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.
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
AN EXAMPLE OF GOOD ARCHITECTURE:

The Facade of the INTEGRITY TRUST CO.
PHILADELPHIA, PA.
Paul P. Cret, Architect
"Finest Grade School in America"

New Cossitt Avenue School at La Grange, Illinois, Represents Community Spirit Which Has Provided a Splendidly Designed and Equipped Building

COMMUNITY spirit—that's what has made the new Cossitt Avenue School, of La Grange, III., the finest grade school in America, if not in the world.

This suburban community has a prosperous class of citizens, but is far from being a "gold coast" or colony of wealth. Nevertheless, it has many leading business men among its citizens—executives—men of affairs. Not the least of these is Otto A. Heppes, President of the La Grange School Board.

Under this leadership, a great deal of enthusiasm was aroused and several very handsome donations made by public spirited citizens. For instance, the James Kidston Memorial Hall, with its $20,000.00 Skinner organ and beautiful decorations, is a gift, as also the George M. Vial Memorial Library, a very handsome and valuable addition to the school.

The ladies of the town were greatly interested and helpful, being active in the Parents'-Teachers' Association which donated the Kindergarten Room, with its appropriate decorations and equipment.

Not the least appreciated gift was that of the La Grange Post of the American Legion, which presented the school with a handsome metal flagstaff, set on a special base bearing a bronze memorial tablet to La Grange men who fell in the world war.

La Grange with its 8,000 population, has several school buildings, but the old Cossitt Avenue School was, for many years, inadequate in size, comfort and modern features. The new structure is really larger and more spacious than is indicated by its outer dimensions. The building is three stories in height, 163 feet across the face with two wings extending to a depth of 130 feet, forming an open interior court.

The architecture of the building is Tudor Gothic and the architects, Childs and Smith, are to be congratulated upon its fine and appropriate appearance, both inside and out. A rich texture and color effect was gained by facing the walls with face brick in seven shades—from dark brown to straw—trimmed in buff Bedford stone. The architectural details are also in Bedford stone, including carved stone finials which rise at the corners of the building and above the towers.

The building is of reinforced concrete construction of the highest fire-resistant type, with flush monolithic floors supported on concrete beams. The treatment of these ceiling beams in the auditorium, library and assembly rooms is particularly interesting and novel. Rough form lumber was used in making the forms with the intention of securing the effect of exposed wooden beams. The result produces a very striking effect of medieval exposed beams in the ceilings mentioned, as the staining and painting over the grain of the wood moulded in the concrete produces a natural effect. The decorations of the walls and ceilings carry out a rich color scheme which harmonizes with this medieval effect. The general tone is dark brown with
Newest School House Ideas

The Swimming Pool

The swimming pool, therefore, is also dark brown relieved by touches of reds, greens and blues. The back curtain of the auditorium is mouse gray—the draw curtains and hangings of midnight blue. Invisible incandescent bulbs of red, white and blue in the borders and footlights illuminate the stage by night.

The auditorium is day lighted from above the ornamental glass laid in lead, so decorated as to give the effect of a bronze grill. In addition to the $20,000.00 pipe organ, already mentioned as a feature to the auditorium, there is a fine stage and curtain. The seating capacity, including the balcony, is 1,100.

A light, cheerful atmosphere is created in the library by its generous window lighting and decoration in reds, blues and greens. The floor covering is cork tile in diamond patterns. The window lighting in all rooms complies with the Illinois law, which requires that the window glass area shall be not less than one-fifth of the floor area.

Two gymnasiums are provided in the school, one for the boys and another for girls. Very little apparatus is provided, it being felt that class athletic drills are of greater benefit for pupils of grade school age without the more complicated apparatus.

While swimming pools are quite frequently installed in universities and high schools, it is unusual to find them in grade schools. The swimming pool, therefore, in this La Grange school is considerable of a novelty. It is 60 feet long by 20 feet wide. The use of the pool is divided about equally between boys and girls—several days a week to each. The pool is also open to community use—two evenings a week for men and two for women. The water for this school is filtered, as the local supply is artesian and contains

An Unusual Feature of the Plans of the La Grange School Is the Provision of Separate Gymnasiums for Boys and Girls.

The Auditorium Floor of the School Houses the Library, Two Assembly Rooms, a Number of the Grade Rooms as Well as the Kindergarten.
considerable mineral matter. The water in the pool is also tested and analyzed every day, with a view to keeping it pure and free from infection.

The kindergarten room is equipped and decorated in a manner peculiarly suitable for the little folk. Special furniture is provided on a miniature scale and finished in gray. Leaded glass windows and parchment shades make the room light and airy. A decorative element of peculiar interest to juveniles is added by a rockery and fish pool.

This very complete building also contains a domestic science room, a manual training room and two physical science rooms, a drafting room, woodworking and manual training rooms, a domestic science room, sewing room, teachers' rest room, dining room, nurse's clinic and executive offices, besides class rooms and assembly halls. One assembly hall is formed by shutting off the balcony of the auditorium with sliding doors.

The floors of all rooms throughout this building are covered with heavy inlaid linoleum. The corridors all have terrazzo floors and walls and ceilings are painted in dark, old wood effects. Lockers all have their doors flush with the corridor walls. The windows at stair landings and in most of the rooms have a spot of art glass—just enough to add a touch of color.

Cove base throughout the building gives a rounded sanitary finish to the junction of floors and walls, arranged to form a finish over the edges of linoleum floor covering. The window sills are all of glazed brick, providing sills which remain permanently in good condition.

Separate toilet rooms for boys and girls are provided on each floor. These toilet rooms possess a unique feature in their flush sanitary finish. There are no exposed pipes of any kind; even the tanks are concealed in the walls, with access provided by means of special panels. The glazed tile walls and floors are all flush—without projections except the essential fixtures. These are partitioned off into marble stalls.

Forced ventilation is provided throughout the building, the fresh outer air being tempered, humidified and forced by fans through ducts into all rooms. The rooms and corridors are heated by direct steam.

"The Old Swimmin' Hole" Has Been Brought Up to Date and Made Sanitary and Safe for the Students of the Cossitt School.

The George M. Vial Memorial Library Was Made Possible Through a Gift to the La Grange School. Decorations are in reds, blues and greens.
Chimney Designs
To Fit the Home

Photos By Dale R. Van Horn

This Tall Flue Is Kept From Being Too Uniform by the Design Shown.

This Dutch Colonial and the Broad, Sturdy Chimney Seem Well Fitted to Each Other.

A Chimney of Rough Stone Dominates This Design.

This Stone Chimney Is Appropriate in Its Stone Garden Wall Setting.

Neither Too Tall Nor Too Short, This Chimney Is Consistent with the Fire-Retardant Construction of the House.

This Red Brick Flue Is Particularly Fitting for the White Colonial Bungalow.

By Running the Chimney Through the Roof and Making the Base a Feature of the Front Porch, This Home Has Been Given a Touch of Individuality. Not a design to be recommended for most homes.
FOR those who enjoy the best in life and place a home in its proper place as at the head of the list of life's most enjoyable gifts, the residence selected for this month's Front Cover Home will hold a very definite and strong appeal.

Equipped with every modern American convenience and built with the skill of American builders, this home still shows plainly its origination in Mediterranean lands. Homes of this type, first developed from the Spanish Missions and made popular on the Pacific coast, are becoming the goal of an increasing number of home builders in all sections of the United States.

The striking exterior of this home owes much of its charm to the capable handling of mass in its design. Almost of geometric plainness in line, it achieves distinction through the interesting texture of the rough cast of the stucco walls, the red roof tile, the brightly colored awnings and the wrought iron balcony as well as the decorative grilles of the windows and gate.

And one of the major reasons for its popularity may be found in the first floor plan, which is shown to scale on the following pages. The spacious and airy living room has a ceiling fourteen feet in height. This architectural feature, first designed to insure coolness in torrid climates, offers such excellent decorative effects that it seems assured of becoming a feature of American home architecture of the better type.

An unusual feature of the plan is the hallway connecting the two entrances and allowing access to the stairs either from the living room or from the side entry. The court and terrace are typical and pleasing features of this type of architecture. The second floor has three bedrooms and two baths.

Plain Surfaces, Free from Gables, and Attractive Coloring of the Roof Tile and Awnings Make This Home Most Inviting. Sturdy stucco construction fits it for all climates. Working drawings of this Front Cover Home will be found on the following pages.
A happy feature is the high ceiling of the living room. The second floor covers but a part of the area shown here as can be seen in the floor plan on page 93.
Our Front Cover Home

The basement plan, the front elevation and the cross section of the living room of the front cover home, delineated here, give many of the construction details. In the upper left hand corner is shown the charming fireplace of the home. Details of the wall construction and the right side elevation are given on page 94.

The second floor plan and the rear and left side elevations of the front cover home are presented here. Two complete baths on the bedroom floor do much to insure convenience. The basement plan is on page 92 and construction details are on the page following.
CROSS SECTION THRU DINING ROOM, KITCHEN AND BED ROOM

SCALE 1/8 = 1'-0"

The Clay Tile Construction of the Walls, the Charming Arched Ceiling Construction of the Dining Room and Roof Pitches Are Shown Above. Below is the right side elevation, giving details of the entryway.
A HOUSE FOR CHILDREN. For the family with many children here is a home which should prove very satisfactory. Aside from its attractive exterior, the fact that it contains five bedrooms will be found to recommend it to those happy families where boys and girls abound. The living room of the home, opening directly off the porch, is made pleasant by the fireplace. The wide opening into the dining room increases the apparent size of both. The two down stairs bedrooms are efficiently segregated from the rest of the house. On the second floor the three bedrooms are arranged to take the best advantage of the space offered. The 28-foot width of the house makes it suitable for the ordinary lot.
A SUBSTANTIAL FRAME HOME. It long has been an axiom among builders that the square house or nearly square house is the most economical one to build. And the design shown here proves that such a house can be made attractive.

The inviting porch leads into a reception hall, which houses the stairs leading to the second floor. On one side of the hall is the large living room with its fireplace. The kitchen and dining room units are conveniently arranged. On the second floor three bedrooms and a dressing room are provided, all with roomy closets.
COOTAGE TYPE FRAME BUNGALOW. This simple little cottage bungalow contains five good-sized rooms, all on the one floor. The steep pitch of the gable roof gives it the appearance of a much larger house and provides air space in the attic which means warmth in winter and a cool interior in summer. The bungalow is set on a concrete foundation, but the terrace wall and floor at the front entrance is of common brick, as is the outside chimney of the fireplace. The home contains five rooms, two bedrooms and the usual living and dining rooms and kitchen. The bedrooms are at one side of the house, both being corner rooms connected by a short hall. Between them is the bathroom. The size of the house is 26 by 38 feet.
A P A R T M E N T E F F I C I E N C Y is planned for this most attractive single story cottage. The installation of a disappearing bed in the living room gives this four-room home the efficiency of an added bedroom without the additional expense.

The exterior of this little home is dignified in its studied simplicity. The fireplace chimney, the arched entrance to the recessed vestibule and the simple and effective windows are all elements which contribute to the charm of the place.

The interior arrangement contains those features which mark a home as really modern. Notice the efficient arrangement of the kitchen with its adjoining breakfast nook. The house is 32 feet wide and 37½ feet deep.
A GRACIOUS HOSPITALITY seems to be the keynote of this home, with its arched porch coming out over the terrace, seemingly to greet and protect the home-comer or caller. The charming simplicity of design is due to the adaptation of Colonial architecture to the bungalow type of dwelling.

The interior has a cozy arrangement, with none of the rooms over size for the dimensions of the house itself. The living room is large enough to permit pleasant and uncrowded arrangement of furniture and the dining room is adequate to meet the requirements of hospitality. The kitchen shows a regard for the work of the housewife and the bedrooms are pleasant and well separated from the living quarters of the home.

The outside dimensions of the house are 30 feet wide by 40 feet deep.
AN EFFICIENT HOUSE. The thrifty Dutch colonists early developed in America a type of home which allows for the utilization of all of the floor space in a manner that later builders have found hard to equal or excel in other types of architecture. The gambrel roof allows the full use of the floor space of the second story without awkward ceiling slopes and angles.

The Dutch Colonial illustrated here is made especially attractive by the careful placing of the windows and the arched roof of the entryway, which gives a pleasing contrast to the predominating straight lines of the house.

The interior arrangement is typical of the Colonial home, with an attractive living room and sun parlor on one side of the reception hall and the dining room and kitchen on the other. There are three large bedrooms on the second floor.

The house is 45\(\frac{3}{4}\) feet wide by 24\(\frac{3}{4}\) feet deep, just the house for a corner lot.
A HOME OF SHINGLES. Interesting variations in the use of shingles give this home much of its attractiveness and make a background which is fitting for the profusion of flowers and shrubbery which mark the well loved and well kept home. And at the same time the low intimate roof covers a surprising amount of room.

One can well imagine the attractiveness of the cool porch and of the well lighted living room of good proportions. The dining room is reached through the central hall which contains the stairway to the second floor and also gives access to the two bedrooms on the first floor. These bedrooms form a group by themselves, well separated from the rest of the house, and cross ventilated by windows on two sides.

The bedrooms on the second floor are of a comfortable size and are equipped with large closets.

The house will require a wide lot, since the width is 40 feet.
A SHINGLED BUNGALOW. Predominating brick work and well designed and attractive lines do much to make up the charm of this home. Shingles on the walls of such a house as the one shown here make for an air of snugness which is emphasized here by the lines of the roof.

The living room of this home is exceptionally light and airy, with light from large windows on three sides. The fireplace on one end of the room suggests a natural grouping of furniture, while the blank spaces on the interior wall will present opportunities to the artistic housewife.

The dining room and kitchen are arranged conveniently and the kitchen is served by a pantry adjacent to a service porch.

Access to the bedroom group is gained through a hall opening off the dining room. The rooms are light and pleasant and the profusion of closets will be found helpful.

The main body of the house is 24½ feet wide and 31½ feet deep.
A CALIFORNIA DUPLEX. A two-family dwelling with all of the conveniences of detached bungalows is presented in the design pictured here. And each of the apartments has six large rooms, which should make them attractive to renters.

The plans, which are identical for both apartments, provide for individual porches and, opening off the porch, a long, rectangular living room with a fireplace. The dining room is exceptionally large for a duplex and the kitchen will be found attractive to housewives. The bedrooms are designed to utilize the space assigned to them to the best advantage.

This design is one which should insure a maximum rent and attract tenants at all times.
SIMPLE AND ARTISTIC is this California bungalow of the Spanish type. It is constructed of stucco over either wood frame with wood or metal lath or any of the patent stucco bases, or over brick, tile or concrete block. Its plain walls, flat roof, pitched to drain, and the curved door frames are simplicity itself, but withal the architectural scheme makes it attractive. The bungalow contains five rooms, living and dining rooms and kitchen and two bed-rooms and bath. How these rooms are arranged and their sizes are shown on the floor plan. The bungalow is 24 feet wide and 46 feet deep, and is set on a concrete foundation, which provides the walls for a full basement for housing the heating plant, storage, etc. This is a very attractive bungalow design for those wishing something unusual in a home.
SPANISH STYLE BUNGALOW. The recessed porch at the corner of this simple but charming bungalow of the Spanish type is an unusual feature. Two entrance doors open off the porch, the one toward the front into the living room and the other into the dining room. The wave-like tile roofs over the porch opening and over the windows at the front are other good features. The bungalow contains five rooms. The living room is 12 by 16 feet; the dining room 13 feet 6 inches by 12 feet. Two bedrooms are at the back and are reached through the hall connecting the dining room and kitchen. The bathroom is also at the rear convenient to the bedrooms. The size of the bungalow is 26 by 40 feet.
SPACIOUS BUNGALOW. While this stucco bungalow has the appearance of being a home of extraordinary size, it is not. There are six rooms on the first floor, while in the second floor of the gabled section in the center there is space for a dormitory or playroom and a spare bedroom. The bungalow over all is 53 feet wide and 40 feet deep. The recessed porch provides the main entrance to the living room in the center of the building. Connected with it is the dining room at the corner. Both rooms are large and both have fireplaces. Three bedrooms are ranged along the other end and at the back, connected by a hall off which is the bathroom. The house is unusually attractive, made so by the partially closed porch, the broken roof lines and the tile roof and chimney caps.
A BUNGALOW ELECTRICAL OF THE FRENCH COTTAGE TYPE. This French peasant cottage influence at present making itself felt in American bungalow and house architecture is resulting in very pleasing homes. Here is a quaint little bungalow that snuggles down on its lot, the snuggling impression being enhanced by the snubbed gable ends and the well-balanced relation of porch openings to windows; likewise by keeping the chimney down to a medium height. Don't those two simple porch columns and arched opening give the front porch an "air"? Withal, it is a simple porch to screen or glass in. It leads into the living room, a room which connects on one side with the dining room, and through a hall to the kitchen and the two bedrooms. The dimensions over all are 31 feet by 40 feet.
OLD WORLD CHARM has been made to conform with New World ideas of comfort and convenience in the charming stucco home shown here. The tile roof, always an attractive feature of a home, is well combined with the tinted stucco of the walls. The arched window and entryway, with the projecting stair enclosure are interesting notes in the picture.

The house is unostentatious in that the exterior gives no hint of the wealth of room it contains. A large living room, dining room and efficient kitchen, three bedrooms and a bath are on the first floor. On the second floor is a group of three large bedrooms and a bath.

The house is 42 feet wide and 51 feet deep, requiring a rather large lot.
POPULAR STUCCO HOME. The type of story and a half residence shown here is one which has enjoyed a long period of popularity which shows no evidence of shelting. Undoubtedly this favor is because of the many practical features it presents. The house is suitable for a narrow lot, since the dimensions are 24 by 46 feet. The first floor shows many useful features, such as the casement window, sun porch, the downstairs bedroom and lavatory and the well planned kitchen. On the second floor are three adequate bedrooms and a bath.
**STURDY COMFORT** is the prevailing tone of this attractive brick story and a half cottage. The blunted ends of the roof and gable lines give this home a likeable air of snugness which is in no way contradicted by the side entrance, which gives an effect of privacy.

The interior of the residence is rather remarkable for the fact that it contains seven full sized rooms, in addition to two bathrooms and a breakfast nook.

The living room is exceptionally light, with windows on three sides and the downstairs bedroom and bath will be found convenient. Three excellent bedrooms are on the second floor. The outside dimensions are 24 by 48 feet.
Dormitory Has Home Features

College Plans Group of Small Units Rather Than One Large Building to House Girl Students—Trueblood & Graf, Architects

By HERBERT C. CROCKER

An extensive building program recently adopted by Shurtleff College, Alton, Ill., provides for the erection of five dormitories, one of which is shown in the accompanying illustration, having new and unique features. When they are finished it will be possible to pass from any point in one of the buildings to the others without being exposed to inclement weather.

The dormitories are designed to provide the maximum conveniences of a home. Instead of a large building to house 200 or 300 girls, the dormitories are arranged for about 35 persons and are arranged as single and double rooms as well as suites for two.

The projection at the front entrance provides an idea of the scheme for connecting the five dormitories. They will be erected in a semi-circle and a covered portico will be built connecting them.

The dormitory shown here has two large reception rooms. One wing of the lower floor is set aside for a library, a guest’s room, a reception room for the matron and her bed room is across the hall. Space at the end of the corridor is set aside for the matron’s bath room.

The opposite wing of the first floor has three double rooms and a complete kitchen where the girls may prepare suppers and lunches. The wing also contains shower baths and other toilet facilities. The rear wing is designed for a suite for two.
Distinction in Home Design

The Residence of Mr. J. P. Brady, Hampton Gardens, Richmond, Virginia, Combines, in an Unusual Degree, Convenience With Beauty

CARL M. LINDNER, Architect

The Exterior of the J. P. Brady Home Is Remarkably Attractive in Its Finish of White Stucco and Wide Clapboards. Though the modern features, such as the sun porch, are used freely and the stucco used for the finish was unknown to Colonial experience the house plainly shows its Colonial derivation, particularly in the entrance illustrated on the opposite page. Carl M. Lindner, Architect.
MORE and more American architects are planning homes with convenience as the fundamental requirement and are making established architectural types conform to the requirements of living in the present age.

That this can be accomplished without sacrificing beauty is demonstrated amply by the illustrations on this and the opposite page of the home of Mr. J. P. Brady, Hampton Gardens, designed by Mr. Carl M. Lindner, architect. Though the residence is essentially Colonial, Mr. Lindner did not hesitate to use modern materials, or to add an enclosed sun porch and balance it happily with the open porch on the opposite end of the house, tying the two together through the use of arched apertures.

The roof presents many interesting details to the builder intent on construction of the sort which will withstand the test of years and meet the approval of succeeding generations. The chimneys at either end of the building proper mark the terminations of the roof planes in a conventional manner which is most pleasing. And the irregular, rectangular texture of the roofing material is one which blends well with the substantial character of the home and one which will retain its characteristics indefinitely.

The happy thought of using wide clapboards for the second story of the home gives it horizontal lines without which much of the excellent balance of the front elevation would be lost. This feature has the additional advantage of giving the green shuttered windows their traditional setting. The outside dimensions of the residence are 49 1/4 by 63 1/2 feet.

The floor plans, even more than the exterior, are reminiscent of the Colonial, but even here practical changes have been made to meet the demands of the owners. A den in the rear of the hall replaces the usual rear entrance and the kitchen and dining room wing of the house is extended to house the maid's room and bath.

On the second floor four chambers of pleasing size are provided with ample bathroom facilities.
SUGGESTIONS FOR REMODELING

A series of very helpful drawings from the book, "Better Homes from Old Houses," prepared and copyrighted, 1924, by The Barrett Company. This series will be a regular feature of the American Builder during the next five months.—The Editor.

Project No. 2—The Bay Window House

The Bay Window House is also a type of which innumerable examples have been constructed. The various modifications of this house are many. The kind of roof varies but this is of little importance as the general plan permits a wide range of practical alterations at reasonably low cost.

Alteration One

A sun porch is built at the left opening from the hall. The second story part of the front bay is cut off and a shingled roof run across the front over the door and the bay window on the first floor. Approximate cost of new work, $700.

Alteration Two

A complete change in exterior appearance is gained by bringing the main roof down in a long slope to cover a new porch, and by building a shingled hood to connect the porch and bay window. In the second story the roof extension permits an attractive and commodious sleeping porch to be added. This alteration changes the high, stilted front of the old house into one with pleasing modern lines. Approximate cost of new work, $1,000.
Alteration Three

In this alteration the front is changed and improved by cutting off the entire bay window. The living room is increased in size by building a one-story extension at the right and a corresponding extension at the left provides a sun porch. The entrance is improved with a dignified Colonial porch. The bay in the dining room is squared and the corners used for china closets. The cost of the new work, exclusive of painting, would be about $1,400.

Alteration Four

Here the house is enlarged by building a new wing at the left of the hall which provides an attractive dining room on the first floor and a large bedroom on the second floor. A well arranged porch is included in the new work and the roof so designed that it decreases the apparent height of the house. The living room is enlarged by combining with it the former dining room. The approximate cost of these alterations, exclusive of painting, would be $2,500.

Alteration Five

This alteration shows a complete development of the old house into a modern attractive home that would grace any community. The front is made symmetrical by building a wing at the left of the hall with a two-story bay window to match the old. The roof is remodeled into a hipped form and a porch is added at the right side of the house. The addition provides a dining room and pantry on the first floor and a bedroom with a private bath on the second. The approximate cost of new work is $4,500.

Next month we will take up the American farmhouse type.
$2 for an Idea

Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is going to edit this Department and will pay $2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

Address Dan Do-It, care of American Builder, 1827 Prairie Avenue, Chicago, Ill.

Improvements for the Workbench

Additions can be made to the simple bench, without involving expense or considerable time, an example of which is the clever idea which is depicted in the sketch, which represents only about an hour of work and some spare planks to provide serviceable vertical clamp holders.

As shown in the sketch, two holders are screwed to the bench, these being identical, excepting one is at the side of the bench while the other is adjacent to it at the end of the bench. It will be evident that either of these clamps will hold with a viselike grip any plank while sawing, planing or chiseling.

Replacing Sash Weights

In general repair work the workman is often called upon to put in new window ropes in a number of windows. A weight, or mouse, neither too large nor yet too light, and with a roomy hole to accommodate any of the several ordinary sizes of cord in common use is essential to a quick and satisfactory job—and seldom to be had.

A discarded automobile motor valve, cut and bent as shown, is unbeatable for convenience, serviceability and durability. Any garage will supply them gratis; and but a moment's work with the hammer and cold chisel does the job, complete. —ROBT. W. CULBERTSON, Jackson, Mich.
attaching to the lathe at the tool post by screwing to the frame of the motor a rectangular bar of the lathe tool size. The bar is forged to the shape required to bracket to the motor, placing it at right angles to the position of the motor armature. When required this tool can also be attached into any vise on the bench and used for bench grinding purposes.

**Closing Eaves Trough Ends**

IN fitting up eaves trough for the edges of roofs, it is the usual practice to close the end of the trough with a semi-circular disc of galvanized sheet iron, by soldering this across the trough.

A special method which is used by one tinsmith is that illustrated in the attached sketch, and this means is a direct saving in time and material as it dispenses with the work of preparing the disc and the work incident to soldering this in place. Further, it is not subject to the possible leakage, as is an imperfectly soldered union.

This Diagram Shows "How Dan Does It" When He Has an Eaves Trough to Close in a Workmanlike Manner.

The device which eliminates the soldered fitting is mainly a hand anvil, half circular in form, with a handle. The circular section is the same dimension as the radius of the trough and the tool is of cast iron or steel, whichever is available for making up the tool.

The end is fitted with radial grooves, and to form the trough end a rawhide mallet is used. The end of the trough is cut to a semi-circular shape and this end is gradually beaten back into the vertical position.

The grooves are formed by the surplus metal, thus permitting the trough to assume the required shape of the closed end. From observation of the sketches, this simple time-saving construction will be more clearly understood.

**Odd Parts Wrench for Rough Use**

A HEAVY bolt and nut, about 1½ inches across the flats combined with a length of steel tubing driven solidly over the end of the bolt form a servicable wrench and hammer. The nut is adjustable away from the bolt head and will span across the flats of a bolt or nut to be turned.

When the nut is jammed against the bolt head, a heavy hammer for rough driving work is afforded. The end of steel tubing is flattened out and cut to fit bed bolts of machines, which are usually 1½ inches across the flats. This tool was devised by a mechanic from odd parts which he picked up about the shop.

**Modification to Prevent Exposed Faucet from Freezing**

A NY outside faucet will invariably freeze during cold weather and apart from possible bursting will cause a certain amount of inconvenience where this is used as a source of supply for cattle or for stock and used about the barn. Running water does not freeze and if the faucet drips slowly the water will not freeze it up solidly. As a means of providing a small dripping of the faucet, even though the stem is turned down fully, a small hole drilled through the stem and washers, as shown in the sketch, allows slow leakage and consequently keeps the faucet open. This simple modification does not permanently cause the faucet to leakage, as it is prevented when desired, or after the freezing weather has passed, by turning the washer on the seat to close the hole in the stem, or a solid washer can be used to replace the drilled washer.

**When your chisel handles start to split, wrap the ends with wire. Five-ply of not too heavy wire, tightly wrapped, will protect your chisel handles for a long time.**
INSTRUCTIONS IN
ROOF FRAMING

LESSON SEVEN—By JOHN T. NEUFELD

Editor's Note: The question of correct roof framing seems to be one of perennial interest among our readers, if we are to judge by the number of questions and answers on that subject which are sent in monthly for the Correspondence Department. American Builder therefore conducts this department for the benefit of its readers who may have roof framing problems. Write in your problem and Mr. Neufeld will answer it, and some questions and answers will appear in this department of American Builder for the benefit of others who may be interested. We want to make this department the place where YOU can solve all your roofing problems.

Uneven Pitched Roofs

In Fig. 23 a roof is shown where the distance from the side of the building to the center is 6'-0", while the distance from the end of the building to a point directly under the point where the rafters meet is 5'-0". This makes an uneven pitched roof. Here the method for finding the length of hip rafters as discussed in our last article cannot be used, because we have no tables giving lengths per foot of "uneven pitches."

To find the length of hip rafter in this case, we first find the "total run of hip." This in this case is the square root of \( (5^2 + 6^2) = \sqrt{25 + 36} = \sqrt{61} \)

\[ \sqrt{61} = 7.8102 \]

7.8102 feet, therefore, is the run of hip rafter.

To get the length of hip rafter, we find the square root of the run squared plus the rise squared.

The rise is 2'-6" or 2.5 feet.

Length of hip rafter = \( \sqrt{7.8102^2 + 2.5^2} \)

= 8.2006 feet = 8'-2 7/16".

Cutting the Hip Rafter

In Fig. 24, we show part of a hip roof. The span is 16 feet, run 8 feet and rise 6 feet. The rise per foot run is 9". We have already learned that on even pitched roofs, the run of hip is 16.97 or approximately 17" for every foot of run of common rafter. (See June article.) We can then find the total run of hip by multiplying 16.97 \( \times \) 8 = 135.76 = 11.31 feet.

We may also find the run of hip by taking the \( \sqrt{8^2 + 8^2} = \sqrt{128} = 11.31 \) feet. We do not change this to feet and inches as we want to use these figures to lay out the cuts for the rafter.

The length of hip may be found by the "length per foot run" method. That is we find on the steel square that the "length per foot run" of hip for a 12-9 pitch (9" rise per foot run) is 1921".

The total length of hip is 1921" \( \times \) 8 = 153.68" = 12.8066 feet = 12'-9 11/16". (Other methods of finding lengths of hip rafters have been previously explained.)

Seat and Plumb Cuts

After we have found the length of hip we may lay out this length on the rafter and also lay out the seat and plumb cuts. We may use the total run and the total rise of the hip rafter to get the plumb and...
seat cuts, just as we did with the common rafter.

Of course, we use inches on the square for feet
on the rafter. In this case take the run 11.31 —
15/16" on the blade and 6 (the total rise) on
the tongue and apply the square as shown in Fig. 25.
The same angles and, therefore, the same cuts can
be obtained by using 17 inches (which is the length
of run of hip for one foot run of common rafter)
and 9 inches (which is the rise of 17 inches of run of
hip). This is illustrated in the lower part of Fig. 25.

Fig. 25—Using Steel Square to
Find Rafter Cuts.

Side Cuts

By looking at the small detail shown on the plan
in Fig. 26, we see that another cut is required at the
upper end of the hip rafter. This is called the side cut.
To understand this cut we first assume a roof
without any pitch and place a large square over it as
shown in Fig. 26. The square in this position would
make a 45 degree cut. As soon as the roof takes on a
pitch the length on the blade of the square changes
with the length of the rafter, while the other position
(which we have taken on an imaginary plane, level
with the top of the roof) remains the same. See
Fig. 26.

We now have on one arm of the square the length
of the rafter, 12'-9 11/16" = 12 13/16', and on the
other what is known as the tangent (11 5/16'). The
tangent makes an angle of 90 degrees with the hip
rafter and 45 degrees with the plate. These figures
taken on the square and applied to the back or top
deck of the hip rafter will give the side cut as shown
in the detail in Fig. 26.

Fig. 26—A Roof Without Any Pitch Is Assumed and a
Large Square Placed Over It. As the pitch develops the
rafter cut changes on the square.

If we look at Fig. 26 again, we note that as the
square makes an angle of 45 degrees with the plate
on both sides, the outside distance is the same as the
run of hip, in this case 11 5/16 feet. This distance
always is the same as the run of hip for even pitched
roofs and, therefore, we may take the run of hip
on one arm of the square to get the side cut.
The other distance taken is the length of hip as
shown in Fig. 26. Therefore, we have the rule which
is generally given thus:

For side cut of hip use length of hip on blade and
run of hip on tongue. (Mark along blade.)
The same angle or cut is obtained by taking the
length per foot run of hip on the blade and 17 inches
on the tongue.

These figures will not check with the figures given
on steel squares for the side cut of hip rafter, as the
steel squares mostly have 12 on one arm of the square
and another number to form the required angle on the
other. The cuts, however, obtained will be the same
as if the above rules were followed.

Problems
1. On an uneven pitched roof, the run of one com-
mon rafter is 8 feet, the run of the other is 10 feet.
The total rise of the roof is 6 feet—find the length of
the hip rafter.
2. On an even pitched hip roof the run is 10 feet,
the rise is 5 feet.
   (a) What is the pitch of the roof?
   (b) What is the length per foot run of the hip
rafter?
   (c) What is the length of the hip rafter?
   (d) What numbers on the square can be used for
the top and seat cuts of the hip rafter?
   (e) What numbers can be used for the side cut of
hip rafter?
The answers to these problems are given on page 158.

Squaring A Sprung Square

SQUARING up a sprung square is a very easy
matter. Lay the corner of the square flat on an
anvil, and if the tongue, or the short blade, is sprung
outward, start at the outside angle of the square and
strike with a hammer, gradually reducing the force of
the blows as you move toward the inside angle. This
will cause the metal to expand and bring the tongue
back to its place. It must be remembered that a very
little expansion at the angle will be necessary to cause
the point-of the tongue to move slightly, which is
usually all that is necessary in adjusting a square. The
square should be tested occasionally as the work is
being done, either with a true square or by the method
of reversing the square on a board with a straight-
edge. If the tongue is sprung inward, the operations
are the reverse—the striking with a hammer must
begin at the inside angle, and the force of the blows
reduced as it moves toward the outside angle.

To test the square take a wide board with a perfectly
straight edge and apply the square, holding the blade
against the straight-edge, then with a sharp pencil
mark along the tongue of the square, reverse the
square, and if the line and the edge of the tongue are
perfectly parallel the square is true, but if the line and
the edge of the tongue produce a V-shaped figure, the
square is sprung and should be adjusted before using
it on any work requiring accuracy.—H. H. Siegele.
Attractively Designed Woodwork

Millwork for Porches, Finish and Built-in Conveniences Adds to Appearance, Value and Utility of a Home

The builder who is on the alert is constantly studying the public taste with a view to supplying those features which will add to the appearance, comfort and utility of a home. And yet very few builders are paying the attention they should to the more effective use of millwork.

It is, of course, natural to cut costs by pruning down the seemingly unnecessary items. The result is often unfortunate, as far as woodwork is concerned, and the owner gains no real economy. Many houses are being built with just enough wood finish to meet the barest standards. Such houses have far less value than those which are embellished by the proper amount of fine woodwork. This does not mean that all should be provided with expensive wood paneling or exposed beamwork. It does not mean that there should be any “gingerbread” carving but rather certain useful features which, at the same time, add that note of distinction so greatly valued by the homeseeker or home builder. And, in the end, these features may also prove an economy.

Quantity production cuts down the cost of millwork. The cost of a door, for instance, is said to be 30 per cent less from the mill than if a single door of that design had to be supplied.

As to the gain in appearance, first let us consider the architectural value of the entrance to a house. Properly designed, the entrance emphasizes the architecture of the whole house, whether it be Colonial, Georgian, Dutch Colonial or any other. It has an even greater influence upon the appearance of a small house than on a large one. A porch which harmonizes with the house design expresses at once the architectural motive, because the entrance is most noticeable and claims the eye. The architectural beauty of columns may be used as a graceful expression of this architecture. A wide doorway, with symmetrical paneling and side lights, adds an appearance of hospitality and comfort, just as a narrow doorway without a porch is apt to be plain and forbidding. The wide doorway has also great practical convenience for moving in or out large pieces of equipment or furniture without danger of marring the woodwork.

The design of the door frame is most important. A curved transom light over the door may, with the side lights, give just the arched effect required to harmonize with the porch design. A simple gable over the entrance is most fitting to certain types of architecture.

Millwork entrances may be secured which are splendid examples of New England design, Colonial, Southern Colonial, Empire, Early...
Modern Millwork Suggestions

English design and many others. Simple bench seats at the side of the porch can be used to advantage with some designs and add practical comfort, as well as an expression of hospitality.

The door, itself, should not only be of good design, it should also be of good material, well made, fitted and finished, so that it will resist the weather and retain its serviceable qualities and appearance. The painted door probably resists sun and rain better than the varnished finish.

Neither the permanent outside doors nor the interior doors should be fitted and hung until the plaster of the house has thoroughly dried out. When the outside doors are first fitted and hung, the freshly cut surfaces at top and bottom should be given a coat of filler and varnish or paint, as the case may be. It is well to treat the interior doors in the same manner. If this is not done, the door will absorb moisture through these surfaces, which is almost sure to result in warping. The resultant swelling will cause the doors to stick. When the house is artificially heated, the doors will dry out and shrink. This is quite apt to crack the veneers. Some mills use a waterproof glue in their veneer work, which gives such exterior doors a longer life and weather resistance. It prevents injury to the doors from storms and wet weather where the water might, otherwise, weaken the hold of the glue.

Where sidelights are not provided, it is quite common to install exterior doors with a sheet of glass set in as a panel. French doors are popular in better class houses, either as a combined door and window opening on a veranda, a conservatory, a balcony, or between certain interior rooms. Very handsome effects can be secured with glass in doors but the glass itself should be heavy, of extra good quality and well glazed. Most of the mills use special putty with extra lasting quality and set the glass so that the edges are entirely surrounded by an elastic bed of putty, making the door wind and weatherproof.

The man who buys or builds a house soon learns the value of well made doors if he is unfortunate enough to get poor ones. On the other hand, well made and well fitted doors, which do not sag, shrink or swell, but retain their fine appearance and their dependable operation, are a "joy forever." First-class doors from a good mill are skillfully designed and well made. Long, satisfactory service and rich beauty of design and finish are built into them.

Designs are on the market which may be said to set new fashions in doors. Some of these contain but one central panel with a raised moulding which outlines the panel, set in several inches from the stiles and rails. Extra deep moulding effects are gained in some designs by using moulding of extra width along the sides, top and bottom of the panel, producing an effect of extra depth. Glass door knobs add a touch of distinction to these art doors. Flush doors, entirely without panels, produce a novel effect and are coming into more general use.

A wide range of choice in woods and finishes is of-

The Dining Room Nook, Breakfast Nook, or "Pullman" Is Now All the Rage. The Above Plan and Photographic view show a popular example.
fered the builder for interior doors. A spruce frame with a sap gum panel, offers a rich effect. Birch makes a particularly handsome door and can be finished in a number of different ways—with paint, stain or natural finish. Plain red oak or brown ash show beautiful grain effects. A white pine frame with a birch or sap gum panel, add variety, and there are other combinations to be had.

The method of assembling doors in a modern mill is interesting. Hardwood dowel pins are used—sometimes a dozen or more to a door. Rails and stiles quite frequently are laminated and dovetailed, making a great many parts to assemble. They are coated with glue at all points of contact and pressed firmly together by powerful machines into a composite whole. Some manufacturers use cleverly designed dowels with wedge ends which expand as the dowels are driven home when the door is pressed together.

The casement window, popular hundreds of years ago, is coming into its own again. While it will probably never supplant entirely the double hung window, there are many places where it will be a decided advantage in most homes. The full window opening which it affords will quickly allow the heated air of a summer day to escape and the cool air of evening to enter a room. Many effective devices are now on the market for securely holding casement sash against the slamming action of the wind, which removes a former objection to the casement window. Another clever method of overcoming the slamming tendency is to pivot casement windows at the top and bottom with center pivots. Where this is done, staggered stops must be provided.

Bay windows are justly popular, both for their appearance and the extra light and air which they afford. The added expense of bay windows is almost always justified by the gain effected, both in appearance and comfort. A two-sided angle bay makes a unique and inexpensive bay. It is usually supported by a bracket on the outer wall.

Double hung windows are a necessity in almost every room and it certainly pays to install windows and frames of the highest possible quality. Any added cost will be more than offset later by the fuel economy gained in heating the house. Even more important will be the added appearance and comfort of high class windows, their longer life and the protection to interior wall decorations by leak-proof windows and frames.

Dormer windows will either improve or detract from the appearance of a house, depending upon the character and proportions of the window design. Sash in the sides as well as the front of the dormer, in one novel design, admit extra light. Dormers are proportioned for from one to four windows and casements are quite often used.

There is a wide range of choice in design, moulding and finish, presenting a number of pleasing and varied effects and matching either English or Colonial styles of architecture.

Window shutters can be used in such a way as greatly to improve the architectural appearance of a residence and add to the comfort of those rooms which are exposed to the glare and heat of the sun. Attic louvres are also to be had in various pleasing designs and are of considerable help in keeping down the temperature, during hot weather, of the rooms on the floor below. They should have solid hinged backs and be equipped with permanent wire screens.

When one enters a home, the staircase is usually the most noticeable feature of the interior. Many superior stairway designs are obtainable in millwork, with a wide range of choice in graceful early Colonial, modern Colonial or in substantial well-balanced modern, mission or other designs. These are furnished complete, including stair string, treads, risers, newels, balusters, mouldings and all other parts. In fact, complete reception hall woodwork is obtainable, which will produce harmonious and pleasing effects.

Wall paneling is said to have begun as a wainscot a few feet high in old Tudor houses. Wainscot adds a durable and attractive finish to any home. Being far from common, it is a most notable feature in better class homes. This paneling is procurable in a number of varying styles and different heights. It is said to have come down to us from the days of Queen Ann.

Every owner should appreciate features of finish which add to the attractiveness and comfort of the living room. The cheeriness of a fireplace appeals to all. Even though the fireplace be of brick, the framing and overmantel are most effective in wood. Here again, millwork is procurable which will harmonize with the doors, windows and trim. Whether in library, "den" or living room, built-in bookcases should be a feature of every home.
of every home. They are sure to harmonize better with the other woodwork and be more substantial, durable, economical and convenient than when bought at the furniture dealers. Of course, the doors, window and trim will be selected to match in all the main downstairs rooms.

Built-in conveniences are appreciated by the whole family but make a particular appeal to the housewife. Instead of just four bare walls to move into, she is particularly charmed by the convenience and coziness of a breakfast nook, built-in sideboards or buffets, china cases, kitchen cases, linen closets, broom case, ironing board case, hall seats and drawers for over-shoes, corner and alcove seats, radiator covers and many similar built-in features—all obtainable in mill work of artistic design. A house equipped with these things, even before the family moves in, has taken on the atmosphere of a home. The speculative builder would find a house with these features readily saleable at a better profit. The builder advising with prospective home owners can give a valuable service by suggesting the installation of these features and the importance and value of good millwork throughout the house.

KEEPING WORKERS HAPPY

BELIEVING that contentment and good workmanship, regardless of its nature, go hand in hand, the H. K. Ferguson Company, engineers and builders of Cleveland and New York, give fifty dollars to every employee having a baby, one hundred dollars to those having twins, and one hundred dollars to a worker at the time he gets married.

It is the thought of Harold K. Ferguson, president of the company, that contentment and happiness come to a greater extent to those employees being married, and to a still greater degree to those having children. Thus the award is given to the firm's employees, regardless of their capacity or whether they are stationed at the home offices in Cleveland or the foreign industrial building branch in Tokio, Japan.

The awards have been in vogue since 1913, says Mr. Ferguson. During this time allowances have been made for the arrival of over one hundred children and for thirty weddings. They have gone to members of the force ranging from vice-presidents to foremen.

The awards were started as a memorial to a twin baby of the Fergusons, who died in 1913.

YOUNG "HOME BUILDERS" AND EXAMPLES OF THEIR CRAFT

All kinds and sizes of love nests for birds are being made by the students in the Birmingham, Ala., City Schools. Rustic log cabins, two-story houses or cottages are made to order by the young workmen, some of whom are shown in the illustration with specimens of their workmanship.
Fourteen Years a Home Builder
Success of San Antonio Builder Due to Several Factors, Among Which He Places Knowledge of Human Nature First

By A. W. ROE

ALTHOUGH nothing about the American business man is more remarkable than his ability to come back and make good after meeting with financial reverses, W. A. Baity, originator of Baity-Built homes in San Antonio, Texas, is a living object lesson in the art of making a success of life after having been wrecked financially twice and physically once.

In San Antonio the name of Five Per Cent Baity is widely known among people who are interested in the building trades. Mr. Baity has been constructing homes for individuals and other houses which he sells through the services of the real estate offices for the last fourteen years in the Alamo City. In all he has built about 900 homes. Recently he has averaged about 100 a year. These houses are such as appeal to the great and numerous American middle class, being neither extremely cheap or exclusively high in price. Mr. Baity has been instrumental in developing at least three of the city's residential districts. The number of houses in Highland Park to his credit has already passed the two century mark. He began construction on Beacon Hill twelve years ago, when that section was little more than a mesquite thicket in which nestled probably not over a dozen dwellings, and has constructed something like 200 homes there.

Mr. Baity builds, of course, anywhere people wish him to build, but his main construction at the present time is confined to North Haven, a new subdivision, and to Highland Park. He maintains an office in each of these communities, dividing his time so that he can meet prospective home builders in each and talk over plans with them. Mr. Baity finds the system of having an office near the lots on which homes are to be erected better than maintaining one in an office building in the downtown district. Not only is his arrangement less expensive, but it brings the prospects in direct contact with homes he has already finished, thus making it easier for him to close a contract. Too, he finds it much easier to supervise the actual construction from offices near the houses in the course of erection than if he had to give attention also to an office in the business district.

The business career of W. A. Baity is colored with romance and paradoxes. Born 61 years ago in North Carolina, Mr. Baity inherited a family inclination in favor of dry goods retailing, and he made quite a success in this field in Winston-Salem. Then he felt the urge of big money to be made quickly from the real estate business, and in less than a year after embarking on this new sea of endeavor he floundered, losing more than $11,000, his earnings and his store included.

Next he opened a dry goods business in Demison, Texas, which succeeded wonderfully and from which he retired with a profit of $63,000 at the end of five years. That was just after he had developed a severe nervous trouble on account of which he had to give up the dry goods business and look for something to do in other fields.

"And so it was that we decided to make San Antonio our home," Mr. Baity said. "No, I never had an idea of making home building a business before settling here. It all came to me quite suddenly when I saw the profits being made by a man who was buying lots on the street where we lived. After building houses on the lots he made good money by selling lot and house together. I figured that I could do the same.

"Then I promptly made the second bad venture of my business experience in buying considerable holdings in a subdivision that looked good when I bought my land, for the weather in San Antonio was then playing true to form. But when the drought ended, I looked out over my property one morning to see it covered with weeds and mesquites.

A Two Story Home Typical of the Larger Residences Built by Mr. Baity. Complete equipment is a large factor in the sale.
with a sheet of water. Equipping myself with boots, I waded out into my submerged property to find that it had become a veritable lake. I lost $30,000 in that mudhole during the first five years of my experience in San Antonio, borrowed money, and was glad to turn the property loose, although it has become valuable since the city built storm sewers in that section."

Although Mr. Baity builds many houses and sells them through the offices of local real estate men, he has secured many contracts from prospects during the last two years from what he calls his Five Per Cent Plan. In boosting this plan, he has run, and will continue to run during the next year, advertisements in the newspapers that stress the fact that he is charging only five per cent of the net cost of the finished building as his legitimate profit for his services.

In effect he says this to a prospect:

"Choose a lot anywhere; give me an idea of the kind of house you wish to construct, and I will give you an estimate of the cost, itemizing all items so that you may compare them with figures of the building supply men if you wish to. To this net cost I will add merely five per cent of it as my profit."

The price he gives when making an estimate includes electric, gas and water fixtures, window shades and draperies also in some of the better homes, cement walks and driveway, gas, water and electric connections in mains in street, oak floors specially polished, garage and servant's room, tile baths with Keene's cement wainscoting: in bathrooms and kitchen, and leveling and grasping the yards.

"As to plans, we get them from various sources," Mr. Baity says. "Some of them are suggested by plans we see in the building magazines. True, plans for other climates rarely fit in with our local conditions. San Antonio people want many windows in the yard and grassing the yards.

"Another thing responsible for my having made some money from building homes is the large number that I have turned out. In the dry goods business I operated I built my patronage from the numerous middle class, and I have appealed to this class largely in building homes. Such people are not so hard to please, I find, as are the very wealthy. By appealing to them, I increase the volume of my business, and a little made on every house constructed totals a good figure in the course of a year."

According to Mr. Baity, people in San Antonio are still running strong on bungalows, but many are choosing the English colonial types, too, while others select a modified type, best described as a cross between the colonial and the bungalow.

Houses now being constructed by Mr. Baity run from $3,000 to $6,000 for bungalows and from $6,000 to $8,000 for two stories. This is exclusive of lot, of course, but includes all fixtures mentioned elsewhere. Conservative costs are what homeowners in San Antonio are seeking, according to Mr. Baity, who says, "We build ten houses at $5,000 or for less to every two above the $5,000 mark."

When asked what one thing he placed first as having contributed most to his success, without hesitation he replied:

"A knowledge of human nature gained, in my case, in the dry goods business. A man may be ever so good at drawing plans, figuring estimates and actual construction, but unless he understands human nature he is not likely to be able to close many contracts.

"Yes, I have had some special problems in San Antonio, but as these are more or less peculiar to the place, their solutions would probably not be of much value to builders elsewhere. Labor has not been a difficult problem. I pay my men for a full week, although they work only five and a half days, being allowed Saturday afternoons for recreation. I have men who have been with me from eight to twelve years, and they are very valuable to me, relieving me of many of the details of the business so that I have time to indulge my liking for fishing.

"Another thing responsible for my having made some money from building homes is the large number that I have turned out. In the dry goods business I operated I built my patronage from the numerous middle class, and I have appealed to this class largely in building homes. Such people are not so hard to please, I find, as are the very wealthy. By appealing to them, I increase the volume of my business, and a little made on every house constructed totals a good figure in the course of a year."

W. A. Baity of San Antonio, Who Builds and Sells 100 Homes a Year.

Back to the CourtHouse

for the Records

When we make an assertion we can establish it by undisputable records. When we say that we have built more Baity-built homes and sold them to the last 15 years than any other contractor in San Antonio, the records of transfers in the courthouse will show it to be a fact. Baity has built over 800 homes—get the records—homes sold more than in any city in the United States. Those records are happily supported by the said

Yours for a Happy Home

Baity and Baity Co.

Phone Woodlawn 1199—Northaven Office
Phone Mission 1957—Highland Park Office

W. A. BAITY

Phone Woodlawn 1199—Northaven Office
Phone Mission 1957—Highland Park Office

Mr. Baity Uses This Type of 
Newspaper Advertising. The ad reproduced here occupied three full newspaper columns.
What Is Your Answer?

To the Editor:

I am presenting a problem that has repelled all of the attacks of my brain. I'll be obliged if you will help me out.

A plumb line is lowered down a mine shaft with a 20 by 20-foot opening so that the bob just touches the bottom. The end of the line is held or attached to one side at the top of the shaft. When the bob is swung over to the opposite side at the bottom, it rises a foot off the bottom of the shaft. What is the depth of the shaft?

A. J. Lasker.

Another Roof Framing Method

To the Editor: St. George, Utah.

In the May number of American Builder is an article on framing roofs of unequal pitches, by Mr. Neufeld. His method of obtaining the length of rafters for a lean-to or shed roof which has rafters running up to a roof of a different pitch, is very good. However, his method of obtaining the cuts for the upper end of the lean-to rafters is not made clear enough to be readily understood by the average workman, I believe. So, with all due deference to him, I would like to offer the following explanation.

To obtain this cut, take the stick to be used as a pattern to cut the rafter, whether a piece of the rafter material or other material to be used as a template, and first, lay off the pitch of the main roof on this stick. We will suppose the main roof is third pitch or its rise is equal to one-third of the side at the top of the shaft. When the bob is swung over to the opposite side at the bottom, it rises a foot off the bottom of the shaft. What is the depth of the shaft?

A. J. Lasker.

Diagram of Mine Shaft

Problem.

Finding Rise of Inclined Timber, Fig. 3.

Finding Cuts for Lean-to Rafters, Fig. 1.

Questions Answered—Ideas Exchanged

Cut for Lean-to Rafters, Fig. 2.
Correspondence Department

Spring Mould to Circle

To the Editor: East Durham, N. C.

Referring to the question of Mr. E. L. Robertson in your magazine as to how to lay out spring moulding to fit circular work.

Fig. 1 represents the pitch of a roof, which does not alter the case. The radius of the circle to be fit around is represented by the letter B. The mould is laid out as shown, the correct pitch at which it sits being in relation to the vertical line A. It is to the radius center of the circle to be used. This gives the radius wanted which will bend around on level, but will probably have to be kerfed.

Fig. 2 shows the mould to be bent around circle door heads and like A represents the outside radius of the mould. After being bent the mould is laid out similar to the one mentioned above. Line B is extended to the spring line of the mould as shown which gives the radius wanted. This mould may have to be kerfed.

Fig. 3 shows a simple method of getting the distance apart to cut saw kerfs which will close when piece is bent. B represents the radius to be bent. C represents the piece to be bent, and D the saw kerf. Fasten board in position, C, then bend mould until kerfs close entirely. The distance A is the distance apart to make the kerfs.

Hoping this has fully answered Mr. Robertson’s question, I am.

SUPERINTENDENT C. L. HIGBEE,
Durham Lumber Company.

Church Built by Oregon Subscriber

To the Editor: Gervais, Ore.

I am enclosing the photograph of a Catholic Church, the construction of which I have completed at Gervais, Ore.

L. A. GOLDALE.

Experiments in Plaster

To the Editor: Austin, Minn.

I have a few things that I would like to discuss in regard to an experiment I conducted with salt and plaster with the following mixture:

100 pounds of plaster,
200 pounds of sand,
2 pounds of salt,
6 gallons of water.

This was done in November, 1922. It did not freeze. The work one year later appeared in bubbles and scratches and the finish coat peeled off about one-sixteenth of an inch deep all over the surface.

The action of the salt kept working until the lath was bare. Bubbles would puff up about an inch high from eight to ten inches square. There appeared to be no life in the plaster. And plaster would crumble and fall away like powder. About one yard was covered with Keene cement and the salt had no effect on that, nor did dampness hurt the work.

An experiment with Keene cement and old lime in the making of artificial marble was interesting. This, mixed with strong water or glue and sugar, the mixture was about the thickness of cream. It was allowed to stand one hour. Then the veining was done trowel to a hard finish, and the final set results a surface that cannot be scratched or marked, and the surface is only one-fourth of an inch thick on all sides of the work and the center was a powder.

This work can be used over again by breaking up and remixing over and will set hard in one-half hour, nor does it hurt the cement. Then batch was laid on a cement wall in a cellar, and polished with rotten stone and salad oil, the colors were brown, white and yellow, and resembled work like tiffany, and took a very high polish. Nor did heat or dampness have any effect on the finish.

This is as cheap as the common trowel finish. It is ideal for bathrooms and kitchens. Have any others tried this? If you have, let us hear from you. This is for the betterment of the building world. We should all do more of this work.

CLAUD MOORE.
Parables of Bildad the Builder
He Restoroth a Defunct Hotel and Retires to Pishimagee Lake,
Leaving the Dread Alibi Bird to Mourn Alone

AFTER a Cold spring it came Hot, and Slap Bang on the first hot Day the Snuffpup Children were taken Down with Scarlet Fever. Mr. Hiram Snuffpup, on His return from His Office found Himself quarantined Out, and Having no Mother-in-Law, went to the Hotel Lazarus. This is the Hostelry in Our city Catering to Drummers and Farmers who Come in on Tuesdays with Their Stock for the Yards.

By the Next morning all the Houses on Duck Boulevard were Quarantined, we having Attained with Our new Mayor an Efficient Health Department.

"Room and Bath!" Thundered fifty Fathers at the Clerk in the Hotel Lazarus.

"Excuse me, Folks, you Don't know what Bad Luck is. Mr. Hiram Snuffpup has the Only Room with Bath in the Hotel. He has Taken the Bridal Suite."

"But We are ordered Quarantined for Five Weeks!" howled the Fifty Fathers of Families. "We are Home Bodies. We must have Our Bath or we Shall Die."

"You have Come to the Right place to Die in," comforted the Clerk, Bitterly.

Now being in the Lobby, wondering whether the Fifty Men I had seen entering were the Local Candidates for the Third Party Nomination, I had followed. After hearing what I Did I went and Looked at the Register. There was a Name there I Knew, and I went to Room 2A.

"How's the Plumbing Accessory business in This territory?" I asked Jim Tubbs, Salesman for the Well Known Heavenly White Company.

"Fine, if We made Porcelain Coffins!" he Said. "Why?"

"Jim," I asked, "What would It Cost to Put a Bathtub in Every Room of the Hotel Lazarus? How long would It Take?"

"No Time at All," he rejoined. "This hotel was All doped Out for Bathtubs, but at the Last Minute the Boss renigged. The General Contractor was a stomach robber and I never had a Chance to Get my Figure in. I've got the Sketches in Our Office Vault yet, Somewheres."

"Fine . . . Fine . . . FINE!" I Roared. "Jim, can you get Fifty Bathtubs here in a Day or So?"

"Bildad, old Man, the heat Has Got you. If I wired in an Order for Fifty Bathtubs for the Hotel Lazarus the Firm would make it Read 'Coffins.'"

Then I Told him the News. But still He Hang Back. So I Swore, remaining Gentlemanly. But I said, "Listen, you Hook Worm hound! I blew Into this Town when it Looked like a Splinter of The Ark. I've made it Look Alive. I've been So busy Building Homes I haven't had a Chance at This Hotel. But by the Lord Harry, if you don't Take my Order for the Plumbing of This Hotel here and now, Some One else Will; get Me?"

"I got," he Said. "I'll wire Now, and Then go to the Home Office and Escort the Tubs and Fittings on. Meet me at the Depot with a Brass Band and Some Extra Trucks, and have Mr. Hiram Snuffpup issue Bath Tickets to his Fifty Companions in Misery. And #f You mention this to Any Other Plumbing Supply House I hope you Choke."

I sought Out Mr. Anemic Lazarus, the Proprietor. "I have Herewith a Copy for the Bids and Specifications for Fifty Bathtubs and Fittings appertaining Thereto for Installation in Your Hotel," I said. "Here is the Contract. Please Sign."

"If gall Were gasolene Your gas station would Store a Tankfull," he Fumed. "How do You get That way?" But I Saw by the Perspiration on His Brow that I Had Him and he Dared not Crawfish. He Signed.

I went out and Made a business call on my friend, "Black" Lead, of the e Union. "I need All the Men you've

The Fifty Fathers of Families Took Their Baths on the Usual Schedule.

(Continued to page 154.)
If you are the contractor on a job, the responsibility for that job belongs to you. Even though you sub-let the painting contract, still the owner holds you responsible—consequently it is to your interest to see that high class materials and workmanship are employed.

Build up a reputation as the best contractor in your locality—then you can always get the price and will never experience a poor season. Your customers will get the finest kind of a job if both walls and trim are finished with Johnson's Perfectone Undercoat and Johnson's Perfectone Enamel. These products will give equally good satisfaction on wood, plaster and metal. With them any brush hand can turn out perfect work—satisfy your trade and complete more jobs each season.

FREE TRIAL OFFER
We want you to test Johnson's Perfectone Undercoat and Enamel at our expense. We will gladly send you generous samples for experimental purposes. All we ask you to do is use them in comparison with other brands.

S. C. JOHNSON & SON,  
Dept. A. B. 7, RACINE, WIS.  
"The Wood Finishing Authorities"  
Please send me, postpaid, working samples of Johnson's Perfectone Enamel and Undercoat for testing.  
My Paint Dealer Is. ........................................ 
My Name.................................................. 
My Address............................................... 
City and State..........................................

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Homes of Common Brick

Homes of skintled or Chicago brickwork are increasing in popularity in a number of exclusive suburbs near Chicago. The common brick used for the wall material is laid in irregular patterns which gives a most interesting texture.

The two homes shown above are examples of residences of this type built for V. C. and G. C. Jones, Winnetka, Ill. In these residences, which show the Colonial origin of their design, the shadow texture of the walls is utilized to the utmost by covering the brick with a white paint made especially for brick.
One of 122 Brick Homes

for which working drawings may be had at nominal cost

ANY of the 122 attractive brick homes available thru our home planning department will increase the salability of your properties.

Each home has been actually built and lived in. Capable architects designed them. The working drawings are complete in every detail.

These 122 winners were selected from thousands of homes because they are practical to build, have well arranged interiors and attractive exteriors.

"The Home You Can Afford" shows sixty-two good ones in picture and plan. "Your Next Home" gives you sixty more.

Cash in on the demand for sound construction. Send 20 cents for these two booklets (or 10 cents for either one). That gives you 122 economical brick homes from which to choose those best suited to your particular needs.
Steel for the Flat Roof

For years there has been a demand for light-weight, fire-proof, flat roofs which would be weather-tight, durable and economical. To meet this demand, engineers set about a series of tests and experiments with varied types and principles of construction, employing many combinations of roofing materials.

Constant development of these experiments and tests evolved a roof which, it is claimed, solves the problem. Announcement is made that the new roof has been placed on the market.

This improved roof construction makes possible flat roofs with slope of \( \frac{3}{4} \) inch in 12 inches. The deck is of copper steel with stiffening angles welded to the plates to add strength and rigidity. Eaves, gables, ridges and gutters are reinforced. The flat, true surface is ideal for the application of the built-up roofing materials, which are cemented to the steel with roofing pitch. The result is a non-combustible roof, designed for a 40-pound live load, but which has been tested to 160 pounds without failure. It weighs but a fraction of the weight of other types of roofing materials.

A Steel Roof Deck Makes Possible Roofs with a Slope of \( \frac{3}{4} \) Inch to the Foot and Weighs Only 4 1/2 Pounds per Square Foot.

4 1/2 pounds per square foot and thus makes possible a saving in the cost of purlins, trusses, columns and foundations. It is claimed by the manufacturer that the roof will last indefinitely.

Owing to the simplicity of construction of this steel deck roof, the under side presents a pleasing appearance, showing a clean, smooth surface that is easily painted and forms an ideal reflector of light. The fact that it is standardized and factory built in units saves in cost of production and passes this economy on to the consumer. The large steel deck units and simple connections make for speed of erection and a saving in labor. Expansion and contraction are automatically taken care of at the joints, which occur every 2 feet, preventing cracking, sagging, twisting or warping. The roofing is built up on the job as soon as the steel deck is in place and is cemented with a positive bond with no open laps or joints. Insulating qualities of the steel deck roof are said to be exceptionally high, contributing to efficient building heating with economy of fuel.

A Versatile Floor Machine

A FLOOR machine which will complete a number of floor operations, including scrubbing, waxing and polishing floors of linoleum, tile and cork as well as wood, sandpapering and refinishing and much other work on surfaces to be finished or refinished is illustrated here.

The floor machine is constructed of high grade, finely machined aluminum castings. A high grade standard electrical motor of proven reliability delivers twice the amount of power necessary to operate the machine through a simple gear reduction with very large gear size and oversized bearings.

The entire weight of the machine is supported by a special thrust bearing over five inches in diameter. This relieves the machine of all undue friction and the full power of the motor is delivered to the brush.

This Floor Machine Has a Number of Functions.
The Smoke Goes Up the Chimney

Too often the reverse condition is true—the heat goes up the chimney, the smoke into the room. Because of this, the old-fashioned fireplace had to be given up; its spirit of cheer and hospitality, could not offset the lack of heat and difficulty of control.

Today it is different. The fireplace has returned to its rightful own. The Peerless Dome Damper has overcome its faults, and restores its charm to the home.

No other method of heating is needed in a room warmed by a fireplace with Peerless Dome Damper. The heat is ample and thorough; and reaches every part of the room. The fireplace becomes efficient; more heat is obtained from the same fuel, and because the fire can be regulated, from kindling to ashes, fuel is conserved.

Make the fireplace part of the homes you plan and then make it useful, and practical, by adding the Peerless Dome Damper. Blue print charts showing plan of installation, and full particulars, upon request.
The machine has a specially designed handle on which there is the operating switch and cable arm. The handle can be adjusted to suit the height of the operator and this adjustment is sufficient to lower the handle to a horizontal position so that the machine can be operated on tables, benches and desks—in this position the machine and handle being only ten inches from the floor.

The motor, gears and all working parts are entirely inclosed and protected from dirt and grit.

Three grease cups are provided which deliver grease to all working parts.

Brush clips of new design are used which enable brushes and other attachment to be easily removed without the annoyance of binding.

The following attachments are furnished with the machine:
- For scrubbing, palmetto and steel wire brushes; for waxing and polishing floors, polishing pad and disc; for linoleum, tile and cork floors, polishing brush; for sandpapering and refining, sandpaper disc and carborundum disc.

**Window Sills for Brick Buildings**

Many different ideas have been used in forming window sills for buildings of brick construction, but one of the most recent devices for this purpose is that offered by a manufacturer of clay tile products.

This is a window sill made from heavy, vitrified, glazed clay tile as shown in the accompanying illustration. This new sill has been made standard in form and measurement which will make it easy for draughtsmen to incorporate into plans and for masons to place in laying up the walls. The top of the sill is grooved for weather stripping and deep scorings on the bottom insure a good bed joint. Sacrification on the ends provides a good joint there.

Advantages claimed for the new window sill include:
- no discoloration from wear or weather; heavy glazed walls prevent disintegration or scaling;
- a number of lengths to care for variations in widths of windows; heavy walls with comparatively light weight and brown color well suited to most brick wall construction. And it is said that the material is much cheaper than other types of window sills. The new window sills are recommended for buildings, factories, garages, apartment buildings, hotels, hospitals, and other structures.

**Anchoring Wood Floors**

Floors of many types have been offered to builders in recent years, but for many types of buildings floors of wood are still the most popular construction. But with the increasing use of concrete in larger buildings the problem has been to find a satisfactory method of anchoring the wooden floor to the concrete floor slab on which it is to rest.

To meet this need, a simple and effective sheet metal clip has been devised which eliminates the necessary of concrete fill, which formerly had to be made after carpenters had laid nailing strips on the concrete already poured and set.

The clips, which are made in 2, 3 and 4-inch widths to accommodate different widths of nailing strips that varying jobs may require, are made of one piece of sheet metal. When ready to receive the nailing strips, they form the letter "H" with a portion of the vertical arms below the cross bar imbedded in the cement and the vertical arms above the cross bar ready to have the nailing strip nailed in. The clip comes to the job with the upper part of the vertical members folded flat, so that it is inserted in the floor as inverted "U". These sections of clip which are inserted in the concrete are made with lugs in which the concrete forms keys as it sets. The upper ends of the clips, above the cross bars, are straightened to a vertical position with the claws...
Distortion of Plate Glass is a Main Cause of Breakage

Murnane Self-Adjusting Setting Blocks Prevent Distortion

Breakage of plate glass from distortion is now easily preventable with Murnane Self-Adjusting Setting Blocks which have done so much to build up the prestige and popularity of Zouri Windows. Compared to old methods, many still in vogue, the Zouri modern way has been found to be the best and most economical way of safeguarding expensive windows against distortion.

Above please note a section of sill on which is shown a Murnane Self-Adjusting Setting Block. "C" indicates the sole leather cushion on which the glass sets, "D" the bronze plate to which the sole leather cushion is connected. This bronze plate forms an anti-friction bearing with the copper setting block "E" to which it is adjustably connected so that when the outside moulding is applied, the self adjusting portions of the setting blocks slides inwardly until the glass is in contact with the rabbet.

Murnane Self-Adjusting Setting Blocks have been approved by the Underwriters' Laboratories. You can't go wrong on Zouri.

Write us for complete illustrated particulars.
of a hammer after the concrete has acquired its set. These ends are provided with nail holes, through which the nailing strips are secured.

The procedure in installing the clips is simple and rapid. Within about thirty minutes after the concrete is poured, a guide board is placed on the slab, and while the concrete is still plastic, the clips are pushed into place, the operator, guided by marks on the guide board, placing them so that the flat top is embedded in the concrete, accurately spaced and in alignment.

When the job is ready for the floors to be laid, a workman inserts a chisel or the claw of a hammer under the top of the floor clips and with a flip of his hand, raises them to the perpendicular, ready to receive the nailing strips, which are then placed along each row of clips, and held in place snugly between the raised tabs.

The level slab and the placing of the clips so that their tops are flush with slab surface assure an almost faultless surface. Some leveling with a straight edge will be necessary after which the nailing strips are nailed solidly in place. Joints should come within the clips and both ends nailed.

After strips are leveled and nailed there may be a few low sports under the strips. A wedge is driven under the floor strip at the side of the clip and the hollow slushed full of thin cement mortar. This insures a firm and solid bearing the entire length of each strip.

### Locking Double Hung Windows

The ventilation possibilities of double hung windows are many if they can be secured in exactly the position desired. Here is a device which will lock both the upper and lower sash securely so that any desired combination of openings in the upper and lower window spaces may be used.

It has been estimated that 80 per cent of the burglary entries in the United States are made through windows which are locked in an inadequate fashion. The makers of this window hardware claim that a window secured with their device cannot be opened without breaking the glass. Another feature of the fixture is that the upper sash is controlled and handled by means of the lower one, within easy reach of the operator. This dispenses with the use of a window stick for high windows.

The hardware has two parallel rods on the upper sash of the window, with the locking device on top of the lower sash. The locking feature is automatic; when the window is closed from the inside it is locked.

### Convenient Window Shades

**PROPER** lighting for public buildings, such as schools and others of the same type where lighting is of the utmost importance, is a subject which deserves the best attention of architects and builders. While this has been recognized in a great measure in the past few years, with schools erected so that the lighting comes from a prescribed side, the lighting in many of the older buildings may well be corrected.

To provide adequate light without the glare of sunlight an eastern manufacturer has devised a means of raising and lowering the roller which carries the window shade, so that light and ventilation may be had over the top of the curtain while the shade protects the closed portions of the room from the direct sunlight. When the height of the shade is fixed by means of the regulating device, it is raised and lowered as are shades attached to the window frame in the usual manner.

The device consists of six parts and a single, continuous cord. Two double pulleys are installed in the upper corners of the window frame. A third pulley is installed on the left hand side of the frame, about four and a half feet from the floor, since this pulley limits the downward travel of the rolled shade, and it is convenient to be able to look over the top of this when it is lowered. Opposite this pulley, on the right side of the window frame, is placed a fastener to which the free end of the cord is attached when the shade has been adjusted to the desired position.

The simplicity of the construction of the adjuster eliminates a number of the pulleys usually used in such a device. Anyone can operate the adjuster by simply releasing the end of the cord, then raising or lowering the shade to the required height.
**Better-Built Homes Without Extra Cost**

Everywhere home builders are learning the economy of good construction. Truscon Home Building Products are in demand because they combine quality and low cost. Contractors prefer them because they save labor and are quickly obtained.

**Truscon Steel Casements At a Popular Price**

Steel Casement Windows are no longer a luxury. Due to standardization and large scale production, Truscon Casements can be used as economically as the ordinary wood windows. Truscon Casements add charm to the home, are weathertight and fireproof, cannot stick or warp, always open and close easily. Furnished complete in frame with hardware—three standard units and combinations of them.

**Truscon Basement Windows Double the Daylight**

Basements are now used for billiard rooms, dens, offices, children's playrooms, shops, laundries, etc. Truscon Copper Steel Basement Windows give double the daylight, never stick, warp or need repairs, are weathertight and fireproof, always open easily and lock automatically and cost as little as wood. Three stock sizes—2' 9½" x 1' 3"; 2' 9½" x 1' 11"; 2' 7½" x 1' 11".

Other Truscon Home Building Products include: Pressed Steel Lintels in standard sizes for use in walls over doors and window openings, Standard Steel Doors in frames for garages, shops, warehouses, backs of stores, etc.

Write for prices and information on Truscon Home Building Products.

**TRUSCON STEEL COMPANY, Youngstown, Ohio**

Warehouses and Sales Offices from Pacific to Atlantic. For addresses see phone books of principal cities. Canada: Walkerville, Ont. Foreign Dist.: New York.
Reinforced Rubber Tile Flooring -

Rubber flooring, or floor tile, reinforced with strong cotton fibres, is becoming increasingly popular for use over many floors in both public and private buildings. Speculative builders are installing this type of floor covering in many new apartment buildings as an added attraction. Just as automobile tires are tougher and more durable because of their reinforcement with cotton fabric or cotton strands, it is said, so the reinforcement of rubber tile flooring is said to add great strength, durability and resistance to abrasive wear.

These rubber tiles are furnished in beautiful tints and shades producing an effect similar to marble. Colors and patterns run right through from top to bottom and the tile have unusually long life without showing wear. Wainscot, cove base, stair treads and factory flooring are furnished in this material by one manufacturer. Firmly cemented in place with special rubber cement, no cracks or joints are left open and these tiles have a smooth, non-slippery surface of great beauty, thoroughly sanitary and easily washed or mopped. Its permanence and the ease with which it can be cleaned is making it increasingly popular for use in private residences—in the entrance halls, living rooms, dining rooms, kitchens and bathrooms. Its long wearing qualities add a feature of real economy.

This type of floor covering is also being extensively installed in hotels, hospitals, schools and public buildings where a noiseless, sanitary, durable covering of elastic resiliency is desired.

Safe Flooring Material

Building a slip proof floor in places subjected to intense wear has long been a problem with architects and builders. And its importance is emphasized by the fact that the danger of slipping and accidents is automatically increased with the traffic such floors have to bear.

One manufacturer who first worked out a product to meet this need for the stairs of the New York subway has extended the uses of the material, found suitable for that purpose until it is available for floors of all types.

The material, originated to care for the tremendous wear and traffic of the New York subways, was made of an abrasive material, in the form of a semi-vitreous tile, so called because of its slight porosity. This is a precast product, moulded to fit the stair treads.

A later step was the development of an aggregate tile which incorporated the wear resisting and non slipping qualities of the stair treads. In this product, vitrified abrasive aggregates are moulded with a cement binder into tile shapes and in the form of precast treads. With a variety of aggregate colors and a variety of marble chips available, with which the aggregates usually are used in combination, the possibilities in color combination are unlimited. With the monotone effects now being produced, a durable tread may be installed without sacrificing the artistic. A specimen of the marble with which the treads are to be used may be used as a factory model for color.

This same process may be applied to floors which are to be constructed of tile in surroundings where an incongruous floor would ruin the effect of fine marble walls.

Another development is the ceramic mosaic tile, designed especially for surfaces where the slipping hazard is great and highly polished tiles are desirable for walking surfaces, such as edges of swimming pools, store fronts, hotel kitchens and other like places. A variety of colors is obtainable in this product.

Another development of the material for use on stairs is that of mosaic tiles, 1 1/16 inches square, set in a reinforced wire asphalt mastic composition. This type of tread is meeting with remarkable success on bus steps and in front of dangerous machinery where it is important that a man's mind be on his work rather than on his feet.
And Now a Still Better
Fenestra Basement Window

—new, improved, with 25 important advantages that help you sell the houses you build.

It is the greatest improvement since steel replaced the old-fashioned wood window in the basements of modern homes. Yet its cost is little if any more than the cost of a wood window.

Fenestra Basement Windows, besides admitting more light and air, add attractiveness to both the interior and exterior of a home, and provide absolute protection against rain and storm. Being made of steel, these windows cannot warp or stick, they cannot rot or break, and they are fire-resistant and a barrier against intruders.

Fenestra Basement Windows come completely assembled, ready for immediate use. All sash are interchangeable, and the frames can be installed while glazing is being done.

Home owners everywhere are demanding brighter, more airy, more useful basements and builders are meeting this demand with the new Fenestra Basement Windows. Let us send you the name of a dealer in your locality who can show you these windows and quote prices.

DETOUR STEEL PRODUCTS COMPANY, B-2260 E. Grand Boulevard, DETROIT, MICH.
A Fold-Away Pullman Nook
They Do It Like This in California

The saving of floor space by the use of built-in furniture offers interesting possibilities. How long will it be, for instance, before we can come into the house at night, be picked up by a trolley arrangement, and be carried to the bathroom, the kitchen, the dining room, the living room, the bedroom? Like as not, we can expect the space-saving bedroom of the future to be a hook on the hall.

whereon we will sleep suspended the night through in a specially made gunnysack, equipped with body harness.

Here is one phase of the built-in, space-saver idea. It came from California, where they are always trying out something. You look at the first illustration, and see a white enamel cupboard affair against the wall. Looks retiring and unassuming enough, but in comes Mrs. Housewife, reaches for the pull button, and down comes the settle chair like McGinty. Down comes the table, too, with its prop coming from below, and there is a nice little working unit to help one get the dinner vegetables out of the way.

The next transformation comes when the other settle chairs is let down. We then have a complete Pullman breakfast nook, with the sunlight shining in on the table; its toaster, grill and percolator electrically operated. All the comforts of a great big dining room here, one may say, without the inconvenience.

The meal over, the dining board is let go back into place. The ironing board is drawn out, and the housework goes on, with Mrs. Housewife finishing up the ironing of the weekly wash. We would like to see one of the settles high-seated enough to permit her to sit down at this task; also, we don't like the way the window light gets shut off when only the ironing board is used. But isn't that just like a man; never satisfied? Maybe one could build a porthole window into the table, and feel abroad at home.

At any rate, these conveniences, with their room-saving possibilities, offer an excellent opportunity to the builders of apartments and also to the builder of small homes, where the designer often forgets that many conveniences of this type may be built in with little additional cost.
Ask any contractor

Ask any contractor who has ever installed Metal Lumber fireproof construction. He'll tell you that the material goes into place easily and rapidly. He'll tell you that it's easy to handle and practically fool-proof; that the numbered sections marked to correspond with erection drawings make erection easy.

Metal Lumber is uniformly strong and free from imperfections. Every section will always carry its full rated load and more.

Architects who have once used Berloy Metal Lumber specify it again and again. Contractors like to install it. It saves a lot of time over ordinary fireproof construction. Have you received your copy of our new bulletin L-3? If not, ask nearest Berger office for it at once.

The Berger Manufacturing Co.
Canton, O., Boston, New York, Philadelphia, Chicago,
St. Louis, Kansas City, Minneapolis, San Francisco,
Los Angeles, Dallas, Roanoke, Jacksonville

Erected in Two Weeks
In the apartment house at Clinton Ave. and High Street, Newark, N. J., eight floors and roof. 90,000 square feet of Metal Lumber floor construction were installed complete ready for the finish flooring in two weeks time. Contractor and workmen had had no previous experience with Metal Lumber.
I n planning the wiring for any house there are certain specific needs that must be considered. The rooms must look as attractive as possible. The outlets for appliances and switches for lights should be conveniently located, and the lighting plan must furnish ample illumination of a good quality to insure comfort. Poorly-planned illumination may cause great discomfort. There should be no scowls and squints because the light is glaring, no strained eyes because there is insufficient light, and no groping in dark halls.

The lighting of a small and modest home is, more than any other, influenced by dollars and cents. The money spent for wiring should be adequate to insure comfort and so that the wiring will be an asset in selling it. Even the person who builds a house for his own use must consider its possible market value if circumstances make it advisable or necessary to sell. With an eye to this item of salability, enough permanent lighting fixtures should be provided to furnish each room in the house with general illumination. Although the table and floor lamp is playing an ever more important part in the lighting of the average home, it is frequently regarded as part of the furnishings and decorations which may be acquired at any time. This means that prior to the period of pur-
There it is! — the switch on the wall; the owner's contact with the electrical work.

Frame the switch, and you give him his picture of the job. All he will see, all he will touch, all he will ever appreciate.

The looks, the "feel" of your H&H Switch strengthen confidence in the things out of sight. They're the outward evidence of service, convenience, good workmanship.

Whether your background be mahogany panels or modest wallpaper, there's an H&H Switch that will fit the setting and finish the picture—to your advantage.

From the "GOLD STAR" Switch that is frankly "de luxe," to medium-priced "OLD RELIABLE" and competitive-priced "NUTMEG"—each will back up your building standards in its proper place.

For work you're figuring on now, the H&H Catalogue can reach you none too quickly. Not only for switches, but Convenience Outlets and other devices. Please request it.

THE HART & HEGEMAN MFG. CO., HARTFORD, CONN.
chase there must be light. For this reason the plan shown has included center ceiling fixtures in some cases where personal preference might suggest their omission.

The center ceiling outlet is also included as an act of insurance. Many people desiring to light their homes chiefly by portable lamps do not yet know how to choose them so that they will give satisfactory illumination. The center light can then act as a much needed supplement to badly chosen table and floor lamps. When there is no fixture in the center of a room, some fixture, either a bracket or a portable lamp, should be easily turned on upon entering a room. It is customary to have a switch near the door.

The wiring scheme shown here has been made in accordance with home electric practices with a suggestion or two about decorations.

Two small lanterns on each side of the doorway are recommended to light the front steps and entrance. They may be made of copper or wrought iron with clouded glass or mica sides so that the light will be less glaring than if the sides were clear; 15-watt Mazda lamps are plenty large enough to give ample light. The switch is in the vestibule.

The vestibule has a center ceiling outlet: Here a close-to-the-ceiling fixture known as a "rosette" is advised. The rosette is little more than a socket in the ceiling with metal decorations around it. If an ivory-tinted lamp is used instead of the ordinary lamp with white frosting the light will be more mellow and pleasing. Ivory lamps are made in sizes that are also meant for home use and flame tinted lamps are also available. The vestibule light is controlled by two switches, one in the vestibule itself near the door to the porch, and the other in the entrance hall.

In the entrance hall there is also a center ceiling fixture. Here a very short drop cord might be used with a cylinder-shaped shade closed at the bottom. Orange-yellow silk or parchment paper might be used for it. Other fixture possibilities are a decorated glass enclosing globe or a lantern. The light is controlled by a switch near the front door.

It is suggested that the walls of the living, dining room, entrance hall and back hall all be treated alike to give the house a feeling of unity and spaciousness. Light buff might be used to excellent advantage with color introduced in rugs, draperies and pictures.

For the living room with plain blue rug and figured window hangings tan shades of silk, glass or parchment paper are suggested for the four wall brackets. If parchment paper is used they may have a band of decoration that is in keeping with the window hangings. Figured draperies are suggested rather than plain blue because under mellow nighttime light blue often looks black and lifeless.

The center fixture in the living room may be one of a number of styles. A silk-shaded semi-indirect fixture might be used. This is one that sends some light downward but most is directed to the ceiling which, if it is white or some pale color, acts as a reflector supplying the room with general illumination.

The first portable lamps purchased for the living room might well be a desk lamp and a floor reading lamp placed near the davenport or a comfortable chair. The shades could be a bit gay. Perhaps the desk lamp shade might be a pleated figured chintz, or a cheerfully decorated parchment paper.

Four baseboard convenience outlets, each one with a place for two attachments, are provided. The twin convenience outlet is recommended throughout the house as it costs only a few cents more at time of

(Continued to page 152.)
Wire it Quicker with Ovalflex !!!

Light—-
"Sealed and Delivered" Anywhere

On new jobs or re-wiring, wherever light is needed, you can put it there quicker, easier, at less cost—with Ovalflex.

Flat—flat and flexible like a strip of steel—only \( \frac{1}{16} \) in thickness, two wires or three wires in a complete Armored Cable. Ovalflex lies tight to every contour of the surface.

On new work, simply lay Ovalflex on the surface--plaster over it. For re-wiring, a shallow groove cut in the plaster leads Ovalflex where you want it.

Its armor makes it safe any place; its flatness and flexibility make it economical and convenient. Always—it is best to use Ovalflex.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Care of Trucks in Summer

Cooling and Oiling Systems Require Special Care and Attention from Operators During Hot Weather

There is nothing difficult about the precautions which must be taken to keep a motor truck running at its best during the hot summer months. And there is hardly another single phase of operation that more rightfully demands the builder's attention.

Every authority agrees that the truck owner who neglects to provide this attention is inflicting on his vehicles an enormous strain which will always show up in extravagant repair costs and in much quicker depreciation. Consider, then, the following suggestions. You will find them applicable no matter what type or make of vehicle you use.

1. Be sure to see that the fan turns easily and that the belt tension is correct. A good test of the tension is to run the fan by hand with the engine not running. If it is possible to slip the belt easily, but not possible to spin the fan, then the tension is right. The fan should be cleaned and well greased at the beginning of summer and kept in this condition always.

2. The average working temperature of oil in summer is higher than in winter and so oil of the same body will be thinner. Sometimes it is advisable to use a grade heavier oil in summer. In excessively hot spells an especially heavy grade of oil may be required to maintain the oil at the proper consis-

(Continued to page 150.)
Some of the Good Reasons Why Internationals Will Haul Your Loads at Very Low Cost

Permanence: The International Harvester Company has built motor trucks for twenty years, and has back of it a manufacturing experience of almost a century. Today this Company has three great factories devoted exclusively to motor truck manufacture. This is the truck experience back of our new 1924 models.

Life Guarantee on Crankshaft and Main Bearings: We guarantee that the crankshaft in the heavy-duty International will not break and that the crankshaft ball bearings will not break, wear out or burn out during the entire life of the truck. No other truck carries such a liberal guarantee as this.

Perfected Steering Gear: A complete departure from present-day truck steering design. Permits the driver to sit naturally and comfortably as in the finest passenger cars. Does away with cramped, awkward, tiring position without sacrifice of loading space. Improves driver's efficiency and strengthens his morale. Ask his opinion.

Removable Cylinders: International design eliminates reboring cylinders or replacing cylinder blocks. Removable cylinders permit convenient, inexpensive renewals, should the cylinders ever become scored through neglect or worn after years of service. International was the first to use this type of construction.

Rear Auxiliary Springs, Exclusively International: These springs—inexpensive under light loads—come into action when needed. This construction assures correct spring flexibility under varying loads.

Service: With the International you get an Inspection Service Policy with free inspections at regular intervals for the life of the truck. This policy is backed by more than 100 Company branches and their service stations. This valuable working service is unique in the automotive industry.

International Heavy-Duty Trucks are built in 3000, 4000, 6000 and 10,000-pound maximum capacities with bodies to meet every requirement. There is also a sturdy Speed Truck for loads up to 3000 pounds. Upon request we will gladly supply you with names of International owners in the construction field, and the address of the nearest showroom where the full line of new models is on display.
Warford Stands the Test of Time

Time deals lightly with Warford.

One Warford Auxiliary Transmission, installed in September, 1921, has outlived two Ford Trucks and is today giving two-ton capacity and speed-wagon pace to a third.

This Warford has traveled more than 100,000 miles, the equivalent of four times 'round the earth, between DeKalb, Ill., and Chicago.

Its performance is representative. Every day and every trip it has met those extremes of driving conditions for which it was expressly built—hauling a heavy load out, and an empty truck back; through the congested traffic of Chicago and over interurban routes where speed is essential to economy.

You may be assured that Warford's two-ton and high-speed performance will be as enduring as your truck. If your Ford dealer hasn't the Warford, write us.

Warford
AUXILIARY TRANSMISSION

The Warford Corporation 44 Whitehall Street, New York City
Fordson Hauls 4½ Tons of Rock Asphalt, 3 Miles—8 Times per Day

Here is a striking example of how dependably and economically Fordson Power is serving contractors and engineers on hauling jobs of every description. In this case it is Rock Asphalt, and the equipment used by the owners, McArtav Construction Co., Kenton, Ohio, consists of two Fordson Tractors and four dump trailers.

Called on to make 8 trips each day a distance of 3 miles on every trip, with a load of 4½ Tons of Rock Asphalt, the Fordson Tractor proved capable to the task and at the same time helped to reduce the cost of hauling 5.74 cents per ton mile.

Adaptability to different uses, low upkeep, and the unsurpassed service available to users of Ford equipment are among the advantages that accompany the use of the Fordson for industrial purposes.

For excavating and general construction work, for road building and maintenance, for transporting supplies, tools and men, in fact, on every kind of an industrial job there is work that Fordson can do at a big saving in time and money.

Let your nearest authorized Ford dealer arrange a practical Fordson demonstration for you. See for yourself how the Fordson can reduce hauling and power costs for you.

Any Authorized Ford Dealer has facts and figures that will show you how you can profitably Fordize your business.

Fordson Tractor $420 F. O. B. Detroit

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
tency in operation. When a heavier oil is used, care should be taken not to work the engine too hard before it is warmed up.

3. Lubricating oil plays an important part in the cooling of the engine, as it cools the bearings. Keep the crank-case clean; it cools the oil. Oil should be changed frequently enough to keep its lubricating qualities high.

4. It is important to have a clear understanding of the truck's cooling system. See that the flow of water is not impeded by any sort of obstruction and that the overflow pipe is not bent below the level of the base of the radiator filler. Be sure that the overflow pipe is not clogged or flattened.

5. In hot weather the cooling system should be drained often and replenished with clean, fresh water. The fan belt and fan should be examined for looseness of the belt, tight bearings or loose fan blades and if trouble is found it should be remedied at once. A loose fan belt will surely cause overheating as quickly as restricted circulation and should be prevented by tightening. The water hose connection between the radiator and engine should be examined for soft spots which would restrict the circulation.

6. See that your truck's engine is clean all the time. The air which goes into the carburetor draws dust and dirt with it which will not only stop up the carburetor, but if this passes on into the engine, it causes rapid wear to pistons and cylinders, or it may work down into the bearings. Never use waste to clean the engine as the lint frequently sticks to the surface and might enter and clog the carburetor.

7. Some truck owners make the mistake of obstructing the front of the radiator with license plates or signs. Good air circulation and clean radiating surfaces are as important as good water circulation. It is well to clean the outside of the radiator well before the hot spell.

8. Don't have your motor immediately torn down and rebuilt simply because it might act irregularly. Find out exactly what is wrong and then let an expert proceed accordingly. Nothing injures a motor more than to tinker with it, unless it is the unconscious neglect of some detail which results in premature wear or injury to the engine.

9. The exhaust should at all times be kept clear of obstructions and mud should not be allowed to cake on the outside of the muffler. The importance of this will be realized when it is considered that 40 per cent of the heat of combustion must escape through the exhaust.

**Pertinent Truck Questions**

The builder who is anxious to get the greatest possible return from his investment in truck equipment should be careful not to overlook the big things about the use of trucks that govern successful operation.

When a transportation engineer is employed by a concern to advise on the selection and use of trucks, and to suggest ways to economize, there are certain fundamental things to be looked for. The following is a list of questions prepared for the AMERICAN BUILDER by a well-known truck engineer. With these as a guide the individual builder can get at the bottom of his own truck operation and determine ways for improvement.

Each of these questions represent a way to cut truck costs. They cover completely the basic principles of truck operation. Only if the builder can answer them all in the affirmative after careful thought can he be sure his trucks are not working under a handicap. These are the questions:

1. Are the vehicles used well adapted to work they are called upon to perform, with respect to type, size and quality?
2. Is the truck body equipment well co-ordinated with conditions met in unloading and loading to insure a minimum of idle time?
3. Are routes well planned and arranged to keep each truck on the road as much as possible in the course of the day?
4. Are seasonal and rush periods requirements handled in a way that will reduce idle truck time in dull periods as much as possible?
5. Are motor trucks used only on hauls for which they are qualified to do the work more economically than horses?

**Diagonal Parking Wastes Space**

Diagonal Parking, Urged by Some Garage Owners and Truck Operators as More Convenient, Is a Waster Space as Shown in the Accompanying Diagram. The advantage urged of driving directly out from the parking space is offset by the fact that the driver loses time in backing his truck into place. It is sometimes used in service garages for pleasure cars because gasoline tanks can be filled without moving the cars.
"GMC Trucks Are Seven Steps Ahead"

Power To Pull Out — Speed on the Road!

Watch the GMC trucks on the next excavating job! Notice how easily they haul their full load up the steep incline to the street—unaided by cable or team.

Then ask one of the drivers how many loads he hauls each day. GMCs are as speedy as they are powerful!

For, equipped with the famous GMC Two-Range Transmission, GMC trucks multiply the power of their economical sized engine into pull at the wheels that will take them up any grade or out of any mud where wheels can get traction. And, by a shift of a lever, also provide as fast a road speed as safety permits.

This combination of speed and pulling power—built into GMC Trucks—their rugged dependability—and their operating economy — make them money-makers for haulers everywhere.
installation and is frequently in use, either for the attachment of two lamps at the same time or for a lamp and a fan or a lamp and heating appliance. The more outlets there are, the greater is the latitude in the arrangement of furniture. An outlet has also been placed in the middle of the living room floor to provide for lamps on a center table.

The living room mantel has also been provided with electric outlets. Conventional electric candlesticks may be used or some simple form of decorative light. One of the possibilities is to get attractively shaped glass jars of a beautiful color and place a light inside. The jars themselves become more lovely and as accents of color are an addition to the room.

In the dining room a dome fixture gives excellent light. The table is flooded with it and the rest of the room is supplied with a lesser intensity. The glass domes that are now on the market have little in common with the atrocities of early gas days. The color is subdued, not violent, there is no bead fringes to make striped, zebra-like shadows, and it is smaller and deep enough to hide the light source so that the brightness of a 75-watt or 100-watt lamp cannot be seen. The usual hanging height is two feet above the table.

For some time satisfactory ways of using cooking appliances in the dining room have been sought. Cords from overhead lights are unsightly, it is a nuisance to have a percolator on the buffet and have to get up and get it after the coffee is done. The most approved method at present is to have a floor outlet under the table that supplies current. Then wires may be brought through the rug without cutting it, and the table itself wired. The outlets are on the under edge. Beneath the table is a call bell.

Baseboard outlets are provided in the dining room for possible serving table lights or other portable lamps. Table and floor lamps are more and more being used in dining rooms. Interior decorators are showing them to supplement brackets in giving general light and because of the charm of an attractively shaded lamp.

The kitchen lighting problem is simple. It is easy to find an opal glass enclosing globe to place in the center of the room, which will give excellent light when equipped with a 100-watt lamp. Several concerns are making kitchen units of approved design and quality. This may be supplemented by a droplight over the sink, equipped with a white glass shade and a 50-watt white Mazda lamp.

There are several electric outlets in the kitchen, a special one for the range that provides for the heavy drafts of current used, one for a ventilation exhaust fan, still another for the refrigerator, and two for other appliances. The two for appliances are located above the working surfaces under the cupboard. They are equipped with red pilot lights to show when the current is being used.

In the kitchen are switches for the back porch light and the cellar lights. The porch light switch is near the porch door and at the same point the kitchen light may also be turned on. The cellar lights are controlled near the cellar door and the switch is equipped with a pilot light as a reminder when the lights should have been turned off and were forgotten.

For the back porch a glass enclosing globe fixture or a rosette such as was used in the vestibule could be used.

The pantry light is quite close to the ceiling and white glass shaded. A unit such as is used in the kitchen is admirable, but perhaps a greater expense in the beginning than is desired. The operating costs are small because it is never on for more than a few minutes at a time.

The hall lights are two brackets. As the plan indicates, one is controlled at the fixture itself and the other by switches where it is most convenient. This is an excellent place to use decorated glass shades, although parchment-paper or silk are equally good. A convenience outlet is provided in the hall for the use of a vacuum cleaner.

In the bathroom a center ceiling light similar to the glass enclosing globe in the kitchen is splendid. In addition a bracket is placed over the mirror to make shaving as easy a matter as possible. The bracket over the mirror might be like an inverted elongated white cup. Many hotels use a fixture of this sort and the reasons for it are that the lamp is shaded, the glare is cut off and the face is well lighted so that the reflection in the mirror is clear and good. Two convenience outlets are provided, one five feet high at the right of the basin for a curling iron or other attachment, the other in the baseboard for an electric radiator.

The bedroom plans are quite similar. For the center lights, the most useful type of fixture is the semi-indirect for by using larger lamps the general illumination is perceptibly increased, which is not true of all fixtures. These, of course, must hang a foot and a half or two feet from the ceiling. A less conspicuous fixture is a close to the ceiling cluster of lights. These will be more agreeable to look at if shaded or used with ivory tinted lamps. On the score of appearance a prettily tinted or decorated parchment-paper shade flat and close to the ceiling is favored. This seems to be an integral part of the room and does not break the ceiling line perceptibly.

The pair of brackets in each bedroom is to supply light for using the mirror of a bureau, dresser or dressing table comfortably. The correct height depends upon which piece of furniture is chosen. For a dressing table they should be lower than for a dresser.

The convenience outlets in the room provide for bed-side lamps, heating pads, lamps on dressing tables and bureaus, or for a dressing table or bureau that is wired and has brackets attached.

In all closets lights are provided. It is customary to have them controlled either by a switch that turns them on and off with the opening and closing of the door or by a pull chain.
To insure safe, dependable delivery of their plumbing supplies, the McGraw-Yarbrough Company of Richmond, Va., contractors in all kinds of plumbing fixtures, purchased the Model 25B Garford shown above.

Protection for the breakables, bath tubs, sinks, etc., is afforded in this truck, not only in the pneumatic and cushion tire equipment, but also in the unusually powerful resilient springs and the special Garford Three-Point Spring Shackles.

These shackles placed in front of the rear springs effectively cushion both load and truck, particularly the rear axle and the springs themselves from damaging jolts and road shocks.

With three points of suspension instead of one, driving and load carrying strains are distributed over several leaves and spring breakage is practically eliminated.

Ample power for steady travel through any kind of going is assured in the perfectly balanced smooth-running engine.

These Garford advantages are giving this user a regular, never-failing delivery service on a lower operating and maintenance cost basis.

They are available for your business. Whatever you haul—sand, bricks, glass, cement, lumber or gravel, Garford Engineers can show you how to haul it in a more efficient, more economical way. Write for further particulars.

The Garford Motor Truck Company, Lima, Ohio
Manufacturers of Motor Trucks 1 to 7½ Tons

GARFORD
DEPENDABLE TRANSPORTATION
No plan for the cellar is shown, but there are eight outlets that provide for the stairs, furnace and laundry. The R. L. M. Standard Dome reflectors with 75 watt white lamps, are very good for cellar use.

The lights are controlled in the cellar and in the kitchen at a switch plate with pilot lights as has been previously mentioned.

The laundry has a raised floor outlet near the tubs for a washer, a pilot lighted outlet for an electric iron, and outlets that will provide for a small stove for a boiler, a mangle, or a fan in summer days.

General considerations in house wiring are these:

The local switch should be located for the greatest amount of convenience. This may mean the use of three or four-way switches. Where more than one switch occurs at the same location it should be covered with a suitable gang plate. Wall switches of the tumbler flush type or flush toggle type, are recommended.

The distributing panel should be provided with extra circuits for future connections. The number of each circuit should be marked in the distributing panels and a typewritten directions of all circuits served placed on the inside of the cabinet door.

A Modern Living Room: The trend in modern homes toward beauty, comfort and refinement is here well illustrated. Notice the ample fireplace and graceful overmantel; the mirror hung from the picture moulding; the casement windows with their substantial drapes; the quiet elegance of each piece of furniture and especially the rubber tile flooring in alternate shades and tints, so quiet and resilient, so easily cleaned and durable. This is a residence in Kensington, N. Y., Helen Speer, Decorator.

Parables of Bildad, the Builder

(Continued from page 128.)

tain the Hidden Couplings for Fifty Bathtubs in As Many Rooms. Take a Medium along if It will Help."

"I thought that Job was Dead as Yesterday's newspaper," he Breathed.

"Not Dead, Blackie—only sleeping," I Opined.

Well, the Fifty Bathtubs came, on Schedule. The Plumbers worked on Schedule. The Fifty Fathers of Families took Their Saturday Night Baths on the Usual Schedule. And a Hotel Syndicate Proprietor, automobiling through our Town, and seeing the Hotel so Prosperous, took it Over, and Employed me to Modernize it Still More. He would Have made me Consulting Superintendent of all his Structures, but I Demurred...

"I crave no Notoriety," I said. "I like This town and Here is Where Bildad keeps his Shingle out. But Missus Bildad, I want no Jobs like the Hotel Lazarus happening Every day. I crave Rest, Iced Tea and Slumber. Pack up our Carpet Bag and let us Trek to our Cabin at Pishimagee, where the Woodchuck chucketh, the Woodbine bineth, and There penetrateth No Sound of the Alibi Bird mourning Her First Born!"
What This Owner Says

Philadelphia, February 19th, 1923

"The Fox Furnace Company

Like most other manufacturers, you are probably glad to hear from boosters for your product. I believe you will be interested in why I put warm-air heating in my home and what I think of my Sunbeam Warm-Air Furnace.

I chose a warm-air heating system because I wanted to be more than just warm in the winter time. I wanted to be comfortable. In other words, I wanted my house kept good and warm without that close, stuffy, overheated feeling you get in many houses in winter. I wanted plenty of good, fresh air (moist, not dry) circulating through the house all the time, and I knew that a warm-air heating plant was the only thing that would give it to me. I chose a Sunbeam Warm-Air Furnace because it seemed so well built.

I made the right choice. I don't believe I can express my satisfaction with my Sunbeam Furnace any better than to say just this: If I couldn't replace it, I wouldn't take $1,000 for it.

SURELY that's the kind of heating you'll want in the houses you build—the kind of heating plant that will help you sell your houses in the first place and keep the owners satisfied for many years to come.

Sunbeam Furnaces (Pipe and Pipeless) have many important advantages for the builder besides low first cost and low installation cost. Write today for the complete story.

THE FOX FURNACE COMPANY, ELYRIA, OHIO

Largest Makers of Heating Equipment

Boston Atlanta Cleveland Chicago Denver San Francisco

There is an authorized Sunbeam Dealer near you who can give you quick and efficient service. Let us send you his name.

See Page 1796 in Sweet's Architectural Catalog

SUNBEAM WARM-AIR HEATING

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
S. Olton Johnson, 1847-1924

S. OLTON JOHNSON, for more than thirty years president of the Penberthy Injector Company of Detroit, Mich., died Saturday, May 17, in Los Angeles, Cal.

Born in Westfield, Mass., June 15, 1847, Mr. Johnson entered the counting rooms of a New York tobacco manufacturer at the age of eighteen. He later was offered an executive position and an interest in a firm of toy manufacturers and continued with this firm until 1877, when ill health forced him to go to Denver. In 1884 he went to Detroit as manager of a knitting concern and two years later became associated with Homer Pennock and William Penberthy in the organization of the Penberthy Injector Company.

Mr. Johnson was a member of many organizations and clubs, among them being the Detroit Board of Commerce, the Detroit Club, the Country Club, the Detroit Athletic Club, the Old Club, the Au Sable Fishing Club, the Michigan Sovereign Consistory, the Essex Golf and Country Club and the Detroit Golf Club.

+ Chain Belt Officials Named

J. C. MERWIN, works manager of the Chain Belt Company, Milwaukee, was elected second vice-president at the annual meeting of the company held in Milwaukee this month. Mr. Merwin is a graduate of Sheffield Scientific School, Yale University (1910), and has been associated with the company since 1917.

Other new officers elected were: Brinton Welser as secretary and C. E. Stone as assistant secretary. Mr. Welser is a graduate of the University of Wisconsin (1912) and has been with the Chain Belt Company in various capacities ever since. Mr. Stone is assistant to the president, and has also been purchasing agent since 1918. He is a graduate of the University of Michigan (1910).

The officers re-elected were C. R. Messinger, president; Clifford F. Messinger, first vice-president; C. L. Pfeifer, treasurer.

+ Shingle Producers Organize

SEVENTEEN shingle mills of the Puget Sound district have effected an organization to be known as the Puget Sound Shingle Manufacturers’ Association, which will enforce among its membership the regulations recommended by Secretory of Commerce Herbert Hoover as to grading and standardization of shingles.

Among other regulations which will govern the output of the mills represented in the organization is that which insures that all shingles marketed will run five shingles to two inches, eliminating the shingles which run six to two inches. Another regulation of the organization is that none but vertical grain shingles will be marketed for roofs. This means that the flat grain shingles and the mixed flat and vertical grain shingles will be used for gables and sidewalls. This will mean that all parts of the shingle log can be used.

The new association, in accordance with the Hoover standards, will market but four grades of shingles, to be known simply as No. 1, No. 2, No. 3, and No. 4.

Headquarters of the Association have been established at Ballard, Washington, under the supervision of Ben Kuppenbender. The total capacity of the mills represented in the organization is 1,200,000,000 shingles a year.

+ Terra Cotta Use Increased

THE Department of Commerce announces that, according to reports for the Census of Manufactures, 1923, the establishments engaged primarily in the manufacture of architectural terra cotta in that year produced 134,810 tons of this product, valued at $16,827,776, or an average of $124.27 per ton. Twenty-seven of these establishments also reported other products, such as brick and tile, of a total value of $15,517,231, the value of their terra cotta production being 90 per cent of the total. In 1922 the total value of all products reported by the establishments which manufactured architectural terra cotta was $14,981,916, the value of their terra cotta production being 82 per cent of the total.

+ Fifty Years with Sargent & Co.

A HALF CENTURY of service with one firm is the record of Mr. John H. Shaw, general superintendent of Sargent & Co., manufacturers of hardware, New Haven, Conn.

The celebration of the fiftieth anniversary of Mr. Shaw’s joining the Sargent forces was made a special feature of the annual convention of the Sargent sales force, held in New Haven late in June, when Mr. Shaw received the congratulations and best wishes of the entire sales force.

In his fifty years with the company, Mr. Shaw has traveled to many parts of the United States and has a wide acquaintance with hardware dealers and others throughout the country, all of whom will join with the Sargent force in complimenting the general superintendent on his long and useful record.

+ Families Want Homes

THE home-owning instinct was never so keen as it is today and the opportunity for development was never greater for those catering to these wants, William E. Harmon, of New York, declared before the annual convention of the National Association of Real Estate Boards, held recently in Washington, D. C.

Mr. Harmon spoke from an experience of more than thirty-six years, during which time his firm has operated in twenty-six cities.

"If we realize," he said, "that there probably are one hundred persons in the world with $10 in ready money to half a dozen with $100, the sale of real estate on installments can be greatly enlarged by making the first installment as low as possible. The secret of the installment business is that it capitalizes a man’s capacity to save money."
Monuments of Integrity

THE contractor or builder who builds with ASBESTONE Magnesia Stucco erects monuments to his business integrity that will endure for generations. Buildings that will be a source of pride to him as well as their owners and a constant recommendation of the quality material and skilled workmanship used in their construction.

The high quality of materials used in ASBESTONE give it many times the strength of ordinary stuccos and elasticity to withstand the severest strains. Its unvarying quality is insured by daily laboratory tests and its moderate price especially recommend it to the builder who wants high grade construction within a price limit.

The new ASBESTONE book is out. Ask your dealer or write us for it, and for samples in color tints and pebble dashes.

FRANKLYN R. MULLER, Inc.
208 Madison Street, Waukegan, Ill.
Books, Bulletins and Catalogs for You

The literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

"Volume and Profit for the Retail Lumber Dealer" is the title of an interesting description of the 1924 plans of the Celotex Company, 645 North Michigan Avenue, Chicago. The book, attractively bound and illustrated in colors, tells of the advertising campaign of the company for the year and the numerous other dealer helps planned to call the attention of builders to the advantages of Celotex as a building and insulating material. Included in the text is the "Story of Celotex" which tells of the development of the material and of its uses.

"Not a House But a Home," published by the Arkansas Soft Pine Bureau, Little Rock, Arkansas (price $1, post-paid), presents in a very attractive form twelve house designs by Max F. Mayer. The thirty-two page book, 12 by 19 inches in size, is well illustrated with pen and ink sketches and floor plans of the houses presented. A discussion of each plan presented is given as well as a general discussion of building. The prices of the homes are given as ranging from $5,331 to $15,208.


This is the second of a series of books dealing with subjects in the real estate field sponsored by the National Association of Real Estate Boards, the Institute for Research in Land Economics, and the United Y. M. C. A. Schools. The series is being published because of the realization that one of the greatest needs in the real estate field today is for educational courses, not only for the men who now are engaged in the business but also for those who are coming into it.

"Elements of Land Economics" is a survey of land as an economic factor and is planned to furnish a foundation of economic principles for the treatment of land as a commodity. The volume gives the results of many years of research and is written in a readable and pleasing manner. An appendix contains a number of interesting and informative tables, such as one showing the per cent of total land area devoted to various classes of uses; the vacant land in thirteen American cities; proportion of owned and rented homes by geographic divisions and other tables of a like nature.

Answers to Roof Framing Problems on Page 119

1. The length of the hip rafter is 14.421 feet = 14'-1 11/16".
2. (a) The pitch of the roof is 3/4 or 6" rise iol foot run.
(b) The “length per foot run” for this pitch is 18 inches. (For the hip rafter.)
(c) The length of hip rafter is 10 x 18 inches = 180 inches = 15 feet.
(d) The numbers to be used for the top and seat cuts are 17 and 6.
(e) The numbers for the side cuts of the hip rafter are 17 and 18.

A Special Inducement

to enable you to discover the ease of application, economy and lasting beauty of Cameo. We want you to try it for yourself.

The attached coupon and $2.00 will bring you 1 quart each of Cameo White Flat and Cameo White Enamel. Specify whether you wish Gloss or Matte (Satin Finish) (Regular Sales price $3.55).

CAMEO
White Enamels and White Flat
Specifications in Sweet’s

DENNY, HILBORN & ROSENBACK
Chicago, PHILADELPHIA, New York

Fill out and mail this coupon today.

Denny, Hilborn & Rosenbach, 318 W. Washington St., Chicago
Attached is $2.00 for which please send me one quart each of Cameo White Flat and Cameo White Enamel Gloss or Matte.

My Dealer’s Name

Address

City... State.

Send for a sample of Quilt

SAMUEL CABOT, Inc.
Manufacturing Chemist
141 Milk Street
Boston, Mass.

Cabot's Insulating "QUILT"
keeps your whole house warm in the same way. It holds the heat of your heater for insulation... It saves coal enough to pay for itself in two heat winners. Besides keeping the house warm and comfortable for all times and reducing doctor’s bills. “Build warm houses; it is cheaper than heating cold ones.”

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
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The stores shown here are representative of the thousands in middle-west towns of all sizes equipped with Brasco Store Fronts.

The importance of attractive windows is recognized by progressive merchants in smaller towns fully as well as in any of the big cities. A Brasco Front will dominate any location, will attractively frame the merchandise and make sales even before customers enter the store.

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Mail the coupon below for full information.

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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Books, Bulletins and Catalogs for You

The literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost where a price is noted.

Six Quick Steps for anchoring wood floors to concrete without a fill, are described and illustrated in a publication of that name issued by the Bull Dog Floor Clip Company, 108 North First Avenue, Winterset, Iowa. The bulletin, of twenty-six pages and most attractively bound, gives in detail all of the processes of laying a wood floor over concrete by the use of the Bull Dog floor clips.

The Building Estimator’s Reference Book (Frank R. Walker Co., 535 Lake Shore Drive, Chicago, Ill.; price, $10) is the fifth (1924) edition of the work by Frank B. Walker, declared to be completely new. All of the estimates and costs have been checked with present-day costs and costs are itemized, enabling the contractor or estimator to substitute local material prices or wage scales where necessary. The 1,600 page book is 4½ by 6½ inches, bound flexibly. With it is given the Vest Pocket Estimator, a pocket size book giving in tabular form the information most often needed by the estimator.

Ohio Motors, the product of the Ohio Electric & Controller Company, 5900 Maurice Avenue, Cleveland, Ohio, are cataloged in bulletin 204 issued by that company. The motors described are designed for application to domestic machinery, pumps and other devices operated from lighting circuits.


France of the Middle Ages probably saw the highest development of the purely Gothic style of architecture, with its multitude of cathedrals, many of them the work of centuries, and other historic structures exemplifying the art of their designers and the craftsmanship of their builders.

Restorations of these buildings, many of them neglected, were initiated in 1837 by an Act of the Ministry of the Interior, with eight men on the commission charged with the work. In 1887 a revision of the law was enacted, so that thirty-seven men were placed on the commission, which was so composed as to include the most noted members of the administration, and the most famous archaeologists and architects of the period.

In the work, a vast number of measured drawings were accumulated, some of them of the actual condition of the buildings, some showing the restored condition, a faithful reproduction of original design. Selected reproductions of this vast amount of work were published in seven volumes. The originals, were expensive and soon were out of print. It is from these that the plates in the American volume have been reproduced.

Fifty of the plates are devoted to the cathedrals of France, the other fifty to other historical churches and structures. The structures and their details are presented with remarkable clearness.

“The Principles of Real Estate Practice.” by Ernest McKinley Fisher, M. A. (The MacMillan Company, 65 Fifth Avenue, New York, N. Y.; price $3.50). This is the first of a series of books fostered by the National Association of Real Estate Boards, and other groups looking toward an adequate educational program in the real estate field. It has found an extensive use as a text book in colleges, Y. M. C. A. schools and real estate offices.

Better Painting—Greater Profits

In the new 2000-student capacity high school building pictured below, the wall and ceiling surface was spray-painted with DeVilbiss equipment.

The contractor who did the spray-painting reported that three coat work, greater in hiding power and highly superior in quality, was done quickly and without cost where a price is noted. The larger picture at the right shows the spray-painting operation in one of the class rooms.

Devilbiss Spray-painting System

THE DEVILBISS MFG. CO.
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[July, 1924]
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Genasco Roll Roofing is waterproofed with the world-famed Trinidad Lake Asphalt Cement—produced from the ages-old Trinidad Lake Asphalt—a waterproofing product far superior to the artificially-produced asphalts.

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These are just a few reasons why Genasco Roll Roofing is so long lasting and economical—why it is the standard quality roll roofing of the world.

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Books, Bulletins and Catalogs for You

The literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

"Styles in Roofs" is the title of a most attractive twenty-four page booklet issued by the Beaver Products Company, Inc., Buffalo, N. Y., which describes the slate surfaced asphalt shingles, slabs and roll roofing manufactured by the company. The publication deals in an authoritative manner with making homes more valuable through roof beauty; the development of asphalt and goes at length into the matter of selecting the proper roof material for different types of residences and industrial buildings. This information is given in addition to a description of the roofing materials manufactured by the Beaver Products Company.

"Historic Mahogany" is the title of a very attractive booklet issued by the Mahogany Association, Inc., 1133 Broadway, New York, N. Y. It deals with the design and development of furniture by men whose names have become famous through their art in fashioning wood into beautiful fittings for homes.

"Heat Insulation" is the subject of a twenty-four page booklet of standard size for architects' files published by Samuel Cabot, Inc., Boston, Mass. The publication describes Cabot's quilt as an insulating material and tells of its many uses in the building field.

Residence Wall Construction is explained in an attractive booklet issued by the Truscon Steel Company, Youngstown, Ohio. The title of the book, "Beautiful and Permanent Walls and Ceilings Are the Body of Architectural Excellence," gives an idea of its contents, which deal particularly with the latest developments in the erection of metal lath and stucco walls. The publication, which is generously illustrated, tells of the fire-resistant and crack-proof qualities of such walls when properly erected.

Concrete Garages, their advantages and suggestions for building them are the topic of a publication by that name issued by the Portland Cement Association, 111 West Washington Street, Chicago, Ill. The booklet is illustrated with a number of attractive concrete garages of different types and has a number of valuable suggestions for the building of this type of structure.

"Early American Ornamental Cornices," by Aymar Embury, II, is published as Volume 10, No. 3, of the White Pine series of architectural monographs, from the office of the White Pine Bureau, Merchants Bank Building, St. Paul, Minn. The monograph is very well illustrated with the early American houses referred to in the text and with plates from Builders' guide books published more than a century ago. The text is very pleasant and capably written.

"They Weather All Weather," is the title given to a booklet, illustrated in color, describing the "Genasco Latite Shingles," made by the Barber Asphalt Company, Philadelphia, Pa. The different shades in which the shingles are available are shown by means of colored plates and a number of halftones illustrate homes of all types where the material has been used. The text gives a complete description of the exclusive features of the shingles and their advantages for various types of buildings.

Miami Pure White Cabinets are described and illustrated in Catalog No. 4, issued by the Miami Cabinet Company, Middletown, Ohio. The advantages of all-steel construction and the special process enameling are told and shown in detail.

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Fall is Ideal Painting Season
Better Condition of Wood, Freedom from Flies, Better Drying Conditions
Some Reasons for Autumn Painting

FROM the builder’s standpoint there is every reason to encourage fall painting. If for no other reason than he can turn out a better job he should advocate doing work at that time. But when he can do a better job and make a better profit he has a double reason for favoring fall work. And he can make a better profit for he can secure better help and avoid the annoyance and delays that often go with summer painting.

Painting is not just an incident of building. It is sometimes so regarded by the owner and in some instances too lightly held by the builder. But when the preservative qualities, the added beauty and the protection of paint are considered there is every urge for the builder and owner to join hands for a quality job done in a workmanlike manner.

Now any one of those reasons will appeal to the thinking man as good cause for preferring fall painting and all of them constitute a case for fall work that should encourage more painting at this season of the year.

New work is quite apt to reach the painting stage during the late summer or early fall. Some owners are inclined to regret that they are apt to think is a delay, but if the builder will show them the advantages of fall decorating they will look upon the situation as fortunate and prefer the work should be done at this season.

Foster fall painting. It pays owner, builder and master painter. If the public has the facts there is no good reason why fall should not rival spring as painting time.

Black Walnuts That Crack Easily
A NUMBER of native black-walnut trees have been discovered whose nuts possess superior cracking qualities. By means of scions or buds from the original trees, these are being propagated in greater numbers each year, since the value of the nut crop is thereby greatly enhanced and the timber is of the same high quality as that of other walnut trees. Stocks of these selected trees are available in limited numbers from the owners and make possible the growing of valuable nut trees about the home or in nut orchards, says the American Forestry Association.

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Why keep on stuffing into pay envelopes, money that you can put into your own pocket? You will actually save about eighty per cent of your floor surfacing costs—the wages of five or six good men—by handling every floor surfacing job the “American Universal” way.

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The “American Universal” surfaces old floors and new five to six times as fast as it is possible to scrape them by hand. And it does a perfect job. You’ll find no waves or chatter marks in the “American Universal” surface, no imperfections of any kind. Moreover, you’ll find every customer well pleased with “American Universal” work.

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Radford Land Organization
Is Nation-Wide

Our representatives, located in the principal cities and land centers of the United States are men competent by training and experience to lend the most expert aid to those who want to buy or sell land. Each has an intimate knowledge of land values in his locality. Each knows of the most desirable places that are to be had—farms, orchards, poultry farms, ranches, plantations or estates.

Radford Land Organization Brings Land Buyers and Sellers Together

Whether you wish to buy or sell land, Radford Land Organization can be of the greatest service to you. It is a clearing house to which both may come to their advantage. No matter where you are, where you want to be, or what type of land you want to buy or sell, Radford Land Organization is at your service.

Many Who Live In Cities Would Like To Own Land

Many land owners for a variety of reasons would like to dispose of their places and acquire land in some other locality—some other climate, or engage in a different type of activity. To both city men and land owners Radford Land Organization offers a service that is unexcelled. Its representatives are men whose judgment can be relied upon—they have been educated in the school of land experience—they can be depended upon to give real service to either buyer or seller.

If You Are Considering a Purchase of Land

...anywhere in the United States write telling us of your wants—There is no obligation on your part.

If You Have Land to Sell

send us a full description of it. It will be included in our list, compiled for those who are seeking land. This listing is absolutely free.

This is the first of a series of four-page advertisements to appear each month in Farm Mechanics Magazine. They will contain some wonderful opportunities. Watch for them.

Radford Land Organization
1827-1901 Prairie Avenue
Chicago, Illinois
Independence  The land owner is the most independent man on earth. He is at the head of his own business. His home is his own—he owns his land—the fruits of his fields add to the health and happiness and prosperity of himself and his family. Industries may fail—commercial enterprises may be wiped out—but land is always land—it does not change, and always produces a comfortable living.

Health  Neither man nor science has been able to improve on Nature's health producers—fresh, pure air and sunshine. Land owners are blest with these in abundance. Those who are seeking the most healthful mode of life will find it on the land. Pure, rich food—milk, butter and eggs and fruits and vegetables—are to be had at its finest in the country—right at its source.

Happiness  What is finer—more conducive to satisfaction with life than to live in the country. The wide acres, the orchards, the woods and the hills all provide a healthful playground for the children, and clean, comfortable surroundings for the older members of the family.

Prosperity  Not every land owner becomes rich, but with few exceptions he accumulates a comfortable estate. This is something that the average city man cannot do. Operating a farm is steadily becoming more easy. Farming today is not the hard job of our fathers. Modern machinery and methods have enabled present-day farmers to be big producers with a minimum amount of labor. Power and machinery now do what brawn and muscle did formerly.

There are wonderful opportunities on the land. Investigate them. Radford Land Organization will help you.

If you have land for sale it costs you nothing to list it with Radford Land Organization.

Radford Land Organization
1827-1901 Prairie Avenue
Chicago, Illinois

Watch for our big four-page advertisement in Farm Mechanics Magazine each month. There are great opportunities awaiting you.
Do You Want to Buy Land?

**A Farm** Farm lands have recovered from their post-war inflation. Farm lands can now be secured at a price that will enable owners to reap a comfortable return on their investment. Deflation and other circumstances over which land owners had no control have forced some to sell—forced sales in the settlement of estates have created some wonderful bargains in farm lands. The wise investor puts his money in land. It is the safest investment on earth. Now is the time to secure that farm that you have been wanting. Radford Land Organization is in a position to put you in touch with land bargains. Farms of every description, grain, dairy, poultry, garden truck, or fruit farms all may be secured now at a price that insures stable returns.

**A Ranch** Land peculiarly suited to livestock raising is available in many sections. Many of these ranches are being offered for sale at prices that will bring a handsome return. Fruit ranches make a most attractive proposition. They combine high returns with the most desirable of country homes. Foremost judges of these two types of ranches are members of Radford Land Organization. These men offer a type of service that cannot be found elsewhere. Their services and knowledge are available through the Radford Land Organization.

**A Plantation** Farming on a plantation in the Sunny South has brought enormous returns during the last few years. Cotton, sugar cane and early fruits bring high prices. For various reasons some of these plantations are being offered for sale. Radford Land Organization can be of service to those who want to locate in a milder climate and combine with a pleasant life a most profitable type of agriculture.

**An Estate** Business men who are forced to spend a part of their time in the cities find it healthful, pleasant and profitable to have a country estate. Whether it be plain farming, breeding pure-bred livestock or maintaining a country place for the family and for the entertainment of guests, an estate brings large returns in satisfaction and pride of land ownership. Radford Land Organization can be of greatest assistance in helping those who want country estates to find exactly what they desire.

Remember Your land listed without any cost to you. Get your listing in early. Watch for the next of the series of four-page advertisements appearing each month in Farm Mechanics Magazine.

Radford Land Organization
1827-1901 Prairie Avenue Chicago, Illinois
List Your Land for Sale With Radford Land Organization

HERE is a buyer waiting for every piece of land. Slow movement of land merely means that you have not the ability to get in touch with the persons who are seeking just the type of land you want to sell.

Radford Land Organization Lists Your Land FREE

HERE is no charge made for listing land that is for sale. This FREE LISTING is of great value to you. It puts your property before thousands of those who want to buy land. It is the clearing house where buyer and seller are brought together. The more quickly you list your land, the greater opportunity you have to make a quick sale.

Representatives in Land Centers

HOME offices of Radford Land Organization are in Chicago (see pictures at top of page 1). Chicago is ideally located to bring together the land owners and buyers of the West, East, North and South. It is the hub of the land sales of the country. Radford Land Organization offices in the large cities of the country mean added service to you—whether you are a buyer or seller.

Great FREE LISTING of Radford Land Organization

Radford Land Organization offers to prospective land buyers an efficient purchasing personnel. To those who have land to sell Radford Land Organization is in a position to get your offer before the greatest number of prospective purchasers. Lands for sale are listed absolutely free.

Make Your Wants Known Through Radford Land Organization

Write today to Radford Land Organization asking for information about land for sale. Tell us what sort of property you want, where located and the size place desired. Land owners send descriptions of your property in as great detail as possible. These lands will be listed FREE.

Follow these advertisements which will appear each month in Farm Mechanics Magazine. They will be profitable to you.

Radford Land Organization

1037-1901 Prairie Avenue
Chicago, Illinois
Get a Parks!  
and Make More Money

Thousands of prosperous contractors—men like you—are making more money for themselves by using Parks machinery in their shops and out on their jobs.

They cut framing costs 50% with their Parks machines.

They do all sorts of finish work and save the extra money they would pay the mill.

They do their form work in half the time it takes by hand. They save time, labor, material.

They handle two contracts to the other fellow’s one and double and triple their earnings for the season!

The savings a Parks makes for the contractor more than pays its cost on the first job. Get a Parks!—it will prove to be the best money-maker on your pay-roll.

Send for complete catalog of Parks machines

The Parks Ball Bearing Machine Co.
Fergus Street and C. H. & D. R. R.
Cincinnati, Ohio

Canadian Factory:
200 Notre Dame East, Montreal, Canada

NATIONAL FOLDING IRONING BOARD

Complete in a Cabinet Ready to Set in the Wall

SPECIFICATIONS:
Dimensions: 6 ft. 9 in. high, 14 in. wide, 4 in. deep. Fits between standard studding (even with 2½ in. studs).

DESCRIPTION:
The Cabinet is made of Douglas Fir or Redwood with Pacific Wall Board back.
The Ironing Board is the patented National Folding Ironing Board—which folds back and down into the cabinet—safe against falling out.
There is an ironing surface 4 ft. 6 in.—and a folding above board—also a steel iron stand.
The cabinet has three shelves for holding supplies. It is made of dovetail joined Lindermannized stock that is guaranteed not to warp. Ends are cleated to prevent splitting.

Easily and Quickly Installed

National Mill & Lumber Co.
60 Trinity Place
New York

DEALERS AND DISTRIBUTORS
We want dealers and distributors of building material and builders' supplies in many open territories in all parts of the United States. If you handle Wall Board, Sash, Doors, Trim or Built-in Specialties please write for the complete proposition.
The World Knows and Respects the

Ideal Roll-Over Stripper

EVERY one is built with the care and attention that we would use if it were the only machine we were constructing. The best—and no other policy—rules at the new Ideal plant. So you should enjoy the same confidence in your Ideal Roll-Over Stripper that we enjoy.

This remarkable machine produces good Stripper Block and Tile rapidly, using the same wood pallets for all sizes of block or tile—also 4-inch veneer block, two at a time, using cinder or gravel as an aggregate. Combines speed of an automatic with simplicity of a hand machine. Feeds and tamps at same time, producing an exceptionally well-tamped block. Uses up to \( \frac{3}{4} \) or \( \frac{1}{2} \)-inch aggregate which produces the strongest block.

“They paid for themselves on the first job I used them.”

Reliable Scaffold Brackets always pay for themselves on the first job or two. Ever after that they will increase your margin of profit on each job by saving time, lumber and money. This is what one builder says—

Elite Mfg. Company, Cerdiz, Ohio

Gentlemen:

I like your Reliable Scaffold Brackets so well I have just bought several more. I have been using them on a job of repairing an old house and I feel that they paid for themselves fully on the first job I used them on. I consider them safe and all right in every way. The best I have ever worked on or ever have seen.

(Signed) Chas. J. Dickerson.

How about you? Isn’t it time for you to increase your profits? Then pick out a selection of the brackets illustrated—Roofing Bracket, Hook Type Bracket, Ladder Bracket, Corner Bracket and the standard Scaffold Bracket.

Send in your order now. We ship C. O. D. so you can see the brackets before you pay a cent.

ELITE MANUFACTURING COMPANY ASHLAND, OHIO

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Allith

Drawtite Door Bolt

No. 396

For swinging as well as sliding doors. Makes doors weather-tight by drawing them tightly together or against building. When locked with padlock, it cannot be operated or removed. Made of rust-resisting, non-breakable certified castings. The “Drawtite” bolt is simply one of the many unique specialties in the A-P line of satisfying hardware.

Allith-Prouty

Company

DANVILLE ILLINOIS

Manufacturers of
Door Hangers
Garage Door Hardware
Fire Door Hardware
Overhead Carriers
Rolling Ladders
Spring Hinges

Representation Jobbers Distribute A-P Products
Throughout the United States.

“The Sign of Quality”

KWIK-MIX CONCRETE MIXER CO.

Port Washington, Wisconsin

One Kwik-Mix Worked on 76 Buildings!

Regularly, from all parts of the country, users of Kwik-Mix Mixers testify to the satisfactory manner in which their machines are performing. For the most part they emphasize the fact that Kwik-Mix Mixers are well named “Kwik-Mix” and make good all that the name implies. This is what Cermak & Novotny, Chicago contractors, say about their mixer:

“The Kwik-Mix Mixer we have sure is a money-maker. We have used it for two seasons on 76 buildings in our subdivision and the grade and quantity of the concrete turned out more than met our expectations.”

It is performances such as this that is making the Kwik-Mix line of mixers more popular every day. Kwik-Mix Mixers are made in sizes ranging in capacity from 2 cu. ft. to 7 cu. ft. You can get them with or without engine, loader or hoist-rubber-tired wheels as optional equipment.

Fill in coupon below for our latest catalog.

Kwik-Mix Concrete Mixer Co.
Port Washington, Wisconsin

Without obligation to me, please mail me your valuable New Kwik-Mix Catalog.
Name:
Address:
City... State...

*WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER*
FOR your greenhouse ~
for dwelling ‘the Best glass’ is unexcelled ~

"THE Best glass” is the ideal covering for all large glass areas. It has greater tensile strength and a higher modulus of rupture than any other window glass, plate glass, or rolled glass.

The uniformly high quality of “the Best glass” assures permanent protection, while the clear flat surfaces admit the maximum of sunlight.

Successful plant raising requires perfect transmission of light without distortion. Our new process of flattening enables us to produce window glass that is absolutely flat.

“The Best glass” has a perfectly smooth surface and a brilliant polish unequalled by any other window glass. It is machine blown from glass produced in the largest melting furnaces in the world.

From the selection of the raw materials to the final packing in well made boxes, modern methods are used; each process is conducted on scientific principles.

“The Best glass” is graded to the highest standard of quality. Our grading is the recognized standard for the United States, and is higher than the foreign standards.

“The Best glass” is the choice of leading architects and discriminating builders everywhere.

Ask for “the Best glass” by name, and see that you get the genuine.

New Sales Helps For Oak Flooring

One of the most attractively illustrated booklets on oak flooring is now ready for distribution among prospective homebuilders.

It tells the whole story of Perfection Brand Oak Flooring. You will find it of immense help in making sales.

We also have some very successful envelope stuffers for general distribution that we are supplying free.

Write today for these selling helps and full information about Perfection Brand Oak Flooring.

ARKANSAS OAK FLOORING COMPANY
Pine Bluff, Arkansas

AMERICAN WINDOW GLASS CO.
GENERAL OFFICES—PITTSBURGH, PA.
Branches in Principal Cities

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
HERCULES
powerful, economical engines
backed by nation-wide service

From pig iron to paint the entire Hercules Engine is built, not assembled. Built in what engineers consider to be the most modern equipped engine plant in the country. Hercules Engines attain a standard of efficiency and perfection utterly impossible in engines that are merely assembled. Every Hercules is a sturdy, compact, powerful unit that runs with remarkable economy. Each engine will develop the full rated horsepower. It is absolutely guaranteed for five years.

The Hercules is equipped with the wonderful Wico Magneto. So you are sure of an engine that is absolutely reliable. No need for coaxing—no waste of time and energy when you want to start it. One turn and she's off! The Wico Magneto delivers a big, red-hot spark that keeps your engine at work all day long. A Hercules never stalls even when pushed to the limit of its capacity, and under the worst of weather conditions.

Hercules Engines are economical to operate. They require a minimum of repair costs. These are two reasons why there are 350,000 Hercules Engines doing satisfactory work today. Such a distribution necessitates a nation wide organization. This insures you prompt and efficient service. Accidents are rare with the Hercules—but if they occur they do not hold you up. There's always a Hercules dealer near by.

The Hercules Corporation
Engine Dept. G
EVANSVILLE, IND.

HERCULES
ENGINES

7-S Knickerbocker
Built to Cut the Cost per Yard of Concrete—and does it—

No thought of cutting corners in building it to aid production—nothing else to consider but just this one thing, to build it to CUT THE COST PER YARD OF CONCRETE.

Shut-downs increase your cost per yard of concrete more than any one thing—can shut-downs be eliminated? They can and have to a marked degree by the KNICKERBOCKER.

How does the Knickerbocker CUT THE COST PER YARD OF CONCRETE? By increased yardage because of operating features carefully studied out for that purpose—and by designing and building shut-downs out of it—the proof of all of this is up to you—try one.

To the Knickerbocker Company, 525 Liberty St., Jackson, Mich.

Please send Concrete Mixer Catalog—Saw Rig Catalog—Mortar and Plaster Mixer Catalog—

Name...........................................

Street Number...............................

Town..........................State...........
Here is a new Duro Product—designed particularly for Contractors and Builders who have been using troublesome water motors in popular-priced houses.

The Duro Electric Water Lift is a modern electric pump, automatic in operation, having a high-grade two-pole switch, and built to give long life and lasting satisfaction. It costs less to install than the old-style wasteful water motor.

The water motor has never had anything to recommend it but its price. And now, with this new and important addition to the well-known Duro line, progressive builders may have a modern Duro Electric Water Lift at a price that is the wonder of the industry.

Think of it! This genuine guaranteed Duro product complete for $79.50. May be placed on floor or attached to wall. Extra charge for wall bracket as shown, $2.50.

THE DURO PUMP & MFG. CO.
107 Monument Ave. Dayton, Ohio

Are you familiar with this type of window?

Made possible by Carrier's Quadrant Adjuster.
For use in public buildings, schools, hospitals or residences where maximum ventilation, convenience and artistic effect are desirable.

Advantages of this type of window are—
1—Not necessary to move screens to open or close windows.
2—Window is automatically locked in any position.
3—There are no fasteners or hinges required.
4—Eliminates any possibility of rattling or sagging.
5—Both sides of window easily cleaned from within in the room.
6—Quickly and easily installed at a low cost.

Write for our Architectural Leaflet which contains detailed drawings and specifications
Sweets and Architects' Samples
Corporations, New York

CARRIER ADJUSTER COMPANY
Casement Window Hardware—
Jacksonville, Fla.
Three Qualities Necessary for Economical Truck Operation

For real economical truck operation you need solid tires that have in a marked and full degree mileage, traction and cushioning qualities.

The Fisk exclusive non-skid Button Tread is made of a specially tough resilient compound so designed that by proper rubber displacement the greatest cushioning effect is obtained, friction is reduced and mileage increased.

You will find Fisk Solids give you positive traction and the greatest mileage with maximum protection for your truck and load.

Is It Good Business to Drive Over Dollars to Save Pennies?

Is the operator of trucks who postpones equipping them with Gruss Air Springs, because of their initial cost, like the man who walks over dollars to save pennies?

Check up the saving Gruss Air Springs are effecting for other truck operators and then answer this question yourself.

Find out from the thousands of operators who have standardized on Gruss Air Springs how the air cushions absorb road shocks and vibration and thus lessen breakage and repair bills, lengthen the life of the truck and keep trucks in constant service.

Remember that after a careful study by their respective engineers 10 different truck manufacturers now offer Gruss Air Springs as either optional or standard equipment.

Gruss Air Springs are made in 5 different sizes for light, medium and heavy trucks, buses and passenger cars. Shall we send you complete details?
BOVEE FURNACES

OVER A QUARTER OF A CENTURY OF SERVICE
Absolutely Reliable, Durable and Economical

Manufactured in all sizes having 20-inch to 36-inch Fire Pots. Combustion chamber more than double the size of the average furnace.

Save 40% in Fuel

SPECIAL TO CONTRACTORS

STOCK—STYLES—FITTINGS

We carry in stock for all sizes and styles of Bovee Furnaces, all of the above styles of fittings. With our illustrated Price List a contractor can tell in two minutes the exact cost of the entire Heating Plant for any ordinary house or bungalow, and order simply by number.

Very Easy to Install. No Tinner Required. Write for Full Information and Prices.

BOVEE FURNACE WORKS

50 West 8th Street - WATERLOO, IOWA
Alo水平和铅垂仪

$5.00

带来给您

更好的，更快的工作

这台仪器将会极大地提高你的效率，并让你在建筑领域成为无可争议的专家——它会帮你更快地完成更多的工作，增加你的商业、收入和声誉，而不需要花费额外的时间或投资。Alo可转换水平仪和经纬仪的组合是市面上最好的——将二者结合使用，既简单方便，又准确可靠，能够满足所有建筑领域的要求。它是如此简单，以至于任何人都可以使用。

Alo 可转换水平仪和经纬仪组合

您可以在一小时内学会使用它

无需任何专业知识，也不需要任何技能。简单易懂的说明书，易于学习，易于操作。它包括一个铅垂仪，一个动能水平仪，一个经纬仪，以及一块标尺。它适用于测量、水平、垂直，甚至更复杂的任务。

A.L. ALOE CO., 621 Olive St., St. Louis, Mo.

节省第一份工作的成本

这款美国便携式木工工具具有20英寸宽的带锯，让你可以进行任何木工操作，无论是常规的还是特殊的。计算你节省的工时成本或者在车间中的成本！

这个机器可以作为锯片、带锯或切割锯，也可以作为槽口、沟槽，甚至作为槽口、沟槽，以及任何需要的工具。

美国锯木厂机械公司

60 Main Street, Hackettstown, N.J.
1360 Hudson Terminal Bldg.,
New York City

制造商的木工机械，适用于工作或车间使用。

AMERICAN SAW MILL MACHINERY COMPANY

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Dealers Wanted

Weatherstrip men! If you are looking for a real weatherstrip—one which you can sell in the face of stiff competition—and which will give you a highly satisfactory profit write for exclusive territorial selling rights on

BURROWES
Metal Weatherstrips

We manufacture the finest weatherstrips human skill can devise. Our financial stability and manufacturing facilities enable us to give our licensed dealers the kind of support that makes big incomes possible.

Write for full particulars at once, stating territory desired

BURROWES WEATHERSTRIP CO.
1950 South 52nd Ave.
CHICAGO, ILLINOIS

The Perfect Sash Weight

Contractors, Builders and Architects prefer the Perfect Sash Weight because it saves 50% of the labor installation and about three feet less cord or chain on each window. It enables quick and accurate balance of any window with the use of two weights in place of four of the old type.

One Weight and One Cord Serves Both Sashes

Weights are manufactured in stock sizes of 3½ lbs., 7 lbs., 10½ lbs., 14 lbs., 17½ lbs. and larger units for large windows.

Intermediate sizes may be obtained by adding one or more ½ lb. or 1 lb. balance slug to each stock weight.

Ask your favorite dealer or write direct for full particulars.

American Sash Weight Foundry Co.
Davenport, Iowa

One half and one pound balancing units, that are used as necessary with the Perfect Sash Weight to adjust different sashes.
TWO ROOFS IN ONE

with REX FLINTKOTE STRIP SHINGLES

Right Over the Old Wood Shingles

TIME HAS PROVED THE VALUE of this method—used every day in many parts of the country and successfully. Less expensive, simpler, cleaner and quicker than to remove the old wood shingles first. Aggressive contractors and builders' salesmen are pulling doorbells where wood roofs need recovering. There's an immense volume of this work!

FLINTKOTE ROOFINGS
"Better Roofings for Less Money"

THE FLINTKOTE COMPANY
NEW YORK BOSTON CHICAGO
Pershing Square Bldg. 600 Park Sq. Bldg. 1253 Peoples Gas Bldg.
Zinclad Nails
Produce Good Roofs

The man who builds a new home wants service out of his roof.
But he will never get real service from that roof unless you nail his shingles with Zinclad Rustproof Nails. The finest shingles in the world will not stay snug and tight when the nails which are supposed to hold it in place have rusted off and broken.

Use nothing but Zinclad nails—their everlasting qualities will pay you and they will save the home builder a lot of money.

Lumber dealers are our dealers. If your particular dealer does not have Zinclad nails, write to us for information and send us his name. We will see that he gets what you need.

Manufactured Exclusively by
W. H. Maze Company
Peru, Illinois

"A Good Half Inch"

Rocbond Stucco is made by a company with substantial business responsibility. The Strongest Selling Line the Dealer Can Handle. Use the coupon. It will bring information you desire.

The ever increasing demand for Rocbond Stucco through twelve years of successful manufacture proves its popularity as a building material. Rocbond has economical advantages over ordinary forms of construction and is free from repairs.


Four Plants — Write the one nearest you
THE ROCBOND COMPANY
Van Wert, Ohio
Cedar Rapids, Ia.
Harrisburg, Pa.
New York, N.Y.
This Tag is Important

This green tag is now being attached to every bag of genuine Clinton Mortar Color. It gives absolutely accurate directions for mixing color with mortar, so that the brick mason can't go wrong. This is our latest effort to improve Clinton Service.

Color card and folder giving complete information on the use of Clinton Mortar Colors gladly sent free on request.

Write today for interesting literature

The Clinton Metallic Paint Co.
141 Clinton Road :: Clinton, N. Y.

Manufacturers of

Clinton Mortar Colors

Nature's Permanent Colors Made Since 1887

$95 an Hour!

"Every hour I spent on my I. C. S. Course has been worth $95 to me! My position, my $800 a year income, my home, my family's happiness—I owe it all to my spare-time training with the International Correspondence Schools!"

Every mail brings letters from some of the two million I. C. S. students telling of promotions or increases in salary as the rewards of spare-time study. What are you doing with the hours after supper? Can you afford to let them slip by unimproved when you can easily make them mean so much?

For 32 years men in offices, stores, shops, factories, mines, railroads—in every line of technical and commercial work—have been winning promotion and increased salaries through the I. C. S. Over 180,000 men are getting ready right now in the I. C. S. way for the bigger jobs ahead.

Your Chance Is Here!

No matter where you live, the I. C. S. will come to you. No matter what your handicaps, or how small your means, we have a plan to meet your circumstances. No matter how limited your previous education, the simply written, wonderfully illustrated I. C. S. text-books make it easy to learn. No matter what career you may choose, some one of the 300 I. C. S. Courses will surely suit your needs.

One hour a day spent with the I. C. S. will prepare you for the position you want in the work you like best. Yes, it will! Put it up to us to prove it. Mark and mail this coupon now!

INTERNATIONAL CORRESPONDENCE SCHOOLS

BOX 8174-B
SCRANTON, PA.

Box 8174-B

Name: ____________________________________________________________
Present: __________________________________________________________
Occupation: ______________________________________________________
Street: ___________________________________________________________
City State: ________________________________________________________

Canadians may send this coupon to International Correspondence Schools

International Correspondence Schools Limited, Montreal, Canada.

$95 an Hour!

"Every hour I spent on my I. C. S. Course has been worth $95 to me! My position, my $800 a year income, my home, my family's happiness—I owe it all to my spare-time training with the International Correspondence Schools!"

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BOX 8174-B
SCRANTON, PA.

Box 8174-B

Name: ____________________________________________________________
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"Every hour I spent on my I. C. S. Course has been worth $95 to me! My position, my $800 a year income, my home, my family's happiness—I owe it all to my spare-time training with the International Correspondence Schools!"

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Box 8174-B

Name: ____________________________________________________________
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Editor AMERICAN BUILDER:
I had to take off almost an entire evening to carefully go through the June issue, but I assure you it was well worth while. The AMERICAN BUILDER had always been in a class by itself, but this June issue is by all odds the most comprehensive publication that has ever come to our office. You and your associates must have devoted many days and many nights, and much midnight oil in assembling this issue, which is monumental in the building industry. What a sigh of relief you must have issued when it was off the press and moving on to the subscribers. It was one whale of a job, and mighty well done, and we offer you our congratulations.

D. S. Montgomery, Secretary, Wisconsin Retail Lumbermen's Association.

Editor AMERICAN BUILDER:
Your June Historical and Reference Number is one of the finest and most comprehensive issues I have ever seen and I have no doubt all your readers will feel as I do and be just as anxious to offer congratulations.

Will you please convey this expression to Mr. Radford and also give him my very kindest regards?

E. J. Curtis, Vice-President, Curtis Companies, Clinton, Iowa.

Editor AMERICAN BUILDER:
You are to be highly complimented on the Historical Reference Edition of The AMERICAN BUILDER as it can rightly be considered a work of art. We are placing this edition in our reference library and are sure that we will have occasion to refer to it frequently.

M. L. Burbidge, Secretary, Marietta Manufacturing Company, Indianapolis, Ind.

Editor AMERICAN BUILDER:
We are very much pleased with the leatherbound copy of your June Historical and Reference Number. Pleased to note that you intend sending one of these to all the public libraries; we feel sure it will be referred to a great many times.


Editor AMERICAN BUILDER:
I have received the June Historical and Reference Number of the AMERICAN BUILDER, and wish to compliment you upon this edition.

Leon C. Weiss, of Weiss & Dreyfous, Architects, New Orleans.

Editor AMERICAN BUILDER:
I wish to thank you for sending me a copy of the June Historical and Reference Number of the AMERICAN BUILDER. Such an issue is indeed an ambitious undertaking, and I am glad to say that I enjoyed going through it, and found it very informing.

John M. Griss, Chief, Division of Building and Housing, Department of Commerce, Washington, D. C.

Editor AMERICAN BUILDER:
Your admirable historical number, the June AMERICAN BUILDER, indeed is a splendid achievement, and merits sincere congratulations.


Editor AMERICAN BUILDER:
Your directory number is certainly a dandy, and I am sure I will find a ready welcome wherever it is sent. We are more than pleased with the copy sent us, and wish to congratulate you in getting out such a nice piece of work.


Editor AMERICAN BUILDER:
I have just received the copy of the June issue of your publication and I am frank to say that I consider it very complete in its data on the building industry. It is an exceptional issue in this field, interesting and instructive. I want to compliment you and your organization on this work.

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