

# PENCIL POINTS

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## Architecture, Art or Science?

By Louis La Beaume, F. A. I. A.

*Editor's Note:—This is the eighth of a series of articles in which leading architects are discussing the philosophy of design, considered in the light of present-day practice. Preceding articles in the series have been by William Adams Delano, George Howe, Albert Kahn, Alfred Fellheimer, Irving K. Pond, William F. Lamb, and Dwight James Baum. Next month, Ralph Adams Cram will be the contributor to the discussion, to be followed by John W. Root, Charles Z. Klauder and C. Howard Walker.*

One of the difficulties in speaking or writing of Architecture lies in the fact that there is so much of it. Another is the fact that much of it is not Architecture at all. A good deal of it is very mediocre, workaday stuff, just as a good deal of so-called literature is very mediocre prose. Even good, sound, sober prose may sometimes lack the spirit that makes literature; and frequently quite brilliant rhetoric may be not merely ephemeral, but positively meretricious. So it is with much of the stuff that we hurriedly classify as Architecture. Some of it is mere building, some is mere posturing, and, nowadays, unfortunately, a good deal of it is mere advertising.

But the Art of architecture, like the Art of literature, as we should like to think of it, has a high significance. And words can only inadequately define it. We are all pretty well agreed, however, that its chief concern is the logical and beautiful control, arrangement, and enclosure of units of space. The mass and form and expression of the resulting structure is the physiognomy which, of course, we should prefer to be comely, or at least full of character, which is, after all, much the same thing.

The use of these two words, logical and beautiful, might imply that architecture is both an art and a science, but words are at best only rough symbols, when they are not actually deceiving. To some minds these two words, logical and beautiful, may seem synonymous, though it may be doubted if they are always so. Pure logic is science, and may hold a beauty all its own. Often, however, it is a kind of cold, inhuman beauty, which the spirit of man ever seeks to mitigate. And our attempts at mitigation are called Art. The very word connotes something arbitrary, omissions here, emphasis there, reticences as well as candors, the nature of the material controlled as well as revealed, realism of the innate character of the subject and not necessarily surface realism. The word Art conveys an idea of some essence, some fragrance not weighable or measurable in ordinary terms. We do not think of Art as concerned with quantity, with size, weight, depth, height, distance, or time.

It has to do with quality, with some finer or inner symptom of character.

Architecture is often called a utilitarian Art because building ministers to certain physical needs. But all of the arts are utilitarian inasmuch as they all aim to satisfy some craving or need. A painting, a poem, a sonata may comfort and warm the senses as truly as a building may shelter a man from the cold. "Yet (we are apt to say), there is something ethereal about the arts of music, poetry and painting which differentiates them from the Art of architecture; they result from pure fancy and are woven of rainbows or cobwebs." But this is not precisely true; for songs and pictures are formed almost as materially as buildings are formed, and quite as materially as a vase, a tapestry, a statue or a chair. Problems of composition and construction are involved equally, and laws of logic and beauty which must be heeded.

The popular contemporary cliché that "Form follows Function" applies to every manifestation of Art, always has, and always will. The reiteration of this slogan, however, seems to have resulted in considerable confusion, a good deal of vituperation, and the expression of many half truths not only by word of mouth and pen, which wouldn't be so bad, but in brick and mortar, steel and glass, and Heaven only knows how many synthetic, steamed, boiled, or brewed substances issuing daily from the crucible of science. Through the continued repetition of this age-old truth, the term Architecture has come to connote, in the minds of many, some close affinity with the Science of Engineering. Architecture and Engineering are, however, not at all the same thing. And it is possible to cite many *chef d'oeuvres* of the Engineer's constructive skill which are wholly lacking in the qualities which we associate with Architecture.

Perhaps our present-day confusion is not to be wondered at, however, when we reflect on the course of our architectural development and accomplishment during the past fifty years. The impatience of the Functionalists, in the face of our eclecticism and our obsession with historic styles, is fairly justifiable, and



their criticism from this angle has much of health and sanity. Fifty years ago in the United States, Architecture, as an Art, may be said scarcely to have existed. The oldest of us know the chaos that reigned then, and even the youngest among us are familiar enough with the aping of old forms, and motives, and our seeming lack of conviction.

Were "Imitation" really "the sincerest form of flattery" we Americans might be called the greatest flatterers in history. But sincere flattery, that is respect, veneration, and understanding, scorns to imitate the surface aspects of the characteristics admired, but seeks ever to penetrate the underlying character itself and attain to oneness with it. Our changing and superficial enthusiasms cannot be seriously justified except perhaps as finger exercises. They have made us facile, but have they made us firm? On the whole I believe that it will be rather generally conceded that our accomplishment has been pretty irrational. We plead in extenuation that we are not free agents—that we do as society, and, especially, as our clients bid us do; that the anarchy of our urban architecture is but the reflex of the anarchy, social and economic, of our epoch. But do we not beg the question, and salve our consciences by pleading thus? Are we merely mercenaries, merely panderers, or do we admit some allegiance to the great principles of the art we essay to practice?

It is true enough that the practice of the Art of architecture is differentiated somewhat from the practice of most of the other arts today. We think of it as less free, and cite the poet, the painter, the sculptor, the dramatist, enviously, as untrammelled visionaries aloof from all dictation except that of their own inspiration. But here again we beg the question and get all mixed up. It might seem a little invidious for an architect to indulge in any slurring allusion to his confrères in the other arts, but it cannot be amiss to remind ourselves that most of the great art of the world has been commanded, made to order. This is true of nearly all great painting from early times on, of much of the greatest sculpture, and of a considerable body of literature, particularly dramatic literature.

Painters were formerly commissioned to fill set spaces, under very precise specifications, and artists generally were assigned special tasks. They did not think themselves unduly hampered by the commands of kings, princes, cardinals, abbots, or even parvenus, but turned out masterpieces like the honest, able, thorough-going workmen they were. Phidias worked under orders, so did Brunelleschi and Angelo, du Cerceau, Gabriel, Wren and many another giant. But gradually the situation changed. \*"As far back as Rembrandt we find the client's, the public claim losing hold on the painter and his private interest gaining. What was with Vandervelde the commissioned portrait of a warship passes over into a free picture of the sea . . . Portrait goes out and Effect comes in. Successive artists have carried further this pursuit of

an individual interest, and through the absence of a patron, a subject commanded, a public to be convinced, and its own shifty holiday nature their art lives a moody and uncertain life." It is generally your spoiled, liberty-loving, undisciplined, independent, opinionated egotist who makes a mess of things.

That individuality is a precious quality cannot be gainsaid. Discrimination hungers for it; but there may be liberty under law, and individuality is no synonym for eccentricity or license.

What then, you say, is all this fuss about; and what is the way out? What then is the issue between the conservatives, the academicians, and the modernists, the iconoclasts? Both sides can make out a fairly good case rhetorically. Rhetoric will not, however, decide the question or settle the controversy. Only time and the spirit of man will do that.

The modernists in their excess of zeal, and in their intoxication with the achievements of science and the mechanistic triumphs of the age, seem to have turned their backs upon the Muses. "Art," they seem to say, "is vain, grace is no longer the mode."

"The machine," they say, "is the apotheosis of man's genius. It typifies strength, skill, efficiency, economy, and as these are admirable qualities the machine is admirable, and, being admirable, ergo must be beautiful. Let us therefore seek our inspiration in the machine and apply the same rules and no others to the making of our buildings. Our buildings will then typify strength, skill, efficiency, and economy and ergo our buildings will be beautiful, or, at least, we will proclaim them so."

Once we were told to rely upon Taste, that indefinable something akin to an æsthetic conscience; but now we realize again as the ancients did, *De Gustibus non est disputandum*. Even so, however, a wild dispute still rages about the matter of Taste. The Traditionalists, the Conservatives, the Classicists contend that the Modernists have no Taste. The Modernists retort that the Traditionalists have nothing else; and even that isn't their own. So it is in the field of painting, and our modern painters, like our modern architects, are crying that Beauty is demoded, that ugliness is its own excuse for being. Architects and painters and sculptors turn literary men to belabor each other with words, though nothing they can say, nor anything you or I may say will have any effect on the ultimate verdict.

But since the word Beauty has intruded unbidden into this discussion, may we not, even though it be outmoded, pause for a moment to salute the emotions which it once evoked; the peace of Harmony, the satisfaction of Balance, the elation of Sincerity, the comfort of Rhythm. Harmony, Balance, Sincerity, Rhythm, all unweighable, intangible, immeasurable qualities, reflecting themselves in the heart, not in the mind, quickening the spirit, ignoring the intellect; all the stuff that the Art of architecture is made of, not touchable, not quite teachable, and certainly not talkable.

\**Confessions of a Keeper*, by D. S. MacColl.



# Henry P. Kirby—1853-1915

## Some Notes on One of the Great American Architects and Delineators of the Romantic Era

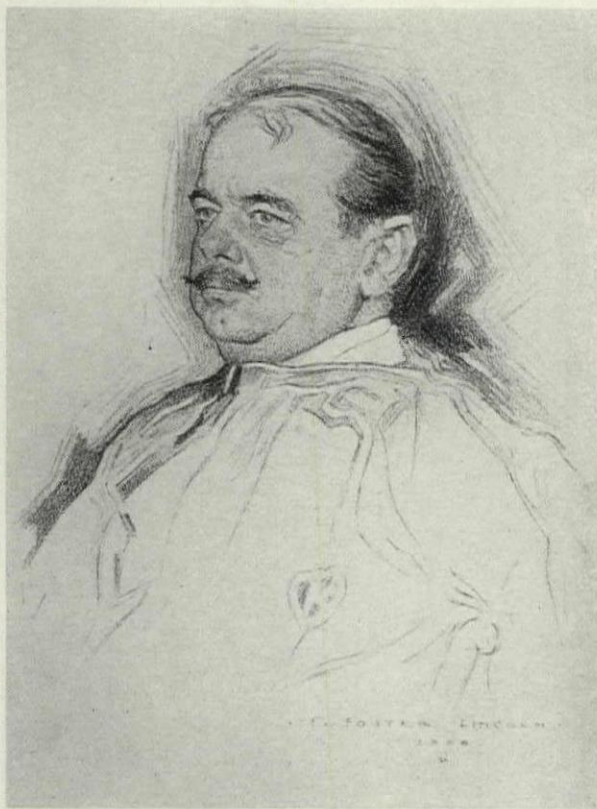
By Francis S. Swales

During the 'eighties, when the skeleton of American "modernism" had passed its zenith and was once more going back into the national closet, there appeared in the press the work of a young poet who wrote his verses in pen drawings of architecture. The work of Henry Philip Kirby appeared at first in little details of porches, gables, masses of chimneys and the like, painstakingly and with accurate details, then in drawings most carefully made of houses of the mediæval and transitional periods, of old houses of Normandy with perfected luminous shadows; later—in the late 'eighties and early 'nineties—flowering into compositions of great country houses, churches, civic features, and small towns, conceived in the spirit of the Victorian revival of Gothic traditions, expressed in a highly individual manner which developed into a personal style. The character of his style was essentially that of the architect proper; of one conceiving a whole with the many parts in harmony; of focussing upon a dominant mass, sufficiently broken to keep in sympathetic scale with its attendant masses so that these be-

came ornaments to the composition—not mere pigmies beside a giant. He loved large white wall surfaces and the contrast of rich detail in florid masses upon them; and he saw his subjects in strong, bright daylight. He was perhaps the first American delineator to know what should be left out of a drawing—particularly when that drawing is an indication or sketch of the idea: the precious document upon which all subsequent objective drawings must be based, and from which the composer must translate his poetry into the prose from which it may be re-translated—often into a foreign tongue—with such perception

and scholarship as can be found in the assistants of an organization. Had this artist found the fortunate circumstances of a perceiving and appreciative entourage, such as fell to the lot of the architects of the Renaissance at Rome, or to the painter Rubens, he would doubtless have developed a group of brilliant pupils through whom our countryside and cities might have been given some—perhaps much—of the charm of the unmechanized parts of the old world.

Kirby was the last vigorous exponent of the eclectic spirit of the romantic school in the United States. He had for his forerunners Richard Upjohn, Richard Morris Hunt, Henry Hobson Richardson, and for early contemporaneous leadership, Harvey Ellis. The movement culminated in the competition for the Cathedral of St. John the Divine at New York at the end of 1889 which brought out the masterpiece of Ellis (in the name of L. S. Buffington); the excellent, if perhaps less inspiring, greatest work of Heins and LaFarge—which was finally started on its way to a checkered career of execution; a tremendous *tour de force*

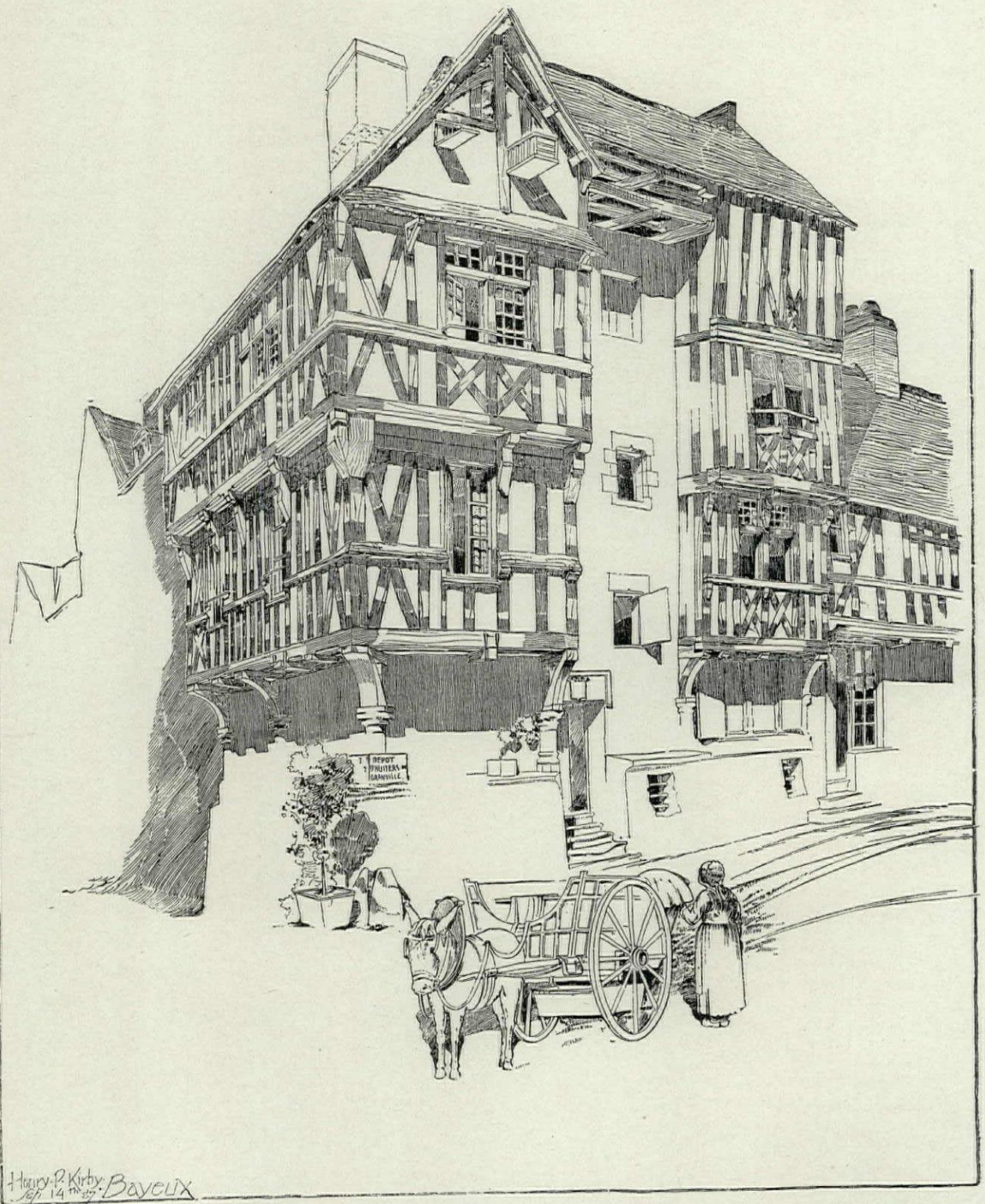


HENRY P. KIRBY

FROM A DRAWING BY F. FOSTER LINCOLN

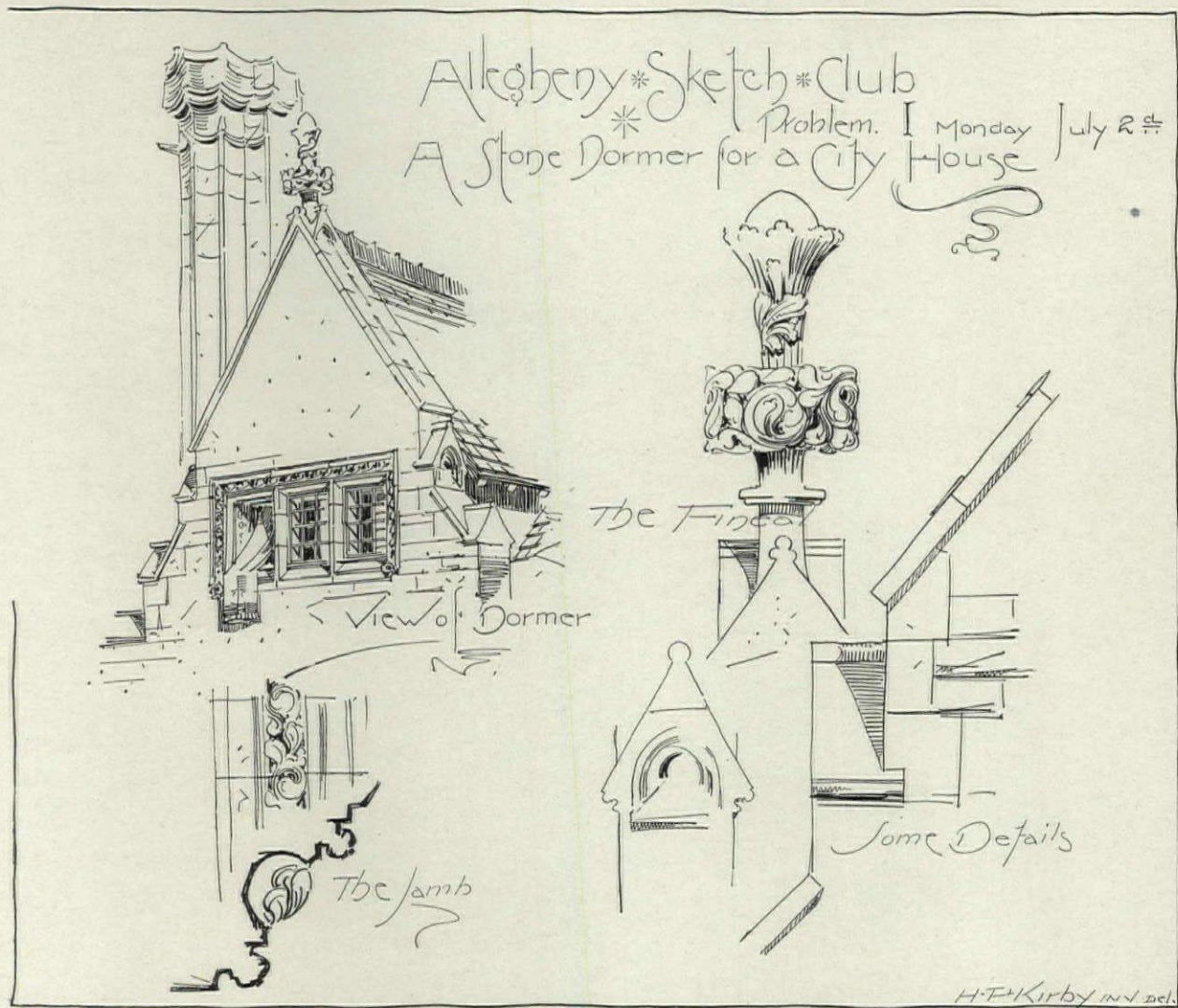
by William Halsey Wood; other designs showing studentship of the mediæval churches, by Bertram Goodhue, the Parfitt Brothers, Robert Gibson, Ralph Cram, Renwick, Aspinwall & Russell, Peabody & Stearns, and others. A Norman design submitted from Pittsburgh by W. A. Frazer bore the influence, and was probably the work, of Henry Kirby. Since then the romantic school in this country, as elsewhere, has given way before the influences of academic training in classic traditions, and less well-founded diversions, as romantic materials of construction—masonry and timber—gave way before the introduction of iron and





PEN-AND-INK DRAWING BY HENRY P. KIRBY  
FROM "A BOOK OF COMPOSITIONS BY HENRY P. KIRBY," PUBLISHED ORIGINALLY BY BATES & GUILD





DRAWING FROM THE STUDENT PERIOD OF HENRY P. KIRBY

A DESIGN FOR A FEATURE OF A BUILDING—SHOWING EARLY GRASP OF ARCHITECTURAL FORM

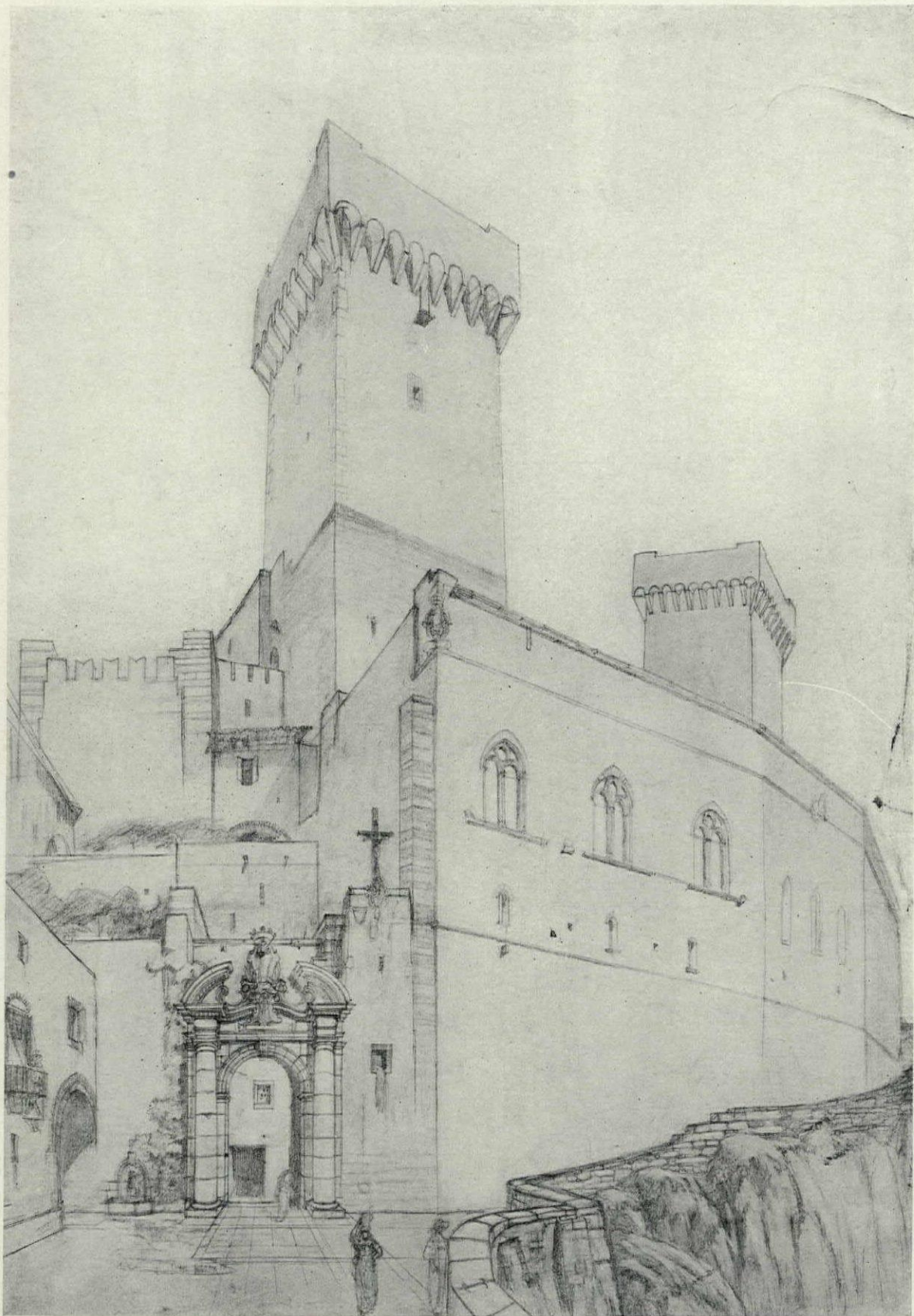
steel frames and metal reinforcement of timber and concrete. Since the introduction of the iron frame, buildings have tended to become more, and more, mechanical, and like razor blades and tin cans are "made to sell" by dollar-minded people.

In 1889 some young French architects, fresh from the office of the Paris Exposition, arrived at Chicago with a dream of building a great international exposition, carrying with them, among other *projets, calques* of Bernard's classical studies for his Art Palace which had won the Grand Prix de Rome in the 'sixties. They also brought with them ideas of "expressing steel construction" as it had been expressed at the Paris expositions of 1878 and was then being expressed at the exposition of 1889. Rather curiously it was Viollet-le-Duc, the arch-romanticist of France, restorer of Notre Dame and the Sainte-Chapelle, of the Hotel-de-Ville of Compiègne, of Pierrefonds and the Cité of Carcassonne, who, in one of his lectures, stated that he saw no reason why buildings should not be constructed of iron frames encased in and supporting the masonry; who, himself, designed the iron spire on the Cathedral of Rouen. It was

through reading that passage in Viollet-le-Duc's "Discourses" that Harvey Ellis was led to advocate the idea of "skeleton construction" (which his "boss," L. S. Buffington, tried to patent!) and to design the first skyscraper, in which he proposed that the walls should be built "supported story by story on steel beams and brackets, just as the half-timber frames of the Gothic period supported the brickwork on wooden beams and brackets." It would seem that to the inventive ideas of these two notable romanticists, we owe the ruin of the picturesque beauty for which they strived so well all their lives.

About the time of the competition for the Cathedral of St. John the Divine, Professor William Robert Ware, who was professional adviser to the Cathedral Building Committee, went to Pittsburgh and called on Kirby. He brought back to New York some of Kirby's drawings, had them exhibited at the Architectural League, and showed them to George B. Post. An engagement as chief designer with Post followed and Kirby remained with him for twenty-five years. After that he joined John J. Petit and James C. Green in forming the firm of Kirby, Petit





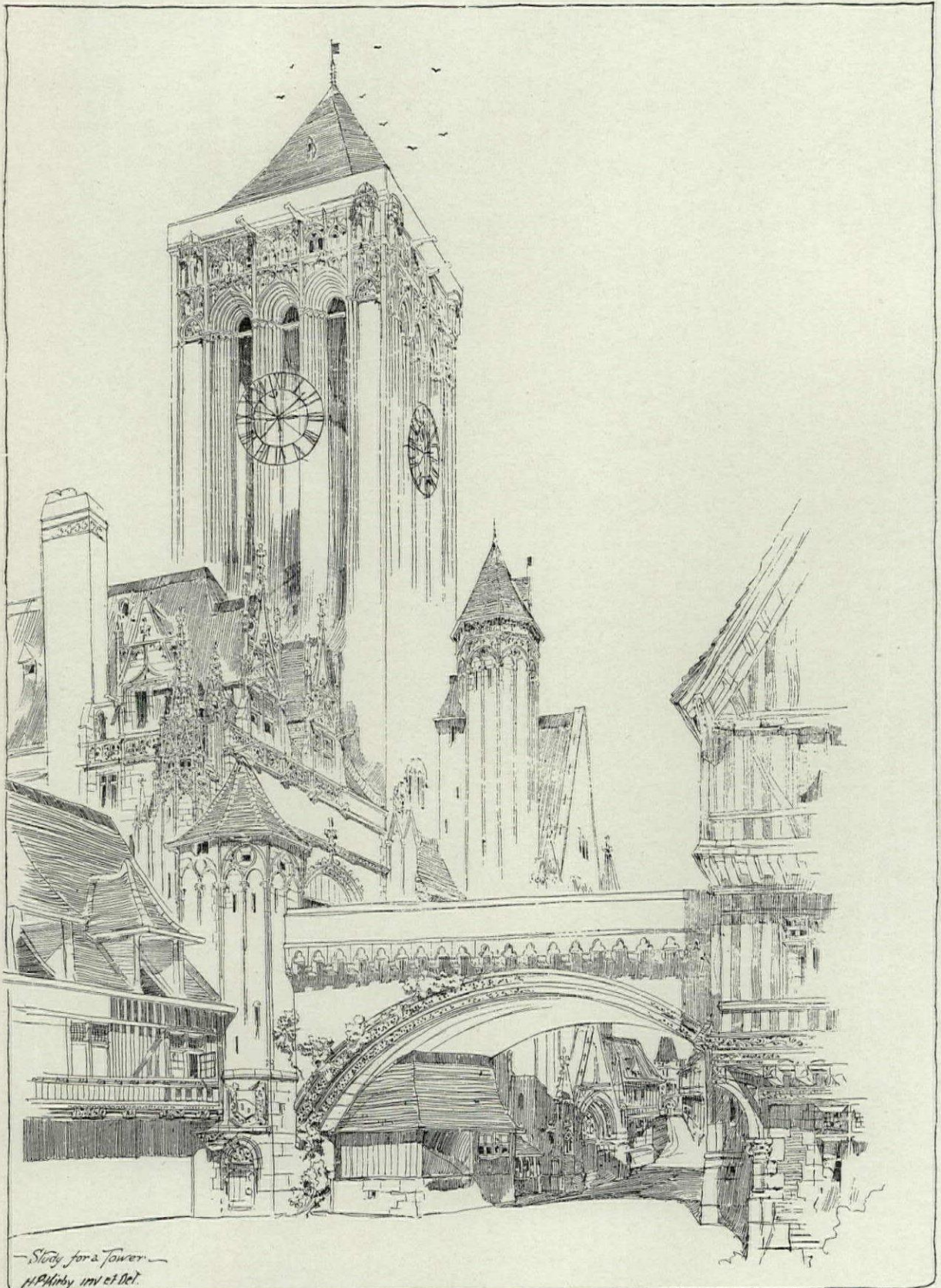
STUDY IN PENCIL FOR AN OIL PAINTING  
AN IMAGINARY COMPOSITION BASED ON ITALIAN PRECEDENT





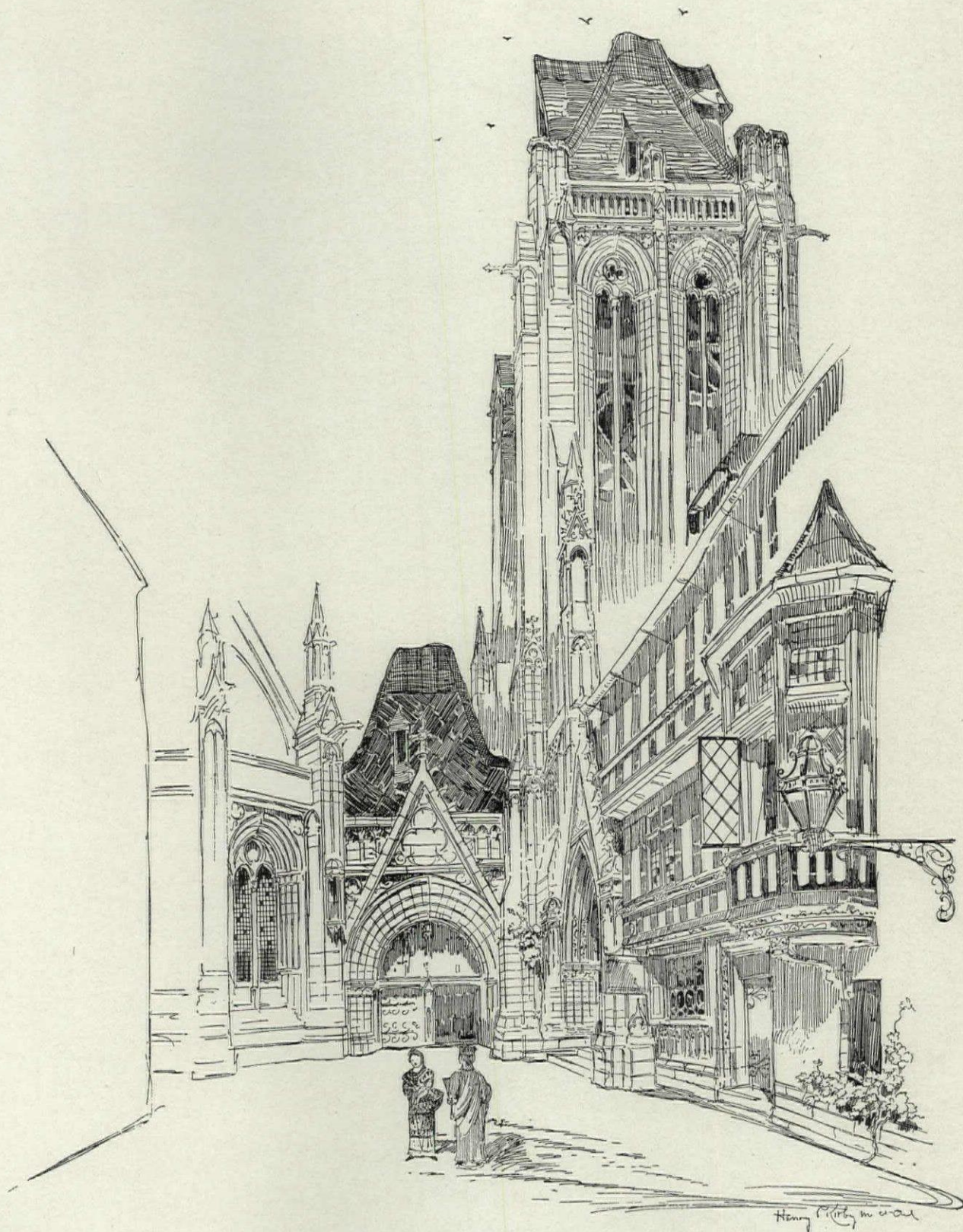
AN ESSAY IN THE COMPOSITION OF ARCHITECTURAL FORMS  
DRAWN VERY FREELY AT LARGE SCALE IN PENCIL—LATER WORKED UP IN OIL





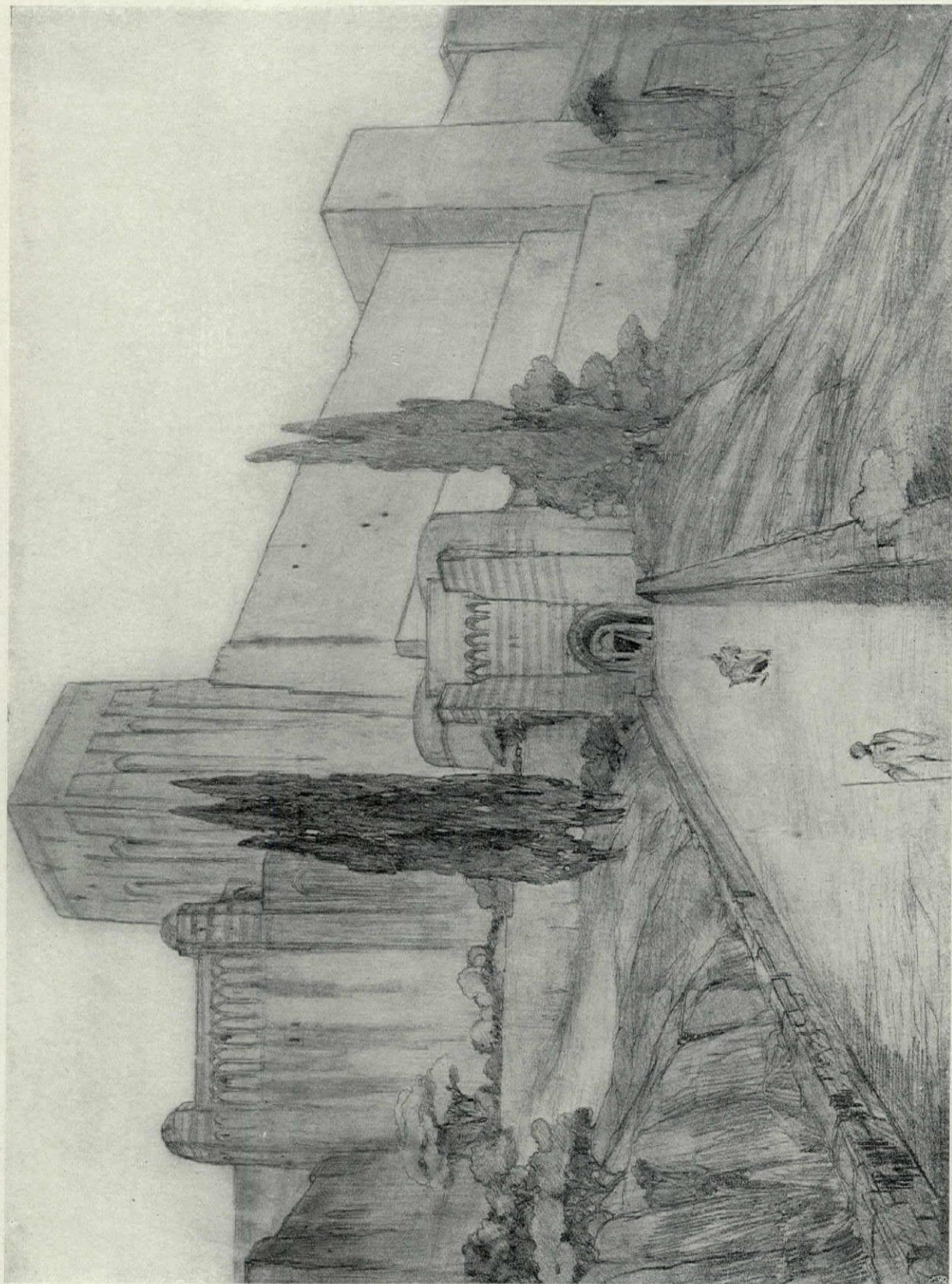
IMAGINATIVE COMPOSITION IN ARCHITECTURAL FORMS BY HENRY P. KIRBY  
ORIGINALLY PUBLISHED IN "BUILDING," APRIL, 1889





ANOTHER OF HENRY P. KIRBY'S IMAGINATIVE ARCHITECTURAL COMPOSITIONS  
FROM "A BOOK OF COMPOSITIONS BY HENRY P. KIRBY"





A ROMANTIC ARCHITECTURAL COMPOSITION BY HENRY P. KIRBY  
THIS, LIKE OTHER LARGE PENCIL STUDIES, FURNISHED THE BASIS FOR AN OIL PAINTING



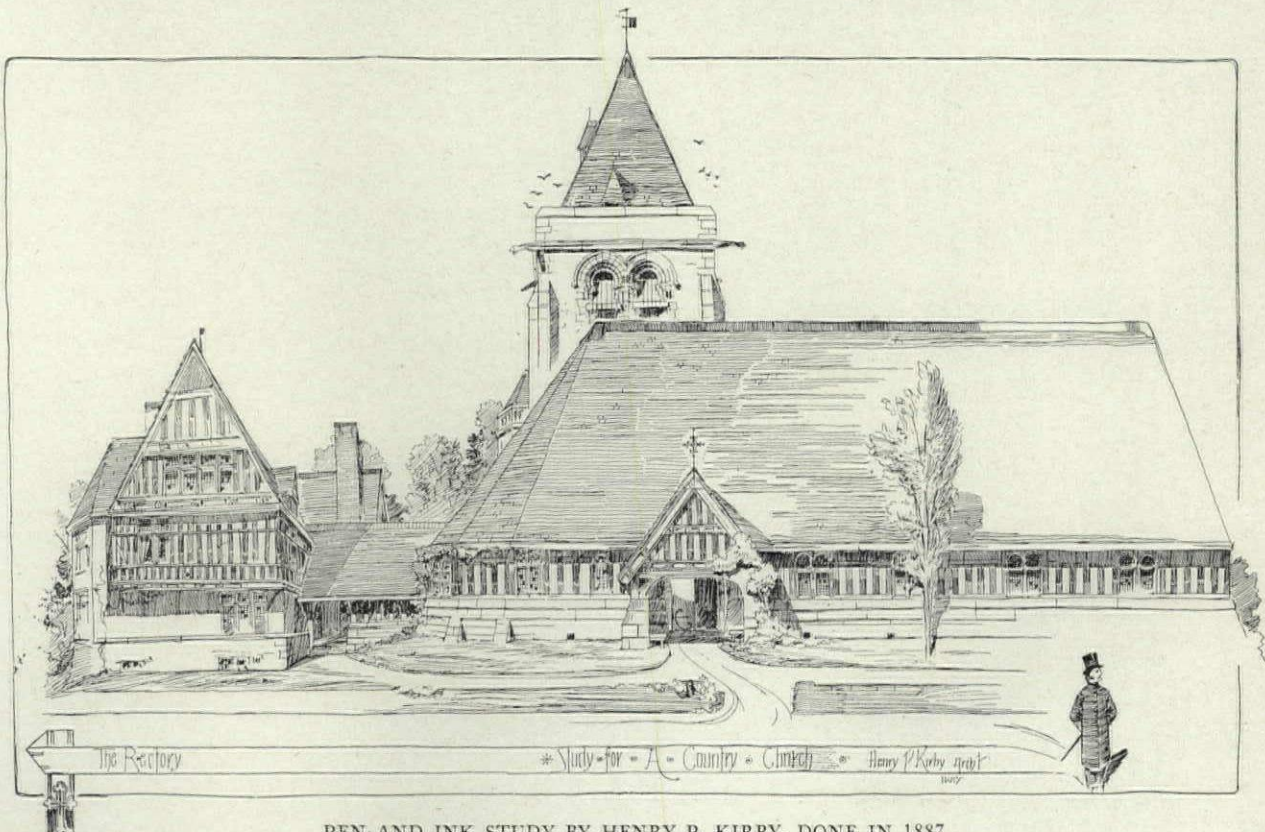
& Green, Architects. Among the architectural works of this firm were the fine Gothic tower designed for Mr. Hearst to be built at Columbus Circle, of which only the two lower stories were built; another office building at San Francisco for the same client; "Dreamland" at Coney Island; the American Banknote Company's building; and a small office building for the Bush Terminal in Broad Street, New York, which are among the most interesting buildings in the Dutch Settlement district of lower Manhattan.

But few of his designs in his individual name were built. At Detroit the first portion of St. Paul's Church is, evidently, his; and his studio home at East Orange, New Jersey. In association with Post he designed the Romanesque Union Trust Building, downtown building of the New York Times, the Prudential Insurance Building at Newark, the Free County Savings Bank at Buffalo, the Cornelius Vanderbilt house, formerly on the Plaza at 58th Street, and the City College of New York. His spirited style of design, as shown in his charcoal perspectives of this last building, suffered much in translation into the construction by reason of the use of glazed terra-cotta as quoins and tracery among walls of stonework. It was said, in his day, that George B. Post limited his practice to the amount of work that he could personally design. But Mr. Post, who believed in cast-iron columns in preference to steel and was more interested in construction and the extent of dimensions, may have regarded the "elevations" as merely incidental to the design—as indeed they often were! One of his office force, whose appreciation ran rather to the elevations, told me that during all the time he had been in the office "all that Post ever did was to spoil Kirby's work"—

which it must be noted is merely expert opinion, and it is perhaps as well to bear in mind the testimony of an English Jurist who asserted that there were "three kinds of liars—liars, damned liars, and expert witnesses." The results in the cases cited and in various others show that artist and constructor worked effectively, and probably happily, together.

Another item of studio gossip regarding Kirby, was a bit of information obtained many years ago, at Pittsburgh, from an old draftsman who had been with Alden on the Pittsburgh Court House group of buildings. This draftsman claimed that Kirby had "designed" the jail and bridge, which I admired as H. H. Richardson's strongest work. Recently, Mrs. Kirby has told me that she understands it to be at least partly the truth—that Kirby took at least an intelligent collaborative part in its design under Richardson's guidance.

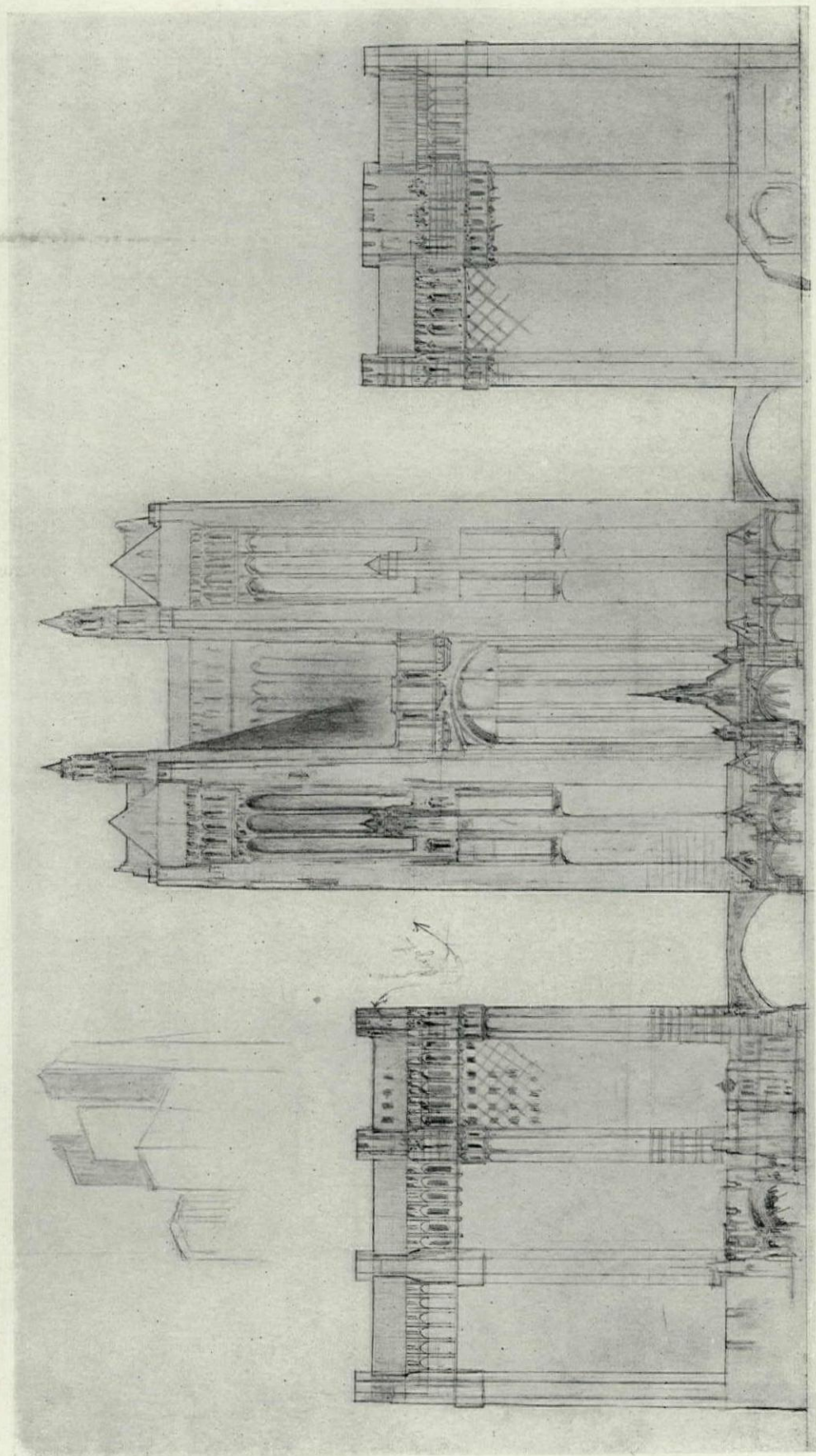
Goodhue in his early days, before he went to Boston to join the staff of Cram & Wentworth, assiduously studied the work of Kirby, as well as of Harvey Ellis—as did many other of the young men of the time. At Boston he followed up the rather finicky detail and novelties introduced into English Gothic by T. Wilson and John D. Sedding, and still later followed the more serious designing of George F. Bodley and Thomas Garner. In his pen drawings he also studied the work of Herbert Railton from small reproductions and in consequence translated Railton's big, bold technique through the medium of a crow-quill pen. Yet he never forgot in his brilliant drawings the vigor given to design by the large white spaces which Kirby knew so well how and where to leave. Through Goodhue as the link, the influence of Kirby can be



PEN AND INK STUDY BY HENRY P. KIRBY, DONE IN 1887

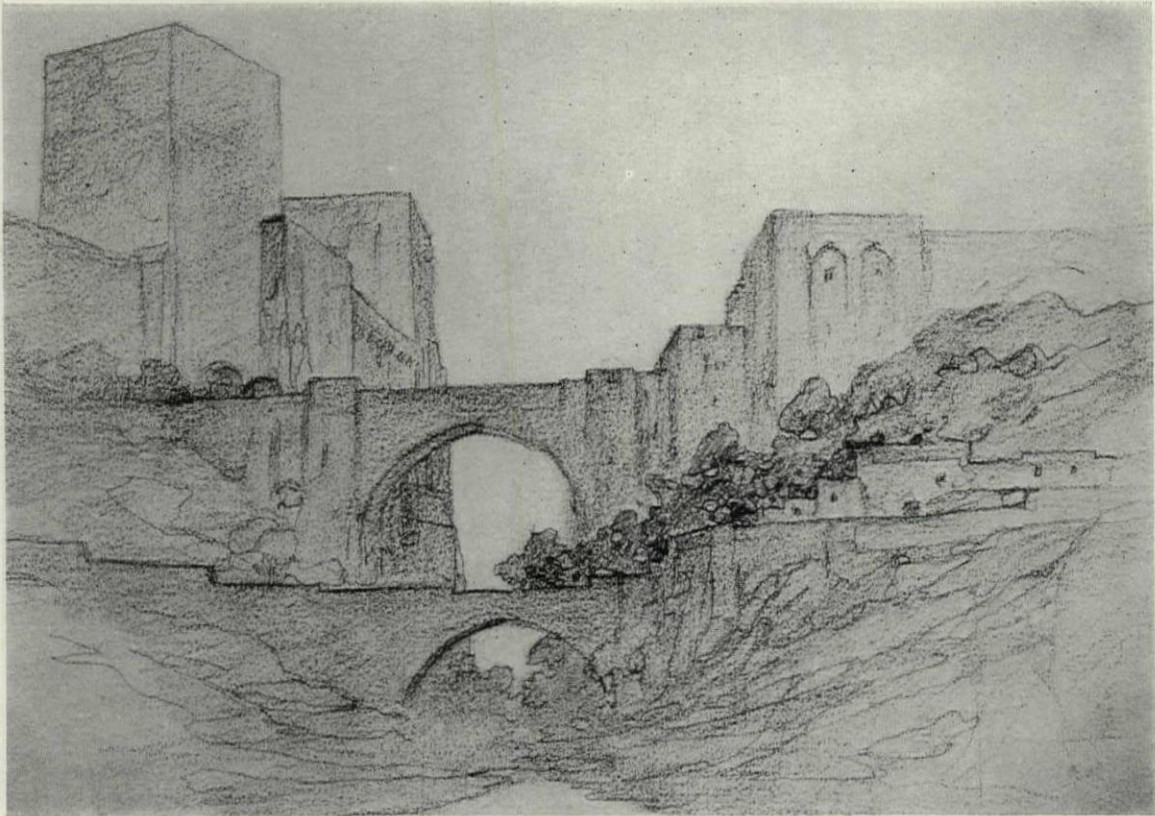


PENCIL POINTS FOR OCTOBER, 1932



ELEVATION STUDY FOR AN ARCHITECTURAL COMPOSITION BY HENRY P. KIRBY





FROM A STUDY IN BLACK AND COLORED PENCIL BY HENRY P. KIRBY

seen in much of the best American designing and architectural drawings of today, however much that may be counter-influenced by the passing heavy modes of Germany, Russia, and Sweden coming via the Paris route to New York.

Henry Philip Kirby was born in the village of Canoga on Cayuga Lake in Seneca County, New York, on December 5, 1853. He died in New York City on November 6, 1915.

He was educated in the public schools of Seneca Falls, New York, where his family had moved when he was seven years old. His father was an architect and builder of the "old school" and was also an hydraulic engineer. His grandfather, too, was an architect, and also two of his brothers—one of whom, J. H. Kirby, practiced at Syracuse, N. Y.

He attended the Academy in Seneca Falls, now known as the Mynderse Academy. After finishing school he worked with his father for a year or so. However, realizing the lack of opportunity in Seneca Falls, his father sent him to Philadelphia to work in the drafting rooms of the Pennsylvania Railroad Company, where Thomas Ustick Walter was the official architect. Mr. Walter, whose reputation and misfortunes were made by his excellent work on the Capitol at Washington, was about seventy years old when Henry Kirby became his assistant. He was a very exacting teacher. He insisted upon Kirby's taking home books to study each night. Walter's teaching was thorough; Henry Kirby's mind was receptive and alert. Thus, the foundation was laid for his knowledge and execution of the classic style.

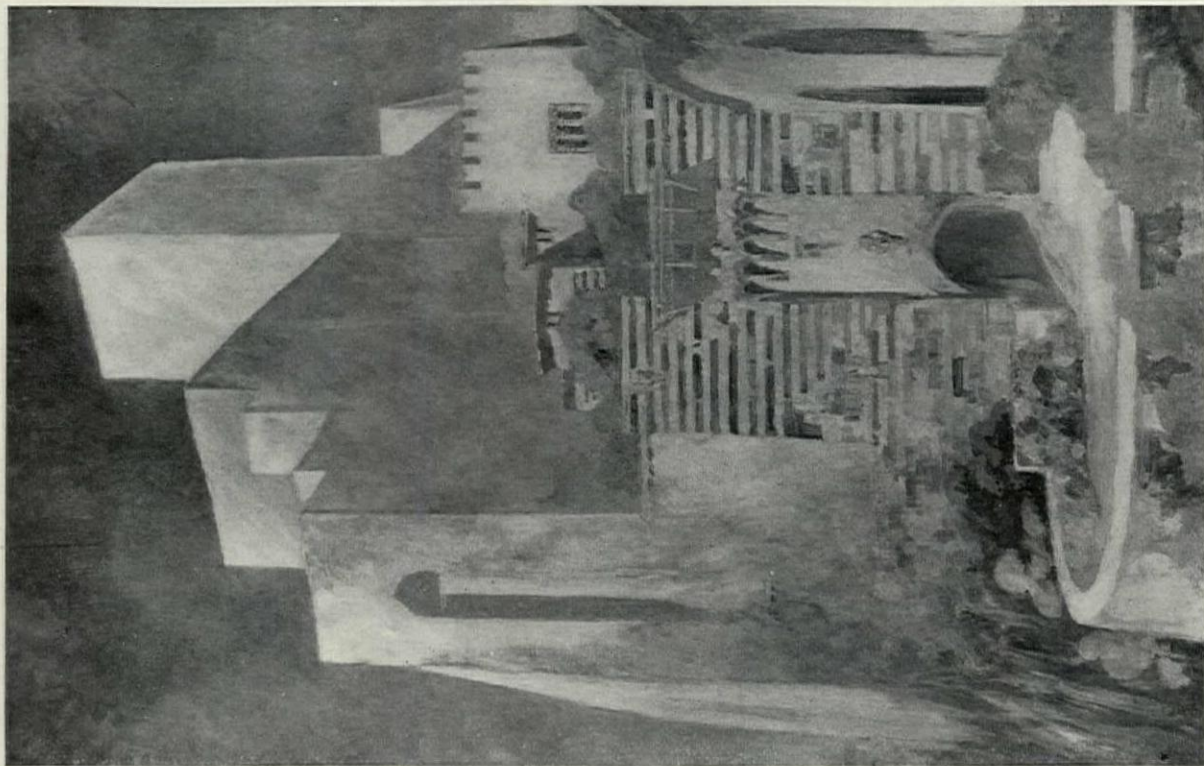
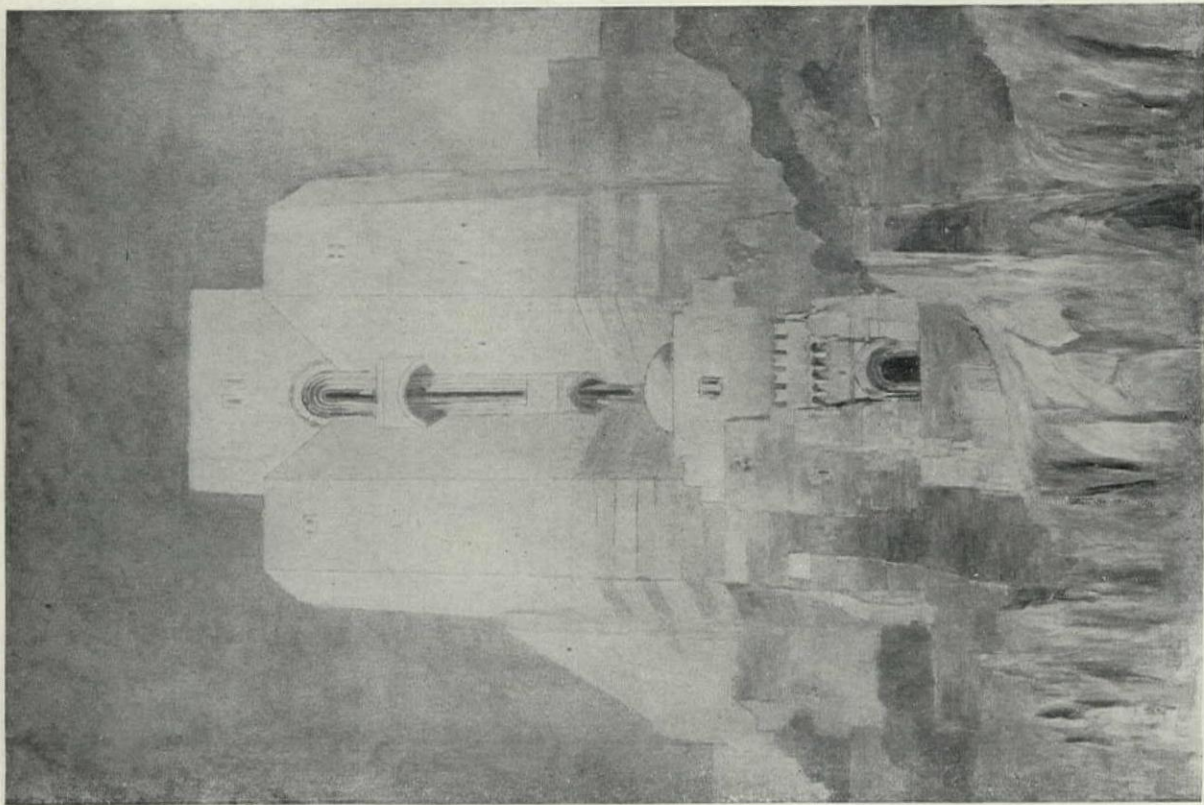
He paid a visit to Paris soon after the Commune. There his portly figure and flowing moustache made it necessary to convince the police that he was not a German spy before he was allowed to ascend to the top of Notre Dame Cathedral to study the flying buttresses. The caretaker became alarmed when he did not appear for a long time. Finally accompanied by a gendarme, he began searching for the suspicious, German-looking man. They found Kirby suspended in the air in a precarious position. This was his best story and greatest adventure—except one, of which more later!

In measuring one of the flying buttresses he had attempted to sit on the point of a finial, with his feet gripping on the crockets below, but in shifting to make himself more comfortable his feet lost their hold and he would have plunged down on the roof but for the friendly finial which pushed its way between his back and his coat and held him dangling in the air for nearly an hour, wondering whether he would ever have occasion to use his measurements.

Henry Kirby's student days were no different than those of most struggling geniuses. He did many things to eke out an existence and there were many times when the struggle for art must have seemed disheartening and invincible. Dwight Tryon's beautiful landscapes were prefaced by painting candy boxes; Henry Kirby's beautiful works were done after he had, out of necessity, at one time painted circus wagons in France.

Later Kirby studied under Vosberg, landscape architect for the King of Sweden, whose work in *Les*





TWO ARCHITECTURAL COMPOSITIONS BY HENRY P. KIRBY EXPRESSED IN OILS  
*These are among the later works of the artist, done while living at Capri. The originals, in color, possess an elusive ethereal quality which can only be inadequately retained in black and white reproductions.*



*Jardins des Tuileries* had caused comment in Paris and who was known better to America for his landscaping of the Centennial Exposition in Philadelphia in 1876. Vosberg and Kirby lived together in an old house at Thirteenth and Sansom Streets in Philadelphia. Vosberg would put Kirby in a room alone with only a drawing board, a piece of paper and a pencil, but no eraser. This was Vosberg's idea of instilling accuracy and creative power. With no erasing allowed, he realized that he must draw slowly and carefully. Sometimes because his care was too great and subsequently the results too slow, young Kirby would find that a furious blow from Vosberg's fist could land him in a heap on the floor. This rough handling may have had its benefits, however, in the concise quality of Kirby's work and the speed with which he executed it. At one sitting he could produce a pen and ink sketch of astounding depth of feeling and multitudinous detail.

He left Philadelphia to try his luck in the West. He was in the Middle West for a short time, worked at Buffalo and Rochester, and stayed some time in Pittsburgh. About this time he became interested in the Gothic architecture of Normandy and the transitional style of the early Renaissance in France, no doubt due to the work then being done by Richard M. Hunt. He went to France again on a sketching tour. He traveled through Normandy, making drawings and sketches of old houses, and made Paris the base of many excursions.

He assisted in the ateliers at the Beaux-Arts at Paris by coaching the younger pupils. There were numerous times when the lack of funds could not prevent his visiting places he wished to see, for whether it were many miles away or just a short distance, he would set out on foot. He studied the architecture in the whole of Normandy in this manner and the vast knowledge he accumulated for his own works must have been more precious for the sacrifice, and his work the more inspired by the touches of adventure which such "tramping" brings to the student in search of the picturesque in France. Upon his return to the United States he took part in the designing of the Gerry House with R. M. Hunt and Masqueray.

During the 'nineties a book of "Compositions by Henry P. Kirby" was published in Boston, but it appeared at a time when the influence of the Chicago World's Fair and the Classical and Colonial styles of McKim, Mead and White; the rococo of Carrère and Hastings; and the "log-cabin stonework" from the students at Paris; were the vogues of the day.

But often I find in these later years one of those old students of architecture who collects books mainly for the personal pleasure to be derived from solitary study of their illustrations, or some enthusiastic younger man who has made "a great find," in the possession of a copy of those compositions.

For many years the name of Henry Kirby was identified with his pen drawings, but after the half-tone process made reproduction of other media equally available for publication, he drew with pencil, charcoal, and water color; and, after 1900, painted in oil nearly all of his later compositions. He went to Europe in 1902 and lived at Capri for two or three years.

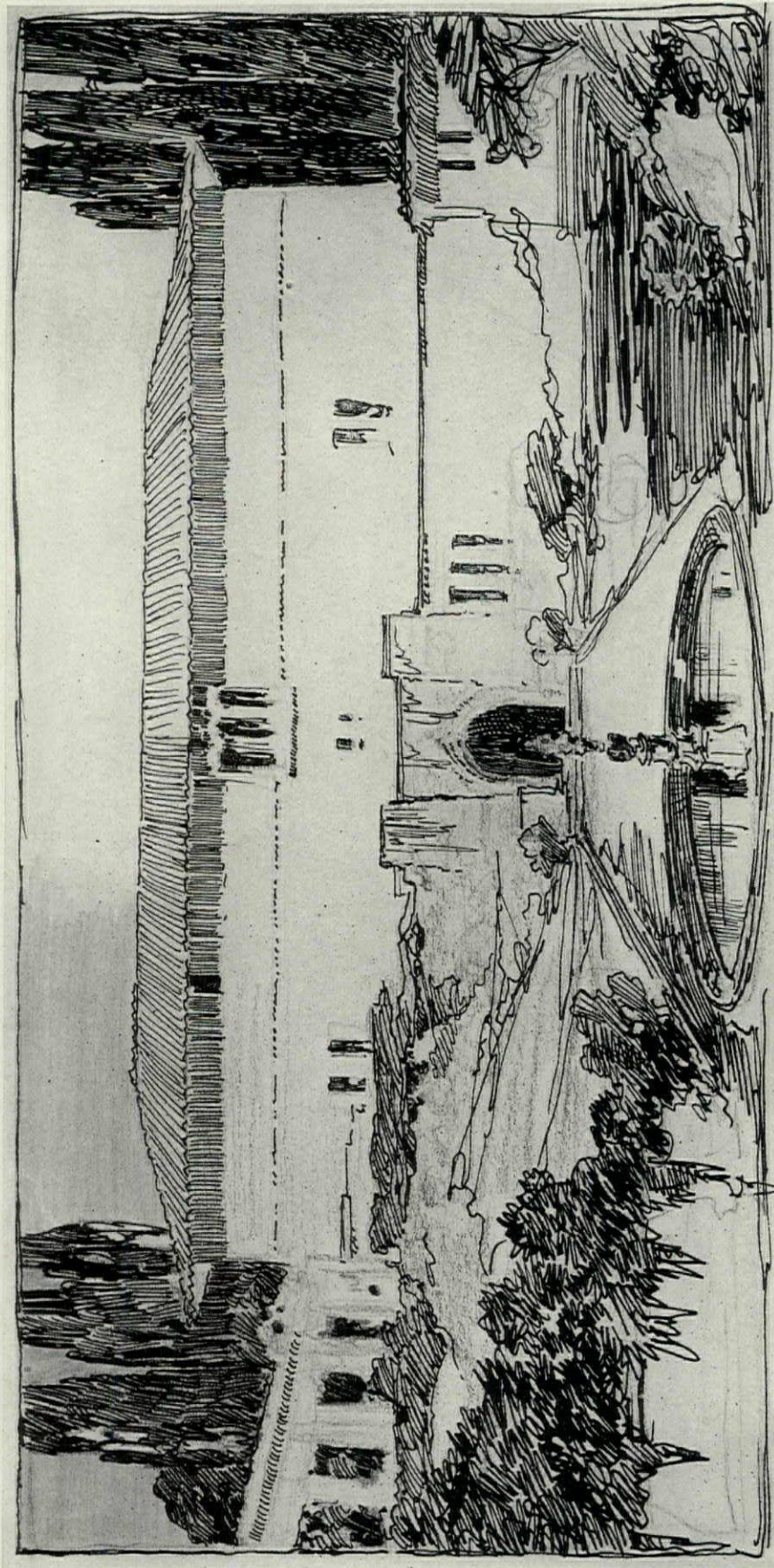
At Naples he met his "greatest adventure"—of which I have already hinted. By that time he was a staid, though genial, old widower immersed in architecture and married only to his art. He was painting dream compositions in masses of masonry on the Island of Capri, in the Bay of Naples. There the peculiar atmosphere produces color conditions to tempt and to defy the painter. The strange, clear, deep blue of the grotto becomes a blue that is found to be almost white in the open country when one attempts to paint it with pigment. Whistler's "Symphony in White" leads one to believe that he, with his many hues of "white," might have painted the atmosphere of Capri with success. Kirby did it inimitably with subtle hues of "blue."

The great Sargent was a guest in Henry Kirby's villa on the Island of Capri when he saw some of the architect's paintings. Kirby modestly said he would like to study painting under so eminent an artist as Sargent. The latter replied: "When you tell me how you get those blues in your skies, I'll teach you to paint." Sargent was enthusiastic over Kirby's paintings. Kirby spent the last twelve years of his life mainly on the Mediterranean coast, working almost exclusively on his architectural paintings. The last two years were spent at Corfu.

His compositions which he made at Capri were, he said, "the indications of rising hopes," for he was diffident and shy. One in particular of terraces and gardens mounting upon more terraces and gardens rising to a temple high in the ether, represented not only hopes but their crowning accomplishment in his "greatest adventure," when he was accepted by the beautiful young American opera singer at Naples, Miss Adela Bowne, now Mrs. Kirby, in whose possession was found and by whose courtesy are herewith reproduced several of a collection of Henry Kirby's hitherto unpublished drawings and paintings.



PENCIL POINTS FOR OCTOBER, 1932



A FREE PEN-AND-INK STUDY BY HENRY P. KIRBY



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# A Bird in the Bush

## A Plan of Capture

By Hubert M. Garriott, A.I.A.

**T**rite though the statement, it must be the more readily conceded, looking back over the charred and broken ruins of the erstwhile method of residential financing, that much was amiss. And the tale of that "much" can be told in the words "improperly supervised loans." Or in the bankers' parlance "false equities."

Consider the individual in the past (and he is pretty much only a memory) who owned a lot, clear of encumbrance, worth \$2500. He wished to build a house of say five or six rooms, and he knew little of values. His first thought was of someone who could do his building *and* provide financing (the speculative builder). He felt—and justifiably—that with the secure equity of his real estate he should be able to build without advancing any cash whatever. So—the speculative builder was called in and appraised the lot at the owner's figure. He agreed without hesitation to finance and build his house and a price was named—\$7500—based on the plans for a house formerly erected elsewhere which seemed to meet the requirements fairly well. It was understood that a loan of \$7500 to cover the total cost of materials and labor would be arranged on first and second mortgages—the builder agreeing to place a first of \$6000 (comparatively simple in the good old days), and to carry the second of \$1500 himself.

Interest rates and methods of payment were mapped out (7% on the second meant nothing in 1928 and such items as discounts were slipped over noiselessly) and a contract and the various mortgage papers were signed.

Following his signature the owner was "troubled" no further. It was extremely bad taste to annoy him with such minor details as the fact that the total of all sub-bids for labor and materials plus 10% profit for the builder was finally "chiseled" down to the interesting sum of \$6000. Nor was that fact really any concern of the holders of the first mortgage—were they not shown a contract with the owner in the amount of \$7500, and had not their own appraisers agreed that \$2500 was a fair value for the ground?

And of course the fact was never mentioned, or perhaps never realized, that the house was poorly planned and miserably designed by an inexperienced draftsman in the first place, nor that it was so simple, with no supervision, to use number 3 here and light gauge there in order to keep the cost down.

And, again, so—the winking sun rose on another moving day and the happy owner viewed with pride the "swell natural gum" finish, which, luckily, had

not yet begun its snake dance; the latest thing in plumbing fixtures and tile work (what did "seconds" mean to him?); the gorgeous light oak floors, *throughout*, (only three-eighths inch thick, but that was not apparent on the surface). Consequence—one more illusioned and temporarily elated home-owning taxpayer.

But "the moving finger writes, and having writ, moves on" and all the thousand and one things which can happen to a house so built do happen. Rapid deterioration because of faulty materials and workmanship; obsolescence because of bad planning and design; tremendous deflation of values because of watered financing and inflated original costs.

How differently the picture might be painted in the future should some plan of supervised financing based on the following outline be made available for the home builder through his architect.

1. A first mortgage loan of 75% of the gross cost of ground and building, for a period of fifteen years at 6% interest, to be completely retired within the loan period.

2. Actual equity of 25% to be established in ground or cash, or both, subject to loaning company's appraisal. Credit standing and moral risk of client to be given careful consideration.

3. Each loan to be discounted 2½% to cover legal services and architectural analysis of plans and specifications and supervision of construction.

4. Amortization and interest to be worked out on monthly payment basis, with interest reduced monthly.

5. Full insurance coverage to be required for each loan.

6. Loan only on projects where client is building for own occupancy, thus eliminating speculative work.

7. The loaning company should require that complete plans and specifications be submitted with each application for loan and a supervising architect in the direct employ of the loaning company should make a careful analysis of such as to character of design, efficiency of plan and layout, suitability of materials, built-in conveniences, accessories, etc., and commitment for loan should be based on the report of this department. Any changes found necessary to safeguard the loan should be required to be made prior to commitment.

8. Competitive bids from responsible contractors should be taken on each project and successful bidder approved by the loaning company and required to provide surety bond for completion of the contract. Construction and materials should be supervised at all



stages as the work progresses by the loaning company's architect.

9. Payments to contractors should be made in the customary manner upon the certification of the client's architect and the approval of the company's architect, at thirty-day intervals and in amounts of 80% of the value of completed work. The final payment should be deferred until thirty days after the completion and acceptance of the job. Each certificate for payment should be accompanied by contractor's affidavit and waiver of lien.

The foregoing plan is fundamentally sound and desirable from the lender's point of view in that it

eliminates the undesirable loans formerly made on poorly designed and planned and cheaply constructed homes which rapidly deteriorate and become obsolete. Funds are advanced only on completed and tangible work and the loaning company, through its architectural supervision, controls the work at all stages, from the footings to the last bit of interior finish.

It doubly safeguards the client by providing for him the most liberal and economical type of financing with only a nominal charge for services rendered; by assuring him the advantage to be had from reliable competitive bids on all labor and materials; by co-operation from the start with his architect.



GENOA—CRAYON SKETCH BY GUILLERMO GONZALEZ



# Some Old Sundials

By Page L. Dickinson

The subject of sundials has always been of interest to me, and ever since my student days it has been in my mind to study the development of these romantic furnishings. Such a study, however, is full of difficulties; there are few textbooks, or at least these are hard to come by, and the examples of the dials themselves are scattered, few, and very often difficult of access. I find on looking through certain cursory notes made over a period of many years that there is in them little of value, although, indeed, these notes cover observations made in as many as half-a-dozen countries. There is not much literature on the subject, and, outside the *Encyclopædia* articles, the book *The Time-piece of Shadows* by H. S. Flackman is probably the best general history. This book is not well known, and is not to be found in the usual catalogues of books on architectural subjects. I came across it by chance when staying in the country home in Cornwall of a relative who is something of a connoisseur.

Mr. Flackman refers to the following among the many authorities he mentions: *Dialing*, W. Leyburn, 1700; *Horologioraphia*, T. Fale, 1593; Ferguson, his *Galley Book of Dials*, 1760; the works of Herodotus, Pliny, Vitruvius, and many archæological journals, etc., etc. It will be seen, therefore, that his research has been a diligent one.

To those who have seen even a few, there is a fascination about the old dials with their carved mottoes which no clock can ever have; yet few of us know anything of their history.

The first apparent mention of a dial is found in II Kings, Chap. XX, where Isaiah causes the sun to go back ten degrees on the dial of Ahaz.

We have no means of knowing how this dial was constructed, but it is clear that it was a sun clock of some description. Neither is it known how the Jewish day was divided. In Nehemiah we come across references to the fourth part of a day; authorities seem to agree that this was the system as late as the Christian era, with a further subdivision into hours, as Matthew tells of the householder going out to hire laborers at

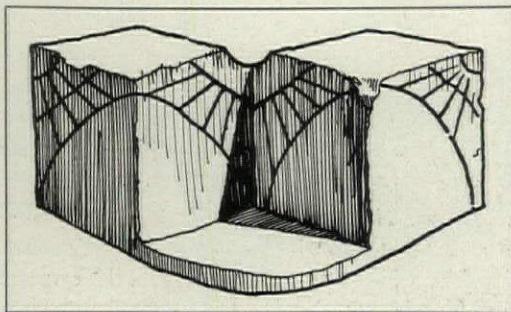
the third, sixth, and ninth hours. This seems to be the first historical reference to the hour.

The Rev. G. W. Besanquet considers that the dial was a fairly perfect instrument in Babylon as early as B.C. 747, but there is again no certainty as to its construction.

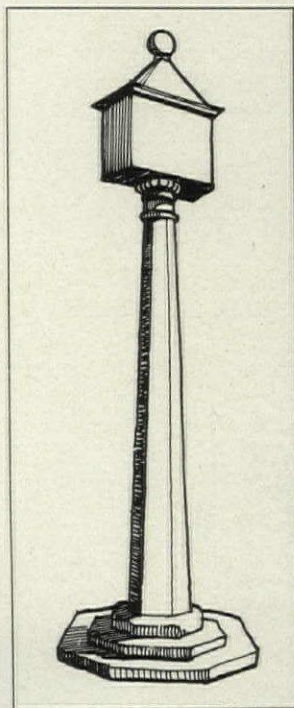
## EGYPTIAN RECKONING OF TIME

It has been a matter of comment that no dial of Egyptian origin has been found, especially as the Egyptians were advanced in astronomy; it is generally accepted that dials found in relation to monuments were Greek additions. We do not know how the Egyptians measured time;

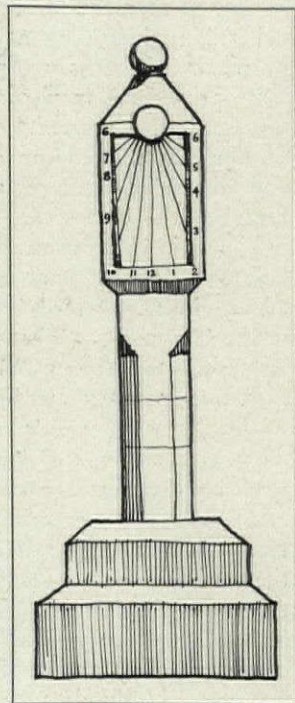
they certainly had a method, as copies of a calendar exist which give the hours at which certain stars culminated. This, obviously, was not calculated by a sundial, and a water or sand clock may have been used. The Greeks during the Attic period measured the length of a shadow and thus calculated the hour. But as to how this was done is conjectural. Palladius gives a table showing how the hours can be calculated by the length of a shadow cast by a pole, but as he omits to mention the length of the latter the value is doubtful! As the Jewish day was divided into twelve parts between sunrise and sunset, the length of the hour obvi-



AN ATHENIAN DIAL  
Believed to be 2nd Century, A.D.

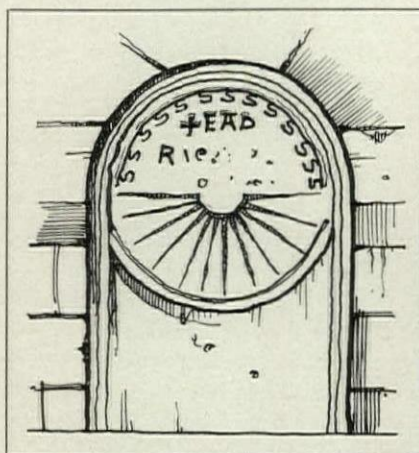


DIAL AT MALVERN  
Date uncertain — probably  
15th Century.



DIAL AT DRYBURG  
Definitely dated as mid-  
17th Century.





EADRIC'S DIAL, BISHOPSTONE

to early forms of dial in different countries, and enormous numbers are found in China and Japan of a small portable variety; this type is of immense antiquity in China. So little is known of early Chinese history that one cannot hazard a guess as to the possible date they became perfected in the Far East. The Greeks had water clocks which started as a simple affair of dropping water, on the same plan as an hourglass. This instrument became elaborated and culminated in an arrangement of wheels and pulleys that moved a hand as in a clock.

Several forms of primitive water clocks exist, and in Malaya a cocoanut shell with holes in it floating in water is used as measure for time—the gradual sinking indicating a definite period by means of marks on the shell. The same principle is in use in Tibet where a brass bowl is utilized.

The oldest European dials in existence are Greek, and what is known as hemicyclean. One of them was found at the base of Cleopatra's Needle, and is now in the British Museum. This dial is concave and is hollowed out of a stone about sixteen inches by seventeen. This is divided into the twelve unequal hours of the Greek day. There are several others of a similar type in the Museum also.

A fine specimen was brought from Athens by Lord Elgin. It is of marble and has four faces and bears an inscription stating that the marker was Phædrus. Probably the most important Grecian dial is the Tower of the Winds, an octagonal tower with a dial on each face. Around the frieze are figures of the winds, and the roof was surmounted by a bronze weathercock in the form of a Triton. The tower is over forty feet in height and, as well as being a sundial, has a water clock fed by an underground stream. This beautiful building is fully described in Stuart's *Antiquities of Athens* and is illustrated with complete details.

#### OLD ENGLISH TYPES

A number of Saxon and Danish dials are to be found

ously varied with the seasons, from somewhere about eighty minutes to forty - five. The Arabs seem to have been the first people to introduce equal hours.

There are numerous references by various authors

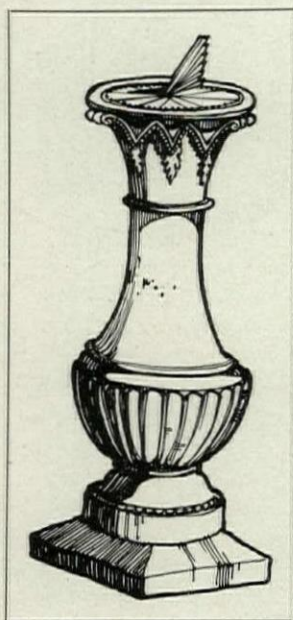
in England, especially in Yorkshire. These are very unlike the Greek and Roman examples, and, indeed, the difference is so marked that most authorities conclude that they had an entirely separate origin. These Northern peoples usually placed their dials on the wall of a church instead of using the bowl type of the Southerners. The Vikings seem to have counted their time by the tides—two high and two low, and these were subdivided again into halves and quarters, making a day and night of sixteen hours. This system was still in vogue in England at the time of the Norman Conquest though the Roman system became common after its introduction by St. Augustine. There are several dials in existence which show both systems on the same face, and it is difficult to see how confusion was avoided in these cases. A good example of such a dial is at Byland, in the Hambleton Hills, close to

the famous Cistercian Abbey of the name. It is believed to be the work of a Dane of the ninth century, and bears the inscription, "Sumarliths"—"House Carl made me." It was built into the church upside down some hundreds of years after it had been taken from its original position—why, cannot be explained. There is another good example of a semicircular vertical dial over the south door of Weaverthorpe church, in Yorkshire, dating from about 950, it is believed.

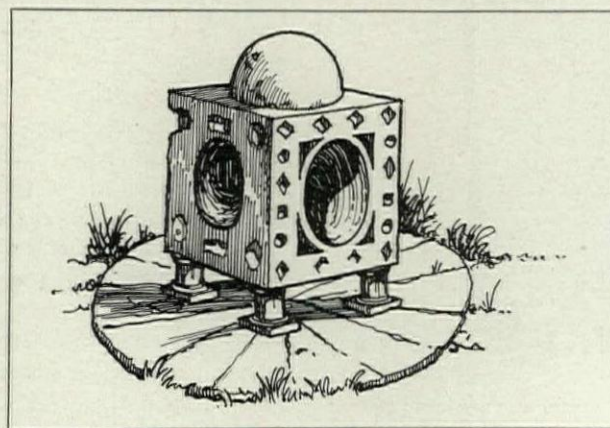
Kirkdale Church has also an excellent example over its south door with a very full inscription reading: "Orm Gamal's son, bought St. Gregory's Monastery when it was all utterly broken and fallen, and he let it to be made anew from the ground. To Christ and S. Gregory, in Edward's day, the king: and in Tosti's day the Earl.

This is the day's sun marker, at every tide,  
And Hawarth me made and Brand Provost."

Tradition identifies Provost Brand with the cleric who was elected Abbot of Peterborough in 1066, and



RENAISSANCE DIAL



CONCAVE RENAISSANCE DIAL  
At Madely Hall, Shropshire



if this is so the dial would be somewhere just before this date.

To turn to the South of England there is a very well preserved dial at Bishopstone in Sussex. It is inscribed with the name of Eadric, and is divided into the Roman arrangement of twelve hours. There is no exact evidence as to the date, but there was a South Saxon Prince Eadric living in the seventh century, and it is possible, or even probable, that he is referred to here.

In the south wall of St. Nicholas' Church at Pottersbury there is a curious dial which has two sets of lines cut on it. There is no way of ascertaining why this should have been—possibly it was turned from its original position and recut—but this is only a guess. Its date is problematical.

At Grafton Regis there is a small circular dial built into the wall and dividing the day into eight parts. Many old churches have such dials built in upside down or in unsuitable places. It is evident that these are relics of an earlier period, and were regarded as valueless except as building stone; and that more accurate dials had taken their place. It is difficult, indeed, to see why they were used at all—possibly sentiment accounted for it; more likely to save trouble in getting stone.

A curious feature in the history of the development of the English dial is that from the twelfth to the sixteenth century it is almost blank. Hardly any examples of that period are known, although obviously dials must have been made at that time. There are numerous reasons put forward to account for this, but there is no space to discuss them in a short essay of this nature.

During the Renaissance, dialing was carried to a great perfection, and the Company of Clockmakers, incorporated in 1631, was given jurisdiction over dials, and were, moreover, instructed to break up "all false and deceitful works." With the Renaissance the whole subject took a prominent place among those that occupied designers, and shared in the general art impetus of the time. There are many allusions to the art of dialing in the literature of the period, and the contemporary writers are full of allusions to the subject. Pillar dials became prominent features in gardens, and vertical alternatives were common in churches and public buildings. One Thomas Fale wrote a work—one can call it by no other name—published by Thomas Tourin over the sign of the Checkers, Paternoster Row, in 1593. This work had a long and elaborate title and subtitle: "*Horologio-graphia—The Art of Dialing. Teaching an easy and*

*perfect way to make all kinds of Dials on any plaine Pat, howsoever place—a knowledge also ancient and necessary, and therefore mastered by princes and famous men.*"

One feels sympathy with the princes of the period. The modern prince has to study many activities, but he is at least spared, so far as I am aware, the mathematical construction of sundials.

Charles the First is reputed to have been much interested in the subject, and the fine dial at Holyrood is attributed by writers on the subject to this monarch. I have myself doubts on this, as the evidence of skill in design suggests something far higher than was likely to have been achieved by an amateur. It may have been an early example of a ghost!

One of the most famous of Scottish dials is that at Glamis Castle, more famous to most of us by reason of its rather sensational monster of which local song and story tell. Incidentally, this castle is the traditional one of Macbeth. This Glamis dial is generally referred to as dating from the early seventeenth century, but I think there is a good deal of internal evidence to query the accuracy of this assumption; it may well be earlier, even allowing for the slower changes of fashion in the far North than took place in the Midlands. This, however, is possibly hair-splitting, and need not be over-emphasized. This dial is Renaissance—let us leave it at that—and covered by this convenient word.

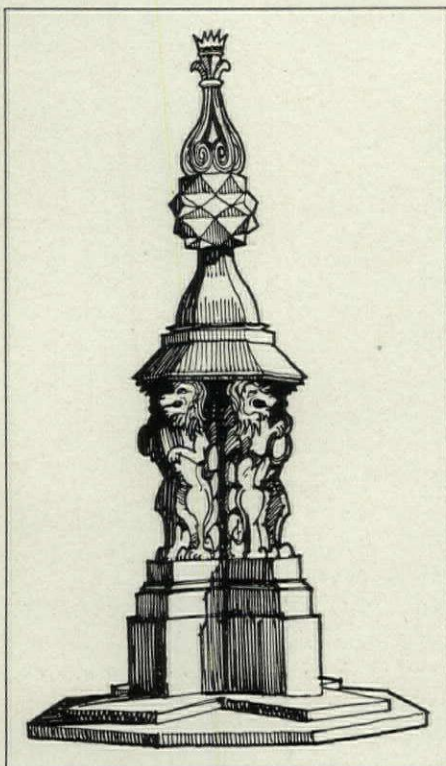
Another interesting example of the period is to be seen at Dryburg Abbey. It is dated 1640, and the motto of the Scots,

"Watch weel," is inscribed on it.

There is a very fine dial at Madely Hall, Shropshire, which is an example of the late use of the Greek concave type. It is cut from a single stone, and consists of a cube in the sides of which are concave circles. It stands on four pedestals resting on a circular base. There is no record of its date, but it is probably seventeenth century; it bears the inscription:—

"This fourfold index of swift time,  
On which ye shadow veereth round,  
Should man excite to themes sublime,  
Since now't but shadows here are found."

There are not many examples of place-names derived from dials, but an important pillar example gave the name of Seven Dials, London. This pillar carried a six-sided dial on its Doric cap, and is referred to by Evelyn. He says, "I went, October 5, 1694, to see the building near St. Giles where the seven streets make a star from a Doric pillar placed in the middle



DIAL AT GLAMIS CASTLE



of a circular area said to be built by Mr. Weal." Cunningham's *Handbook of London* states that the pillar was removed in 1773; and it is said that it subsequently was set up at Weybridge as a memorial to the Duchess of York in 1822. The block on which the dial was traced ultimately became a mounting block at the Ship Inn, Weybridge.

Some good specimens of glass dials still remain, but obviously this type was not calculated to withstand the ravages of time and accident in the same way as those of stone or metal. We may conjecture that they were fairly common, but only a small number have survived. There is a fine example in a shop in Marlborough which is beautifully colored and noted for the painting of a fly in the center pane. The introduction of a fly in glass dials is fairly common, but the authorities do not seem to have hit upon the reason. H. S. Flackman suggests that it is a punning reminder that time flies, which seems to be a likely explanation.

The hours in these glass dials are, of course, read from the inside, and the shadow is cast by an external projecting gnomon, and the numbers read clockwise, from right to left, not backwards, as in the ordinary types. Another famous glass example is to be seen at Nun Appleton, Yorkshire. This is an excellent specimen of eighteenth century colored glass, and consists of a rectangular panel with a central panel containing a Cupid, and with four corner panes on which are conventional figures of the Seasons.

#### PAINTED DIALS

These are common in many parts of the Continent, especially in Germany and Italy, and anyone who has wandered about in the latter country cannot have failed to have noticed many examples in town, village, and farm. The painted dial does not seem to have been popular in England, although examples do exist, as at Wychliffe and Haydon Churches. It may be, however, that the painting on these is not original, or, on the other hand, painting may have been fairly common, and time has washed it away. This is purely conjectural and I give no definite opinion, but am in-

clined to think, judging by Renaissance decoration generally, that in the seventeenth century painting was probably a common method of treatment.

#### LATE EXAMPLES AND TYPES

Many early American houses and churches have good dials, mostly of the vertical type, but they do not seem to call for much comment, as they are generally on the European lines from which early American architecture took its inspiration.

No reference to dials would be complete without a mention of the great dial at Delhi, reputed to be the largest in the world. It was built by the Rajah of Jeypore in 1724. The gnomon is of masonry, with marble dressings, and the shadow is thrown upon a marble base or circle. The gnomon is pyramidal, and its height is over fifty feet. As a contrast to this the little ring dials, common in the seventeenth century in Europe, are rather amusing. These dials were pierced by a small hole, through which the sunlight fell on the hour lines engraved on the inside. They were worn on the finger.

In Italy, the Tyrol, and the Pyrenees and other mountain regions, dials are still carried by shepherds, or certainly were until recent times. These dials are usually small wooden cylinders with an adjustable gnomon opening like the blade of a pocketknife.

After many years of neglect the dial has again come into its own. Its use in the last twenty years has been greatly developed by garden and landscape architects; and in large numbers of small country and suburban houses it is to be found as the central feature of a sunk garden, the motive of a path, or emphasizing a vista. A very pleasant feature it can be, suggesting the quiet and peace for which a garden should stand; and in these days of stress and rush striking a note of calm and old-world romance.

Those interested and who wish to construct a dial, or to have one made for them, will find a series of excellent instructions as to the correct setting out of each type in H. S. Flackman's book, referred to previously, *The Timepiece of Shadows*, and to which I am indebted for much of the subject-matter and some of the illustrations in this article.



SHOP SIGN FROM STOCKHOLM  
DRAWN BY DOROTHY BRINK INGEMANN



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# "K<sub>2</sub> H<sub>4</sub> O"

By Robert Niles, Jr.

"What does *that* stand for?" I asked the snappily dressed Sales Engineer at whose desk I was sitting. It was a spacious Fifth Avenue sales salon occupying what, in the old boom days, had been the pretentious banking room of a now defunct institution.

I had called to obtain information about a new type of production-built home, which had been widely advertised for delivery within one week by a huge Corporation, recently organized.

Spread before me on the sales engineer's desk was a neatly rendered perspective sketch of one of the low-priced "products" of "Standard Houses, Inc." which was entitled in bold type "K<sub>2</sub>H<sub>4</sub>O." I confess I was slightly dismayed by the resemblance of the structure to the rear end of a sand barge, for I had cherished an antiquated notion that our cottage in the country would be built around a great stone chimney, with long sloping roofs shading brightly curtained windows.

"Now I'll explain our system of classification," replied the sales engineer briskly. "'K' designates our 'Kumfort Klass' house—designed for those whose primary interest is in a conveniently arranged interior. You know, we have many prospects who are more concerned with the impression their home makes upon the neighbors. To them we offer our 'Swank Series' of designs."

"I haven't much use for people who put up a false front," I remarked, "but perhaps those 'S' designs would suit me better."

"No, sir. As soon as you came in I saw that you were the kind of person to whom our 'K' houses would appeal!"

"Thank you," I murmured, "but what do the rest of the numbers and letters mean?"

"Why '2' refers to our 'two-in-a-family' line. Sizes are graded to suit one-in-a-family, two-in-a-family, three-in-a-family, and so on. During the last years of the depression we had a big demand for our one-in-a-family, or 'Hermit' type house. You may remember the national publicity at the time that Will Cuppy christened our first unit at Jones' Beach."

"No, I missed that." I could see that his opinion of me was lowered by that admission. He continued his explanation with less enthusiasm:

"The second letter, 'H,' is a chimney classification. Almost everyone wants a chimney somewhere on the house" (I nodded) "but many housewives object to the dust and ashes of real fireplaces. To satisfy them we furnish the 'B' or blank type chimney, which is solid. You understand, of course, that the 'H' chimney has a hole in it to let out smoke."

"Has that anything to do with the 'Kross drafts in kitchens,' which you feature in your advertising?" I queried.

"None at all!" he snapped, evidently thinking that I was trying to be facetious.

"I am really interested in the symbols," I said, reassuringly, and he continued:

"The number '4' means that there is room for four chairs in the dining space at the light end of the kitchen—for a buffet supper, you know, when a table is not used. However, we issue a five-year permit with every house authorizing the Owner or his assignee to serve meals in the living-room."

"What happens at the end of the five-year period?" This was a new hazard in home ownership, and, frankly, I was worried about it.

"Oh, you don't have to worry about that. We provide in the Sales Contract that the permit may be renewed, if desired, for a nominal fee of a dollar a year."

"So there is a string tied to it!" I exclaimed, not fancying the idea of a perpetual tax upon the free use of the living-room.

"That's a point in sales psychology, sir, which we don't ordinarily explain. But as you take an unusually intelligent interest, I will say that the 'meals-in-the-living-room' tax was suggested by our Public Relations Counsellor as a means of ensuring that our customers would keep in touch with the Home Office. Local representatives, you know, are not always so discerning as they should be, and we felt that upon receiving the annual application for permit renewal, we would be able to determine whether the customer was in a mood to trade-in his home for one of our latest models, and we could then follow up . . . ."

"I never heard of trading-in a house," I interrupted. "Where would the family live while the new house was being put up?"

"I am glad you asked me that question," the Sales Engineer answered affably, "because it will prove to you that our Directors have foreseen everything! We are planning a motor fleet of 'Konvenient Kamp Kottages' which will be available for our customers who are trading-in their old houses, and also for others who wish to establish a temporary residence in any part of the country.

"These 'Kottages' will be mounted on wheels, like the roadside Diners of the old days, and can be towed by our tractors to any given site. The necessary water, drainage and electric connections having been made, the 'Kottage' can be occupied by a family while their house is being traded.

"Aside from this use, we anticipate a heavy demand



for our 'Kamp Kottages' for temporary residents of Nevada."

I was sorry that he had cast a shadow of doubt upon a sales talk which until then had viewed the future through rosy glasses. I didn't like to think of the possibility that the day might come when I would

want to trade my "K<sub>2</sub>" for a "K<sub>1</sub>" or something.

Fortunately the telephone on the desk of the Sales Engineer rang at this moment, and I seized the opportunity while he was talking to nod a "thank you for your trouble" and make my escape.

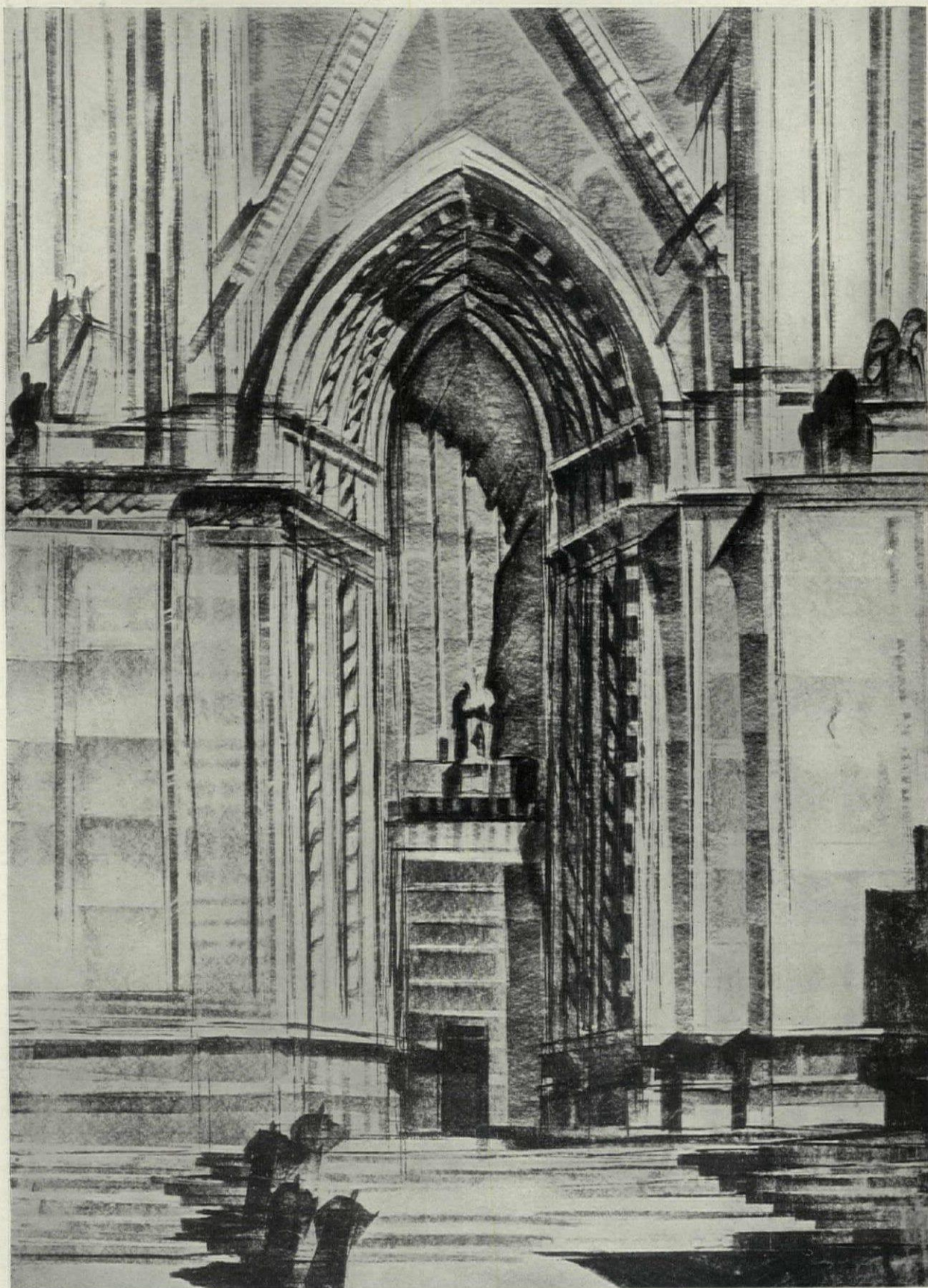
I am still curious to know what "O" stands for.



DETAILS OF THE CHURCH OF ST. MICHEL D'AIGUILHE AT LE PUY, FRANCE  
MEASURED AND RENDERED IN TEMPERA BY CARL K. LOVEN

*The church was built between the years 962 and 984 on a mass of volcanic rock rising over 300 feet above the town. Mr. Loven returned late last year from his travels as holder of the A. W. Brown Scholarship for 1930 and was for some time with Reinhard and Hofmeister, Corbett, Harrison, and MacMurray, and Hood and Fouilhoux, the architects who are designing the Metropolitan Square Development in New York.*

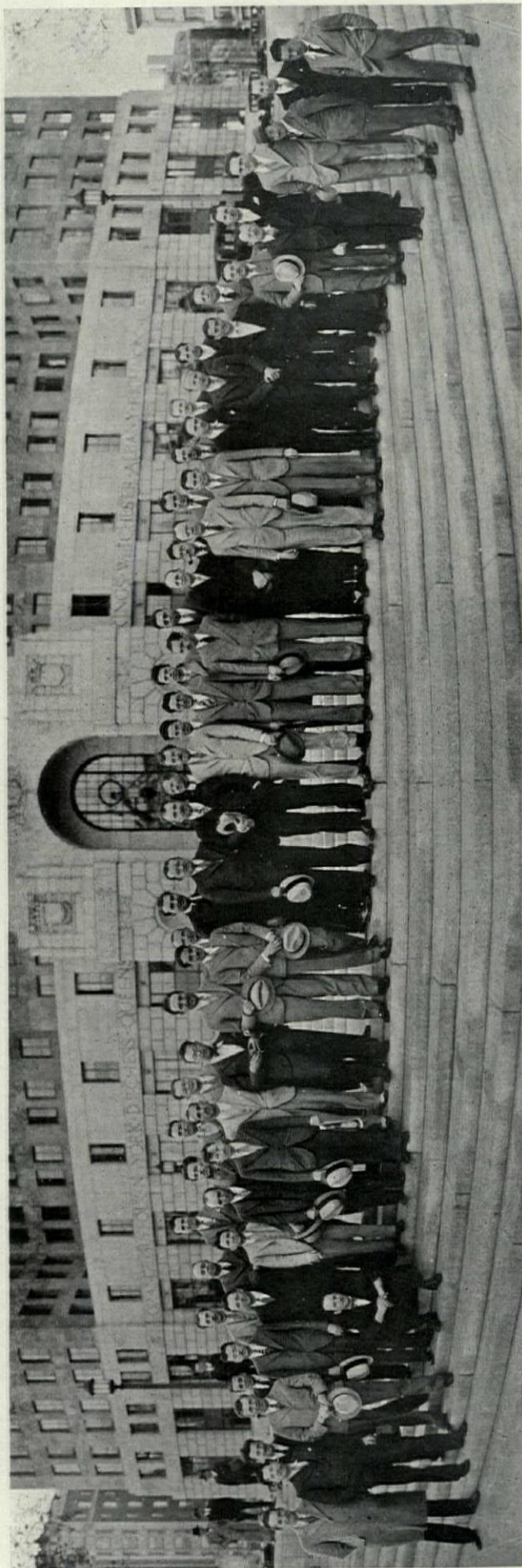




CATHEDRAL, ORVIETO—FROM A DRAWING IN SEPIA CRAYON BY ALLEN J. STRANG  
THE ARTIST RECENTLY RETURNED FROM TRAVELS AS HOLDER OF THE STEWARDSON SCHOLARSHIP, 1931  
*Size of original, 12" x 16"*



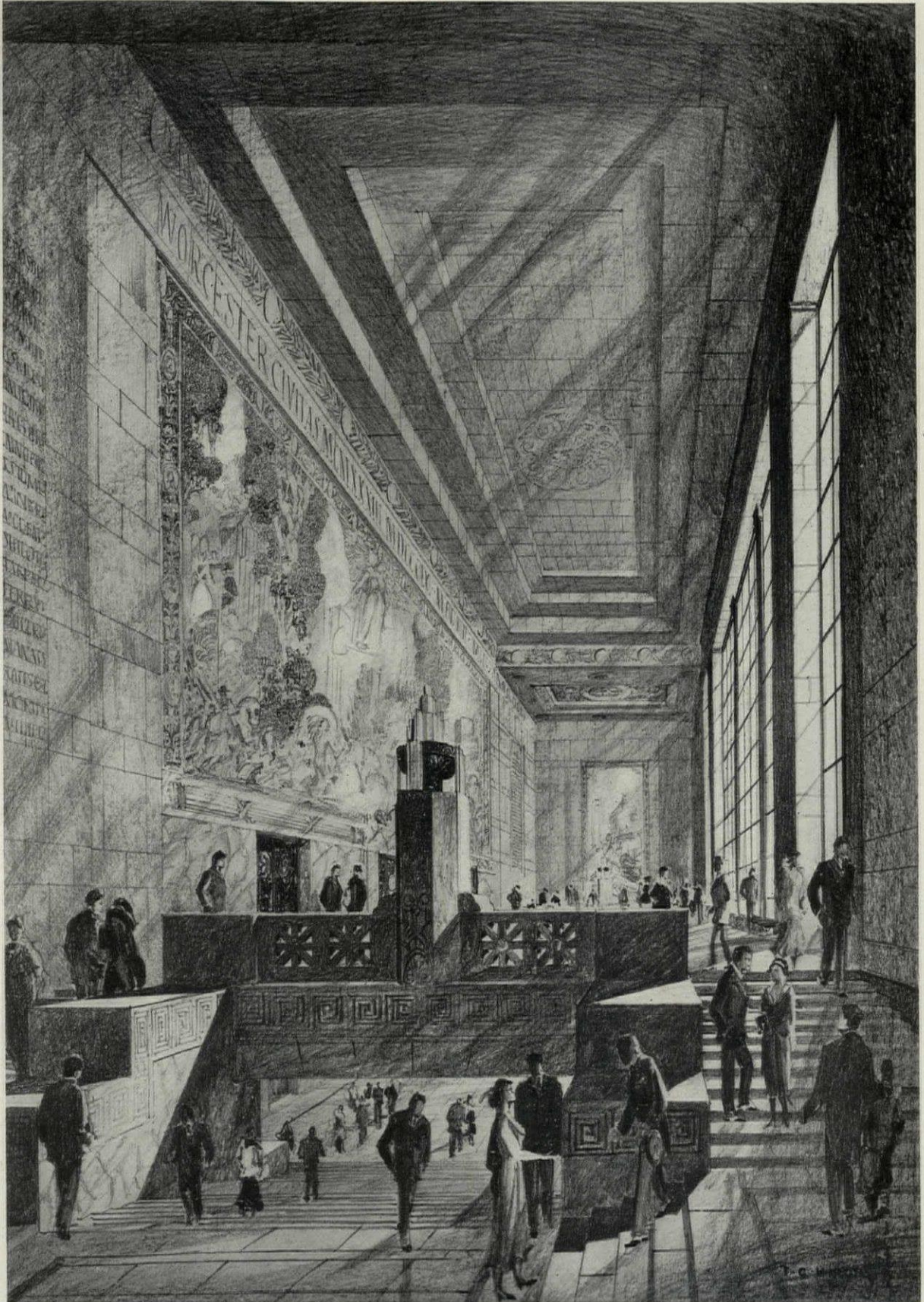
PENCIL POINTS FOR OCTOBER, 1932



MEMBERS OF THE ATELIER JAQUET, DEPARTMENT OF PUBLIC WORKS, DIVISION OF ARCHITECTURE, ALBANY, NEW YORK

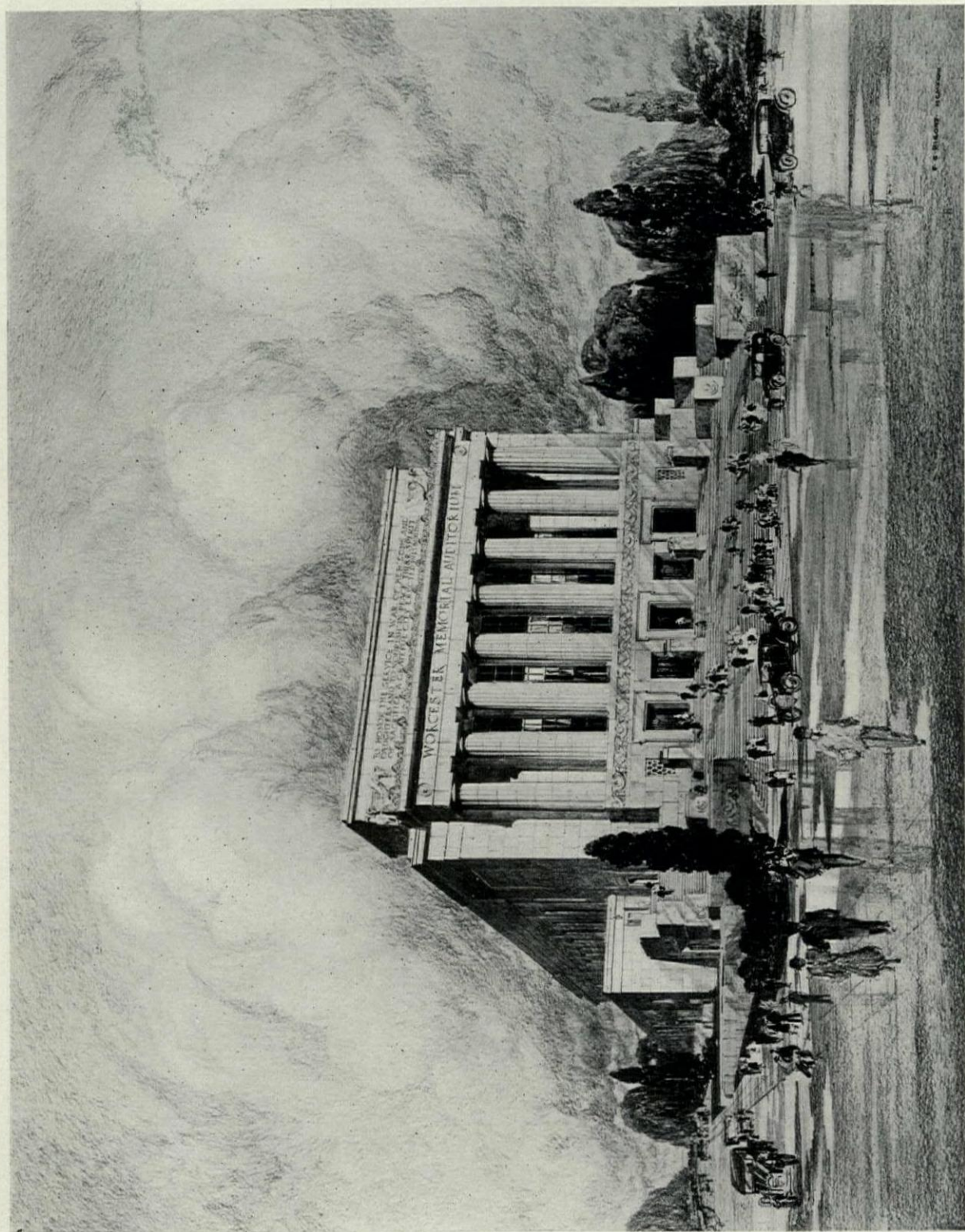
*Reading from left to right:* C. Jones, I. Feirtag, A. Richtert, H. Wolter, S. Tantorski, C. Diffin, L. Wilson, W. Williams, W. Herrick, E. Potter, B. Georges, J. Carrol, W. Kleine, H. Wright, C. Marshall, C. Craig, R. Yucells, W. Morris, A. De Sousa, J. Korchien, M. Bianculli, F. Dunning, D. Liberman, C. Grieb, Paul Jaquet, B. Spencer, J. Sanders, G. Mortenson, E. Weinstein, W. Serhaus, W. Brown, W. Weiher, E. Fodor, M. Gluckman, G. Holland, L. Cinner, H. Lang, S. Whitman, F. Manning, C. Fredericks, E. Bolling, B. Weintraub, I. Epstein, B. Kucynski, C. Foyster, A. Berkowitz, W. Haney, C. Schwartz, H. Epstein, H. Haenig, G. Nakashima.





LITHOGRAPHIC PENCIL DRAWING BY FREDERIC C. HIRONS  
INTERIOR, NEW WORCESTER MEMORIAL AUDITORIUM BUILDING  
*L. W. Briggs Company and Frederic C. Hirons, Architects*





LITHOGRAPHIC PENCIL DRAWING BY FREDERIC C. HIRONS—WORCESTER MEMORIAL AUDITORIUM  
L. W. BRIGGS COMPANY AND FREDERIC C. HIRONS, ARCHITECTS



# The Acoustical Treatment of the United States Naval Academy Chapel

By Robert Lindahl \*

A recent installation of acoustical material is interesting because of the unusual difficulties encountered which were successfully overcome, and because the success of the experiment is illustrative of the type of problems which can now be solved by acoustical engineering. The installation in question is in the Chapel of the United States Naval Academy at Annapolis, Maryland.



EXTERIOR VIEW OF CHAPEL

At one time a public address system had been installed but amplification was not the solution to the problem and conditions were only aggravated.

The Chapel, which was designed by Ernest Flagg, architect, was built about nineteen years ago. The floor plan of the nave is circular, 65 feet in diameter, with four wings. The main portion of the room is surmounted by a dome, consisting of a cylindrical clerestory topped by a hemisphere. From the floor to the apex of the dome is 110 feet, the volume of the room being about 600,000 cubic feet.

The problem was analyzed, and the difficulty found to be mainly one of excessive reverberation, due to the lack of sound absorbing materials in the room and due to the seating capacity being so small in proportion to the enormous volume. The reverberation time was calculated by the Sabine formula, and actual

The acoustical defects of the Chapel were as old as the building and were believed by many to be inherent and ineradicable. The many graduates of the Naval Academy who had to endure the sessions of listening to unintelligible services while in attendance had spread the tale of notoriously poor acoustics, until the building had an unenviable reputation of being a beautiful monument unsuited for its real purpose.



INTERIOR VIEW TOWARD CHANCEL

tests were also made, using a calibrated 512 cycle organ pipe with a Western Electric 3A audiometer to determine the threshold shift. Upon the basis of the findings, the absorption in the Chapel was calculated, and it was determined just how much more absorption need be added to secure a reverberation time which would permit speech and music to be intelligible and pleasing.

The real problem consisted in finding sufficient suitable area for installing the proper amount of acoustical material, and of installing the material so that it would match the color scheme and harmonize with the general architectural design of the interior. The acoustical requirements were that the material be fairly evenly distributed about the room, with the exception of the dome, in locations exposed to the action of sound waves, which precluded only the under-balcony ceilings. It was necessary to treat the dome very heavily, due to the focusing action of this curved surface, and because the dome was so far removed from the floor line that sound reverberating in this space would return to the audience at a sufficiently large interval of time later to cause interference.

The treatment in the nave or central portion of the room was installed in a broken joint ashlar pattern upon the pendentive surfaces, the treatment extending down the legs of the pendentives upon the sides of the windows. A broken joint ashlar pattern was also used in the recessed wall and ceiling panels of the deep window spaces.

In the four equal and similar wings, consisting of the two transepts, chancel and organ spaces, the acoustical treatment was placed upon the three rectangular raised wall panels upon each side wall and upon the curved ceiling panels. Upon



INTERIOR VIEW TOWARD ORGAN

\*Acoustical Engineer



the outer wall two rectangular panels and the upper curved panel framing the windows were treated, preserving the original radial joint markings in the upper panel.

The dome presented a singular problem. The ceiling consisted of deep coffers formed by spiral intersecting ribs originating at the clerestory windows and running to the circular dome light. The coffers did not present sufficient area of treatment, so a "Caesarean Operation" was performed by furring out with metal lath and plaster, to give a smooth spherical surface. Upon this finished plaster surface was applied the acoustical material, in a herring-bone pattern in the field formed by twenty-four tapering radial ribs. The lights which had been at the center of the coffers were extended through the new ceiling, to be surrounded by rosettes of the acoustical material. The glass in the center light was removed and replaced with panels of acoustical material. Some fear had been expressed that the new ceiling would be very inferior in design and beauty to the elaborate coffering it replaced, but the finished result was agreeably surprising.

The acoustical material was a cane fibre tile, perforated with numerous holes to increase the sound absorbing efficiency. The perforations were large enough that the paint applied to make the tile match the interior color scheme did not close over the holes and no sound absorbing efficiency was lost. The efficiency of the acoustical tile was 70% at 512 cycles per second, the standard reference pitch, and approximately 15,000 square feet were in-

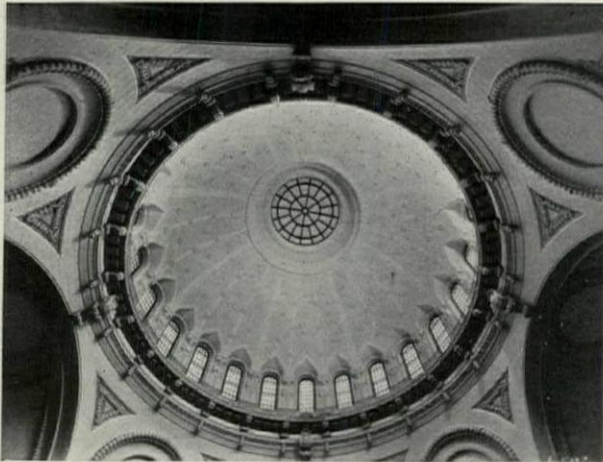
stalled. The method of application was by cementing and nailing to the plaster, using a special waterproof cement.

The problem of scaffolding presented unusual difficulties due to the ceiling height of 110 feet, and the fact that the floor slab was weak in the center of the room. The crypt of John Paul Jones is in the center of the room directly under the chapel, there being no support within the ring of eight columns on a fourteen-foot radius. The main supports are sixteen columns on a radius of twenty-seven feet. This made it necessary to distribute the load of the scaffolding carefully so as not to exceed the limit for the floor. The pews were not removed.

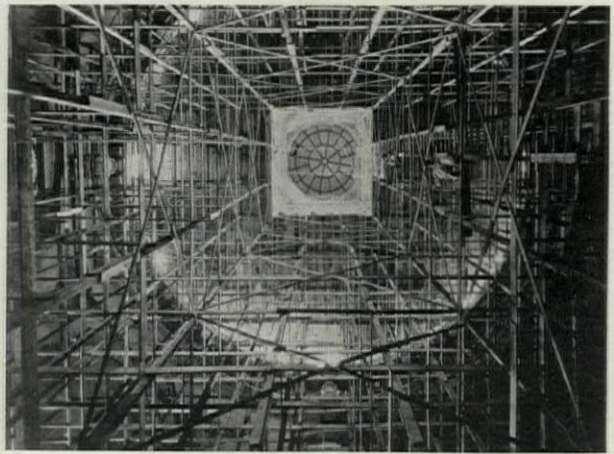
The acoustical correction obtained was entirely satisfactory, and the authorities state that there appears to be no difficulty in hearing clearly in any part of the auditorium. This statement is in marked contrast to the former uniform dissatisfaction expressed by all concerned.

It is an achievement to be able to correct satisfactorily a beautiful monumental structure of this unusual design and largely retain the former architectural design. No radical changes were made by altering the shape or volume of the room, as has been necessary in some other similar instances. The patterns and color selected fit in so well that one does not have the feeling that the acoustical treatment is a separate and disjunct part of the room, but that it is an integral and necessary detail of the interior.

The work was designed and supervised by the Architectural Department of the Navy Department, Bureau of Yards and Docks.



VIEW SHOWING DOME TREATMENT OF  
ACOUSTICAL MATERIAL



LOOKING UP THROUGH SCAFFOLDING  
TO APEX OF DOME



## A FRAMELESS STEEL HOUSE

ILLUSTRATED ON THE OPPOSITE PAGE

A large part of the house is factory produced. The exterior of the house is heavily insulated against heat or cold and is covered with porcelain enamel shingles. It is claimed that this surface will never require painting and that a cleaning with water will restore its original luster. This house contains seven rooms, two baths, and a double garage, with a recreation room, boiler room, laundry and storage space in the basement. The cost of erection is said to be comparable to frame construction, and it is prophesied that by this system it will be possible to complete a home of average size in a few days' time. The method of construction was developed by Mills G. Clark, former President of the Cleveland Real Estate Board.

## PRIZES AWARDED FOR INTERIOR PLANS

The Douglas Fir Plywood Manufacturers have announced prizes in their competition for interior plans. The program called for rough "idea sketches" in plan and elevation showing practical and attractive uses for Douglas Fir Plywood for any of the following interiors: (1) attic bedroom; (2) basement recreation room;

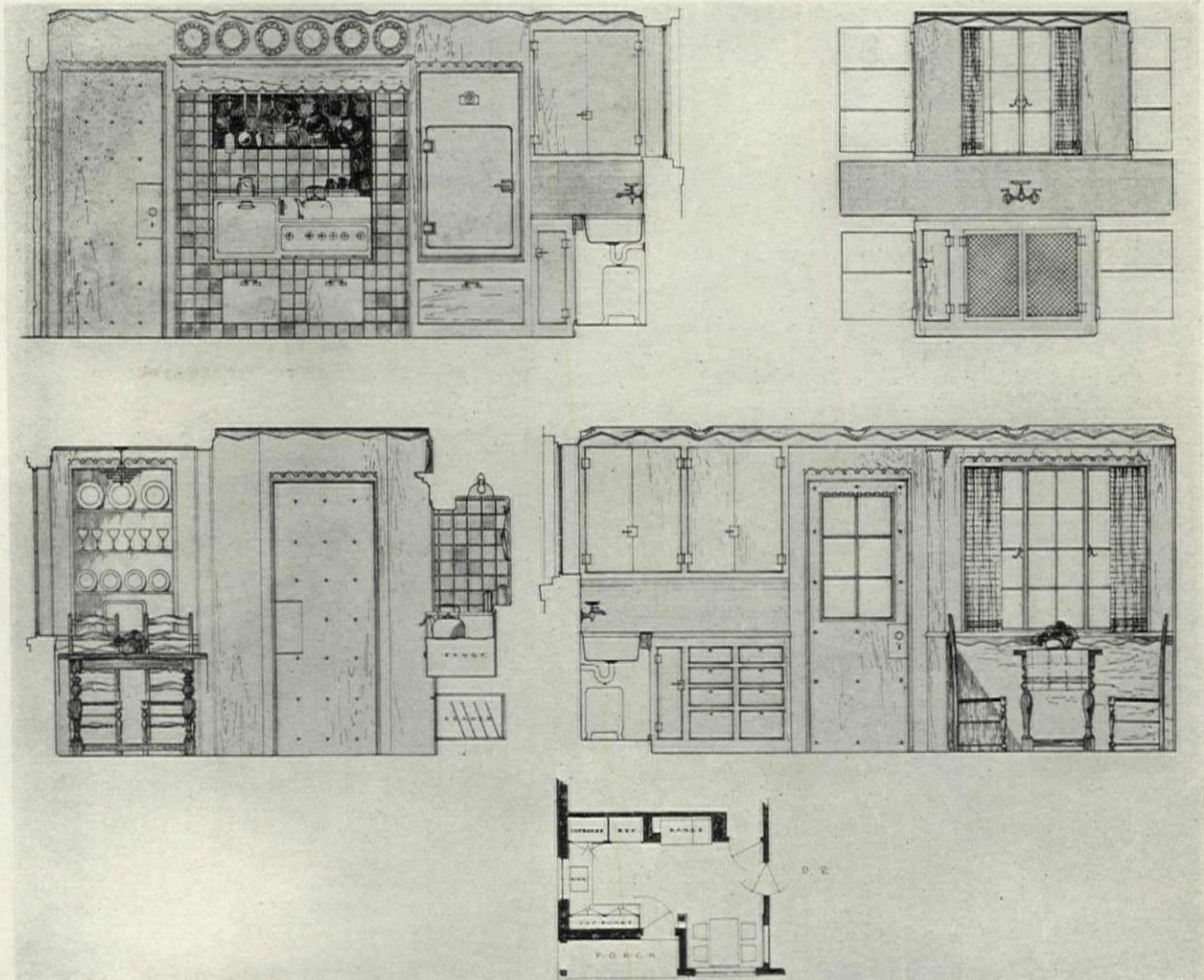
(3) kitchen and breakfast nook; (4) camp cottage including sleeping, cooking, and living facilities for four people.

The Jury of Award consisted of Arthur L. Loveless and David J. Myers, of the Washington State Chapter of the A.I.A., and G. L. Bartells, Research Director, Douglas Fir Plywood Manufacturers. The Professional Adviser was Charles H. Alden, F.A.I.A.

Prizes were awarded as follows: *Class I, Attic Bedroom*—1st Prize, \$150.00, Chapman & Frazer, Boston, Mass.; 2nd Prize, \$100.00, Louis Page, Jr., and Harold Jessen, Austin, Texas; 3rd Prize, \$50.00, M. B. Adler and R. Mitre, New York, N. Y.; 4th Prize, \$25.00, J. H. La Rowe, Manteno, Illinois; 5th Prize, \$25.00, Thomas A. Cresswell, Chicago, Illinois; 6th Prize, \$25.00, F. D. Chapman, Evanston, Illinois. *Honorable Mention*—Howard A. Griffith, Jr., Sheffield, Alabama; William B. Rowe, Buffalo, N. Y.

*Class II, Basement Recreation Room*—1st Prize, \$150.00, William H. Harrison and Walter C. Myall, Los Angeles, California; 2nd Prize, \$100.00, Arthur S. Davis, Chicago, Illinois; 3rd Prize, \$50.00, Herbert E. Duncan, Kansas City, Mo.; 4th Prize, \$25.00, Howard G. Elwell, Bell, California; 5th Prize, \$25.00, Arnold I. Lorenzen, Curtice, Ohio; 6th Prize, \$25.00, Alfred F. Schimek, La Grange, Illinois. *Honorable Mention*—

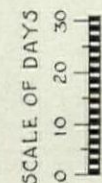
(Continued on page 717)



PRIZE WINNING DESIGN FOR A COMBINATION KITCHEN AND BREAKFAST NOOK, BY HENRY TITUS ASPINWALL  
COMPETITION CONDUCTED BY THE DOUGLAS FIR PLYWOOD MANUFACTURERS



# RELATION BETWEEN APPARENT NOON AND MEAN TIME COMPUTED FOR THE 75th MERIDIAN \* EASTERN STANDARD TIME COMPILED BY R. NEWTON MAYALL \* LANDSCAPE ARCHITECT



- STANDARD TIME MERIDIANS -  
75th MERIDIAN... EASTERN STANDARD TIME  
90th MERIDIAN... CENTRAL STANDARD TIME  
105th MERIDIAN... MOUNTAIN STANDARD TIME  
120th MERIDIAN... PACIFIC STANDARD TIME

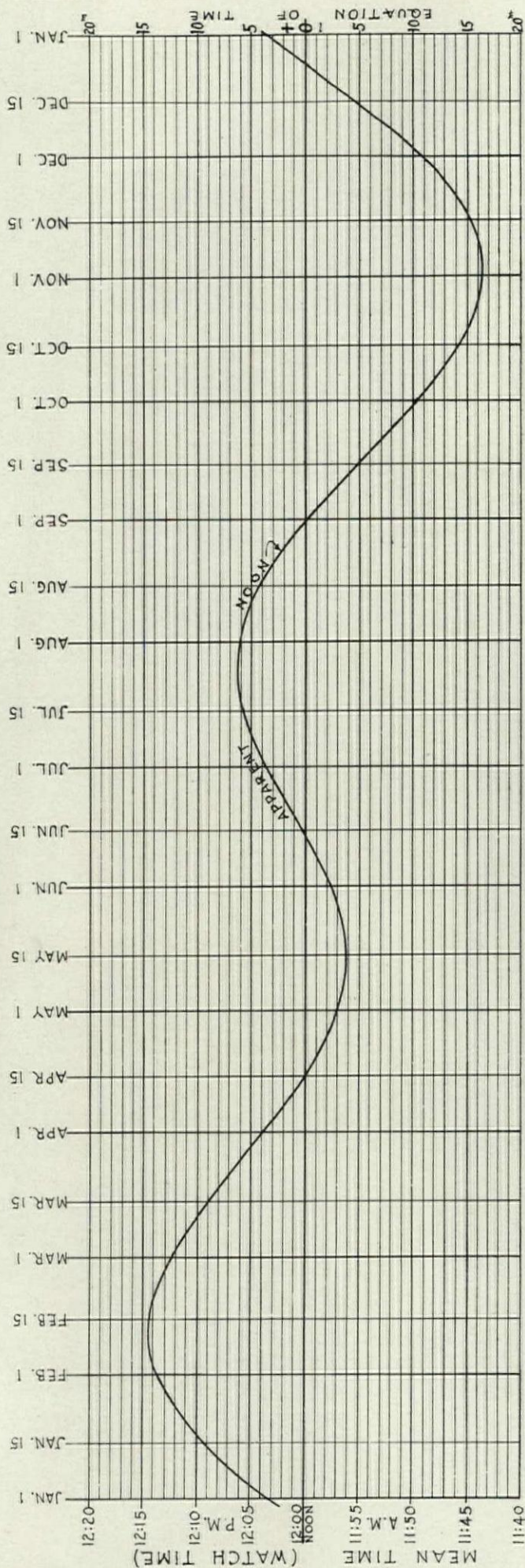
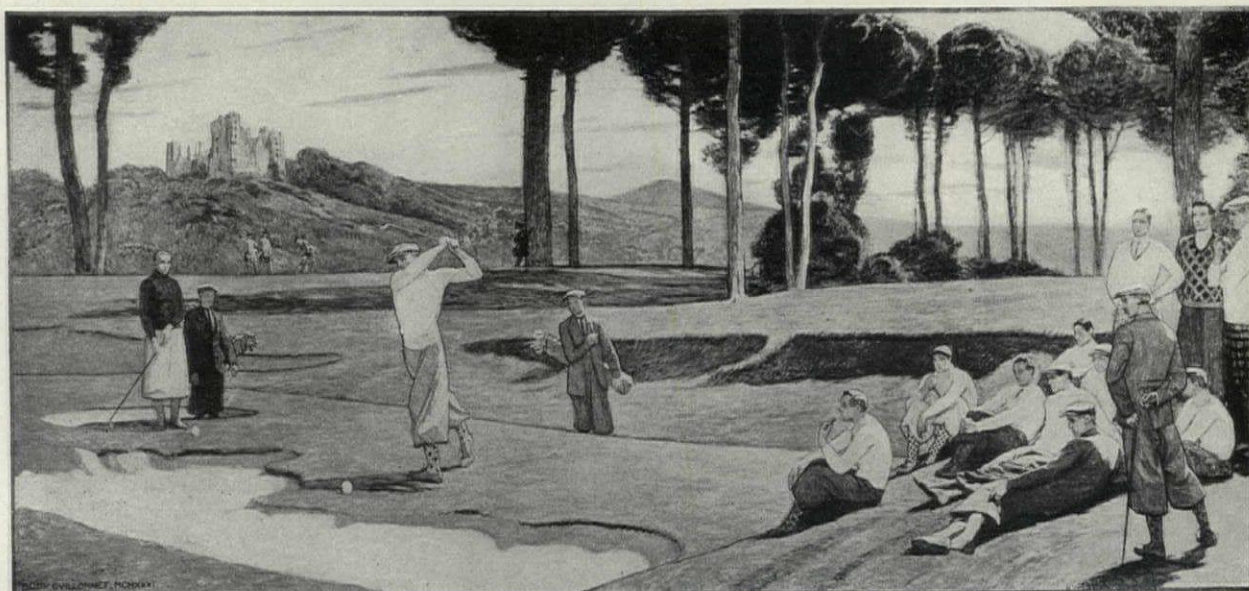
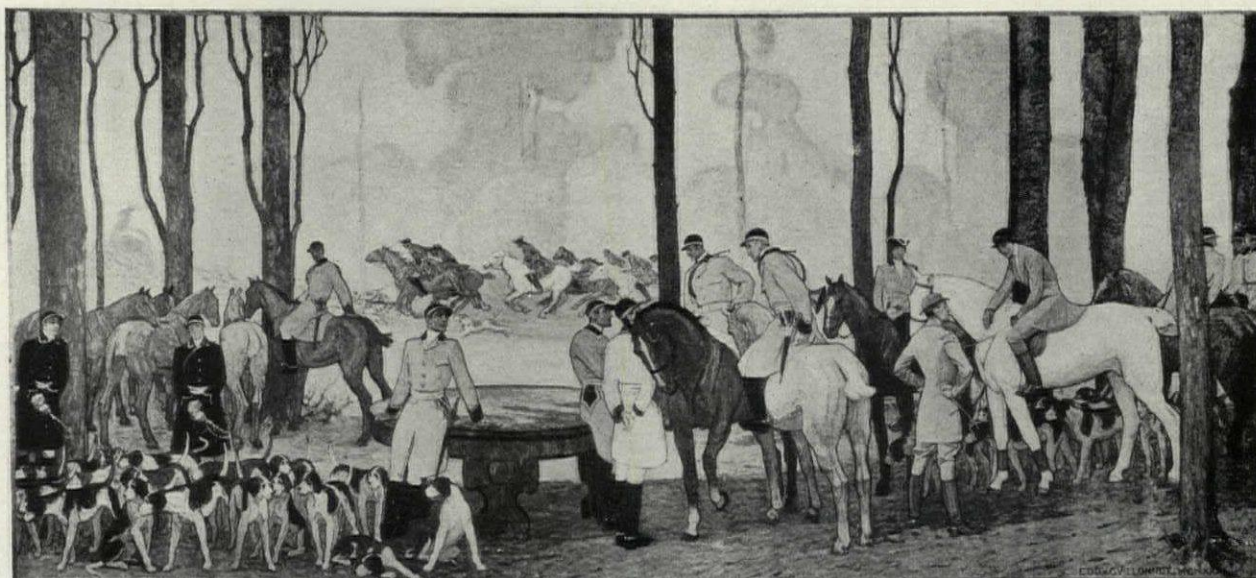


CHART COMPILED BY R. NEWTON MAYALL, LANDSCAPE ARCHITECT, FOR COMPUTING THE RELATION BETWEEN APPARENT NOON AND MEAN TIME FOR THE 75TH MERIDIAN, EASTERN STANDARD TIME

INSTRUCTIONS FOR USE: This chart shows, at a glance, the time at which the sun will be on the standard meridian (at the left), and the equation of time (at the right), for any day in the year. A correction will have to be made for the observer's meridian, if his meridian is east or west of the standard meridian for the time zone in which the observer is stationed. This correction amounts to 4 minutes for each degree of longitude east or west of the standard meridian. If the observer's meridian is east of the standard meridian, the correction must be subtracted from the time shown on the chart; if west, the correction must be added. EXAMPLE: Find the time the sun will be on the meridian at Boston, Mass., on March 20. According to the chart the sun will cross the 75th meridian at 12 h. 7.5 m. p. m. E. S. T. The longitude of Boston is 71.07 degrees. The difference between Boston and the standard meridian (75th) is 3.93 degrees. Applying the correction of 4 minutes for each degree of difference, 15.7 minutes must be subtracted from the time obtained from the chart, since Boston is east of the standard meridian. Therefore the sun would be on the meridian at Boston, March 20, at 11 h. 51.8 m. a. m. E. S. T. N. B.: The equation of time is equal to the mean time minus the apparent time. This chart is applicable to the standard time meridians in the United States are listed in the upper right corner.





MURALS PAINTED BY O. D. V. GUILLONNET FOR THE WANAMAKER MEN'S STORE  
IN THE NEW LINCOLN-LIBERTY BUILDING, PHILADELPHIA—JOHN T. WINDRIM, ARCHITECT



# HERE AND THERE AND THIS AND THAT



CONDUCTED BY E.L.C.

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.

THE PRIZES this month have been awarded to:

Class I—George McKinlay, Twickenham, England

Class II—Sherman G. Coates, Philadelphia, Pa.

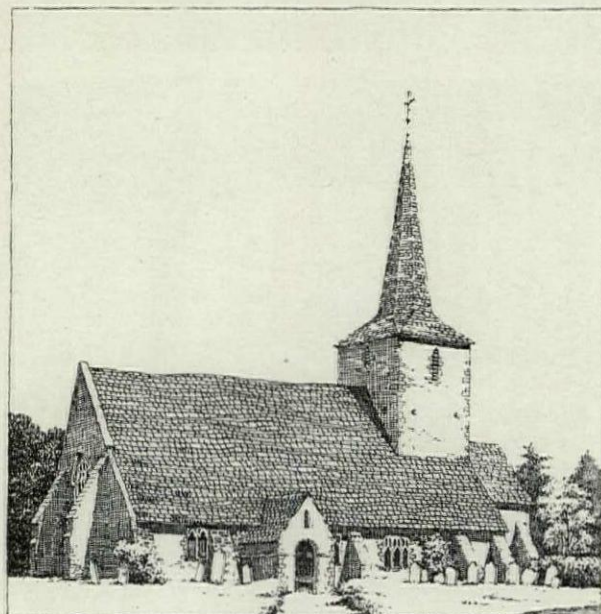
Class III—Vennis L. Schafer, Chicago, Ill.

Class IV—Matthews M. Simpson, Summit, N. J.

Good Wrinkle—Herbert E. Kellner, Chicago, Ill.

The Editor of PENCIL POINTS, according to the latest word received at the time of going to press, is en route to Spit on the Dalmation Coast. It does sound quite vulgar, we admit, confessing at the same time that we had never even heard of what apparently is not at all what we think of at mention of that "horrid" word. This deviation from our boss' original itinerary also includes such well known places as Ragusa, doubtless more familiar to our readers as Dbrovnik, and Zara. (Paste this in your hat: the boss is going to do "an article on the old walled town of Ragusa," and if that's not worth the price of admission we'd like to know what is.)

Next month we may have some really first-hand information for you about all sorts of things. The boss is coming home on the new Italian liner "Rex" and if he doesn't, after seven days at sea, know all there is to know about his fellow passenger, Hizzoner the former Mayor



FROM A PEN AND INK SKETCH BY GEORGE MCKINLAY

Playden—Sussex, England

(PRIZE—Class One—September Competition)

(also at sea) of the metropolis known as New York, we miss our guess.

Apropos of nothing, Architect Pulitzer made over 7000 studies for the M. V.\* "Conte di Savoia," and that, we think you'll agree, is quite a flock of studies even when you do get the commission.

\*Motor vessel, if you please, we've just discovered.

Our friend, Leo Friedlander, "sculptori," is giving a party this week. Who says things aren't picking up—or is it just one last fling?

## A SIMPLE METHOD OF PRINTING GREETING CARDS

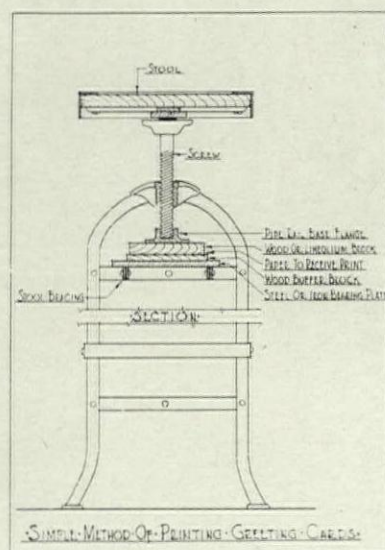
By Herbert E. Kellner

(PRIZE—Good Wrinkle—September Competition)

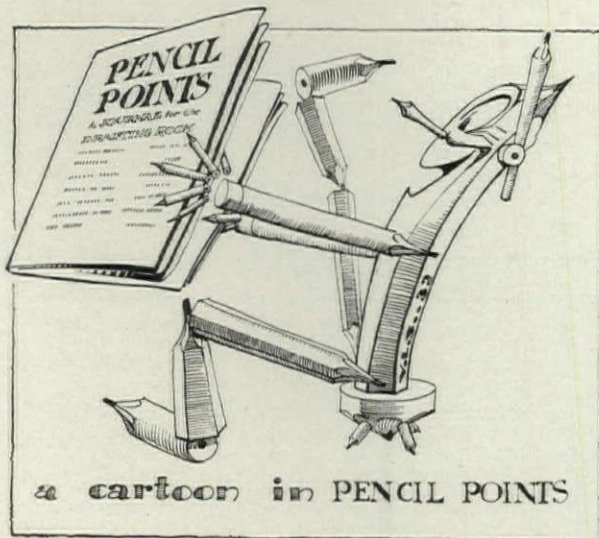
AS THE Christmas season approaches, there will be many of us who will set out to make our own greeting cards, especially in these days of economic struggle. After succeeding in carving the wood or linoleum block, we usually find that the real problem is to obtain satisfactory prints therefrom.

This simple method may be of aid to many who might otherwise give up in despair. Use an ordinary steel drafting stool. Place a steel or iron bearing plate of convenient size across the upper supports of the stool. On this, place a wood buffer block; then the paper to receive the print; then the wood or linoleum block. In order to prevent the screw from twisting the wood block, place an ordinary pipe rail base flange over the end of the screw. Now simply apply pressure to the screw, as on a book press.

If, by chance, the pressure breaks the stool supports or bracing, don't worry. The stool manufacturers will erect a monument to your memory for making it necessary to purchase a new stool.







SUBMITTED BY VENNIS L. SCHAFER  
(PRIZE—Class Three—September Competition)

TO GENERAL AND MRS. PUBLIC  
(PRIZE—Class Two—September Competition)

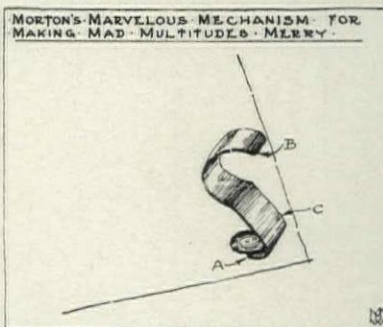
By Sherman G. Coates

If you're planning to put up a church, or a jail,  
A pretty white cot in a bosky vale,  
A chicken house, or a hunting lodge,  
A service wing, or a new garodge—  
In fact, for whatever you wish to erect,  
Don't fail to consult an architect!

With a toothache, you go to a D. D. S.;  
Not to a nurse in a neat white dress.  
If the old appendix begins to feel sore,  
You don't have it fixed at the corner drug store;  
When sued by your wife for non-support,  
Would you seek advice from the clerk of the court?

Then why should you go for your building design  
To a builder who knows naught of style, form, or line,  
Or the million more things that architects know?  
You think you are saving a little more dough,  
But the chances are it will cost you more,  
And the job will be something for all to deplore!

JAMES C. MORTON, of Toronto, sends along a wrinkle:  
"I send you herewith most humbly a wrinkle that positively will remove at least two years' worth of the

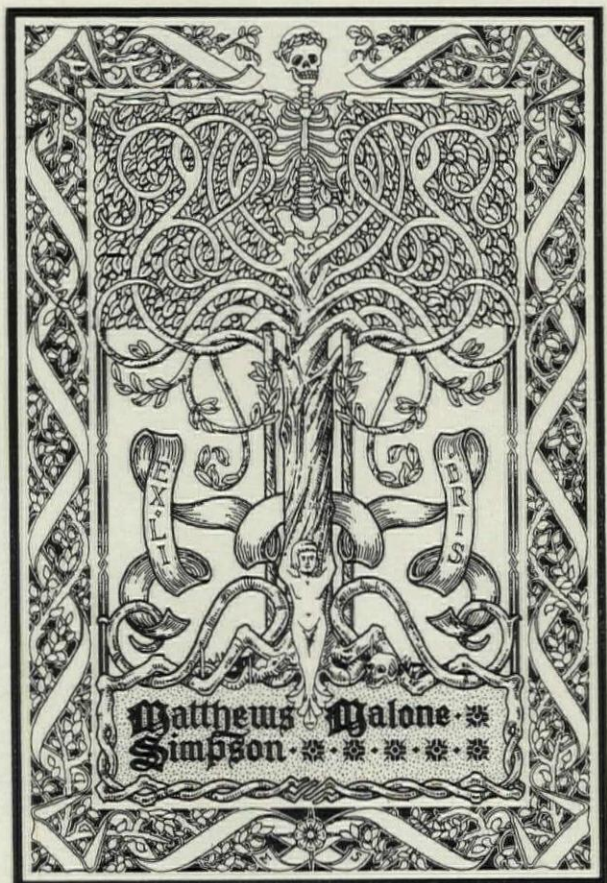


commoner variety from most any draftsman's noble brow. It's the discovery of the age, draftsmen cry for it and will soon swear by it. No architectural home should be without it. The cry will fly from housetop

to housetop, 'stupendous, gigantic, truly amazing.' Draftsmen will face the day's task, the common round, with a song in their hearts and a smile on their façades. You ask, 'What is this overwhelming gift to mankind?' The answer, 'Morton's Marvelous Mechanism for Making Mad Multitudes Merry.'

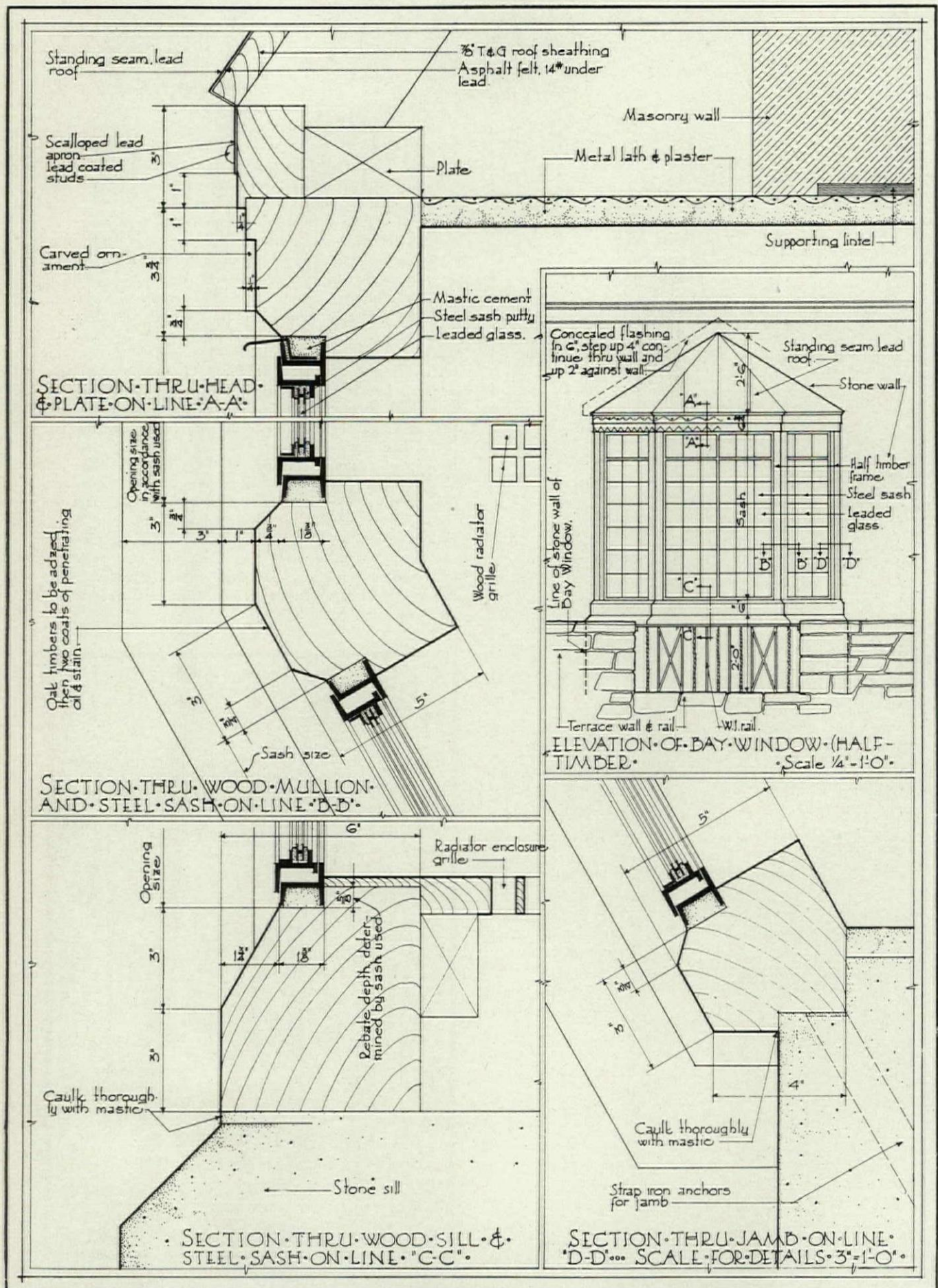
"Have you ever noticed a draftsman extracting a tum-thack from an obstinate and reluctant board? Of course you have. I see the frown instinctively crossing your face. Ere this 'twas the curse of a draftsman's blighted life. And have you noticed that he can be classified as one of two types? He either uses his fingers, thereby ripping off a nail or two amid loud howls of anguish, or else he takes his newly sharpened jackknife, scratches and scrapes till it goes under the infernal little object, but not before it cuts the corner off the paper and narrowly misses taking an eighth inch off his finger, and then when he does get the tack out he shouts in triumph but looks with dismay and a saddened visage upon his newly sharpened but now sorrowfully saw-edged jackknife.

"The solution? Simple as disliking the bailiff. Take a picture hanger; a common, ordinary, everyday, domestic picture hanger. Providing the heat isn't too hot and the humidity too humid, file the edge marked 'A' on the sketch till it is a wee bit thinner. This isn't absolutely necessary but is recommended for a first-class Grade A Tum-thack Remover. This edge, as all bright draftsmen will no doubt have guessed, is for slipping under the tack. The large finger of your right hand goes under 'B' with the thumb resting crosswise on top. To get more leverage put the first finger of your left hand on 'C.' This is only necessary with particularly stubborn tacks. Then go through the motion of pulling at 'B' while pushing at 'C.' Behold the tack lies helpless on the drawing board. And if in the process you ruin one finger nail or turn your jackknife into a third rate saw, then your money will be tearfully refunded. Not at all. Don't mention it."



DRAWING FOR A BOOKPLATE BY MATTHEWS M. SIMPSON  
(PRIZE—Class Four—September Competition)





BAY WINDOW WITH STEEL SASH IN HALF TIMBER CONSTRUCTION—DRAWN BY PHILIP G. KNOBLOCH



# The Lombardy Poplar

Rendered  
on Cameo Paper  
with  
2B and 4B Eldorado



# ELDORADO

© 1932

Next month:  
Honey Locust illustrated

Berkshire  
Trees  
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# 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

Joseph A. Petrillo, 4926 47th St., N. W., Washington, D. C., wishes to purchase the *White Pine Series*, Vol. 2, Nos. 1, 3, and 6; Vol. 3, Nos. 1, 2, 3, and 4.

Scopes & Feustmann, Box 590, Saranac Lake, N. Y., have the following numbers of the *Brochure Series*: February, March, May (2), June, July, August, and November (2), 1895; January, February, April, and May, 1896; June, 1898; August, 1899; February and November, 1901; November and December, 1902; January to December, inclusive, 1903. Will exchange some of these for September and December, 1896.

The following books are for sale at a low price: *Measured Drawings of Georgian Architecture in the District of Columbia 1750-1820*, Cunningham & Younger; *Monograph of the Works of McKim, Mead & White*, 2 vols., Students Edition (Portfolio); *Monograph of the Works of Dwight James Baum, Early Connecticut Architecture*, Kelly; *Boston Architectural Club Yearbook*, 1915 and 1924; *The Architectural Orders of the Greeks and Romans* (Portfolio) Mavch; *Colonial Interiors*, Leigh French, Jr.; *Schools of Today and Tomorrow*, Harrison & Dobbins; *Lesser Known Architecture of Spain*; *Building Craftsmanship*, Lloyd; *Architectural Construction*, Voss & Henry; *Architectural Drafting*, Wooster Baird Fields; *Good Practice in Construction*, Vol. 2, Knobloch; *Practical Requirements of Modern Buildings*, and *Drafting Room Practice*, Clute; *Handbook of Ornament*, Meyer. Communicate M. R. T., PENCIL POINTS MART.

William Helburn, Inc., 15 East 55th St., New York, N. Y., would like to obtain a copy of the *Water Color Renderings of the Gardens of Rome*, by Vignal, in portfolio form. Can offer \$2.00 for a copy.

Fred M. DeWitt, 620 14th St., Oakland, Calif., has the following copies of PENCIL POINTS for sale: August and December, 1923; February, March, April, May, June, and August, 1924; January, March, May, June, August, September, and October, 1925; April, July, September, October, and December, 1926; January, February, March, July, October, November, and December, 1927; April, September, November (4), and December (3), 1928; January (3), April (2), August (3), September (2), October (2), and November, 1929; January, April, June (2), July, September (3), October (2), and November, 1930.

M. Silverstein, 363 East 26th St., Brooklyn, N. Y., has for sale brand new Excello and Paragon pen and pencil compass with divider attachments and screw driver. List price \$4.50, sale price \$1.85.

**TO SUBLET:** Space in Architects' Office at 25 West 45th Street, New York. Separate room, north light, secretarial service, moderate rent. Telephone BRyant 9-3892, or write THE MART.

**SPACE TO RENT:** Architect with light, centrally located office has unused space in drafting room. Large lobby and reception room. Private room may also be had with arrangements for stenographic and other services. Will rent to architect, engineer or decorator. Reasonable. M. K. Westervelt, 10 West 33rd Street, New York.

Large drafting board and stand for sale very cheap. See Mr. Garvey, the superintendent at 101 Park Avenue, North Wing, New York, or write to owner, George Wm. Beatty, 728 17th Street, Washington, D. C.

The following books are for sale: *Architectural Compositions*, Haneman; *Apollo*, Reinach; *Artistic Anatomy of Trees*, Rex Vicat Cole (British); *Architectural Rendering in Wash*, Magonigle; *Arts and Crafts in Middle Ages*, Addison; *The Art Spirit*, Robert Henri; *Bridges*, Frank Brangwyn (British); *Billings Baronial Antiquities*, 4 vols. orig. edition, 1852 (British); *Sketching and Rendering in Pencil*, Guptill; *Drawing with Pen and Ink*, Guptill; *History of Architecture*, Banister Fletcher (British); *Perspective Projection*, Freese; *Watercolor Renderings of Venice*, Pierre Vignal; *Gardens of Rome*, Pierre Vignal; *Color Sketches*, Charles L. Morgan; *Color Plates of English Gardens*, Pub. Bruno Hessling; *Studio Yearbook*, 1920; *Watercolour Painting*, Richmond & Littlejohn (British); *Old New England Doorways*, Robinson; *Styles of Ornament*, Speltz; *Water Colour Painting*, A. W. Rich (British); *Law of Architecture*, Blake; *Lettering*, Stevens; *Colour*, Vol. 19 (British); *Our National Cathedrals*, Pub. Ward, Lock (British); *Outdoor Sketching*, F. Hopkinson Smith; *Cours Classique D'Architecture*, Felix Laureys, Original Edition; also the following copies of PENCIL POINTS: Year 1926 (March missing), 1927, 1929, 1930, and 1931. Communicate A. H., c/o THE MART.

## PERSONALS

WYMAN WALKER, ARCHITECT, has moved his office from 1812 35th Street to 1101 Connecticut Ave., N.W., Washington D. C.

VINCENT J. MILLER, 12 Crampton Ave., Woodbridge, N. J., has been admitted to the general practice of architecture by the State Board of N. J.

L. L. BRASFIELD, ARCHITECT, has opened an office for the practice of architecture at 202 Kidder Bldg., P. O. Box 36, Meridian, Miss.

(Continued on page 30)

EMPLOYMENT SERVICE ITEMS WILL BE FOUND ON PAGE 30, ADVERTISING SECTION