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AN INVITATION TO YOU

The AMERICAN BUILDER cordially invites and urges you to enjoy the privileges and benefits of its Correspondence Department. Any phase of any building question may be profitably and instructively discussed in this department. If your problem is a knotty or technical one submit it to the Correspondence Department and secure the benefits of the opinions of other experienced builders. It's a "give" as well as a "take" department and you are asked to relate your achievements and tell how you have conquered difficulties as well as to ask for information and advice. Rough drawings are desired, for they make clear involved points. We will gladly work over the rough drawings to meet publication requirements. The Correspondence Department is your department. Use it freely and frequently.

FRIENDLY CHATS *with the* EDITOR

THE circulation of this issue is 55,000 copies; which gives the American Builder by far the largest net paid circulation ever attained by any publication in the building or architectural field.

THE Building Industry is one of immense proportions, requiring a publication of "man size" to do justice to it and to serve it adequately.

THE American Builder covers the entire building field, with more circulation in every state and in every section than any other building journal, national or sectional.

Double Page Advertisement in the New Orleans Sunday Times-Picayune, in which Contractor August Frank and a Group of Building Supply Dealers Made the Home-Seeking Public a Definite Home-Building Proposition. They effectively answered that first question of every home seeker, "How much will it cost to build this house"

New Methods Secure Contracts

A Story of the Success of a New Orleans Builder Who Filled His Building Program in Short Time

By A. W. ROE

THIS is the story of how a building contractor is solving the problem of providing individual and attractive homes for the people of New Orleans at the same time that he is securing more than enough building contracts to keep him "working on all eight cylinders, eight hours a day, six days a week, for the rest of the year," as he expressed it. It is a story of mutual benefit—benefit to himself and benefit to the community wherein he lives. Believing that this story will be of service to contractors in other communities and that thru them the families of the nation may be able to own more of the houses they live in, thereby becoming a home-loving people, the writer has gathered the data and pictures from Mr. August Frank, and herewith invites the attention of interested contractors to the plan that Mr. Frank has successfully used in conjunction with his building material men and the good offices of a local newspaper.

The first chapter of the story began on June 5, 1921, when the New Orleans Times-Picayune inaugurated its home building pages, reproducing weekly several houses, together with miniature floor plans and using these as a nucleus, proceeded to build around them advertisements of building material men who were eager to come in touch with people who wished to build. The paper advertised that it was prepared to furnish plans of the houses pictured for the small sum of $1.50. Altho 1921 was a dull year, generally, for the building industry, the reproductions of homes in the paper created widespread interest. From the first, the business office of the paper was overrun by prospective builders, desiring to avail themselves of the proffered service, and a veritable flood of requests for plans rolled in on every mail—not only from New Orleans and vicinity but even from Mexico and the South American states. A veritable craze for building was initiated, and the weekly reproductions of new houses and house plans served to cause the interest to mount higher and higher.

August Frank, Master Home-Builder, of New Orleans, Who Owes Part of His Success to Aggressive Advertising.

The originator of the idea just described was Mr. David Rosenthal, a very capable man, who, before coming to the Times-Picayune as manager of the Home Builders' Service Bureau, had had a very successful experience as head of the Dealers' Service Department of the Southern Pine Association. It was thru his able management that the house plans were prepared for the Sunday editions of the paper. He also made available for readers of the paper a very valuable album service. These albums are kept in the business office of the paper. They are open to the inspection of the public, and many people call to see them and to decide on just the house that they have long wanted to build. Be it the wee bride's nest or a more pretentious residence, the plan is in the albums and there a person may see just how the house will look when completed.

Frank Offers to Estimate Costs

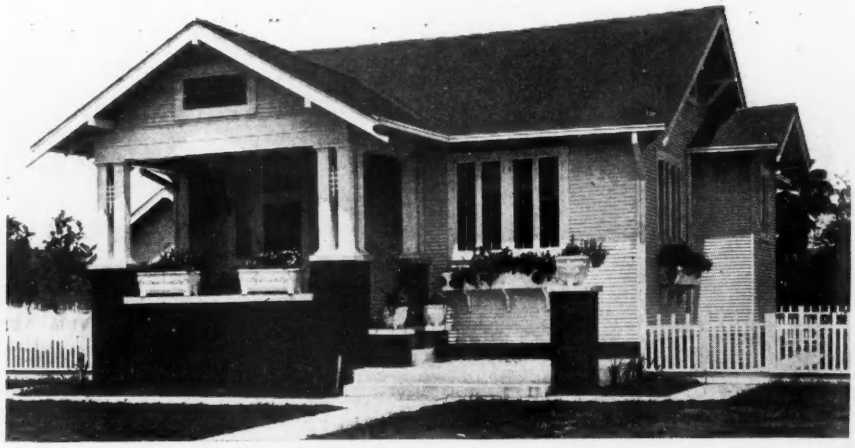
The creation of desire is the first impetus towards the building of a home as well as towards the purchase of any other article. Questions that naturally arise in the minds of people contemplating home building are: What will the house look like when completed? How much will it cost? Who will build it on the estimated figure? In the plans, pictured in the Sunday editions and in the albums, the interested public was able to find the answer to the first question.

Mr. Rosenthal ingeniously thought out a happy solution to the second and third questions, and so it was that he hit upon the idea of inviting a local contractor to make estimates for the different house plans. On Dec. 18, 1921, August Frank, now widely known in New Orleans as "The Master Builder," ran an advertisement over the homes that were being featured in the paper on that day, offering to build for New Orleans people at estimated low cost, plainly set down underneath the offer, the houses pictured and described that day. As a result of this announcement and others to be described later, Mr. Frank now has listed for building this year 46 homes in addition to the eleven that he has either completed since the new year began or which he has under actual construction.

Material Men Co-operate with Contractor

The newspaper was, of course, interested in the proposition from the viewpoint of the advertising. All the publicity it carried, however, aided Mr. Frank. One more link in the chain needed to be welded. Before Mr. Frank's advertisements began to appear, a meeting of the material men who furnished him materials was called at his home, at which time the lumberman, electrician, plumber, building material man, glazier, bondsman, painter, water heater and hardware

men, all agreed to purchase co-operatively with Mr. Frank an entire page to run ten Sundays in the Times-Picayune. These pages featured, of course, the houses that Mr. Frank offered to build upon an estimated figure, and carried also the advertisements of the different material men. As a result of the first two Sundays' advertisements, Mr. Frank had his building program filled for six months ahead. And altho he had contemplated building only 50 houses during the entire year, he has been persuaded to take on 57 and the year was not yet one-third gone. In addition, "The Master Builder" has had to turn away more contracts than he has accepted. Altho the initial advertising was expensive to Mr. Frank and to the building material men also, he and they have profited much by their clear vision of the resulted to be obtained. As it is, altho Mr. Frank is building his houses on a low margin of profit, he has more than doubled the number of houses that he usually builds in a certain period. He will not have to worry about securing contracts for the remainder of the year, and he has, doubtless, made such a name for himself that no advertising will be necessary for quite a time to come. The building material men who came in with him in purchasing the advertising in the paper are now reaping their profits, and while they also agreed to be content with small profits, still they are being well repaid in the increased volume of business they are doing in supplying Mr. Frank with his materials.



Built for $5,500. Contains seven rooms exclusive of bath, front and rear porches. The flower boxes, pergola in rear, tile bath floors, beamed ceilings, and hardwood mantles, all went with the contract. Superb electric fixtures; four base receptacles to each room. Garage is built in same style as house, and has toilet and lavatory, connected with both hot and cold water. There are 210 square yards of paving around building.

The Plan a Feasible One for Any Locality

Just as Mr. Frank has been successful in using this plan in New Orleans, other building contractors thruout the length and breadth of the land can adapt to their own uses and employ it successfully wherever they may be located. It is not necessary that the contractor be a resident of a large city. Altho Mr. Frank has calls from practically all over New Orleans, it would be possible for him, if he chose, to confine his activities to the immediate neighborhood wherein he lives, so numerous are the calls that he has from the people who know him well. Since the plans embrace quite a variety of houses, ranging in price from $2,000 to $10,000, it will be seen that they can be adapted to meet the needs of the purses of different classes. While the plans probably do not appeal to the exceedingly wealthy, they do appeal quite effectively to the vast majority of persons of limited or moderate means. They make it possible for people, having a little ready money or who can arrange to have a homestead association finance them as so many of Mr. Frank's customers are doing, to become the actual owners of the homes that they live in. Mr. Frank is a very busy man, entirely too busy to attend to a voluminous correspondence. The

Double two-story, costing $7,400 under Mr. Frank's contract. Each apartment contains on the lower floor: living room, dining room, kitchen, laundry room, and front and rear porches. On the upper floor there are in each apartment: three bedrooms, both, stair hall, and front porch.

The All Year Around Sun Parlor

By ESTELLE BETHEA MARLOWE

FAR different from the once almost temporary arrangements that formed the average sun parlor at the first spread of its popularity, only a few years ago, is this substantial all year around room. In distinct contrast to the one time flimsy wiring off of an end of a porch, or the detached addition of a frail glass enclosure at some angle of the house, is this up-to-date sun parlor, which stands for an increasing American tendency to build for permanency, solidity and a maximum of service.

There is an ever spreading use of sun parlors of the above type. The glass doors, which are made to open full and wide in warm weather, are also made to close snugly in winter thru the same workmanship that is employed in any other portion of the building. The parlors opens into the main home thru wide glass doors, and is connected with the same heating arrangement—in this case, hot air. It is well lighted for night use. The tile floor is a fine feature, adding to the coolness in summer.

(*Continued from page 74.*)

writer hopes he has shown that the plan may be operated successfully by contractors elsewhere.

There is one point that is worth emphasizing. It is this: If a contractor undertakes to put this plan into operation, he should be prepared to put forth unusual physical and mental exertions; nothing short of untiring energy will make such a campaign a success. The writer found Mr. Frank so busy that altho it was night, he could hardly spare the time to give the writer the particulars and results of the plan (during the day he is constantly engaged, going from house to house, getting materials, and keeping his different forces at work; he now employs 60 men, whereas a few months ago he used only half that number). One of Mr. Frank's parting sentences was: "You tell the readers of your paper that there is plenty of business in the building lines for men of grit, for men who have well-developed backbones instead of wishbones, and that they can secure more contracts than they know what to do with if they use a plan similar to ours and get out and H-U-S-T-L-E!"

Our Front Cover

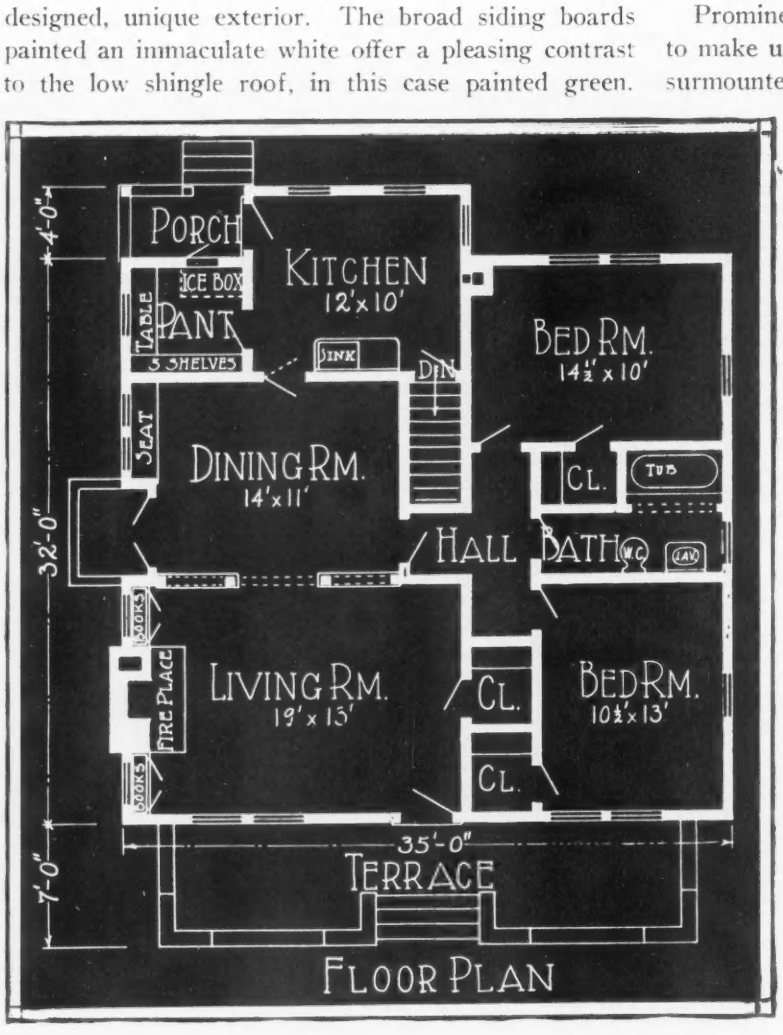
MODERN BUNGALOW

IN the beauty spots of the world there are many wonderful gardens, but we wonder if they are more appealing to the sincere home-lover than the picture on the front cover. We doubt it, for here the most important flower in this delightful garden setting is the home, a bungalow of low, rakish effect, fitting snugly into the entrancing scene.

One of the attractive features of this front cover bungalow, something that will charm the visitor and be a constant source of delight to the owner is the well designed, unique exterior. The broad siding boards painted an immaculate white offer a pleasing contrast to the low shingle roof, in this case painted green. Rising up thru the roof at one end is a chimney of concrete, rendered distinctive by the addition of a course or two of red brick. The wide overhanging eaves with their stout rafter supports are effective in making the picture an unusual one.

The low terrace extending across the front of the house, with stucco rails stopped by a course of soldiered red brick, adds considerably to the general effect. A smaller terrace of similar design has been built on the side, opening off the dining room.

Prominent among the distinctive features which help to make up the pleasing exterior is the front entrance surmounted by a semi-circular hood of the type so often found in quaint Colonial homes. The door proper is mostly glass divided into small panes. The windows are double hung with very small panes, a feature in such popular demand at the present time.



The Front Cover Home Is a 5-room Bungalow, 35 Feet Wide by 36 Feet Deep.

A study of the interior arrangement reveals the assuring fact that it is just as completely and satisfactorily handled as the exterior. The front entrance opens directly into a large, spacious living room, an ideal place for lounging and recreation, entirely free from any crampy feeling and made especially cheerful and comfortable by the open brick fireplace which leads into the unique chimney mentioned above. On either side of the fireplace are built-in bookcases, ever convenient for a peaceful reading hour before the fire. In the cold winter months this room will be doubly attractive and a source of constant joy for the family. This room is 19 by 13 feet. A closet for street clothes is off the living room opposite the fireplace.

Directly to the rear of the living room and connected by a wide colonnade is the dining room, also quite roomy and comfortable, 14 by 11 feet, with an exit in the form of French doors out onto the small side terrace. Immediately next to the doorway is a window seat.

Home Building in Philadelphia

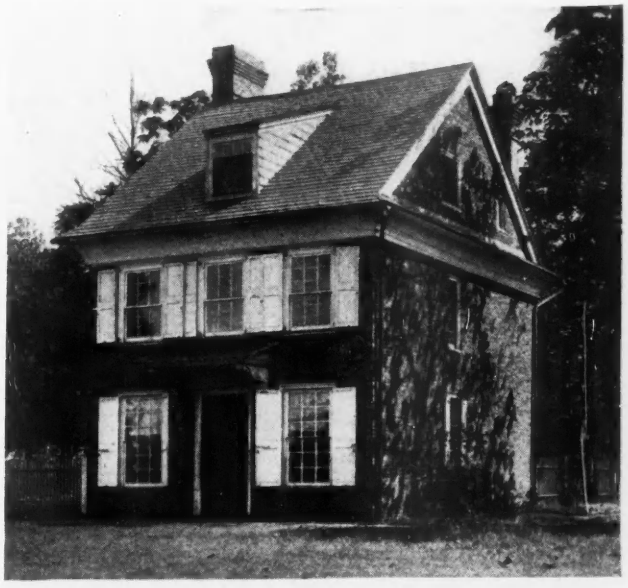
By ROBERT F. SALADE

IT is an interesting fact that the first house of any importance erected in Philadelphia was built of red brick. It was known as "Penn's Cottage in Laetitia Court." It was set up for William Penn, in the year 1682, facing the harbor near the section of the city which was at that time known as Second and High streets. The site on which this house then stood was called "The Governor's Lot." This little cottage was the first State House of the Province of Pennsylvania. Here for a time lived the gentle Father Penn, the founder of the "City of Brotherly Love."

Two hundred and forty years have rolled away since Penn's cottage was erected. The Quaker City has grown from a few hundred inhabitants to nearly two millions of people. Wonderful changes have taken place. Great wars have raged, and during one period Philadelphia passed into the hands of an invading army. But, thru it all remained that little red brick house as solid as a rock. It is standing intact to this very day, out in Fairmount Park where all may go and see. The Penn house was moved some years ago to the big public "playground" where it is to be kept in good physical condition by the Historic Society of Pennsylvania.

It is a rare pleasure for the visitor to walk thru the old Penn Cottage in Fairmount Park. The close observer will note how efficient the builders of olden times did their work. How evenly were those old red bricks laid with a black brick set in the row at intervals. The pure Colonial style of architecture was followed, and the "beauty of simplicity" is reflected in every line. The bricks seem to be in almost as good shape as when they were first handled. The builders who placed those baked cubes of clay in position have long since "returned to clay," but their handiwork still stands as a monument to good building construction.

It was not long after the first brick house was erected in the City of Penn when other brick buildings began to rise on every side. The first permanent church to be built (Old Swedes') was put up about the year 1677. It was constructed of logs. The present Old Swedes' Church, located on the original site, in the district now known as Southwark, Philadelphia, was erected in the year 1700. This was built of brick, and during that period it was considered to be the largest and most substantial building of the city.



William Penn's House, built in 1682, and Now Standing in Fairmount Park, Philadelphia. This building was the first State House of the Province of Pennsylvania.

The noble old church is still standing, as hale and hearty as in the long ago. Other brick churches which were put up early in those days are also in existence today.

While William Penn was absent from his beloved city in 1685, his friend, Robert Turner, wrote him a letter, dated June 3, describing the great progress of Philadelphia, as follows:

"The towne goes on in planting and building to admiration, both in the front and backward, about 600 houses in three years' time. Bricks are exceedingly good, and cheaper than they were, say at 16 shillings per thousand, and brick houses are now as cheap to build as wood. Many brave brick houses are going up with good cellars. * * * John Wheeler, from New England, is building a good brick house by the Blue Anchor—Arthur Cook is building him a brave brick house, near William Trampton's, on the Front street—and William Trampton has since built a good brick house by his brewhouse and bakehouse, and let the other for an ordinary."

Referring to those active times in the Penn Colony, John F. Watson, in his famous "Annals of Philadel-

"English Quad" Style Houses Built by John H. McClatchy, to Sell at $9,200 Each Unit. These houses were radio equipped by the builder, a proposition that proved to have considerable sales value.

phia and Pennsylvania in the Olden Days," writes: "How busy then the brick makers—what perpetual burnings of their smoking kilns." Further on in his work he speaks of a remarkable old house which was pulled down to make way for improvements around the year 1840. This building stood on the west side of front street, second door north of Walnut street. In its foundation was a large brick on which had been scratched before burning: "This is the sixth house built in Philadelphia."

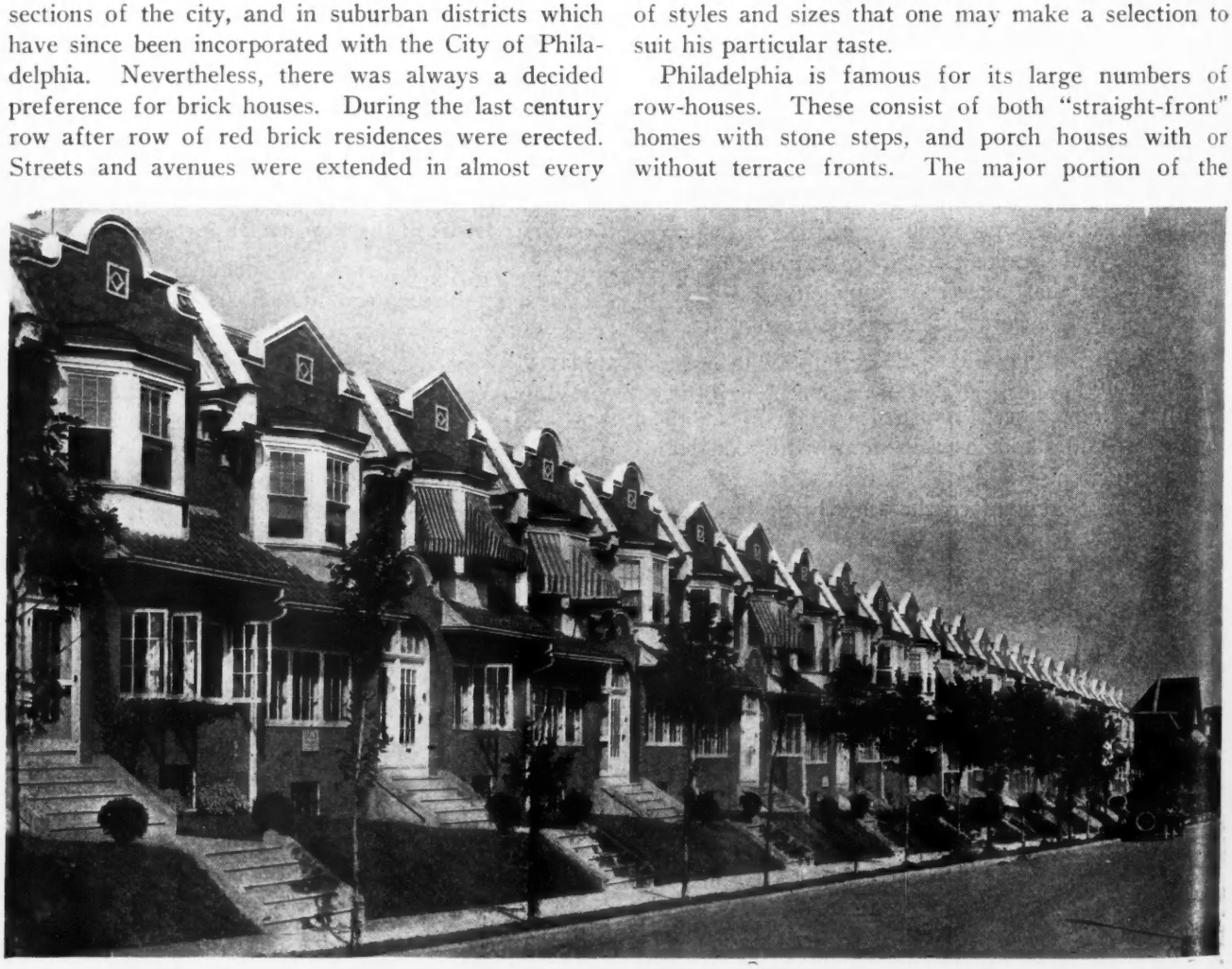
Altho the majority of homes and various other buildings of early Philadelphia were constructed of brick, some were made of wood or stone. Practically all of the public buildings, such as Independence Hall (with few exceptions) were built of brick. Carpenter's Hall, where met the First Congress of the Colonies, is of brick. The old Second street Market is made of the same material. The little two-story house on Arch street near Second street, where Betsy Ross made the first American flag, is brick. All of these historic structures are standing to the present day, and they show little signs of decay.

In 1796 an act was passed to prevent the construction of frame houses, altho there were only a few frame residences at that time. In later years small numbers of wooden houses were set up in various sections of the city, and in suburban districts which have since been incorporated with the City of Philadelphia. Nevertheless, there was always a decided preference for brick houses. During the last century row after row of red brick residences were erected. Streets and avenues were extended in almost every direction. Today there are several hundred thousand brick houses in the City of Brotherly Love.

Type of Popular Pennsylvania Colonial Stone.

There is no other town in all the world where such a great variety of pretty individual homes can be found. This may seem like an intemperate expression, but it is only the simple truth. In Philadelphia every family may have their own private house at comparatively small expense. So wide is the assortment of styles and sizes that one may make a selection to suit his particular taste.

Philadelphia is famous for its large numbers of row-houses. These consist of both "straight-front" homes with stone steps, and porch houses with or without terrace fronts. The major portion of the



One of the Many Rows of Attractive Brick Houses Erected Recently in Philadelphia. The houses illustrated herewith have enclosed porches. Price about $5,500 each.

Residential Philadelphia Is Built Up Largely of Such Rows of Houses as the Above. Each unit is comparatively narrow and is lighted only from front and rear. Living room, dining room and kitchen are on the first floor with two or three bedrooms upstairs.

modern Quaker City residences are built close together, in rows, each row running a full block long. The width of the house front varies from about fifteen feet to twenty feet, and sometimes more. A great many of the row houses have an average front about seventeen feet wide. The depth varies, according to the number of rooms on the first floor. Sorry to state, the average back yard of the Philadelphia home is not very spacious.

It should be understood by the reader who has never visited "The City of Homes" that there are numerous side-yard houses, also not a few detached homes in this town in addition to the regular row residences. There are also thousands of handsome stone houses. The main reason why so many of the dwelling places are put up in long rows is because of the cheaper construction made possible thru this plan. For example, the side-wall of one house serves as a "party" wall for the next door house. The architect designs one model for a house of this character and the plan does for the entire row or rows of buildings. The contractor can have several hundred of row-houses erected very rapidly. The row-house is warmer during cold weather than a side-yard residence thru being close to its neighbor. Often a contractor builds as many as four or five hundred row-houses at a single "operation."

Some few years ago the plain front brick house with stone steps leading to the doorway was very popular, and thousands of such models were put up in different parts of the city. The steps are of white marble, or of brown stone, and there are usually four or five of the steps. The steps of one house adjoin those of the next door house. It is rare to see railings attached to these steps. This style of home is built in two, three, and occasionally in four stories. The two-story design seems to lead in numbers. They are to be found on main streets and avenues to a considerable extent, but are more plentiful on the smaller avenues, or on the side streets.

This Double House in Pennsylvania Stone Was Built So That Each Half Was Sold at $8,850.

The floor plan for the ordinary plain front brick home is as follows: First, there is the cellar which invariably has a floor of concrete. There are no living rooms in the basement. The heating apparatus, gas meter, coal and wood are kept here. The first floor contains a hall leading to the parlor on one side, and to the dining room at the end of the hall. The kitchen follows the dining room. Then there is usually a summer kitchen which opens to the back yard. The second floor is made up of three bed rooms, bath room, and a sitting room. In the smaller homes there are but two bed rooms, sitting room, and bath on the second floor. When the house is of

(Continued to page 118)

HOME PLANNING TALKS

By Our Head Draftsman

"We Architects Welcome Our Clients' Ideas—But We Have to Sift the Good from the Bad"

MANY years of consulting with prospective home builders and helping them plan their homes have proved to us how little the average person knows about building—the materials employed and the methods of construction. This, of course, is not their fault. Planning and building a home is an experience that most people go thru only once in a lifetime. When the thought of building sprouted and began to grow in their minds, they paid particular attention to the points about the homes of friends that appealed to them. Some have even come into the drafting room with notes on the desirable things they had noticed and wanted them incorporated in the plans for their homes.

All of this, of course, is good. It is good for the prospective home builders, and when it is possible it gives them homes that will please them when the buildings are finished and ready to be moved into. But if we had not diplomatically talked them out of a lot of their ideas, we would have had more dissatisfied clients than we like to think about.

It is a mighty easy thing to make mistakes, even for us architects, whose business it is to help our clients get the most in exterior appearance and interior comfort and convenience for their money. I remember one set of plans that had been drawn up for a client by a young architect. He was just getting a start in the profession and feared to offend his client by telling her (yes, it was a "her") that her idea was not good, to say the least. The result was that after the building was well under way, it was discovered that the fireplace flue projected a foot or more into a rather narrow upstairs hallway. That mistake cost the home builder a considerable amount of money, and nearly ruined the young architect because, of course, he got the blame.

Designing homes, selecting the materials and superintending the actual construction are jobs that no one but experienced people should undertake. If a doctor has a serious illness and an operation is required he would not call in an architect. Still, I have known doctors to sit down with a ruler and a pencil and a piece of paper and design a home, and insist that the plans be carried out.

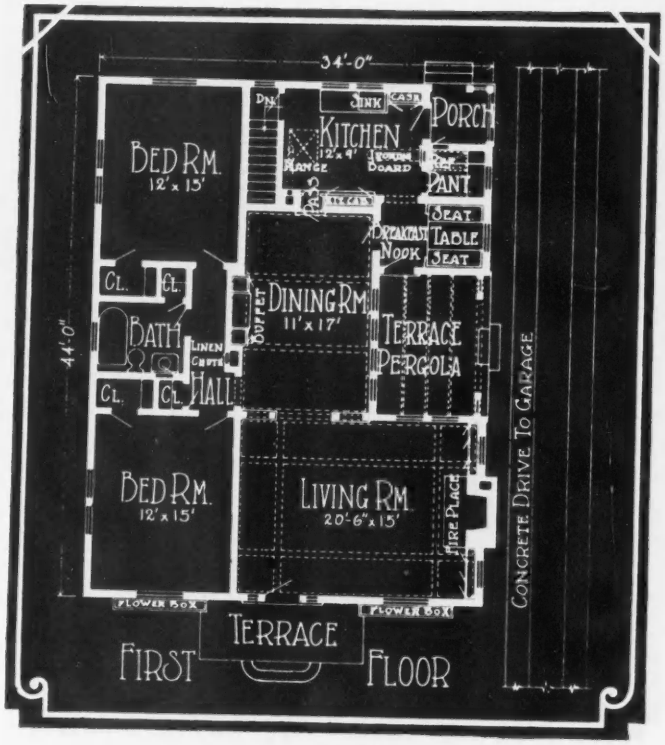
Investing the amount of money that the average home costs is not a matter that should be taken lightly. It is worth study and the best advice that can be secured. That's why we always urge that prospective home builders consult their local architects, the building contractors who are likely to get the job of doing the work and the material dealers who are to furnish the materials of which the buildings are to be constructed. Whenever the owner, the architect, the contractor and the material dealer work in harmony, just about the best building the money will buy is the result. We know—we have seen it work out that way many times in the course of our experience.

But the home seeker who wants a close figure should not expect it, unless he can give the builder something *definite* to figure on. That is where complete working plans come in handy. In fact, they will more than pay for themselves right at the start, before the job is begun. They give builder and dealer definite information—take guesswork out of the job—and become the basis for a contract. Always estimate and build from complete plans. A much lower price can be safely bid where definite blueprint information is furnished in advance.

All buildings illustrated in the American Builder are real buildings that have actually been constructed and found to be practical and popular. Anyone interested in obtaining working plans and other detailed information should consult the nearest architect, builder or dealer, or write the American Builder, 1827 Prairie Ave., Chicago.

BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



AN ARTISTIC 5-ROOM BUNGALOW. Here is a home with a charm and dignity that is the very personification of beauty plus comfort. The clapboard walls, the shutters on the windows, the platform and canopy at the entrance, the concrete driveway to the garage, and the terrace and pergola are all features that lend a pleasing appearance to the exterior. The interior follows the customary American bungalow arrangement being very convenient and practical, with the dining room, living room and kitchen on one side of the house and the two bedrooms and bath on the other. Between the dining room and kitchen is a breakfast nook. The terrace and pergola form an inner court as may be seen from the floor plan. On three sides they are bounded by the living room, dining room and breakfast nook with an entrance opening into the breakfast nook.

Wins Tribune Competition

Design Entered by John Mead Howells and Raymond M. Hood, Associate Architects, Wins $50,000 Prize—Architects from 22 Nations Compete

WHAT proved to be one of the "world's greatest" in architectural competitions was concluded Dec. 2nd, when the winners were announced in the world-wide design race for the new building of the Chicago Tribune, "the world's greatest newspaper."

John Mead Howells, son of the late William Dean Howells, American novelist, and Raymond M. Hood, associate architects, New York City, won first prize and thus became architects of the Tribune's new building to be erected at 431-439 North Michigan boulevard at a cost of $7,000,000.

Their immediate honorarium is $50,000.

Eliel Saarinen of Helsingfors, Finland, won the second prize of $20,000. He was winner of the second prize in the competition for the Peace Palace at The Hague. His associates in the preparation of the Tribune design were Dwight G. Wallace and Bertell Grenman of Chicago.

The Chicago architectural firm of which William Holabird and Martin Roche are the heads won the third prize of $10,000.

The remainder of the total of $100,000 in prizes goes in $2,000 allotments to ten recognized American architects who were invited to enter the competition and who did enter.

The new structure will be named the Tribune Tower. Mr. Howells' design will be executed in stone of a light color.

Its style is a Gothic expression of the American skyscraper theme; in other words, an expression of of the structural fundamental of the theme. That fundamental is a steel cage.

The fact that there is no impediment to a view of each of the four sides of the building, and the further fact that its site is nearly square (100 by 135 feet), have given Messrs. Howells and Hood an opportunity which they have seized boldly. The result is an effect at once towering and militant.

The $50,000 Prize Winning Design for the Tribune Tower—Howells and Hood, Architects.

Mr. Howells has appraised the winning design in these words:

"The design is before everything else an expression of The Tribune. The structure is carried to its full height as a square on the Michigan Avenue front only, thus always giving the same impression from wherever seen, and showing the same from all points as The Tribune landmark.

"We feel that in this design we have produced a unit. It is not a tower or top, placed on a building—it is all one building.

"It climbs into the air naturally, carrying up its main structural lines, and binding them together with a high open parapet. Our disposition of the main structural piers on the exterior has been adopted to give the full utilization of the corner light in the offices, and the view up and down the avenue.

"Our desire has been not so much an archæological expression of any particular style as to express in the exterior the essentially American problem of skyscraper construction, with its continued vertical lines and its inserted horizontals. It is only carrying forward to a final expression what many of us architects have tried already under more or less hampering conditions in various cities. We

have wished to make this landmark the study of a beautiful and vigorous form, not of an extraordinary form.

"The area of the cross section of the central motif of the top plus the area of its several supports is 3,360 square feet, and thus within the 3,600 square feet allowed, the frontage of the top on the street being also within the building law.

"It is perhaps not necessary to call attention to the fact that the upper part of the building has been designed not only for its own outline and composition, but for the possibilities of illumination and reflected lighting at night."

It will be observed by reference to the design on the opposite page that the architects have, in the architectural phrase, "stepped back"—the building from only one side. That withdrawing from the main structure comes at a height of 200 feet. But by the device of confining the back stepping to one side of the building it has preserved on the boulevard side and the north and south sides the effect of a nearly square tower lifting its mighty bulk to a height of 400 feet.

Ten $2,000 Prize Winners

The ten representative American architects whose response to the invitation to participate in the competition wins them an honorarium of $2,000 each, are:

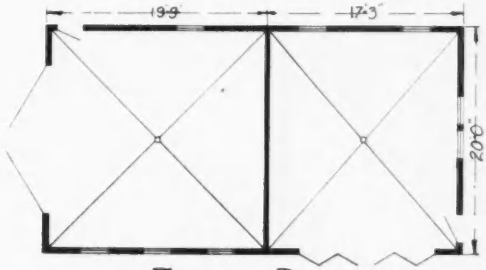
Bliss & Favile, San Francisco.
Holabird & Roche, Chicago.
Jarvis Hunt, Chicago.
Schmidt, Garden & Martin, Chicago.
D. H. Burnham & Co., Chicago.
Andrew Rebori, Chicago.
John Mead Howells and Raymond M. Hood, New York.
Bertram G. Goodhue, New York.
Benjamin W. Morris, New York.
James Gamble Rogers, New York.

Honorable Mention

Designs which receive honorable mention were submitted by:

Ernesto Fuchs, Guadalajara, Mexico.
Thomas J. George, New York City.
Guy Lowell, Boston.
Hewitt & Brown, Minneapolis.
Schmidt, Garden & Martin, Chicago.
Edmund S. Campbell, Chicago.
George F. Schreiber, Chicago.
Richard Yoshijiro Mine, Urbana, Ill.
A. N. Rebori, Chicago.
Louis Bourgeois, Francis E. Dunlap and Chas. L. Morgan, Chicago, Ill.
Benjamin Wistar Morris, New York City.
Alfred Morton Githens, New York City.
[illegible] Lilpop and K. Jankowski, Warsaw, Poland.
Hugh G. Jones, Montreal, Can.
Charles H. Bebb and Carl F. Gould, Seattle, Wash.
Felix Cabarrocas, Havana, Cuba.
Jos. Schartz, Grand Duchy of Luxembourg.
Otto Hoffmann, Vienna, Austria.
Friedr. Stuhmke, Berlin, Germany.
Nicholas Wassilieff, Belgrade, Serbia.
W. Th. Gregory and B. R. Saunders, London, England.
Hutton & Taylor, Glasgow, Scotland.
Jules Vanden Hende, Ghent, Belgium.
Barry Hammond Dierks, Paris, France.
Meischke & Schmidt, Rotterdam, Holland.
Pierre Le Bourgeois, Nancy, France.
Giuseppe Boni, Rome, Italy.
Olaf Boye, Crawfurd Jensen, and L. W. Wilhelmsen, Christiania, Norway.
L. Bode, Amsterdam Holland.
Hermann Herter, Zurich, Switzerland.
A. Hamilton Scott and John A. W. Grant, Edinburgh, Scotland.
Lechner Jeno, Budapest, Hungary.
Lechner Lorand and Kantzky Tivadar, Budapest.
Lippincott & Billson, Melbourne, Australia.

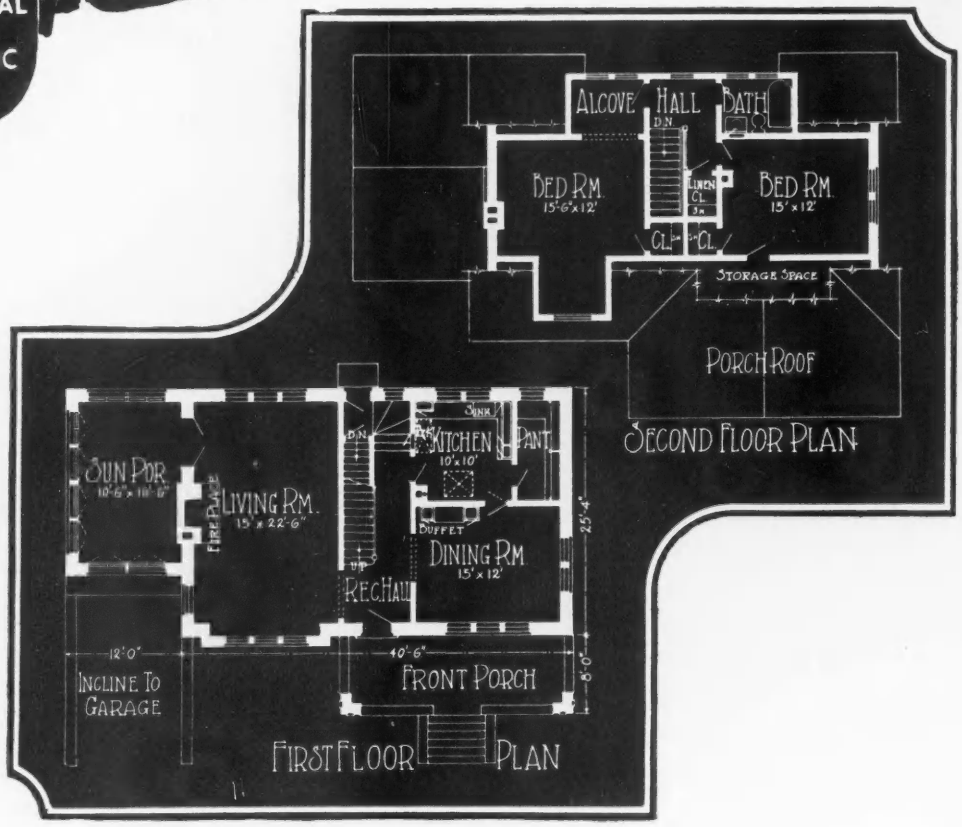
In all twenty-two nations were represented in the competition.



A PRIVATE GARAGE WITH SPACE TO RENT. Here is a good idea for the man who wants to make his garage investment pay him an income and at the same time would preserve a certain privacy for his own machines and the use of his garage. Under one roof two double-car spaces are provided, one space opening onto the alley and that is the space that is for rent. The other half opens from the end of the building, giving access to the driveway which runs alongside the house. This arrangement costs no more and is considerably more desirable where part of the space is to be rented out and there is access to the alley. A solid partition separates the two spaces, which is amply large for two cars. The space above is useful for storage or as quarters for the chauffeur.

BLUE RIBBON HOMES

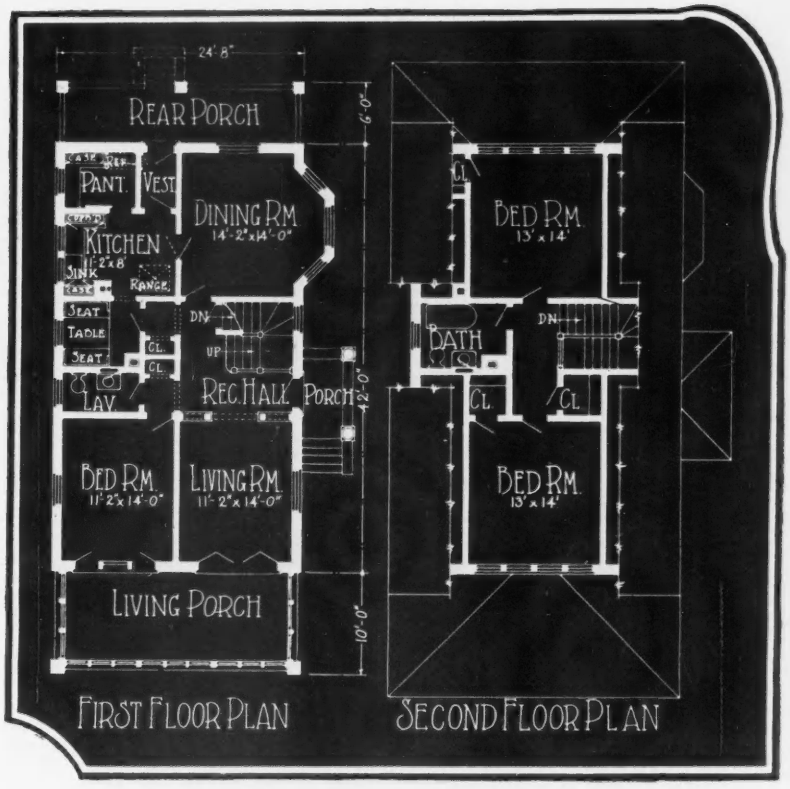
PRACTICAL & ARTISTIC



DISTINCTIVE BRICK RESIDENCE WITH GARAGE. Brick houses are very popular with homeseekers because they create an impression of security, sturdiness and strength. This home with its aristocratic lines and design is one that anyone may well be proud of. The garage which is built under the sun porch along with the attractive driveway and incline is an unusual and desirable feature. It saves ground space and is also very handy, useful and convenient. The interior arrangement like the exterior appearance is very pleasing. From the front porch one enters a reception hall where the stairway leading to the second floor is located. To the right of the reception hall is the dining room with a built-in buffet. It has five windows with three facing on the porch. Directly ahead are the pantry and kitchen. The living room running the entire depth of the house is to the left of the hall. It opens onto the sun porch. On the second floor are the two bedrooms and bath. Under part of the porch roof is storage space.

BLUE RIBBON HOMES

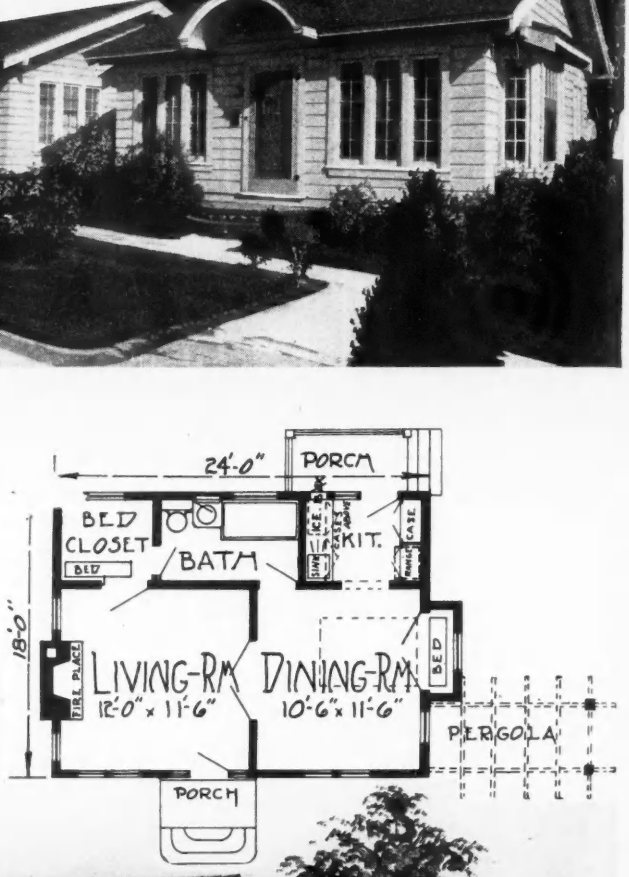
PRACTICAL & ARTISTIC



VERY NEAT BRICK COTTAGE. Several years ago thousands of story-and-a-half brick cottages were put up and they found a ready sale. They gave good accommodations at very moderate expense. The present-day home plan- has improved on that old-time style, producing the design illustrated here. Notice the side entrance and the glassed-in ch across the front, the breakfast nook off the kitchen, and the downstairs bedroom. One would have to hunt a g time to find a better seven-room layout to go on a 35-foot lot.

The BUNGALOWETTE

TWO rooms, kitchen and bath. Compact up-to-date convenience and homelike appeal are squeezed into this little home, which measures only 18 by 24 feet. Two space-saving beds give this layout the efficiency of a regular five-room apartment. "Make every room do double duty" is the spirit and purpose of bungalowette planning.



Photograph and Floor Plan of Very Attractive Little Home Which Makes Use of Modern Space-Saving Furniture and Home Equipment to Cut Down Size and Cost Without Lessening—in Fact, Adding to—Convenience.

A Well Designed Dutch Colonial

By R. C. HUNTER and BRO., Architects

THIS house is well designed thruout, the result of careful study by the architects.

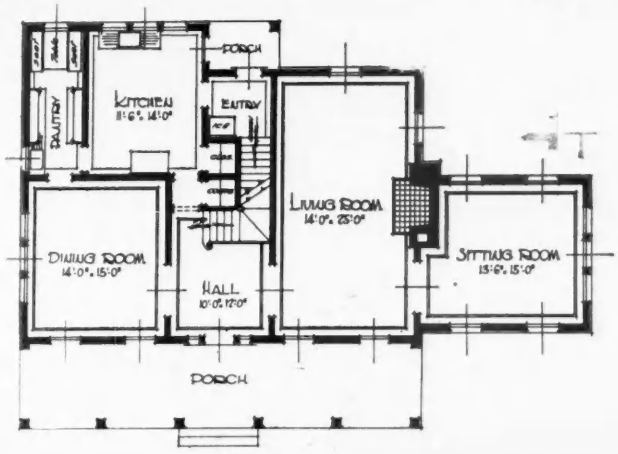
The roof is worthy of special note (one sees so many gambrel roofs of awkward proportions on houses that are otherwise good), it sweeps out over the front porch in a graceful curve and is supported on slender columns with flat elliptical arches sprung between them. The windows in the dormer were made short so as to allow a good expanse of roof down from the dormer to the main cornice.

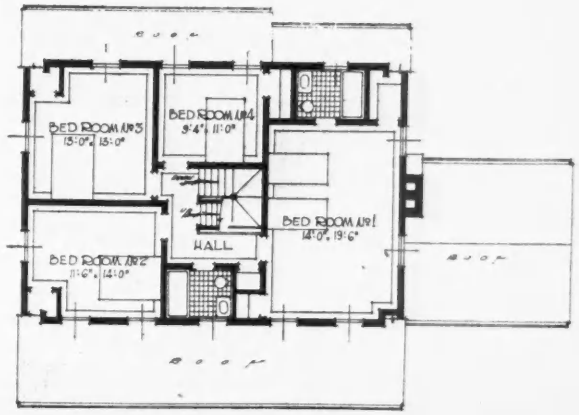
The house is placed so its proportions show to advantage, close to the ground and directly behind large trees, it seems to have been there for years. The one-story sitting room extension appears to broaden the front of the house and to still further increase the low home-like effect. The stone chimney and the batten shutters are interesting.

The plans show an economical layout with all space utilized.

Four bed rooms and two bath rooms are found on the second floor, there are also two additional rooms and a bath on the third floor, no plan of which is shown.

A cellar is provided under the entire house and here is found the laundry, the heater and coal storage spaces and the like.

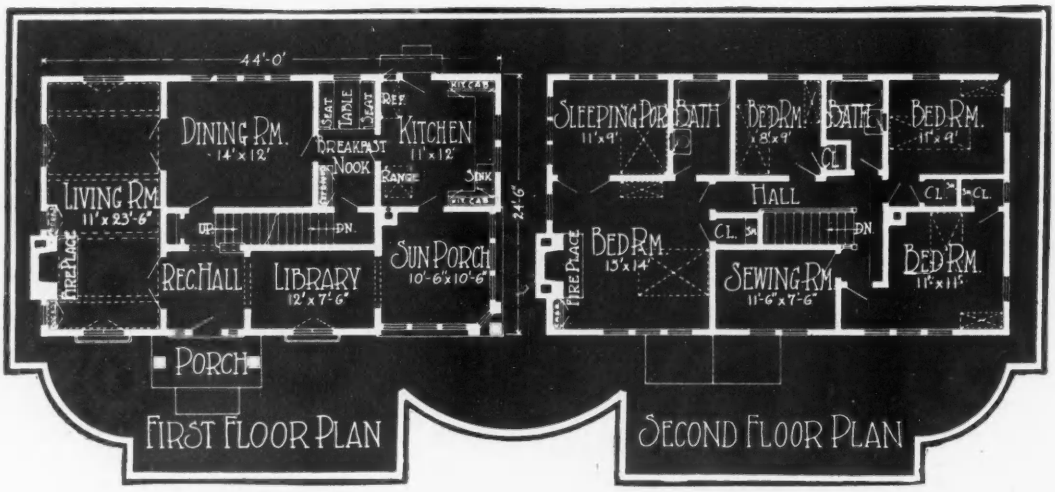




Photograph and Floor Plans of a Well-Designed 8-Room Dutch Colonial House.

BLUE RIBBON HOMES

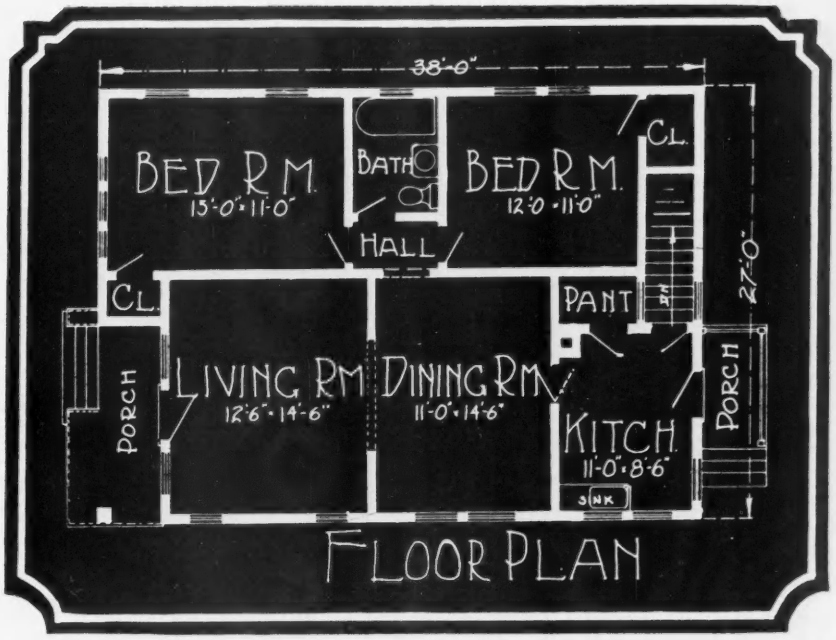
PRACTICAL & ARTISTIC



TEN ROOM AMERICAN HOME DESIGNED ALONG COLONIAL LINES. It is an ideal residence for a large family or for the individual who prefers a home with many rooms. The interior arrangement is excellent with plenty of windows providing light and ventilation and an abundance of floor space. From the front platform one enters the reception hall. The living room occupying the entire left side of the first floor is a most attractive feature. The French windows at each end with wrought iron balconies may be thrown open during warm weather. Ahead of the reception hall are the steps leading up and down stairs and beyond these is the dining room. Between the dining room and kitchen is a cozy little breakfast nook with chairs and table for four. To the right of the reception hall is the library and beyond this the sun porch. The construction of the corner of the sun porch is very unusual and interesting. On the second floor are three bedrooms, a sewing room, sleeping porch and two baths. They all open on to the hallways except the sleeping porch which is entered thru the largest bedroom.

BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



CHARMING LITTLE BUNGALOW. This cozy and distinctive looking little home would make an ideal residence for a small family. It is a thorobred bungalow and its architecture is truly American. Entering from the front porch one finds himself in the living room which is of comfortable size and well lighted. Directly ahead is the dining room. It is joined by the kitchen and pantry which open onto the back porch. At the left side of the dining room is the entrance to the hall that opens onto the two bedrooms and bath. One bedroom is 15 by 11 feet and the other 12 by 11 feet. The large bedroom is particularly desirable with three of its five windows facing the street. Both are well lighted and ventilated with plenty of closet space.

Duplex House of Mexican Design

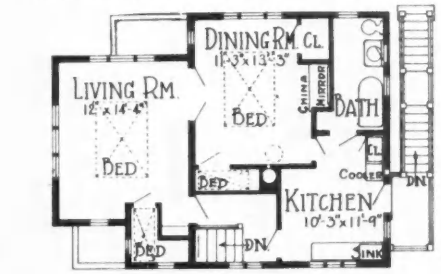
California Builder Has Incorporated Into This Two-Flat Home Many Features and Conveniences

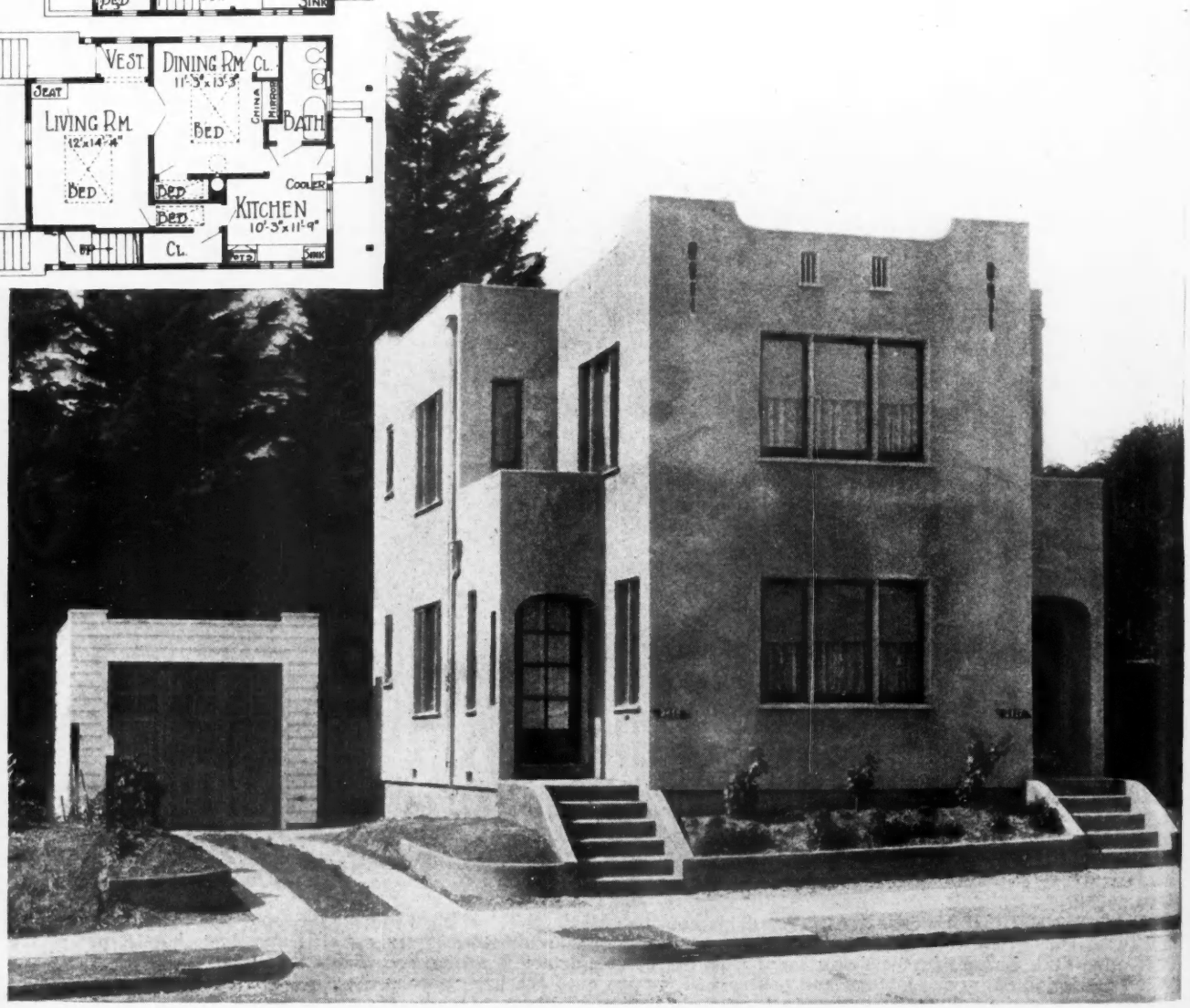
THE home illustrated on this page is an excellent example of a popular style of modern western style architecture and work. It is a two-flat Mexican house designed and built by Thos. N. Badger, Berkeley, Cal.

Each flat has three rooms and a bath and is built along the lines of apartments in the most exclusive apartment hotels with all their conveniences and comforts. Each is equipped with two space-saving beds and numerous built-in features. These small apartments and bungalowettes featuring the space-saving idea are so attractive and desirable that their popularity has spread to every part of the country.

There is in each apartment a living room, dining room, kitchen and bath. Also two bed closets and a clothes closet. The beds are mounted on rubber-tired wheels and at night can be easily and quickly pulled from their closets and rolled to any part of the house. One is rolled into the living room and the other into the dining room.

Each apartment has a separate entrance, another particularly desirable feature, as it permits more privacy and seclusion than is usually the case in two-flat buildings having a common entrance. The left door opens into the vestibule of the first floor home. Directly to the right is the living room with a built-in seat. The dining room with built-in china cabinets and mirror is just ahead. The kitchen and bathroom occupy the rear of the house.





Photograph and Floor Plans of Two-flat Building of Mexican Design. Planned and built by Thomas N. Badger, Berkeley, California. Space-saving beds of the roller type are used.

Builds Homes for Workers

Lumber Company Erects Five-Room Cottages to Replace Houses of Old Days—Rented At Reasonable Rates

By S. R. WINTERS

DOWN in Mississippi—at Quitman, to be exact—where once the invasion of the boll weevil threatened a curtailment of the world's cotton supply and where the negro population is predominant, there has been evolved an unexampled experiment in an attempt to stabilize the roving habits of the migratory laborer. Moreover, it is an adventure of a Southern lumber company to perfect a community organization, to establish a model town, and open fresh possibilities for community service where cheerful and purposeful co-operation between employer and employee is the ultimate thing achieved.

Instead of the common type of living quarters for the "saw mill hand"—a bunk house or a squalid shanty—the Long-Bell Company of Quitman, Mississippi, has erected five-room cottages to house its white and negro workers. Altho rentals, including water and electric light, do not exceed $20 a month, architectural design, beauty and good taste have not been sacrificed. The homes are located on lots of 80 by 150 feet in size, fenced-in, with ample space for the cultivation of a garden.

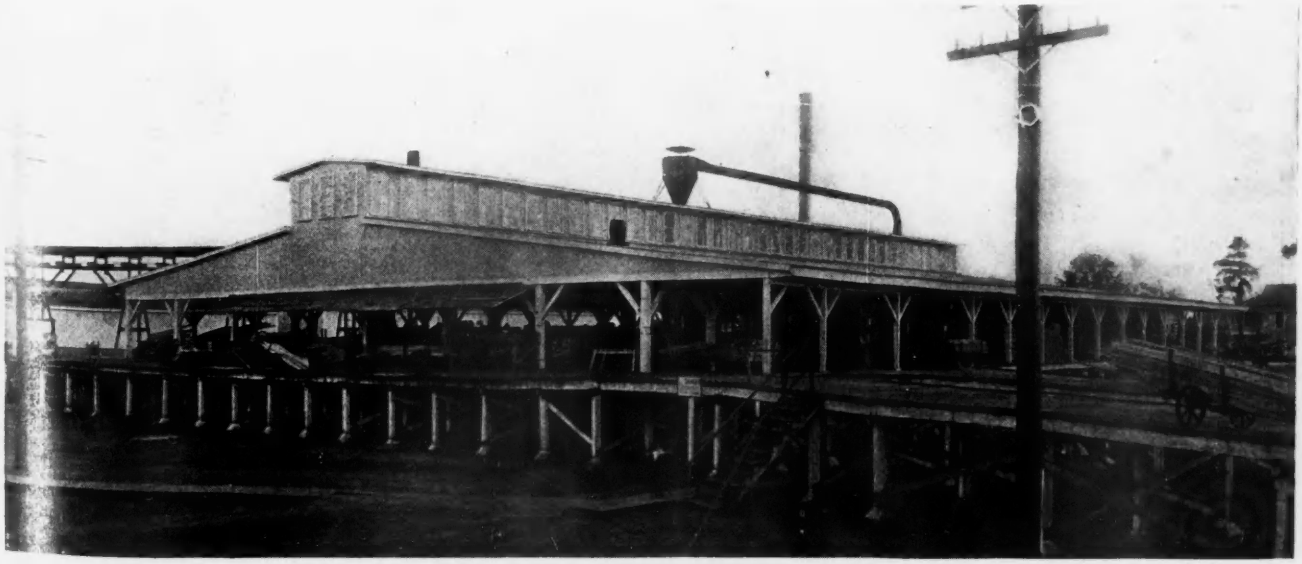
Hon. William B. Wilson, Secretary of Labor, finds favorable comparison in this Southern logging enterprise with the "forest communities" of the Northwest. The model town is constructed around the hardwood mill owned by this lumber company, and logging trains each morning take the men to work. Daily trains in the morning and afternoon convey the wives of the workers to trade centers.

With class war raging abroad, the salutary effect of this experiment in social democracy is measurable when compared with the common conditions of the lumberjack in the South. "Our policy with reference to the employees," says the manager of the logging enterprise, "is that the latchstring of our office will ever respond to their touch and every employee feels a personal interest in the company's welfare. We also endeavor to not only know every employee, but also know something of their family life, and by such knowledge we can have more sympathetic feelings of conditions than would otherwise apply."

Architecturally, the model town is lacking in uniformity of construction of the houses. The houses for negro workers are well appointed three- and four-room cottages, attractively painted in colors of gray and white. Doors and windows are screened, and the flooring is double, with composition paper between layers to bar moisture. The houses are set on concrete piers, the main structure being built of pine timber. Water is furnished by a bored well at each cottage.

Sanitary toilets, bath rooms and electric lights, with a twenty-four hour electric service—these are modern conveniences that qualify this enterprise for the description of being a model town.

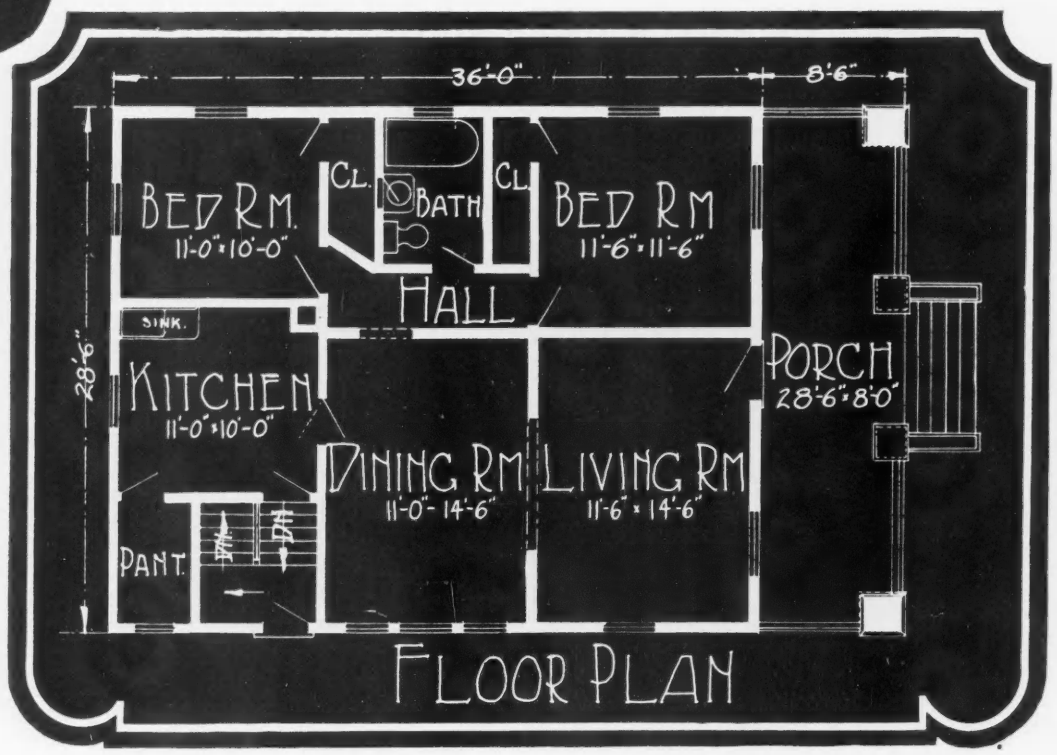
The benefits go unfailingly to the worker—and the $20 rental is based on costs of capital and service. Beauty is not sacrificed to utility—400 shade trees are being planted and the seeding of grass and flowers is being encouraged by this Southern lumber company that goes into the town-building business.



Planing Mill of Long-Bell Quitman, Miss., Plant. This concern has built home for their employes in an effort to help them fight the high rents.

BLUE RIBBON HOMES

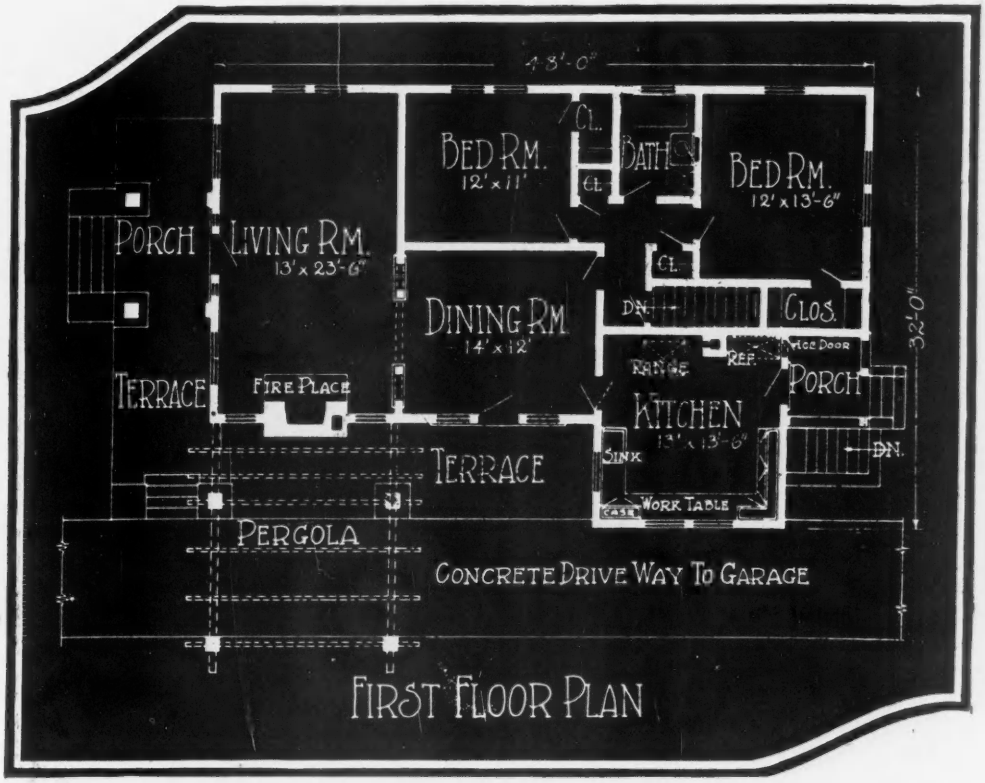
PRACTICAL & ARTISTIC



PRACTICAL, COMFORTABLE HOME OF GOOD DESIGN. Here is a bungalow that would be attractive anywhere but it would be particularly desirable as a farm residence because of its practicability and conservative and substantial appearance. The spacious and inviting front porch extending clear across the front of the house and the broad sweep of the roof carried out over the porch and adorned with a dormer, breaking the wide expanse, is perfect in proportion and balance. From the porch one enters the living room. The dining room, kitchen and pantry occupy the remainder of the left side of the house while the two bedrooms, closets and bath are located on the right side. The bedrooms and bath all open onto a hall which is entered from the dining room.

BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



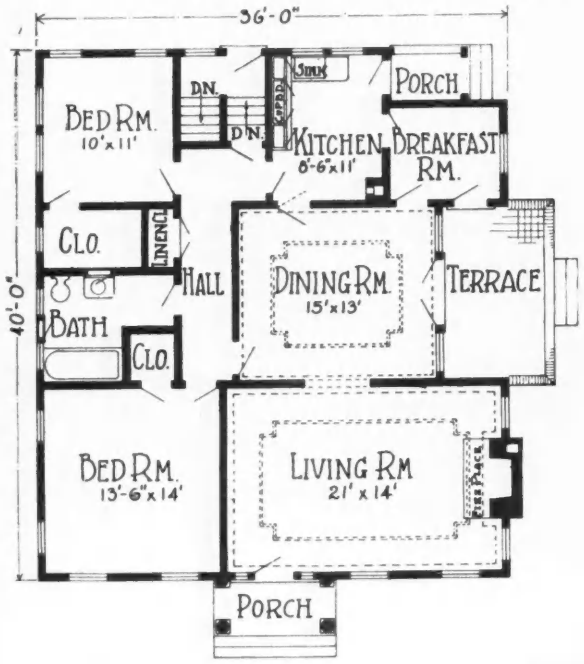
BEAUTIFUL 5-ROOM BUNGALOW EXPRESSES INDIVIDUALITY. This artistic little home with its distinctive and outstanding features, the terrace and pergola, the concrete driveway to the garage, the French windows, the brick chimney and white columns would be a worthy monument to any man. The architect in designing this home fulfilled the standards of the most exacting home seeker. The living room is a most delightful part of the interior. Entered directly from the front porch it extends clear across the front of the house. It has a real fireplace and while entertaining during warm weather the French windows may be thrown open so that the guests may stroll upon the terrace. The dining room and kitchen occupy the remainder of the right side of the house while the two bedrooms and bath take up the remainder of the left.

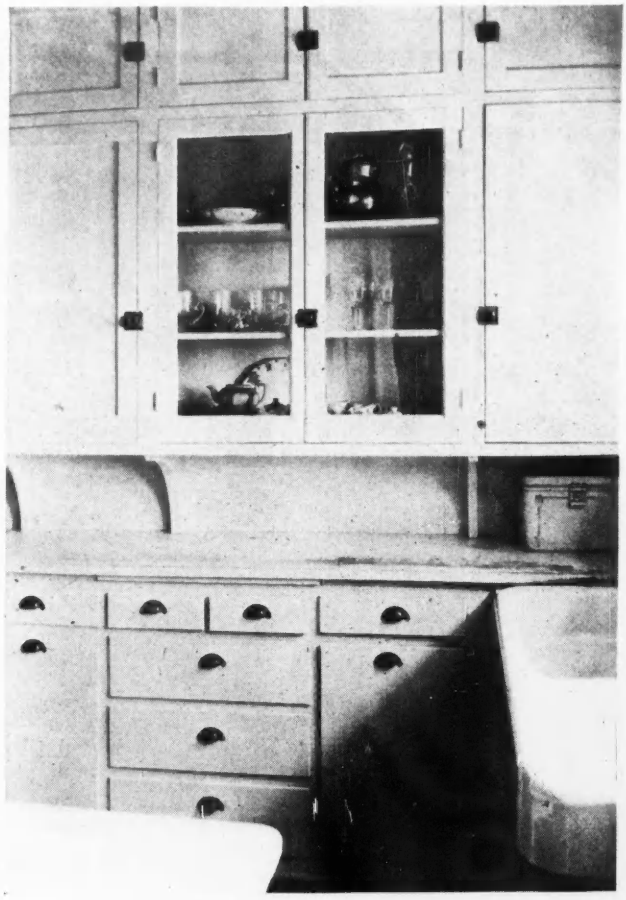
Beautiful Stucco Bungalow

By R. L. CLINE

A STUCCO bungalow of unusual charm is shown in the accompanying illustrations. The walls are built of interlocking hollow tile, covered on the outside with buff colored cement stucco and plastered inside. The roof is of red composition shingles, making an effective contrast. The front windows are of unusual design, being rounded at the top. This idea is further carried out in the design of the entrance and the small windows in the roof. All of the outside woodwork is painted white.

The steps and floor of the entrance are made of brick and the walk leading in from the street and around the





The Kitchen Is a Model of Neatness and Efficiency. All in white. This built-in cabinet goes clear to the ceiling, provides a well displayed section for best china and glassware, besides ample drawers and hinged compartments for cooking utensils and supplies.

This Six-Room Bungalow Built at Joplin, Missouri, for Approximately $5,000, contains many artistic and distinctive Features

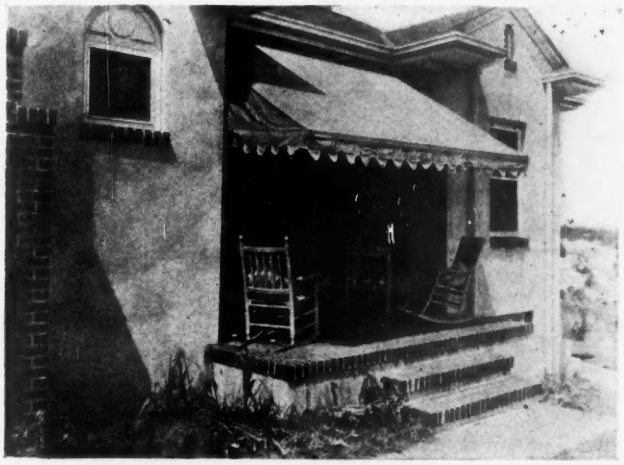
house is made of cement, bordered with brick.

The house contains a living room, dining room, breakfast room, kitchen, two bedrooms, bath and sleeping porch.

The living room, dining and breakfast rooms have cream-colored walls and ceilings, and the woodwork is finished in ivory. A feature which adds very much to the attractiveness of the dining and living rooms is the panelled ceiling in each. These panels are finished in ivory and give a touch of distinction to rooms already beautiful.

The fireplace in the living room is well designed and the color of the tile used is a dark blue shade blending to dark green. Mahogany furniture is used in this room.

The Fireplace End of the Living Room Is Interesting in Its Detail. The trim is white enamel. Note the shaded candle lighting fixtures over the mantel.



Many Are Coming to Realize the Value of Their Outdoor Rooms. This concrete and brick terrace opening out from the dining room and overlooking the garden, with its awning and simple furnishings, makes a delightful summer retreat.

A wide opening leads from the living room to the dining room. This room is well lighted by French doors opening upon the side porch. These doors admit an abundance of fresh air when opened. A feature of the dining room is the built-in china closet, the door of which has a rounded top, following the design of the front windows of the house. The furniture is mahogany, matching that in the living room.

A door in one corner of the dining room opens into the breakfast room, which a very cozy little room, furnished with ivory furniture.

The bedrooms have gray walls and white woodwork and are furnished with ivory furniture.

The bathroom has a tiled floor and blue and white tiled walls for a distance of four and one-half feet from the floor, the remainder white.

The kitchen is finished with white enamel. Two features of the kitchen are a spacious built-in cabinet and an auxiliary or winter refrigerator which keeps food in good condition without the use of ice during the cool months. The room is well lighted and the sink is placed beneath the windows.

The house is well supplied with light fixtures and outlets conveniently placed. The fixtures are fitted with parchment shades.

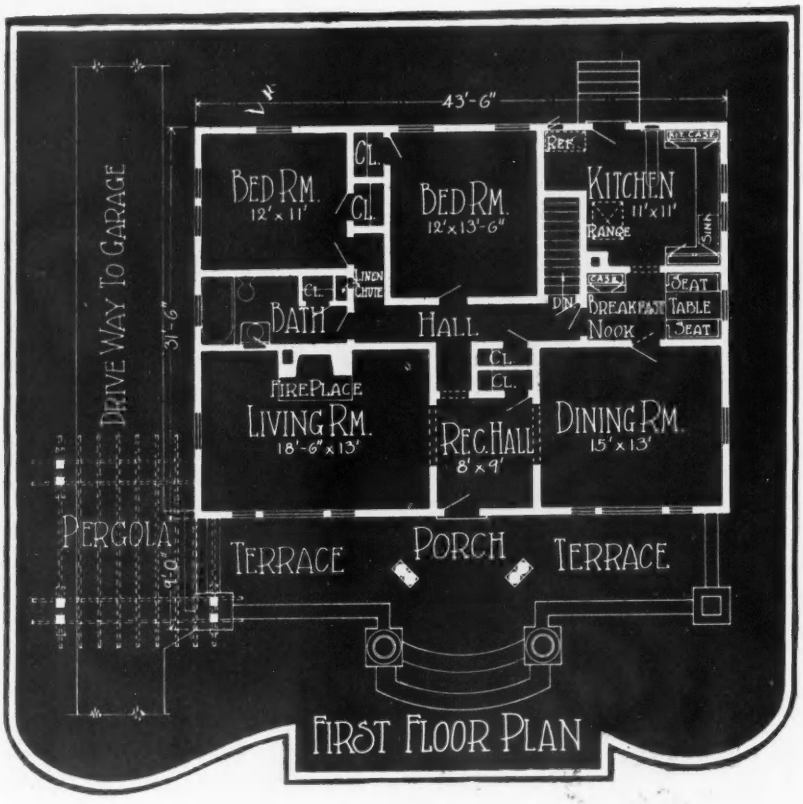
The doors in the house are mahogany finish and look well with the ivory woodwork.

All floors are hardwood. The house is heated thruout with steam heat. Summing it up, it is a house which anyone would be proud to own and was designed by Yoho & Merritt of Seattle, Wash.

Two Bedrooms Are Provided in This Bungalow. The well chosen furniture and the dainty window drapes and lighting fixtures make these rooms a joy to enter.

BLUE RIBBON HOMES

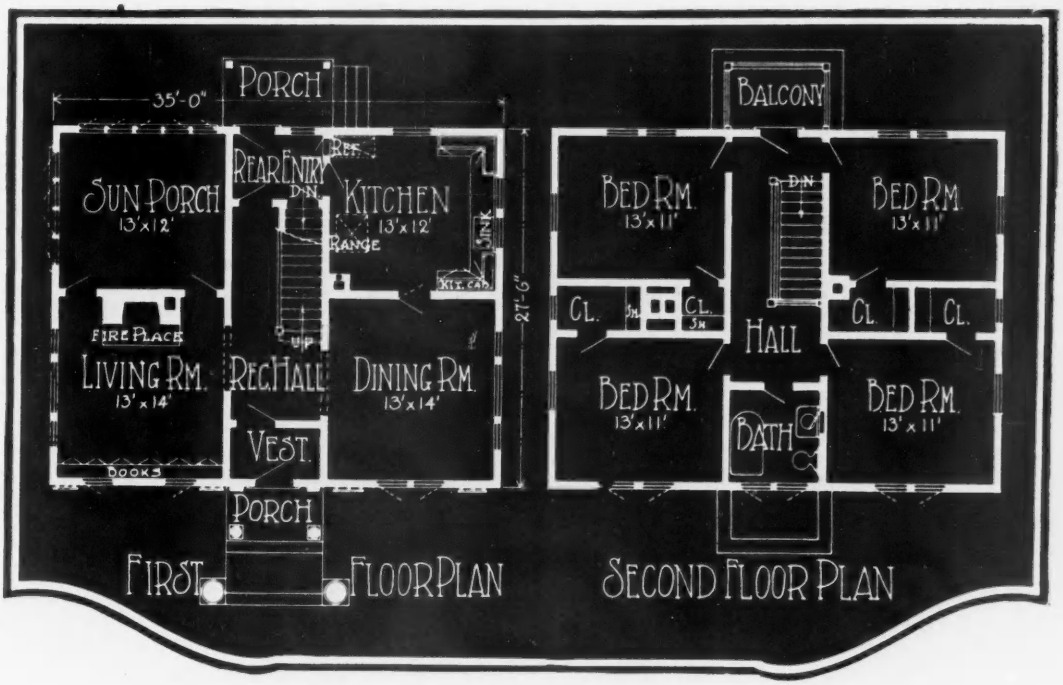
PRACTICAL & ARTISTIC



FIVE-ROOM BUNGALOW OF UNIQUE APPEARANCE. This is an impressive looking home with its white stucco finish and red tile eaves surrounding a flat roof. The outstanding feature is the modified Colonial entrance with the balcony above supported by white columns. The porch platform is semi-circular in shape and like the terrace is made of concrete. The interior arrangement is excellent. The front entrance opens on the reception hall. To the right is the dining room. To the left the living room. Between the dining room and kitchen, which occupy the entire right side of the house is the little breakfast nook. The bath is located at the left end of the hall that divides the front of the house from the rear. Both bedrooms are located in the rear and are entered from this hall. The house may be built on an average sized lot leaving plenty of room for an attractive lawn, garage driveway and pergola.

BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



A PRACTICAL AND DISTINCTIVE FAMILY HOME. This beautiful eight-room shingled house is particularly suited to the large family or the home seeker desiring plenty of space and rooms. The interior has been designed for comfort and all the rooms are well lighted and ventilated. From the front porch, one enters the vestibule which opens into the reception hall. To the left is the large living room with built-in bookcases. On each side of the fireplace is an entrance leading to the sun porch. To the right of the reception hall is the dining room which together with the kitchen occupies the entire right side of the house. On the second floor are the four bedrooms and the bath. They all join into the hall which leads to a balcony in the rear.

IDEAS for CONCRETE BUILDERS

A Stuccoed Block Colonial House

Substantial and Well Designed Masonry Residence at Minneapolis

By A. J. R. CURTIS

HERE is a charming little colonial house. Altho rated as having only five rooms, it is more spacious than the number of rooms would imply for they are large and well arranged.

This house was recently designed by Don A. MacLaren, a Minneapolis architect, for Mr. Charles Birdsell of that city, and is now nearing completion. The walls are of plain concrete block covered with portland cement stucco, without ornamentation further than the wooden trellis strips. The simplicity of the design and the good proportions evident from every elevation have been depended upon largely to give the house its attractiveness.

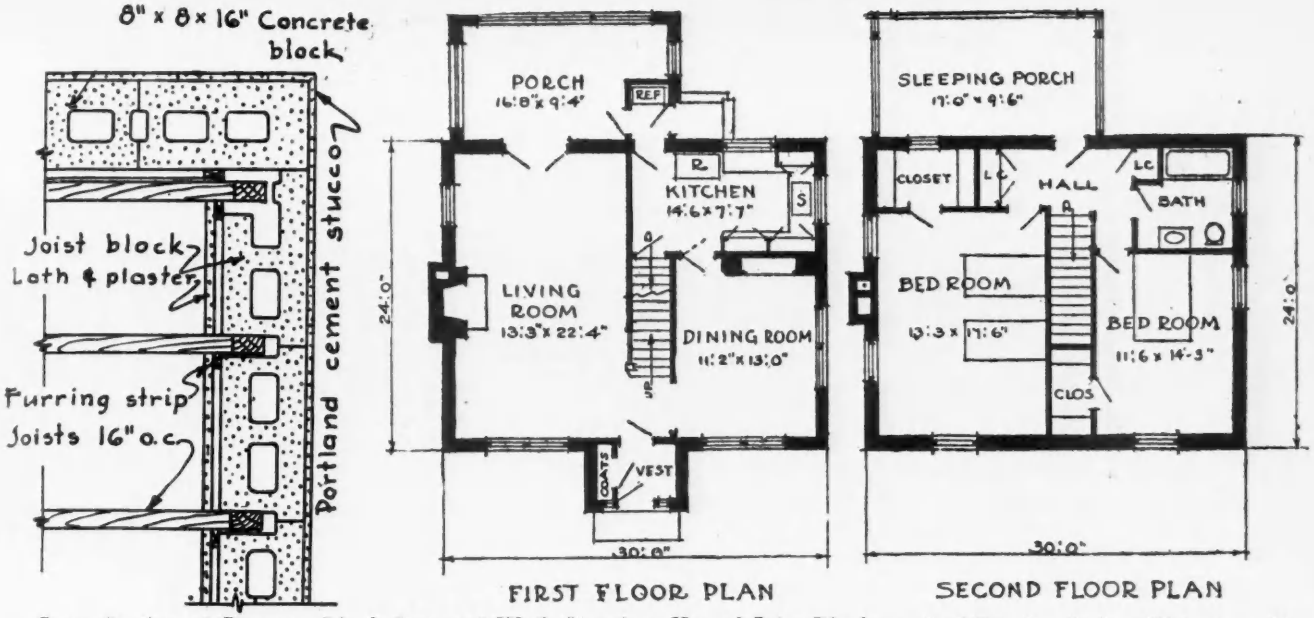
Mr. MacLaren, who was one of the successful architectural contestants at the recent concrete show at St. Paul, exhibited there a house along quite similar lines, which appealed so strongly to Mr. Birdsell that the architect was engaged to prepare the present plan for the former's new home. This plan was later selected by the Portland Cement Association as one of the initial designs presented in its house plan service, appearing as the "Shalford" in the first group of twenty-five houses, just published.

Without counting vestibule and porch areas the building has a width of 31 feet and a depth of 24 feet. Its simple rectangular shape obviously makes for economy of construction, giving maximum room space at minimum cost. Construction economy, low maintenance and saving of fuel are all considerations which were kept uppermost in the preparation of this design.

The exterior and bearing walls from the shallow footings up to the eave line are of standard 8 by 16-inch plain concrete block, 12 inches thick below grade and 8 inches thick above grade. The block specified have flat rough surfaces, making an ideal base for a cement mortar coat below grade and portland cement stucco above. So far as carrying ability is concerned the walls are excessively strong, being calculated to carry about 750 pounds to the square inch, while the entire weight of the building and contents is not over 20 pounds to the square inch.

Concrete Block Residence After First Coat of Stucco Was Applied. The cement mortar joints between blocks are still discernible. With the final cost of cement stucco the wall presents a perfectly even tone that is permanent because the wall is of the same material thruout.

However, this excessive strength is provided to insure the greatest possible degree of rigidity and stability. These qualities practically guarantee satisfactory stucco work. Rigidity of the structure reduces the movement of floors and partitions to the minimum, presenting sagging, shrinking and racking in high winds and reducing or eliminating plaster cracks. These walls laid up



Cross Section of Concrete Block Stuccoed Wall, Showing Use of Joist Blocks and of Furring Strips, Giving an Air Space Between the Inner Block Face and the Lath and Plaster. This is good practice in concrete block work, the same as in brick or natural stone. The floor plans of this house show four large rooms downstairs, and two bedrooms, bath and sleeping porch upstairs.

in and tightly sealed with cement mortar are as nearly weatherproof and fire resistive as it has been possible for modern design and improved construction methods to make them.

The floor joists are carried as shown in the accompanying wall section and joist bearing details. The latter illustrates the improved type of joist block now commonly used. Reinforced concrete lintels, precast or molded in place, are used thruout, while all of the sills are of precast concrete. In accordance with good practice for house wall construction of all masonry materials, furring and lath are used on all exterior walls before applying interior plaster. Where two-piece block are used, giving a continuous air space, it is usually considered safe to plaster directly on the wall, provided that double or "split" sills, lintels and other special pieces are used, so that no direct paths thru the masonry may be established to dissipate heat and invite condensation on inside surfaces.

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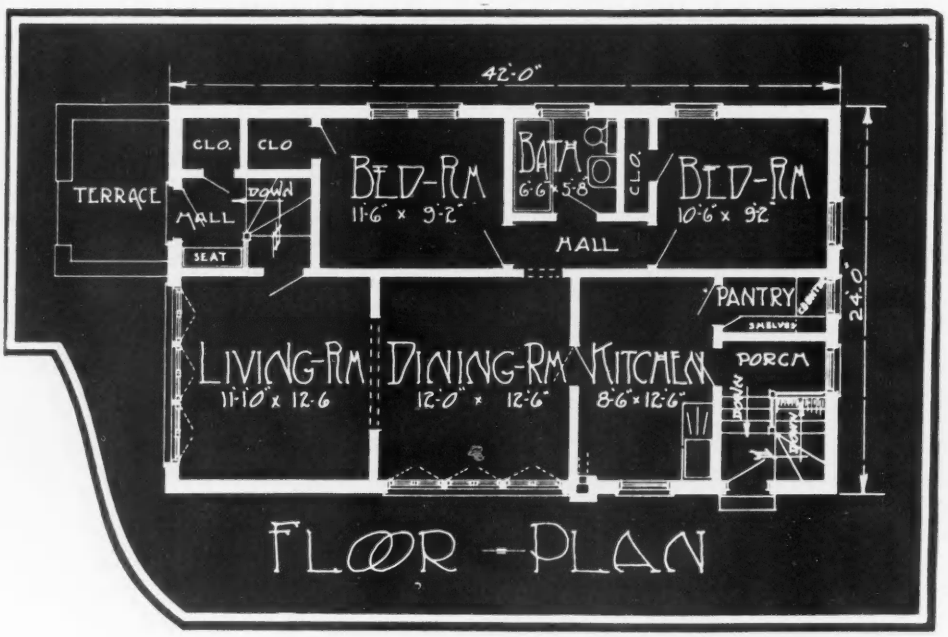
LINCOLN, the self-educated man, said: "I will study and prepare myself and some day my opportunity will come."

Detail of Front Entrance of Finished House, Showing Final Texture of Cement Stucco Finish. The wood lattice was added to soften the lines until shrubbery and vines have time to grow to do this work better.

BLUE RIBBON HOMES

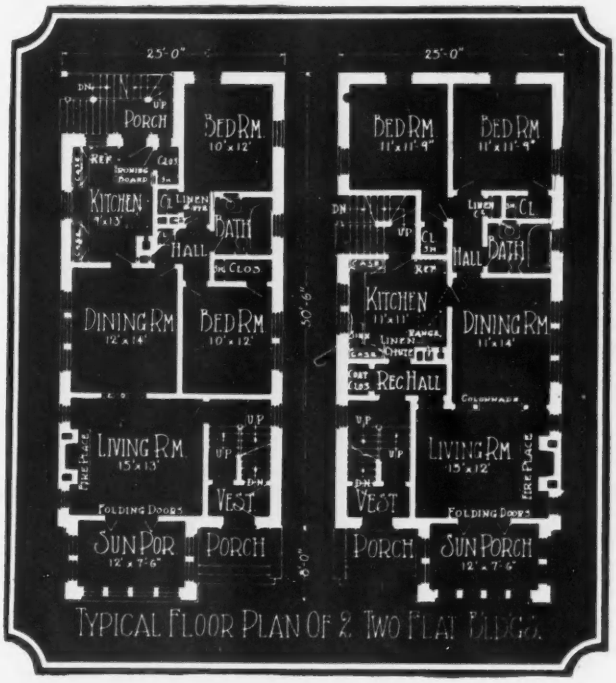
PRACTICAL & ARTISTIC



A COZY LITTLE 5-ROOM BRICK BUNGALOW. This dignified and conservative home with a pleasing exterior will completely satisfy the man who has been looking for a small brick home. The rooms have been laid out in the customary American bungalow arrangement, the living room, dining room and kitchen on one side and the two bedrooms and bath on the other. From the front terrace one enters a small reception hall. It has a clothes closet on one side and a hall seat on the other. The living room, dining room and kitchen occupy the right side of the house. The kitchen has a small pantry and built-in shelves. From the dining room one enters the hall which opens onto the two bedrooms and bath.

BLUE RIBBON HOMES

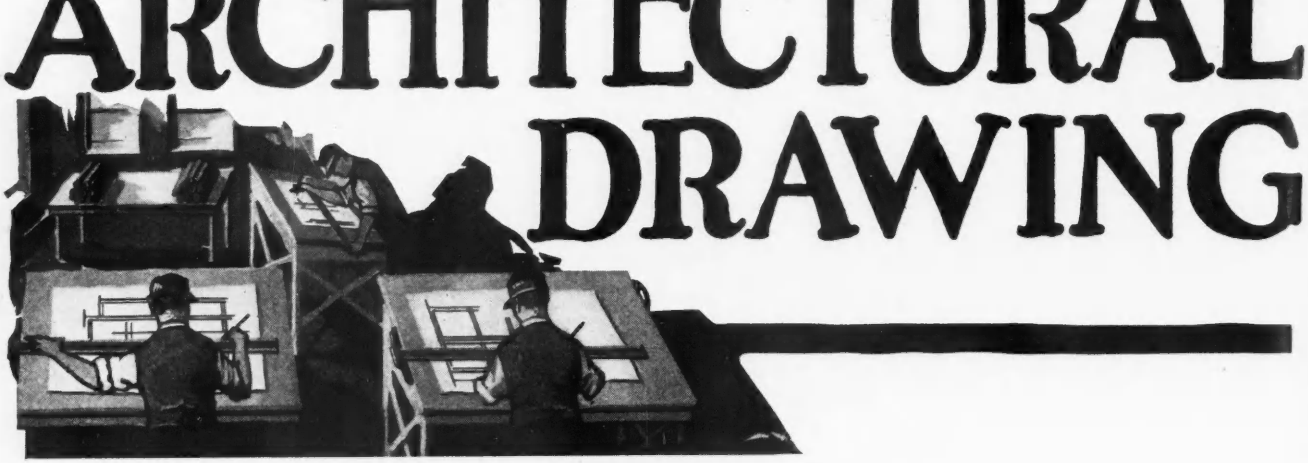
PRACTICAL & ARTISTIC



TYPICAL FLOOR PLAN OF 2 TWO FLAT BLDGS.

TWO TWO-FLATS. This very sensible and attractive type of home building is becoming more and more popular. In many cities entire streets are being built up in this style and the buildings find ready sale. The designs illustrated here are five-room and sun parlor flats, each building showing a different arrangement of rooms, both of them good. Tastes differ and distinctiveness has its cash value, so in laying out a group of two-flat buildings it is well to avoid monotony of exterior and of room arrangement.

ARCHITECTURAL DRAWING



The Use of Instruments

The Third of a Series of Articles of Great Practical Value to Builders

By M. K. TEACH

Instructor in Architectural Drawing, Bradley Polytechnic Institute

THE student should understand before beginning to draw that a series of hard and fast rules to be consulted cannot make a draftsman of a beginner but there are many instructions and cautions, whose reading may seem tiresome, but whose observance is absolutely necessary in order that one may become proficient in the use of instruments. Good form must always be insisted upon, for lack of care and other bad habits formed in the beginning create a standard which will be carried by the student thruout his professional life. It does not take any more time to make a good drawing than it does to make a poor one. A very good rule for the student to follow is never to erase. In nearly all cases erasures can be prevented by taking a little more care with the work. It often happens that the draftsman is called upon to erase a mistake, but he never should regard his eraser or his knife as more important than his pen or pencil.

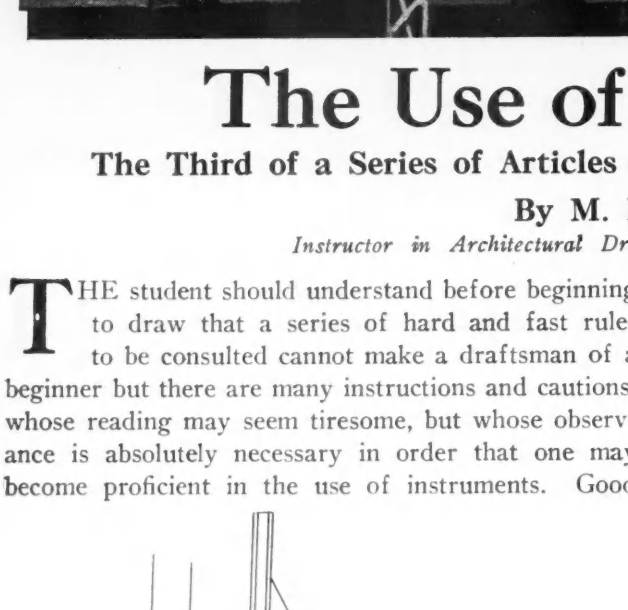


Fig. 1. Correct Position for Using T Square and Triangle.

As a preliminary step to beginning of a drawing, the amateur should observe the following directions: First, the table should be set so that the light comes from the left front corner. By doing this the draftsman never works in a shadow, for he always uses the upper edge of the T-square and the left edge of the triangle. Second, the head of the T-square should always be used against the left edge of the board. Students usually commence by using the right edge of the triangle when drawing vertical lines, and this method is employed by some draftsmen altho it is by no means as convenient as is the use of the left edge, due to interference of shadows from the triangle and to the cramping of the hand and forearm. The correct position is illustrated in Figure 1. Third, the T-square is far more rigid near the head than it is toward the other end, the paper should be placed about an inch or two from the left edge of the board and if possible several inches from the bottom edge of the board. In this position, fasten the paper to the board with a thumb tack in the two upper corners, and it would probably be best for the beginner to put tacks in the bottom corners also, altho the majority of draftsmen do not prefer it unless in the case of very large sheets or thin paper. Thumb tacks in the bottom corners

usually interfere with free action of the T-square.

In penciling, the student should take care not to "dig" into the paper, and on the other hand, he should not draw so light that the lines will be obliterated before the drawing is completed. The degree of hardness of the pencil to be used varies for different papers, classes of work, and draftsmen. For most ordinary work and detail paper a 2H or 3H pencil is about the

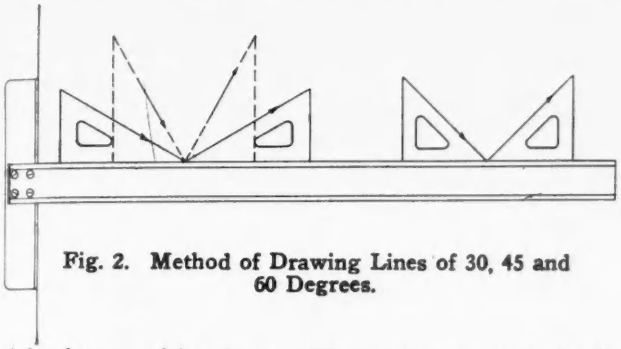


Fig. 2. Method of Drawing Lines of 30, 45 and 60 Degrees.

right degree of hardness. The tendency among beginners is to draw too heavy lines rather than too light. In preparing a drawing many temporary lines must be drawn in pencil for the mere purpose of guidance in drawing other lines. Such temporary lines are known as construction lines or service lines and should be drawn lightly to facilitate their removal with art gum. Great care must be taken in marking centers of circles and circle arcs and it is often advisable to do this by faintly sketching a small circle around the centers. One good rule in penciling is never to draw a pencil line too short; it is far better if it be made too long.

Usually, the 30-60 degree triangle is used for drawing vertical lines since it has the longer perpendicular edge. It should always be set against the T-square or some guiding straight-edge. Lines at 30 degrees, 45 degrees, and 60 degrees should be drawn as in Fig-

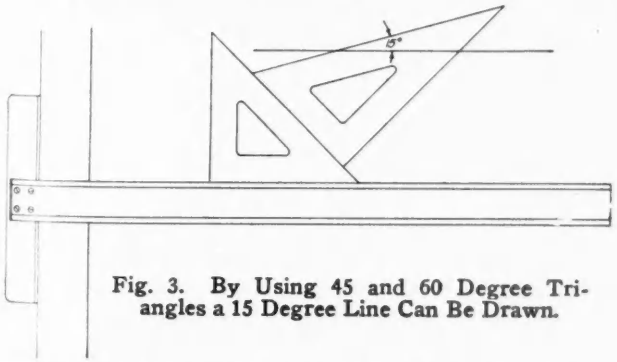


Fig. 3. By Using 45 and 60 Degree Triangles a 15 Degree Line Can Be Drawn.

ure 2, the arrows guiding the direction of the stroke. Now by using the two triangles in combination, we can get angles of 15, 75 and 105 degrees. For instance, if the draftsman wishes to draw a line making 15 degrees with the horizontal (or line of the T-square) he first sets the 45 triangle against the T-square and then the 60 degree against the 45 in the manner shown in Fig. 3. This leaves the difference between 60 and 45, or 15 degrees, the angle sought.

Fig. 4 illustrates the method of drawing a series of parallel lines.

To draw a line perpendicular to a given line, fit the hypotenuse of the triangle to the line with one edge of the T-square in position, turn the triangle until the other side of the triangle is against the edge of the T-square. The hypotenuse will then be perpendicular to the original line, as is seen in Fig. 5. It is carelessness and bad form to attempt to draw a perpendicular to a line by merely placing one leg of the triangle against the line.

After the drawing is made in pencil it is usually inked or traced in ink on tracing cloth or paper.

It might be in order to say a few words concerning the ruling pen and its uses, for there seems to be so

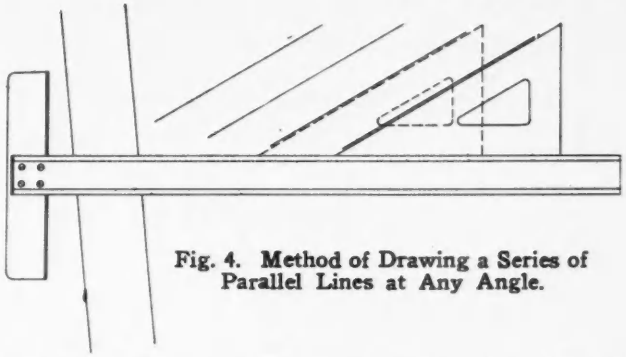


Fig. 4. Method of Drawing a Series of Parallel Lines at Any Angle.

little science in using it among men that its misuse is really startling. The word pen makes most men regard it as some kind of a writing pen made purposely to use with India ink. This wrong impression must be corrected for the ruling pen should never be used free hand; that is, without the aid of a guide such as T-square, triangle, or French curve.

The working portion of the pen is composed of two steel nibs which are fastened to a turned ivory, ebony, bone or aluminum handle. A thumb screw passes thru the two nibs, and it is by tightening or loosening this thumb screw that various widths of lines can be drawn. Ink can be inserted into the pen by means of the quill filler, but no ink should be allowed to get on the outside of the nibs. If, however, any ink does get on the outside it should be wiped dry before the pen is touched to the guiding edge for the purpose of drawing a line, else its contact with the guiding edge may seriously mar the drawing. The beginner must observe this caution: Never put too much ink in the pen, for the ink might run out and blot the drawing. About

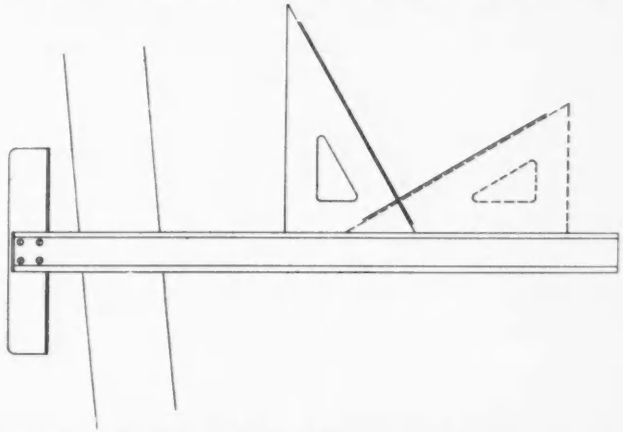


Fig. 5. Using a 60 Degree Triangle to Draw One Line Perpendicular to Another.

one-fourth of an inch of ink in the pen is sufficient. The pen should be held with the nibs parallel to the T-square or triangle at all times. Otherwise either a ragged line will result similar to the second line of Figure 6 or a smeared line will be the consequence, as

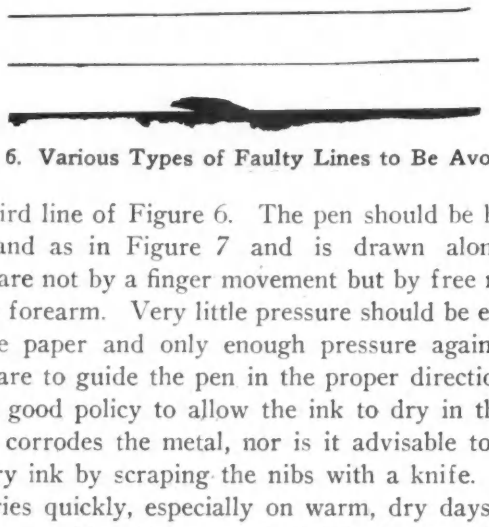


Fig. 6. Various Types of Faulty Lines to Be Avoided.

the third line of Figure 6. The pen should be held in the hand as in Figure 7 and is drawn along the T-square not by a finger movement but by free motion of the forearm. Very little pressure should be exerted on the paper and only enough pressure against the T-square to guide the pen in the proper direction. It is not good policy to allow the ink to dry in the pen for it corrodes the metal, nor is it advisable to clean out dry ink by scraping the nibs with a knife. India ink dries quickly, especially on warm, dry days or in dry rooms. For this reason the ink bottle should never be left open, nor should the ink in the pen be left for more than a few minutes at a time.

In inking in a drawing, circles and arcs of circles should be inked first. To most beginners this seems like the last thing to do rather than the first, but the better way can easily be demonstrated to the student if he attempts both ways of doing it. It is far easier to join a straight line to a curve than it is to join a curved line to a previously drawn straight one. Next, all horizontal lines should be drawn. Thirdly, ink all vertical lines and later the angular lines. Lastly, put in the dimensions and arrowheads, lettering, title, border, etc.

A few exercises in the use of the instruments are illustrated in Fig. 8 and the amateur should practice on them until he is able to ink them all without any bad lines or corners, smears, or blots.

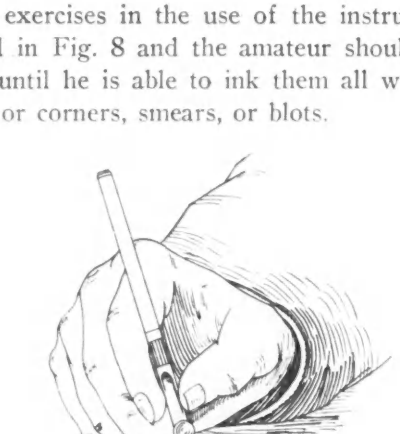


Fig. 7. Correct Method of Holding Ruling Pen.

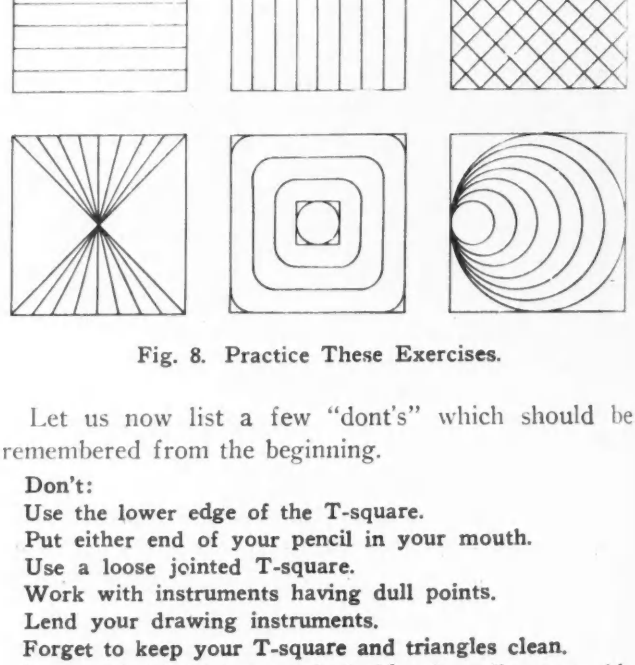


Fig. 8. Practice These Exercises.

Let us now list a few "dont's" which should be remembered from the beginning.

Don't:
Use the lower edge of the T-square.
Put either end of your pencil in your mouth.
Use a loose jointed T-square.
Work with instruments having dull points.
Lend your drawing instruments.
Forget to keep your T-square and triangles clean.
Scrape off dried ink from the inside of a ruling pen with a knife.
Allow the inside of the nibs of a ruling pen to become corroded.
Run backward on a line with the ruling pen.
Use a blotter on inked lines.
Draw with the sun shining on your work.
Forget that it is easier to erase pencil lines than inked lines.

The careful observance of these cautions will enable the amateur draftsman to keep out of many difficulties. More cautions for the beginner will be given in a later article.

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Blight-Infected Chestnut as Durable as Sound

SERVICE records collected by the U. S. Forest Service indicate that chestnut posts, poles, and ties cut from blight-infected trees are as durable in service as similar timbers cut from healthy trees. Inspections on posts in one locality during eight years of service showed that decay progresses about as quickly in undiseased posts as in blight-infected posts.

The blight fungus attacks living trees and grows in the bark, particularly in the cambium layer, but it does not penetrate deeply into the wood itself. The blight finally kills the tree, effectively girdling it by separating the bark from the wood.

Blight-killed chestnut should be cut and utilized as soon as possible. Allowing dead trees to check and become infected with decay in the woods shortens the service life of timbers cut from the tree.

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THE word quit isn't in the dictionary of success.

LAW for the BUILDER

Validity of Secret Agreement Between Rival Contractors Relative to Submitting Bids

By LESLIE CHILDS

WHERE a given piece of work is advertised in a public manner, with the understanding that the contract will be let to the lowest responsible bidder, there is frequently considerable competition between the contractors interested. And in situations of this kind, especially where there are a limited number of rival contractors in a position to bid, it is not surprising that once in a while there will be a temptation to join forces and have perhaps some understanding relative to the submission of bids.

Now, it may be said at the outset that there is nothing wrong in two or more contractors joining forces in securing a given contract, providing this is done in an "above board" manner. Contractors, as other men, have a perfect right to unite in a given enterprise, either thru the formation of a partnership or other manner of association. However, in forming such an association, for the purpose of bidding upon a given piece of work, we have a quite different situation if the uniting of forces is brought about secretly, and with the purpose of stifling competition in the submission of bids.

In the first place, the courts will not, as a general rule, uphold such an agreement and will decline to enforce its terms at the instance of either party to it. Generally speaking, the courts, when appealed to, will leave the parties to such a contract just where it finds them as soon as such a state of affairs is brought to light. This on the broad grounds that such agreements are deemed to be against public policy.

The application of this rule of law is illustrated in a long line of cases, among them being Daily vs. Hollis, 27 Tex. Civ. App. 570. This case is one of particular interest to contractors and builders as it involved the application of the foregoing rules of law to an agreement between two contractors. The facts and circumstances which culminated in the action were, briefly stated, as follows:

Daily and Hollis were independent and competing building contractors operating in a given city. A corporation of that city desired to erect a gas plant, and, after preparing plans and specifications, advertised for bids, with the understanding that the contract would be let to the lowest responsible bidder.

Daily and Hollis were interested in the contract, and reached an understanding whereby they were both to submit bids as independent bidders. It was agreed that Hollis should bid $3,476 and that Daily should bid $3,511, or just $35 more than Hollis. It was further agreed that in case Hollis' bid was accepted he would take the contract in his name, but that Daily should assist in the work and the profits would be divided equally between them.

Now it should be noted that this understanding between Daily and Hollis was secret, and that the company letting the contract had no knowledge of it. All right.

The bids were filed, and when opened by the company Hollis' was found to be the lowest. The contract was thereupon awarded to Hollis, who entered upon the work. Daily assisted Hollis in the work and the contract, as between Hollis and the company, was fully and faithfully performed. The contract netted Hollis a profit of $1,097, and now we come to the interesting part of the story.

After settlement had been made, Hollis, it seems, gave Daily $109 and refused to divide further. Daily thereupon brought the instant action in an attempt to force Hollis to pay him one-half of the profits according to their agreement at the time the bids were submitted.

In this suit Daily claimed that he and Hollis were partners in the enterprise. Hollis denied this and set up the facts of their agreement as have been outlined above. The trial court held the contract not enforceable because it was contrary to public policy, and rendered judgment in favor of Hollis. Daily appealed to the higher court, and in passing upon the validity of this agreement between Daily and Hollis it was, among other things, said:

"The intention of Daily and Hollis was to obtain an unfair advantage, and the means employed were calculated to accomplish their purpose. The improper motive underlying the agreement, and the method of

carrying it into effect, stamp it as essentially vicious. To uphold and approve such practices would be to encourage double dealing and fraud, and to retard the making of desirable improvements. The law will not compel the parties to such an agreement to a fair division of the spoils of their unlawful enterprise. * * *

"We approve the finding of the trial court that the agreement shown in this case was not consistent with a sound public policy, and therefore the plaintiff (Daily) was not entitled to recover. * * *"

In conclusion the higher court affirmed the judgment rendered in the lower court, holding that in view of the purposes of the contract entered into between Daily and Hollis, in the submission of their bids, the law should not compel Hollis to divide the profits with Daily. In other words, it would simply leave the parties where it found them.

The foregoing Texas decision is in accord with the weight of authority upon the point decided. It illustrates in a striking manner the danger of entering into any contract or agreement in the matter of submitting bids, which is secret in its nature and has for its purpose the taking advantage of the person or corporation letting the contract. For, as we have seen, the terms of such an agreement will not, on the grounds of public policy, be enforced by the courts.

Spray-Painting the Home Exterior

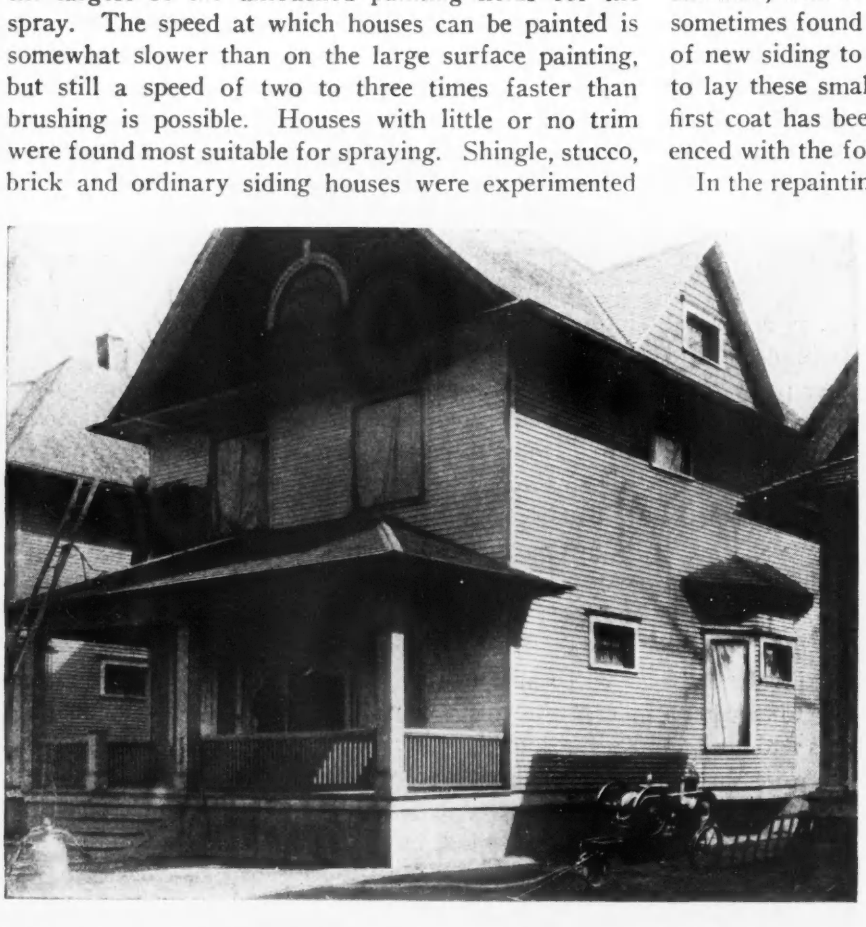
Builders Save Heavy Cost and Produce a Good Job by Painting by Machinery

THE practicability of spray painting houses has been determined. The experimental stage has been passed. Spray painted exterior surfaces have proved as durable and lasting as brush painted surfaces. The appearance of the work is greatly improved. A uniform coating free from runs, sags and brush marks is the marked result of spray painting.

Experiments have been conducted for the past six years to determine spray painting possibilities in this, the largest of the untouched painting fields for the spray. The speed at which houses can be painted is somewhat slower than on the large surface painting, but still a speed of two to three times faster than brushing is possible. Houses with little or no trim were found most suitable for spraying. Shingle, stucco, brick and ordinary siding houses were experimented on. On shingle, stucco and wood-trimmed brick houses the speed in comparison to brushing was greater than on siding houses. All cracks and inaccessible places were reached with the spray. The spray method proved to be the method which insured the house owner a return of dollar for dollar out of his painting investments.

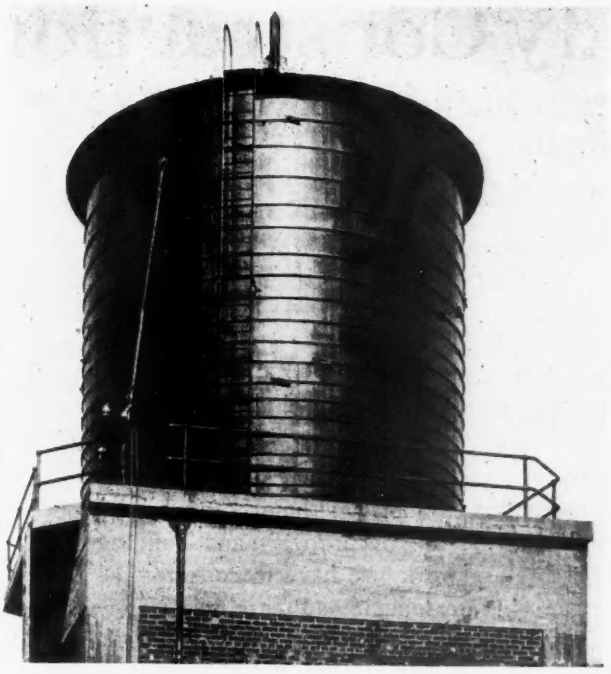
In the priming of new wood houses, the speed is naturally greatest, due to the fact that guarding trim surfaces, windows, etc., is practically eliminated. It is sometimes found necessary on the rough fuzzy sections of new siding to brush over the sprayed coating so as to lay these small feathery particles down. Once the first coat has been smoothed out no trouble is experienced with the following coats.

In the repainting of wood houses, the condition of the old paint film must be studied. If it is badly checked or scaled it is usually necessary to fill up the crevices or fissures caused by this checking. The spray applies as uniform a coating into these fissures as on the unbroken surfaces, while the brush fills up the opening. Considerable time can be saved nevertheless by spraying the coating and then "laying off" with a brush. The time required to dip the brush into the paint pail is eliminated. The second coat, after the first coat has been smoothed out, can be applied by spray without interruption.



These Two Painters Believe It Best to Let the Gas Engine Do the Heavy Work.

On a house in fair condition, good brushing practice is followed by spraying. The first coat is applied so as to dry flat, in order to eliminate creeping of the second coat. Experiments have shown that pastes or semi-paste or ready mixed paint from which the oil has been



Paint Gun in Operation. This large storage tank was recoated in one application without scaffold or ladder by one man and helper in four hours.

poured off are best suited for first coat mixtures. The amount of oil is then not so much but that a flat first coat can be obtained by adding turpentine. Second coat mixtures are the same as for brushing.

The body and large trim are spray painted while the small trim is brushed. Windows are protected by cloths.

The equipment necessary to do painting by the improved spray method consists of an air compressing plant of sufficient capacity in cubic feet of free air per minute to satisfactorily operate one or more spray guns, a paint container with air regulating means, spray guns and hose. The outfits are built in one or two man units and can be had on hand trucks or skids. The skid outfit is adapted for installing in a trailer or truck body. The motive power may be either gas engine or electric motor. The gas engine outfit is generally used by the contracting painters to avoid the varying electric currents which are met in the larger cities. The price of a complete spray painting equipment ranges from $400 to $600.

House Painting with Hand Brush Equipment and Engine-driven Air Compressor.

✣

A Floor Fixing Kink

THE carpenter is frequently called upon to repair floors, which have an end of a board or an edge of a board sunken down below the surface. This is probably caused by defective material, careless workmanship, or by moving heavy furniture over the floor. Whatever the cause, the thing that the man who is called upon to fix the floor is concerned about is how to get it back into place with the least expenditure of time and material. For, ordinarily speaking, the layman thinks that a little thing like that can be done in a few minutes. Of course, he himself couldn't do it, but a carpenter can—if the carpenter can't there is surely something wrong with him. That is the conclusion that many householders come to, and at such times they feel that they are being imposed upon by unmerciful mechanics. In some instances they are right, but not always.

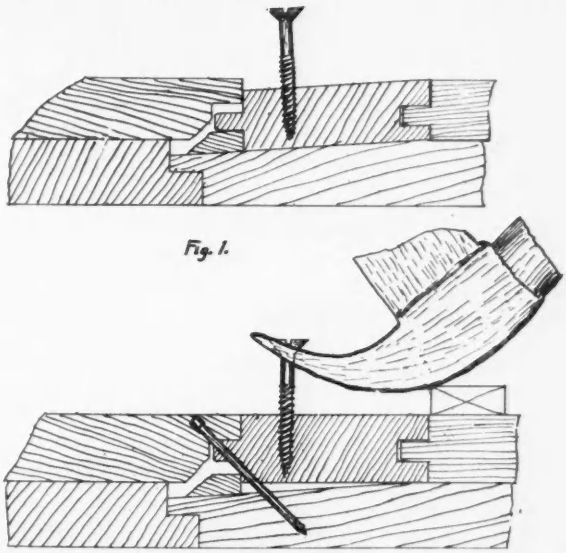


Fig. 1.

Fig. 2.
How to Raise Broken Floor Board.

As a rule the defects mentioned above can be remedied in such a short time that the owner will be so well pleased that he will go to his neighbors and friends, telling them that the man who did the work was the best mechanic in the community. Here is the way it is done: Drill a hole into the board, and insert a wood-screw—see Fig. 1. Then take a claw-hammer or claw-bar and a block of wood (see Fig. 2) and lift the board up. Next drill holes for the nails about four inches apart, as shown in Fig. 2—and with another hammer drive the nails in and set them; 6 or 8 penny finish nails will give the best results. If one lift will not bring all of the sunken board to the surface, nail what is up and then change the screw and lift again. Repeat this until the job is done.—H. H. SIEGELE.

The Folly of Shoddy Construction

Four Billion Dollar Annual Building Fund Should Buy Best of Materials and Workmanship

By LYMAN CLARK

AS THERE CAN BE many interpretations given the subject "Dangers of Shoddy Construction," it may be best to explain by stating that "Dangers" refer to waste; "Shoddy" refers to inferior material or personnel, and "Construction" refers to building structures, commercial, industrial or residential.

Building construction in the United States involves the expenditure annually of an amount probably equal

High Quality Material Plus Careful Inspection Daily Assure the Home Being Built Right.

to four billion dollars. The very smallest economic effect upon this expenditure naturally involves a large sum of money. As an example, if our annual outlay for building construction can be affected by only such a small amount as 1 per cent for good or for evil, or 1 per cent positive value and 1 per cent negative value, we have the possibility of creating a saving account of 2 per cent or sixty million dollars annually, which is the interest charge at 6 per cent on a total of 33⅓ per cent of our annual expenditure. With this large saving in mind, is it not worth while to seriously look ahead and devise every possible means for the reduction and prevention of shoddy in building construction?

Causes of Shoddy Construction

Some of the causes of shoddy construction are:

A. *Ownership.* We look upon property as invested capital upon which we seek a financial return. The owner must consider the property in the light of a holding with ever-increasing value or he must consider it in the light of something to be traded in as an article of commerce.

There is a cause for shoddy construction where the owner tries to seek greater earnings by attempting to build beyond his means, or to build too cheaply. Without sufficient capital requirements, he often places upon the property a building of the dimension and general design he desires by allowing shoddy construction. In other words, he is forced to build beyond his borrowing ability.

B. *Construction.* It is questionable whether more shoddy is used by those having to do with the actual construction of buildings than those who are concerned in the ownership of property and buildings. In the construction work, we have to consider the following responsible personnel: (1) architects and engineers; (2) general and sub-contractors, and (3) labor.

Ignorance the Only Excuse

I. There is probable no profession upon which is imposed a greater necessity of knowledge than that of architecture. In the architect's relations to shoddy construction we may truthfully state that ignorance is the only possible excuse for its introduction. Sometimes this ignorance is due to a "closed ear" on the architect's part, because of his inability to receive or lack of appreciation of advice, but it is seldom, if ever, a matter of wilful introduction of shoddy construction by him.

II. Any effort for the reduction of shoddy construction suggests these factors:

1. Loans.
2. Regulations.
3. Education.
4. Co-operation.

Loans for Good Buildings Only

1. *Loans.* While it may be a delicate question to impose upon those who loan funds for building purposes, a further consideration than the return of interest and principle, there seems to be a growing consideration that financiers must be more concerned with this question than in the past. The mortgagee of property should be concerned not only in the assurance that principle and interest are returned but that the loan has been wisely and judiciously invested. It should be the duty of one loaning money for buildings to know that the character, kind and quality are the best within economic means. The life of building structures has been variously estimated as being for cheap frame tenements of from ten to fifteen years and for the best structural buildings of from seventy-five to one hundred years. A rate for sinking funds would then be 10 to 5 per cent for the cheap frame tenements for a term of nine to sixteen years. In the structural buildings the rate of the sinking fund would only need

to be 1 per cent and the term only one-half its life. Therefore, we may reduce the introduction of shoddy construction by impressing upon the owner the economical considerations of building well, and further, by making it difficult to obtain loans for shoddy construction. We may be able in this way to reduce shoddy construction by placing a premium upon good construction.

More Thoro Inspection

2. *Regulations.* We have comparatively few cities with what are municipally known as building codes and none of these codes absolutely prohibit the use of shoddy construction. In the majority of cases they are for the purpose of creating fire walls, but do not go very far into the character or necessities of good construction. We have various rules for fire protection which more or less define the kinds of materials, but again these materials are merely to prevent fire hazards rather than to create good construction. While there are inspections of one sort or another for city and some suburban properties there does not seem to be such regulation that prohibit or reduce to any marked extent a considerable amount of shoddy construction.

Give Public the Facts

3. *Education.* It is possible to reduce the use of along these lines, not only in the technical press but in shoddy thru education. Good work has been done

The Wise Building Advisor: "You Don't Buy Cotton Clothes or Paper Shoes. Don't buy shoddy when building. You have planned for years for this home. Build it well. It's the only way that pays."

popular magazines, newspapers and circulars. The building public should be advised as to the economic advantages of quality materials.

A Common Purpose

4. *Co-operation.* Probably no better means for reduction of shoddy building is provided than thru co-operative effort stimulated by trade associations. There has been a tremendous amount of work done by trade associations in setting up useful and economic standards that have materially reduced the waste in building structures. There is still a great deal of work to be done.

We are confronted today in the construction industry with the price of labor such as to necessitate the use of only good material. Why pay the prevailing rates of labor for shoddy building? If one will undertake to examine the material in the market, it will be clearly and easily seen that the use of good material does not vitally affect the cost of building structures.

In residential building, we are confronted with a condition where about one-half the cost goes to labor and one-half to material. Generally, quality may be obtained at an expense of only 2½ per cent of the total cost. Sometimes thru the application of knowledge the same is true without any increase in the investment.

Shoddy as meaning "waste" must be eliminated if we are to approach an economical basis. Therefore, may I suggest that all interested in building construction, the banks, insurance companies, merchants, workers, professions and trades co-operate in every way for the reduction and elimination of shoddy construction.

✣

Astounding Waste of Forest Fires

THE New York State College of Forestry at Syracuse University states that the average number of forest fires in the United States during the last five years is 32,500. They burned over each year 7,560,000 acres, causing an annual loss of $17,240,000.

✣

Stone Truck with Hoist

Chain Hoisting Block Mounted on Steel Track on Motor Truck Makes Easy Work of Heavy Loading and Unloading

ANY amount of equipment, time or labor saved in loading or unloading operations will have a very substantial effect upon truck operating costs, especially since it enables the truck to accomplish more work in a given amount of time. Contractors and building supply dealers whose hauling involves a considerable amount of heavy, bulky units, will be interested in this unique, yet very inexpensive and effective hoisting arrangement by means of which two men can quickly load two tons of stone at a time onto the truck. The equipment illustrated is used by the Hydro Stone Products Company of Chicago. The holding chains operate on a pulley arrangement which slides on an overhead I-beam the position of which can be adjusted from the front to permit the load to roll onto or off the truck under its own weight.

This Equipment Is Much Used by Cut Stone Contractors.

High School Students Build Bungalow

Smith's Agricultural School of Northampton Contracted to Build a Six-Room Bungalow and Boys in Carpentry Department Did the Work

By M. EUGENE SMITH

Head of the Carpentry Department, Smith's Agricultural School, Northampton, Mass.

THE Smith Agricultural School of Northampton, Mass., an endowed school and operating under the state laws for vocational schools, entered a new field in the carpentry department last year by building a bungalow.

Arrangements were made with Wilber E. Parker, an enthusiastic supporter of the school, for the students to build a six-room bungalow for him. According to the agreement, Mr. Parker was to dig the cellar, put in the cement foundation, do all the mason work, plumbing, electric wiring, painting, and furnish all material for the woodwork. The carpentry department of Smith's School agreed to furnish all the carpenter labor required to erect and finish the bungalow. It was to be completed and ready for occupancy in two school years. In other words, the school had from September 1, 1921, until July 1, 1923, to complete the contract.

The cellar was staked out, boys assisting, August 30, 1921, and the work of digging the cellar was started at once.

The cellar walls were made of poured cement with the top part above the ground laid up of rough-faced cement blocks.

Mr. Parker, who believes in having everything convenient as possible, conceived the idea of putting the cement floor in the cellar before work on the superstructure was begun. So the location of piers and chimneys was laid out, foundations for them put in and the cement floor, except a small space where the sewer pipe was to be located, was laid just as soon as the forms for the wall had been taken down.

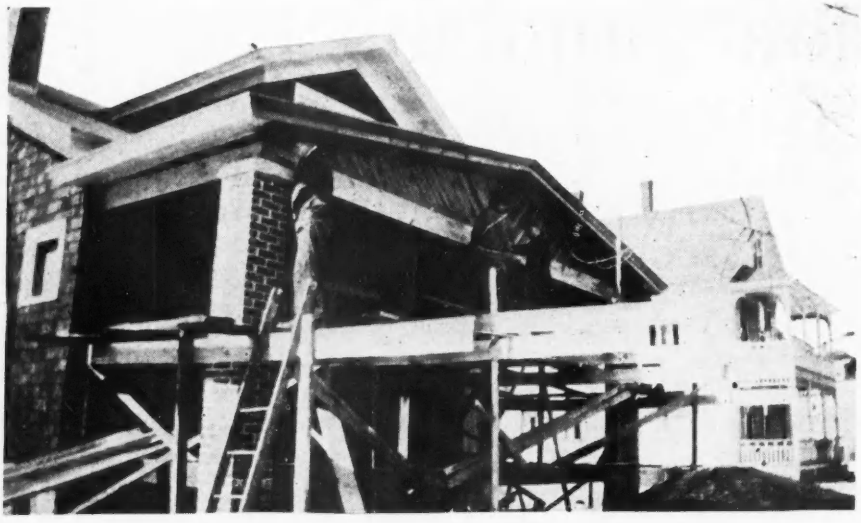
This proved not only a saving for Mr. Parker, but the even surface of the floor made a much better place to work on in putting up the first floor timbers. Waste material could also be put in the cellar as fast as it accumulated, without having to move it again in order to do the cement work.

On October 3 the second and third year boys selected the necessary tools, took the plans of the bungalow and went onto the job as a class for the first time.

The plans had been studied thoroly by the two upper classes before starting operations, and the work had been divided in two sections. The third year boys framed and placed in position the posts and girders, while the second year boys framed the joists.

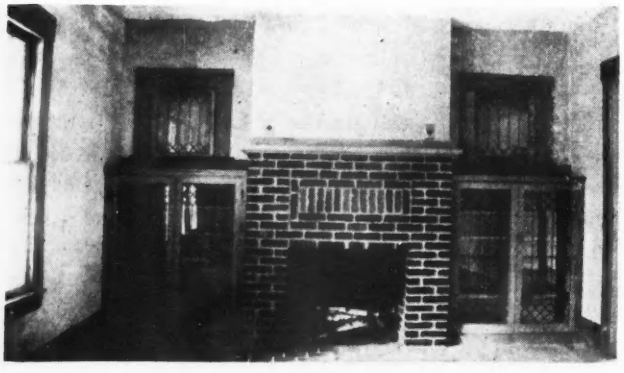
The work at the Smith School is divided so that the second and third year boys have one full week in shop work, while the first year boys have a full week in the classroom studying academic and related subjects. The

The School Bungalow Practically Completed. These first, second and third year boys of Smith's Agricultural School, with the help of their two instructors in carpentry work, put up this modern bungalow during the last school year as a practical building lesson.



First and Second Year Class Putting on Frieze. Jobs were found suitable for beginners as well as the more advanced students.

next week they alternate with each other, the first year boys being in the shop while the second and third year boys are in the classroom.



The Interior of the Bungalow Was Very Neatly Finished. This shows the fireplace and built-in bookcase end of the living room.

The second week when the first year boys went onto the job they were set to work laying the lining floor, putting in bridging, framing from patterns laid out by the third year boys and setting up some studding.

As we had eighteen boys in this class and each trying to drive the most nails, work progressed very rapidly.

The use of the steel square is taught only to the third year boys, so when ready for the rafters they figured from the plans the height and location of the purlin plate, and pitch of roof. Then each boy in the class laid out a common rafter. The instructor after going over their figures picked out the best one and that was used for a pattern.

The rafters were 26 feet long and after laying out with the steel square there was a difference of only one-half inch between any of them. Not very bad work for sixteen-year-old boys. The third year boys also laid out every one of the valleys and jack rafters and the second year boys helped to place them in position.

The bungalow was boarded in, window and door frames placed in position, some shingling done on the sidewalls and part of cornice put up, when one of the instructors was taken sick, making it impossible to employ all the boys on the job to good advantage. As Mr. Parker was to lay the asphalt shingles on the roof, arrangements were made with him to finish putting up plancier, facia and crown mould so the roof could be finished and the house protected from the rain and snow.

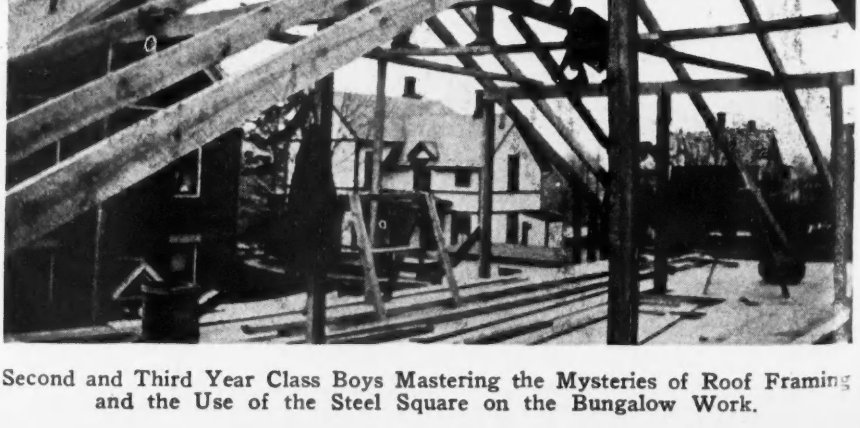
Very little work was done by the school on the building during December and the first half of January. After that whenever the weather was suitable the boys were busy shingling the sides of the building, setting up studding, putting on grounds, lathing, etc.

The house was plastered during the vacation week March 1st, and as soon as it was dry enough work was commenced on the inside trim.

The front hall, living room and dining room were all finished in native cherry, while the rest of the house was finished in N. C. pine. Red birch floors were laid in all the rooms.

Instead of a pantry there was a large kitchen cabinet built on one side of the kitchen. There was also a medicine case built in the bathroom and large bookcases with leaded glass doors, built on each side of the fireplace in the living room.

Each boy in the second year and third year classes was required to fit, hang and case one window, make and set one door jamb, case same, then fit, hang and trim the door.



Second and Third Year Class Boys Mastering the Mysteries of Roof Framing and the Use of the Steel Square on the Bungalow Work.

When the stairs were ready to be put in the third year boys figured out the rise and run, laid out the stringers, placed them in position and then did all of the work in fitting face boards, risers, and treads.

The first year boys did very little work on the inside of the house except in helping to lay some of the floor. The floor in one of the bedrooms was laid entirely by two first year boys.

Most of the boys were very interested in the work and several times wanted to go over and work on the bungalow when the instructors did not think the weather was suitable.

They were very anxious to complete it before the close of the school year and did finish it June 26, 1922, one year ahead of the time called for in the school agreement with Mr. Parker.

On June 27 when the class of 1922 graduated the finished bungalow, with every room lighted by electricity, and the front porch decorated with Japanese lanterns, was thrown open to the public for inspection.

The guests attending the graduating exercises visited the building and the boys acted as guides.

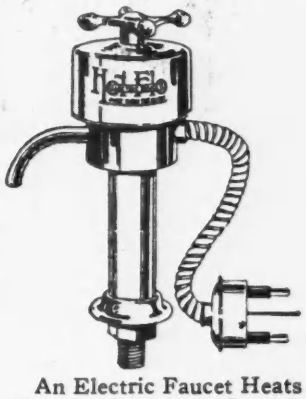
The building of this bungalow has attracted considerable attention outside of Northampton and by request of the Massachusetts State Board of Education the school exhibited the plans of the house, with the course of studies, at the convention of the National Educational Association in Boston in July.

Instantaneous Electric Heater is Attached to Any Faucet

A MOST convenient and economical way for heating ordinarily used quantities of water is the instantaneous electric heater. This interesting device is fastened to one faucet and gives immediate and satisfactory service.

Cold water is heated only when desired. There is no need to keep costly and bothersome fires going 24 hours a day in order to have hot water on a few momentary occasions.

Little current is used with the electric faucet heater so its operation is economical. Of course it affords a perfectly clean method of water heating. It causes no more dirt than an electric lamp.



An Electric Faucet Heats Usually Required Quantities of Water Quickly and Economically.

The heat is turned on or off at the mere turn of the handle. Hot water is a necessity when it is wanted, but usually it causes considerable expense and effort. These are almost minus quantities with the electric faucet heater.

This device is a plumbing fixture which is ornamental in appearance as well as practical in its use. It is handsomely nickeled, occupies very little space and is neat and attractive in every way. The device has been approved by the National Board of Fire Underwriters and can be installed by any electrician.

Pergola Connects Two Homes

INCREASED attractiveness and greater usefulness recommend the idea of a double pergola joining two homes, as illustrated here. Naturally, such an arrangement would not be practical unless there is genuine neighborliness between the families. But when that feeling exists the idea is a welcome one.

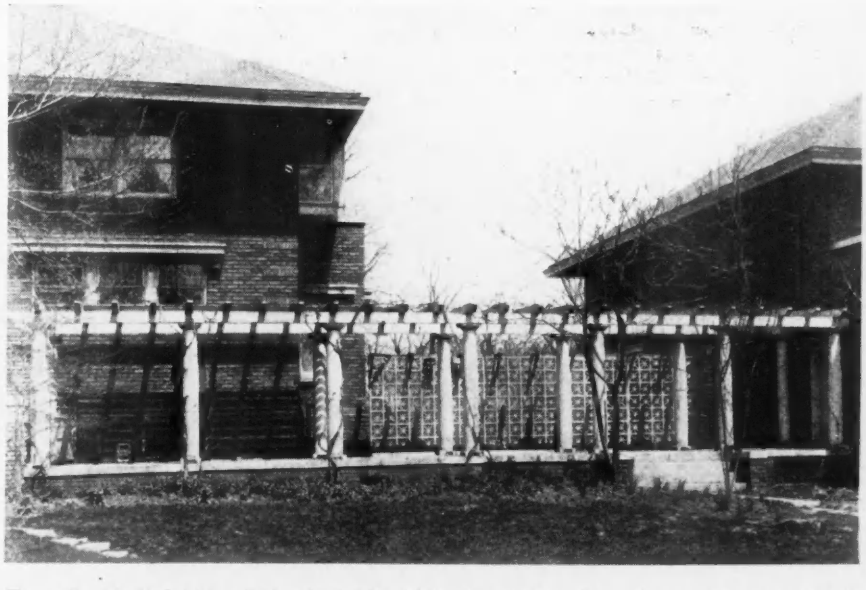
Because of its greater expanse the double pergola is more attractive than single ones could be. And of course there is some slight economy effected by building this home grounds ornament as one rather than two units.

The simplicity of the style followed here appeals to all. Round columns arranged in pairs and crowned by a turned top, act as supports, while the openwork roof is of the simplest possible construction. The foundation is of brick in keeping with the walls of the residences, while a floor and steps of concrete add durability and pleasing appearance.

The lattice work fence which fronts the pergola is dainty and rather elaborate and adds its refinement to the arrangements.

Shade and shelter, comfort and convenience are the gain of the two families who pooled their interests to build a more usable and more pleasing pergola by joint effort than would have been possible by independent action.

Pergolas are increasingly favored. They are decorative and, more than that, they are of daily usefulness when "all outdoors call."



Two Good Neighbor Friends Built This Attractive Pergola to Connect Their Homes, in Oak Park, Ill. It is a very striking architectural feature.

WHAT'S NEW?

EDITOR'S NOTE: *The* AMERICAN BUILDER *does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address* AMERICAN BUILDER *Information Exchange, 1827 Prairie Ave., Chicago.*

This Radiator Draws in Fresh Air

A NEW ventilating radiator produces a constant air suction and air circulation by means of an adequate surface of contact whereby air is most readily and most efficiently heated. Connected with the outside, this new radiator sucks in fresh air, heats it to an agreeable temperature, and distributes it freely thruout the room. It is thus adapted to take in fresh air continuously from out of doors and supplant the vitiated air of the living room, office or workshop without subjecting the occupants to cold draughts.

New Type of Radiator Which Sucks in Fresh Air and Warms It, Giving Greater Heating Efficiency Besides Ventilating the Room.

The construction is very simple. There is an air inlet running parallel with the heat inlet and these two conduits carry and distribute heat and air. The radiator gets into action as soon as the steam is turned on; a touch of heat will start the air circulating thru the alternate air sections and the work of distributing warm air is well under way. Needless to say, the action is entirely automatic and the air suction, air blowing or air circulation is brought about by the "stack effect" of the heated air in the radiator.

Heating and ventilating are thus performed by one and the same apparatus, which heats the intake air by direct contact and the surrounding objects by radiation.

✣

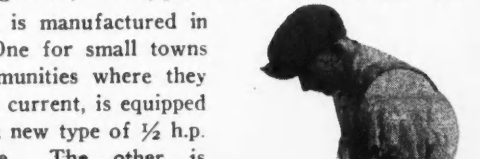
Making New Portable Saw Rig

A NEW portable saw rig, operated with either a gasoline or electric motor attachment, that can be transported quickly and conveniently around the job, or from job to job, is now being manufactured.

The accompanying illustration shows a workman operating one of the machines. It has numerous attractive features that make it particularly desirable for job and shop use and for the smaller work done by carpenters, contractors and builders. It is light-weight, sturdily built—being constructed entirely with a metal frame—is quiet, steady running, is easily operated, and the mechanism is simple and quickly adjustable.

It rips or cross cuts 2-inch lumber and will handle 2 by 4 or 2 by 6 material in fine shape. It may be supplied with a dado head for grooving work and has an attachment head for taking tool grinder, sander, polisher, or other special tools.

The new rig is manufactured in two models. One for small towns and rural communities where they have no electric current, is equipped complete with a new type of ½ h.p. gasoline engine. The other is equipped with ½ h.p. repulsion-induction type of electric motor and operates on either 110 or 220 volts. The power units are interchangeable. With the gas engine the machine has a speed of 3,600 r. p. m. and weighs 160 pounds, and with the electric motor drive its speed is 3,500 r. p. m. and weight 165 pounds. If one desires to make a bench rig out of the outfit the legs are easily and quickly detached.



A New Light Weight Portable Saw Rig with Attachment for Several Useful Tools.

✣

Wallboard Made by New Method

A NEW wallboard has recently been perfected that will prove very serviceable to manufacturers and builders. It is adaptable to a wide variety of uses and possesses numerous attractive features.

The accompanying illustration shows two men working with the new product which is made from real wood by a method which eliminates knots, shake, sap and stain, and which makes it proof against the so-called splitting or checking frequently met in working with lumber. The manufacturers have eliminated the grain from the new material, thereby effecting an equal crosswise and lengthwise structure.

This new wallboard is made in panel form. It is durable, firm and rigid and has real structural strength. It is shipped, cut to specification, or can be readily converted into finished products for standard sizes. Its surface is the standard finish,

How to Make Soft Woods Beautiful as Hardwood

IT is generally admitted that wood finished in its natural shade cannot be worked as successfully into color schemes of decoration as stained wood. It is also true that color brings out the grain and enhances the natural beauty of most woods. For these reasons we manufacture a line of wood color known as Johnson's Wood Dye.

Johnson's Wood Dye is for the artistic coloring of wood. With it inexpensive soft woods such as pine, cypress, fir, etc., may be finished so they are as beautiful as hardwood. Johnson's Wood Dye is very easy to apply—it goes on easily and quickly without a lap or a streak.

Johnson's Wood Dye is a ***dye*** in every sense of the word. It penetrates so deeply that the natural color is not disclosed if the wood becomes scratched or marred—it brings out the beauty of the grain without raising it in the slightest—it dries in four hours and does not rub off or smudge.

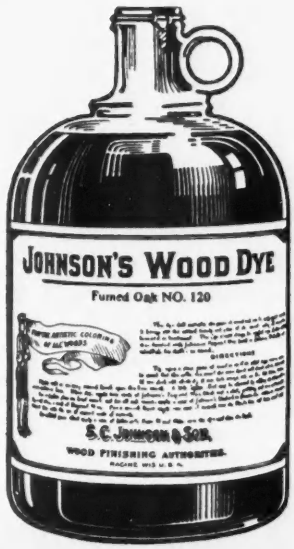
Johnson's Wood Dye is made in 15 shades, all of which may be easily lightened, darkened or intermixed—full directions on every label.

JOHNSON'S WOOD DYE

FREE—Book on Wood Finishing

It's the best book ever published on Artistic Wood Finishing — the work of famous experts — illustrated in color. This book is written for the practical man—it gives covering capacities, includes color charts, etc. We will gladly send it free and postpaid.

Use Coupon at Right



S. C. JOHNSON & SON
Dept. A. B. 1, Racine, Wis.
"The Wood Finishing Authorities."

Please send me free and postpaid your Book on Wood Finishing.

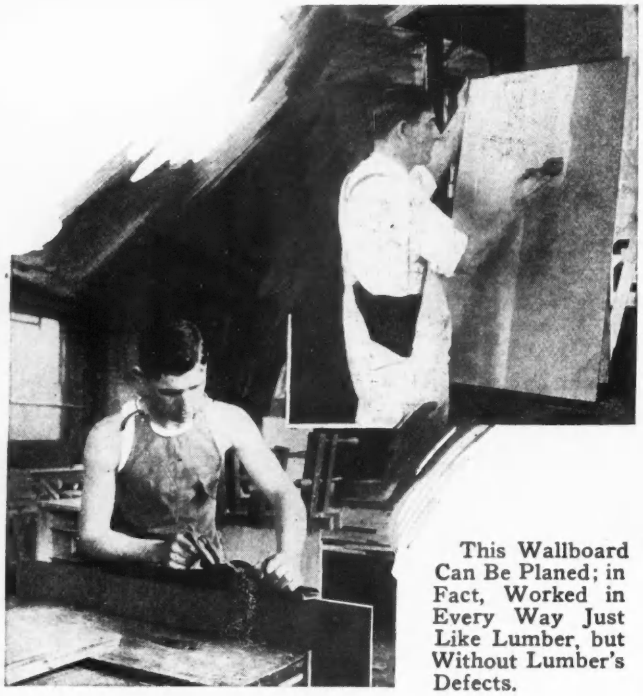
I usually buy varnishes from.....

.....

My Name.....

My Address.....

City and State.....



This Wallboard Can Be Planed; in Fact, Worked in Every Way Just Like Lumber, but Without Lumber's Defects.

uniform, hard and of a pleasing color, but panels can also be furnished with a cream colored surface.

Where water-proof material is required, for interior or exterior use, the panels may be treated with a special filler or sizing made by the manufacturers. The wallboard can be used for all outdoor purposes when protected by standard paints. It also has fire-resisting qualities when treated with a fire-retardant material.

The panels are made up to and including one inch thick. They are also made in the following thicknesses: ⅛-in., 3/16-in., ¼-in., ⅜-in., ½-in. The approximate weight per 1,000 square feet is, ⅛-in. material, 500 lbs.; 3/16-in., 800 lbs.; ¼-in., 1,000 lbs.; ⅜-in., 1,500 lbs.; ½-in., 2,000 lbs.

Shields Eliminate Shadows

A NEW electric light shield is shown in the accompanying photographs that eliminates the undesirable shadows that appear on ceilings and walls when the source of lighting is either an indirect or semi-indirect unit.

Figure 1 shows the effect of these annoying shadows on the walls and ceilings. These shadow shields when used in the manner illustrated in Figure 2 eliminate these shadows, transforming all the light into comfortable usable illumination.

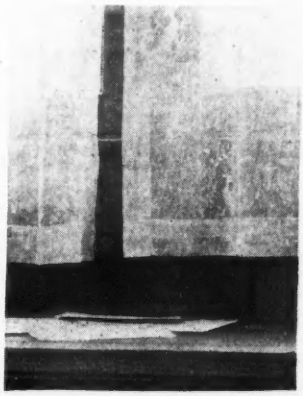
This is accomplished with a minimum loss of light because the shields are made of white glass which has a very low percentage of light absorption. The shields are made in all sizes required for standard lamps from 100 to 1,000 wattage.

✣

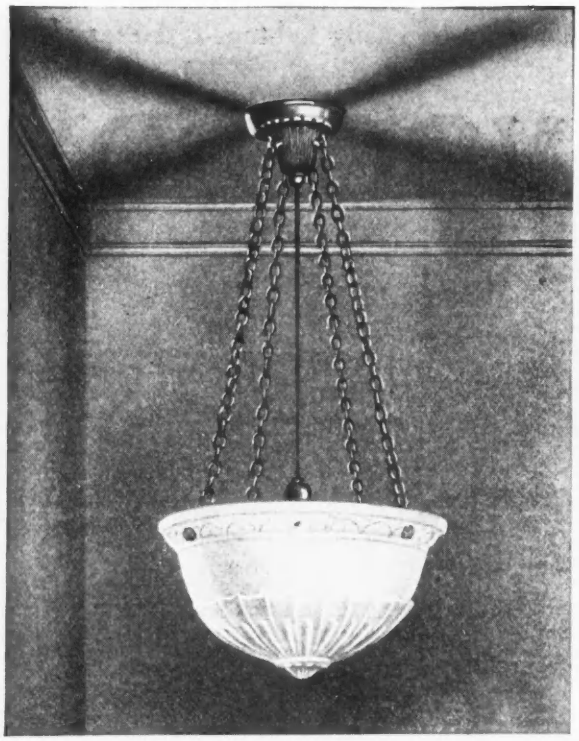
Letter Drop Puts Mail Inside House

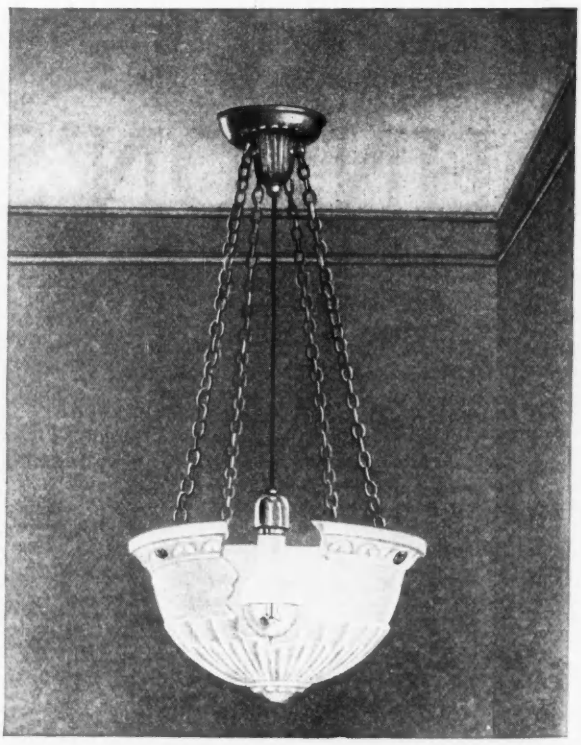
A NEW letter drop has recently been invented which, when built into the house, enables the mail to be dropped thru the wall into the room. It has a number of advantages over the ordinary mail box inasmuch as it insures absolute safety for the mail and saves the inconvenience of going outside to get it in bad weather.

As can be seen from the photograph, the drop is often installed so that the mail as it is dropped from the outside is deposited on the window seat. The closing of the door of the drop announces the arrival of the mail. The letter drop is one piece of metal and operates automatically. It is indestructible and built-in so that it is absolutely water-proof, windproof and burglar-proof.



Letter Drop Enables Mail to be Dropped Thru Wall Into Room.





The View at the Left Shows Ordinary Indirect Lighting Bowl. The one at the right shows lamp covered with special shield which throws all the light downward and prevents shadows from being cast on the ceiling.

"Consumer Acceptance"

"CONSUMER ACCEPTANCE" is a term invented to describe the buyer's side of what the dealer calls a "sale." It means the buyer's willingness to buy.

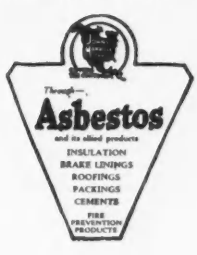
Everybody knows that the buyer buys primarily because he wants the thing bought. Yet, in spite of this many people think they can sell something easily just because it is cheap—when actually it is easier to sell something that the buyer feels he must have, even at a slightly higher price.

Home owners feel they must have the greater fire-safety, weather resistance, and permanence that are assured by the asbestos rock fibre body of Flexstone Asbestos Slate Surfaced Shingles. This feeling is so strong that they are more than willing to pay Flexstone's slightly higher price. That's why Flexstone Shingles have a greater consumer acceptance and hence sell easier than ordinary slate surfaced shingles.

The thoroughness with which Flexstone Shingles are advertised insures that the buyer will know their advantages and adds to their consumer acceptance by the prestige which national advertising gives.

Thus the dealer or builder who handles Flexstone Shingles has a large part of his consumer acceptance ready-made—and his sales come with much less effort.

JOHNS-MANVILLE Inc., Madison Ave. at 41st St., New York City
Branches in 56 Large Cities
For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



Brick Home Building in Philadelphia

(*Continued from page 79.*)

three stories, the third floor contains two additional sleeping apartments, or perhaps three. This type of residence is usually heated with a hot air furnace. Some of these houses, however, have hot water heating systems.

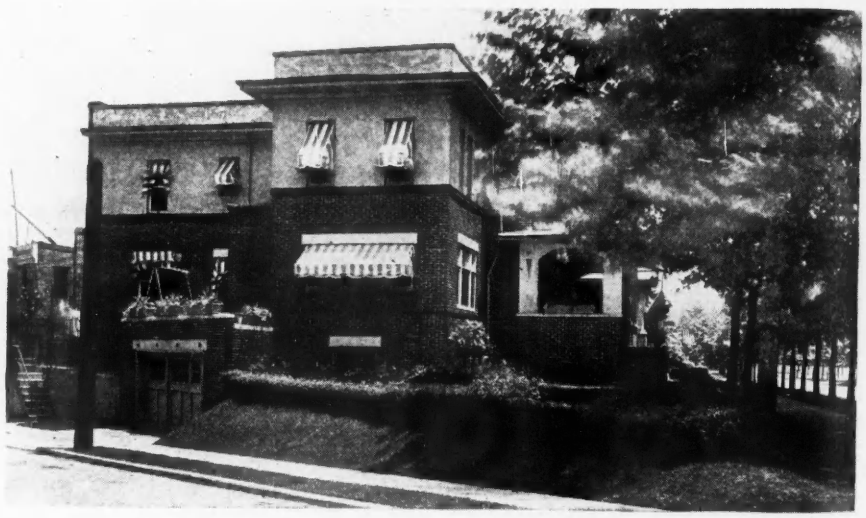
While many plain front brick houses are still being built in Philadelphia, the new style porch front houses are increasing in popularity. Thousands of porch homes, of the solid row type, and of the side-yard design, have been erected in the newer sections of the city during the last few years. They are occupied immediately as they are completed. There is, in fact, such a strong and constant demand for them that the builders can scarcely put them up fast enough. One seldom sees "For Rent" signs in Philadelphia.

There are hundreds of different styles in the porch-front dwelling places but the following specifications cover a model which is meeting with signal success. The cellar contains a laundry department equipped with stationary wash tubs having both hot and cold running water. The hot water heating system, an inclosed toilet, coal bins, and wood bins are also located in the basement. The first floor consists of a large Dutch hall, parlor, dining room, breakfast room, kitchen and open shed. The second floor is laid out with a living room in the front, followed by the bath room, and by two or three sleeping apartments. When this style house has three stories, the third floor is made up of additional bed rooms. The floor of the front porch is about 18 by 6 feet. The bases of the columns which support the roof of the porch are usually constructed of brick. The floor and steps of the porch are of concrete or wood.

Some of these porch homes are built of rugged bricks, others are constructed of stone, but the larger number are of red pressed brick. These residences are generally put up in solid rows, altho many are built in "twin" formation with side yards running back to the main yard in the rear. Some have terrace fronts, others have the porch connecting directly with the sidewalk. The floor of the porch is elevated to the height of about four feet. Hot water heating systems are found in the majority of these homes.

The old fashioned high board fence which formerly enclosed so many back yards of Philadelphia no longer appear with new operations. The low iron railing fencing has become very popular, as it makes possible more natural light and more air than a high board fence would allow. It also means that householders will take more care of their back yards and alleys, as their neighbors can easily see how the places are kept. The people who have open iron fencing around their back yards usually keep neat lawns and pretty beds of flowers. The appearance of a row of yards cared for in this manner is very pleasing to the eye. There is nothing more efficient than open iron fences as an aid in civic improvements.

It would require a separate article to describe some of the larger and finer brick homes of Philadelphia. The writer's purpose in preparing this paper is to merely give an idea of the kinds of homes rented or owned by the average Philadelphian. In the suburban parts of the city there are many exclusive residences of the best quality. They cost many thousands of dollars, and as a rule, they have been built especially for their owners. Most of these expensive homes are built of red brick in the Colonial style of architecture. Others are of rug brick in the bungalow fashion. Some of the fine mansions along Old York road are of original designs in stone.



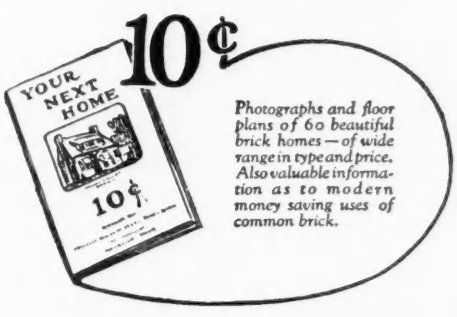
An Attractive Brick House with Garage Attached, Located on Roosevelt Blvd., Philadelphia. Price about $15,000.

The advantages of a good brick house are many. In the first place its construction cost is low, comparatively. In the second place, it is a very warm house during extremely cold weather, and it is cool in hot weather. Third, the brick house is fireproof to a considerable extent. Often big factories or other buildings which were located directly across the street from rows of brick house in Philadelphia have burned down without the heat or sparks from the blaze causing any serious damage to the brick construction of the houses. Fourth, the brick home is usually pretty. Even the little two-story brick dwellings located on the side streets, present a pleasing front. Fifth, the well-built brick house will stand for many, many years without falling into decay. Sixth, the brick home is dry, and it requires little repairing. Seventh, the brick house can be kept clean easily.

In addition to the several hundred thousand individual dwellings in the Quaker City there are hundreds of flat houses, or apartment houses, many of them beautiful in design. The majority of them are

We Give You the Results of Two Years' Work *for* 10c

60 Brick House Designs Selected from thousands



In the last two years thousands of modern brick homes have been photographed and studied. Now the finest 60 have been selected for this great book —"*Your Next Home*". Our nation-wide organization has produced this collection of the best in modern home design, and now offers to builders a complete plan service at nominal cost.

Proved Practical for Builder and Owner

Every one of these 60 homes has been *actually built and lived in*. The photographs in this book show how they look in real life. These homes sell for more than ordinary houses, in proportion to their cost, because of their beauty and interior arrangement. They are practical and economical to build.

Just 10c brings you this valuable book—an offer never equalled before. And specifications, working drawings, and complete information for every one of these 60 homes, are available at nominal price.

The Common Brick Industry *of* America
2131 CLEVELAND DISCOUNT BLDG.
Cleveland, Ohio

The Ideal Brick Hollow Wall is made of standard brick obtainable everywhere

Ideal Brick Hollow Wall

"Brick Homes at the Cost of Frame"

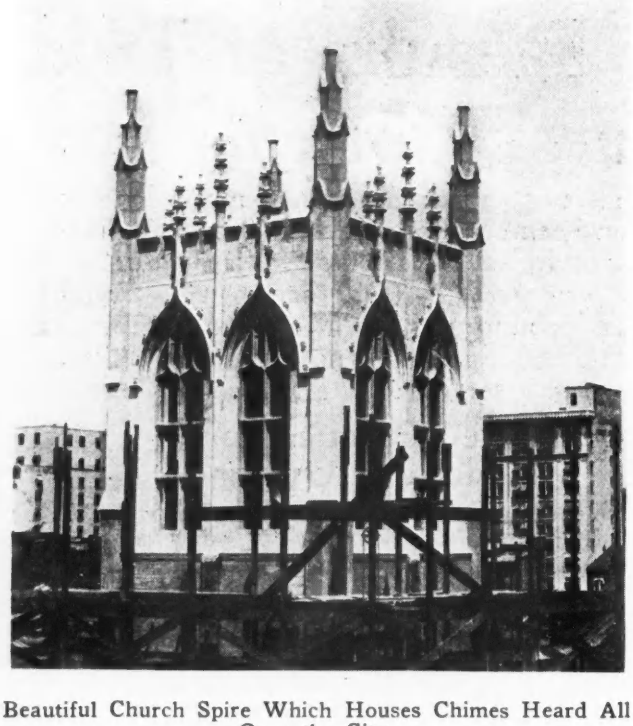
built of red, buff, or yellow rug bricks. Some are of regular red pressed bricks; others have side-walls of brick and fronts of stone. While the flat houses have been increasing rapidly during the last few years, there is no reason at this time to fear that Philadelphia will some day be a "city of flats" after the manner of New York. At this writing there are thousands of new single houses going up in the outlaying sections of the town, and there still remains plenty of clear ground for additional operations.

The first building and loan association was formed in Frankford, now a part of Philadelphia, about ninety years ago. There are now more than 7,000 such associations in the United States. Thousands of families own their own homes in the City of Brotherly Love, and the building and loan plan has made this possible. The slogan in Philadelphia is, "Own Your Own Home."

✣

Church Chimes Please People

EVERY noon thousands of people on the streets of Washington stop to listen to the chimes of the Church of Epiphany. Fifteen bells have been placed in the belfry, the largest weighing 4,300 pounds.



Beautiful Church Spire Which Houses Chimes Heard All Over the City.

The chimes can be heard for a distance of fully five miles. They play national airs and church songs.

The Church of the Epiphany is one of the notable examples of elaborate church architecture in Washington. The beauty of its steeple will interest all builders.

✣

Re-Constructed Wood Invention

FROM shavings and sawdust combined with suitable binders, there is now being made a new re-constructed wood material that has many advantages over ordinary wood, and is the result of research made by Prof. Georg Kemmerer, of the chemistry department of the Universit of Wisconsin. Professor Kemmerer's new process ha been used commercially since last winter, and has prove better than wood for certain purposes.

The sawdust is mixed with a new binding material whic Professor Kemmerer discovered and perfected, is put int a mold, and then subjected to pressure, of from 500 t 1,000 pounds per square inch. The resulting product is much tougher and harder than ordinary wood, does not split, and is practically impervious to water. This re-constructed wood takes finishes, such as varnish and enamels, well.

The chief use of this material is in the manufacture of irregular shaped articles, such as toilet seats, radio dials, and variometer rotors. When ordinary wood is used, much hand labor is required to make the necessary curves. With the new material, the wood powder, mixed with the binder, is put in a mold of the desired shape and size, placed under pressure, and a hard, elastic, grainless, seamless article without joints, is produced quickly and cheaply. The article does not break or chip, and holds screws firmly. Altho the material can be cut with a saw, it is very difficult to cut it with a knife.

When samples of wood and the new product were put under pressure, it was found that the ordinary wood bends and splits up more readily than the new product.

At present, Professor Kemmerer is working on the idea of making rims for automobile steering wheels, and finds that the new process is admirably suited to the purpose.

✣

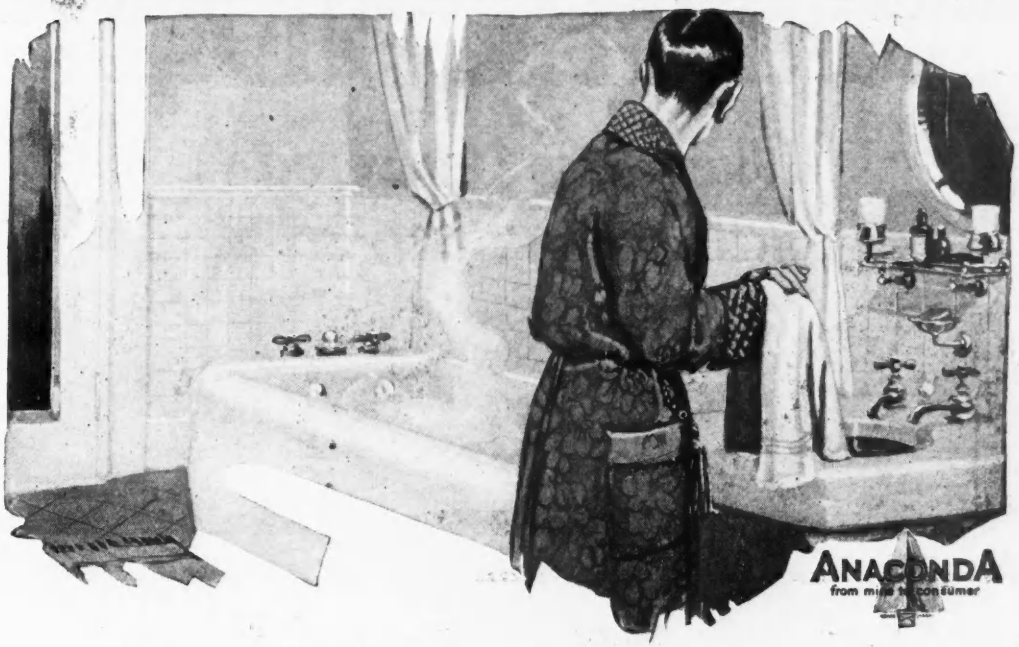
250% Drop in 30 Years

JOHN R. MORRON, president of the Atlas Portland Cement Company, speaking at the recent meeting of the Portland Cement Association on the occasion of the twentieth anniversary of that organization, read statistics from Government reports to prove in an unique manner the purchasing power in cement of the staple commodities of farm and industry, and drew a graphic picture of the benefits which the cement industry had been to the progress of this generation. In his presentation of what he termed the "Romance of Cement," Mr. Morron showed that

"a bushel of wheat,
a bushel of corn,
a ton of hay,
a pound of butter,
a barrel of flour,
a tierce of lard,
a side of bacon,
a barrel of salt,
a pound of sugar,
a bushel of potatoes,
a bale of cotton,
a ton of coal,
a ton of copper,
a ton of steel rails,
a thousand bricks,
a thousand feet of soft or hardwood lumber,
or
the wages of a laboring man,

in July, 1922, would purchase from 30 to 250 per cent m re cement at the plants, than in 1892—30 years ago."

Mr. Morron also showed "that the raw material, bitumin us coal (of which thousands of tons per day are used), delive d at their largest plant during three months of 1922, cost m re per ton than his company received for the highly manufactu d product in which the coal was used."



Your Bathroom—

Glittering tile and resplendent porcelain prove a sad disappointment when the water dribbles from rust-clogged pipes or your bathtub fills with rusty water.

Complete comfort in your bathroom requires *brass pipe.* Any other pipe will rust—and that is not all, inferior pipe will clog, leak or split.

Anaconda Brass Pipe resists corrosion. It insures you against torn-out walls, falling or unsightly ceilings, and the annoyance and expense of the repair man's visits.

The added cost is only $75 for a $15,000 house. **By adding a fraction of a cent to each dollar to be spent for plumbing, you can have Anaconda Brass Pipe in your home.**

Write for our new booklet "Ten Years Hence" which tells how you can save on your plumbing. It is free.

THE AMERICAN BRASS COMPANY

GENERAL OFFICES, WATERBURY, CONN.

MILLS AND FACTORIES

Ansonia, Conn. Torrington, Conn. Waterbury, Conn. Buffalo, N.Y. Kenosha, Wis.

OFFICES AND AGENCIES

New York Philadelphia Boston Providence Pittsburgh
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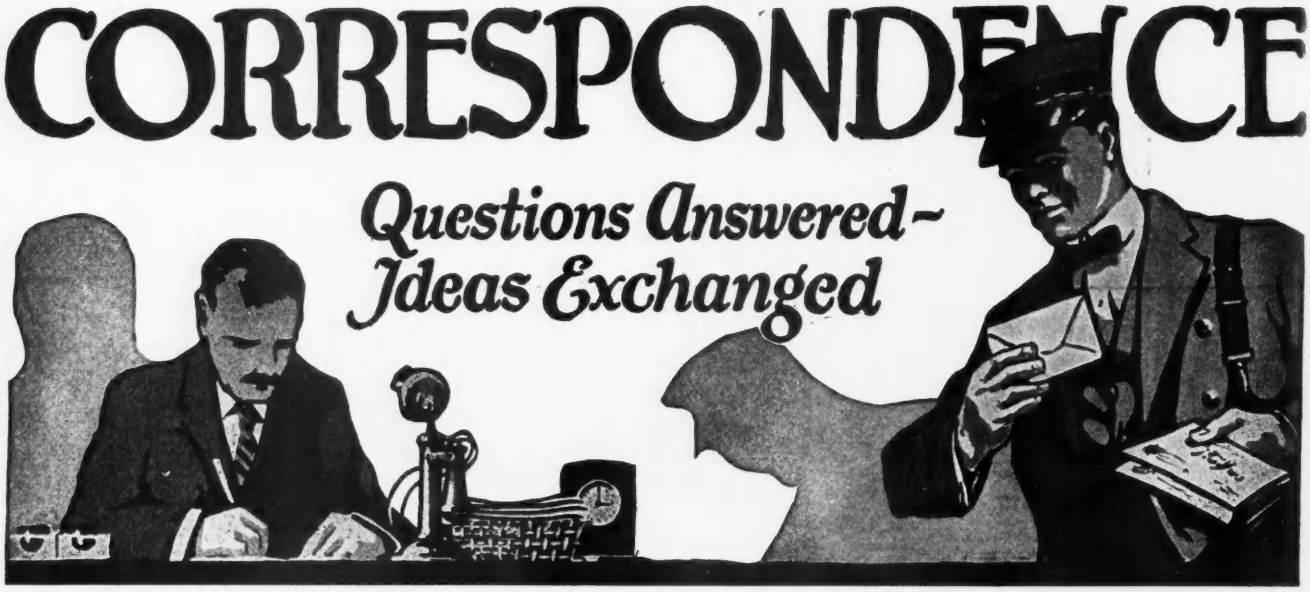
ANACONDA AMERICAN BRASS LIMITED, NEW TORONTO, ONTARIO, CANADA

ANACONDA
BRASS PIPE

CORRESPONDENCE



Our Readers Are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Architects and Builders

Screening Experts, Attention!

To the Editor: Centralia, Ill.

I wish to find out the best way to make screens for doors and windows, special emphasis to be placed on the stretching and fastening of the screen cloth, special rigging for that work. Please furnish sketches.

AUG. C. SCHNAKE.

✣

Inlaid Table of 9,000 Pieces

Williamsport, Pa.

To the Editor:

In your November number of the BUILDER I saw the cut of a table submitted by George Eger that is very artistically designed. I would like to have a small space in the BUILDER for a small table or stand that I constructed (a true photograph of which I enclose). The stand is of ordinary size, the top contains 4,255 pieces one-eighth of an inch thick, and the body is composed of 4,765 separate pieces comprised of 35 different kinds of wood. They include beech, birch, red and white curly maple, bird's eye maple, black and white poplar, black walnut, red and white mahogany, cedar, cherry, horse chestnut, sycamore, sumac, lilac, apple, dog wood, juniper, peach, red tulip, rose, cocoanut, chestnut, colola, ebony, holly, gum, satin laurel, oak and ash.

View of the Inlaid Table Top Made by W. J. Abernatha, Williamsport, Pa. It contains 4,255 pieces of wood.

Some of these woods cost as much as 40c per square foot ½ inch thick. There is not a speck of putty or paint used. The woods are all natural colors. Anyone living in or near Dennison, Ohio, can see this stand by calling at 19 S. 33rd St.

W. J. ABERNATHA.

✣

Wanted Real Boys

Evansville, Ind.

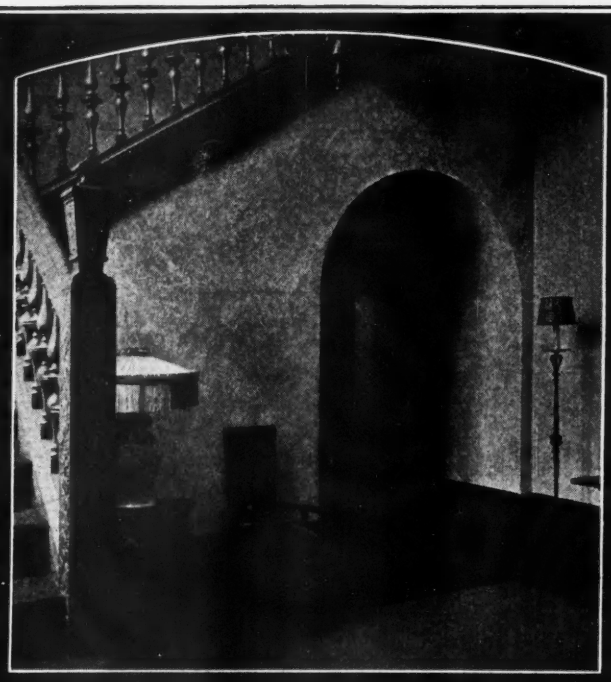
To the Editor:

The World's Work Must Be Done. In recent years there has been a tendency on the part of society to ignore or at least to be uninterested in the "overall phases" of life. The direct result of this attitude is that fewer boys have entered the skilled trades, and at the present writing there is a serious shortage of competent skilled workmen in the building trades. An antipathy to donning overalls appears to be the chief reason.

Our system of education is also somewhat to blame, as it places an over-emphasis on the professions as distinguished from the trades. Many a young boy is thus doomed to failure in a profession who might have become highly useful in the honorable field of mechanics. However, we believe that the trouble is mostly in the home and with the attitude of society in general. Parents have no reason to inveigh against the high cost of building with the resultant high rent for residential purposes and against the high cost of merchandise caused in a great degree by the high rents for business premises, if they fail to inspire an ambition in the boys of mechanical inclination to learn a trade.

Society must realize that for any civilization to progress there must be advancement in all essential branches of that civilization. Construction is an essential branch, for civilization first began when nomadic, primitive man settled in one spot and made himself a permanent shelter. The development of civilization and the development of the building industry has continued down thru the ages. Our judgment of the civilization, refinement and culture of each age is based on the buildings it has left as monuments.

As component members of society each of us owes a duty to future generations that the knowledge and skill handed down to us thru the centuries be not lost. Building must go on. There must be skilled craftsmen to carry on the



Here's a Helpful Item to Combine with Your Bids or Proposals on Residences

It Will Interest the Home Owner—and May Help You Secure the Contract

For less than $100.00 additional the plaster-base of walls and ceilings of the average home (costing in the neighborhood of $5,000) can be Bostwick Truss-Loop throughout.

One thousand wood lath equals 60 sq. yds. of wall surface and costs $12.00. Wood lath, properly spaced, takes almost exactly the same amount of plaster as Bostwick Truss-Loop. Truss-Loop, therefore, costs only the margin between 1st cost of wood lath and first cost of Truss-Loop. This works out to from $65.00 to $100.00 more for the usual types of moderate-priced homes. Just this small margin secures lasting wall beauty and fire-protection.

In addition, Bostwick Truss-Loop will save for you in Time, Labor, Lath, Studding and Waste Plaster. Let us tell you how—write us for particulars and proofs.
Write for our new "Wall and Ceiling Handbook" just out.

THE BOSTWICK STEEL
LATH COMPANY
Niles, Ohio

Bostwick "TRUSS LOOP"

work. Boys of mechanical inclination should be urged to consider the possibilities of the building trades, particularly the plumbing and heating trades; trades that need skilled men; trades that offer the four essentials of a good vocation: Adequate income, joy in work, opportunity for growth, and last but not least *a chance to serve.*

Friend Editor, the power of the press is acknowledged. It is the Master Moulder of public opinion. May we have an atom of that power (a short editorial) to urge American boys of mechanical inclination to learn a trade. It is an important subject. The press's power could not be used in a better cause. Sincerely yours,

THE NATIONAL TRADE EXTENSION BUREAU OF THE PLUMBING AND HEATING INDUSTRY.

By R. E. Maloney.

P. S.: We are not endeavoring to sell anything. Our sole aim and hope is to provide a sufficient number of skilled workers for the building industry.

✣

Who Has Sun Dial Layout?

To the Editor: Fredonia, Kansas.

I want to build a sun dial out of rough stone and cut the dial out of a piece of Carthage limestone. What pitch should the pointer have? Does it set in the center of the dial with the figures equally distant from the center? I would thank you very much for information in regard to the placing of the figures and the position of the pointer, and the pitch of the pointer. Yours truly, TOM MORON.

✣

All About Sun Dials

To the Editor: Glendale, Calif.

In answer to inquiry by Mr. Fusher and others about sun dials, I am sending in a drawing showing the layoff of the dial, and gnomon, or the part that casts the shadow. This drawing is figured out for Lat. 41° 13′ 8″ N., which is the latitude of Ogden, Utah.

The drawing, I believe, is self-explanatory. The principal difficulty will be proper and accurate setting of the dial or face, and gnomon. The twelve o'clock line must be exactly north and south, and the gnomon must coincide with the twelve o'clock line.

The shadow lines are laid off each way from the north and south thru 90°: 1:00 and 11:00 are 10° 1′ either side of 12; 2:00 and 10:00 are 20° 50′ either side of 12, etc. It is only necessary to lay off lines from 4:00 a.m. to 8:00 p.m. as the hours of sunrise and sunset at Ogden are between these hours.

The gnomon has an angle at the center O of the dial equal to the latitude of the place. The measurement as shown need not be used just as shown; as if it is desirable to make the base of the gnomon six (6″) inches instead of twelve (12″) the rise would be five and one-fourth (5¼″) inches. If (18″) eighteen inches, the size equals (15¾″) fifteen and three-fourths inches.

In setting the dial get it perfectly level, then establish the 12 o'clock line so it exactly coincides with the meridian line. Then you can put the other shadows lines in. These hour lines may be subdivided in halves, quarters, etc.

Sun dials can be made in many different ways, such as placing the dial vertical or inclined, but the horizontal is about the simplest and most accurate.

A. C. LITSINGER,
Litsinger Building Co., Building Contractors.

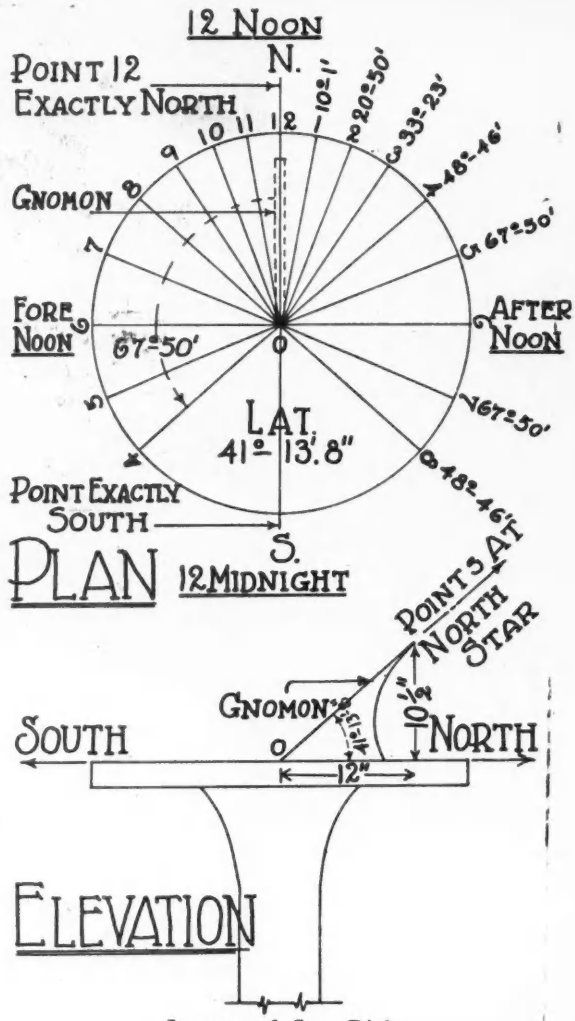
✣

Tells How to Build of Blocks

To the Editor: New Ulm, Minn.

In reply to the inquiry of Earl R. Gambrel about building a cement block house, I wish to tell our seventeen years' experience in construction and concrete stone manufacturing.

Heretofore there have been built good concrete block houses.



Layout of Sun Dial.

Now they are built better than ever before. We have erected some of the most attractive and up-to-date buildings of concrete blocks. I live in a concrete block building myself, and there is no reason why a concrete block building should not be as good or as satisfactory in every respect as a building of any other material.

Things which "we" do and things which we do not do may be of interest to the prospective builder, and I wish to state that we never undertake to furnish concrete building stone for a building unless there is a plan. We furnish material according to plans. We use a lining or a furring on the inside of all walls and never apply plaster directly on a single block wall for house construction. A concrete block wall, backed with a concrete brick or other like material, laid on two or four inches, with a two-inch air space left between the block and lining, makes a good wall. Provision can easily be made in different ways to fasten 1 x 2 or 1 x 3 furring strips vertically to the inner side of the concrete stone wall, to which one of the many good insulating materials can easily be applied, leaving an absolutely clean air space the thickness of the furring strip. Plaster is applied directly onto this insulating material and in connection with a good concrete stone which already has an airspace, this makes a perfectly good wall also. Concrete building stone or the standard block used for faced wall construction on the exterior should be as nearly waterproof as possible. They can be made that way and cost no more.

A concrete stone when made right is good and assures an absolute dry wall when used right. When thus used it also makes as warm a wall as any other material known today, and its owner can enjoy and will appreciate its comfortableness during the hot summer months.

SAFFERT CEMENT CONSTRUCTION Co

IF you have never used a Jaeger mixer, grasp these big facts before making another mixer purchase:

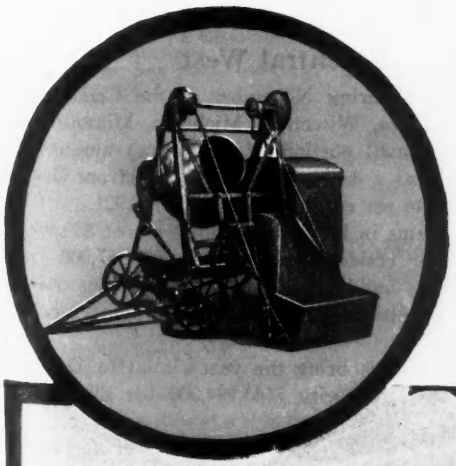
The Jaeger is the product of the largest factory in the world devoted exclusively to the manufacture of concrete mixers.

The Jaeger is the perfected product of ***mixer specialists*** who have made nothing but mixers for 10 years.

Many exclusive and valuable features have made the Jaeger ***absolutely superior in the mixer world.***

Quality, service, value-for-your-money—these you get in fullest measure when you buy a Jaeger.

There are 18 Jaeger outfits—the most complete line of mixers made. There are 18,000 Jaeger owners—every last one a Jaeger booster.

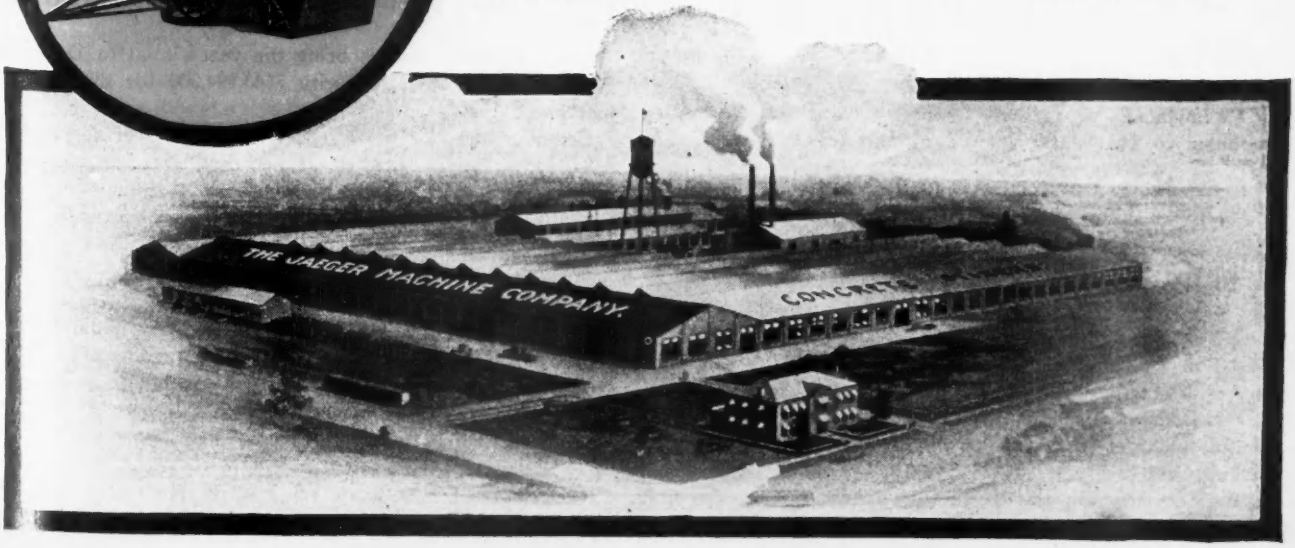


Every Jaeger is a tilting-drum mixer. Every outfit delivers "A Mix a Minute."

If you are considering the purchase of a concrete mixer this year, you owe it to yourself to investigate the Jaeger—the product of the largest concrete mixer factory in the world, a concern whose word and service are as reliable as their product. ***Write today for full particulars.*** There is still some dealer territory open. Write or wire.

The Jaeger Machine Co.

318 Dublin Ave. **Columbus, Ohio**



November Construction 30% Ahead of Last Year

BUILDING contracts awarded during November in the larger cities of twenty-seven Northeastern states amounted to $248,366,000, according to the F. W. Dodge Company. This total is only 2 per cent under the October figure and is 30 per cent over that for November, 1921.

Residential construction started in November amounted to $126,468,000, or 51 per cent of the month's total. This is the largest figure for residential building reported since last June. Other important items in the November record were: $29,938,000, or 12 per cent for business buildings; $29,242,000, or 12 per cent for industrial buildings; and $27,516,000, or 11 per cent, for public works and utilities.

Construction started during the first 11 months of this year has amounted to $3,135,812,000. This is 45 per cent greater than the total for the corresponding period of last year, and 33 per cent greater than the total for the entire year 1921.

Contemplated new work reported in November amounted to $543,872,000, which is 30 per cent greater than the amount reported in October. The large volume of contemplated work reported during the past few months is an indication that construction is likely to hold up to a relatively high rate thruout the remaining winter months and in the coming year.

New England

New England building contracts in November amounted to $26,777,000, an increase of 2 per cent over October and of 45 per cent over November, 1921.

Included in last month's figures were the following items: $14,618,000, or 55 per cent, for residential buildings; $3,286,000, or 12 per cent, for business buildings; $2,951,000 or 11 per cent, for industrial buildings; and $1,944,000, or 7 per cent, for public works and utilities.

Total construction started in New England from Jan. 1 to Dec. 1 has amounted to $312,692,000, compared with $205,147,000 for the entire year 1921.

Contemplated new work reported during November amounted to $42,803,000.

New York State and Northern New Jersey

November building contracts in New York State and northern New Jersey amounted to $76,571,000, an increase of 18 per cent over the previous month and of 30 per cent over the corresponding month of last year.

Last month's figures included: $51,568,000, or 67 per cent, for residential buildings; $8,057,000, or 11 per cent, for business buildings; $6,305,000, or 8 per cent, for hospitals and institutions; and $2,803,000, or 4 per cent, for public works and utilities.

Total construction started in this district during the first 11 months of this year has amounted to $842,061,000, compared with $645,418,000 for the entire year 1921.

Contemplated new work reported in November amounted to $140,791,000, an increase of 45 per cent over the amount of contemplated work reported in October.

Middle Atlantic States

Total building contracts awarded during November in the Middle Atlantic states (southern New Jersey, eastern Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, and the Carolinas), amounted to $32,983,000. This was an increase of 5 per cent over the preceding month and of 9 per cent over the corresponding month of last year.

The principal items in last month's total were: $14,425,000, or 44 per cent, for residential buildings; $6,375,000, or 19 per cent, for public works and utilities; $4,776,000, or 14 per cent, for industrial buildings; and $2,338,000, or 7 per cent, for business buildings.

During the first 11 months of this year contracts have been awarded to the amount of $451,306,000, compared with $355,235,000 for the entire year 1921.

Contemplated new work reported in November amounted to $90,443,000, an increase of 71 per cent over the amount of contemplated work reported in October.

Pittsburgh District

November building contracts in western Pennsylvania, West Virginia, Ohio, Kentucky and Tennessee amounted to $41,691,000. This was a decrease of 24 per cent from October, but an increase of 26 per cent over November, 1921.

Included in last month's total were: $13,008,000, or 31 per cent, for residential buildings; $11,295,000, or 27 per cent, for industrial buildings; $8,138,000, or 20 per cent, for public works and utilities; and $5,233,000, or 12 per cent, for business buildings.

From Jan. 1 to Dec. 1 construction started in this district has amounted to $551,097,000, compared with $420,349,000 for the entire 12 months of last year.

Contemplated new work reported last month amounted to $72,030,000, an increase of 10 per cent over the amount of contemplated work reported in October.

The Central West

Contracts awarded during November in the Central West (Illinois, Indiana, Iowa, Wisconsin, Michigan, Missouri, eastern Kansas and a small portion of Nebraska) amounted to $66,395,000. This was a decrease of 9 per cent from October, but an increase of 46 per cent over November, 1921.

The important items in last month's total were: $30,507,000, or 46 per cent, for residential buildings; $10,557,000, or 16 percent, for business buildings; $7,867,000, or 12 per cent, for public works and utilities; and $7,121,000, or 11 per cent, for industrial buildings.

The November figures bring the year's total to Dec. 1 up to $904,412,000, compared with $643,994,000 for the entire 12 months of 1921.

Contemplated new work reported in November amounted to $184,101,000, an increase of 35 per cent over the amount of contemplated work reported in October.

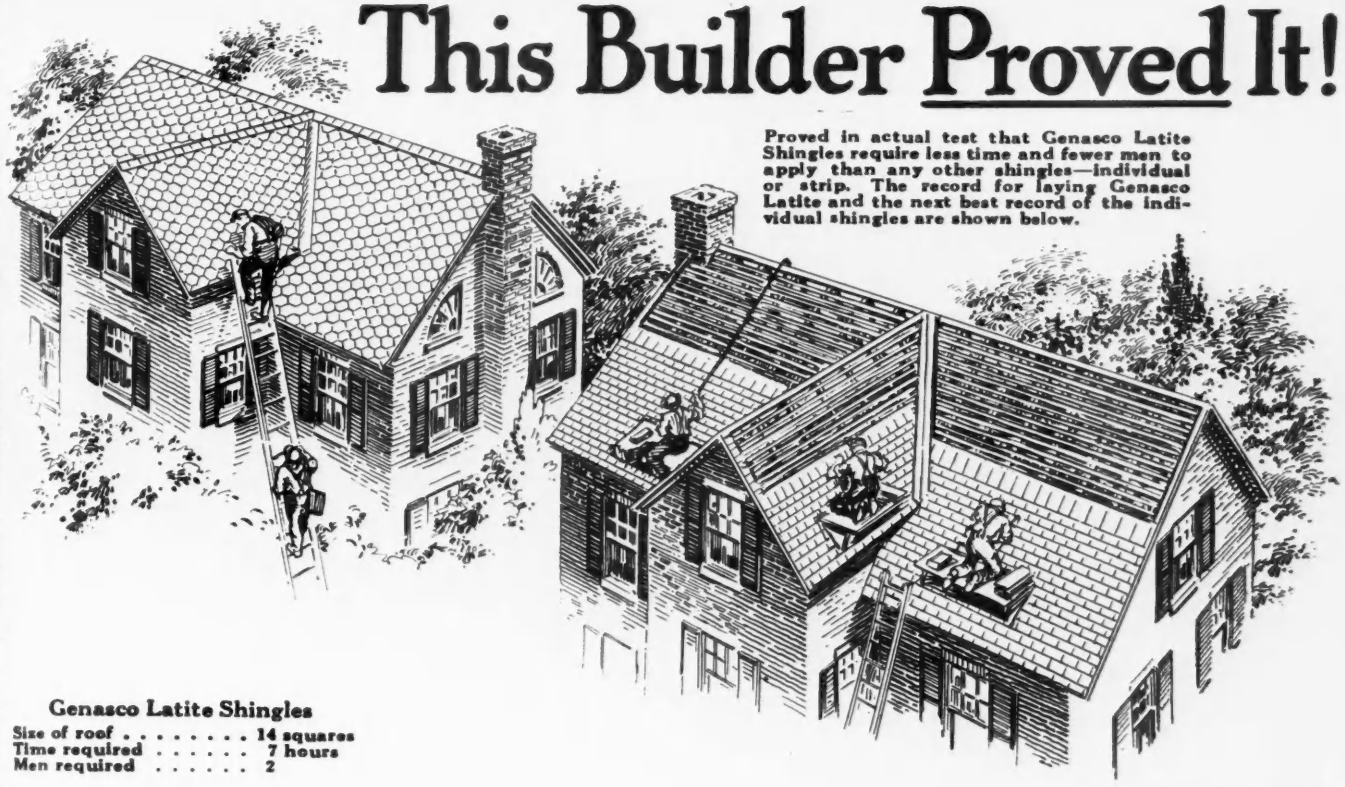
The Northwest

November building contracts in Minnesota and the Dakotas amounted to $3,948,000, an increase of 36 per cent over the previous month and a decline of 16 per cent from the corresponding month of last year. Of last month's total, 60 per cent, or $2,342,000, was for residential buildings.

The year's total of construction contracts to Dec. 1 was $74,244,000, which is slightly under the figure for the corresponding period of last year.

Contemplated new work reported in November amounted to $13,705,000, an increase of 27 per cent over the contemplated work reported in October.

This Builder Proved It!



Proved in actual test that Genasco Latite Shingles require less time and fewer men to apply than any other shingles—individual or strip. The record for laying Genasco Latite and the next best record of the individual shingles are shown below.

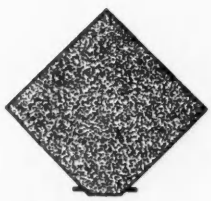
Genasco Latite Shingles

Size of roof . . . . . 14 squares
Time required . . . . . 7 hours
Men required 2

Ordinary Shingles

Size of roof . . . . . 14 squares
Time required . . . . . 16 hours
Men required 3

Back view of a Genasco Latite Shingle showing the key that locks them on



Front view of a Genasco Latite Shingle

The self-spacing, quick-covering features of Genasco Latite Shingles—their great savings in time, trouble and cost—are only one reason for their tremendous popularity with builders and building owners.

Genasco Latite Shingles lock on the roof. The sun can't curl them. Frost can't pry them apart. Wind can't tear them off. *They lay tight and stay tight in all kinds of weather.*

Beautiful in coloring and artistic in shape, they add to—*do not detract from*—the charm and distinction of a building. Double butts give a depth of "Shadow Line" that wholly dispels the flat, monotonous appearance of the ordinary roof.

Genasco Latite Shingles are made of tough-fibered asphalt felt—waterproofed top and bottom with thick coatings of Trinidad Lake Asphalt Cement—made attractive and fire-safe with laminated slate.

Leading builders of the world have used and recommended Genasco Roofings for years. Write at once for illustrated booklets.

New York
Chicago
Pittsburgh

THE BARBER ASPHALT COMPANY
PHILADELPHIA

St. Louis
Kansas City
Atlanta

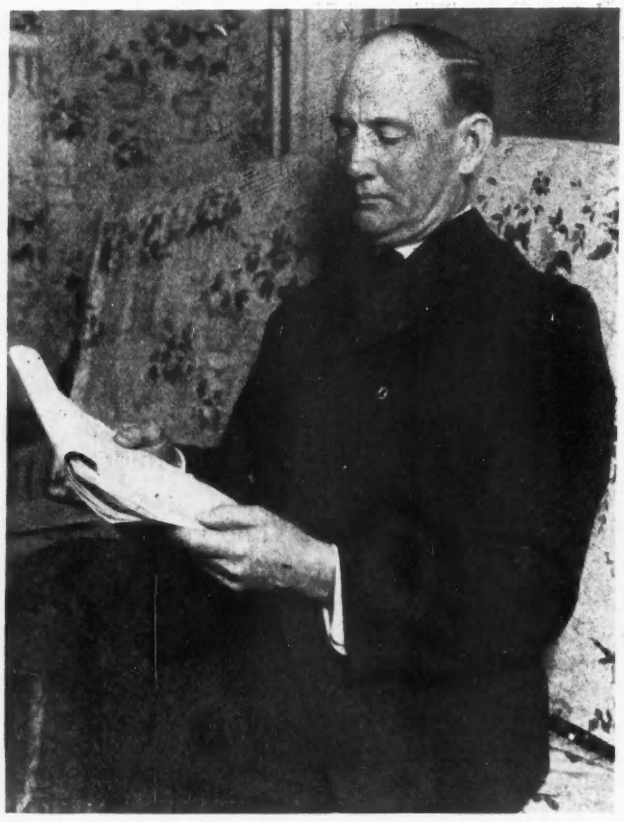
Genasco

Asphaltic Roofing, Flooring, Paints and Allied Protective Products

New Cement Association President Points Way to Car Shortage Solution

A PLEA for closer co-operation between the buying public and the manufacturer as the greatest single constructive effort to ease the nation's periodic freight car shortage was made by F. W. Kelley, Albany, N. Y., newly elected president of the Portland Cement Association, upon his induction into office.

"Seasonal shipments of foodstuffs, building material and other basic requirements are crowded into a short period," Mr. Kelley pointed out, "with the result that prices are forced up, deliveries are restricted and labor costs mount." He urged that the public take this point into consideration when ordering and attempt to spread the season of greatest car demand by ordering in full car lots wherever possible and also to order early. Railroads have pledged their aid, he added, putting the question of better shipping satisfaction and resultant economies squarely up to the individual purchaser.



W. C. Kelley, Newly Elected President Portland Cement Association.

Mr. Kelley succeeds L. T. Sunderland of Kansas City as president of the association and takes charge in the 21st year of its existence as an organization to improve and extend the uses of concrete. Eighty-six cement manufacturers, representing every section of the country as well as Canada, Cuba, Mexico and South America, are members of the association and subscribe to its public service.

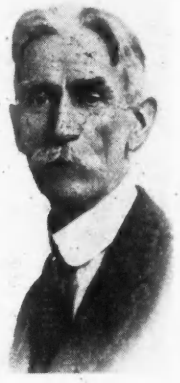
✣

Death of Dr. Spencer B. Newberry

NEWS of the death of Dr. Spencer Baird Newberry, head of the Sandusky Cement Company of Cleveland and for many years an outstanding figure in the Portland cement industry, has come as a great shock to his personal and business friends and to the trade in general. He was stricken at the wheel of his car on Tuesday, Nov. 28, while driving thru the down-town district of Cleveland on the way to his office.

Dr. Newberry was born in 1857, and for a number of years following his graduation from Cornell was Professor of Chemistry in that institution. In 1892 he founded the Sandusky Cement Company with a mill at Bay Bridge, Ohio. Serving for a number of years as general manager, he was later elected president, which position he held until his death.

Under his management the business expanded both in volume and in production units, the original Bay Bridge plant being supplemented by others at York, Pa.; Toledo, Ohio.; Syracuse, Ind., and Dixon, Ill.



Dr. S. B. Newberry.

Of the many important contributions that Dr. Newberry has made to the development and advancement of the industry, perhaps the greatest was his discovery of a practical method of rendering concrete waterproof. He was also very instrumental in making white cement practical from a commercial standpoint, and his firm was one of the earliest producers of waterproofed cements.

Dr. Newberry is survived by a widow and two sons, Messrs. Andrew W. and Arthur C. It is announced that no changes in the personal, management or policies of the Sandusky Cement Company are to be made for the present.

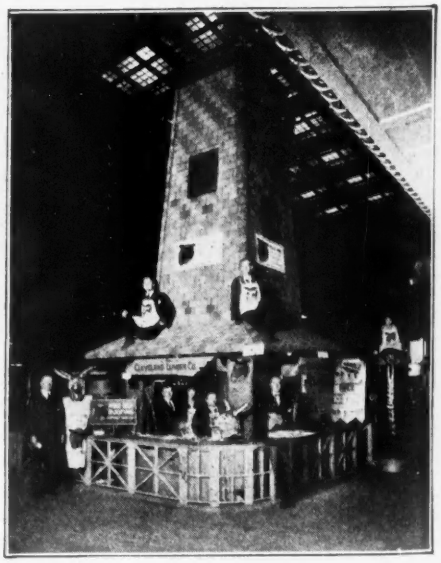
✣

Mule-Hide at Cleveland Show

A VERY pleasing example of what co-operation will do was witnessed at the Cleveland Building Show, recently held in the city of Cleveland, Ohio—which, by the way, was one of the largest, best patronized and most successful exhibitions of its kind ever held.

The Cleveland Lumber Company and the West End Lumber Company of that city combined their efforts and pooled their wits in advertising one and the same product.

Their noteworthy exhibit stood out on the arena floor like Washington's Monument. It took the form of a monumental shaft and surmounted the booth, both of which were covered with Mule-Hide Panel Strip Shingles. In the booth were attractive young ladies passing out samples of Mule-Hide Roofing, together with appropriate advertising souvenirs.



Co-operative Exhibit of the Cleveland Lumber Company and the West End Lumber Company at the Cleveland Building Show.

It is worthy of more than casual notice when two competing industries join forces in advertising the same product.

We should have more of the co-operative spirit.

✣

THE farm population of the United States is 31,614,269, or 29.9 per cent of the total.

Settle the Matter of Making a Bigger Income—Now

Read How Men in the Building Trades Have Put Themselves in the High Pay Class

The Same Opportunity is Open to You

"How did he get there?" is the question you hear asked when some man who has been working as a mechanic steps into a foreman's or superintendent's job or goes into contracting. And the same question is heard when some contractor who has been taking on only small propositions gets in on the big, profitable work.

Why do these men advance while so many of their fellow workmen continue at manual labor? There is no secret about it. They **study.** They learn the things a man must know if he is to work with his head instead of with his hands. Any man can get ahead who will **train** and any man can get the necessary training who wants it. He can get it without taking an hour's time from his present job.

J. D. Woodside of Oklahoma was a carpenter working at $6 a day. He heard about the Chicago Technical College and the training it gives carpenters, bricklayers, plumbers and other men in the building trades. He wrote for information and enrolled in the Builders' Course getting his instruction by mail As a result he was made foreman at $8 a day, 3 months after he started. Then he was made superintendent and is now a successful contractor.

If you want to make more money, make your services more valuable. Learn more about your trade or business.

Samuel Schrier was working at the bench in Pennysy vania but saw that the way to take the limit off his earning power was to learn more. He also enrolled in the Chicago "Tech" Builders' Course and reports a pay raise of $73.70 a week.

Stephen D. Stanton of Alabama was another ambitious workman who decided to get into the big pay class and enrolled with Chicago "Tech." He writes that his income has nearly doubled as a result of the training he received.

Shelby Patrick of Michigan also doubled his income by getting the training that made him a Building Expert.

Hundreds of other men who have taken this training in the higher branches of building have also vastly increased their incomes as a result.

Train by Mail in Your Spare Time

No matter where you live you can get this Chicago "Tech" training from practical **builders.** You get the lessons by mail and study in your spare time. At every step you have the direction and assistance of men who teach what you need to know to get one of the paying jobs as foreman or superintendent or to make the best profits out of a contracting business.

You get the benefit of their experience instead of trying to pick up information at your work. They give you, at once, what you might not otherwise get in years.

The men who give you this training are all practical building experts. They don't give you a lot of theories to study, no dry text books, no useless studies. They take you right into the actual problems of everyday work and show you how and why things are done.

Every man who is in the building business knows that this kind of knowledge makes a man worth money to those who employ him. And as everybody knows, men who have this kind of training are going to be in greater demand than ever from now on because building is on the boom.

The man who trains as a building expert now will soon have the matter of a bigger income settled to his satisfaction.

Some of the Subjects We Teach

PLAN READING

How to read a building plan. Floor plans and elevations. Use and meaning of different lines on the plan. Sections and section lines. Cross sections. How different materials are shown on the plan. How to read dimensions. Detail drawings. How to lay out work from the plans. Tracings and blue prints—how they are made. Practice in reading complete plans from basement to roof, etc., etc., etc.

CONSTRUCTION

Brickwork: Footings and foundation walls of brick, concrete and stone. Brick laying, joints in brick work pointing, tuck pointing, etc. Brick and stone arches. Use of different kinds of stone.
Carpentry: Kinds and uses of woods, cornices, interior details, framing, roof construction, bridging, miter joints, butt joints, etc. How plans are made. Complete instructions illustrated by working blue print plans and specifications. Residences, apartment buildings, factory buildings, school houses, hospitals, store and office buildings, bank buildings.

ESTIMATING

Practical rules for figuring costs on all classes of construction. Problems worked out from the plans. Methods of practical builders.
Some of the points covered are—Figuring labor and material on brick, frame and concrete work—footings, walls, chimneys, fireplaces and cisterns. Fire proofing, tile flooring, arches, partitions, furring, terra cotta, etc.
Lumber and timber; figuring board feet. Estimating posts, girders, sills, joints, stubs, bridging, rafters, etc. Estimating all kinds of roofs, floors, siding, cornices, etc.
Estimating mill work. Labor and material for window and door frames, sash, blinds, baseboard, wainscoting and all kinds of closets, cupboards, etc. Lathing and plastering, sheet metal work, decorating, glazing, plumbing, heating, wiring, etc.

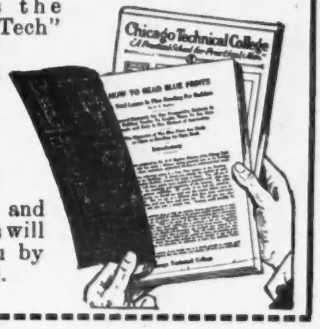
SUPERINTENDING

Methods of work on all classes of buildings. Uses and preparation of material. Hiring and handling men.
We also offer complete home-study courses in **Architectural and other branches of Drafting.** If interested in any branch of Drafting, mention subject and ask for special catalog.

If you are not satisfied with your job or your prospects, this is the time to prepare for bigger things. Expert training in building will make you the man wanted to handle important work at high pay.

FREE 2 Books and Blue Prints

Your request bring our two books, one on "How to Read Blue Prints," containing a lesson in Plan Reading and with it we send blue prints, drawings, etc. With this lesson you can test yourself. See how easily you can learn by our method before you decide about enrolling. The other explains the Chicago "Tech" Method of training by mail.



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Just sign and mail the coupon and these books will go to you by return mail.

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136 Chicago Tech Bldg., Chicago, Ill.

Please send me your Free Books and Blue Prints for men in the Building Trades. Send postpaid to my address below.

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Occupation .....

Steel Sash with Concrete Blocks

Details of Setting Sash in Walls

By N. A. HARRIS

IN sections of the country where the use of concrete blocks on construction jobs means a real saving to the owner, there has arisen a lively demand for a steel window that is economical and that can be used in a building of this type. The cost of steel windows is comparable with that of wood and they admit more daylight than two double hung wood windows, filling the same masonry opening.

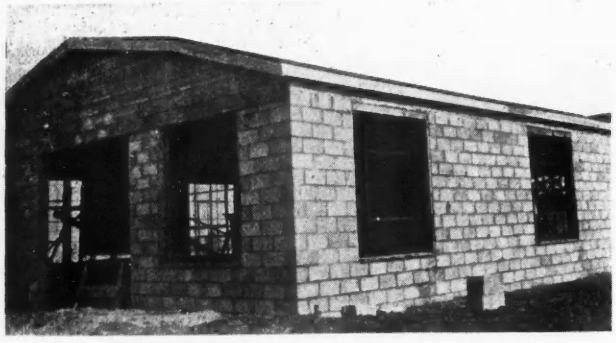


Fig. 1. A Very Well Lighted Concrete Block Garage at Clauson, Mich., Large Steel Sash Units Being Used.

For the builder or contractor who is installing steel windows in a concrete block building, the following suggestions and illustrations will prove of interest.

The windows shown in this illustration are 4 feet 10⅜ inches wide and 6 feet 10⅜ inches high, containing twenty 14 by 20 inch glass lights. An examination of the illustration of the garage will show that this window is just 4½ blocks wide and 10 blocks high. Standard 16 by 8 by 8-inch blocks are used and ¼ inch is allowed for mortar.

This type of window exactly meets the constantly increasing demand for a steel window that can be adapted for use in small concrete block buildings.

Where only one window is used to an opening, it may be built right in as the walls go up. First, place the windows around the building so each unit will be near the opening in which it is to be set. This will help you check up and see that you have the required number of windows.

Be careful not to remove the wires which fasten the ventilator shut, until the windows are firmly installed. The units are much easier to handle if the ventilators are wired shut.

Place the window on the wall and brace it with a notched 2 by 4. Be sure to place it in such a way that the ventilator will open in at the top and out at the bottom. You can be sure of this by remembering that steel sash are glazed on the inside.

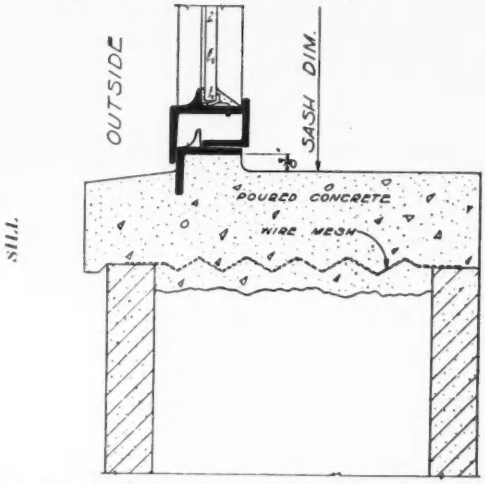


Fig. 3. Detail of Sill Construction, Showing Poured Concrete Sill in Connection with Concrete Blocks and Steel Sash.

Next, block up the window and make sure that it is true and square. Place blocks only at the extreme corners of the ventilator.

Build up the walls at the side of the window, grouting in as the wall goes up. Fill in with cement or grout around the head, sill and jamb bars as shown in the drawing, Nos. 2, 3 and 4. If the window is of a type where the ventilators come to the jambs, be very careful to see the grout does not interfere with the opening of the ventilator.

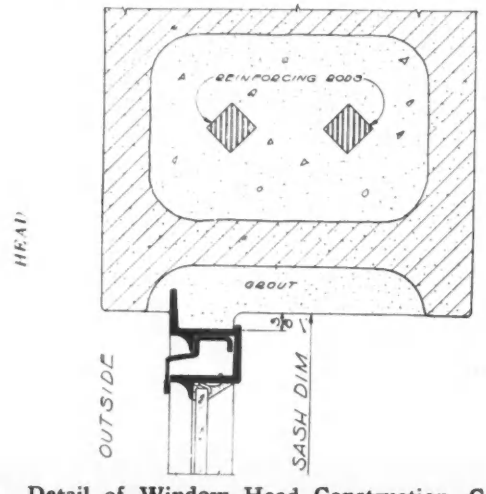


Fig. 2. Detail of Window Head Construction, Concrete Blocks and Steel Sash.

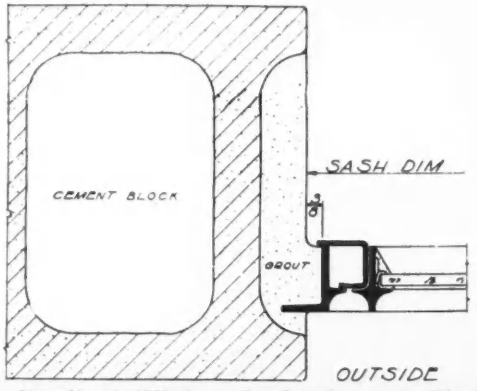
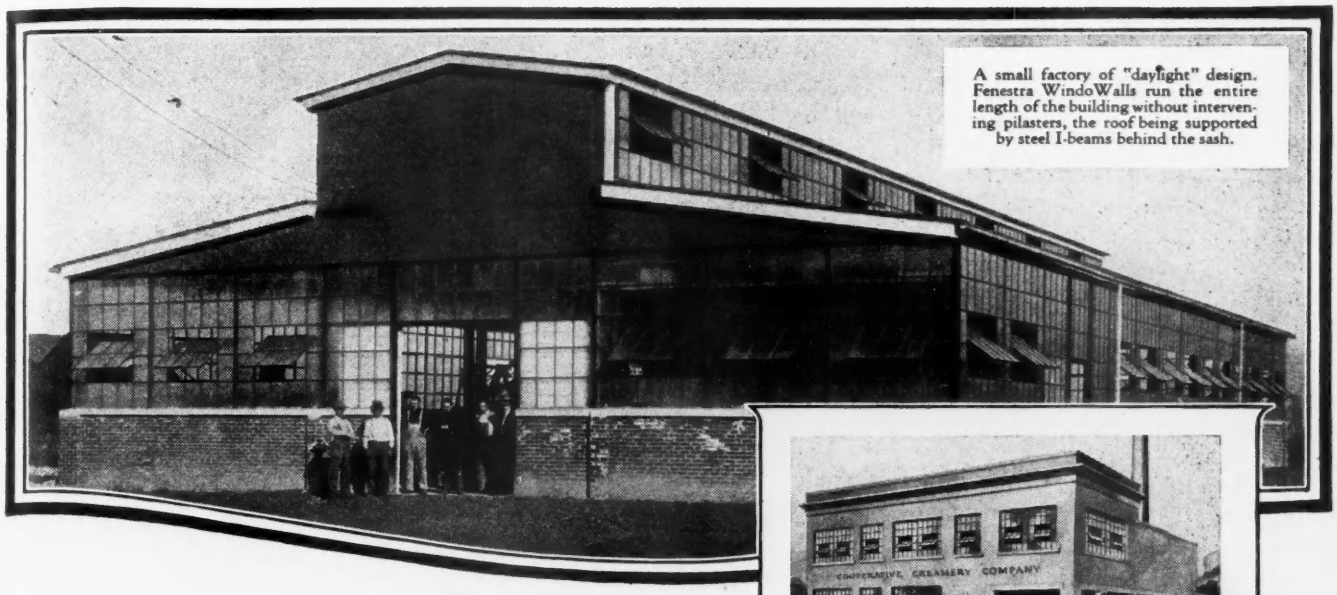


Fig. 4. Detail of Window Jamb, Concrete Blocks and Steel Sash.

Can You Build Daylight Buildings?



A small factory of "daylight" design. Fenestra WindoWalls run the entire length of the building without intervening pilasters, the roof being supported by steel I-beams behind the sash.

YOU can — if you build with Fenestra Solid Steel Windows. Whether you're planning a garage, a store, a shop, or any other kind of building, you can make it a Fenestra WindoWalled job — a scientifically daylighted building. Erection will be easier. The cost will be no greater.

In fact, Fenestra Steel Windows are so easily built into industrial and commercial buildings of every type and size that your work is greatly simplified. They come to you completely assembled—*ready to install.* The ventilators are already fitted and hung, the hardware is attached, a priming coat of paint is already on.

In addition to a completely daylighted building, Fenestra offers the owner many other advantages: protection against fire, controlled ventilation, weather protection, easy operation, permanence and low maintenance cost.

You can secure immediate delivery of Fenestra Standard Steel Windows from your local building supply or lumber dealer, who can draw from the nearest one of 25 warehouses. And you can get a wealth of practical information on window installation by mailing the coupon at the right. Do it *today.*

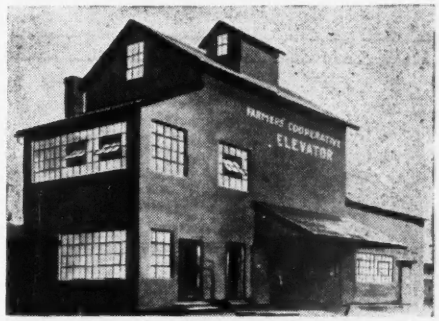
DETROIT STEEL PRODUCTS COMPANY

"The World's Largest Manufacturers of Steel Windows"

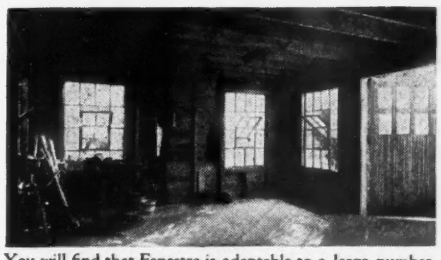
2002 East Grand Boulevard Detroit, Mich.

Fenestra
STEEL WINDOWALLS

The builder in your community who builds with Fenestra is prepared to get the biggest share of the contracts for creameries, laundries, stores, etc. Why shouldn't it be you?



Good ventilation through big ventilators in Fenestra fireproof steel windows helps to prevent dust explosions in grain elevators. It's a real advantage that may help you close the next elevator job that's up.



You will find that Fenestra is adaptable to a large number of small buildings such as private and public garages, filling stations, small shops, milk depots, etc.

Fenestra Steel Basement Windows will give 40 to 80% more light in the basements of the homes you build and save installation time. See them at your local dealer's.

Detroit Steel Products Co., MAIL NOW!
2002 East Grand Blvd., Detroit, Mich.

Gentlemen:

Send me a copy of "How to Install Fenestra Sidewall Units." This incurs no obligation on my part.

Signed _____

A wood lintel may be used or a concrete lintel may be poured on the job and lifted into place after the concrete has set. When pouring the lintel, use a small wood strip on the inside of the form as shown in detail No. 5, so that a rebate will be left into which the flange of the top bar of the window may be inserted. A simple way of making this wood strip is to rip a 2 by 4 diagonally in the center. This will provide two strips just about the right size.

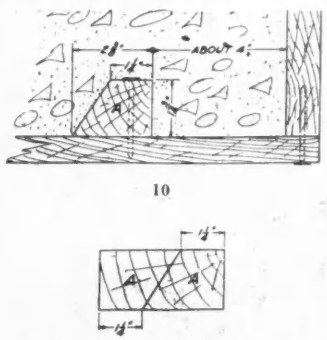


Fig. 5. Detail of Concrete Lintel, Showing Wood Strip Inserted in the Form so that a Rebate Will Be Left on to Which the Top of the Steel Sash May Be Inserted.

A good concrete block lintel is made by piling one block on top of the other, using enough concrete blocks to span the opening. Several reinforcing bars are then run thru the holes in the blocks and the holes are filled with concrete. This makes a strong lintel that can be lifted into place all in one piece.

When more than one window is to be used in an opening, the poured lintel or concrete block is apt to be heavy and cumbersome. A steel "I" beam or channel with steel angle attached, as shown in drawing No. 6, is preferable.

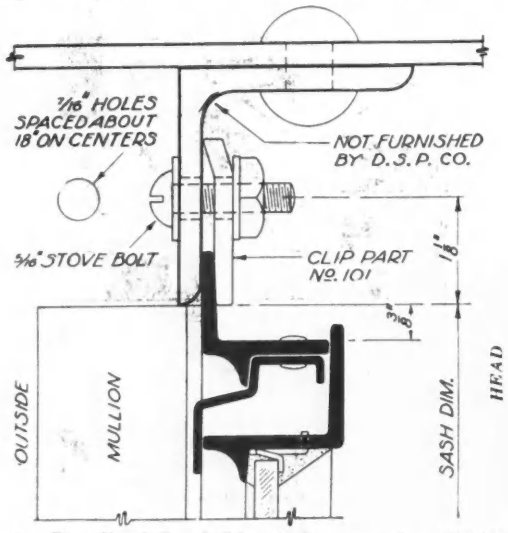


Fig. 6. Detail of Steel Lintel Construction Which Is Preferred for Wide Openings.

Concrete sills poured right on the wall are desirable, the holes in the blocks being covered with a strip of wire lath or plugged with wood plugs to keep the concrete from running down thru the block to the ground.

✣

Demonstration Agents Active

AGRICULTURAL extension agents, with their home demonstration week, have been very successful working among farm women according to recent reports of their activities. As a result of their efforts 12,500 homes were remodeled according to their suggestions; 65,000 homes were screened; 7,000 kitchens were rearranged, and 7,000 lighting systems, 5,000 water systems and 4,000 septic tanks were installed.

Mixers Pulled Back of Trucks or Over Paved Streets Should Have Rubber Tires

NEARLY all mixers are now moved about jobs hitched back of a truck, tho originally intended to be pulled back of horse-drawn rigs on account of small steel wheels, with result that not only do wheels and axles give out at the 14 to 20 mile speed (while made for 4 to 5 miles), but the hard jolting and rattling soon works bolts loose, parts come out of alignment, battery and engine parts are harmed and the result is breakdowns and delays.

Popular One-Bag Mixer on Four Wheels, Rubber Tire Equipped.

Engineers find by using not less than 30-inch wheels with pneumatic tires, all the noise and rattling is eliminated and the serious objection raised in lots of cities to the harm done by the small steel wheels to pavements is overcome.

A popular one-bag mixer is now furnished with four wheel trucks equipped all around with cord tires and a handy size tilting mixer is furnished on two-wheel Ford trailer trucks.

Small Tilting Mixer on Two Wheels, Rubber Tired Truck.

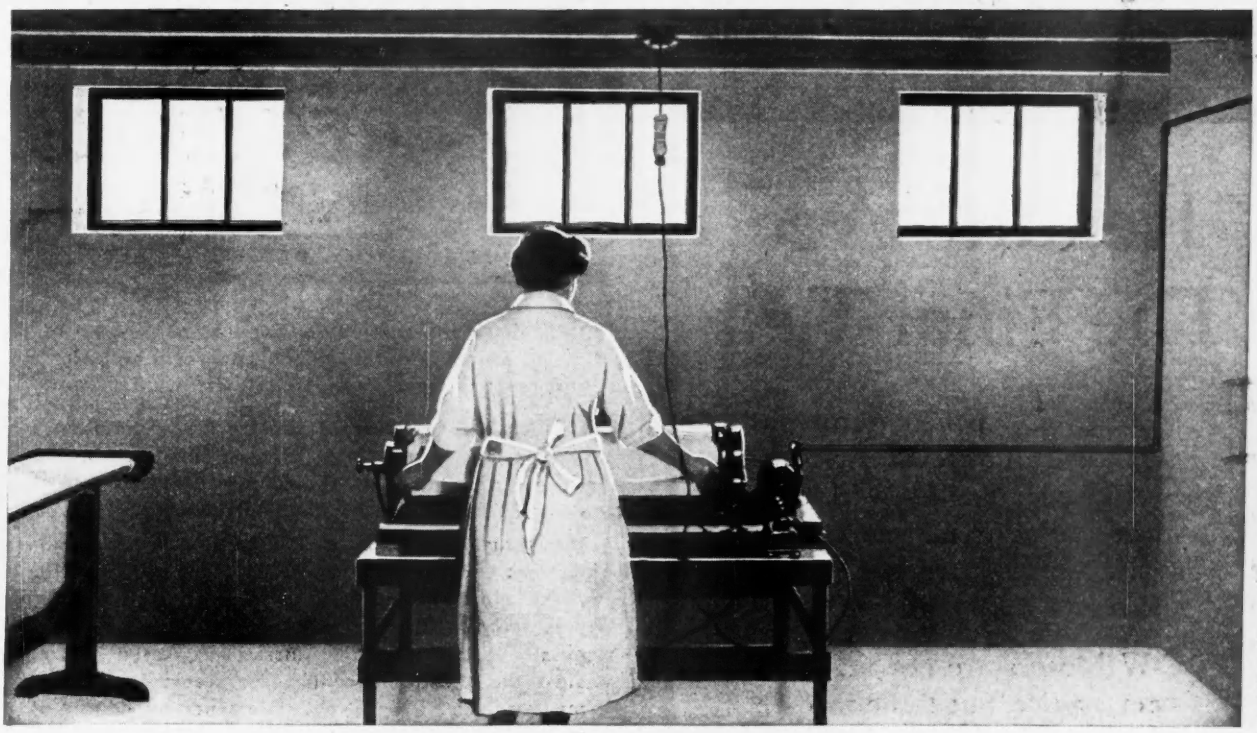
The extra cost is very small compared to savings in lost time due to delays formerly experienced.

In mixing, blocks can be used under axles, taking all strain off tires, with result that outfits out over a year show practically no wear. In event of replacement, Ford standard tires can be used.

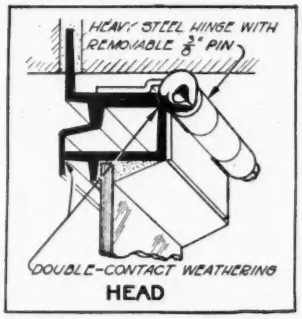
✣

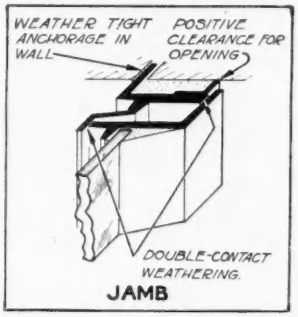
Lumber in the Auto Industry

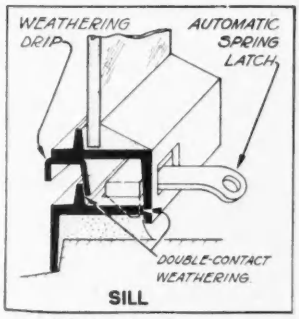
MORE than 313,000,000 feet of lumber was used during 1921 in the manufacture of automobiles and trucks. This gives an idea of the demand for timber in this industry, tho 1921 was a very bad year for the industry as a whole.



Take Away the Drudgery







Distinctive Features

50 to 80 per cent more daylight in the basement takes away a lot of the drudgery of house work. This is the big selling point of the modern home.

Thousands of home owners have made "the business end of the house" bright and cheery by using Truscon Basement Windows.

These solid steel window units are fully equipped with heavy steel hinges and automatic spring locks—they don't cost any more than ordinary windows. If your dealer does not handle them, write us and send us his name.

Truscon Steel Company

Youngstown, Ohio

Sold By Progressive Lumber, Hardware and Building Supply Dealers Everywhere

TRUSCON STEEL BASEMENT WINDOWS

BOOKS, BOOKLETS and CATALOGS RECEIVED

THE literature and publications listed below are now being distributed and the publishers will be glad to send any of our readers copies who will write and ask for them.

The Anchor Concrete Machinery Co., Columbus, Ohio, have issued a new leaflet covering the Anchor stripper machine for making plain and corrugated concrete block. It is 8½ by 11 inches in size with quite a number of illustrations.

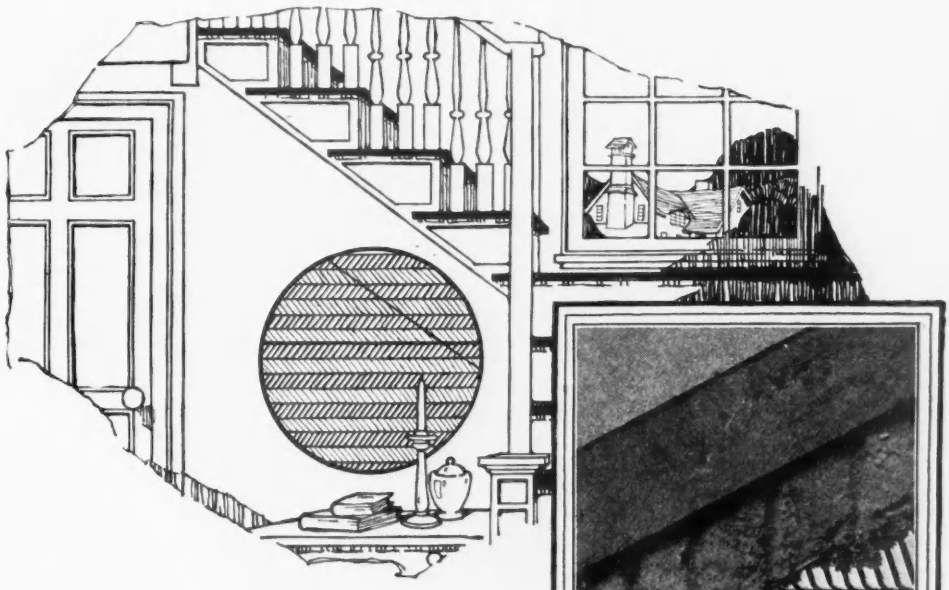
"Startling Statements on a Vital Subject" is a small pamphlet that entertainingly discusses what is rapidly becoming the most important problem before American taxpayers today. Every citizen should read it. It contains pictorial arguments of America's greatest cartoonists against the exempting of tax-free securities from the income tax law. Interesting statements by editors, public men, including President Harding, and economists are mingled with astonishing facts, not heretofore known to most taxpayers and consumers. The booklet is issued and distributed free by the Farm Mortgage Bankers Association of America, E. D. Chassell, Secretary, 112 West Adams St., Chicago. It is 7 by 10 inches and there are 32 pages in addition to the cover.

"Beauty Plus Service in Floors" is a booklet that contains much information which should be of interest and value to all persons engaged in the manufacture, merchandising and use of Southern Pine edge grain flooring. The text, which has been almost entirely rewritten, includes detailed directions for the laying, finishing and care of Southern Pine edge grain floors. Copies may be secured by writing the Southern Pine Association, New Orleans, Louisiana.

"Quantities and Quantity Taking" is a practical book by W. E. Davis, covering fully the precedure in the production of a good bill of quantities. It is intended to be a reliable handbook for the student; but all architects, surveyors and builders interested in the work will find it helpful. The book is 5 by 7¼ inches and is easily carried in the pocket. There are 176 pages with many diagrams. It may be ordered directly from the publishers. Isaac Pitman & Sons, 2-6 West 45th St., New York for $1.85 a copy.

The Federal Bridge and Structural Company, Waukesha, Wisconsin, are distributing a booklet displaying their Febrisco solid steel industrial sash equipment. It is illustrated with photographs and drawings of recommended installations of store front, show window and basement sash. The booklet is printed on fine quality paper, with an excellent cover and is 9 by 11¼ inches.

The Monarch Metal Products Co., 5020 Penrose Street, St. Louis, Mo.; have published a manual of Monarch weather strip detail, fully illustrating and describing Monarch equipment. It also contains a list of their licensed representatives in various cities and offers a great deal of other valuable information to architects, heating engineers and building contractors.



Protect the Stairs from Fire

The only fire escape in a house is the stairs. They must be protected. Fire comes upward. Protect the under side of the stairs and you protect all. Use metal lath and plaster.

For a dependable, fire-resisting lath use Herringbone. It spans sixteen inches. The increase in cost is but a small fraction of the increase in value.

Send for illustrated literature

Herringbone — strong, rigid, easily handled — has met the demand for an economical, practical, fire-retardant lath

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YOUNGSTOWN, OHIO.
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Herringbone
RIGID METAL LATH

THE GENERAL FIREPROOFING COMPANY, Youngstown, Ohio

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KANSAS CITY
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SAN FRANCISCO
PHILADELPHIA
OMAHA
NEW YORK
LOS ANGELES
BALTIMORE
CLEVELAND

"Marks System of Gypsum Roof" is the name of a new catalog issued by the H. E. Marks Corporation, Empire Building, Pittsburgh, Penn. The booklet should prove very interesting to all builders interested in roofing, as complete details covering the construction, specifications, etc., of gypsum roofs are fully described and illustrated. The pictures are very clear and the paper and cover are of excellent quality. It is 8¾ by 11 inches in size and there are 16 pages and cover.

The Chicago Spring Butt Company, 1500 Carroll Avenue, Chicago, have issued a very attractive catalog clearly illustrating and describing their line of Chicago spring hinges. The booklet is exceptionally well printed on highest quality paper with an embossed cover. There are 44 pages with numerous illustrations on nearly every page, and it is 7 by 10 inches in size.

"Concrete Floors and Sidewalks" is an excellent book by A. A. Houghton, author of a number of other books on various phases of concrete construction. It explains the molding of concrete floor and sidewalk units, with plain and ornamental surfaces, also the construction of plain and reinforced monolithic floors and sidewalks. Complete instructions are given for all classes of this work with illustrations of the easily constructed molds for diamond, hexagonal and octagonal floor tile. The book may be ordered directly from the publishers, The Norman W. Henley Publishing Company, 2 West 45th Street, New York City for 75 cents a copy. It contains 101 pages and is 5 by 7¼ inches in size.

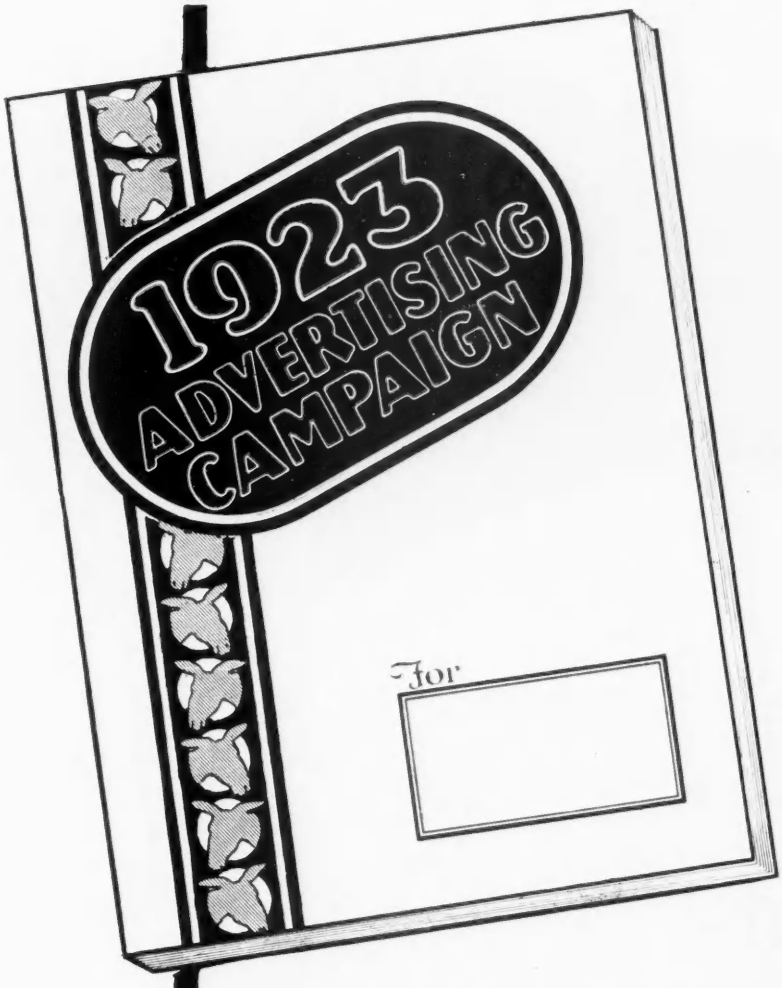
"Farm Buildings" is an excellent book prepared by the Agricultural Experiment Station of Purdue University, Lafayette, Indiana. The Southern Pine Association is devoting special efforts this year to encouraging the erection of farm buildings of various types and as a part of their program are distributing, direct and thru retail lumbermen, a large edition of the book. It contains photographs, designs, sketches, floor plans and specifications, with descriptive text, of farm buildings that actually have been constructed on modern, well equipped farms. There is also useful information on selecting the best sites for locating the different buildings. This is a valuable book that every builder should carry who is after the farmers' business. It will help him sell his prospects.

The Medart Company, Potomac and DeKalb Streets, St. Louis, Mo., are issuing a new condensed catalog No. 43 displaying their line shafting equipment. It presents useful facts about the most generally used equipment, and is printed on high grade paper, containing 192 pages and is 5½ by 7¾ inches.

"Sketching and Rendering in Pencil" by Arthur L. Guptill is a new book that will be useful to the teachers of art, architectural students, architects and draftsmen, and artists, for the author has kept in mind the needs of all these various classes of readers. The first part of the book is devoted to drawing in general taking the reader thru the elementary stages. The second half deals with the representation of architectural subjects. The book is thoroly illustrated, contains two hundred pages printed on heavy coated paper, handsomely bound and is 9 by 12 inches in size. It is the first book in a new series. "The Pencil Points Library" and is published by the Pencil Points Press Inc., One Madison Avenue, New York and may be purchased directly from the publishers for $5.

Warren-Knight Co., 136 N. Twelfth St., Philadelphia, Penn., makers of surveying instruments and engineering and drafting supplies, have recently issued an interesting pamphlet illustrating and describing their latest model "Sterling" transits and levels.

Complete Building Material Advertising Campaign for Dealers



NOW READY

FILLED to the brim with proved advertising ideas and promotional plans, this plan book stands head and shoulders above any similar work yet designed for developing business for the lumber and building material dealers.

Here in condensed array is submitted the result of many years devoted to careful analysis of dealer requirements, this research conducted by sales and advertising men, every one of whom has qualified in his particular line—and who has had actual experience in selling roofing.

Nine distinct advertising services, covering every form of advertising media, such as newspapers, bill-boards, direct-by-mail, etc., have been carefully planned and worked out for your individual need. A well laid out schedule for the combined use of all the services is another feature that assures you valuable assistance in the selection of the materials necessary for your own **personalized** advertising campaign.

98% of all dealers handling MULE-HIDE recognize the Old Mule as a rare combination of merchandising abiltiy and an intense belief—amounting almost to a religion—in manufacturing only quality material.

Our product comes nearer to bringing 100% customer satisfaction than any other roofing they have ever handled. Quality which assures "Not a kick in a million feet" is a "sure-fire" business builder

Add to this the most carefully thought out and proven plan of advertising and dealer co-operation in the building material field, and you have the reason why the local demand for "just roofing" is changed into an insistent demand for MULE-HIDE.

20 page book of powerful Sales Building Helps ~FREE!

MULE-HIDE "NO A KICK IN A MILLION FEET" ROOFING AND SHINGLES

To make certain that we get your imprint correct on your copy of this plan book, print it carefully in the coupon below —then mail it to us. Never again will you receive so much for the expenditure of a one-cent stamp.

The Lehon Co.
44th St. and Oakley Ave.
CHICAGO

Mail This Coupon Now For Your Copy

THE LEHON CO., 44th St. and Oakley Ave., Chicago, Ill.

Please send me a copy of the 1923 dealer advertising campaign book. I am interested in your extensive plan of dealer co-operation.

Name.....
Town.....
State.....
Line of business.....

"Handbook of Construction Cost," by H. P. Gillette, contains a great deal of valuable information. The author has carefully itemized modern costs on every phase of construction work. Particular attention is given to building cost estimating and to the author's price level formula and wage level formula. The book contains 1,733 pages and is fully illustrated. It is 4½ by 7 inches, a convenient pocket size, and has a flexible binding. It may be ordered directly from the publishers, McGraw-Hill Book Co., Inc., 370 Seventh Ave., New York, for $6.00 a copy.

"Home Instruction for Sheet Metal Workers," by William Neubecker, is a practical instruction manual for the apprentice, mechanic and master sheet metal worker. It includes detailed instructions on cutting, forming, soldering, preparing full-sized details from architect's blue prints, developing the patterns, laying out the work on sheet metal, forming and bending on the brake and setting the work together. It is published by the U. P. C. Book Company, 230 W. 39th St., New York City. It has 400 pages, 684 illustrations, is bound in cloth with 15 folding plates bound separately, and is 6 by 9¼ inches. It sells for $5.00 postpaid.

The Cypress Colonial Home Book, Volume 44 of the Cypress Pocket Library, published by the Southern Cypress Manufacturers' Assn., New Orleans, La., is a valuable little handbook for architects, builders and contractors. It contains original designs, complete specifications, perspective sketches, and full working plans for an artistic and correct Colonial home of moderate cost. Has also three original art sketch supplements. Contains 192 pages, is 3¼ by 5¼ inches and has four large sheets attached.

"The Good Mixer" is the name of a new monthly publication of the Jaeger Machine Co., Columbus, Ohio, manufacturers of concrete mixing machines. It is devoted to the interests of Jaeger distributors and salesmen and has many interesting items and illustrations.

Pulver's Materials of Construction has been published by McGraw-Hill Book Co., 370 Seventh Ave., New York. As its name indicates it is a text book on the types, manufacture, properties and uses of building materials. The book is elementary and avoids technicalities and mathematics. The author is H. E. Pulver, assistant professor of civil and structural engineering, University of Wisconsin. Price, $3.

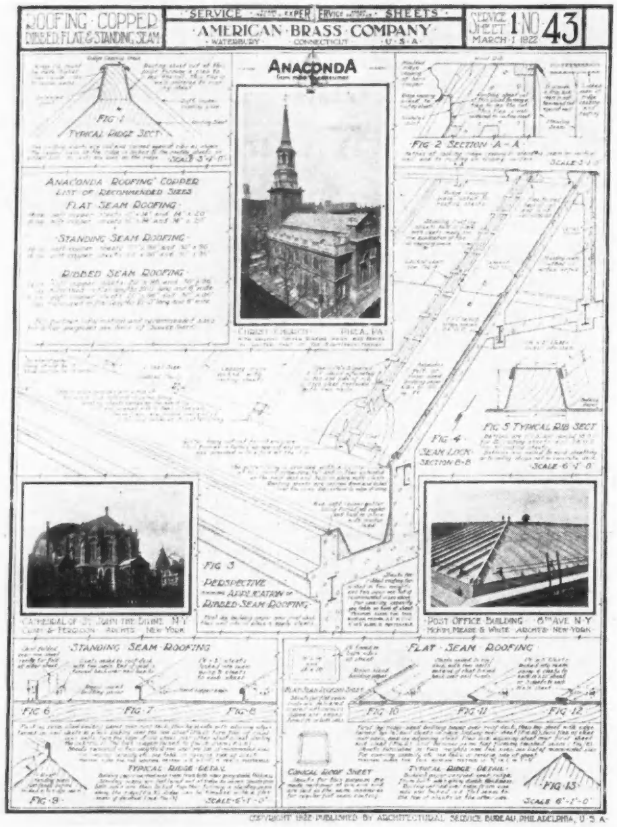
"Publicity Methods for Engineers" is an interesting manual for men interested in public information work. It contains the proceedings of the First National Conference on Public Information held under the auspices of the American Association of Engineers and has been edited and amended for more easy reading. The purpose of the book is to make plain the principles of presenting to the public information about engineers, and to show by cases how this is being accomplished. The book consists of 186 pages, is 5 by 7½ inches in size and is printed and bound with excellent paper. It may be purchased directly from the publishers, American Association of Engineers, 63 East Adams Street, Chicago, for $1.50 a copy.

The Smolensky Valve Co., Inc., Cleveland, Ohio, are distributing a catalog showing their line of valves and fittings. The booklet is well illustrated and has a good deal of useful information.

The Carnegie Steel Company, of Pittsburgh, Penn., have recently issued their twenty-second edition of Carnegie Pocket Companion, a valuable handbook for engineers, architects and builders containing much excellent and useful information and tables pertaining to the use of structural steel. The book is printed on excellent paper and is bound with high grade leather so as to be very serviceable. It is a handy pocket size, being 5¼ by 7¼ inches. There is no price listed in the book but it can

be ordered directly from the company and they are now giving a special discount to readers of AMERICAN BUILDER.

The American Brass Company, Waterbury, Conn., is issuing each month a brass service sheet that will prove

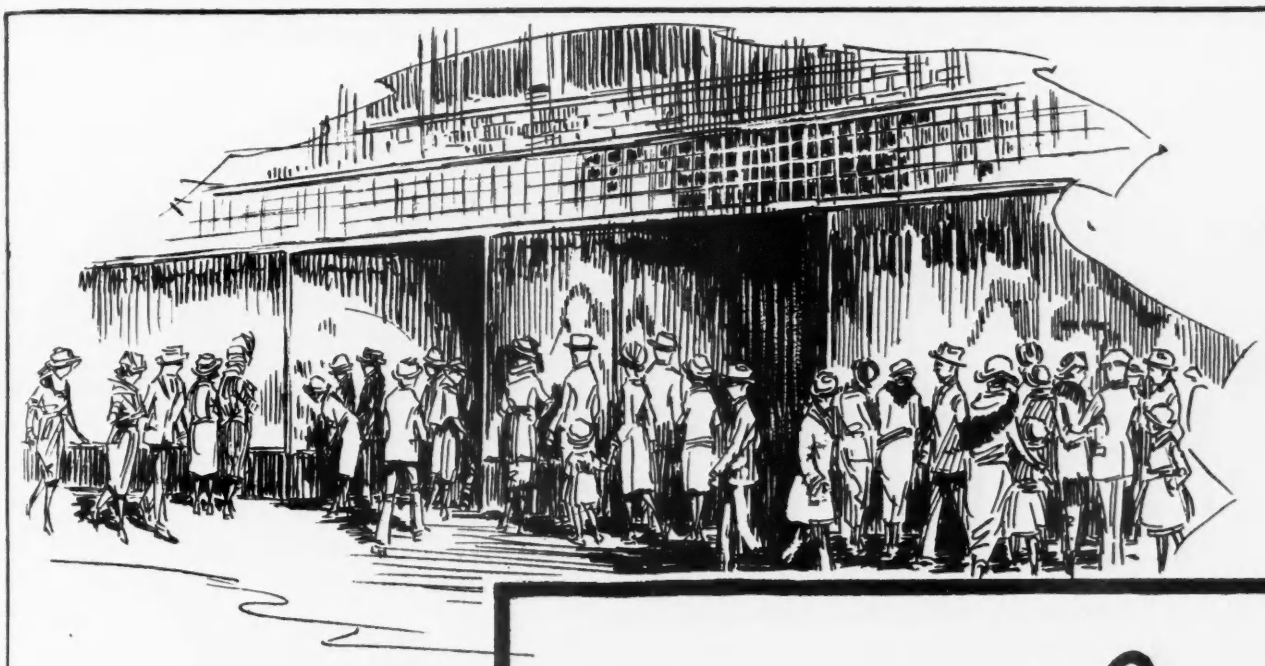


valuable and interesting to anyone interested in copper roofing. Service sheet No. 1 has excellent diagrams, photographs and scale drawings of flat seam roofing, standing seam roofing and ribbed seam roofing. There is also a great deal of other useful information about copper roofing. There is a table showing the recommended sizes and weights of copper for roofing and a list of standard specifications.

"Cambria Steel" is the title of a practical handbook that has been published by the Cambria Steel Co., Philadelphia, Penn., which contains a great deal of valuable and useful information relating to structural steel. It has useful tables, rules, data and formulae for the use of engineers, architects, builders and mechanics. It is bound with a good leather binding that will wear well and is a very convenient pocket size, 4¼ by 6¾ inches. It was prepared and compiled by George E. Thackray, C. E., special engineer for the Cambria Steel Co. The regular price of the book is $1.50 but they are offering a special discount to readers of the AMERICAN BUILDER.

The Union Fibre Company, Winona, Minn., have published a very interesting bulletin No. 1R called "The Insulation of Roofs for the Prevention of Heat Loss and Condensation." Builders interested in roofing will find it worthwhile reading as it is well written and illustrated. It is printed on white machine finish paper and is 8½ by 11 inches.

"Condulets" is the title of an attractive and useful handbook and catalog No. 2000 issued by the Crouse-Hinds Company, Syracuse, N. Y. It has been carefully compiled to present in a clear and comprehensive manner the various devices and electrical supplies manufactured by this company for use in conduit installations and known under the trade name "Condulets." All parts and



Brasco

COPPER STORE FRONTS

STEADY PROFITS FOR THE BUILDER

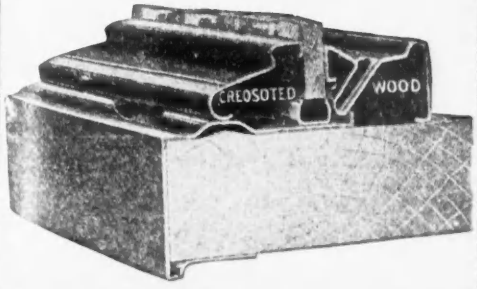
One Job Means Another

The demand for Brasco Fronts grows with every installation, keeping Brasco men busy the year-'round. The popularity of Brasco Copper Store Fronts is due to superior construction, great selling power and low cost.

More Builders Needed

to install Brasco Fronts. They are easy to install and there is a good profit for every installation. We have an interesting proposition for live builders. Clip out the coupon and mail it today for booklets and information.

Send for this Catalogue



Mail this coupon today

Brasco Manufacturing Company
5029 South Wabash Avenue, Chicago

Send me your booklets on Store Front Construction.

Name_____

City_____

State_____

A. B.-11-22

supplies are fully illustrated and described and a thumb-index makes it very easy to use. There are 714 pages, 5¾ by 4½ inches in size.

"Living-Stone" is the name of a pamphlet issued by the Living-Stone Co., Baltimore, Maryland. Living-Stone is a non-acid method of bonding cement, concrete hardener, and granolithic top finish to concrete floors. This pamphlet describes it completely and contractors and builders interested in concrete work will find it well worth writing for. It is clearly printed with illustrations and is 4 by 9½ inches.

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Building and Contracting Leaders Choose Basic Books of Industry

THE basic books in the building and contracting industry as selected by leading members of the industry for inclusion in the business library of the McAlpin Hotel are announced today by L. M. Boomer. Among those who have given their selections, from which the final choice will be made are:

W. H. Driscoll, vice-president, Thompson-Starrett Company, New York City; Ralph Collamore, Smith, Hinchman & Gryalls, Detroit, Mich.; Reginald P. Bolton, The R. P. Bolton Company, New York City; F. N. Farrar, secretary, Builders Exchange, Buffalo, N. Y.; Arthur G. McKee, president, Arthur G. McKee & Company, Cleveland, Ohio; Noble Foster Hoggson, president, Hoggson Brothers, New York City; J. D. Casell, superintendent of buildings, School District of Philadelphia; W. T. Timmis, Timmis & Chapman, New York City; and E. M. Tate, secretary, Pittsburg Builders' Exchange.

These selections came to Mr. Boomer as a result of an inquiry instituted among the leaders in the building and contracting industry to assist him in building up a business library of the ten books in each of twenty industries selected by the leaders of those industries.

Mr. Timmis chose:

Pocket Companion—Carnegie Steel Co.
Mechanical Engineers' Pocket Book (Kent).
Mechanical Equipment of Buildings (Harding & Willard).
Vol. I. Power Plants and Refrigeration.
Vol. II. Heating and Ventilation.
Fan Engineering—Buffalo Forge Co.
Electrical Engineers' Pocket Book (Foster).
Sweet's Index—Architectural & Engineering.
Useful Data—Corrugated Bar Co.
Steam Power Plant Engineering (Gebhardt).
Heating and Ventilating Engineer's Guide.
Modern Plumbing (R. M. Starbuck).

Mr. Collamore chose:

Architectural

Edifices de Rome (Letarouilly).
Gothic Architecture in England (Pugin).
Athens Antiquities (Stewart & Revette).
Orders of Architecture (Vignola).
English Homes (Ratham).
Renaissance in England (Gotch).
History of Architecture (Ferguson).
Italian Ren (Schutz).
Monograph of Work of McKim Mead & White.
Architects and Builders' Hand Book (Kidder).

Engineering

Mechanical Equipment of Buildings (Harding & Willard).
American Civil Engineers' Pocket Book (Merriman).
Structural Engineers' Hand Book (Ketchum).
Mechanical Engineers' Hand Book (Kent).
Concrete Engineers' Hand Book (Hool & Johnson).
Standard Handbook for Electrical Engineers (McGraw-Hill Book Co.).

Mr. Driscoll chose:

Heating and Ventilating

Heating and Ventilating Engineers' Guide, 1922—American Society of Heating and Ventilating Engineers.
Mechanical Equipment of Buildings, Vol. I, Heating and Ventilating (Harding & Willard).
Handbook for Heating and Ventilating Engineers (Hoffman).
Heating and Ventilating (John R. Allen and J. H. Walker).
Steam Heating (Warren & Webster).

Make your houses easier to sell

When you build a house to sell to a client, do you provide soft water so that scale will not clog up the water pipes? Can you guarantee that the water pressure will not gradually diminish, or that the toilet and wash basin drains will not have to be torn out and replaced when scale has clogged them up?

If you can assure the buyer that he will not be troubled with these discomforts of hard water, it will be much easier for you to sell your houses.

A Wayne Rapid-Rate Water Softening System will enable you to make such a guarantee. One of these systems installed in each one of your houses will provide a continuous flow of pure, clean, 100% soft water at the turn of any faucet. The water will be softened as fast as it flows at normal city pressure.

A Wayne Softener connected to the city water line is much more economical than a cistern which requires an expensive pumping system and storage tanks. One of these softeners will soften all the water needed for an average home at a cost of about 5 cents a week.

Why not put a Wayne Softener into the next house you build? It will make the buyer satisfied. He will tell his friends about you—that you are the builder who knows how to put up comfortable homes.

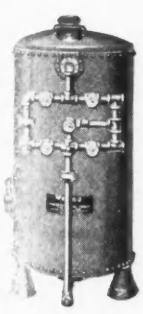
We will be glad to send you more details. Ask for Bulletin 1600-AB.

Wayne Tank and Pump Cnmpany

867 Canal Street **Fort Wayne, Ind.**

Chicago - - -	350 Old Colony Bldg.
Pittsburgh - -	441-443 Union Arcade
San Francisco - - -	534 Rialto Bldg.
Los Angeles - -	3311 West Temple St.
Kansas City - -	412 Interstate Bldg.
Milwaukee - - - - -	731 Grand Ave.
St. Paul - - - - -	230 Hamm Bldg.
Lincoln, (Neb.) - -	500 Little Bldg.

An International Organization With Sales and Service Offices Everywhere



Wayne

TRADE MARK

WATER SOFTENING SYSTEMS

BORROWMAN PATENTS

Rapid-Rate

...soline and Oil ...rage Systems | **Heavy Metal Storage Tanks** | **Air Compressors** | **Water Softening Systems** | **Oil Filtration Systems**

Oil Burning Systems, Furnaces and Forges

HIGGIN ALL METAL WEATHER STRIPS

Most weather strips have a rib strip (the white line) but only Higgin Strips have the patented spring flanged Insert (the black line) that really keeps the weather out.

You can install HIGGIN *Weatherstrips in mid-winter*

NO NEED to put off making your home proof against winter. Do it now! With very little inconvenience Higgin All-Metal Weatherstrips can be put in during any weather by a skilled installation man.

Old and new homes should be made tight against seepage of cold air or loss of furnace heat. Every door or window without proper weatherstrips loses from 1/10 to 1/5 of a ton of coal per winter. Stop that waste and make your home comfortable for the rest of the winter.

Send for the Higgin book on weatherstripping and information how to weatherstrip homes in mid-winter.

Builders: *We have openings for representatives in some sections. Write for our proposition.*

The **HIGGIN** *Mfg. Co.*

Newport, Ky.

Toronto, Canada.

Manufacturers of Higgin All-Metal Weatherstrips and All-Metal Screens

See our catalog in SWEETS'

Electric Wiring

Hawkins Electrical Guide (10 Volumes).
Library of Practical Electricity (8 Volumes, Croft).
Standard Handbook for Electrical Engineers (McGraw-Hill).

Plumbing

Handbook on Plumbing (Dibble).
Standard Practical Plumbing (R. M. Starbuck).
Mott in Plumbing, illustrated (R. M. Starbuck).

Miscellaneous Mechanical Equipment

Compend of Mechanical Refrigeration and Engineering (Siebel).
Principles of Mechanical Refrigeration (Macintire).
Mechanical Equipment of Buildings (Vol. II) Power Plants and Refrigeration (Harding & Willard).
Mechanical Equipment of Federal Buildings (Thompson).
Mechanical Engineers' Hand Book (Marks).

Some of the books Mr. Farrar chose are:

Building Estimator's Reference Book (F. R. Walker; Chicago, 1919).
Steel Construction (Henry J. Burt; Am. Technical Society, Chicago, 1921).
Mechanical Equipment of Buildings, two volumes (Harding & Willard; Wiley, 1916-17).
Reinforced Concrete Construction, three volumes (G. A. Hool; McGraw).
Handbook of Building Construction (G. A. Hool and N. C. Johnson; McGraw, 1920).
The Theory and Practice of Modern Framed Structure (J. B. Johnson and others).
Johnson's Materials of Construction (John Butler Johnson; Wiley, 1919).
The Design of Highway Bridges, etc. (M. S. Ketchum; McGraw).
Building Construction and Superintendence, three volumes (F. E. Kidder, 1909-13).
Designing and Detailing of Simple Steel Structures (C. T. Morris; McGraw, 1914).
A Treatise on Concrete, Plain and Reinforced (F. W. Taylor and S. E. Thompson).

Mr. Hoggson chose:

History of Architecture (Sturgis; MacMillan).
Materials of Construction (Johnson; Wiley).
Masonry Work (Kidder; Wiley).
Carpentry Work (Kidder; Wiley).
History of a House (Violett Le Duc).
Building Superintendence (T. M. Clark; MacMillan).
Practical Treatise on Foundations (Ira O. Baker; Wiley).
Inspection of Materials and Workmanship Employed in Construction (Austin T. Byrne; Wiley).
Heating and Ventilating of Buildings (R. C. Carpenter; Wiley).
Treatise on Concrete, Plain and Reinforced (Taylor & Thompson; Wiley).
Planning and Construction of High Office Buildings (Wm. H. Birkmire; Wiley).
Principles and Practice of Plumbing (J. J. Cosgrove; McGraw).
Stones for Building & Construction (Geo. P. Merril; Wiley).
Electric Light Wiring (C. E. Knox; McGraw).
Art of Illumination (Louis Bell; McGraw).
The Commercial Problem in Buildings (Record and Guide Pub. Co.).

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Pittsburgh Builders Exchange to Give Show

THE Pittsburgh, Penn., Builders' Exchange will hold a building show at the Motor Square Garden, Pittsburgh, during March, 1923.

Extensive preparations are now being made to demonstrate and exhibit all kinds of building materials and various forms of construction. The exchange aims to show the prospective building owner the proper method of procedure to secure a home, both in what to do and what to avoid, the purchase of real estate, securing a loan, the selection of an architect, the proper method of selecting bidders and awarding contracts, how to select decorations and the laying out and planting of a garden and lawn.

E. M. Tate, secretary of the Pittsburgh Exchange, is managing director of the show.

✣

Convicts Mostly Dry

A VOTE recently taken among the inmates of prisons in the United States on the prohibition question showed more than 133,000 voting dry and only 909 voting wet.

✣

FRIEND: "Does your boy learn quickly?"

Tennessee mountaineer: "Well, he ain't very bright. Couldn't chew tobacco till he was mor'n five years old."—School Board Journal.

Leavitt Coal Chute

YOU can add to your profits and please your customers better by installing the Leavitt.

More Durable—Costs Less

The Leavitt Coal Chute is made right. No hinges to bother. The door lifts off out of the way. Substantial, durable, built as heavy as a coal door should be, no glass to break. Larger cross section for receiving coal than ordinary, being 20x22 in. May be locked, burglar-proof from the inside.

Pleases Owners

Note also these items bearing the name LEAVITT—

Cistern Covers
Ashpit Doors
Drainage Grates
Ventilating Grates
Dump Doors for ashpit under fireplaces.

Send for Circular

By Specifying Leavitt Coal Chutes on your buildings, you will insure yourself against complaint at an important danger point. Ask us to send you descriptive circular and name of nearest distributor.

Leavitt Mfg. Co.
366 Griggs St. Urbana, Ill.

"I'm making real money now"

"SEE that coupon? Remember the day you urged me to send it to Scranton? It was the best thing I ever did.

"Mr. Carter called me in to-day. Said he'd been watching my work for some time—ever since he learned I was studying with the International Correspondence Schools.

"Then he asked me if I thought I could take over Bill Stevens' job. I told him I was sure that I could—that I had had that goal in view ever since I started my I. C. S. course.

"I start to-morrow, Mary, at an increase of $60 a month. It's wonderful how spare-time study helps a man to get ahead."

FOR thirty years, the I. C. S. has been helping men to win promotion, to earn more money, to get ahead in business and in life.

You, too, can have the position you want in the work you like best. Yes, you can.

All we ask is the chance to prove it. Without cost, without obligation, just mark and mail this coupon.

TEAR OUT HERE

INTERNATIONAL CORRESPONDENCE SCHOOLS
BOX 8154-B, SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, *before* which I have marked an X:

- ☐ ARCHITECT
- ☐ Architectural Draftsman
- ☐ Blue Print Reading
- ☐ Contractor and Builder
- ☐ Building Foreman
- ☐ Concrete Builder
- ☐ Structural Engineer
- ☐ Structural Draftsman
- ☐ Plumber and Steam Fitter
- ☐ Heating and Ventilation
- ☐ Plumbing Inspector
- ☐ Foreman Plumber
- ☐ Sheet Metal Worker
- ☐ CIVIL ENGINEER
- ☐ Surveying and Mapping
- ☐ ELECTRICAL ENGINEER
- ☐ Electric Lighting and Rys.
- ☐ Electric Wiring
- ☐ Telegraph Engineer
- ☐ Telephone Work
- ☐ MECHANICAL ENGINEER
- ☐ Mechanical Draftsman
- ☐ Machine Shop Practice
- ☐ STATIONARY ENGINEER
- ☐ CHEMIST
- ☐ Pharmacy
- ☐ Navigation
- ☐ SALESMANSHIP
- ☐ ADVERTISING
- ☐ Window Trimmer
- ☐ Show Card, Sign Painting
- ☐ BUSINESS MANAGEMENT
- ☐ Private Secretary
- ☐ Business Correspondent
- ☐ BOOKKEEPER
- ☐ Stenographer and Typist
- ☐ Higher Accounting
- ☐ COMMERCIAL LAW
- ☐ Common School Subjects
- ☐ Mathematics
- ☐ GOOD ENGLISH
- ☐ ILLUSTRATING
- ☐ Railway Mail Clerk
- ☐ CIVIL SERVICE
- ☐ Mining Engineer
- ☐ METALLURGY
- ☐ Gas Engine Operating
- ☐ Textile Overseer or Supt.
- ☐ TRAFFIC MANAGER
- ☐ AUTOMOBILES
- ☐ AGRICULTURE
- ☐ Poultry Raising
- ☐ Spanish
- ☐ Teacher
- ☐ RADIO

Name _____
Present Occupation _____ Business Address _____ 6-26-22
Street and No. _____
City _____ State _____

Canadians may send this coupon to International Correspondence Schools Canadian, Limited, Montreal, Canada.

"Hendricks' Commercial Register of the United States"

31st (1923) edition. Annual. 2482 pages, 8½ by 11½ inches. $15.00. S. E. Hendricks Co., Inc., 70 Fifth Ave., New York.

The above publication is part of the Hendricks Information Service. The new 1923 edition of the Register contains 150 pages over and above the 1922 edition. 125,000 changes and additions were made to the new edition.

The lists completely cover the Electrical, Engineering, Machinery, Building, Manufacturing, Chemical and other industries, together with all industries allied thereto. The lists are for the use of both buyers and sellers.

The recently sprung-up Radio-Trades have been thoroly compiled and classified. Many old classifications have been thoroly revised and re-grouped.

Over 18,000 products are separately classified with the name and address following of every manufacturer or producer, together with the trade name or brand (if any) and also essential facts regarding the products of many of the leading firms. These classifications are made of very easy reference by an admirable system of indexing and cross-indexing.

All the manufacturers and others included in the Register, besides being listed under all the products they handle, are also arranged in one alphabetical section according to name.

All brands, trade names and such like are arranged to name in one alphabetical list with the name and address of the manufacturer following.

During the Register's 31 years of publication, purchasing agents, sales managers and others interested in the buying and selling of the products which the Register covers have found the work to be an invaluable adjunct to their business. Its use is nation-wide.

To Attempt Solution of Stain and Mold Problem

LOSSES to the lumber and woodworking trade amounting to $10,000,000 thru degrade of lumber by sap stain and mold were recently estimated by the U. S. Forest Service and the Bureau of Plant Industry, based on a survey of the southern pine and hardwood field. The survey is preliminary to a study to be made by the Forest Products Laboratory, Madison, Wis., on sap stain and molds as they affect the wood industries thruout the United States.

Price reductions based on blue stain degrade have varied from $10 to $27 per M board feet and in the sash and millwork field alone, according to figures obtained in the survey. In the cooperage industry the annual loss due to blue stain is estimated at $800,000. The prices received for stained sap gum lumber were decreased in amounts varying from $1.50 to as high as $15 per M board feet. Continued calls made by manufacturers upon the Forest Products Laboratory for suggestions as to means of controlling stain indicate that the problem cannot be completely solved by any method now used.

Further details of the stain and mold problem in every branch of the wood-using industry are now being gathered by the Forest Products Laboratory by means of questionnaires. The facts will provide a basis for a broad study in co-operation with the various associations of stain control methods in all stages of the manufacture of wood products. Both dipping and air seasoning methods will be studied.

This work will assume major importance and the demands on the laboratory will be much greater than can be met from the government funds available. The active financial co-operation of manufacturers affected by sap stain troubles will be needed.

"Brass" Should Mean All Brass

By GEORGE C. ST. JOHN

New York, Dec. 4, 1922.

SUBSTITUTION the fraud of the day"—an expression coined years ago—is seldom heard now, probably because pure food laws and educational campaigns have somewhat minimized this evil.

There is still, however, imperative need of it, or some equally forceful slogan, in order to focus public attention on the fact that many articles in everyday use (such as locks, bolts, door knobs, padlocks, screw eyes, letter boxes, etc.), sold as solid brass all too frequently prove to be merely iron or steel, plated or dipped with brass. This is an evil that has assumed large proportions, and drastic corrective measures are urgently needed.

In the absence of legislation which should and doubtless will be enacted to stamp out this practice as just as great a fraud as offering counterfeit Sterling silver, the remedy lies in the force of education and public opinion.

It is but fair to say that the average hardware store has absolutely no thought of deception, but is probably the victim of a custom born of war-time necessity when copper and its alloys were conserved by Government control and which forced the use of iron and steel in a field which they were not intended to cover permanently.

Undoubtedly if the subject is properly presented, dealers will be quick to lend their influence in favor of straight-forward dealing and will frankly tell the buyer exactly what he is getting. Salesmen who have not been properly instructed are partly responsible for an incorrect impression in the purchaser's mind, probably because they do not themselves understand the difference between solid brass and iron or steel which is plated or dipped to resemble brass or copper.

Buyers, if they want solid brass, should specifically demand it, and make it clear that unless brass is supplied, the article will be returned and a claim made for credit even tho months may elapse before deterioration is apparent. They should also insist that invoices or cash sale slips specify exactly what is being sold—that is, solid brass, brass plated, or dipped brass, otherwise it would be difficult to obtain a refund or other redress.

Each metal has its own field. Iron and steel are the very bulwarks of engineering and building development and no non-ferrous proponent would attempt to substitute brass and copper for bridge girders or rails. Conversely, an iron and steel man would not argue against the use of copper and brass for the purposes mentioned in this article.

Copper and brass are now being sold at prices which are about those of a twenty-year pre-war average. There is accordingly no valid reason for substitution, as the difference between the cost of producing the average household hardware article, such as door knobs, letter boxes, bolts and chains, etc., is represented only by the value of the metal itself, manufacturing and installation costs being substantially the same.

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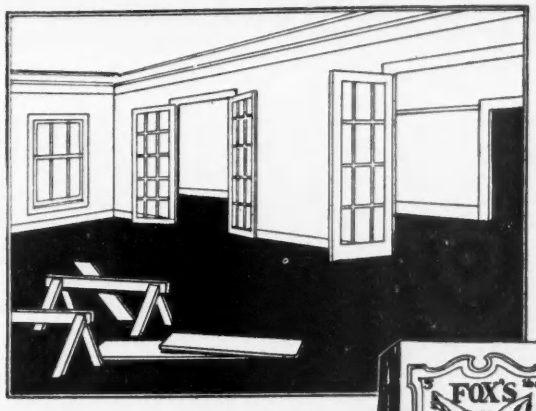
What Is Gypsum?

GYPSUM is one of the most ancient of building materials. The Greeks used gypsum in Pliny's time. The writings of this naturalist of ancient history (23-79 A. D.) are included in thirty-six books, Book XXXVI dealing with the different kinds of stones and marble, including lime, sand and gypsum. He also minutely describes the removal of a beautiful gypsum plaster frieze from Lacedaemon to adorn a public building in Rome. Going further back, the Temple of Apollo at Bassae built four hundred and seventy years before Christ affords an excellent example of the use of and permanent structural qualities of gypsum. The great pyramids of



NEW WALLS -decorate them With MURALITE

THE increasing desire for soft, velvety, quietly beautiful walls and ceilings is answered by using *Muralite*.

Decorating or redecorating with *Muralite* is simple, easy and inexpensive. You can finish an entire room for only a dollar or two.

Muralite is easy to mix and any one can apply it successfully. It can be used on any surface—plaster, wall board or tightly pasted plain paper. It may be recoated or washed off and the wall done over.

Muralite is not affected by the setting of plaster. It may be used on new walls with perfect satisfaction.

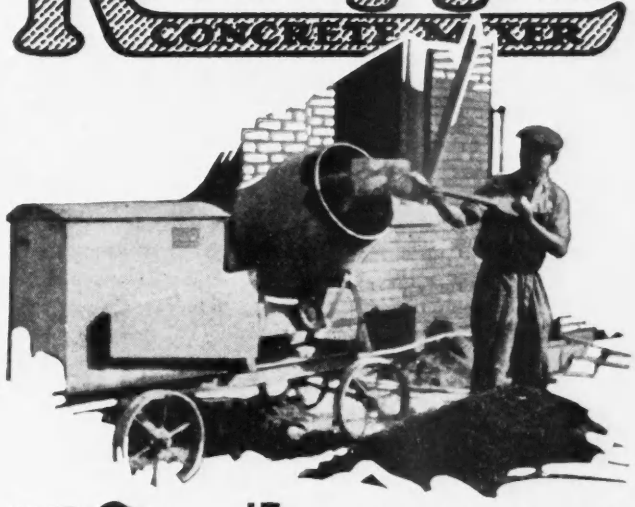
Muralite is sanitary, odorless, and will not rub or chip off. It is made in white and in fourteen standard colors—from which an endless variety of shades may be obtained by intermixing.

Write for our Color Card and let us tell you more about MURALITE—the best wall and ceiling finish made.

M. EWING FOX COMPANY
NEW YORK CHICAGO

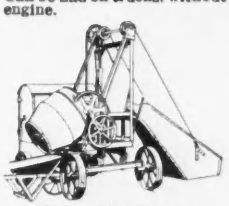
A PAIL · A BRUSH · HOT WATER · AND
MURALITE
MAKES A PERFECT WALL FINISH

KWIK-MIX CONCRETE MIXER



Kwik-Mix No. 22
Capacity 4½ cu. ft. Complete with Builder's Hoist. This model is also furnished in the 5½ cu. ft. size and can be had on trucks, without engine.

Kwik-Mix No. 30
Capacity 5½ cu. ft. Equipped with Builder's Hoist. Comes also in 4½ and 3½ ft. sizes. Can be had on trucks, without engine.



Kwik-Mix No. 33
Capacity 5½ cu. ft. Also furnished in 4½ cu. ft. size. Shipped complete with Engine and Housing with Trucks and Loader, all ready to run.

A SMALL MIXER
Kills Grief and Makes Quick Profits

There's nothing like the joy of getting your work well done and quickly done—cleaned up and showing a good profit—and getting off like a streak of lightning to another paying job. It's great to know that you're making money—that your men are busy and your customers well satisfied.

KWIK-MIX CONCRETE MIXER

makes up for its smaller size by its fast, snappy action. One Kwik-Mix, always peppy, can easily keep six good men humping. It works like an automatic revolver—one discharge follows right after another. Only one man needed to boss the mixer. And when the job's done, just hitch it on behind your auto and pull away fast to the next job—you don't waste much time with a Kwik-Mix.

A big mixer ties up a lot of capital, hasn't nearly the all-round usefulness, and cuts down your operating speed. Kwik-Mix machines are made of just as good, frequently better, materials as bigger mixers and will turn out in a day as much correctly mixed concrete as most of them. Before you buy, Get The Facts—Send For Our Valuable Kwik-Mix Booklet giving full information. Mail the coupon now.

Badger Wire & Iron Works,
1014 Cleveland Ave., Milwaukee, Wis.

Without any obligation to me please mail me your Valuable New Kwik-Mix Booklet.

Name .....

Address .....

City .....

Egypt contain plaster work of gypsum executed at least four thousand years ago.

The common name, Plaster of Paris, is often applied to all calcined gypsum because of the large quantities of gypsum rock beds found near Paris, France. In France and Germany gypsum is used for many building purposes including inside and outside plastering, walls, floors and roofs. In the United States and Canada gypsum has for years been the predominating interior plastering material. In proper form gypsum is also used structurally for floors, roofs and outside walls. The U. S. Government, in its war building operations, used many million square feet of reinforced gypsum roofs.

Gypsum is hydrous calcium sulphate (the sulphate of calcium with water of crystallization in chemical combination) and is expressed chemically as $CaSO_4$ plus $2H_2O$. It contains when pure 79.1% of calcium sulphate ($CaSO_4$) and 20.9% of water (H_2O). The dehydration of ground gypsum rock by physical process yields calcined gypsum, and this is the base from which gypsum plasters and other gypsum products used in building construction are made.

It is the method of calcination employed and the degree to which such calcination is carried forward that determines the possibilities and uses to which the calcined product may be applied in the fields of building construction.

Gypsum usually occurs in beds of considerable area from four to thirty feet in thickness. It is quarried or mined in eighteen states and Alaska, and is also imported from Nova Scotia, New Brunswick and Ontario, Canada.

✣

The Home-Owning Crusade

For Several Decades Home-Ownership in America Has Been Falling Off at the Startling Rate of Three Per Cent Every Ten Years, Until Today Only Forty-seven Per Cent of Us Americans Are Home Owners

THANKS to the Own Your Home Movement, the tide at last has been turned. The Own Your Home Expositions held each spring both in Chicago and New York have become annual events and have been made the center of the Own Your Home Movement. They have had the endorsement of more than 80 national, state and city organizations.

Mr. Robert H. Sexton, of New York, who is the managing director and who was the pioneer of this work, has just

announced from his office at 512 Fifth Avenue that the real estate boards will this year conduct these two expositions. The largest building supply houses in the country are now interested in and support this great cause.

In order to keep up the highest standard of exhibits and to make these Own Your Home Expositions most educational, special committees are chosen for each branch of the building industry. They are experts in their especial line and all exhibits must be approved by them before they can be awarded space in the Exposition.

At the "Own Your Home" Show each year is visualized the last word in the art of house building. Just as in the automobile shows all the latest in auto construction and fittings are shown, so in the "Own Your Home" Show the latest ideas for the ideal home are on view, whether it be in a better wall construction, a new article to reduce kitchen work, or an improved fly screen.

Thousands of architects and builders, as well as home buyers, flock to these expositions. This is where the exhibitors and supporters of this movement benefit, as their wares can not only be shown but demonstrated in actual use direct to the buying public.

✣

Changes Color of Trees

TWO Dresden, Germany, firms have recently started manufacturing an aniline dye which it is claimed when inserted at the roots of living trees of a certain species completely and permanently colors the whole tree from the roots to the highest leaf, within 48 hours after the application. Imitation of certain natural woods is said to be possible. Furniture, penholders, cigarette cases and various other articles are to be made up of the new colored wood.

✣

Wins Coveted Scholarship

OTTO M. Olsen, a post graduate student at Carnegie Institute of Technology, Pittsburgh, has been awarded the John Stewardson Memorial Scholarship in Architecture, for 1922. The scholarship, valued at one thousand dollars, is a memorial established on the basis of a fund donated by John Stewardson, noted architect of Philadelphia, who died 23 years ago. Candidates are restricted to architects, 22 to 30 years of age, who have completed at least one year's office experience and two years in an approved school of architecture, and must have studied or practiced architecture in the State of Pennsylvania for the period of at least one year immediately preceding the scholarship award. The scholarship includes a year's travel in Italy, France, Greece and Spain.

✣

THE world may owe us a living, but we've got to be good collectors to get it.