" OF JAWS WITH INSTANTANEOUS LOCKING OF CHAIN IS THEREFORE INSURED.

**HANDLE:** Forged throughout entire length, insuring greater toughness than "rolled" steel. All parts are carefully selected wrought steel, interchangeable and guaranteed against inferior material and workmanship.

*The Tool in its Entirety is Made  
in Our Own Factory*

**THE DROP FORGING CO. of New York**  
293 West Side Ave., JERSEY CITY, N. J.

### Why Waste High-Priced Coal Up the Chimney?



Why not get all that is in the Coal out of it?

The HUTCHISON Positive Automatic Damper Regulator saves your Coal by turning ALL that is in it into Steam or Vapor heat. It is a very marked advance in Boiler regulation. It can be set to work at ONE Ounce Pressure or can be instantly adjusted to any pressure up to Four Pounds. Higher Pressures if you order it.

If your boiler is not Efficient, the HUTCHISON Regulator will make it efficient. If your boiler is too small for the work to be accomplished, the HUTCH-

ISON Regulator will improve the results so that you will hardly know it to be the same boiler.

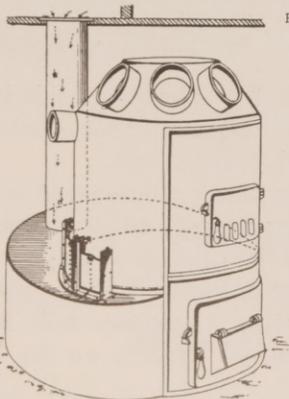
The HUTCHISON Regulator is the Watch Dog of the Coal Bin.

It never lags on the job. It is easily attached to any Boiler.

Write for further information and prices.

**HUTCHISON REGULATOR CO.**

506-507 Metropolitan Bank Building  
613 Fifteenth Street, N. W. Washington, D. C.



Pat. 1922

## The HEATWELL

Attachment applied to any make of Warm-Air Heater will make it 100% efficient.

**PAYS BIG MONEY  
STATE RIGHTS FOR SALE**

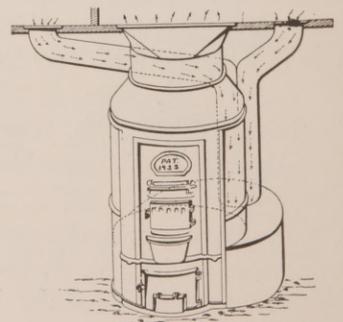
You can guarantee any Furnace Job when you use the HEATWELL.

A BIG PAYING PROPOSITION.

**WM. G. CARRICO**

1235 Wisconsin Ave.

Washington, D. C.



Pat. No. 1,418,776

Pat. 1922

**BUILDING ACTIVE AT LOUISVILLE.**

**Construction to Begin Soon on \$1,500,000 Hospital, \$1,250,000 Terminal, and \$2,300,000 Hotel.**

Louisville, Ky.—The general building situation in Louisville is excellent and the outlook is for a continuation of active work over the next several months. There has been no let up in residence and apartment house construction, and lumber and supply houses report that they are quite busy. Building operations for the fiscal year ending August 1, set a new record, and the calendar year record will probably break all previous showings. September went over the million dollar mark, which is very good for the late season.

The Struck Construction Co., Louisville, has been awarded contract for the seven-story, 300-bed hospital building for St. Joseph's Infirmary. The job will cost around \$1,500,000, on plans by D. X. Murphy & Bro. Co. Piles and concrete will be used in the foundation work, and it will mean a hard winter job for excavators.

The Louisville Railway Co. will erect a \$1,250,000 terminal building for all interurban lines entering Louisville, plans being prepared by Joseph & Joseph, Louisville, and wrecking having recently started on the site.

The Citizens Hotel Co., which has been financing a \$2,300,000 hotel project, has filed articles of incorporation, and W. K. Stewart, Executive Chairman, Louisville, claims that building operations will start about the first of the year.

Announcement was recently made by William Heyburn, president of the Belknap Hardware & Mfg. Co., of plans for a fine new office building at Fourth and Broadway, just north of the new 700-room Brown Hotel, which will be officially opened on October 25.

The Belknap Hardware & Mfg. Co. plans to start work shortly on another seven-story warehouse building, of fireproof construction.

A number of other big projects are in sight. Work started about two weeks ago on a million dollar Masonic building for the Kosair Temple Shriners, and it is claimed that there is enough work in view to keep the building trades busy over the winter, provided weather conditions are such that operations can be carried forward.

---

**\$5,000,000 RESORT PLANNED FOR STONE MOUNTAIN.**

**Promoters Acquire 4,000 Acres—\$1,000,000 Hotel Included in Plans.**

Stone Mountain, Ga.—Plans for a \$5,000,000 resort development at the foot of Stone Mountain have been announced in connection with the purchase of 4000 acres of land in this section by Alonzo Atkins of Birmingham, and O. F. Whittle of Nashville. The development will include a million dollar hotel located in a park of 500 acres

set aside for this purpose, the park to contain two lakes, one of which will cover an area of about 50 acres.

It is also proposed to build a swimming pool and pavilion to cost \$250,000, in addition to a system of concrete boulevards, electric light plant and water facilities. There will be a 36-hole golf course and other features for the entertainment of guests.

Plans of the promoters provide for a residential community, all structures to be of old English type of architecture. The whole property, it is said, will be incorporated as a municipality, the operating company to retain title to store buildings to be erected, and leasing them to individual merchants.

---

**\$200,000 Foundry Building for Kansas City.**

Kansas City, Mo.—Contract has been awarded to the Bickel Contracting Co. of this city by the American Brake Shoe & Foundry Co. of Chicago to erect a plant at North Kansas City. Plans call for a foundry building, 70 by 170 feet, buildings for the storage of core sand, boulding sand and other supplies, and bins for the storage of pig iron, scrap iron and coke, all to be located on a site of about four and one-half acres at 16th street and Forest avenue.

The buildings will be of concrete and steel, with sides mostly of glass, the initial investment to be about \$200,000, including land, buildings and equipment.

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**Dwelling Operation in Baltimore to Cost About \$500,000—To Erect 124 Residences.**

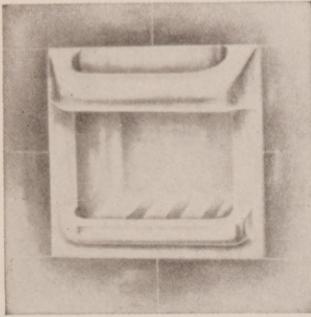
A dwelling operation in Baltimore to cost \$500,000 has been put under way by James Keelty who will build 124 dwellings on Harlem avenue, Alandale street, Franklyn street and Edgewood avenue. These residences will be 20 by 34 feet, of the day-light type, and will have brick fronts, tin and slag roofs, pipeless furnaces, hardwood floors and tile baths. F. E. Beall of Baltimore is the architect, the construction to be handled by Mr. Keelty, who will sub-let roofing, heating, flooring and tile work.

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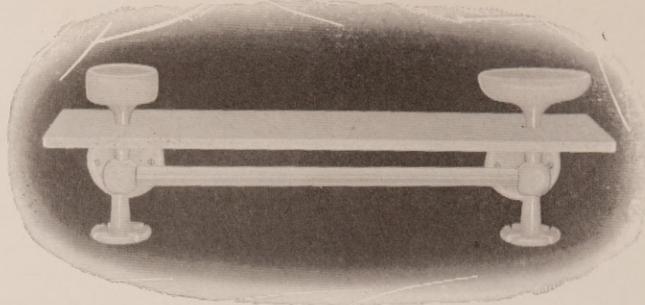
**\$1,000,000 Hotel or Office Building for Atlanta.**

A site has been leased at Carnegie Way and Ellis street in Atlanta, Ga., by the Wynne-Claughton Realty Sales Corporation of that city, on which it is planned to erect a \$1,000,000 building. Lease for the site involves a consideration of about \$2,000,000. In connection with the project the lessees wire the Manufacturers Record:

"Lot Carnegie Way 156 feet, Ellis street 98 feet, alley 139 feet. Plans not ready for announcement. Architects nor contractor have been selected. Improvement cost \$1,000,000. Either hotel or office building. Leased in our name."



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