PENCIL POINTS Volume XIII March, 1932

Number 3

"My Architectural Creed"

By William Adams Delano

Editor's Note:-This is the first of a series of articles, announced last month, in which some of the leaders of the profession will give their ideas as to the fundamental basis of contemporary architectural philosophy. Mr. Delano's creed, though briefly expressed, is pungent and is backed up by a long record of practicing what he preaches. Next month the discussion on the same general subject will be carried on by George Howe, of the firm of Howe and Lescaze. We believe that every architect and designer will read the series with interest and we invite any who wish to comment on the views of the contributors to write us a letter for publication. An open discussion of the subject should be distinctly educational for both old and young practitioners.

believe that Architecture is an Art and not a business. Furthermore, I believe that it is the most difficult of all the Fine Arts. It must serve practical needs and at the same time create an emotion, and the architect's only tools for attaining this end are such intangible things as line, proportion, and color.

I believe that well trained architects can give this emotional quality to a structure in a degree that engineers, trained in a different school, cannot. I believe, therefore, that while Architecture involves Engineering, it goes far beyond it.

I believe that the tendency today to let the engineering element dominate is unfortunate, for I do not believe, as many modern designers profess to believe, that to express a function frankly of necessity creates beauty; but I do believe that no structure can lay claim to being great Architecture which does not clearly express its purpose and which does not adequately meet the needs for which it was created.

I believe that the law of gravity is still in operation and that engineering feats, which enable the architect to carry great loads without apparent support, are not thoroughly satisfying to the eye.

I still believe, in spite of the vociferous shouts of some Modernists to the contrary, that an impression of enduring stability is one of the most essential qualities of great Architecture.

I believe that size has little to do with great Architecture. A small structure which solves the problem perfectly may well awaken as keen an emotion as a vast one.

I do not believe that because sunlight is considered beneficent to human beings, the walls of the rooms in which they live and work should be built entirely of glass. There may be too much of a good thing.

I do not believe that any new form of ornament, however bad, is better than an old and proven one; but I welcome the tendency today to create new forms rather than copy old ones and I rejoice in the many new materials, which give wider scope to the designer's imagination.

I believe that today too much emphasis is given to spectacular drawings. While drawings are the necessary means by which the ideas in the designer's mind are conveyed to the builder and often to the client, they are the means and not the end. The effort often expended on elaborate drawings would be better spent in perfecting the solution of the problem. This applies more particularly to school work.

I believe that one of the chief reasons why this so-called Modern Movement in Architecture, Painting, and Sculpture has gained such impetus is because it is so easy to produce superficial effects without a long apprenticeship. Today with a press eager to publish any novelty, provided it is a novelty, the young designer, be he architect, sculptor, or painter, soon discovers that words speak louder than actions. I believe that this is an unfortunate discoverythat the true artist is seen but not heard.

WM. ADAMS DELANO

January 10, 1932



"THE HUDSON RIVER BRIDGE"-BRUSH AND WASH DRAWING, BY OTHO McCRACKIN DRAWN FROM A PHOTOGRAPH BY FREDERICK L. ACKERMAN Reproduced at the Size of the Original

Silhouettes of American Draftsmen and Designers

7-Otho McCrackin

By George W Smith

Use the southwest there is a voice in the architectural wilderness—that of Otho Mc-Crackin—who has won an eminent position among designers, and has blasted gold and first prizes from small house and other architectural competitions. The aptitude and originality of his projects, the excellence and delicacy of his renderings, but most im-

portant of all, his ability to compel searching attention to buildings of modest cost and size, are his contributions to modern architecture. He has produced his best known work since he has been designing for the office of Mann and Company, of Hutchinson, Kansas. Their commissions extend chiefly through Kansas, Oklahoma, and Texas.

In the Southwest, where the fortunes of agriculture either create or destroy the public purse, the communities are small. The designer must accomplish his purpose by a most direct and economical solution. Seldom can his building have the element of size to give it imposing majesty. With such limitations, the designer must achieve his purpose primarily by a finesse of

mass and proportion. Here, as in many parts of the country, many of the buildings recently erected merely replace the buildings of the pioneers; others, such as community houses, airports, etc., satisfy purposes hitherto unknown. There is little precedent for good design. The early settlers were interested in early settling, not in erecting monuments. Sometimes sheer evangelism is necessary before the designer can gain his goal.

The following biographical account is a thumb-nail sketch of Otho McCrackin up to 1931, as he related it last summer while discussing first-class nonsense in a second-rate coffee shop.

"I was reared and attended school in St. Louis. My first drawing was in a car foundry, where I toasted blue prints and ran errands. I was the best wheel tracer among the inmates. Having decided upon an architectural career, I copied a plan from the *Ladies' Home Journal* (a magazine that has become a handy handbook for the design of houses and 'Mother Hubbards'). From my first client I whizzed \$15.00, or five weeks salary. Oh, where are the commissions of yesteryear? Finding architecture so profitable, I



continued my studies in high school under a teacher named Siler, a former Illinois football player. As engineer, Siler had found that "X" when cornered is about as entertaining as a bowl of last week's mashed potatoes; so he threw caution to the winds and became an architect. Following his example, I then took a special course at Washington University, where I ground out the usual number of park pavilions, monumental monkeyshines, and flimflams, until the critic, Prof. Abella, emerging from a Murad smoke screen with which he always enveloped his criticisms, returned to France to collect the loot for his prize winning design in a big competition.

"After working for a while in St. Louis, during

which time I took Beaux-Arts Problems at the Architectural Club, I shouldered my rattle-traps and moved on, first to Illinois, and then to Texas. Came then the War, and I went up in the air with the balloon service, in which I taught panoramic drawing and a type of descriptive perspective, which can be used to advantage in dividing a mince pie into nine parts, after it has been carved to serve eight. Incidentally, they tell me, it has its uses in artillery fire. Later I had charge of training balloon pilots and observers. I am a licensed balloon pilot. As far as I know, I am still in good standing, and should be glad to hear from any one that is in need of such service.

"I foolishly left the Army, where employment and meals are certain, and clients freely furnished by busi-



' DRAWN BY OTHO MC CRACKIN IN PENCIL ON TRACING PAPER, MOUNTED ON MATT BOARD

PENCIL POINTS FOR MARCH, 1932



FREEHAND PENCIL SKETCH BY OTHO MC CRACKIN-DRAWN ON VELLUM, TOUCHED UP WITH OPAQUE COLORS AND MOUNTED ON HEAVY WALL BOARD SKETCH FOR KEEPER'S HOUSE AND OFFICE, FAIRLAWN BURIAL PARK, HUTCHINSON, KANSAS-MANN AND COMPANY, ARCHITECTS

ness interests who will provide any number of wars on Central America or any other vicinity that is in need of enlightenment and protection. After getting into and out of a business venture in Texas, I came to Kansas, way back when wheat was \$2.50 a bushel, instead of a ton. Here I have seen the hard winters, Easter Sundays with not an egg in the house, and architects' offices as deserted as the Gobi. After all this struggle, I am today wondering if anybody in the world could use a draftsman."

Mr. McCrackin is happily married, and he has two children: a little daughter named Helen, and his baby, the St. Louis Cardinals, with whom he exults in victory and alibies in defeat. He is a fine sportsman, an excellent tennis player, and is often the City Champion Handball virtuoso. He professes no knowledge of bagpipe playing, and little experience with the Scotch national beverage; but every mid-morning and afternoon he breaks out of his harness and goes out to "quaff his coffee." From behind the counter Al, the cook, in serving doughnuts, pitches in gratis his prophecies of the winners for the day. His information is invaluable; for Al has never been known to be right. Meanwhile, Mac makes his preliminary sketches on paper napkins.

As is the case with most outstanding and meritorious men, Mr. McCrackin is so involved with his work and other activities that he has no time to take himself seriously. He is astonished if anyone else does so. He has a gorgeous sense of humor that embellishes his drafting room repartee. Fortunate indeed is the young draftsman that comes under his direction; for his criticisms are most instructive, and are given in a spirit of comradeship. He employs no devices, back drops, stage effects, or smoke screens in winning recognition. His wholesome attitude, friendly spirit, and the brilliant ideas that flow from his pencil bring him his prominence and recognition.

These reproductions of his drawings are quite representative of his work. They show the mark of his individuality and versatility in handling various media. His technique is simple. For quick renderings, he employs show card color or tempera applied to a pencil sketch made on tracing paper that has been sprayed with Fixatif and floated on Upson board. Other examples of his renderings of this type were published in the color section of PENCL POINTS of March, 1928,



STUDY IN PENCIL ON TRACING PAPER FOR ADVERTISING ILLUSTRATION-BY OTHO MCCRACKIN

SILHOUETTES OF AMERICAN DRAFTSMEN AND DESIGNERS-7



PENCIL AND WHITE CHALK DRAWING ON DETAIL PAPER, BY OTHO McCRACKIN OFFICE BUILDING, HUTCHINSON, KANSAS-MANN AND COMPANY, ARCHITECTS







RENDERING IN HEAVY OPAQUE WATER COLORS ON A ROUGH WALL BOARD, BY OTHO McCRACKIN CHURCH, HUTCHINSON, KANSAS—MANN AND COMPANY, ARCHITECTS



THREE PENCIL SKETCHES MADE AT SAN ANTONIO BY OTHO McCRACKIN

SILHOUETTES OF AMERICAN DRAFTSMEN AND DESIGNERS-7



DRAWN BY OTHO McCRACKIN IN PENCIL AND WATER COLOR ON VELLUM SERVICE STATION, HUTCHINSON, KANSAS-MANN AND COMPANY, ARCHITECTS



LITHOGRAPH PENCIL AND WATER COLOR DRAWING ON TRACING PAPER, BY OTHO MCCRACKIN BAND SHELL, ELLENWOOD, KANSAS-MANN AND COMPANY, ARCHITECTS

and March, 1929. The Christian Science Church here shown was drawn on rough Celotex and rendered with tempera and show card color. This monotone reproduction gives some idea of the beauty of the original.

His pen and ink work is embodied with his characteristic boldness, power, and freedom. He finds much recreation in lithography and this medium reflects him exceedingly well. Occasionally lithographs have appeared in this magazine.

Memories of San Antonio and the recent American Institute of Architects' Convention live again in the pencil sketches on page 156, made during that meeting last summer.

Mr. McCrackin is, perhaps, best known as a suc-

cessful contestant in Small House Competitions. He won the West Coast Woods Competition, published in the October, 1927, issue of PENCIL POINTS, and he won second prize in the PENCIL POINTS Competition, shown in PENCIL POINTS, July, 1930, issue. He has been among the cash winners in all competitions that he has entered.

His influence on the young men in the profession is beyond question. His small house prize plans, designs, and presentations have furnished a constant source of inspiration for many houses that are published in architectural magazines. When a man's work is so frequently accepted and utilized, it is evident that he has not only made a very significant impression on his contemporaries, but a distinct contribution to Architecture.



STUDY FOR A LITHOGRAPH BY OTHO McCRACKIN DRAWN IN PENCIL ON VELLUM

Planning for Built-in Equipment

By Arthur Bates Lincoln

Proper location for Household Equipment must be studied on the plans, to place every unit in a suitable location to serve the needs of the family for which the house is designed.

While trying to convince a client that he should build a small house right away, rather than to wait several years until he can afford to build a larger one, the architect can make good use of the argument that it is not size, but judicious planning, which makes a house successful; that many small houses possess a charm entirely lacking in their more pretentious neighbors.

Intelligent study will produce a compact plan, with total floor area unbelievably small in proportion to the rooms which are included. That is the first step in the effort to save space while increasing convenience.

Small rooms, often serving a dual purpose in the life of the household, have created the need for equipment which can be built into a permanent location. New uses for spaces formerly unused have been developed, as many of these built-ins are designed to fit into walls or partitions, where they might be considered tucked out of the way until needed.

Built-in Equipment Should be Shown on Plans

Standing equipment may be installed at any time and in any existing building, but built-in equipment must be placed when a structure is being built or remodeled. Hence the importance of considering these in all phases, and incorporating desirable units in the working drawings and specifications at the time of their preparation.

The selection of suitable items to include is but the first step—of even greater importance is the proper choice of a location for them. These are called conviences, therefore, their location must be adaptable to their physical requirements, and readily accessible to everyone who may be expected to make use of the particular article under consideration. Comfort during use should be a consideration, and of course they must be out of the way when not needed.

There is no better nor more logical time to settle these points than while the plans are being drafted. It is the ingenuity displayed by some architects in developing the plan, with the many convenient ideas incorporated without conflict, which lead the clients to sing their praises after they have had a few months' experience living in the houses designed for them.

One of the distinctive features of the small house as planned for the present-day client is the variety and ingenuity displayed in providing built-in conveniences. The architect is unwise if he neglects the advantages of the proper installation of equipment of this type. The very fact that speculative builders, who spend only as much as they think necessary in order to sell their houses, build a few of them in is concrete evidence of the drawing power of built-in features among the people who buy and build homes.

The client will frequently discuss with his architect a list of built-in equipment and will offer suggestions for space and labor saving which have been gleaned from magazine advertisements and similar sources. While developing the working drawings, therefore, the architect should consider all of these items with which the market is flooded today. He should be familiar with their advantages and their disadvantages, for some things are good for one house, while others will better serve another.

If the client has never lived in a house before, which is not infrequently the case, how is he to think of everything needed? He will confine his interest to the items which have appealed to his imagination.

The architect has an important function in this matter. He must think of unmentioned items, which might prove desirable, so that no important one will be overlooked until too late. For this purpose, a check list which may be reviewed with the client may prove invaluable. Many architects have developed this in one form or another. For the particular benefit of the architect whose experience may have but recently been directed toward this field, this article is written.

CONVENIENCE BUILT INTO CLOSETS

One of the surest evidences of careful planning is the inclusion of a proper number and variety of closets. It is not the architect, but the speculative builder, who is guilty of the charge made by so many housewives, that closets were not given proper consideration in her new home.

These closets often have equipment built into them, including electric lights, to increase their ability to be of service. Those most commonly included in small houses are as follows:

- BED CLOSETS: housing portable or disappearing beds.
- BROOM CLOSETS: in the service hall on both first and second floors where possible; the floor area large enough for the modern vacuum cleaner.
- CEDAR CLOSETS: side walls and ceiling lined with 3/8" aromatic red cedar, or cedar impregnated plaster.

CHINA CLOSETS: in dining or breakfast rooms.

CLOTHES CLOSETS: located in all bedrooms; two in master room.

COAT CLOSET: near entrance door.

LINEN CLOSETS: near bedrooms and bath.

STOCK BUILT-IN EQUIPMENT

A brief survey of the field of stock built-in equipment will reveal that they may be naturally grouped under three classifications. There are those intended to be built into the exterior wall of the house, the majority providing for communication between the members of the household, and some person without. The second and larger group includes those designed to go into a partition, in many instances fitted between standard spaced studs. Then there is a small miscellaneous group, not intended to be built into walls at all. Much of the electrical equipment stands on the floor, requiring forethought to provide electrical outlets in proper places.

The items most commonly chosen to be built into the exterior wall, and which it will be advisable to check over with every client, are these:

- COAL CHUTE: this equipment comes in two types. One sets in the ground with a door flush with the grade level, the opening through the foundation wall being below grade. This wall opening will be 2'0" to 2'6" square. Where the ceiling of the coal bin is at least 18" above grade, the wall type, glazed where light is desirable, will require an opening 24" wide by 18" high. This chute should be accessible from the drive or walk, and should empty into the coal bin in the cellar.
- GARBAGE RECEPTOR: should be located near the sink in the kitchen, set above the base, the door on the outside to come over the service walk, or near the service entrance. It is 19" x 29".
- ICING DOOR FOR REFRIGERATOR: only needed where the ice man calls. The door through the outer wall must come opposite the door in the back or side of the ice compartment in the refrigerator. Size is determined by model of box, should be located on service walk or at rear porch.
- LETTER BOX: bronze letter plate slot should adjoin the front door, with opening on the inside into the vestibule or hall. Wall space at least 12" wide will be required. Inner door should be no lower than 30" above the floor for the convenience of the housewife in picking up the mail.
- METER BOX: ELECTRIC: locate in basement wall where electric service will enter, size 13" x 16"; may be arranged with access from outside, so that meter reader will not have to enter house.
- PACKAGE RECEIVER: place in wall of kitchen or service hall where it will be easily accessible to the milkman and delivery boy when the house is locked up; it should be equally convenient for the housewife to reach from the inside. 12" x 14".
- VENTILATORS: GABLE LOUVER: place in gable ends above upper floor ceiling with chain dropped to within reach from floor for operating friction control louvers on stock steel units, ready screened, 12" wide or more, 18" high or more. ELECTRIC: cabinet, fan, outside louver and hardware in stock unit 12" x 16". Show high up on kitchen wall, provide electric outlet.

WALL OF MASONRY: metal ventilating unit, brick size, louver outside face, bricked into masonry, to ventilate room or range where fan is not desired.

FOUNDATION WALL: where cellar is not to be excavated, show stock, screened and shuttered grille, 9" x 16", on wall under floor beams to prevent dry rot in timbers.

Varied and diverse are the uses to which equipment located in partitions are put. Those in most common use are:

- ACCESS DOORS: place at the end of recess bathtubs, etc., size about 16" x 24", set them above the wood base.
- ACCESSORIES: in tile walls of the kitchen and bathrooms. These include *holders* for paper towels, soap, tumblers, tooth brush, sponge, toilet paper: *hooks* for robes and strop, towel bars and grab rails. Because of the small size of these, it is impractical to show their location on the plans. That will be determined at the building, but they should be carefully enumerated in the specifications.
- ALARM SYSTEMS: burglar or fire, provided by wire circuits running around door openings and rooms and connected to signal box.
- BELLS AND BUZZERS: locate push buttons at entrance doors, in the dining room and master bedroom, bells located in the kitchen and maid's room. Specify transformer for electric current operation.
- BLINDS: Venetian blinds will roll up into a pocket in the head of the window.
- BOOKCASES: shelving may be shown in any shallow recess, adjoining the fireplace, or wherever the client expects books will be in demand.
- CABINETS: BATHROOM: why always over the lavatory? Try a mirror over that fixture and recess this cabinet in a partition behind some door. CHINA: hanging on the wall or in a corner. KITCHEN: stock units which should be carefully located on the plans since they constitute one of the important factors in the efficient arrangement of the kitchen.

LINEN: supplementary to the linen closet. These hold a few items for immediate use in the bathroom or kitchen.

STORAGE: cabinets may be provided for various uses to meet the whims or demands of the client. They will hold soap and cleansing powders near the kitchen sink, another will serve as the hiding place for cleansing agents in the laundry and the bathroom.

TELEPHONE: Select a location for the instrument which is within easy reach from any part of the house, where it will also provide privacy during a conversation with opportunity for resting comfortably should the discussion become protracted. Natural or artificial light is essential for looking up numbers; remember the fine print of most telephone directories. The cabinet should not be set too low, it is preferable to have the shelf upon which the instrument rests about 48" above the floor, since, when a person first lifts the receiver, he is most often standing.

- CHUTES: for dirt and dust, with outlet in base of the room and metal duct to the cellar.
 - LAUNDRY: 9" x 12" rustless metal duct from second floor to basement laundry, with access doors in the hall on each floor where they may be reached by everyone.
- DUMB-WAITER: shaft extends from basement through the first floor, shaft with average size of 24" x 30", operation electric or hand.
- HEAT REGULATOR: thermostat on wall of a first-floor room, usually the dining room, wired to controls on the heating boiler.
- HEATER: auxiliary electric, recessed into wall of bathroom or nursery.
- HUMIDIFIER: show on an inside wall of the lower hall. Cabinet sets between studding 48" above the floor. Water and waste connections must be provided for.
- IRONING BOARD CABINET: place in wall of laundry or kitchen, where good natural light will be available. Allow a suitable place for the ironer to stand, include an electric outlet at convenient height. This equipment will be set between studs and should be so located that the board when in open position will be 33" above the finished floor.
- LAUNDRY HAMPER: show in wall of bathroom; to be set above the base. Stock sheet metal unit is 18" x 36".
- PANEL BOX: show in partition of service hall or kitchen; the electric fuses in all circuits should be located here. Give consideration to latest type circuit breakers requiring no fuses.

RADIATOR RECESS: show under windows, etc.

RADIO WIRING: aerial and ground wires should be specified to run in partitions, with jack boxes shown in living room on plans.

SCREENS: rolling up into box at head of window.

- SEAT: show in wall of bathroom, to fold up into wall when not in use.
- SHOE SHINE KIT: show in bathroom or basement partition, located where it will have good natural light, withdrawn from passage of hurrying people. Bottom of the box should be set into the wall 18" above the floor.
- **TABLE AND SEATS:** show a foldaway breakfast set in kitchen or alcove near by china cabinets; good natural lighting is desirable. This unit will be housed in a cabinet standing 5'6" high, and the clear area on the floor in front of it must be approximately 5'0" wide for a distance of 4'0" from the face of the wall.

Some of the built-in equipment which is most frequently requested by clients is located in neither walls nor partitions, but will be found on the ceiling, in the chimney, or below the floor. Those in most frequent service include:

CEILING CLOTHES DRIER: a rack of bars, this may be placed in laundry or kitchen.

- DISAPPEARING STAIR: a stairway of this type must be located with care, and it will often be advisable to draw section studies to be sure that when it comes time to build this piece of equipment into the partly completed house, there will be room for it to operate freely. The first step is to locate a clear ceiling area wherein the opening may be placed. These openings are 24" to 30" wide, and at least 66" long. An important point, which may lead to disaster if neglected, is the height required under the rafters for the swing of the stair when it pivots prior to sliding down. With the normal second-floor ceiling height of 8'0", the radius of this swing under the attic rafters will be 5'4", by no means an insignificant item. Finally when the stairway is slid down into position for ascending, what space has been allowed at the foot of the steps for access to the stair? There should be a clear floor space, 30" or better. Sometimes there is a partition immediately behind the stair. If there is to be a door in this partition it should not be located under the stair opening, for the stair will be in its way.
- FIREPLACE: specify a damper to control the draft, and where there are no skilled masons available, a smoke chamber of steel might preclude the hazard of faulty construction. You should also consider the possible installation of a heat unit lining to raise the temperature of the air in the room by circulating it around the fire.
- INCINERATOR: a household incinerator should have a combustion chamber shown built into the base of the chimney, with a flue at least 12" x 12" independent of other equipment. This flue and chimney should be so located that a hopper door into the flue may be placed in some wall of the kitchen on the floor above.
 - Combustion chambers for this type of equipment have been standardized by the manufacturers of the equipment required, and should be considered in laying out the basement plan. Metal work for grates is built into the enclosing walls which are at least eight inches thick, including an inner lining of fire clay brick. Location of clean-out door must not be too inconvenient for raking out ashes after burning. A spark arrester will have to be anchored to the top of the flue, and its appearance may interfere with the architectural scheme unless it is reckoned with.
- ROTARY ASH RECEIVER: if this type of equipment is to be included, it should be located in a pit under the heating boiler.
- UNDERGROUND GARBAGE RECEIVER: a can within a buried receiver, so placed that everything except the cover of the equipment is under ground and out of sight. A location near the walk or service porch should be settled upon for this. At the same time it must be clear of the sidewalk, because the cover might prove a stumbling block for the unwary.

[161]

- BUILT-IN SHOWER: a space at least 36" square should be allotted for the purpose, with an entrance opening at least 20" wide. A receptor of porcelain, enameled iron, or slate with drain opening will constitute the floor, the upper walls are usually tiled for a height of at least 6'0". A built-in of this type often replaces a tub in one of the bathrooms of the house.
- ELECTRICAL EQUIPMENT: this requires proper allotment of floor space so that it will stand convenient to hand, with its electrical outlet nearby into which the cord may be plugged. In the kitchen these may include refrigerator, range, sink for dish washing. The location of the outlets forms an important story in itself which was discussed in the December, 1931, issue.



"THE SYDNEY HARBOR BRIDGE, DECEMBER, 1930" FROM A LITHOGRAPH BY R. E. CURTIS

The Charcoal "Smooch" Technique

By Walter K. Smith, Jr.

"S mooch" rendering in charcoal is a recent development in the use of that delightful medium and, in all probability, is one with which the majority of draftsmen and delineators are not yet acquainted. The word "smooch" seems to be an apt designation for this method, which differs from ordinary methods of charcoal rendering mainly in the way in which the charcoal is applied and its ease of application.

The delineator who is accustomed to attack his rendering with a thick stump of charcoal in one hand and a kneaded eraser 'in the other, revelling in dramatic mass, plane, and high-light, will discover a new pleasure in smooching, and will acquire a countenance just as satisfyingly smudged in the process, without which charcoal rendering would lose much of its appeal. His more academic brother, whose custom it is to fill in the dilute ink outline of his drawing with pale wash upon pale wash of Chinese ink, and who firmly believes that any other method of presenting competition drawings should be placed hors concours along with the drawings, will find the method no less interesting, since it lends itself to the production of extremely delicate as well as very powerful presentations. A variety of effects may be obtained, depending upon the sort of paper used, the depth of tones desired and, of course, upon one's own inclinations.

The materials required are few and easily obtainable, consisting of the following: Charcoal, finely ground and compressed into sticks, and known as Conté Sauce, Conté Sanguine crayon in stick form, a roll of absorbent cotton, a few sheets of hard, thin paper, such as cross-section paper, and a variety of erasers, hard and soft. Ordinary charcoal will serve, if very soft, but it will not be found capable of the same depth of tones as Conté Sauce. Other Conté crayons may be found useful, particularly the browns and reds, as may also pastels. It is my experience, however, that monochrome renderings in this medium are, as a rule, more successful, particularly in warm black, which is obtained by a mixture of charcoal and sanguine crayon. Nevertheless, interesting results can be obtained with pastels used in conjunction with charcoal.

The method of procedure is simple, and consists in building up values by the application of charcoal dust, rubbed into the paper by means of a tuft of cotton, confining the operation to one portion of the drawing at a time by means of templates, which are cut out of the hard, thin paper. Most of us have used templates in blowing on skies or in rendering with blown washes. The templates used in this method serve the same purpose—that of preventing the tone or wash from reaching other parts of the drawing. However, in this case the template is held down with

the left hand, instead of being glued or thumb-tacked down, and the charcoal is rubbed on with the other. A number of templates will be required, all of simple form; some with a rectangle cut out which is the size and shape of windows which are repeated, others with circular holes, narrow slits, and so on. The most useful will be a sheet of paper with a large rightangled corner cut out.

Various papers will give different results; those having a great deal of tooth, such as cold-pressed Whatman, will hold a large amount of the charcoal as it is rubbed over the surface, and deep, rich darks may be obtained. Drawings made on tracing paper may be rendered and mounted, very interesting results being secured in this way. In fact, almost any paper, except those with smooth surfaces, may be used, and some experimentation in this direction will prove well worth while.

The drawing may be made with very dilute ink, or with a 4H pencil, or not at all, as we shall presently see. It is imperative that it be kept absolutely clean and free from grease. A finger-print is apt to develop into a noticeable blemish, and erasures will be found to accumulate more charcoal than the surrounding surface, as in other forms of charcoal rendering. The resulting dark spots are difficult to conceal, although it is not impossible to do so.

Assuming that the drawing has been completed and shadows cast, we are ready to start rendering. A quantity of charcoal dust is prepared by grinding a stick of Conté Sauce round and round on a piece of paper in the same manner in which Chinese ink is. ground in a depression in a piece of slate. Since the charcoal used alone produces rather hard and cold tones, it is desirable to grind a small amount of sanguine or sepia crayon into the charcoal dust. This accumulation of dust constitutes a supply reservoir. A tuft of cotton is rubbed into it and then rubbed on a separate sheet of paper to impregnate it thoroughly and evenly and to brush off the surplus dust. Now, having selected the plane of our drawing which is to receive the lightest tone, we start at an upper corner and rub on the tone with the cotton, using a template with a corner cut out to limit the tone to that particular corner. The template is then shifted so as to present a straight edge along an edge of the plane, and we proceed until the whole plane has been given a uniform tone. It is an easy matter to grade the tone as it is applied, either by varying the pressure of the cotton, or by varying the amount of charcoal dust used in charging the cotton. Other planes will receive darker tones in the same way, until the whole drawing has been rendered with the proper relation of values in its different, parts. Shadows, openings, ornamentation and so on may then be defined, and it should be



A RENDERING BY WALTER K. SMITH, JR., MADE ESPECIALLY TO ILLUSTRATE THE CHARCOAL "SMOOCH" TECHNIQUE Size of original, 35" x 24"

THE CHARCOAL "SMOOCH" TECHNIQUE

noted that the same template serves a double purpose. For instance, it may be desired to have the windows lighter than the building, in which case the template cut for the purpose is used as shield through which to erase, either with an eraser or with a clean tuft of cotton. If the windows seem to require a darker tone than the building, the template is used to apply more charcoal. The same template is used to erase a high-light on a column and to produce a shadow on the same column.

A marked similarity will be seen between charcoal rendering in this manner and the Chinese ink rendering of our *analytique* days. Tones are applied with much the same effect as washes, and they may be built up, one upon another, just as they are built up with washes only much more speedily. It will also be found they do not smudge easily until they have been built up rather heavily, for the reason that they are ground thoroughly into the paper.

So much for the general method of "smooch" rendering. It is an easy process and a very quick method of rendering. There are, however, a number of interesting wrinkles in connection with it, which may well be included in this article. Sometimes it will be found that too dark a tone has been applied, and it is a difficult matter to lighten it without streaking by using an eraser in the customary fashion. If a quantity of the eraser crumbs which accumulate during the process of rendering are spread over the surface to be lightened, and rubbed with a clean tuft of cotton, the tone can be made considerably lighter, with little danger of streaking. In the same manner, using a little care, dark spots can be obliterated.

As mentioned above, it is possible to make a "smooch" rendering without making a finished drawing on the paper upon which the rendering is to be presented. This may be done in two ways. A drawing made on tracing paper may be cut into several templates, and the background fastened down on the paper. The building is "smooched" in mass outline, and the various parts brought out by using templates cut directly from the tracing. Another method is to place a sheet of tracing paper over a drawing on tracing paper, and to make the rendering on the super-imposed sheet, after which it can be mounted.

Extremely interesting renderings can be made by introducing a certain amount of color in the form of Conté crayons and pastels, mixing them with the charcoal for all-over tones, and using them straight for strong accents. Another very useful material which can be employed to obtain striking effects is an aluminum powder, known as Aluminum Lining. Aluminum powder, sanguine crayon, and charcoal make a very fine combination of colors, capable of producing most satisfactory results.

This discussion of "smooch" has been confined to its applications in the field of architectural rendering. It has, however, many other possible uses, such as in poster work, in sketching with charcoal (using it for all-over tones), and many others which will suggest themselves to those who care to become acquainted with this simple process.



A PORTION OF THE DRAWING SHOWN OPPOSITE, REPRODUCED AT THE EXACT SIZE OF THE ORIGINAL



FIGURE 3



FIGURE 4 (See text opposite)



FIGURE 1

On the Use of Cutouts in Rendering

By Arthur L. Guptill

Editor's Note:—This manner of making a rendering will be of particular interest to those whose work includes the preparation of presentation drawings. Mr. Guptill describes this method of studying a composition in his forthcoming book on water color drawing which is now in process of preparation.

This little trick is one which has proven so useful in my classes that I am glad to meet the suggestion that I make it available to all PENCIL POINTERS. It should be helpful mainly to the man who is able to render architecture with a reasonable degree of skill

but who falls down on the composition of his entourage. Too many delineators of the nonprofessional class pro-

duce their renderings by addition. I am thinking particularly of perspectives of a somewhat naturalistic nature. This is what I mean by "addition." One renders the



FIGURE 2

building itself near the center of the paper. Then he sees a fine big empty space and thinks it a good spot for a tree, and in goes a tree. That is addition. This makes some other area appear bare and in goes another tree. Addition again. Then there are smaller blank areas which are filled with bushes, tree shadows, and so on. Finally the sky looks vacant, and clouds are added and a couple of drooping branches bearing bananas (?) are stuck in to fill the corners. With a happy smile the artist gazes at his finished product! Rendered by addition!

I grant that this method sometimes works, but more often it doesn't. It's a hit or miss sort of thing. Better for one, if free to do so (frequently, of course, an existing site must be portrayed) to try to compose a logical setting for his architecture.

A common method which I strongly recommend is to lay tracing paper over the perspective layout and sketch trees and the like, not merely where there are empty areas on the paper, but where they are properly related to the building itself. If the rendering is to be colored such a sketch can be done in colored pencils or crayons and so will serve as a guide for both the composition and coloring of the final. Sometimes this method is carried a bit further. A tree, for example, is sketched on one sheet of thin tracing paper placed over the layout. Another tree of different type or scale is drawn on a second sheet placed over the first. Bushes are sketched on a third, or individually on small sheets, and so on. Then these sketches are shifted here and there or others are substituted or changes made until a satisfactory composition is suggested, which is redrawn with more care on the final.

Cutouts are merely a further development of this idea. One renders on paper and cuts out a number of trees, bushes, etc., of different kinds and sizes and, perhaps, colors. When the first light tones have been applied to the layout these cutouts may be experimented with, laying them on and trying them in different positions. Usually a pleasing composition is soon discovered; then the cutouts are lightly outlined on the rendering, with any necessary modifications, and the work carried to completion.

This is illustrated in the sketches. In Figure 1 we reproduce at small scale three cutouts, A, B, and C. In Figure 2 we show a rendering with little foreground treatment. This rendering is carried further than I would suggest at this early stage; imagine it to be merely an outline drawing, lightly tinted. In Figure 3, cutout B has been laid on at the left and part of cutout C has been added at the right. In Figure 4, cutout C has been placed at the left. In Figure 5 cutout A has been substituted. In all cases, unwanted portions of the cutouts have been hidden by strips of white paper. Study these different effects. Note how they vary, even though the original rendering remains the same in each instance. Make your own cutouts and arrange them in various ways.

Obviously such cutouts are seldom of exactly the needed shape or size or value, but in the final rendering any changes can be made easily. Don't get the notion that these cutouts are to be pasted on the drawing; they merely serve as guides for rendering. If they tend to curl, lay a sheet of glass over them.

A treatment like that in the beautiful rendering by Otho McCrackin, reproduced as a frontispiece in this issue, could quite easily be visualized by use of a cutout or two. Though not actually composed in this manner, you can sense the cutout quality of the foreground trees. But try the thing yourself; it works with any medium, you'll enjoy it and it should prove worth while.



FIGURE 5

A Study of the Economic Height and Cost of Buildings^{*}

By Eugene B. Church

"How high shall we build?" is a question which has intrigued the speculative imagination and ingenuity of even experienced investors in the complex field of building construction. It is a question that grows in importance with the pyramiding of land values in central business districts, with the towering masses of materials that go into modern skyscrapers, the high cost of those materials and the labor required for their installation and the keen competition which has grown up around the profitable investment of such enormous units of capital.

In almost any American city one may find two and ten or twelve and twenty story buildings side by side or, at least, on sites of fairly equal value, the buildings erected within a few years of each other, of similar general character, unit cost, and occupancy. The incongruity of height, and therefore of investment, is obvious to even the most casual observer. This incongruity implies that there is no law to govern, no fact to consider, no relationship to guide, no economic principles which can be applied to this important problem; it implies that the height of a building and the justifiable investment are wholly indifferent and have no relation to economic laws, which is obviously untrue. There is and must be a most economical height and total investment for every group of conditions and any alternative is unthinkable. The addition of one or four or twenty stories is inevitably either an advantage or a disadvantage-is either more or less profitable-and cannot be a mere indifferent matter of whim or opinion. Not only so, but since height and cost are inseparable, there is and must be a total investment which will be the most profitable for any particular group of conditions; this is the economic investment and the corresponding height is the true economic height. It will be found that there are laws, facts, relations, and economic principles by which both economic height and cost are governed and an analysis of these should do much to clarify the present anomalous situation.

The following discussion is intended to define and illustrate the principles involved and the manner of their application to any specific problem. In order to avoid confusion and to promote simplicity and definiteness, it will be necessary to begin with a system of abbreviations of the various factors which are used and to show the formulas that are used in the several calculations.

Nomenclature

- A Area of land in sq. ft.
- a Gross area of building in sq. ft.
- B Total cost of building = aHbp.
- b Construction cost of building per cu. ft.
- c Ratio of gross building area to site area.
- d Ratio of net rentable to gross building area.
- e Ratio of net to gross income, allowing for vacancies and all other factors.

- F Obtainable annual rental rate in dollars per sq. ft.
- f Total required annual rental rate in dollars per sq. ft., called "Total Rental" = R+r.
- H Total height of building in feet = hn.
- h Effective gross story height in feet = H/n.
- (Not to be confused with actual or net story height.)
- K Nominal interest rate.
- k Actual interest rate.
- L Land value in dollars per sq. ft.
- Construction cost of building per sq. ft. of gross area = Hb.
- N Most economical number of stories.
- n Number of stories.
- p Carrying, financing, and other charges as a percentage of construction cost, plus one.
- R Annual rental rate in dollars per sq. ft. required to produce the nominal interest rate (K) on the value of the site—called "Land Rental."
- r Annual rental rate in dollars per sq. ft., required to produce the nominal interest rate (K) on the total cost of the building—called "Building Rental."
- T Total justifiable investment.
- t Total actual investment.

FORMULAS*

These formulas may be utilized in a variety of ways by changing their form as may be required by the known and unknown factors and will be found useful in any analysis of economic height or cost as well as in other applications.

This formula gives the annual net rate of return on the total actual investment:

$$k = Fdena/t$$

This formula gives the total justifiable investment on any total annual rental rate:

2.
$$T = Fdena/K$$

This formula gives the total annual rental rate in dollars required to produce a given net rate of return (K) on the value of the land:

3. R = LK/ndce

Each of these formulas gives the total annual rental rate in dollars required to produce a given rate of net return (K) on the cost of the building:

4.
$$r = Khbp/de$$

5.
$$r = 1K/nde$$

To check the required rental rates R, r, and R+r in existing buildings, the following may be used:

6.
$$R = ALK/aden$$

- 7. r = BK/aden
- 8. R+r = (B+AL)K/aden

*Formulas Nos. 1 to 5, inclusive, are derived or altered forms of those given in the very excellent book, "Building for Profit," by R. P. Bolton, published by the DeVinne Press, New York, 1923.

This article is copyrighted 1932 by the author.

FIXED RELATIONS

The following relations, mathematically expressed, will be found helpful in deriving the several economic factors most frequently used and most essential to a thoroughgoing analysis of any economic problem of building investment:

Total net rental area in sq. ft.,	adn
Total gross annual income,	adnF
Total annual operating expenses, (andF) (1-e)
Total annual net return,	adenF
Net rentable area per sq. ft. of site,	adn/A
Volume in cu. ft. per sq. ft. of net rentable,	H/dn
Land cost per sq. ft. of net rentable area,	AL/adn
Building cost per sq. ft. of net rentable area,	Hbp/dn
Total cost per sq. ft. of net rentable area,	
AL/a	dn+Hbp/dn

Ratio of building cost to land value,B/ALNet rentable area per \$1000 of land value,1000 adn/ALBuilding cost per sq. ft. of site,B/AAverage rentable area per floor per sq. ft. of site,ad

DEFINITION

The economic height of a building may be defined as that number of stories at which the total required rental reaches a minimum; or, expressing the same fact in other terms, that number of stories at which the total cost per unit of net rentable area is minimum; or, to state a result, that number of stories at which the rate of net return on any obtainable rental will be maximum. The concurrence of these three conditions constitutes three-fold evidence that the height so determined is the most economical.

The economic cost of a building is the total cost of the building of the most economical height.

DERIVATION OF ECONOMIC HEIGHT

As a preliminary to the derivation of the economic height it will be necessary to fix the land value, the average story height, the gross area of the building, and to estimate or assume the rate of increase of the cost per cu. ft. from some basic number of stories. It is also desirable to estimate or assume the rate of decrease of net rentable area from the same basic height. (This is not essential in calculating economic height but highly desirable in order that the rentals shall be as accurate as possible.) This being done, a tabulation should be made for a series of stories. Table No. 1 shows an example in which the rentals were used to find the economic height. It will be noted that the total rental gradually decreases until the economic height is reached, after which it increases again; in this table, 25 stories show the least total required rental and is, therefore, the true economic height.

If now it be desired to find the effect of increasing the land value, say 50%, then the land rentals may be increased 50% for the several stories and the original building rentals for those stories added for the new totals. It will be found that the economic height is increased, thus correctly reflecting the effect of the new land value.

Since it is not possible to find this height by means of a simple or direct calculation, the results must be tabulated covering several stories and either of the following forms may be used, depending upon the method to be employed:

1. If the economic height is to be found by means of least rental the following form may be used, R and r being calculated by formulas No. 3 and No. 5, respectively:

n	H	bp	d	R	r	R+r
1.2.20	*		No. of the second			

2. If the economic height is to be found by means of least total cost per sq. ft. of net rentable area, the following tabulation will serve the purpose:

n	H	bp	d	В	AL+B	adn	(AL+B)/adn
	13						

3. If the economic height is to be sought through the maximum rate of net return on any obtainable rental, then this form of tabulation may be used, k being supplied by solutions of Formula No. 1:

n	H	bp	d	B	t = AL +	-B	k = 1	Fdena/t
1							14.274	
to.of Stories	otal leight	otal cu. ft. ost		atio net to ross area	and ental		tental	otal cental
n	H	bp		d	R		r	R+r
15	180	.5315	5	.729	.76208	1.1	6653	1.92861
16	192	.5360)	.726	.71740	1.1	8127	1.89867
17	204	.5405	5	.723	.67800	1.1	9613	1.87413
18	216	.5450)	.720	.64300	1.2	21111	1.85411
19	228	.549	5	.717	.61171	1.2	22622	1.83793
20	240	.5540	0	.714	.58357	1.2	24146	1.82503
21	252	.558	5	.711	.55812	1.1	25682	1.81494
22	264	.5630	0	.708	.53501	1.1	27232	1.80733
23	276	.567	5	.705	.51393	1.2	28794	1.80187
24	288	.572	0	.702	.49462	1.3	30370	1.79832
25	300	.576	5	.699	.47687	1.	31845	1.79532
26	312	.581	0	.696	.46051	1.3	33563	1.79614
27	324	.585	5	.693	.44537	1.3	35717	1.80254
28	336	.590	0	.690	.43133	1.	36812	1.79945
29	248	.594	5	.687	.41828	1.	38457	1.80285
30	360	.599	0	.684	.40610	1.4	40117	1.80727
31	372	.603	5	.681	.39474	1.4	+1791	1.81265
32	384	.608	0	.678	.38409	1.4	43481	1.81890
33	396	.612	5	.675	.37411	1.4	45185	1.82596
34	408	.617	0	.672	.36473	1.	16905	1.83378
35	420	.621	5	.669	.35589	1.	48640	1.84229

TABLE NO. 1

Showing calculations from 15 to 35 stories to find economic height by means of rentals. Minimum rental of \$1.79532 establishes economic height at 25 stories.

Land Value, \$50.00 per square foot.

FACTORS WHICH AFFECT THE ECONOMIC HEIGHT

Of the several factors of building economics, some are essential as affecting the economic height while others are nonessential and do not affect it. The former, which are basic, affect the latter which are derivative but the nonessential do not affect the essential factors.

The land value (L) affects the economic height (N) directly. The construction cost per cu. ft. (b), the financing and carrying charges (p), the average story height (h), and the ratio of building area to site area (c), all affect the cost of the building directly and all affect the economic height inversely.

As the land value increases the economic height will necessarily be increased also and, as the building cost increases, the economic height decreases. It may therefore be stated that the economic height is affected directly

ECONOMIC HEIGHT AND COST OF BUILDINGS

by the land value and inversely by the building cost.

The above facts may also be expressed in terms of the required rentals. It can be shown that any condition which increases the ratio of land rental to building rental (\mathbb{R}/r) will increase the economic height, and vice-versa. Hence, it may be stated in more general terms that the economic height is affected directly by the value of the ratio \mathbb{R}/r though this is not a simple arithmetical variation. The exact ratio is quite difficult to compute because the exact height will, in nearly every instance, work out to some fraction of a story. This ratio is the reciprocal of the ratio of building cost to land value (\mathbb{B}/AL) shown on Charts No. 4 and No. 6.

Under no circumstances can an increase of height fully compensate for an increased land value; the compensation will be partial only and the point at which it becomes most effective is the true economic height. The increased land value and greater height will require either an increased rental or a greater ratio of net to gross income if a fixed rate of net return is to be maintained.

Tables No. 2 and No. 3 show how various story heights (h) and total cu. ft. costs (bp) affect the economic height and indicate how small the effects would be on a fewer number of stories.

V.F.	New bp	NI	B/AL	R	r	R+r
.8	\$0.5044	37	1.79	\$0.67942	\$1.21725	\$1.89667
.9	.5635	36	1.95	.69514	1.35351	2.04865
1.0	.6212	35	2.09	.71178	1.48640	2.19819
1.1	.67375	33	2.13	.74822	1.59704	2.34526
1.2	.7296	32	2.24	.76818	1.72177	2.48995
	V.F. = V $N = Mos$ $B/AL =$ $R = Lan$ $r = Build$ $R+r = T$	aria Rat d re ling Fota	tion f conom io of ental. renta l rent	actor. ical numbe building c il. al.	er of storie ost to land	es. cost.

h	N	R	r	R+r
10'-0"	37	\$0.67942	\$1.26797	\$1.94739
11'-0"	36	.69514	1.37858	2.07315
12'-0"	35	.71178	1.48640	2.19818
13'-0"	34	.72946	1.59283	2.32105
14'-0"	32	.76818	1.67394	2.44212
H M H T H	A = AvanN = MR = LanR = BuiR + r =	erage story he ost economical nd rental. lding rental. Total rental.	ight. number of sto	ories.

FACTORS WHICH DO NOT AFFECT THE ECONOMIC HEIGHT

It has been mentioned that several factors are nonessential and derivative and have no effect upon economic height but are themselves affected by the factors that do. This raises many questions of advisability, opinion, and practice to which the investor will demand an answer.

For instance, it may be asked how the economic height will be influenced by any change of the ratio of net rentable to gross building area. It will not be influenced at all, but such change must be compensated by a corresponding change in the total required rental or in the ratio of net to gross income. Table No. 4 shows the effect upon the rentals of variations of this ratio which are required to maintain a given rate of net return but have no effect upon the economic height.

It will be immediately recognized that many sites would not justify a building of the most economical height, there being insufficient demand for the space so created. This, also, is an extraneous consideration. Certainly it may often be advisable not to build until the demand, and therefore the obtainable rentals, will justify the investment. Certainly the value of the land may not be based upon a capitalization of the obtainable net income. But these facts do not affect the economic height nor the conditions under which that height exists. If the site does not justify a building of the economic height, the question immediately arises as to whether it justifies a smaller building with its increased required rental or reduced rate of net return. Chart No. 2 shows how rapidly that rental rate increases as height decreases on a given land value.



GULF BUILDING, HOUSTON, TEXAS KENNETH FRANZHEIM AND J. E. R. CARPENTER, ARCHITECTS; ALFRED C. FINN, ASSOCIATE ARCHITECT



Economic height of buildings on various land values.

Neither is the economic height affected immediately by depreciation or obsolescence of either land or building unless the Owner chooses to establish the land values with reference to its possible appreciation or depreciation of value. The amounts withdrawn from gross income to meet the charges for depreciation and obsolescence will affect the ratio of net to gross income and thus affect the required rental rates.

It should be recognized that the economic height is fixed by the intrinsic factors of land value and building cost and not by such extrinsic considerations as location, demand, interest rate, etc. Those intrinsic factors being estimated or assumed, as the case may be, the economic height and cost follow inevitably by a mathematical law. After that height and cost are calculated, it may then be that considerations of advisability, personal opinion, and future contingencies of location, obtainable rental, demand, and appreciation or depreciation may cause the Owner to decide upon a greater or fewer number of stories. And that decision may find some justification in the fact that the net return and rental rate do not vary greatly for several stories more or less than the calculated economic height and cost. (See Chart No. 2.)

CHARTS No. 1 TO No. 8, INCLUSIVE

Chart No. 1 shows various land values and the corresponding total building costs *per sq. ft. of site* as determined by the economic heights, under the conditions obtaining for Charts No. 5 to No. 7, inclusive. By reducing both land value and building cost to terms of site area, it provides a direct comparison and shows immediately the proportionately larger buildings that are justified by the lower land values.

Charts No. 2, No. 3, and No. 4 are all based upon a land value of \$50 per sq. ft. and give the relations exist-

ing for buildings of various heights. One qualification requires mention; Chart No. 2 gives the curve of net return on an obtainable rental of \$2.50 per sq. ft. without changing the ratio of net to gross income. But if the required total of \$1.795 will produce 6% net, and the cost of service is not advanced in proportion to the income, the net return on \$2.50 would be greater than shown. The principle, however, is illustrated and the rate of net return can be figured according to circumstances or inclination.

Charts No. 5, No. 6, and No. 7 give the economic heights for all land values up to \$1000 per sq. ft. and the various relations necessary to or consequent upon the conjunction of building height and land value under the conditions given.

Chart No. 8 shows the economic heights on various land values for four different values of the ratio of building area to site area (c) and how the height increases as the value of c is reduced. The curve of ratio of building cost to land value (B/AL) clearly indicates that as the increasing value of c accompanies a higher land value, the ratio of building cost to land value does not change.

Charts No. 5, No. 6, No. 7, and No. 8 show all factors worked out with reference to building height and not with reference to land value. By following from any value of any factor along the line of "Number of Stories" to the intersection with curve of "Economic Height" and thence to the scale of "Land Values," any factor may be read in terms of its appropriate land value. Thus, it will be noted that on Chart No. 5 the total required rental is about \$3.00 at 48 stories; and 48 stories intersects "Economic Height" at a land value of about



Relations for various building heights on land valued at \$50 a square foot.

ECONOMIC HEIGHT AND COST OF BUILDINGS



CHART NUMBER 3

Relations for various building heights on land valued at \$50 a square foot.

\$215. Charts No. 5, No. 6, and No. 7 (as well as No. 8) carry the same "Economic Height" curve to facilitate such reference.

LAND VALUE

The most important question to be settled before any estimate of economic height can be made, is that of the value of the land; for upon the answer to that question does height depend to a greater extent than upon any other consideration. Whether this is to be determined by the Owner's personal opinion, or by the actual present market value of the site, or by the potential value as indicated by the capitalization of the net return upon the obtainable rental, whether by considerations of present or prospective future value, is essentially a problem for the Owner to decide. It is in reality a problem of land economics and not of building economics, which is the subject of this discussion.

INCREASED COST OF INCREASED HEIGHT

That the increasing height of building construction is accompanied by a corresponding increase of cost is apparent from even a casual consideration of the facts and a more careful study of those facts will confirm the first opinions. This increase does not obtain for all factors, nor is it uniform among those which do show an increase of cost, nor is the rate of increase necessarily uniform for any single item.

For instance, the weight and cost of columns increase quite rapidly. Foundation costs increase as spot footings become inadequate and have to be merged into continuous footings and these, in turn, have to be replaced by mats, pilling, or caissons. The increase of basements and their excavation, some times under expensive conditions, add a rapidly-increasing increment to the unit cost of the structure. The successive additions of expensive elevators, as additional floor area demands, also wind-bracing, mechanical equipment, and other items of rapidly increasing cost give ample evidence that the greater height can only be attained at a greater unit cost.

On this subject, as in the case of the rate of decrease of net rentable area, there is very little data available upon which to base an adequate estimate. But a survey of that data together with such personal study as time and circumstances permit, has resulted in the adoption, for use in these charts and tables, of a rate of increase of 45/100 cents per story as being a reasonable anticipation of average conditions; this sum being added to the total cost (bp) for every story that is added to the height. This rate of increase is carried throughout all story heights as indicated in column "bp" of Table No. 1.

More accurate information on this subject would be highly valuable to all who are interested in Building Economics either as architects or as builders and investors and, as the need becomes apparent, will no doubt be supplied by further and more scientific studies. Our present purpose is primarily to illustrate principles and methods, which purpose is served by the assumption made, without assuming any obligation of proof nor thought of finality. Any one who is sufficiently interested may use or modify the principles and methods and substitute his own assumptions or the results of his own research for the relations here offered.



Relations for various building heights on land valued at \$50 a square foot.

RATIO OF BUILDING AREA TO SITE AREA

The proportion of the site which is occupied by the building is expressed by the ratio of building area to site area (c) and depends upon a number of considerations. Being influenced by the immediate surroundings, such as streets and buildings, this ratio may be called a function of the location. It is often affected by the size and shape of the site as well as by city ordinances such as those of New York City. It depends upon the architect's design and layout, reaching a maximum under the most skillful architectural design. It is also a function of use or occupancy, being frequently 100% for warehouses, garages, loft buildings, etc., and reaching a minimum in the case of hotels, apartments, and office buildings, where the requirements of light and ventilation are essential.

It will be noted on reference to Chart No. 8 that as this ratio (c) increases, the economic height (N) decreases; that is, a higher value of c will reach the economic height more quickly than will a lower value of c. Not only so, but the higher value of c will be accompanied by a lower required rental rate. It will also be noted that as this ratio increases, the corresponding land value increases, so that, for any given number of stories (N), the ratio of building cost to land value (B/AL) remains constant. Table No. 5 shows that as c increases, both the total cost of the building and the ratio of building cost to land value also increase. Thus the economic building that covers 90% of the site will cost more than the economic building that covers only 80% but the unit cost and the required rental will both be less, making a more profitable investment. This is a disadvantage of the setback or tower type of design which, however, has its compensating advantages.

Table No. 6 indicates how a changing value of the ratio of building to site area (c) for a fixed number of stories (N) is accompanied by changes in other factors.

RATIO OF BUILDING COST TO LAND VALUE

This very interesting and valuable relation is shown for varying heights on a fixed land value on Chart No. 4 and for various heights as well as land values on Chart No. 6. It will, of course, change with each group of conditions under which the economic height is computed. It will be noted that (1) the ratio of building to land rental and (2) the ratio of building cost to land cost per rentable sq. ft. are identical with the curves mentioned, which give the ratio of total building cost to total land value. These curves give the economic building cost in terms of land value. For example, it will be noted on Chart No. 6 that for a 24-story building this ratio is about 3, which means that the economic building will cost three times as much as the land, whether we refer to rentals, the costs per sq. ft. of net rentable area, or the totals.

Reference to Charts No. 5 and No. 6 discloses the interesting fact that the land cost, building cost, and total cost per sq. ft. of net area is 7.5 times the respective required rentals.

NET RENTABLE AREA VARIOUSLY EXPRESSED

The most universally used unit of building economics is the sq. ft. of net rentable area. Being the accepted unit of barter, it becomes the standard unit of measurement by which other factors are judged or compared.

The ratio of net rentable area to volume is a measurement of three-dimensional or volume efficiency. It is purely a physical relation. But, since volume and cost parallel each other very closely, it expresses an indirect relation to cost.

The ratio of net rentable to gross building area is a comparison of area, a measurement of two-dimensional efficiency, and expresses the utilization of the gross building area.

The ratio of net rentable to site area is a modified comparison in two dimensions and expresses the efficiency of land utilization.

The ratio of net rentable area to land value is a

				In.	DLC .	NC	. +				
Show	ing	the	effect	of	varyi	ng	the	ratio	of	net	rent-
able	area	to	gross	bui	lding	ar	ea v	vhen	N =	= 25	and

TADLE NO.

V.F.	New d	R	r	R+r
0.8	.5592	\$0.5961	\$1.6495	\$2.2456
0.9	.6291	.5299	1.4662	1.9961
1.0	.6990	.4769	1.3196	1.7965
1.1	.7689	.4335	1.1996	1.6332
1.2	.8388	.3974	1.0997	1.4971

Variation factor. ·.F.=

N = Most economical number of stories.

L = Value of land per sq. ft.

d = Ratio of net rentable to gross building area.

R = Required land rental.

r = Required building rental.

R+r = Total required rental.

TABLE	NO.	5		
-------	-----	---	--	--

Showing the effect of varying values of c upon a fixed land value of \$50.00 per sq. ft.

с	N	bp	B/A	B/AL	R+r
100	23	.5675	156.63	3.133	1.699
80	25	.5765	138.36	2.767	1.795
60	29	.5945	124.13	2.483	1.942
40	35	.6215	104.41	2.088	2.198

c = Ratio of building to site area. N == Most economical number of stories. bp = Total cost of building per cu. ft.

B/A = Building cost per sq. ft. of site.

- B/AL = Ratio of building cost to land value.
- R+r = Total required rental.

TABLE NO. 6

Showing the effect of varying values of c when N = 40, bp=\$0.644, d=.654, B/AL=1.8 and r=\$1.57554

с	L	B/A	R	R+r
100	170	309.12	\$0.8665	\$2.4420
80	135	247.29	.8601	2.3763
60	100	185.47	.8495	2.4250
40	66	123.65	.8321	2.4076

c = Ratio of building area to site area.

N = Most economical number of stories.

bp = Total cost of building per cu. ft.

d = Ratio of net rentable to gross building area.

B/AL = Ratio of building cost to land value.

L = Value of land per sq. ft.

B/A = Building cost per sq. ft. of site.

R = Land rental.

R+r = Total required rental.

financial comparison and expresses the efficiency of the utilization of the land value.

The land cost per sq. ft. of net rentable area is another financial comparison and shows the contribution of the land value to each unit of area. It might be compared to the material cost of a manufactured article.

The building cost per sq. ft. of net rentable area is also a financial relation and gives the contribution of the building cost to each unit of saleable space. It might be compared to the labor cost of a manufactured article.

The total cost per sq. ft. of net rentable area is merely the total of the two preceding expressions. It gives the cost price including the profit of a marketable product at which it can be offered to the market.

These several relations are shown in graphic form on Charts No. 2 to No. 7, inclusive.

RELATION OF NET RENTABLE AREA TO VOLUME

The relation which the net rentable area bears to the total volume is expressed by the ratio H/dn and gives the cu. ft. of building required to produce one sq. ft. of net rentable area. It is an expression of the total or cubic efficiency of the building and its design, just as the ratio of net to gross area expresses the floor or superficial efficiency. In addition to the factors which affect the latter, it is influenced by the story heights, pent houses, and other non-rentable volume which cannot be included in a consideration of the floors. It increases as height increases, the chief factor here being the increasing loss of net floor area. In general, this ratio varies between 14 and 18 but data from several buildings may be of interest.

		Value of
Building	Stories	Ratio
American Insurance Union	48	14.18
Empire State Building	85	16.50
Woolworth Building	58	24.49

Judging from a list of about sixty of the best modern buildings, it is apparent that, generally, the more recent ones are more efficient than were those of ten or twenty years ago, due to more effective use of both floor space and total volume. It is evident that the architectural profession has not lagged behind in the economic struggle for efficiency.*

RATIO OF NET RENTABLE AREA TO GROSS BUILDING AREA

The ratio of net rentable area to gross building area must and does decrease as height increases, for each increment of height adds its increment of loss to the net area. This loss occurs in a variety of ways which vary both in kind and amount with type and design of building.

As a general rule-of-thumb, each 30,000 to 40,000 sq. ft. of net area will require the addition of an elevator, which means a loss of 75 to 100 square ft. (and often more) for each story through which it passes. Not only so, but each elevator will require more space in the upper stories for over-runs, machinery, etc.

There is also a loss through the use of setback designs where these are mandatory or sufficiently desirable to be used. There is an increasing loss in the lower stories caused by the increasing size of columns. The addition of height requires a further use of basement space for machinery, equipment, etc., as well as space in the upper stories for tanks, pipework, etc. There is a further loss

as the size or number, or both, of pipe and vent shafts is increased to serve the areas added above.

While these losses cannot be accurately determined until the plans are completed, it should be possible to make a reasonable estimate of them; and we must make such an estimate if we are to give adequate study to the economic height and cost and the accompanying rentals and net return. It is unfortunate that so little data on this subject have been published; but a study of a number of buildings has led to the adoption of a loss of 3/10 of one per cent for the purposes of this study. This loss of the total area is deducted for each floor added to the height as a reasonable anticipation of average actual conditions. This rate of loss has been carried throughout all story heights in all the accompanying charts and tables as a constant factor, as is indicated by Column "d" of Table No. 1.

This ratio does not affect the economic height or cost but does affect inversely the required rentals and, through



OFFICE BUILDING FOR R. S. STERLING, HOUSTON, TEXAS WYATT C. HEDRICK, ARCHITECTS AND ENGINEERS

^{*}Interesting and valuable data are given in the booklet, "Facts and Figures About Steel Construction," including a comprehensive list of important buildings with their volume, net rentable area, total height, site area, etc., published by the American Institute of Steel Construction.

them, the net income. The greater the value of this ratio, the greater will be the net area and smaller will be the required rental, as shown in Table No. 4 on page 174.

RATIO OF NET RENTABLE AREA TO SITE AREA

The value of the ratio of net rentable area to site area, expressed as the number of sq. ft. of net area per sq. ft. of site, depends upon the ratio of building area to site area (c), the ratio of net to gross area (d), and the number of stories (n). By expressing the degree of efficiency with which the site area has been utilized, it provides a means of comparing one building with others. It varies from less than 1 (for one-story buildings) up to about 49.66 for the Bok Tower, the largest value of which the writer has any knowledge. It is of interest to note that the Empire State Building of 85 stories of the setback type piles up about 25.73 sq. ft., while the Equitable Building contains about 25.24 sq. ft. in its 43 stories of the vertical type of design.

RELATION OF NET RENTABLE AREA TO LAND VALUE

This relation, expressed in terms of sq. ft. of net rentable area per \$1,000 of land value, depends upon the same conditions that determine the ratio of net rentable area to site area, value being substituted for area of site. Expressing, as it does, the efficiency with which the land value has been utilized, it provides still another "yardstick" for the comparison of buildings. On a fixed land value, the value of this relation will vary directly as the net area and almost directly as the number of stories (n); this will be noted on reference to Chart No. 4. If the economic heights for various land values be considered, it will be noted on Chart No. 7 that the value of this relation is a decreasing quantity.

RATIO OF NET TO GROSS INCOME

It is the function of the Architect, the Owner, and







Economic height of buildings on various land values.

the Building Economist (however else he may be designated) to relate correctly the various conditions of the investment to one another and to build accordingly. After this is done, there is no change or recall; that book is closed, the investment is taken over by the Management and a new book is opened. If the first task has been well done, the second will be made easier and more effective. And the efficiency of the Management will be compressed into, reflected in, and judged by the ratio of net to gross income. This ratio varies as widely as human nature and the multitude of problems which have to be met and solved.

In the charts and tables herewith a ratio of 45% has been used throughout. While it has no effect upon the economic height or cost, it has a great effect upon the required rental and rate of net return. The larger the ratio, the smaller will be the required rental or the larger will be the net return, and vice versa.

The rentals shown on these charts and tables may be converted to any other ratio than 45% by a simple proportion. Thus, if we wish to change the required rental for 25 stories (Table No. 1 or Chart No. 2) to a ratio of 55%, we will have 55:45::1.795:1.47, the new required rental when the ratio of net to gross income is 55%. Whether this ratio should be constant for all heights and total rentable areas or whether it should follow a sliding scale, gradually decreasing as height and area are added, is, to a very large extent, a matter of individual experience on which the Owner should seek competent advice.

SPECIAL USES OF FORMULAS

There are many uses to which the given formulas may be applied as occasion requires, as indicated by the fol-

ECONOMIC HEIGHT AND COST OF BUILDINGS



Economic height of buildings on various land values.

lowing example. Supposing, for instance, that a 35-story building had been completely developed and, for some reason, it is desired to find the effect upon the total rental caused by the addition of an elevator which will cost, say \$25,000 and which will deduct 80 sq. ft. per floor. Assume that the original cost of the building is \$2,000,000, land value \$1,000,000, the nominal interest rate 7%, ratio of net to gross income 50%, and total net rentable area 175,000 sq. ft. Then the new building cost will be \$2,025,000 and the new net area will be 35 x 80 sq. ft. less, or 172,200 sq. ft. Then, by formula No. 8;

New total rental will be
$$\frac{$3,025,000 \times .07}{172,200 \times .50} = $2.46$$

The old rental rate being $\frac{$3,000,000 \times .07}{175,000 \times .50} = 2.40

Additional required rental per sq. ft. \$0.06

Other applications of these formulas will occur to one who familiarizes himself with them and makes use of their possibilities.

PRACTICAL CONSIDERATIONS

In the interpretation and application of the accompanying data.

The best time to apply this or any other data to the study and solution of any particular problem is when the sketches have been sufficiently developed to yield fairly accurate information, thus reducing the necessary assumptions to the minimum.

In this discussion all stories, including basements, first story, etc., are included in the total number and not merely the nominal number above the street level. The effective gross story height (h) is assumed as averaging 12'-0" and must be changed to suit each particular building. It is necessary to note that in order to be complete the formulas must include all costs, and hence all volumes; so that

- 1. Total height (H) equals total volume divided by gross building area (a) and
- 2. Average effective gross story height (h) equals total height (H) divided by number of stories (n); from which it is evident that h is somewhat greater than the average actual or net story height.

The formulas and other data contemplate a building of uniform gross area for all heights, that being the basic form of building. Modifications may be made to suit the wide variations of practice. In the usual type of structure, the basement and first story cover all or nearly all of the site, while the typical stories set back to a smaller area. The basement usually brings less and the first story more rental than the typical floors. It is probably not a great error to neglect this extra area and volume when solving for the economic height, though they will add some proportion to the total cost, depending upon the height. This is largely a matter of individual judgment.

It should be remembered that the elevators are the greatest source of loss of net rentable area as height increases, and a large factor in the increasing cost. If, then, the economic height be approximated by the methods given, the elevator requirements may well be the deciding factor; a few stories more or less may very appropriately be determined by the transportation needs.

REMARKS

In the accompanying discussion, several considerations were deemed of vital importance:

1. That the data, methods, and explanation must be



CHART NUMBER 8



sufficiently clear that others might construct their own charts and other data in accord with their own findings or assumptions either for general use or for specific application to individual problems. It is not the purpose here to solve the problems presented by any particular building but to indicate a process by which such solutions can be more readily achieved.

2. That it should be at once understood that much of the data and method herein are theoretical, general, and illustrative rather than practical, specific, or arbitrary. This is essential to the proper conception of any problem, for the theoretical and general conduce to a comprehensive understanding that the purely practical and specific do not yield. The function of the practical is to mold, modify, and adapt the theoretical to the actual requirements of each situation as it arises. So, then, the object here is to provide a tool, not a finished product, a method and not a final solution, the principles which underlie the problem and not the result of their application.

3. That the presentation should gain in clarity and lose nothing of definiteness if it consisted of the complete development of a single group of conditions, but showing the result of varying the several factors; certainly such a course will reveal to the utmost advantage the coherency which should and does exist between all of the factors, either known or assumed, and their relations.

A COMPARISON

Herewith is presented a comparison of the chief economic factors of "This Building" as developed from these



NIELS ESPERSON BUILDING, HOUSTON, TEXAS JOHN EBERSON, ARCHITECT

charts and tables with those of "The Skyscraper," which is the most complete and accurate contribution to the general subject now available. The Skyscraper* is of the setback type while "This Building" is of the conventional design having a uniform gross area for all heights; the comparison being thereby complicated.

Economic Factor	This Bldg	Skyscraper
Value of land per sq. ft. (L)	\$200.00	\$200.00
Economic height in stories (N)	45	65
Total height in feet (H)	540	777.00
Average story height in feet (h)	12	11.952
Total cost of building per cu. ft. (bp)	\$0.6665	\$0.7773
Sq. ft. net rentable per sq. ft. of site	23.	20.412
Sq. ft. of net rentable area per		
\$1000.00 of land value	124	102.058
Cost of building per sq. ft. of site	\$288.00	\$283.00
Ratio of building cost to land		
value	1.556	1.416
Building cost per sq. ft. of net rentable	\$12.516	\$13.88
Land cost per sq. ft. of net		
rentable	\$8.042	\$9.798
Total cost per sq. ft. of net		
rentable	\$20.559	\$23.678
Ratio of net to gross income	45%	63.87%
Average ratio of gross building area to site area	80%	47.00%
Gross income per sq. ft. per year,		
Required to produce 6%		
net (R+r)	\$2.85	
Obtainable rental (F)		\$3.82
Net income per sq. ft per year	\$1.28	\$2.44
Rate of annual net return	6%	10.48%

On the same net return of \$2.44 enjoyed by the Skyscraper, "This Building" would show a net rate of return of 11.86%.

In order to put the data for the two buildings on a more nearly equal basis, the Skyscraper data have been slightly altered, charging all taxes, carrying charges, etc., to the building instead of dividing them between land and building. Average story height and total height were derived; but it is not intended to vitiate either the data or the comparison.

This comparison is not intended as a criticism of the accuracy of the data of the Skyscraper nor as a test of either building. It is intended to show that if the basic data for "This Building" (or any other problem to be solved by the methods herein given) had been selected to conform to those which the Skyscraper ultimately developed after an exhaustive investigation, that the results would have been correspondingly comparable and satisfactory—if those selected for "This Building" are not so. It is hoped that this comparison will stimulate constructive criticism and inspire further study of the basic data from which other buildings can be estimated with greater facility and in which Building Economics and Building Investors alike will be the beneficiaries.

""The Skyscraper," by W. C. Clark and J. L. Kingston, published by the American Institute of Steel Construction.



RENAISSANCE ARCHITECTURE AND ORNAMENT IN SPAIN A PLATE FROM THE WORK BY ANDREW N. PRENTICE

VOLUME XIII

NUMBER 3

"On this plate are shown a few of the details in the mutilated state in which they exist. It is impossible to find a perfect capital in the lower stage, but they are given in order to show the purity of the mouldings."

A. N. PRENTICE



PENCIL POINTS FOR MARCH, 1932 Volume XIII Number 3

This lithograph by Edward M. Schiwetz was made from a sketch done while he was in New York several years ago. It is an excellent example of his ability to express architecture by simple indication. The three principal buildings shown—the Telephone Building, the Woolworth Building, and the Transportation Building—are so effectively represented and yet so simply! The original lithograph measures 123/4" x 101/2".



FROM A DRAWING IN BROWN INK AND PENCIL BY FRANCIS SCOTT BRADFORD HEAD OF A GIRL

VOLUME XIII

NUMBER 3

This drawing by a painter is not presented because of its subject matter but rather because it is a fine example of searching draftsmanship. The drawing was made in pencil and the sensitive outline was put in with a pen and brown ink. Mr. Bradford, who was a Fellow of the American Academy in Rome, has made many distinguished drawings, and this example is among his finest. Observe the simplicity yet effectiveness of the modeling.



Courtesy Goodspeed's, Boston

FROM A DRYPOINT BY SAMUEL CHAMBERLAIN "BEAUVAIS"

VOLUME XIII

NUMBER 3

It is always a pleasure to present an illustration of a print by Samuel Chamberlain. The original of this one measures 11¼" x 12¼". It was included in a recent joint exhibition of the Society of American Etchers and the Architectural League of New York held at the League clubhouse.

The Other Side of the Story

Some Discussion of H. R. 6187

The following letter, signed by fifty-nine men, was received from the Office of the Supervising Architect, Treasury Department, Washington, D. C.:

PENCIL POINTS,

GENTLEMEN:

"We, the following members of the Office of the Supervising Architect of the Treasury Department, Washington, D. C., note that PENCIL POINTS has endorsed the crusade of the American Institute of Architects to give all Government work to outside architects.

"While we do not quarrel with the honest opinions of others in the profession, we do not respect the abovementioned crusade, nor fully believe it is altruistically for the public good, in that it has been based upon conjecture rather than upon investigation.

"The American Institute of Architects has made the claim, and it is presumed that all agencies and publications endorsing its stand agree with it, that it will take the awarding of commissions to private architects out of politics—a claim which is, to say the least, improbable.

"As a part of this claim they assert that their crusade will result in the best architects in the country obtaining the work. Work has been given out in the past year or so to over two hundred architects, selected as a result of credentials, pressure, and endorsement, by these architects, under the same system of credentials, pressure, and endorsement that would prevail under the legislation proposed by the Institute. Investigation has not been made—or at least the facts secured by such an investigation have not been published—by the Institute showing the type of architects thus secured.

"The proponents of the legislation state that the work can be done more quickly and more cheaply by the outside architects. The records are quite clear on that, but no effort has been made to use them; in fact, it almost appears that effort has been made to suppress them.

"We feel that a magazine of the importance and wide usefulness of PENCIL POINTS should not blindly endorse a campaign which appears to have been fostered by an emotional wave of theory, rather than by an effort for the good of the public architecturally.

"We favor giving out work to architectural organizations of greater ability than the Supervising Architect's Office, but we oppose giving out work to those of lesser ability, and any sweeping, unstudied legislation, not carefully framed to keep the uneducated local practitioner from obtaining this work, is not for the public good, and should be opposed by every architect and architectural publication.

"We are disturbed that your publication has been led into endorsement of a campaign which we have reason to believe is based on a surmise as to what might happen, rather than on a consideration of what actually has happened. We do not feel so great an interest in your magazine as formerly, as we do not think one publication concerned with the moulding of public opinion should take any stand without deep consideration on its own part and, if necessary, independent investigation on its own part."

To the foregoing we replied as follows:

"We are indeed sorry that anything we have printed has offended the men in the Government architectural offices. Your attitude in the matter is quite understandable to us, since a good many of you, if the Legislation were passed, would have to look elsewhere for jobs. The office of the Supervising Architect would naturally be much reduced in size. Now, it is certainly far from our wish to help to bring about any condition that will tend to throw more men out of work. As you undoubtedly realize, we have spent a good deal of money and time in the past in helping draftsmen to find work. Nothing would please us more than to have every competent draftsman gainfully employed.

"Our sincere belief, however, was and is that the objective of the Committee of the A.I.A. that framed the bill, now before both Houses of Congress, is altruistic and that this Committee honestly believes that the Government would benefit by employing outstanding practitioners in all sections of the country to design Government buildings costing \$50,000 or more.

"Would it not be possible that a great many of you, known to have had good experience on Government work, might find employment with the private architects to whom the work would be transferred? It does not seem to be beyond the bounds of possibility that you would thus find at least as good an opportunity as you can have in the Government office.

"Of course, it is true that there is a great danger that political pressure might be brought to bear which would result in awarding jobs to incompetent men and firms. Is not the responsibility, however, up to the Treasury Department to select only men of known ability as proven by their privately executed works? The Treasury Department is supposed to have the best interests of the United States at heart. If Mr. Heath, or whoever else in the Treasury Department is charged with the duty of selecting architects to build Government projects, permits Congressmen or other politically influential individuals to dictate who is to get these Government jobs, we do not see how the American Institute of Architects can be taken to task.

"We know, for example, that Robert D. Kohn, President of the American Institute of Architects, proposed to Mr. Heath that a committee, made up of three architects of unquestionable integrity, two private citizens of unimpeachable taste, and one representative from each House of Congress, could be formed for the purpose of submitting to the Treasury Department the names of three men or firms recommended for each job. The architects on this committee would gladly, for the public good, waive all chance of getting any Government work for themselves and would give their services entirely without compensation. The Treasury Department turned this proposal down, but the offer still holds good. We would hesitate to impugn the honor of the Treasury Department, but it does not seem as though Mr. Heath really wished to be in a position where he could turn down seekers for political favor.

"In order that those who disagree with us may have a fair hearing, we hereby offer you an opportunity to present your side of the story in the March issue of PENCIL POINTS. The February issue has already gone to press without any mention of the situation. If any of your members wishes to write us a letter or an article stating your case, you will find that we are ready to cooperate by setting it before our readers."

In reply we received this letter signed by H. H. Harriss: The Editors,

PENCIL POINTS.

GENTLEMEN:

"I accept!

"We of the Office of the Supervising Architect have read your letter to Mr. Drevo (who, by the way, was not the author thereof—nor the first signer).

"It was suggested then that the editors of PENCIL

POINTS were laboring under a misapprehension, that they were taking sides without being aware of the facts of the case, and that their beliefs were founded on fiction and propaganda.

"The letter to Mr. Drevo proves the original contention. The attached article I have written is for the express purpose of giving you those facts so that you can, if you will, see the situation in its true light.

"You agreed to give us some space in your March issue. I call upon you now to make good on that offer. I likewise request that you limit any editing to grammar and punctuation, without changing or deleting words or passages to alter the intended meaning.

"I will ask you, also, to give my article as much prominence as your 'H.R. 6187' . . . if you are going to be fair about it."

And here is the article which Mr. Harriss mentions in the above letter:

Provincialism vs. H. R. 6187

By H. H. Harriss*

A recent article, "H. R. 6187," in PENCIL POINTS purported to point out the virtues of the so-called Green Bill, introduced into the House by Rep. Robert A. Green of Florida. It is the purpose of this article to point out to the readers of this magazine the faults of this ill-advised bill and the folly of advocating its passage.

Some say the agitation was instigated by a group of depression-bitten Florida architects. Another story, and probably nearer the truth, is that the disgruntled Mr. La Beaume, having been refused a Federal contract, saw fit to vent his injured spleen against the Supervising Architect's Office, and dug up Rep. Green from the Florida backwoods to champion his grudge. Continued ballyhooing and mob psychology have done the rest.

One curious angle about all this agitation is, that although the Supervising Architect's Office has been functioning for three-quarters of a century, and the present much-increased building activity has been in progress since the close of the World War, it is only within the past year or so that all this clamor has arisen.

In a recent letter to this Office, the Editors of PENCIL POINTS dwelt at length upon the altruism and honesty of the A.I.A. committee and Mr. Louis La Beaume who framed the bill, H. R. 6187. There is vast room for doubt in that statement. The motive is more than likely pure selfishness built on a grudge. If, on the other hand, it is not selfishness, and if the profession had such altruistic motives and high ideals, why have these "ne plus ultra" urges been so carefully hidden from the public eye for the past half century and more, and suddenly dragged out when all the architects in the country (?) wanted Federal jobs?

Why, also, did the altruistic Mr. La Beaume try to stop the barrage laid down by our "Federal Architect" devised to offset any damage he and his cohorts might be able to accomplish? It is most peculiar that at this late date the A.I.A. should suddenly discover the great benefits to be derived by giving Federal jobs to private architects. It is even more strange and startling in view of the fact that almost every man in the Supervising Architect's Office at some time in the past had either an office of his own or a job in a private office, but the moment he accepted the Supervising Architect as his paymaster the good quality of his work, as Mr. La Beaume and others would have us believe, suddenly became decidedly inferior.

Such, at least, seems to be the tenor of one of the arguments in favor of giving Federal work to private architects—that the architecture produced by the Office of the Supervising Architect is much inferior in quality to that produced elsewhere. So much so that they would abolish the Office. The sketches submitted by private architects (who have had pull enough to gain appointments) have failed sadly to bear up this contention. The design work and the efficiency of this Office are of a high order, and no one, except those with "purely altruistic motives," will deny it.

No great credit, therefore, is due to the A.I.A. or to the profession who have followed along blindly like sheep, that they now seek to eliminate, for their own selfish purposes, that organization known as the Office of the Supervising Architect.

The bare, bald fact that this clamor coincides with the period of the depression is sufficient evidence that the private architect, previous to that time, had enough work to keep him busy, and that until no more private work was in sight did he desire to reach out and take in Federal work. Now that the governmental plum is the biggest one left they all want it—and from all appearances they are going to stop at nothing to get it—using all manner of political pressure, propaganda, even to false and malicious statements.

*Of the Supervising Architect's Office.

A recent letter from the Editors of PENCIL POINTS

stated that "nothing would please them better than to have every competent draftsman gainfully employed," and mentioned the great amount of time, money, and effort that had been spent trying to find jobs for the unemployed of the profession.

It is difficult to see how the virtual closing of this Office is going to aid the unemployment problem except to add to the number of the unemployed. When a private architect does get a job his crew as a rule is hired only "for the duration." The moment the job is completed the men are paid off and dismissed, unless another job has come in in the interim. If the office is large a bare skeleton staff may be retained; in most small offices, none at all.

The draftsman is the "goat." He never knows where he stands. Every few months he must scout around for another job. Such is the situation being forced upon the men now in this Office, where the men are under Civil Service, and the jobs are more or less permanent.

Would it not be much more to the point to advocate the enlargement of the Supervising Architect's Office and increase the number now employed there? Why, then, cannot PENCIL POINTS make some effort toward supporting the bill creating an "Administration of Public Works."

Passage of the Green Bill—or H. R. 6187 as some call it—would virtually abolish this office. It would increase unemployment. It would force men who have established themselves here, bought homes and furnished them, to sell out, if possible, and move to other localities with the doubtful prospect of finding employment elsewhere. And that prospect is at this moment exceedingly gloomy in view of the fact that eleven thousand applicants swamped Civil Service for the last architectural examination a few weeks ago!

Statements have been made with regard to the cost of the work turned out by the Office of the Supervising Architect. Many of these are made either through ignorance of the true facts or for deliberate misrepresentation. Even the Editors of PENCIL POINTS are not immune, for their article on the Green Bill in the January issue urges the profession to "stress the great saving to the government that will be effected if it goes through." Nothing could be further from the truth.

The fact of the matter is that the Office of the Supervising Architect can, and does, turn out the work at a very considerable saving to the Government—which is in turn a saving to the taxpayer. An accounting of costs has been made for both "inside" and "outside" jobs. These figures show that this Office can turn out the work for less than 2% of the cost of the job, and that the work done by private architects has cost the government almost $5\frac{1}{2}$ %, or roughly three times as much.

When architectural fees run up into tens and hundreds of thousands of dollars the saving to the people who pay the taxes is not to be ignored as of little or no moment. This fact alone should be sufficient to nail the whole argument to the mat without more ado.

Of course there is another side to that, too. What happens to the fee paid to the private architect? Rather convincing evidence points to the fact that 50 to 75% of it goes into his own little pocket, and the remaining 50 to 25% is distributed to the men in his employ—more or less temporarily. In other words, the additional money paid for private architectural work, over and above what it would actually cost the Supervising Architect's Office to do the same work, is given over to one man. For what?

In addition to that is the fact that the private architect, being unable to cope with the technical requirements of the greater portion of the Federal jobs, it devolves upon this Office to make a complete and thorough check of all of his drawings, and, in most cases, to re-write his specifications—quite often from cover to cover! This takes time and costs money, and this cost is in addition to the fee paid to the private architect.

It might be well to explain that Post Office buildings are highly technical affairs with requirements peculiar to no other building. The standards for all Federal buildings are high, and the requirements differ in many respects from those of the usual commercial buildings met with in private practice. Very, very few private architects are sufficiently acquainted with these standards and requirements without a very intensive—and expensive!—training in Postal and Federal practices. And what is the net result?

With all of its clamor and agitation the profession does not seem to realize that the number of Federal jobs available is far from enough to go around, that the vast majority of the proponents of this legislation will reap no benefit whatsoever from it. It looks like much ado about nothing.

A great deal has been said about "taking the government out of business." Just where is the line to be drawn between the functions proper to the Government and private enterprise? There is no such line, and it is utter nonsense for anyone to say where it might be placed. Just about every field of human endeavor is represented on the Government payroll. Who will say which are not properly governmental?

There is about as much reason and common sense behind the plea to place governmental architectural work in private hands as there is to asking that the United States Treasury turn its accounts over to a private bank or to a C. P. A.—that every time a letter must be written an outside stenographer be called in, and paid 50c or \$1.00 for her work!—or that the neighborhood printery be called in to dash off a batch of thousand-dollar bills!

The question of influence and political pressure has also been brought up. It is being used now to force the passage of the Green Bill! Aside from the competence or incompetence of the private architect who desires a Federal job, he gets it—provided he can bring sufficient pressure to bear at the proper points—his competence to properly execute the task before him to the contrary notwithstanding. It has already happened.

In the matter of selection of the architect, there is little doubt that such pressure will have been applied long before the case reaches the hands of Assistant Secretary Heath and that any opinions or knowledge he may have are of little avail in the matter of selections on the basis of competence. It is a shame that such a condition exists —but it does, and the private architect will and does avail himself of it, PENCIL POINTS, the A.I.A., Mr. La Beaume, and others to the contrary.

And so you see, Editors of PENCIL POINTS, that this thing you would do is not so supremely simple as you might at first glance assume, and that the benefits seem to be on the other side of the fence notwithstanding all your arguments to the contrary. Editor's Note:—Since some of the remarks in Mr. Harriss' article in regard to Mr. La Beaume might by some persons be considered libelous we asked Mr. La Beaume to read the preceding text before its publication. We are glad to say that he granted permission to publish it and wrote us in part as follows:

"As to my motives in supporting this legislation, my own conscience is perfectly clear. The Board asked me, in urging me to accept the Chairmanship on the Committee on Public Works, if I had any personal reservations which might prevent my doing so, or if I thought the Chairmanship would injure me personally. I replied that such considerations would not weigh with me, nor have they. I hold no grudge against anyone in the Treasury Department, and have no personal ambition to be connected with any federal work. My motives at all times are generally understood by people who know me, and so far as this Bill is concerned, they may be sincerely called altruistic, if one wishes to use such a high-faluting term.

"I believe that the principles for which we are contending are in the interest of the country at large, first, and perhaps second, in the interest of our profession, including the very draftsmen in Washington who are opposing them, and in the interest of the entire building industry. I have sought always to have our principles considered on their merits, without passion, without pettiness.

"It is quite true that in the present emergency many members of the architectural profession are seeking employment and importuning their legislative representatives to aid them. In spite of this, I sincerely believe that most of the outside employments made by the Treasury Department have been sound and justifiable on the basis of professional capacity. There may be some exceptions, and probably always will be. You understand this point, and it is unnecessary to labor it. In a nutshell, I think we may say that if our principles are wrong, the Treasury Department has been in error in appointing some two hundred and twenty outside architects during the past year.

"As for the assertion that our profession has never interested itself in public works until this business depression, you are well aware that this is not the case. Many years ago the Tarsney Act was passed under the championship of the profession, in order to achieve the very ends we are now seeking.

"We have not sneered at the fruits of the Supervising Architect's Office, nor are we doing so now. We simply state that it is our belief that local conditions can be best fulfilled by competent men familiar with all the factors in the locations where federal buildings are to be built. The trouble with the situation is that the Bureau under consideration is naturally sensitive, and we can all sympathize with such sensitiveness.

"We have tried to raise our principles above personal considerations. If Michelangelo himself, or Phidias, or any of your favorites were in charge of the Supervising Architect's Office, designing buildings at long range to meet varying conditions in a far flung empire, we should oppose such a situation."



FROM A PENCIL SKETCH BY MOTT B. SCHMIDT ACADEMY OF FINE ARTS, COPENHAGEN



MONUMENT TO THE MEMORY OF THE FIRST PERMANENT SETTLEMENT OF THE WEST

This design has an inherent relationship to the site and the achievements memorialized, and to no other. It symbolizes, by its sturdy and simple mass, the resolute and indomitable character of our American Pioneers. It composes with and dominates its surroundings; marking the point at which were gathered, and from which radiated, those mighty forces which conquered the wilderness of the Northwest.

In plan it consists of a circular wall divided into four equal sections by flights of steps. This wall is fifty-six feet in diameter and rises to a height of seven feet above the outer pathway. The four sections of the wall afford an opportunity to relate, in richly sculptured panels, major episodes in the winning of the Northwest. These panels, executed in low relief, will picture: 1—Settling of Harrodsburg; 2—Clark's Parley with the Indians; 3—March toward Vincennes; 4—Transfer of the Louisiana Territory.

Mounting nine steps, the spectator will find himself within the parapet of the walls confronting the low dome which crowns the center of the circle. Four additional steps, making a total of thirteen, symbolizing the original colonies, rise to the dome itself. The dome, twenty-one feet in diameter, is of bronze, modeled as a pictorial map of the territory compassed by Clark's campaign from Harrodsburg to and beyond the Mississippi.

Materials: structure—concrete; sculptured walls—Indiana limestone; steps granite; map—bronze. A double row of clipped beech trees follows the circle of the outer pathway, framing the memorial and affording a background for its silhouette.



DESIGN SUBMITTED BY LA BEAUME AND KLEIN, ARCHITECTS (See program of competition in February PENCIL POINTS)



ELEVATION



PLAN

MODEL OF SCULPTURE

COMPETITION FOR A MONUMENT TO THE MEMORY OF THE FIRST PERMANENT SETTLEMENT OF THE WEST AT HARRODSBURG, KENTUCKY

> DESIGN SUBMITTED BY LORIMER RICH, ARCHITECT, AND LEO FRIEDLANDER, SCULPTOR (See program of competition in February PENCIL POINTS)

Handling the Entire Job

By R. R. Houston

Editor's Note:—This is another in the series of talks being given once a month at the Murray Hotel before the Junior League of the New York Society of Architects. This talk was given by R. R. Houston, of the office of George B. Post and Sons. The entire series is under the direction of Louis E. Jallade; admission is free to draftsmen and architectural students.

The first important item is the architect's contract with the owner. My good friend, Clinton H. Blake, has written a book called *The Architect's Law Manual*, a copy of which should be in every architect's office. In this book he outlines short and long form contracts that should fit nearly every case.

Most of the controversies that arise between owner and architect could be avoided if a properly worded contract were executed before the work was begun; and I recommend the form issued by the American Institute of Architects for general practice.

THE SURVEY. The second important item is the survey. Mr. Jallade has explained in his last talk to you the necessity of making a preliminary scientific study or survey of the city or section of the city in which the owner wishes to build. I will not touch upon that except to say that I hereby agree to everything he has said.

The survey of the property which is furnished by the owner should show all the information required by the architect and engineers, such as the grades of the street, building line, curb line, pitch of sidewalk, position and depth in the street of sewer, gas, and water mains, steam mains if any, and electric mains, or position of poles if wires are overhead, and street car trolley poles, etc. To get rid of some of the poles in the streets it has been the custom of our office to have the Trolley Company allow us to attach its trolley wires to the building.

SKETCH PLANS. In making sketch plans the requirements of the building should be carefully studied so that the architect can feel sure his solution of the problem is the right one. While no one can acquire in his lifetime a full knowledge of every branch of the building business, it is necessary that the one in charge of preparing the sketches should have a general knowledge of the structural, mechanical, and occupational requirements of the building to be erected, and the Building Code of the city in which it is to be built. This in order that he may provide for proper spaces for piping, ventilating ducts, electric conduits, position and space for elevators, proper column spacing and so on, so that later the engineers will not demand drastic changes in the plans to accommodate their work, after the sketch plans have been approved by the owner.

After the sketches have been approved copies are sent to the engineers for their preliminary studies, together with a copy of the survey, and the working drawings are prepared under the direct supervision of the chief draftsman and a job captain (who is also one of the draftsmen) and the general supervision of a member of the firm who should keep in close touch with the work as it progresses in order that delay may not be caused by want of instructions or decisions.

SCALE DETAILS. All the work of the building is included in the General Contract and if elaborate interiors are required it has been the custom of our office to specify

a sum that the contractors should include in their estimate for that work. But carefully studied scale details should be prepared where necessary for work shown on the working drawings; this saves time when the full size drawings are being prepared.

SPECIFICATIONS. I cannot too strongly indorse Mr. Jallade's statement that things should be shown or called for only once; thereby saving the time of the draftsman and the specification writer and avoiding the chance of the contractor including the cost of material or apparatus twice in making his estimate.

The specification writer is constantly in touch with the chief draftsman and the job captain as the work progresses, making his notes and collecting information. He does not start his manuscript until the drawings are about 75% completed, when it is unlikely that important changes will be made.

As specifications are to be a special subject to be treated later, I will not enlarge upon it now except to say that our office has found that a good specification writer is a man who has had training as a draftsman and as a superintendent in the field, and one who keeps in touch with the building business in general.

Mr. Post, who was always thinking ahead of the times, has told me that one of the best ways to keep up with the times was to make sure that everyone who called at his office to submit anything new or different from what had been the custom in the building business should be allowed to tell his story. This has always been the custom of our office, and I am sure it has aided us in keeping abreast of the times.

CHECKING. The job captain and the chief draftsman keep a general check on the progress of the drawings of each draftsman to see that they fit and agree. When the drawings are practically completed they are carefully checked by one man. However, if the time is limited, they are checked by several men, but no one should be allowed to check his own drawing, thus obviating the possibility of the same error being checked twice. In a large office, in order to keep down the overhead, the draftsmen must be kept busy all the time; therefore, while the working drawings are being prepared the decorative interiors are being studied by the designers so that they can be started in the drafting room immediately after the working drawings have been completed, and advanced to completion under the same management as the working drawings.

ESTIMATING. I am not in favor of a large number of estimators because of the economic waste caused thereby. It is best to select a limited number (not more than eight) of contractors whom you know are capable and proficient in the class of building your drawings call for. If the architect has done his duty and made his drawings and specifications depict so clearly what he has in mind that little or no questions are asked of him by the contractors while estimating, he can rest assured that the estimates will justify his efforts and expectations.

I can cite plenty of examples that will prove this, but one or two will suffice for the moment.

In a class of eight bidders on a large building, from widely separated cities, making collusion improbable, two were out of the running caused either by error or merely submitting a complimentary bid, but the difference between the other six was less than $2\frac{1}{2}\%$ between the highest and lowest.

In another case I was present when one of the largest contractors in the country said to a client when the last payment was being made words to this effect: "I am going to tell you something that you may not, but should know; all contractors include in their estimates a sum of money to cover any contingencies that may arise during the construction, caused by items being left out of their estimate when it is made, or by ambiguities in the drawings or specifications, or both. The amount may run as high as 10% of the estimated cost, governed by the work the architect has turned out. When the estimate for this building we have just completed was placed before me for my approval, I noted that each item was a very close estimate of the cost, and I was astonished to find that no contingency fee was included. At once I called the heads of the different departments to my office and asked why they had forgotten such an important item; they all replied that work was slackening up and they had sharpened their pencils and used all their knowledge to make as close an estimate as possible, that it was a good job and the office needed the work; that the architect's drawings and specifications had been so carefully prepared they could find no omissions or ambiguities, and therefore could see no reason for a contingency fee and hoped that I would agree with them. After some discussion I agreed with them, and the result has justified that decision; we have made a fair profit, there has been practically no extra work caused by errors or omissions on the architect's part, and you have profited by paying approximately \$100,000 less for your building.'

CONTRACT. The General Contract is usually prepared in the architect's office and submitted to the legal adviser of the owner for his criticism. We have found it best to submit the contract in person when we can explain the technical reason for some of the clauses. Sometimes the owner has his attorney prepare the contract, and I have spent as much as a couple of days in the offices of some of the most prominent attorneys on such a mission, and have been told that my presence was of great assistance to the attorney who was compiling the document.

I recommend the use of the contract forms issued by the American Institute of Architects as they can be easily modified to fit the scope of the work to be done. In writing the contract care must be taken that nothing shall be included that places an onerous burden upon the contractor or anything that is manifestly unfair to either party. If any questions are asked by the bidders the architect must issue a bulletin to each bidder outlining the questions asked, and the architect's replies thereto, and these bulletins should be included in the contract documents.

A set of the estimating drawings and specifications should be sealed and filed in the architect's office, and not referred to except when necessary, in case of a dispute arising as to what was originally shown or specified.

After the contract has been let, the full size drawings are prepared in the sequence required by the contractor, and the shop drawings are checked as they are submitted. Our office has found that the cost of making full size drawings and the checking of shop drawings often equal, and sometimes exceed, the cost of the preparation of the working drawings.

SUPERINTENDENCE. The superintendent in the field should have experience in the class of building he is to supervise, and preferably be one that has been trained by the office that employs him. He should be tactful and know how to deal with the men on the job. I have often said that any contractor, no matter how skillful he may be himself, can be placed in an unenviable position by the acts of his superintendent in the field, and this holds in the case of the architect. The superintendent reports to the architect's office each week the progress of the work, calling attention to anything he thinks may cause delay in the work, or any other matter of importance. His reports should be as succinct as possible, in order that too much time is not consumed in preparing them. He passes upon all requisitions for payment; he has no authority to make any changes in the drawings or specifications or order any extra work done, except in case of grave emergency. His business is to see that the requirements of the contract documents are carried out. His work should be regularly supervised by the chief superintendent and the member of the firm in charge of the work.

The number of drawings to be issued is fixed by the specifications. If the contractor requires more copies than the specified number, he orders them from the architect and pays the blueprint company direct for the cost of the prints. The reason for handling this item in this way is that we found the contractor, when the prints cost nothing, would request a great many more copies than he needed for properly carrying on the work. As our specifications are mimeographed, no charge is made for extra copies.

PLAN CLERK. The plan clerk issues slips, each of a different color, for drawings and specifications issued, loaned, or received, and keeps a regular account so that at any time the chief draftsman may know how many drawings or specifications have been issued, on what date they were issued, and to whom. In the case of shop drawings, he can tell how long they have been in the office before being checked and returned to the contractor.

CERTIFICATES. As the work progresses the architect issues certificates for payment, as required by the contract. Too much care cannot be taken in preparing these certificates, for the following reasons: To avoid over-payment, which may be disastrous in case of failure of the contractor to perform his work, and the work in consequence being taken over by the owner. The Bond of the Contractor may be vitiated by such over-payment and not enough money left to complete the contract for the amount stipulated therein; this also holds if the contractor goes into bankruptcy. Another reason: that no hardship may be placed on the contractor by under-payment. The amount of the certificate must be for a fair estimate of the amount of work done. Our office usually requires that ten days shall elapse between the receipt of the requisition and the issuance of the certificate, in order to give ample time for checking. We also require that the contractor shall furnish us with a capitulation, or breakdown of his contract, giving the amounts of his subcontracts and other items that will facilitate the checking of the requisition.

This breakdown is checked by men of experience in such matters and when found to be approximately correct, a copy is sent to the superintendent in the field, and a copy filed in the main office for the use of the Chief Superintendent and the member of the firm in charge of the work.

Before issuing the final certificate care should be taken to see that the work is entirely completed, that the contractor has paid his bills, and that no liens have been filed or, if filed, have been satisfied, and the guarantees called for in the specifications are filed in the architect's office.

An accurate account of all the contracts on the building and the payments on account are kept in the main office, and a ledger account of each contract, including any orders for additional work, so that the architect may know at any time the amount remaining to complete the work. When additional work is required by the owner, or extra work is made necessary by conditions at the building, the architect notifies the contractor of the amount of work to be done and requests an estimate of the cost. When the estimate is received it is checked and when found to be correct is submitted to the owner for his approval. When it is approved the architect issues an order to the contractor, stating that the owner has approved the amount of his estimate and directs him to proceed with the work. This procedure should always be followed, and, in his formal order, the architect should never state that he is ordering the work done, as it may happen that if the architect has done so and the owner fails to pay the cost or goes into bankruptcy the architect might be held liable.

CHANGES IN DRAWINGS. In making changes in the drawings because of additional or extra work we have found it best to alter the tracings, then have prints made of the portion of the drawing in which the change is made, issuing them to the contractor and superintendent with instructions to paste them on the prints which they have. This obviates having incorrect drawings in the field. If this is not done, the mechanic doing the work is sure to get hold of the wrong drawing and cause a lot of trouble.

COMPLETION. After the building has been completed, the architect should keep in touch with the owner and visit the building occasionally to see that the several items entering into its construction are functioning properly. He must remember that the contractor has not been entirely released of responsibility, and will not be until the guarantees on file in his office have expired. Another reason is to see that the mechanical devices, etc., are being properly cared for or he may be blamed for their breaking down, so the architect and his assistants should make frequent visits during the first year of operation. To bear this out, I know of a case where an architect was criticised severely by the owner of a building in a distant city because the kitchen in his building had become unbearably hot. When this came to the architect's attention his chief superintendent was sent to the building and found that the Engineer, to economize on current, had shut down the fan in the flue from the range hood; it had not been run for a year. When the fan was started the temperature was lowered and the trouble stopped.

I could cite many incidents of a like character where the architect has been unjustly blamed for presumable faults in construction or apparatus.

In closing I would add that it is impossible to tell everything in minute detail that happens in an architect's office from the time the job starts until it is completed, during this forty-five-minute talk. I have only told you of the most important items, and trust I have given you some worthwhile information.

COMPETITION FOR INTERIOR PLANS

The Douglas Fir Plywood industry has announced a competition of interest to architects, architectural students, and draftsmen.

Prizes totaling \$1500 are offered for rough "ideasketches," in plan and elevation, showing practical and attractive uses of Douglas Fir Plywood for any of the following interiors: (1) attic bedroom; (2) basement recreation room; (3) kitchen and breakfast nook; (4) camp cottage including sleeping, cooking, and living facilities for four people. In designing any of these, the contestants may include Douglas Fir Plywood built-ins, and, in short, indicate its use for any purpose for which they may consider it adapted.

Entries should be sent to Mr. C. H. Alden, Professional Adviser, Douglas Fir Plywood Manufacturers, Skinner Building, Seattle, Washington. Only material postmarked before midnight, June 15, will be considered. Entries will be returned to contestants if proper postage is enclosed. Copies of the contest rules may be obtained by writing to the above address.



FROM A DRAWING BY HUGH FERRISS "skyscrapers of steel and glass"

This imaginative conception of buildings of the future was one of the drawings shown last month at the International Art Center of Roerich Museum in New York in an exhibition of architectural designs and illustrations by Hugh Ferriss.

THE AFFILIATION OF THE A.I.A. WITH THE ARCHITECTS' SMALL HOUSE SERVICE BUREAU, INC.

THE CONDITIONS ENGENDERED THEREBY AND CONCLUSIONS THEREON.

Reprinted from "The Blue Print," the monthly bulletin of the Westchester County Society of Architects. Recorded by Arthur T. North, A.I.A.

At the meeting of the New York Chapter, A. I. A., on December 9, 1931, the affiliation of the American Institute of Architects with the Architects' Small House Service Bureau, Inc., was discussed. The discussion evidenced a growing opposition' to the affiliation. Later, the President of the Chapter suggested, for the information of the members, that the matter be investigated and conclusions formulated unofficially. Accordingly, a self-constituted committee undertook the investigation. The personnel of the committee included a Chapter Past-President, a Chapter President, a Chapter Treasurer, a Chapter member, and a member of an independent Society of Architects.

THE AFFILIATION

The 1917 Convention of the Institute "resolved that the Board of Directors request the proper Committee of the Institute to formulate a plan looking toward the development of a better and more harmonious architectural character in small dwelling houses throughout the country; and to recommend the best means for the education or instruction of the public as to what it should have and may get in inexpensive houses."

The 1918 Convention reported no progress.

The 1919 Convention adopted a resolution to appoint a special committee to devise means, appropriate for the approval of the Institute, for the improvement of small houses.

The 1920 Convention received a very comprehensive report from the Committee on Small Houses which indicated a method for producing reasonably good plans; and the Directors complimented the Minnesota Chapter for assuming the burden of initiating the work through the Architects' Small House Service Bureau.

The 1922 Convention report of the Committee stated that there appeared to be developing some opposition to the Bureau because of its using in its literature the phrase "Controlled by the American Institute of Architects."

The 1923 Convention records a statement of the Directors to clarify the Institute's responsibility to and relationship with the Bureau to the effect that it assumed no more responsibility for the Bureau's "specific elements of service" than it did for the "individual members of the Institute," and that it assumed no "interest in or approval of any specific acts of the Bureau in the development of its operation nor any financial interest or control whatever."

The 1925 Convention Committee report indicated signs of differences of opinion evidenced by a minority report.

The 1926 Convention adopted a resolution requesting a report from the Directors on certain matters related to the Bureau, and the Convention was informed that "the organization which was formed for the control of the Bureau has not been effected."

The 1927 Convention received a report of the Directors pertaining to the Bureau, agreeable to the request of the 1926 Convention, which included a report of Counsel and a financial statement.

The 1927 Convention Committee report was presented

as unanimous although a minority report was presented also, indicating a close connection between a portion of the Committee and the Bureau evidenced by the predigested and predetermined so-called "unanimous" report.

The 1929 Convention did not appoint a Committee on Small Houses in the face of the growing objections to the Bureau's use of the phrase "Controlled by the American Institute of Architects."

Since 1929 an impenetrable obscurement has characterized the relations of the Institute with the Bureau until the announcement made by Mr. William Stanley Parker, President, Architects' Small House Service Bureau, Inc., at the December 9, 1931, meeting of the New York Chapter. Mr. Parker stated that the Directors of the Institute, at its October, 1931, meeting, had approved an agreement made between the Bureau and the National Homes Finance Corporation composed of and capitalized by producers of building materials. The corporation is to finance the construction of small houses and the retail distributors of its building materials are to sell the Bureau's stock plans exclusively and advertise themselves as "Agents for the Architects' Small House Service Bureau, Inc.-Endorsed by the American Institute of Architects," and, also, that supervision of construction by architects will be provided at a commission of 11/2 per cent of the cost of construction.

The action of the Directors in approving the contract between the Bureau and the National Homes Finance Corporation in October, 1931, is a violation of the clear and positive pronunciamento of the Directors made in 1923, no record of revision or voidance of which has been found in the published documents of the Institute.

An immediate result of the Agreement between the National Homes Finance Corporation and the Bureau (approved by the Institute Directors) is found in the leading article in the *National Lumberman*, December, 1931. To quote:—"a new set-up has been developed for coping with the breakdown of the old order and providing a smoother-running vehicle for the building industry in the coming era . . . One of the highly potent factors for reviving home-building is the present availability of architects to home-builders at small fees "

To recapitulate:

(1) The "coming era" promises architectural services to home-builders "at small fees" to those who were heretofore unable to employ architects; and,

(2) The public conception of architectural services, created by a national advertising campaign, will be that the purchase of a low-priced, ready-made, hand-me-down Bureau stock-plan with architectural supervision of construction at an inadequate $1\frac{1}{2}$ per cent commission, constitutes true architectural service; and,

(3) The whole tendency and effect of this public belief will be distinctly to lower the popular opinion of architecture and the practice thereof; and,

(4) Public opinion will appraise architectural services as cheap and ordinary, not comparable in value and importance to the services of other professions, a conception that will accrue to all phases of architectural practice; and,

(5) It will inflict an irreparable damage to the rightful prestige and esteem of architecture and architects; and,

(6) To this deplorable and growing public conception and evaluation of what constitutes architectural services to the home-builders, the American Institute of Architects, with its great prestige and influence as the national architectural organization, contributes by its approval of the before-mentioned contract, affiliation with and endorsement of the Architects' Small House Service Bureau, Inc.

BUREAU ACCOMPLISHMENT OF ITS PRIMARY PURPOSE

There has been a marked improvement in the architectural design and construction of all types of buildings and a growing appreciation of good architecture by the public since 1920; and, coincident with this development there has been an equal improvement in the architectural design and construction quality of the stock-plans for small houses produced by nearly all agencies, many of which have and do retain competent architects of experience and ability. There is no direct evidence obtainable to determine whether the competition of the Bureau in the small house stock-plan business has had any material effect on the general improvement made in such plans.

USE OF THE AFFILIATION

The affiliation with and "endorsement" by the Institute is used by the Bureau in its stock-plan sales efforts, which coupled with the inference that the stock-plans are made by members of the Institute causes these stock-plans erroneously to be considered by the stock-plan-purchasing public as, perforce, superior to stock-plans produced by other agencies. The good reputation and prestige of the Institute is prostituted to the end that stock-plans are sold in cut-price competition with the legitimate practice of architects.

EFFECT OF BUREAU COMPETITION

The experiences of members of architectural organizations in the New York Metropolitan Region evidences the indisputable fact that the sale of Bureau and other stockplans effects a real damage to the legitimate practice of many architects. This is true to a greater degree in other regions in proportion to population.

It is customary for some of the most active proponents of the Bureau greatly to underestimate or deny the inroads of the Bureau into the practice of a great number of architects, a large portion of whose practice is confined to designing small houses, because the nature of the practice of these proponents is such that they have no personal knowledge of the effects of the stock-plan business.

While intending to exert a beneficent influence in all matters architectural, the Institute is actually engaged in an enterprise, through this affiliation and "endorsement," which is destructive to the business welfare of and is a disservice to many worthy architects who, whether members of the Institute or not, are entitled to its protection.

THE EFFECT OF THE AFFILIATION ON THE INSTITUTE

The affiliation of the Institute with the Bureau is very objectionable to a considerable number of architects who otherwise would become desirable Institute members. In one instance, fourteen members of an independent Society of Architects, who are also members of an Institute Chapter, were dissuaded by the other members of the Society from resigning in a body from their Institute Chapter. This affiliation has aroused the resentment of some and many others deplore the fact that the great national organization of architects, by its affiliation with and "endorsement" of a cut-rate stock-plan business, has damaged their own business or that of their brother architects.

Opposition to the affiliation is evidenced by resolutions adopted by the Baltimore, Brooklyn, Central Illinois, Hawaii, Kansas City, New Jersey, and Toledo Chapters of the Institute. The attitude of some independent architectural organizations in the Metropolitan District alone is expressed in similar resolutions by the Architects' Club of Brooklyn, Architects' Club of North Hudson, Camden Society of Architects, Hudson County Society of Architects, Long Island Society of Architects, New Jersey Society of Architects, New York Society of Architects, Staten Island Society of Architects, The Architectural League of Northern New Jersey, Union County Society of Architects, and Westchester County Society of Architects. It is right and proper for any architectural organization to protest against a damage inflicted on one or more of its members by the Institute's affiliate, the Bureau.

There is no evidence that this affiliation has the endorsement of the members of the Institute as discussion of the Bureau has been prevented in Conventions and in the Octagon. A recently proposed letter-ballot referendum of all Institute members was opposed in a Chapter meeting by an Institute Director on the ground that "the members were unacquainted with the facts."

The growing dissension within the Institute and the opposition without the Institute is detrimental to the best interests of the American Institute of Architects. It is further evident from the expressions of independent architectural societies that the desirable and essential unification of architectural organizations will not be effected as long as this affiliation of the Institute with the Bureau exists.



FROM A PEN-AND-INK DRAWING BY CHARLES PLASTOW "THE BOK SINGING TOWER," MOUNTAIN LAKE, FLORIDA-MILTON B. MEDARY, ARCHITECT

Size of original, 101/2" x 71/4"

Charles Plastow, one of whose drawings is reproduced above, has been appointed the Director of Dioramas for the Florida Exhibit at the Century of Progress Exposition to be held in Chicago in 1933.



C. FRANKLIN EDMINSTER

C. Franklin Edminster, head of the Architectural Department of Pratt Institute, Brooklyn, New York, for the last forty-three years, and the senior member of the Pratt faculty in point of service, died on Monday, Jan. 25, 1932, at his summer home at Sayville, L. I., of injuries received in a Long Island automobile accident last August. He was in his sixty-seventh year and resided at 174 Emerson Place, Brooklyn.

Mr. Edminster's contribution to architecture, through the field of education, has been a very vital one. Shortly after his graduation from the Boston Normal Art School he was called to Pratt Institute in 1888, less than a year after its foundation, to organize the architectural department which he has headed since that time, developing it into one of the finest of its kind in the country. Believing that an important function of an architectural school is to train men not so much in theory as to meet the practical problems of the profession, he constantly kept in touch with many architects, engineers, designers, contractors, and other experts in design and construction, seeking their advice and criticism. He drew about him as instructors men actively engaged in professional work, who could spare a day or so a week for teaching. Many lecturers were also selected from the professional field. Mr. Edminster, himself an expert in construction and the author of several books, including Architectural Drawing and Structural Drawing, found time to do enough teaching to keep him in close contact with his students. He also personally conducted many field trips to steel mills, cement mills, woodworking mills, and the like, as well as visits to buildings in the process of construction.

Mr. Edminster's interest in his "boys" did not cease on graduation. The friendliest of men, he followed the

career of each graduate and took the keenest pleasure in his broad acquaintance among the alumni. As honorary president of the Pratt Architectural Club he had many opportunities to serve his former students in numerous ways; he has helped them find positions; he has counseled them in their problems; he has offered financial aid.

Affectionately known to thousands of students, graduates, and associates as "Eddie," Mr. Edminster will long be remembered for his attainments as an educator, respected for his high ideals, and loved for the gentleness of his nature, the warmth of his handclasp, and the friendliness of his smile.

DESIGN BUREAU FOR PLUMBING EQUIPMENT

The American Radiator & Standard Sanitary Corporation has established a Design Bureau for the development of heating and plumbing equipment in relation to architecture and decoration.

The current project is the study of the bathroom as an architectural and decorative unit of the house and as a "machine for cleanliness." Construction and decorative materials are being investigated. Floor plans, lighting, heating and conveniences are the subject of practical experimentation.

For this purpose five rooms of different types and prices have been erected in the studio-laboratory of the Bureau. A number of interesting treatments of practical value to architects and decorators has been developed and several new fixtures of special interest are shown, prior to their public release.

We believe this will offer an opportunity for a much needed cooperation between manufacturers of building products and the architects. The critical reaction to these projects by active architects will be an important factor in future developments.

The rooms of the Bureau, numbers 503-4-5 of the American Radiator Building at Forty West Fortieth Street, New York, is open to members of the profession between the hours of ten to four o'clock, until April 1, 1932.

A LETTER FROM GOLDWIN GOLDSMITH OF THE UNIVERSITY OF TEXAS

DEAR SIR:

With great interest I read the article by my friend, Mr. D. Knickerbacker Boyd, in the January PENCIL POINTS.

One thing, however, I think was unfortunate. He referred to "a college in Texas" wherein a professor in the Department of Architecture said that no one had thought to have the students go to a building in course of erection on the campus to study construction. This may be taken to apply to one of three Departments of Architecture in the State.

As I understand that Mr. Boyd visited the University a number of years ago he may have meant this Department. What it may have been at that time I do not know, but I do know that I read this part of his article directly after my return from taking a class to visit a building some blocks distant from the campus. Consequently I regret an allusion that may make some think that the Department at the University of Texas is in the benighted state his story would imply. I doubt, also, if the story would now apply to either of the others. As I say, it was some years ago that Mr. Boyd was in Texas and the departments have improved since.

Very truly yours,

(Signed) GOLDWIN GOLDSMITH, Chairman Department of Architecture

FREESE'S CORNER

Editor's Note:-Ernest Irving Freese here answers inquiries on problems involving geometry or mathematics that have practical value to the draftsman or that, in one way or another, find application in drafting room work. Address your problem to Freese's Corner, PENCIL POINTS, 419 Fourth Avenue, New York.

SOME GRAPHICAL CYCLOMETRY

From A. W. K. B., Jr., of Boston, comes the following query:

"Is there a method of erecting a rectangle equal in area to that of a given circular sector, using the radius of the sector as one side of the required rectangle?"

This problem reduces to that of finding the stretchout of half the arc of the sector, since this length is the required other side of the rectangle. The solution of all such problems requiring the rectification of circular arcs or the quadrature of circular areas is fully treated in Part 14 of the *Geometry* (PENCIL POINTS, January, 1931). As applied to the solution of the problem here stated, Figure 9 is the simple outcome:—

Let ABC be any given sector subtending any angle up to and inclusive of a full quadrant. On the bisector of this angle, and always dating from the mid-point D of the arc, lay off the following proportionate distances at any scale whatsoever: DE = 31 units, or 2'-7"; DF =37 units, or 3'-1"; DG = 93 units, or 7'-9", the last being thrice the first, as shown. Draw EH paralleling CA, and locate H thereon by the radius FG. Then the tangent AJ, limited by the slicing-line HD, is the length of the arc AD. Wherefore, AJ is the one required side of the rectangle, the radius CA being the given side. The area of the resultant rectangle AJKC then equals the area of the given sector ABC. Under this construction . . . which is the most exact ever developed for the rectification of circular arcs . . . the graphical value of "pi" remains practically constant at 3.1416 for all sectors up to and including a full quadrant. Yes, I can prove it. So can you.

At Diagram "2," of the same Figure, the resultant rectangle is "squared," thus "squaring the sector." The method shown at Diagram "2" is of perfectly general application to the squaring of any rectangle at all. For the side of an equivalent square is merely the mean proportional between the two sides of the given rectangle. The construction is obvious.

THIS ONE IS OUT OF FOCUS

The inquiry from T.M.S., of Little Rock, Arkansas, relative to the determination of column-spacing on an elliptical plan appears to be a problem of inscribing an equal-sided polygon in an ellipse. But the statement of the problem is not clear since it contains a basically-wrong assumption to the effect that a curve paralleling a true ellipse is also an ellipse. If the curve of the wall were a true ellipse, then the paralleling locus of centers of the free-standing columns would not be an ellipse. And vice versa. So, if T.M.S. will clear up this error with a diagram of a practical problem, I shall do one of two things: solve the problem or prove that its solution is impossible. It appears to have sufficient general interest to warrant the effort, even though "it has been presented to some of the best mathematical minds in the country without obtaining a solution."



FIGURE 9

A LETTER FROM GUY SILVERNAIL

The Editor,

PENCIL POINTS.

DEAR SIR:

It seems that the underlying idea in the articles by Mr. Hegeman, "Gargoyle," and Royal B. Wills is—"Do something different!" or at least "Do it differently!"

I want to say that this is the right dope. Having completed my course at the inopportune time of June, 1931, instead of wearing out \$5 worth of leather looking for a \$2 job as many of the boys did, I, with a fellow who had worked at the trades, set out asking financiers for a loan of four or five thousand with which to build a house. Needless to say, we wore out much leather on the streets of Syracuse, but finally succeeded in showing a real estate company the possibilities of an architect-mason combination (although both of us were only 22). They granted us a loan of \$5,000. Just how we did it, I don't know. We sold the house when about two-thirds completed, due to a good layout, pleasing lines, and good location. We started the second about six weeks ago. We do everything from plastering to plumbing, hiring very little labor and then only the cheaper trades.

My advice is-"When others are looking for pinslook for crowbars." Maybe I'm wrong?

Sincerely yours,

(Signed) GUY SILVERNAIL.

"Gimcracks and Spizzerinktums"

A Letter from D. E. Hobelman to Frederick E. Sloan*

It is not often that my assiduous reading of the nation's great joke book, *The Congressional Record*, is rewarded with anything to appeal to my almost dormant asthetic sense; but when the U. S. Senate does on occasion delve into the refinements of art and the "higher things in life," the resulting oratory is, to say the least, astounding.

Now, what prompts this letter, is my realization that as a practicing architect, you too must have æsthetic tastes, especially so when it comes to the matter of buildings and their design. Therefore, when I came upon some very learned discussion in The Record which opened up new channels of thought in connection with the professional pursuits to which you elected to devote your life, I thought it was my definite duty to let you in on a few professional secrets and mayhap add to your store of erudition in that field. Not that I would presume to offer you knowledge about a subject on which you are far better schooled both academically and in practice than I; but because I felt that some of the terminology which I encountered in the debates in our country's Capitol might prove as new to you as it did to me. Anyway, I felt I simply had to write you about it.

So, I now reproduce for you from Pages 2301 and 2302, of *The Congressional Record*, proceedings of the Senate on January 19th, 1932:

MR. NORRIS. The Senator ought to remember in his opposition to the remodeling of the State, War, and Navy Building, and the spending of several hundred thousand dollars for that purpose . . .

MR. MCKELLAR. Four million dollars.

MR. NORRIS. Four million dollars?

MR. MCKELLAR. Yes.

MR. NORRIS. That this is a large building, and the Senator must remember that the interior decorations, and so forth, are two or three years old, and are out of style. Those things, like women's hats, have seasons of popularity and depression, and they have to be remodeled and rebuilt and reconstructed every time the style changes.

MR. MCKELLAR. I can understand that, but I am oldfashioned myself, and I rather like old buildings, and old things generally. I hope the Senate will pass the bill which I have introduced, and which I have just read.

THE VICE PRESIDENT. The time of the Senator has expired.

MR. SMOOT. Mr. President, The Treasury Department Building is a beautiful edifice. The State, War, and Navy Building is one upon which no one who has any idea of a beautiful building can look without wondering what kind of a mind ever created such a monstrosity. I never saw so many gimeracks and spizzerinktums put upon any other building I ever saw in this world.

MR. NORRIS. Mr. President, will the Senator yield? MR. LEWIS. What did the Senator say he saw on that building?

MR. SMOOT. Gimcracks and "spizzerinktums."

MR. NORRIS. Mr. President, let me say to the Senator that when the gimcracks and spizzerinktums were put on that building, they were stylish; they were in style then.

MR. SMOOT. They never were stylish.

*(PRIZE-Class Four-February Competition.)

MR. NORRIS. And they will come in style again, as all these things do. If we take them out this year, we will put them back next.

MR. SMOOT. No, Mr. President; they were never in style on a public building and never will be. They are exaggerations of things sometimes placed on private buildings erected by people who have more money than they know what to do with and build a monstrosity of a building which they call home.

MR. MCKELLAR. Mr. President, will the Senator yield to me?

MR. SMOOT. I yield.

MR. MCKELLAR. I happened to be in the building this morning, and while I do not know a great deal about architecture, I saw some Doric columns and some Ionic columns....

MR. NORRIS. Did the Senator see the "spizzerinktums"? MR. MCKELLAR. And I believe there were a very few Corinthian columns. The Doric and Ionic prevailed. I did not see the "spizzerinktums."

MR. SMOOT. Perhaps the Senator did not cast his eye toward the top of the building, nor do I think he went clear around the building. I do not say that under the conditions which exist now we should expend \$4,000,000 for the purpose. That is another question.

MR. MCKELLAR. I am very happy the Senator has taken that position.

MR. SMOOT. I hope to live long enough to see the day that building may be made to conform to the beauty of the Treasury Building. I consider the Treasury Building one that would be an ornament any place in the world, and yet back of it is the great State, War, and Navy Building, which is a monstrosity in the sight of anyone who likes symmetry and beauty in great governmental buildings.

MR. NORRIS. Mr. President, the Senator from Utah, of course, is a great judge of art and beauty, and I know that I expose my ignorance of the subject when I say that I have always been attracted to the building which he has so forcefully and eloquently denounced. I think and have always thought that it and the Post Office Building, which has likewise been condemned by modern society, were two of the finest buildings in the City of Washington.

I was not aware of it before, but I presume I have a special liking for gimcracks and spizzerinktums.

MR. SMOOT. I have not.

MR. NORRIS. The Senator from Utah for some reason or other has cultivated a distaste for them. They probably hurt him at some time. He probably came in contact with gimcracks that got the best of him, or "spizzerinktums" that got away with him. And he is now trying to vent his spleen by having us destroy one of the finest buildings in all the civilized world.

MR. SMOOT. And I hope I may be successful.

MR. NORRIS. He wants to do that just because it has some gimcracks in it and because it is inhabited partially by "spizzerinktums."

MR. JONES. Mr. President, ever since I came here 30 years ago I have admired very much the State, War, and (Continued on page 212)



This department conducts four competitions each month. A prize of \$10.00 is awarded in each class as follows: Class 1, sketches or drawings in any medium; Class 2, poetry; Class 3, cartoons; Class 4, miscellaneous items not coming under the above headings. Everyone is eligible to enter material in any of these four divisions. Good Wrinkle Section: a prize of \$10.00 is awarded for any suggestion as to how work in the drafting room may be facilitated. No matter how simple the scheme, if you have found it of help in making your work easier, send it in. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the twelfth of the month preceding the publication date in order to be eligible for that month's competitions. Material received after the closing date is entered in the following month's competition.

The publishers reserve the right to publish any of the material, other than the prize winners, at any time, unless specifically requested not to do so by the contributor.

IN RESPONSE TO OUR request for ideas for another competition we had a number of suggestions, but at the present time we are so hopped up about *gimcracks* and *spizzerinktums* that all we can do is to thank those who wrote to us and say that their ideas will be given proper consideration at the psychological moment, whenever that may be.

First of all, for the benefit of those who are easily discouraged we want to announce that there is a great deal of preparation necessary for entrance into this competition which we are about to unfold. This will exclude, and rightfully we feel, the also rans.

The entire article opposite must be read several times by each aspirant for the prize before he may attempt even the nucleus of the formation of a *gimerack*—let alone a *spizzerinktum*. We recognize that it is our duty to present for the consideration of the United States Senate the best that the architectural profession can offer in *spizzer-inktum* designing. Let us not be found wanting!

While we all accept *spizzerinkta* as a part of our everyday life, they are difficult things to explain to the uninitiated. Now at the showdown when we ask you, what is a *spizzerinktum*, are you able to tell us? Of course, *we* would have a sympathetic understanding and undoubtedly could follow along any train of thought you chose to take. That is beside the point. The laymen, those who form the great masses that one meets in everyday communion with the great adventure called life, must be familiarized with the *spizzerinktum* in all its glory! Even the word *spizzerinktum* is an unknown quantity to a large number of the population of these United



"BACK OF THE DRUG STORE," LITHOGRAPH BY K. B. FAULKNER, LINCOLN, NEBRASKA (PRIZE—Class One—February Competition)

States. We call upon you, the backbone of the profession, to send us your ideas (expressed in black and white) of the best in spizzerinktum designing-and don't forget to include a graphic scale.

In discussing the subject with a distinguished member of the profession we endeavor to serve, we learned that there were a great many pros that a spizzerinktum was the meeting of a stalactite with a stalagmite. Is this an accept-able definition? Are there any cons? Does a spizzerinktum bulge up or down, or does it bulge at all? Is it functional?

Surely not one of you will fail to grasp this most timely opportunity of helping assist the lay mind out of the gauze into the higher understanding of spizzerinktum architecture. In order that the competitor may have ample time, the competition will be open until 5 P. M. on Monday, April the 11th.

All questions regarding the competition must be sent anonymously to Salvador Gloop, Professional Adviser, Spizzerinktum Competition, PENCIL POINTS, 419 Fourth Avenue, New York. Mr. Gloop will consult an eminent jury, including Sen. Smoot if it seems advisable, on all questions and the answers will be published for the edification of all in the April issue of this Department.

Now THAT THIS is off our chest we can deliberately and comparatively calmly award the prizes in this month's competition as follows:

Class I—K. B. Faulkner, Lincoln, Nebraska Class II—Sherman G. Coates, Philadelphia, Pennsylvania Class III-Dave Chapman, Evanston, Illinois

Class IV-Frederick E. Sloan, Chicago, Illinois

Good Wrinkle-Harold H. Ehlert, Detroit, Michigan Note particularly our new department heading. It was drawn by Walter J. Campbell of Danbury, Connecticut, and, as we interpret the design, it might be entitled "Cherchez la Spizzerinktum."

ARCHITECTURAL REFLECTION By Sherman G. Coates

(PRIZE-Class Two-February Competition)

Architesture's a darn good gesture

From the architest's point of view. But many clients proclaim defients

To us fellows-me and yiew.

They ask "Why can'd I have what I plan'd As long as I'm paying the price?" Our only answer's "You certainly can't, Sir, If you want your job to be nice!

"You want a lav where you ought to have A stair, or a closet, or surch; You want a door where should be a floor,

Or a dormer, or second floor purch!

"Why don't you let your Architet Tell you what's what, or what?" The client replies with fire in his eyes, "I'll tell you what's not, by Gott!"

A WRINKLE FOR PRINTING LINOLEUM BLOCKS Submitted by Frank S. Carson of Ann Arbor, Michigan IN THE ABSENCE of a suitable press, letter-presses not being among modern conveniences, the following method will be found very satisfactory in printing linoleum blocks, especially where the paper is heavy and much pressure is required. Jack up the rear wheel of your car and place the block face up directly beneath the center of the tire. Lay the paper on, and place a piece of a board slightly larger than the block on top. Let down the car. Upon raising it you will find it gives a very good print, even on stock as rough as charcoal paper. This method is quite simple and rapid, and as many as one hundred prints can easily be made in one afternoon.



HAROLD H. EHLERT, of Detroit, Michigan, is awarded the Good Wrinkle prize for the scale above which he explains:

"It is a wood siding or wall shingle scale, similar to the brick scales we all use in laying out 1/2-inch scale details.

"This type of a scale would be helpful to all draftsmen, particularly those who do considerable residential work. It saves time and is more accurate than using the ordinary scale a number of times. Window heads and sills can be quickly located to line with the courses as well as all other features.

"For convenience, these scales could be drawn on the reverse side of the brick scale which are easily slid under the drawing showing clearly the lines, the number of courses and the dimensions."

Not a bad idea to add this to your Draftsmen's Data Sheets Notebook.

HERE AND THERE AND THIS AND THAT



"THE Conceited Architect," by Keith Hinchsliff, Manhattan, Kansas



SUBMITTED BY DAVE CHAPMAN, EVANSTON, ILLINOIS (PRIZE-Class Three-February Competition)

WESLEY W. WEDEMEYER, of St. Louis, Missouri, writes: "I have found that cellophane transparent paper makes

a very suitable covering for water colors, pencil sketches, pastel and, in fact, every kind of rendering.

"Cellophane can be purchased at stores handling a great variety of papers. Here in St. Louis it costs twenty-five cents a sheet 40" x 40" which is enough to cover from four to six renderings. That price may vary in different localities.

"It is applied by cutting a piece of cellophane an inch longer than the dimensions of the rendering. The rendering is then placed face down on the cellophane and the overlapping edges pasted on the back.

"It is advisable to mount or make the rendering on stiff board so that the tension produced when the cellophane stretches does not cause the rendering to curl."



Temple of the Tooth, Kandy, Ceylon

THIS PHOTOGRAPH was recently received from our pal Salvador Gloop, who is weathering the depression by a 'roundthe-world cruise. Mr. Gloop says he took particular pleasure in inspecting the Temple of the Tooth and hopes that construction of the Palanquin for E. L. C.'s wisdom tooth is near-

ing completion. Salvador, we hate to disappoint you, but we haven't yet acquired a satisfactory site. Any of our readers desiring to reach Mr. Gloop may radio him by addressing Gloopgloop. Mr. Gloop has accepted our cable invitation to act as Professional Advisor in the Spizzerinktum Competition and is making all haste to return. NOTE, IF YOU PLEASE, how Mister Chapman has etched into the lines of his litho, above, the lines of a fresh, yes even green product of young America (rise and sing), sent to horrid Montparnasse and Rue de l'Université only to be learned the wicked ways of life.

Note, dear reader, the jaded, yea, even sophisticated expression of the creature sent back to us. Well, that's life.



SUBMITTED BY TEDDY MILLER, ST. LOUIS, MISSOURI "The Young Man Who Waited to See the Akron Hook On to the Empire State Building"



WALTER P. CRABTREE, ARCHITECT

PENCIL POINTS FOR MARCH, 1932



DETAILS OF CONSTRUCTION FOR CHURCH SCHOOL KITCHEN SHOWN LAST MONTH-DRAWN BY PHILIP G. KNOBLOCH

PENCIL POINTS (March, 1932)

新闻





Send for samples of Eldorado to the Joseph Dixon Crucible Co., Dept. 167-J, Jersey City, N. J.

SERVICE DEPARTMENTS

THE MART. In this department we will print, free of charge, notices from readers (dealers excepted) having for sale, or desiring to purchase books, drawing instruments, and other property pertaining directly to the profession or business in which most of us are engaged. Such notices will be inserted in one issue only, but there is no limit to the number of different notices pertaining to different things which any subscriber may insert.

PERSONAL NOTICES. Announcements concerning the opening of new offices for the practice of architecture, changes in architectural firms, changes of address and items of personal interest will be printed free of charge.

FREE EMPLOYMENT SERVICE. In this department we shall continue to print, free of charge, notices from architects or others requiring designers, draftsmen, specification writers, or superintendents, as well as from those seeking similar positions. Such notices will also be posted on the job bulletin board at our main office, which is accessible to all.

SPECIAL NOTICE TO ARCHITECTS LOCATED OUTSIDE OF THE UNITED STATES: Should you be interested in any building material or equipment manufactured in America, we will gladly procure and send, without charge, any information you may desire concerning it.

Notices submitted for publication in these Service Departments must reach us before the fifth of each month if they are to be inserted in the next issue. Address all communications to 419 Fourth Avenue, New York, N.Y.

THE MART

John R. Fey, Fremont, Ohio, would like to purchase a new or used copy of *Catholic Art & Architecture*.

Edgar Ruggles, 417 N. Milton Drive, San Gabriel, Calif., has for sale a complete set of PENCIL POINTS from July, 1920, to present date. Price \$35. Postage to be paid by purchaser.

J. E. Swain, 24 W. 55th Street, New York, wants Vol. 2, No. 3, of the *White Pine Series*. Reasonable price.

Beatty & Beatty, Landscape Architects, 101 Park Avenue, New York, have office space for rent; also a drafting board for sale.

José Alberto Prieto, Calle 27, No. 9, entre J y K, Vedado, Habana, Cuba, would like to obtain the March and May, 1930, issues of PENCIL POINTS.

Fred J. Woodward, 728—17th Street, N. W., Washington, D. C., has for sale all issues of PENCIL POINTS for the year 1924. 35c, per copy.

year 1924. 35c. per copy. Clifford H. James, 2422 W. 15th Street, Lubbock, Texas, would like to purchase the following copies of magazines, if in good condition: *The Architectural Forum*: January, 1927, to December, 1931; *The American Architect*: August, 1929, to December, 1931; *Architecture*: January, 1927, to December, 1931. For sale, *The Architectural Record*: December, 1928; May, 1929; September and October, 1930. All in good condition.

Gordon Marvel, 234 East 15th Street, New York, would like to obtain the April, 1930, issue of PENCIL POINTS.

A. Benton Greene, 345 East 15th Street, New York, would like to purchase *The Study of the Orders of Architecture*, by Bourne, Von Holst, and Brown, published by the American Technical Society.

Architect will share his Fifth Avenue, New York, penthouse office; private office available and use of large drafting room. Leon Levy, BR 9-1638.

Architect with large office in Westchester County, New York, will sublet space to engineer or other in nonconflicting profession. Rent: \$10 a month. M., care of PENCIL POINTS.

PERSONALS

J. ELWOOD ISTED, DRAFTSMAN, 1021 Columbia Avenue, Bend, Oregon, wants manufacturers' literature.

NAT O. MATSON, ARCHITECT, has moved his atelier from 140 Mamaroneck Avenue to 171 East Pond Road, White Plains, New York. PAUL P. STEWART AND FLEMING R. HURT, JR., ARCHI-TECTS, have opened an office for the practice of architecture at the Boxley Bldg., Roanoke, Va., and would like to receive manufacturers' catalogs and samples.

WILLIAM L. GIBB, JR., ARCHITECT, has moved his office from the Ocean City National Bank Building to 910 Central Avenue, Ocean City, New Jersey.

W. J. BROWN, ARCHITECT, has moved from 208 Bever Building to 728 Higley Building, Cedar Rapids, Iowa. REG HEWSON, ARCHITECTURAL DRAFTSMAN, Box 683, Collingwood, Ontario, Canada, would like to receive manufacturers' catalogs and samples for an A.I.A. file.

ROBERT BOLTON, ARCHITECT AND ENGINEER, has moved his office from Newark, N. J., to 36 William Street, East Orange, N. J.

EDEN & KAPP, ARCHITECTS, State College, Pa., and Jamison & Minick, Architects, Harrisburg, Pa., have dissolved their partnerships. Mr. P. Boyd Kapp will continue the practice of architecture, in his own name, at the Leitzell Building, State College, Pa. Mr. Henley S. Eden has entered the firm of Minick & Eden, 600 North Second St., Harrisburg, Pa., to engage in a general architectural practice. Mr. Jamison has retired.

JOHN R. TANNER AND ARMON E. MABRY, ARCHITECTS, announce the formation of a partnership with offices at 2620 Rosedale and 3015 Chenevert, Houston, Texas.

SAVERIO G. DI MAIO, ARCHITECT, has moved his office from Washington Street, Lowellville, Ohio, to 955 North Howard Street, Akron, Ohio, and would like to receive manufacturers' catalogs and samples.

ARCHIE PROTOPAPAS, ARCHITECT, has moved his office from 369 Lexington Avenue, New York, N. Y., to 25-90 35th Street, Long Island City, N. Y.

JAMES & ZORNS, ARCHITECTS, 2422 W. 15th Street, Lubbock, Texas, have dissolved partnership. Mr. Clifford H. James will continue the practice of domestic architecture in his own name at the same address.

JOSEPH PRAISSMAN, ARCHITECT, has moved his office from 425 North Sixth Street to 333 Arch Street, Camden, N. J. VINCENT PALMER, ARCHITECT AND CIVIL ENGINEER, has moved his office from 5419 W. Sixth Street, to the Coyne Bldg., 116 N. Larchmont Blvd., Los Angeles, Calif.

DUE TO THE lengthening and renumbering of North Avenue, the address number of WILLIAM C. HALBERT, JR., ARCHITECT, New Rochelle, New York, is now 466 North Avenue instead of 202 North Avenue.

EMPLOYMENT SERVICE ITEMS WILL BE FOUND ON PAGE 48, ADVERTISING SECTION