

THE IDEA OF THIS ISSUE

EVER since PENCIL POINTS was started, two years and a half ago, the subject of Specifications has been brought to our notice on many different occasions and from many different directions. With the second issue of our paper we started a department called "The Specification Desk" in which has appeared a comparatively small amount of material which has proved to be of great interest to many of our readers. The specifications, so important in the production of a building, and employing so large a part of the time of architects and specification writers, constitute an extremely difficult document to produce. They are surrounded, in the very nature of things, by a peculiar and complex set of problems, entirely different from anything else found in the practice of architecture.

To say that the specification should be a good specification does not get you very far. Of course it should be. But what is a good specification? How should the matter be approached? How should the work be laid out? How should it actually be done with the greatest economy of time and effort? How can it be safeguarded so that everything goes in that should be in and nothing of importance is omitted? How should the clauses read so as to protect the owner and architect in the matters of quality and price? And how should the specification be drafted so as to give the sub-contractors and the various manufacturers of appliances and materials a fair opportunity to do business? The specification is a two sided document. The interest of the architect and the owner is to get just the quality and amount of materials and workmanship desired. The bidder should be given explicit information on which to base his estimates. Nothing should be vague, nothing should be guessed at, nothing should be left in such form as to invite misunderstandings, disputes, loss of time, law suits and all the rest of the things that try men's souls and make buildings cost more than they should.

In seriously tackling this problem, which is admitted by all to be a big one, perhaps PENCIL POINTS is showing the rashness of youth. At any rate, for better or for worse, the problem is being tackled in this issue, and while we do not expect to revolutionize specification writing over night, we honestly believe that the material in the following pages will accomplish two things: first—lay before the specification writers and before the manufacturers of the country who are interested in specifications a mass of first-hand material and opinions which have never before been published. The contributors to this issue are architects and specification writers of many years' experience and what they have to say reflects a knowledge of specification work gained in actual practice in many parts of the country and in offices of various types.

The contribution from Mr. Jones, representing the Structural Service Committee of the American Institute of Architects, shows the progress made by that committee up to the time of going to press, with certain specific recommendations which, when they

have been assimilated by specification writers and acted upon by manufacturers, will unquestionably lead to a better state of things in many respects.

The article by Mr. Gardiner, who has made a special study of architects' and engineers' specifications for many years, approaches the matter from the standpoint of a manufacturer and sets forth certain ideas which it may not be possible for many reasons to put into practice in their entirety at the present time, but which may develop as time goes on.

This issue of PENCIL POINTS is intended merely as a starter along the road to better specifications. Those who write specifications in one part of the country do not know very much about what their brothers in other cities are doing. This is not so in the case of designers. They see each month in the architectural magazines the work of other designers expressed either in drawings or photographs of completed buildings. The specification writer, in a majority of cases, has quite naturally fallen into the habit of working in a small circle. His specifications for his next building are often taken largely from the specifications for the last similar one, thus perpetuating any bad features there may have been in the original documents. Then, too, many men have worked out ideas that would be useful to other specification writers if they only knew about them. It is our hope that every architect, every specification writer, every draftsman, every manufacturer reading this issue will feel free to discuss any of the questions raised, to ask questions on any points that are not clear, to make further suggestions covering matters not specifically considered in this issue and to submit all such material to us in the form of letters or articles for publication in forthcoming issues of this paper in the "Specification Desk" department. A vehicle is provided in this department for the consideration of all manner of things affecting specifications. It is not our intention or desire to publish material which is merely different in character and which has not within it some constructive and vital element tending toward elucidation and improvement. We all know that there are evils in present-day specification writing. It is our desire that all of our contributors approach the subject in a spirit of genuine co-operation and mutual helpfulness.

In presenting the material to be found on the following pages we have contributions from many good offices. Some others were invited, but were too busy to participate—or thought they were. If any man who has an opinion regarding any phase of the subject was not specifically invited to contribute to this issue we hope that he will not hesitate to let us hear from him. No one has intentionally been slighted but we had to start somewhere, and it was not possible for us either to call upon or reach by letter all of the men whose opinions should be valuable. So, whoever you are and wherever you are, we shall be glad to hear from you if you have a suggestion to make which will be useful in the preparation of specifications.

GENERAL CONSIDERATIONS IN SPECIFICATION WRITING

BY FRANKLIN J. WARD

Specification Writer with Carrère and Hastings, Architects

IN WRITING on "General Considerations in Specification Writing" I feel that it is best simply to give my own experience and opinions and to leave room for others who may differ with me, rather than to attempt a formal and ambitious treatment of the subject. It seems to me that among the most important general considerations are the following: the specification writer's training for his work, the functions of the specifications, the method of their preparation, and the sources of information, such as manufacturers' catalogues, etc. I shall, therefore, speak of each of these matters in as informal a way as possible.

I think the first qualification for specification writing is some experience on a building, superintending or similar work. The fellow who has only occupied an office chair or a drafting stool cannot tell the contractor and the workmen what they want to know. The second requirement is ability to write clear English, which is similar to writing a good business letter.

The drawings should show what is to be done. The specification should tell how to do it. For instance, the drawings may show a brick wall with a slate roof. The specification should tell that the facing is \$35.00 brick laid Flemish bond with bonded headers every sixth course in cement mortar with common brick backing furred with wood strips, and the roof is one and one-eighth inch boarding with paper and 10 x 20 x $\frac{3}{16}$ inch black slate with copper nails. These details cannot be put on the drawings without confusing them, but anyone of them left out of the specification, (and even more are needed), will leave a doubtful item in building.

I have always, however, found it helpful to have the materials of the floor finish noted on the drawings, as it makes a good reference point for many specification clauses.

There is no use filling a specification with too many words. Government specifications are beauti-

ful in their completeness, but in ordinary building, time is too short to either write or read them. What is wanted is to state as briefly but clearly as possible the choices that must be made in estimating and building. For instance, the above mentioned specification for slate must state the thickness, size and nails, because there is always a choice of those things, but if the size is given, the amount to the weather is not needed, for they are always laid with three inch headlap and to fill up with clauses about laying to a straight line and not driving the nails so hard as to break the slate, and doubling at the eaves, is a waste of time, for those things are done anyhow, and they only confuse the important facts. Also, frequently interjections are as good as well turned sentences. "Black slate, 10 x 20 x $\frac{3}{16}$ inch" says just as much as "the slate shall be black, three-sixteenths of an inch in thickness, and 10 x 20 inches in size." Remember that a specification is a document to be built from, and not a literary composition.

And now how to write the specification. I note in most advice, that the specification writer should be given a week or so after the drawings are done. That would be heavenly.

My experience is generally that the client has been promised this job last week, and the drawings are already behind time, and the specification man just has to hustle and get out his work not more than a day or two after the drawings.

I find it necessary to get a mental picture of the building. Take the drawings and paw them over until you get it. You can't tell some one else what is in the building until you know yourself. This mental picture of the whole job can be made when the drawings are very rough.

Now is the time to think of your divisions. I use the following schedule of trades which you will notice proceeds roughly in the general order of construction: general conditions, excavation, masonry,



Photo Gillies

Franklin J. Ward

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general work, waterproofing, cut stone, architectural terra cotta, steel framing reinforced concrete floors, roofing and sheet metal, ornamental and miscellaneous iron and bronze, vault lights, concrete paving, interior marble, slate and terrazzo, tile, furring and lathing, plastering, carpentry, hollow metal, kalamein, special doors, special floors, hardware, glazing, painting, planting, plumbing, heating and ventilating, electric, elevators.

Now, having the mental picture of the building, select the trades which will be used in it, and list them. I formerly used a sheet of paper for each, somewhat in book form. I now get a long sheet of wrapping paper and make a column on it two or three inches wide for each trade. Take each drawing and note in each trade column any item on that drawing which needs mention. Of course a little practice will let you skip a number of items that you know you will not forget anyway.

At this point I get some previous specification, or several of them, and work out the new one in the general order of the old, interjecting new items from my paper list as they come in their order. Will a "reminder" help at this point? Possibly, especially to the inexperienced, but I have such a volume of back work to refer to that I find the mental picture and the paper list sufficient and better than any reminder.

I do not find many clauses that can be copied without change. I believe anybody that does so is using too many unnecessary words. The items that must be changed each time are the very ones that must be given to show the choices wanted. Each specification is an individual composition. I think that with an immense amount of labor a card index might be made, but it would be full of blanks to be filled in and progress and experience would make such frequent improvements in it that it would be hard to keep up to date. I know I have found it advisable rather to remember just where I wrote about this subject before, and refer to the old specification and bring it up to date.

But nearly every time there is something new. Ah, there's the hustle. It would be fun to thoroughly investigate each detail if time were unlimited. Get the trade catalogue, or ask the manufacturer, or use common sense if you have to, and then write the best you can. If it is a patented item it may be sufficient to say "Furnish and set John Smith's so-and-so." What is the use of giving a whole lot of detail if John Smith will do it anyhow? But if it is a competitive article, try to give the choices, leaving out the wasteful words. The experience you will get when the item is executed will undoubtedly enable you to improve it the next time you write it.

There is a short kind of specification which I often have to write, called "Block" or "Outline." It is particularly useful in getting approximate estimates or when in a hurry. It is also very handy to get an early agreement as to materials, to be later elaborated in a full specification. This does not proceed by trades but is a description of the building. I write it in this order: work included, con-

struction, exterior finish, interior (general, halls, toilets, each floor, etc.), mechanical (plumbing, heating, electric, elevators).

"Or equal" is the bugbear of specification writers. Practically it means that I have examined Smith's and Jones's articles and am satisfied with them, but you may know of another that is as good and I don't want to unfairly shut it out, but you'll have to prove it. What else can I do? If I had unlimited time, I might write up all the requirements and not mention any names. Or I might mention all the names I would accept if I could know them all. But if I repeated this item many times, the clause should be rewritten somehow to get rid of the "or equal."

Catalogues are vital items in your data. They should be carefully selected as they come in and filed in some classification—what one is not so important as that you know it well. To keep all will merely make your file a lumber room. I keep about 10 per cent. When manufacturers learn to omit unconvincing oratory and pretty pictures of buildings and give the architect the facts about their products, their literature will be more valuable to the specification writer.

AMERICAN ACADEMY IN ROME COMPETITIONS.

THE American Academy in Rome has announced its competitions for Fellowships in architecture, painting, sculpture, landscape architecture, musical composition and classical studies. The stipend of each Fellowship in the fine arts is \$1,000 a year for three years. In classical studies there is a Fellowship for one year with a stipend of \$1,000, and a Fellowship paying \$1,000 a year for two years. All Fellows have opportunity for travel, and Fellows in music, from whom an extra amount of travel is required in visiting various musical centers of Europe, receive an allowance not to exceed \$1,000 a year for traveling expenses. In case of all Fellowships residence and studio, or study, are provided free of charge at the Academy, with board at cost.

The awards of the Fellowships will be made after competitions, which in the case of the fine arts, are open to unmarried men who are citizens of the United States; in classical studies, to unmarried citizens, men or women. It should be particularly noted that in painting and sculpture there will be no formal competition involving the execution of work on prescribed subjects, as heretofore, but these Fellowships will be awarded on the basis of a thorough investigation of the artistic ability and personal qualifications of the candidates. To this end, candidates are requested to submit examples of their work and such other evidence as may assist the jury in making a selection.

Entries will be received until March 1st. Any one interested should write for circular of information and application blank to Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York, N. Y.

THE PRACTICE OF SPECIFICATION WRITING

A Symposium by Architects and Specification Writers

By George Herbert Gray, Architect,
New Haven, Conn.

THE object of these notes is to emphasize certain fundamentals in specification writing and to emphasize their relation to artistic results in the completed building.

Of fundamentals that should be kept clearly in mind there are three, corresponding to the three purposes for which specifications are written:

First: the specifications must serve as a guide for accurate and close estimates; second: in connection with the drawings, they must serve as a basis for a contract and must be so clear as to make dispute impossible, or at least remote; third: they must furnish adequate instructions for the construction and finish of the building.

The commonest fault with specifications is that they do not *specify*. They do not designate the things which are characteristic of the particular building in question; and the things which are designated are not designated with a sufficient degree of accuracy, particularly they do not show sufficient consideration of local materials and working conditions. The next commonest fault is the reverse of the above, that of failure to cover those things which are characteristic of all good buildings of the type in question. The correction of these two faults would naturally carry with it the correction of other faults of general looseness, both of subject matter and of presentation.

Whether the work is to be let under a general contract or under detail contracts, it is of convenience and value to write a separate and detachable specification for each trade and indicate under the head of "Work Included" the exact line of demarcation between the work of the various trades. In all the purposes which specifications serve it is essential that the information may be found *instantly* when wanted. To this end I find an index practically indispensable. In relatively short specifications it can be arranged by paragraph numbers and headings, in the sequence in which they occur. A logical sequence of paragraphs will make it possible to find at a glance any paragraph wanted. In writing the specifications the tentative or preliminary index will serve as a guide for the orderly and logical arrangement of the subject matter and the inclusion of all pertinent matter.

As to this order it is axiomatic that we should

begin with the general consideration and proceed to the details. One brief opening paragraph headed "General Conditions" may refer to a separate set of "General Conditions," "which form part of this specification." These may usually be uniform in all trades. The next paragraph may well be "A General Description of the Work," outlining briefly how the present trade is affected by any special feature in this or other trades—if there are any such special features. Next a paragraph on "Work Included." Looseness in this one paragraph is a frequent cause of much unnecessary variation in bids owing to the overlapping of specifications, or to complete omissions. Next a paragraph on "Workmanship," then one on "Materials," usually requiring a series of sub-paragraphs. Then follows a description of all the parts of the work not covered by the more general paragraphs and which cannot be fully set forth on the drawings. This calls for close co-operation between the drawings and the specifications. Many a well conceived design has been made impossible of achievement through failure to get into the specifications an adequate description of the essential materials and workmanship. If it is impossible to come to a final decision in any matter at the time of writing the specifications, then bids should be taken on alternate methods set forth in the specifications. Once the specifications have become part of the contract, the designer's limitations are pretty definitely prescribed and cannot be changed without undue expense to the owner. To the extent of being decisive in such matters, the designer must be precise and scientific.

In brief, the less of generalization and the more of specification, the lower will be the bids and the smoother and more rapidly will the work proceed to known results.

By Charles W. Steinbaugh, Architect,
Omaha, Neb.

I HAVE tried out about every method of writing or editing specifications. I have abandoned the card index and also the use of prior efforts for similar work as a dummy.

I am now writing or dictating every paragraph and page except about five pages of General Conditions and matter that does not require frequent review and revision.

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I have a fine checking list which has been developed with the idea of including every principal and sub-title for every kind of work and material. This is before me as I make a semi-final inspection of the drawings. While doing this I make a list of principal and sub-titles and carry out extensions of same and lay out the required corresponding notes on the drawings if not already there, then I write or dictate the specification. There are several reasons for adopting this laborious personal method. I avoid repetition and the inclusion of sentences that have no bearing on the work to be written up on that commission, as well as eliminating much chance for serious omissions.

Not the least of the reasons is suggested by the usual provision for interpretation of drawings and specifications. In reserving unto myself the full right of final decision in this matter I am fortified by having my own English to refer to.

After the work is brought to the form desired it is typewritten on light weight translucent paper, using a face sheet (to become the official office copy) and a sheet of the same paper is used with a sheet of paraffin carbon paper each side, making a negative from which blue or brown line prints may be made in any number at any time. The negative is filed with the same regard for its record value as is the set of tracings.

I am better satisfied with this method than any other I have tried. The additional time and expense involved result in greater accuracy, and a more intimate relation between drawings and specifications, less volume and ambiguity.

There is a great cry for standardization. At first thought it would seem to offer advantages, but on the whole very little is possible in specification work aside from general conditions of the contract and the contract form.

By Alexander C. Guth, of Buemming & Guth,
Architects, Milwaukee, Wis.

SOMEONE once said that a specification is a specific description of certain factors or elements that cannot be placed on the drawings. It is the very voice of the architect reflecting with unerring precision his thoughts and wishes concerning the what, how and where of all the component parts of the building he has designed. The specifications are the field control instructions and the resource of builder, artisan and material man, yea, all who have any relation whatsoever with the building project. They must be relied upon to explain, inspire, direct and instruct. The aim of their author should be that no unconstructive thought may ever creep into its pages. Every sentence and every paragraph must be clear, accurate and as concise as possible. Above all, they must be specific. "To be definite should be the outstanding quality of every specification."

Almost every issue of each professional monthly contains articles pertaining to the essen-

tials of specification writing. The specification writer is reminded on all sides to exercise his own good judgment with respect to specifying qualities, standards of excellence, materials, processes and equipment. But with all this caution and advice concerning the method of writing the descriptive narrative of the drawings, one of the most important factors is entirely omitted, and that is the "general get-up," as a newspaper man would say, of the specification. By that is meant the arrangement of the paragraphs or clauses in such a way that the different subjects follow consecutively and in logical order.

Let us take a typical building project in almost any first or second class city. The first thing when a job is let and operations are about to commence is for the contractor to take out the necessary permits as required by local ordinances. This would be followed by the excavating. Now then, in a mason specification, it seems reasonable to place the paragraph pertaining to permits first and then follow it up with excavating. Why make a contractor look through an entire specification to find these items? In one specification of a representative architectural firm the item of permits was found in the nineteenth paragraph, under the heading "Protection." What connection have permits with protection and why should excavating be mixed up with the removal of rubbish from premises when job is complete? That is where this last item was finally found in one specification. Such methods tend toward



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obscurity. It seems devoted to a complete discussion of each element, and it is not unreasonable to expect to find these elements in the following order: (1) Permits. (2) Excavating. (3) Shoring. (4) Concrete Footings. (5) Drain Tile. (6) Damp Proofing. (7) Common Brick. (8) Face Brick. (9) Mortar. (10) Chimneys. (11) Incinerator. (12) Fire Place. (13) Cement Floors. (14) Reinforced Concrete Slabs. (15) Driveway. (16) Walks, etc. Each one supplements the other. Each is clearly defined and tends to an easy interpretation. It is essential that everything be sacrificed to clearness. Anyone using specifications would certainly be able to follow the items very easily when they are arranged as above; and when the job is finally complete, one naturally thinks of cleaning up, removing of apparatus, rubbish, etc. Again it seems quite natural to look at the tail end of the specification for these paragraphs. Hardly enough emphasis can be placed upon the necessity of a consecutive arrangement. Work is becoming more intricate because of the advance in the methods of construction and the greater variety of materials that is available.

Now let us look into another phase of specification writing where there is ample room for improvement. A wise man once said "Brevity is the soul of wit." A little reflection on this remark will lead to more care in the preparation of a specification. In looking over the general

run of specifications there seems to be an endless repetition of words, phrases, etc. Once specific instructions are set forth, why repeat them in paragraph after paragraph?

A specification is not a treatise on a subject; therefore, it is necessary that only those features be emphasized which are essential to secure the desired results. Wherever possible, it is wise to concentrate in one paragraph, as for instance, "In General" or in a "Preamble" all the data that pertains in a general way to a number of paragraphs. By way of explanation, let us take a typical specification. Why specify under each heading, such as Painted Work, Enamel Work and Stained Work, that "the colors will be determined during the progress of the work," and that "each coat of material shall be thoroughly sanded"? It means a lot of needless words, one might almost say "red tape." It is necessary to specify only the essential requirements usually embodied in each paragraph. This method is definite, explicit and easily referred to. Past experience justifies the results obtained. The following is a typical specification embodying the above suggestions:

Painting

In General. The colors of all paints, stains and enamels will be determined during the progress of the work. Wherever enameling or staining is done on the inside finish woodwork, each coat of materials, as well as the woodwork, shall be thoroughly sanded before the next coat is applied. All nail holes on both inside and outside work shall be well puttied up. All woodwork, plaster, iron work and sheet metal work, including the tin decks and roofs, shall be thoroughly cleaned off before any painting or staining is done. All paint and varnish must be entirely removed from all glass, floors, walls, etc. and all work left in first-class condition.

Materials shall be the best of their respective kinds and shall be brought to the premises in the original packages, unbroken, with the labels of the manufacturer. Oil shall be pure kettle-boiled linseed oil, free from all impurities and adulterants. Lead shall be N— L— Co.'s best grade. Varnish shall be P— & L—'s, No. 38 "Preservative" or P— B— "P—" Interior Spar. Floor varnish shall be used for all inside work. Enamel and undercoating shall be P— & L—'s V— or P— B—'s W— R—.

Natural Finish. Finish woodwork shall have one coat of shellac and two coats of interior spar varnish. In the foregoing manner finish all the finish woodwork in rear entry, basement, hall, laundry, lavatory, attic hall, bed rooms five and six and bath room three.

Painted Work. All finish woodwork in balance of basement and all finish woodwork and metal work in garage shall have three good coats of white lead and oil.

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Enamel Work. All work to be enameled shall be covered with one coat of white lead and oil. One coat of enamel undercoating, one coat composed of one-half part undercoating and one-half part enamel and then two coats of enamel. In the foregoing manner enamel all the finish woodwork in dining room, living room, pantry and kitchen, alcove and adamant wainscot in kitchen. The last coat of enamel in dining room and living room shall be rubbed with pumice stone and oil, balance of enamel work shall be left bright.

Again under glazing, all headings are brief, and leave no vague impressions as to the wishes of the architect.

Glazing

All Glass as hereafter specified must be of first quality and shall be furnished and set by this contractor. All glass in windows shall be well bedded, sprigged, puttied and back puttied. Glass in all doors will be held in place by wood stops. These are part of the doors, but must be installed with small brads by this contractor. This contractor must call for all sash at building, and when glass is set and putty is dry, must return same to building. The architects reserve the right in detailing to slightly increase or decrease the sizes shown or figured in order to conform to brick measurements or other requirements without adding to or deducting from the contract price for such change in sizes.

Crystal Plate Glass shall be installed in all French doors and in all windows designated P. G. on elevations.

Figured Glass, either Moss or Syenite, $\frac{3}{16}$ inch thick, shall be set in all kitchen and pantry cabinets, inside sash doors, ceiling lights in attic and in window in first floor lavatory.

Single A, American glass, selected, shall be set in all outside windows where P. G. is not designated and where figured glass is not specified.

The above paragraphs were re-written from a typical specification (of a representative architectural firm) that covered pages of nice-sounding sentences that took lots of time to read over. Under each heading the fact was mentioned that the glass had to be puttied, back puttied, etc. All in all, this entire specification was just full of endless, useless stuff. It made a bulky book, it necessitated endless, wearisome paging to find anything, and it was a drain on the architect's finances because he had to pay for a book the size of a modern fiction novel instead of a modest booklet.

Then there is another thought concerning the make-up of a specification. It likewise saves a lot of needless words. The following are typical paragraphs showing what is meant:

Bumpers shall be 2 inches diameter (inside), wrought iron pipe. The lower end shall extend down into the concrete foundation. The upper end shall be cut on the angle, drilled and provided with a $\frac{3}{8}$ inch diameter bolt, so that bumper can be attached to wood door frame.

Ice Box Drain shall be of the "A—" type, 8 inches in diameter. Same shall have a galvanized iron pipe extended to a trapped outlet in sewer.

Switches throughout building shall be H— patent flush type with plates to match hardware. Switches in stair halls and in all other places designated shall be 3-way or 4-way as required.

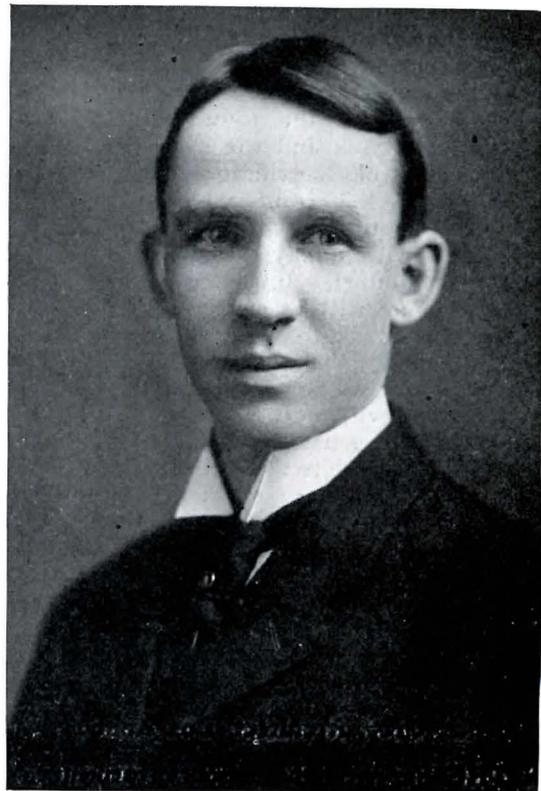
Hot Water Boiler shall be 140 gallon extra heavy galvanized iron, set on iron pipe stand and with shut-offs, sediment cock and pipe, and connected complete with heater by this contractor.

I wish to note here that the headings are capitalized. They are also made a part of the first sentence. This presents a neat appearance. It is just as easy to pick out individual headings and likewise it does away with that endless repetition of words, the curse of the majority of specifications. By way of comparison, the following is one of the above paragraphs as one sees them in the general run of specifications:

Ice Box Drain

Ice box drain shall be of the "A—" type, 8 inches in diameter. Same shall have a galvanized iron pipe extended to a trapped outlet in sewer.

Some may scoff at all this as idle chatter; well, and good. A study of the plans as they are gotten up today reveals a distinct forward step in comparison with those of only a few years ago. More thought is spent on them. They are simpler, countless scale sections are found as



Robert Maurice Trimble

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Elmer Grey

marginal notes and much more detail seems to be placed on the individual drawing. But compare the specifications of today with those of yesterday and you will be surprised at the little real progress that has been made. The writer has before him a specification from the office of H. H. Richardson, which bears the date of 1880. The same arrangement, the same lengthy, endless repetition of words and the same paragraphing occurs in this old specification that one finds in those of today. There is real need for improvement. It takes time to change a specification but if it is gone at gradually, it can be accomplished without much effort. But when the changes have been made, one will be surprised to find that it will be less a task to write a specification, the stenographer will be able to get it out in less time and above all, the satisfaction on the part of the artisan will more than repay the efforts. "Respected by artisan and sought by client" should be the architect's creed. This is not a plea to make a literary effort of a specification. We read Sinclair Lewis' and Mary Roberts Rhinehardt's stories with great pleasure, not because of the plot or because the stories are generally well worth while, but because we admire their style. They make good reading. Why not make specifications good reading also?

By Elmer Grey, Architect, Los Angeles, Calif.

IN THE Far-West the masonry, carpentry, sheet metal and plastering are usually grouped together under what is known as the "General Con-

tract" and the outline following refers to such a "General Contract" specifications for residence work:

General conditions (covering points at law, etc., applicable to all contracts. These comprise two pages of printed matter); location of the property; location of the building on the property; permits; water (who is to furnish water during construction); "approved" materials (what is meant by the term); water closet; drawings (a full set to be kept at the building in good order, etc.); tool house; telephone; this contract (what it includes and what it omits); kinds of material (where used—this is a convenience to the contractor when figuring); compliance with ordinance; laying out of the building; form work; removing forms; delivering materials; protection of trees.

Masonry (included in the "General Contract"): Cement, sand, gravel, brick, tile, lime, "full cement mortar," rough concrete, "cement plaster," grades and excavation, trenches, back fills, pumping and bailing, footings, foundations.

The above is, of course, only the beginning. Every architect would doubtless wish to arrange his own headings in his own way.

By Robert Maurice Trimble, Architect,
Pittsburgh, Pa.

THE writing of specifications is one part of the work of the architect with which the average draftsman or student of architecture is not familiar, and in which he has had no training; therefore, when he begins the practice of architecture it is his hardest duty. On account of this lack of familiarity with such work, the specifications which are issued by the young architect are usually poorly written, indefinite and full of meaningless verbiage. When starting practice he generally uses specifications procured from another architect as a model to guide him in his early work and he learns from experience to improve on these until he produces a good specification of his own.

The specifications are a most important supplement to the drawings and their principal function is to define the character of the materials which enter into the construction of the building, and the manner in which they are to be installed; they should clearly and concisely set forth the methods of work and define the obligations and duties of the contractors.

All of the work which is to be done by each trade should be so clearly set forth as to prevent mistakes and duplication of cost. If this is not done the architect is penalizing his client, and it is easily possible for several sub-contractors to figure on the same item if there is the least doubt as to whom it belongs to. It is also important that this be done to avoid the vexed question of the jurisdictional disputes which are continually arising among the different trades and which are the most trying of labor troubles and the most difficult to settle.

The mere use of words should be avoided in writing specifications; they should be complete in

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every detail, but brief and to the point--there is no virtue in loading them with high sounding and meaningless phrases. There is no necessity for minutely describing the methods entering into details of construction which are matters of common practice and which every apprentice learns. In many localities up-to-date building laws clearly describe in detail the methods of making and installing many of the materials entering into the construction of a building and it is only necessary to specify that such and such a material shall be installed in accordance with the rules and regulations of the Bureau of Building Inspection of the district.

I am not familiar with the methods which other architects use in writing specifications, but presume that they differ greatly according to the disposition and taste of the individual. My own method is to take a specification of a building which is somewhat similar to the one under consideration and go over each section of it very carefully, writing in the changes caused by the difference in the operations and adding more or less voluminous notes as may be necessary; I usually do this several times before it is ready to be typewritten. As all parts of the specifications are closely related, important omissions can be avoided by contracting the habit of making notes of these items occurring later, the thought of which is brought forth by other items in the first parts of the specification. After it is typewritten I edit it carefully and make necessary corrections or additions.



George A. Chapman

In the past I delayed the writing of the specification until the plans were completed, but of late years I have found it easier to finish the working drawings and decide on questions which are more or less in doubt, if I start to write the specification before the plans are completed. I often find it difficult to settle upon certain materials or methods of construction and I can more easily come to a decision on such matters after having gotten into the specification.

I believe that most architects have their specifications for the ordinary operation typewritten with a reverse carbon, for blue printing; by this method it is easy to procure duplicates at any time and in any quantity. On the more important operations, particularly on public work, the specifications are printed and turned out in large quantities. It is necessary today to provide a number of copies of both plans and specifications, as it is the usual custom to furnish a set of plans and specifications for each general contractor who is estimating upon the work and often to provide copies for the different sub-contractors. Many copies are in demand during the construction of the building.

The standard General Conditions issued by the American Institute of Architects are helpful, and in common use; they contain clauses which were formerly in the Contract, and, with the standard form of Contract of the Institute, make a complete set of documents.

The order of the different items in my specifications is as follows: title, general conditions, excavating and grading, foundation work (including concrete footings and foundation walls), stone work, brick work (including terra cotta), interior tile partitions (a sub-division of the brick contract), structural steel work, ornamental iron work, fireproofing (including cinder concrete fill over the fireproofing), lathing, furring and plastering, cement floors, cement walks and drives, tile work, slate and marble work, sheet metal work, roofing, carpenter and mill work (including hardware) and painting and glazing.

It is a common practice today, and one which is compulsory for public work in some localities, to take separate estimates upon mechanical work, such as plumbing, heating and electric work, and in this case these items are not included in the general specifications, but separate specifications are written for them. It is also becoming usual to sub-let all of the different parts of the work, in which case it is necessary to separate the specifications for all of the different items noted above to make clear the work of each contractor. In such a specification it is important that the sub-contractors understand that their work includes certain items which are taken care of by the general contractor on the ordinary operation; these items include the removal of rubbish, the furnishing of scaffolding, temporary heat, etc.

The specification outlined above is for a building of fireproof construction; in one for an ordinary building of non-fireproof construction some of the

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items would be omitted, and some slightly altered; the general arrangement, however, would be practically unchanged.

A specification for alterations or additions to an existing building is more troublesome than one for a new building and requires a little more thought and care. In such a specification I add a section after the General Conditions which describes the operation, and sets forth the number and character of the alterations and additions, with an additional article on wrecking, repairing, etc. Of course, in such an operation there are many items which do not occur in one which is entirely new and it is important that care be taken to carry these entirely through the specification.

I have always written my own specifications and believe that this is customary, except in the offices having large organizations. If one can find the time, the increased knowledge of the operation which this practice brings is worth while. It is in many ways an unpleasant task and yet, like most tasks, it has its compensations.

By Louis R. Holske, in Charge of the Preparation of Specifications for McKim, Mead & White, Architects, New York City.

HOWEVER great a diversity of methods in preparing architects' specifications may be found in different offices, there are two fundamentals that are always present, whatever their expression in method may be.

One fundamental is the need of understanding fully the project requiring a specification before beginning. There is the use to which the building is to be put with all its relationships which must be understood. This will include the relation of the several parts, each to the other; anything peculiar in the nature of the occupancy of spaces, and other like points. A clear understanding of the above gives one a desirable familiarity with the project and enables one to determine intelligently suitable materials for use in each space.

The other and more important basic factor is the need of visualizing the construction of the project in detail. This will require a greater or less amount of time in proportion to the complexity or simplicity of the project. The amount of time required to analyze the construction of a small country house may be negligible, while for a large or complex project some days may be necessary. But this analysis down to minute details is necessary before the specification writer is in a position to proceed with his task. It is in analyzing the construction of the building step by step that the groundwork is developed for a clear specification. It enables the different classes of work required in any construction to be segregated and to be noted by the writer under their proper trade headings. Time was when a writer might ramble through a specifica-

tion, noting items as they occurred to him with a reckless disregard of trade segregations. Items of work often were inserted under trades furthest in character from the trade or trades normally installing them, and, under the easy-going methods then prevalent, such work was sublet without protest and duly installed. In these days of strict alignment of work by building trades employers associations and trade unions, this practice contains an element of danger. Such a misplaced item may well be ignored by the trade under whose heading it occurs on the plea of lack of jurisdiction, and, as the general contractor in estimating is unlikely to discover and place it in its proper trade, the chances for an extra become very great. This is one of the conditions that are eliminated by a careful analysis of construction of the project, step by step, with the accompanying notation of the items of work disclosed in such analysis under their proper trade headings. The importance of a careful analysis of construction regardless of the time consumed should be borne constantly in mind by the beginner, as it determines the difference between the clear or hazy specification. Speed in this work comes, of course, with practice, but it is poor consolation to think when confronted with an extra, that it might or should have been avoided by a little more care in analysis, which might have required slightly more time.

After segregation of all items of work under their proper trade headings, the writer is in a position to proceed with his draft or to dictate the finished matter. In former times specifications were written by hand and the work was pure drudgery. With the commercializing of the typewriter and the increase in the use of shorthand writing, a great deal of this drudgery has been eliminated. In the case of those who prepare a draft in handwriting, a great deal of this drudgery still remains. The habit of dictating finished copy is not only much more economical, but removes all the drudgery possible from the task. To the beginner who lacks confidence, this may seem a difficult thing to do, but he should persist in practicing until it becomes the natural thing for him.

Specification writing requires considerable mental concentration to which isolation is conducive. Interruptions disturb continuity of thought and encourage omissions. The best results are obtained by careful analysis and by listing all items of work under their proper trade headings, then, while this matter is fresh in mind, dictating the finished copy in a room where one may be free from interruptions.

By C. Krahmer, of the office of Guilbert & Betelle, Newark, N. J.

SPECIFICATION writing has been developed by the individual efforts of men who have been forced to make their own path. For this reason,

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Charles E. Krahmer

any means whereby a free interchanging of ideas can be made should be welcomed.

The business of contracting for the larger class of work has been reduced to such a degree of exactness that it is essential for the architect to compile his specifications in an accurate and systematic way and with a full understanding of the contractor's organization, so that each individual trade and its relation to the whole operation can be properly classified. This allows the estimator to quote accurately on the work. To obtain this result, the specifications should be sub-divided into each class of work that could be sub-let. Where the specifications are compiled without careful sub-division of the trades, the general contractor is never quite sure that the different estimates of sub-contractors do not overlap or meet.

Most offices employ a "Standard Specification." The standard specification should be in the form of a card index using preferably 5 x 8 inch cards with each trade carefully indexed for ready reference. The index is very important as the practicability of a standard specification depends, in a great measure, upon the completeness of the index. The standard specifications have the following advantages: (1) A complete check to prevent omission. (2) A ready reference. (3) A means of recording the best experiences. (4) A place where corrections can be made or repetition of errors avoided.

The danger in standard specifications is the temptation to make them unnecessarily bulky, and to become too general in application, thereby losing the

definite character essential to a good specification.

A "snake" consisting of a number of sheets of scrap paper clipped together and indexed at the edge for each trade is a great help, particularly for the inexperienced specification writer. The "snake" is, in fact, merely an indexed memorandum pad where notations for each trade are made while the inspection of the plans is being made and before the specifications are compiled.

Specification schedules are important in operations having individual treatment in a number of different rooms or spaces. These schedules list the finishes of the individual rooms, doors and windows, thereby eliminating unnecessary description within the body of the specifications and allowing the subject matter itself to be specified in detail without confusion. The schedules should be cross-indexed so that by referring to a certain room and following up a column in the schedule the exact page where the finish is specified can be ascertained.

The writer specializes in specifications for school work. These specifications are compiled individually for each job utilizing the specifications of a similar job as a skeleton upon which is built the requirements of each individual operation. The writer does not use standard specifications for the reason that they do not give the flexibility or individuality that is required in municipal work. They necessarily become general, thereby losing the definite character required in this type of work. For this reason I do not consider the A. I. A. "General Conditions" practical.

A practice is made of incorporating into the specifications the "Standard Grading Rules" of recognized organizations. Consultation is freely had with our designers and superintendents, as well as with the manufacturers and jobbers of the various products intended for use. From these sources, as well as from the organizations mentioned above, definite specification data can be obtained.

Public work requires competition which means that no patented materials should be specified outright and the familiar and despised "or equal" must be judiciously employed. A "pit fall" often encountered is the inclusion of cash allowances in specifications for municipal work. This should never be done, owing to the criticism invited by turning over a definite amount of the public's money for a purchase without advertised competition.

By William Stanley Parker, of the office of
R. Clipston Sturgis, Boston, Mass.

TO treat the subject of specifications briefly permits of touching only the broader fundamentals that are involved. Two essential elements are the skeleton outline and the detailed phraseology.

The outline of the specifications, it seems to me, could very well be substantially standardized, and if this were done it would simplify the labors of contractors when making estimates.

I took part in a joint study of this problem in 1913, as a member of a joint committee of the

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LeRoy Lewis, Jr.

Master Builders' Association and the Boston Society of Architects, and as a result of this work we arrived at what seemed to us the right arrangement of sections and the principal divisions and subheadings in these various sections. This report was printed and may be referred to.

Without going into the analysis of this arrangement at length here, I would merely say that it follows the general custom in and around Boston except that it recommends a more generous subdivision into sections of certain elements of the work, notably the miscellaneous metal work and metal doors and windows, on the principle which I believe should be observed in all specifications, so far as it is possible to do so that products which are distinct in their manufacture should be kept separate in the specifications, so that the various concerns estimating will generally be estimating on the complete work of a given section and subcontracts can be similarly made, simplifying the placing of responsibility on the work and the administration of the subcontracts. This policy will lead to an additional number of sections in the specifications but will tend towards a more complete writing of these sections and will greatly simplify the contractor's problem of getting estimates.

Each of the sections should be carefully arranged to cover in orderly sequence the various elements of material, workmanship and special locations. I have for many years adopted the policy of starting each section with a paragraph entitled "Work to be Done," giving in this paragraph a brief summary

of the work covered by the section. This, I believe, is particularly helpful when contractors are estimating. Generally speaking, I believe this clause should be followed by the specification of the materials to be used, followed by the clauses relating to workmanship and thereafter the varying clauses dealing with details of construction and special items according to location or finish.

A careful design of the various sections of the specifications will lead to an orderly presentation of the facts in a series of brief paragraphs, each touching a particular portion of the subject matter. The worst type of specification paragraph, to my mind, is the long descriptive paragraph that involves material, workmanship, finish and everything else bearing on the subject.

Another generality that I believe should control specification writing is to refrain from enumerating in the specifications schedules of work to be done, and the specifications should supplement the plans by giving the quality of material, methods of construction and finish, matters which cannot be shown on the drawings. It is dangerous to say a thing twice in words, and it is just as dangerous to say a thing twice, once in words and once in a sign language. Either let the contractors take off their quantities from the plans or resort to a quantity system of estimating, in which the list of quantities becomes the principal basis of estimating.

In regard to the detailed phraseology of the specifications, one cannot be too careful to use straightforward phraseology and technical expressions. I am not personally in favor of the abbreviated form of phraseology sometimes used. I believe complete sentences are more easily read and also more easily written, but the fewest possible words required to state the essential facts should be used.

In these days of quickly changing standards and materials, the price of a good specification is eternal vigilance. It is no longer safe to copy blindly familiar clauses from previous specifications. In the work of our joint committee, referred to above, we came across a specification where granite capings for piles were still specified in a standard clause although for years the architect had been using concrete. This is perhaps an extreme instance, but in these days so many new methods and materials are being presented for consideration that it is necessary to be constantly on the alert for changes, even in those clauses which we have come to look upon as standard.

The work of the American Engineering Standards Committee and the Structural Service Committee of the American Institute of Architects and other similar co-operating bodies, is developing the standardization of materials and their use more than ever before, and also developing methods for distributing information about these standards, so that architects may readily keep up to date. It is impossible for each architect to carry on all the investigations that would be necessary to acquaint him with the various new methods and materials at his

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disposal. In order to write specifications intelligently and wisely, however, we must have this information and this must be secured by co-operative effort through impartial technical bodies, like those mentioned above. With this material in hand not only the selection of the desirable material but its accurate specification becomes greatly simplified.

By P. B. Tallman, of the office of Warren & Wetmore, New York City.

THE ideal specification is one that will meet the following three main requirements: *Simplicity*, *Clearness* and *Flexibility*. As economy of effort on the part of the writer of specifications is essential, it naturally follows that, when the above three requirements are obtained, then the economy of effort must of necessity follow.

In presenting the following outline of the specification, the writer does not presume to offer it as meeting the conditions aforementioned, but does believe that the scheme as a whole is one that is working to that end.

Synopsis Specification of a Fireproof Building—General conditions, demolition (if any), excavation, waterproofing, masonry and concrete, structural steel, cut stone, floor arches, floor fill and finish cement, partitions and furring, roofing and sheet metal, rough carpentry, mill work and finished carpentry, hollow metal doors and trim, kalamein work, steel windows, ornamental iron, ornamental and plain plastering, interior marble, tile and terrazzo, painting and decorating, glass and glazing, hardware (if not in allowance), electrical fixtures (if not in allowance), kitchen equipment (if not in allowance), mechanical general conditions, heating and ventilation, plumbing, electric, elevators and dumbwaiters, elevator signals and hatchway equipment, pneumatic tubes (if not in allowance), laundry equipment (if not in allowance), vacuum cleaning, power plant equipment.

These sections can be either increased or diminished according to the quantity of work to be performed. For instance: if there were a large quantity of granite, exterior marble and limestone in a building, cut stone would be dropped and a section adapted to each of them substituted.

The same applies to other portions.

One essential fact should be remembered—that each section of a specification should only contain that which would be included in one sub-contract.

In writing the individual sections of the specification, the following procedure is suggested: *General Conditions*—The "General Conditions" apply to and govern the work of all trades; each and every sub-contractor shall observe all requirements and assume all obligations set forth therein insofar as applicable to his work and shall pay his proportionate share of the expense for water, telephone, heat, light, clean-up and disposal of rubbish, etc., as agreed upon between the general contractor and sub-contractor.

1. *General Conditions*—Should the general contractor and sub-contractor fail to agree upon the amount, the matter shall be referred to the architects, whose decision shall be final and binding upon both.

2. *General Scope of Work*—The work included in this division of the specification consists of the furnishing and installing of all the of every description (excepting only such as may be specifically mentioned as omitted), required for the completion of the entire work, in accordance with the drawings and these specifications.

3. *Schedule of Labor and Materials*—The following is a brief descriptive list of the work to be done, which list, however, shall not be considered complete as it is intended that this contract shall include all labor and materials properly pertaining to this division, which are essential to the completion of the entire work.

The general requirements specified under "Workmanship and Materials," Section V, shall be strictly followed, unless otherwise particularly specified hereunder.

4. *List of Drawings*—The drawings upon which this contract is based are listed in the accompanying "General Conditions" and form a part of this specification.

5. *Workmanship and Materials*—In Section 3 is given a schedule of "Labor and Materials" and in Section 4 reference is made to the drawings applicable to the work covered. Unless otherwise specified in Section 3, all workmanship and materials shall be as hereunder described.

By LeRoy Lewis, Jr., of the office of Schmidt, Garden & Martin, Chicago, Ill.

IN MANY architects' offices the man writing the specifications does not see the plans until they are practically ready for the specifications, therefore, the first thing to do is to get a complete set of blueprints of the plans as they exist at that time, upon which the specification writer can make all necessary notations in colored pencil.

The specification writer should then get all the office memoranda, reports of all conferences with the owners, also memoranda of special things to be taken care of that are not shown on the plans and read them over carefully, making special note of all items that refer particularly to the specifications. After he has studied the plans thoroughly, he should visit the site and note all existing conditions that would affect the specifications. In this connection I would mention soil conditions, existing buildings, old foundations, sidewalks, drives, trees, shrubs, etc. A further examination of the conditions should be made as to the method of handling the work, particularly in reference to maintaining outside hoists for use of sub-trades, whether portions of the building are to be built before other portions and particular reference where connections are being made to existing buildings. After all this preliminary data has been collected and the plans have been thoroughly

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studied, the work of writing specifications can then be started.

The specification writer should check plans completely. If he cannot interpret them, he cannot expect the contractor to understand them.

The question as to whether the job is to be figured by sub-trades or whether it is to be figured by general contract is immaterial. The specifications should be written in such manner that either procedure can be followed.

Particular care should be taken in the sub-division of materials so as to follow the decisions of the National Board of Awards with respect to the trade jurisdiction. The specification writer should be familiar with these decisions.

In starting to write specifications, it is the writer's practice, after becoming familiar with the plans, as above, to take a specification that has already been written where the building and various conditions are similar to the one under consideration, and to use this more as a specification reminder than as a copy. It is a mistake to try to make the specification for the new work conform to the specification being used as a reminder. It oftentimes occurs that three or four different specifications will be used in order to get one where the particular trade is similar to the specification to be written.

The writer uses the American Institute "General Conditions" with slight revisions to suit our local conditions.

The writer's practice is to take each sheet of the plans and check it for three or four trades only at a time, making notes of various items that must be covered, unless the particular item is covered in the specification used as a reminder. At the same time, if there are any things which are unusual with reference to any other trade, it is well to note them also under a heading for that particular trade in the list of notes. For instance, notes taken off first would be for the mason and concrete work, cut stone work, hollow tile, terra cotta, and waterproofing, and as the specifications for these trades are written the respective notes are crossed off when taken care of.

The next series of notes might be for sheet metal work, composition roofing, hollow metal doors, etc. It is possible to take additional trades and examine the plans for these trades only. This procedure is followed throughout the entire job and by the time the specifications are completed, the writer has been over the plans five or six times and each time something might be noted in the specification already written that has not been included and the same can be inserted before the specifications are printed. It is better not to typewrite the specifications until they are entirely completed. This is not always feasible but where specifications are to be stenciled, it is possible to make additions before they are printed. Under any circumstances, it is better to rewrite pages instead of having too many insertions in the form of addendas, etc.

After the specifications have been typewritten, they should be very carefully read over and the



R. H. Haslund

necessary corrections made. It is the writer's practice also to have the draftsman who has had charge of the particular job in question read over the specifications, if not before they go out to contractors, certainly before bids have been received.

The writer has never written a perfect specification and never expects to. It would take too long. Therefore, all the checking possible should be given, not only to the plans, but also to the specifications before contracts are let. It is costly to make the changes after the contracts are let.

The following is a general outline of arrangement of specification used by the writer but it is not intended that this form is to be strictly adhered to. Variations in the order can easily be made without in any way injuring the specifications. Several of the headings can be combined under one heading, if it is so desired. For instance, sheet metal windows and hollow metal doors, where there are only a few, could be placed as a sub-heading under the sheet metal work. Hollow tile fireproofing, gypsum fireproofing, waterproofing, etc., could be included under mason work, as these particular trades are handled by masons. Scagliola work could be placed under plastering. Where there is a small amount of iron work, both structural, ornamental and miscellaneous, even fire escapes and fire doors, these could be placed under the general heading "Miscellaneous Iron." Where there is a large amount of the respective items, the writer considers it better to

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make them the subject of a separate heading in the specification. Additional subdivisions can be made when conditions require it.

Subdivision of Specifications: General conditions, wrecking, pile foundations (wood or concrete) caisson work, mason and concrete materials, mason work, concrete work, hollow tile fireproofing, gypsum fireproofing work, waterproofing, cut stone work, terra cotta, hollow tile partitions and furrings, cork work, wood block pavements, sheet metal, tile and slate roofing, sheet metal window framing and sash, composition roofing, hollow metal doors, frames and trim, steel door frames, metal case work, suspended ceilings, lathing, furring, etc.; plastering scagliola work, terrazzo work, art marble work, tile work (vitreous) cork and composition tile work, mastic floors, magnesite floors and base, marble and slate work, rough carpenter work, interior finish, cabinet work (including finish), hardware painting and wood finishing, decorating, glass and glazing, steel sash (commercial), steel casements, screens, weather strips, structural steel, ornamental iron, bronze work, miscellaneous iron, fire doors and rolling steel shutters, fire escapes, library stacks, lighting rods, refrigerators, lighting fixtures, window shades, awnings, bathroom fittings, plumbing, sewage disposal system, filters, deep well work, heating, boilers and stokers, ventilation, electrical work, clock system, fire alarm system, elevators, dumbwaiters, refrigeration, sterilizers, kitchen equipment and laundry equipment.



DAVE RUBINS
1922

L. O. Kirk

By R. H. Haslund, of the office of A. H. Stern,
St. Paul, Minn.

A COMPLETE specification shall state the conditions of the contract documents; give general information; supplement the drawings and be descriptive of materials and methods of using materials. To accomplish this the specification should be logical in arrangement of articles and subject matter should be concise and accurate.

In determining the articles of specification, or in classification, I am governed to a certain extent by local conditions. The various trades and crafts and sub-contractors really dictate what the articles should be and what they should contain. I endeavor to maintain an order to the articles which will correspond as nearly as practical with the growth of the building.

When the outline form of the specification is complete there remains the actual writing of the articles. And when I do this there is one duty which I consider sacred above all others, and that is to include in each article everything that belongs to that article and to exclude everything that does not belong there. In other words, when a sub-contractor goes to my specification I want him to get all the information necessary for his part of the work in one section and not be compelled to search through the entire specification, picking up odds and ends that pertain to his work. Then the subject matter of the article resolves itself into presenting facts.

I believe in making the articles as concise and accurate as possible with as few generalities as possible. The specification may be general but should never be vague. In the past, it has been these vagaries and shifting of responsibilities that has kept the architect from coming into his true position. And this has been extremely annoying to the men trying to figure the work.

In the above paragraphs I have stated what I try to accomplish in my specification. I shall now give you briefly my method of writing my specification.

To start with, of course, I have the drawings before me and all notes that are to be incorporated in the specification and also my checking list. I then select a specification or several specifications of buildings similar to the one in question. My general conditions are very similar to those adopted by the American Institute of Architects with changes to meet local conditions. The articles of the specification I choose from my outline form or checking list. I use what material I can from the specifications previously written which have proven satisfactory and compose the remainder to make a complete article of the specification. The entire specification is written in this way and when completed applies only to the building for which it is written.

This method of specification writing may be a little longer than some in which subjects are written on cards and kept on file. But I believe

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it is more accurate. To me it seems incredible that a list of subjects can be kept on file sufficient to cover all the peculiar conditions encountered in various types of buildings.

Standard Construction Classifications: (1) Matters preliminary to contract; (2) articles of agreement; (3) general conditions; (4) general work and preparation of site; (5) excavation; (6) foundation; (7) concrete and concrete work; (8) water-proofing and damp-proofing; (9) cement hardeners and densifiers; (10) brick work; (11) hollow blocks; structural, furring and fire-proofing; (12) architectural terra cotta; (13) stone work; (14) paving; (15) structural steel and iron; (16) erection of steel and iron; (17) miscellaneous steel and iron; (18) ornamental metal work; (19) roofing; (20) sheet metal and sky-lights; (21) fire resisting doors and windows; (22) special doors and windows; (23) vaults and safes; (24) carpentry; (25) mill-work; (26) weather strips and caulking; (27) furring and lathing; (28) plastering; (29) marble and slate; (30) tile: floor and wall; (31) special floors; (32) painting and finishing; (33) glass and glazing; (34) hardware; (35) furnishings; (36) models; (37) plumbing; (38) heating and ventilating; (39) electrical; (40) elevators; (41) refrigeration; (42) power plant; (43) equipments, industrial and other; (44) construction plant; (45) landscape; (46) acoustics; (47) regulations.

By John O. Merrill, of the office of Lowe & Bollenbacher, Chicago, Ill.

IN DEVELOPING a systematic method of writing specifications, it is necessary first of all to consider the results to be obtained by such a system. The primary object is to produce good specifications and to produce them with a minimum expenditure of time. In good specifications one does not find the following common errors: (1) omission of necessary causes; (2) discrepancies or inconsistencies between drawings and specifications; (3) specifying of materials or methods which are not suitable or which are defective; (4) unfair or ambiguous clauses; (5) lack of clarity or definiteness as to division of work between different contracts.

The method of specification writing used in this office involves the use of a specification card file. The file contains some 1500 cards covering all subjects likely to be encountered in the construction of a modern building of any class with the exception of very special features. The cards are in such form that alterations by pencil can easily be made to suit the requirements of the particular job. A large proportion of the clauses, however, especially those dealing with quality of materials, can be used without correction. The file is liberally divided and sub-divided with index cards forming a general outline for all specifications. The first step in writing a specification is the preparation of a skeleton outline

for the special problem. This outline comprises a list of all clauses to be included in the specification. In the preparation of this outline, the card file is used as a "tickler," with constant reference to the drawings and to the notes made during conferences with the owner. After the outline has been completed for all trades, cards are selected from the file, altered when necessary to comply with special conditions, and, if required, special clauses are written on blank cards. The cards are arranged in the proper order and, with the outline, which serves as a program, are turned over to the stenographer.

No system of specification writing can be made "fool-proof." The specification writer must use his own judgment as to whether a particular clause is appropriate to the special problem at hand. He must try to produce a balanced specification in which the space given to each element is proportional to its importance in the building. For example, the specification of structural steel for an office building is entirely inappropriate for use in a specification for a small building involving only a few beams and lintels. In the first case, detailed provisions for the fabrication, inspection, delivery and erection of the steel work must be made. In the latter case, the whole subject may be covered in a few sentences.

We have found this system of specification writing very effective in eliminating the errors mentioned at the beginning of this discussion. The careful preparation of an outline tends to prevent the omission of necessary clauses. It is a rule of our office that the specification writer shall be the final checker of the drawings, this resulting in better co-ordination between drawings and specifications. In this connection we have found it useful for the specification writer to prepare a list of those items which are referred to in the specifications as being shown on the plans and to turn this list over to the chief draftsman. In supervision work, when specified materials or methods prove unsatisfactory, a record is made on the proper card and the error is never repeated. In a like manner, ambiguous clauses are soon discovered when misinterpreted by the contractor, and the corresponding card is corrected at once. We have used this method in the preparation of specifications for many types of buildings, both large and small, and it has proved satisfactory in every respect.

The following is the general outline for all specifications, corresponding to the sub-divisions of the card file. Each sub-division contains from one to thirty cards. *Instructions to Bidders. General Specifications:* general description, work included, work not included, permits, local rules, special orders, plant, etc.; temporary work; preliminary work; miscellaneous. *Masonry:* general; excavation; materials; construction—concrete, reinforced concrete, brick work, rubble stone work, cut stone work, terra cotta, fireproofing, partitions; miscellaneous, winter work. *Waterproofing and Dampproofing:* waterproofing—integral method, membrane method; dampproofing. *Structural Steel and Iron:* general;

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John O. Merrill

materials and workmanship; construction; miscellaneous. *Carpentry*: general; materials and workmanship; structural and rough carpentry; carpentry iron work; finished carpentry—exterior woodwork, fire resisting work, interior woodwork, flooring, doors, windows, stairs, cases, fixtures, etc., hardware, miscellaneous. *Sheet Metal*: general; materials and workmanship; construction—gutters, flashing, conductors, skylights and ventilators, sheet metal decks, sheet metal windows, doors and trim, miscellaneous. *Roofing*: general; materials and workmanship; construction—wood shingles, slate, tile, asbestos, composition, tar and gravel, miscellaneous; guarantee. *Lathing and Plastering*: general; materials and workmanship; construction—furring, lathing, metal beads, exterior plastering, interior plastering, gypsum partitions, ornamental work; miscellaneous. *Tile, Marble and Mosaic*: general; materials and workmanship; construction; distribution. *Painting and Finishing*: general; materials; workmanship and preparation; exterior woodwork; metal work; interior woodwork; flooring, wall finish, miscellaneous. *Glazing*: general; materials and workmanship—sheet glass, plate glass, leaded glass, wire glass, prism and ornamental glass, obscure glass, mirrors; distribution. *Ornamental and Miscellaneous Iron*: general; materials; construction—stairs, fire escapes, fireplace iron work, registers and grilles, tablets, sidewalk lights and doors, elevator enclosures; miscellaneous. *Electric Wiring*: general; system; distribution—power wiring,

lighting wiring; materials, apparatus and construction—generators, switchboards, cabinets and panel boards, conduit, wiring, outlets, receptacles and switches, fixtures; low tension wiring—call bells, burglar alarm systems, fire alarm systems, signalling systems, telephone equipment; miscellaneous. *Plumbing*: general; materials and workmanship; apparatus; drainage and sewerage; water supply; fixtures; gas fitting; miscellaneous; guarantee. *Heating*: general; system; boilers and accessories; pipe and fittings; radiation; valves; registers; pipe and boiler coverings; temperature regulation; warm air systems; miscellaneous, guarantee. *Ventilation*: general; materials; system; ducts; registers and grilles; fans; motors; filters and air washers; miscellaneous; guarantee. *Finishing Hardware*; *Mechanical Cleaning Systems*; *Elevators*; *Interior Decorating*; *Landscaping*.

By L. O. Kirk, of the office of Hewitt & Brown,
Minneapolis, Minn.

FIRST of all, I wish to emphasize, particularly to the younger draftsmen, that an architectural commission is not primarily an opportunity for the making of a fine set of drawings.

The purpose of the drawings and the specifications is to illustrate and describe the contemplated work so completely as to convey to the builder and his workmen a definite idea of just what the owner wants, the completed appearance of the work, its structural arrangement and the material composing it. To that end careful consideration must be given to a choice of the materials, a convenient arrangement of the parts, and a nice discrimination in proportions, color and finish, suitable for the purpose intended. Before a line can be drawn, or a word written, much labor must be expended in marshalling the facts, fancies and conditions affecting the work.

The accomplishment of the average building commission involves preparation of drawings, specifications, the general conditions of the contract and finally, where the minds of men have met and details are fixed, the agreement, which is essentially a statement naming the parties to the agreement, the work to be done, the time of completion, the contract price, terms of payment, and sometimes other private matters such as penalties, bond, etc. To the general conditions are assigned controversial matters bearing on the relations and accord between the instruments of service, the general clauses governing the relations of the owner, contractor and architect and the conditions and circumstances affecting execution of the work. The drawings illustrate the architect's conception of the work, while the specifications describe the materials and ways of working.

The particular purpose of the drawings is primarily to illustrate the form of the structure and the arrangement of its parts. The specification must complement this purpose and convey information which may not be practicable or desirable to show

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on the drawing, or, to reiterate or emphasize the purpose of the drawing.

The special purpose of the specification is to describe the kind and quality of the materials to be used and the conditions under which the work shall be done. A minor purpose of the specification is to collect, digest and organize to the particular end desired the information and trade knowledge applicable to the job. These are sometimes necessarily too voluminous to put on the drawings in the form of notes, but usually some notes can be put on the drawings, which are strengthened to that extent and the specification shortened accordingly.

The instruments of service (the plans, specifications, etc.) should form an imperative, definite, exact statement, not liable to misinterpretation, of the contemplated work. Make them as brief as a complete statement will permit; concentrate emphasis on the essentials and do not allow one part to overlap the other. In other words, eliminate the superfluous and do not repeat information. The instruments of service must be readily digestible to the workman. Remember: "In every work regard the workman's end, since none can compass more than he intends."

Worthy of consideration also is the standpoint of these, whether they be workmen on the job, or purveyors of material to these same documents; they are not mind readers.

A short formula to be remembered in compiling drawings and specifications covers these paramount considerations: (a) Do what, when, where; a statement of the work required. (b) What with; a description of materials. (c) How; the minutæ of workmanship.

Building construction, like other human endeavors, constantly changes with progress in adapting means and methods to requirements and it is necessary for the office worker to be on the alert for helpful ideas. He should be conversant with a wide range of literature and be keenly observant of what others are doing. From the ideas available he should be able to make a sure choice with a well defined reason. Drawings and specifications are necessarily made in haste, and, working under pressure, the draftsman instinctively recognizes doubt as a deterrent and relies upon himself. Such ability and training is, to the inquiring mind, a desirable acquisition.

By William Deming of Donn & Deming,
Washington, D. C.

THE writing of specifications is probably the weakest link in the chain of duties of a small architect's office, where the word "small" is used not as limiting the capacity, talent, or reputation of the architect, but refers to a practice in which the volume, or character of the buildings to be specified, make it financially impossible to keep experienced structural, mechanical and electrical engineers on the pay roll.

For an architect to personally write an ideal specification for a first class building of the complex sort (such as a hotel) would require that he be experienced in law, well versed in theory and practice of the various branches of engineering and familiar with the technical and practical terms of the building trades and with the various tricks of the trade.

In an office where a large amount of important work is being executed, the architect calls on the assistance of the various lines of engineering for both the designing and the specification work, so that he has only to do with the compiling and co-ordinating of the various parts.

One of the frequent misunderstandings between the architect and the builder occurs in the very beginning in the "excavating." In connection with that work it is unfair to the contractor, and possibly to the client, to make the excavator responsible for any rock, old pipes or foundations, the presence of which was unknown to any of the contracting parties and was not apparent from the surface. Great care should be taken in preparing a clause to cover the responsibility and to define just what material is to be considered rock, and in what manner it will be taken care of, if discovered. It also seems to be the accepted practice, unless it is particularly mentioned that trees and stumps are to be removed, for the contractor to call for an extra in spite of any elaborate description of how the excavating, back-filling, grading, surfacing and seeding should be done; but it is the irony of fate that when any of the trees happen to be the pride of the owner and are expected to be saved, the excavator will cut them down before any one is aware of it and once down no amount of damage can compensate for a fine full-grown specimen.

It is not the province of this article to outline the items to be included in a specification, as there are many good published outlines that are a great help to the writer, and it is an excellent rule to review the specification with such a guide. It is an easy matter for the writer to have a complete mental picture, but fail to express himself in such terms that his expression can be construed by others only in accordance with his intentions.

Local trade names for materials, finishes, and grades must be known. For instance, "No. 1" or "A Grade" may be used in a specification in an endeavor to obtain the best where, in the terms of the trade, a much lower grade might come under that heading. The practice of substitution, in some cases, has become so universal that the contractors will so interpret the specification and will not bid on the more expensive article. Verde antique marble, unless described as genuine imported, will bring a native green marble; bronze hardware will be interpreted as bronze plated; long leaf pine will not be from the *Pinus Palustris* species once in fifty times; mahogany finish is the accepted term for birch or other similar wood, stained to represent mahogany; Bower-Barff finish will often come as a black finish on steel instead of the genuine Bower-Barff finished

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iron; and so on through the various trades. Misunderstandings will result not so much from a desire to take advantage of the architect as from a misinterpretation of the real meaning of the specification and the fear that a competing bidder is working on such an assumption.

For an architect who is building in different sections of the country the lumber problem is perhaps the most complex, as the different lumbermen's associations have different standards, which are not usually comparable, and the uses of finished woodwork for trim, doors, sash, etc., varies in the different sections of the country, depending upon the local supply and prices. There is a movement on foot to have comparative tables prepared and to put the grading of the lumber on a similar basis that would do away with most of the present confusion. In fact, all the manufacturers seem to be getting together to prepare standard specifications for their materials, establishing the quality and method of doing the work and it is a great move in the right direction. By following these standards a better piece of work will be obtained and there will be a saving effected, as the contractors will be figuring on something that is familiar to them.

By D. A. Hamilton, of the office of Rutan, Russell & Ward, Pittsburgh, Pa.

BUILDINGS are a little like human beings, in that, of the thousands and thousands we see, no two are exactly alike. To be sure there are twins and triplets among buildings, as among humans, but in general each is a little different from the other.

It is because of this individuality among buildings that most of the so-called "systems" for writing specifications fail. Such systems as card indices probably have a certain amount of merit but they should be used with a great deal of care. Use them if you must, but don't trust them to be complete. For my part I prefer to treat each specification as a separate problem. There are a great many things which will shorten the work of writing specifications but there is no "automatic" way of writing them.

Briefly, my own method of writing a specification is this: having first made myself thoroughly familiar with the completed drawings, I make a sort of synopsis of my specification. For this I take several sheets of scratch paper and head each one with the name of one branch of the work, such as "Excavation," "Concrete Work," "Brickwork," etc. Now taking these sheets one at a time, I go over the drawings very carefully and jot down all the various places on the job where that kind of work occurs as well as any unusual conditions which exist. After doing this with each trade, I have a good outline of the specification. This may sound like a needless step but I find it much better than going all through the drawings each time I write a paragraph in the specification.

With my synopsis before me I am ready to start the actual writing of the specification. I use the

"General Conditions" published by the American Institute of Architects. This is a legitimate short cut and is a very excellent set of General Conditions. Then I write the specification for each of the various branches of the work as nearly as possible in the same chronological order in which they will be executed at the building. This matter of arranging the work in order is a great help not only in writing and checking the specification but also to the contractor in estimating on the work.

There are two other things which will lessen the amount of writing. One of these is the practice of specifying that materials shall be according to the standard specification of the American Society for the Testing of Materials, when specifying a material for which that society has adopted a standard. The other is the practice of cutting up an old specification and pasting those portions which apply to the new building into the specification which is being prepared.

After I have written the specification I check it very carefully. This I regard as the most important step of all. Check your specification in every way you know of, to be sure it is complete.

So often architects spend thousands of dollars to design and plan a building well and then by neglecting to properly check the specification fail to get just what they want in the building.

The contractor is in business to earn a living and we have no more right to expect him to furnish something which is not called for by the drawings



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and specifications than we have to expect our grocer to give us a sack of sugar free merely because we are out of sugar.

I have very often seen articles on specification writing which said, "Be concise." Yes, be concise, but don't be concise to the point of omission. Remember that the specification is a part of the contract and as such is a legal document. Write it carefully and include everything which you want included in the building.

I remember reading a specification in which the writer said, "all concrete work shall be 1-3-5 mix." That means a definite thing to you and me, but what would it mean in a law court? One of what, and three of what, and five of what? Yes, the contractor would know what it meant too, but if he should choose to put in one part of mud to three of dirt and five of cinders, he might be within his legal rights and the owner would perhaps be compelled to pay him extra to get what was really wanted. If you mean "3 parts of clean sharp river sand free from loam and other deleterious matter," say so.

By F. S. Allyn, of the office of Lawrence & Holford, Portland, Ore.

OUR work is usually let in four contracts, viz.: general, plumbing, wiring and heating. The specifications for the General Contract are sub-divided to assist the contractor in sub-letting parts of the work, as follows: concrete work, masonry, terra cotta, structural, steel, carpentry, mill work, glass and glazing, painting, tile work, etc. The title of each subdivision is followed by a roman numeral, thus: Concrete Work I, Masonry II, etc., and the paragraphs are numbered in the hundreds to correspond with heading: Concrete work starts with Par. 100, masonry with 200, etc., so that paragraphs can be added at any time to any sub-division without interfering with the numbering scheme.

Specifications are bound on the left-hand edge of the sheets and the paragraph titles and numbers are on the right. Sub-divisions are always started on a new page, with the heading at the top.

In the "General Conditions," one should cover all the loose ends, provide for the special clauses covering the relations of the general contractor with the architect and owner, provide for the bonds, insurance, rights reserved, additions and deductions, payments, method of handling the work, and the like, but the General Conditions should not contain blanket clauses that would work an injustice to the contractor if insisted upon, and which would make his price for doing the work, if figured under these conditions, unreasonably high. It is not necessary to have these hard and tight requirements, which the court very seldom recognizes, to avoid extras, but it requires more care and thought in preparing the specifications to cover all the items in a clear manner without attempting to spread the terms, "workmanlike manner," "to the architect's entire satisfaction," or "as may be needed" beyond their legitimate bounds.



D. A. Hamilton

The architect must be the interpreter of his own specifications and he should be careful not to read into the specification anything that would not be apparent in the text to the average intelligent builder.

There are two much-disputed methods in specification writing; one is calling for a particular article or make, while the other relates to the advisability of using old copies of specifications for interlining when the work is of a similar character. The tendency of our office is to pick the article which, in our opinion, is best suited for the particular place and purpose and specify it by name. It would seem that after interviewing salesmen, examining samples, comparing past experiences as to the satisfaction given by this same article that it is logical to use something that has been tried out or thoroughly looked into, rather than to accept a so-called equal, which has not gone through this test. This does not create a monopoly of any one article, as the conditions vary so much that an article satisfactory on one piece of work may not be entirely suitable for other conditions.

The practice of interlining from previously prepared specifications is frowned upon by some writers, but where proper thought is given to the new specification to make it thoroughly applicable to the building in question, it seems to us to be a useless expenditure of time and effort to attempt to compose a new specification without some guide. One not only has the benefit of comparing the old specification with his experience in having the work executed, but there are a number of items, such as concrete work, brick work, waterproofing, plastering, where the quality and method of doing the work remain very much the same.

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One of the great helps to the successful writing of specifications is to follow up the work in the supervision, and for this reason, I think, it is essential that the specification writer frequently visit the work under construction and he will soon learn from the various sub-contractors to eliminate some of the restrictions in the specifications and probably to insert others.

Specification writing is like a game of golf, it takes a life time to learn it, and the average of all the combined scores of golfers is a number of points from par.

By C. M. McClure, of the office of
York & Sawyer, New York City

THE demand for more and a better grade of specifications is becoming greater each year, due probably to their increased importance through the employment of many new materials, with improved methods of the use of these materials and also to the larger amount of construction. With this demand have come added requirements and the necessity of making a more perfect product is recognized.

The measure of the worth of each specification is its success or failure to describe and amplify that which has been illustrated on the drawings, so as to complete the story for the whole operation and to do so with such clarity that the desired results shall be secured without additional explanations, thus avoiding changes, delays, extras and added expenses. In short the meaning of the description should be as clear to the reader as to the writer.

To this end the specification writer must possess not only theoretical knowledge, which alone is not sufficient to comprehend the complete process, but practical knowledge, gained through experience, chiefly from observing and learning how the subject under consideration has been and is being accomplished by others, because the theory heretofore questionable, thus becomes a fact through demonstration.

Ability to describe the matter properly is of course all important, the use of trade names desirable, the coining of new words and the use of uncommon expressions to be avoided. Brevity should at all times be exercised, for many words not only complicate the meaning but tend to weaken and even destroy it. Lack of conciseness gives rise to doubt, leads to guessing, creates confusion, demands interpretation, opens the gates for speculation and invites trouble.

Before going on to take up the specification step by step, it is important to add that the specification writer should have a system and should follow it. There may be as many systems as there are writers of specifications. The one to use is the one the writer understands. Frequently it is desirable to describe the results to be obtained rather than the method of attainment and the specification writer should throughout the writing, never lose the opportunity to improve either the construction of the work or the manner of describing it.

The first step in the actual preparation of a specification should be a thorough study of all the drawings and other data relating to the project and the securing of a perfect understanding of the whole scheme. This should be done before any writing is started or any notes are taken. The necessity for understanding the task in hand before attempting its solution is self evident, for no approach to the solution can be made until the governing factors are understood.

A good practice is to first prepare a memorandum specification of the whole work, preferably as soon as the sketch plans have been completed. This memorandum should be used as a record for the changes and as a guide in writing the final document. The memorandum specification is not only helpful for the writing of the final work but may serve materially in the preparation of the working drawings and should be placed in the hands of the man in charge of them. By this method the drawings and specifications, being more closely associated, become better instruments of service.

The general conditions should be written to fit the job and contain all the general requirements for the whole of the work and should thereafter be neither referred to nor repeated in the text. They are just as forceful and effectual grouped together and located in their proper place at the beginning of the document as when sprinkled throughout the text.



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The second step should be in the preparation of an outline of the whole project, arranged in the order in which the different branches of the work will be required.

The next step should be the taking of notes of the different items, subject by subject, and arranged under their several heads of the outline above described.

And then, but not until the above described work has been completed, may the drafting or writing of the specification be started. This writing will be simplified in proportion to the degree in which the preliminary work has been studied and is understood.

It is important to rewrite, after proofing the first writing, and if possible, to write it a third time, if a finished product is desired.

It is desirable to have the draftsman in charge of the work or some other person familiar with the project, read over and correct each of the writings, because, being seen from another view-point than that of the writer imperfections are more likely to be discovered. This will give further opportunity for improvements before issuance.

As a review of the above the key to the whole problem lies in the scope of work and when this "scope" is fully understood its description will be materially simplified. The description of materials, workmanship, finish, assembly, etc., will follow along in their natural and proper orders. When these points have been accomplished and serve to make the subject understandable the purpose of the specifications will have been fulfilled.

By David B. Emerson, of the office of
Hentz, Reid & Adler, Atlanta, Ga.

THE methods used in the writing of specifications in the office of Hentz, Reid & Adler, Atlanta, Ga., may not be the best possible, but they serve the purpose very well in this particular office; therefore, they may be of interest to others.

During these past three years this office has built and projected work amounting to over three and a quarter million dollars, covering over seventy different jobs. This work covered a large variety of buildings, among which were three department stores, a large moving picture theatre, three hospitals, an office building, a number of small commercial buildings, a public school, one college building, a large number of residences, and alterations to a number of different buildings.

The method followed in the writing of these specifications is of very little interest, as no two men can work exactly alike where there is no known formula, the question is purely one of temperament and mental attitude. Final results are all that should be considered and the specifications coming out of this office have been uniformly successful, the number of extras due to omissions, etc., is very small, and very few serious disputes or misunderstandings have

occurred between the architects and the contractors.

The form of specification used is neither new nor original, the general scheme was shown to me some years ago by Mr. Louis R. Holske, specification writer for McKim, Mead & White. The basic idea is to specify as nearly as possible in the same order in which the building is to be built, to specify the work of each trade, separately, to specify the material and workmanship of any particular item and to follow with the work to be done under that item. Where special articles are specified, they are specified by name, with an alternative if possible, also specified by name, but the term "or equal" is avoided as far as possible. In specifying timber and lumber the grades are always specified according to the grading rules of the various lumber associations. Sheet metal, etc., is specified by weight, gauge or coating.

The General Conditions of the American Institute of Architects are used, but in addition, a few extra conditions which from experience have been found necessary are added. The general scheme of the specification is as follows: general conditions, mason work, re-inforced concrete, brick work, fire-proofing, cut stone work, ornamental terra cotta work, plastering, interior marble and tile work, structural steel, ornamental iron work, carpenter work, fireproof windows and doors, hardware, sheet metal work and roofing, painting and glazing, plumbing and electric wiring.

By William Wessel of the office of
Bertram Grosvenor Goodhue, New York City

THE practice I believe best in writing specifications is to keep in touch with the man in charge of the making of the drawings, the man who, in some offices, is called the "job captain," from the time the drawings are started, consulting with him as the work progresses and making memoranda of items to be covered in the specifications under different trades. These consultations result not only in material for the specifications, but often in the modification of the drawings to correspond with certain items in the specification agreed upon by the job captain and specification writer.

When the drawings are practically completed, I believe that a general review of them should be made and all additional special points for the specifications noted under their proper trade headings. After this, it is well to get a clear mental picture of the whole job with the job captain in order to check up. The next step should be a review of the drawings with each particular trade in mind, to see that everything that properly belongs under each heading is included and is clearly specified. Following this, there should be a final checking.

By this method the work of preparing specifications is carried on simultaneously with that of making the drawings and the specification writer is not forced to digest mentally a quantity of unfamiliar material in a short time, as is the case where he does not begin the preparation of his specifications

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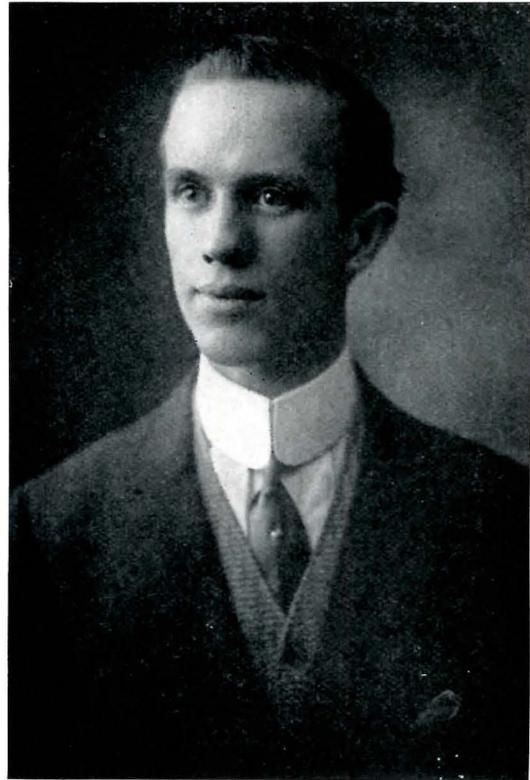
until the drawings are practically completed. This method results in a closer agreement between the drawings and the specifications because of the changes which it is possible to make in the drawings as the work progresses. It also results in specifications which interpret more perfectly the intention of the designer.

In addition to consulting with the job captain throughout, I believe in consulting with the representatives of the manufacturers and in making constant use of manufacturer's literature during the whole progress of the work.

The notes I make while the drawings are being made are written in pencil on sheets of yellow paper, those relating to each trade are kept together, the name of the trade being written on the top sheet. I make these notes as full as possible and often they constitute complete paragraphs, so that I have my material in good shape when the time comes to begin putting the specifications into regular form. These notes are then transcribed by the typist and brought back to me for final revision and for the addition of any paragraphs necessary to cover additions or changes that have been made in the meantime. I arrange my specification under the generally accepted headings.

So far as the use of paragraphs or clauses from old specifications is concerned, I believe that it is obvious that such material should not be incorporated in new specifications, unless after careful examination it proves to be entirely applicable to the job in question or is so modified as to make it entirely applicable. The specification should be written to represent the job in hand, without any superfluous matter. I do use old specifications for the suggestions they contain and as a means of checking. I also use a card file of specification paragraphs, using it in the same way: i.e., to suggest the wording of new paragraphs and as a means of checking. In order to properly cover a job, a specification should be thoroughly written for that particular job.

I believe that a specification writer should be a student always, from the time he takes up the work until he is no longer able to wield a pencil. What I mean is that he should always be ready and anxious to learn about new materials, appliances, equipment, and new methods of construction. I believe that, furthermore, a specification writer should be constantly on the alert for information on all these matters without regard to whether this information can be used on the particular job in hand. Workmen, contractors, manufacturers' representatives, and catalogues are all valuable helps, but naturally if a firm has something new to offer they are most likely to call attention to it in their advertising. For that reason, I believe in carefully going over the advertising pages of the architectural magazines to keep my information up to the minute. The specification writer should, I believe, constantly pile up knowledge, preserve notes, and write specification paragraphs to be filed for future reference, so that he may have a wide enough range of up-to-date information on hand to form a substantial basis for the discussion of each new job and for the



William Wessel

preparation of his notes for the specifications of that job when the occasion arises. By taking this view of specification writing, the work is made much more interesting and is not merely a grind from day to day to get out the work in hand.

By **George A. Chapman**, of **Tyrie & Chapman**,
Minneapolis, Minn.

OBSERVATION has lead me to believe that general specification writing is a much neglected art, realizing as I do that the specifications are the most important of the contractual documents. Again I am made to realize, as executive of the office, the importance of properly prepared specifications, since the lack of them inevitably reflects back to the executive to straighten out. Below I give an outline of my method of specification writing and of my interpretation of what a specification should be.

A—*General Aim of Specification:* (a) It shall contain as "The Most Important" of the contractual documents all legal conditions governing the contract. (b) It shall collect in convenient, concise, definite form all of the materials used in the particular building covered and shall describe the method by which each is incorporated in the building. (c) It shall be sufficiently complete and definite (coupled with adequate accompanying plans and details) to guarantee (barring changes made subsequent to award of contract) *no extras*—the greatest cause of dissention.

B—*Correlation of Drawings and Specification:* (a) There shall be a definite correlation established

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between drawings and details of the building and specification. Avoid duplication—to illustrate: On the drawings and details shall be schedules of materials, finishes, etc.—specification shall refer to schedules thus eliminating repetition of lists so far as possible. (b) On drawings and details nomenclature shall be general, not specific, in detail—thus: Use the word “Metal” rather than the definite selection of kind, such as “Tin,” “Copper,” “Galvanized Iron,” etc., since this selection is best left to the specification writer, and if a change of material is necessary, after specifications are completed, this can be made with less confusion in an addenda specification.

C—*Completeness*: (a) If the specification is to be of any real value it must be a “Handbook” of complete descriptive information (the court of last resort) of the particular building under consideration. As the experience of the specification writer grows, his specification grows longer rather than shorter. Brevity is desirable, but not at the sacrifice of the complete, definite information required. The day is past when one boasts of constructing a half million dollar building on a ten page specification of “General Clauses.” (b) The office overhead is materially increased if *necessary* further detailed information must be daily sent out supplementing a meager specification. (c) Considering the specification as the building “Handbook” of definite information, eliminate generalizations, such as “laid according to the manufacturer’s standard specification” and instead set forth in concise form that specification—otherwise, an elaborate system of specification follow-up becomes necessary if the Contractor, Sub-Contractor, Field Superintendent, Clerk of the Works, Owner, etc., is to be fully informed on each material and its use. This applies particularly to work executed at a distance from the architect’s office and if beneficial and necessary then, is of equal value on the “Close-up Job.”

D—*Definiteness*: Eliminate ambiguity. If meaning and intent are not open to misconstruction, the greatest cause for misunderstanding is done away with.

E—*Convenience*: If the specification is to be used, its information must be readily and conveniently accessible. It shall be divided into chapters or headings covering the various trades—arranged as nearly in sequence of building operation as practical. Each heading or chapter shall be divided into numbered paragraphs with capitalized underlined headings. Each heading or chapter shall be preceded by a page index to paragraphs. The specification shall contain (page No. 2) a page index to heading or chapter indices.

F—*General Divisional Headings or Chapters, Etc.*: (a) A serviceable cover repeating items (2) and (4) of title page (see “b”). (b) Page 1—Title Page. 1—Containing file number of building. 2—Containing name and location of building. 3—Containing name and address of Owner. 4—Containing name and address of Architect. 5—Containing date of specification. (c) Page 2—Index to General Headings. (d) Page 3—Heading, “Drawings, Levels, etc.” 1—Enumeration of drawings covering contract. 2—Establish datum for elevations on drawings. (e) Pages 4 to 12 inclusive—American Institute of Architects’ printed “General Conditions.” (f) Pages 13 to (?) inclusive—heading “General Description.” Specific clauses supplementing A. I. A. form of “General Conditions” applicable to the particular building. (g) Following shall be headings or chapters as described in “E.” (h) Close with heading “Instructions to Bidders”—give all information relative to filing of proposal. (i) The last page or pages shall be the “Proposal Form.”

G—*Method of Preparation*: (a) Complete written notes—the advantages of which are: 1—Time saved of stenographer in taking dictation and subsequent transmission of notes to rough draft for review and correction before copying. Time saved by specification writer in reviewing and correcting rough draft. 2—Ability at any time during preparation to readily review, amend, revise and correct completed headings or chapters during the preparation of subsequent headings enabling proper correlation of chapters. (b) Notes are made from “Master Copy” (volumes of loose-leaf bound books). The “Master Copy” specification contains all subjects collected from complete file of specifications covering fourteen years’ practice in all classes of buildings. Under each paragraph of each heading is collected all text and variations furnishing the specification writer with a complete “hole-proof” check on all items to be mentioned in the specification. The use of this master eliminates the usual “strain” of specification writing, namely, the fear of overlooking some more or less important item. Continuity is not broken by interruption. The typist has a duplicate of the master specification (these two copies are the only copies extant). The notes which are kept until the “job” is completed are always evidence in case of discovery of error as to responsibility (whether specification writer or typist and checker). (c) The master specification (in duplicate) is revised and added to from time to time to keep it up to date.

SPECIFICATIONS FROM A MANUFACTURER'S VIEWPOINT

BY J. B. W. GARDINER

Member of the American Society of Civil Engineers

FOR a manufacturer to express to an audience of architects his opinions of their specifications, is a privilege that carries with it a distinct element of danger. If those opinions are entirely innocuous they are not worth expressing and certainly are not worth reading. If they are to have any value, they must point the way to improvement and therefore must be frankly critical of things as they are. The danger lies in this very element of criticism; and all of us are not gifted with tolerance when it is our own preserves that are being poached upon by alien feet.

That I have permitted myself to be placed in a position of open criticism is due, however, to the fact that I do not recognize these preserves as being the exclusive property of the architect. In discussing an architect's specifications I do not consider that a manufacturer is an alien, treading upon hallowed ground. It is a fact, not fully recognized nor appreciated by the architect, although through the highly intelligent, persistent and effective work of men like Sullivan W. Jones of New York and D. Knickerbacker Boyd of Philadelphia, it is commencing to dawn on him in its true perspective, that there is a strong mutuality of interest, a community of purpose, between him and the manufacturer, and that this mutuality, this community, is reflected in the architect's specifications.

The business of the architect is the creation of a structure which is both artistic and permanent. That of the manufacturer of structural materials, is to produce a quality of materials that will make that structure permanent. The architect is therefore just as dependent on the manufacturer for existence as the manufacturer is upon the architect. Without the manufacturer the architect is not only utterly helpless but would never have been. Michelangelo with all of his transcendent genius would never have been heralded down the centuries, had he had no canvas for his brush, no tools with which to carve his colossal David that towers over the Florence Accademia, no materials with which to translate his dream of St. Peters into permanent stone. In view of this interdependence, it is therefore neither impertinent nor presumptuous for a manufacturer to comment in a spirit of friendly criticism on architects' specifications and to express his views as to how they might be improved.

No work, in any line of endeavor, can be truly successful if it is not the reflection of a correct principle. Certain principles of architecture are fixed and inflexible; and when an architect's design

is judged, one of the first considerations is its adherence to those principles. Any departure would properly be regarded as baroque. Can it be said, realizing the vast number of things that must be dealt with, that there is a principle to which an architect's specifications should conform? I think there is.

We have, as all of us appreciate, definite standards for certain classes of structural materials. These standards are simply expressions of the empirical work of the engineer. They represent the results of actual experience in the field of construction. The results obtained by a number of engineers in the use of a particular material have been collected, tabulated, analyzed and co-ordinated, and in a crystallized form, have been presented to the structural world as a standard. The work of analysis has been accomplished through our technical bodies such as the American Society for Testing Materials and the United States Bureau of Standards, which bodies have made exhaustive studies and tests to verify the empirical field work. Their work has been supplemented by the Affiliated Engineering Societies, by the American Concrete Institute, and by such trade organizations as the Portland Cement Association. All of this work, involving, as it has, the expenditure of millions of dollars and the time of the ablest minds of the country, has been carried forward in the interest of those who are charged with the responsibility of construction, the most important of whom from the standpoint of volume is the architect. Supplementing these standards, these same bodies have worked out tests—which are also standard—for the determination of the quality of the materials to which they relate. Not to recognize the value of these standards and these tests and use them, is therefore not only an economic waste. It is entirely stupid,—an adherence to that self-satisfied, self-sufficient and narrow professionalism that is the curse of every profession.

To return to my point after this apparent digression, I would state this as the fixed principle which should underlie every well-written and intelligent specification:

Whenever our recognized technical bodies have set up and standardized a series of tests designed to determine the quality of any structural material, those tests should be the basis on which that material is specified.

A careful discrimination has been made in enunciating this principle between standards and standard tests. This is necessary for two reasons:

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First. Architecture is a problem in economics as much as it is in construction. From the economic viewpoint, it consists in the use of the cheapest materials available that will fully and adequately meet a given need. In a given case it may well be that the standards set up by our technical bodies may demand a much better material than is required by the particular need to be met. It would therefore be poor economics to call for a product of the standard grade. This however does not vitiate the principle. The standard tests should still be the basis of the specification, as they afford the means by which the quality and grade that is needed may be determined.

Second. With certain materials (bituminous materials are a characteristic example) the technical societies have functioned so far as to work out a series of standardized tests for the determination of their quality, but have yet to complete their work by stipulating the requirements under these tests. There is left to the specification writer the task of creating a standard of quality for his own office by affixing to the tests required the set of constants that in his opinion are best adapted to the needs of the work.

It may well be doubted whether any architect will take serious issue with this as the correct principle of specification writing. Many can be found, however, who will take the utterly illogical position, that although they admit the soundness of the principle as stated, they refuse to apply it. Their reasons for so refusing are specious, their objections unreasonable.

The first objection raised by many is that it is a waste of time to place specifications on the basis of tests unless the materials furnished are subjected to test to determine their compliance with the specification. Tests are time-consuming and expensive, and are apt to hold up the work. The architect does not want to bother with them. If the real source of this objection were stated, it would in the great majority of cases be found in the fact that the architect does not know that such tests exist and certainly does not know what they are. His father and grandfather always specified materials just as he is doing, they built buildings that lasted and gave satisfaction and he does not see why he should not adhere to ancient practise and do likewise. This is his idea of conservatism. But it is not conservative. It is reactionary ignorance.

Tests need never delay the job one day nor in the slightest degree clog the machinery of construction. The architect can, and should, require materials to be tested at the source of manufacture. If a manufacturer delivers material to a job under a particular specification, there is an implied warranty that the material delivered complies with the specification. The burden is on him to show such compliance; it is not on the architect to show non-compliance. All the apparent difficulty will be done away with by inserting a clause in the specifications requiring that the material be tested by an acceptable laboratory, and that when delivered on the job

it should bear that laboratory's seal, label or other mark of identification. The architect should receive from the laboratory a test of the material and a statement that the material so identified complies with his specifications. No time would be lost, there would be no delay. The material comes on the job ready to be used and is approved. The architect knows what he is getting for his client's money.

Another objection raised is that the specification would be too long if this principle were followed. In the usual case the specification writer is addicted to the trade name fetish. It saves him time and work; he does not have to know anything fundamental about the material he specifies—and very often he does not know. All he has to do is write in a name and his problem is solved. Trade names cannot impart to a structure strength, beauty or serviceability. These are imparted by certain properties and qualities of materials, and the presence or absence of these properties and qualities are determinable by standardized methods of measurements. Trade names should be used only because of their relation to these measurements. In other words, there is no necessary incongruity between the use of trade names and the general principle stated. But a trade name should be used only because of its identity with a certain readily defined and definitely determined quality. The specification writer should require manufacturers of trade name materials to file with him a complete specification based on standard tests (where such tests exist) of their materials, so that when such materials are specified by name there is a definite standard against which they may be checked.

As a matter of fact the architect in effect does precisely this with certain basic building materials, although perhaps he does not realize it. In the case of Portland cement, for example, it is customary to specify one of several brands. A number of other brands not mentioned are equally acceptable. The reason is that the manufacture and the quality of cement have been standardized, that a number of brands are absolutely identical in their chemical and physical properties, and that in specifying any or all of these brands, a definite standard of quality as measured by certain standardized tests is really what is required.

This phase of the question is, however, negative and in a sense destructive. Sufficient has been said to serve for the purpose of illustration. The advantages of specifying materials along the line suggested are real and positive. One of the first positive advantages is that specifications so written will be clear and definite—both prime requisites. The specification gives the data on which the contractors and subcontractors make up their estimates of materials. They should be told exactly what will be required of them in such language that there can be no doubt of its meaning. A definite quality of every unit of the structure should be specified and the contractor required to furnish that quality. This fact seems so obvious as to not require statement, but an examination of the majority of specifica-

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tions will disclose as to the required quality of some of the materials mentioned, a degree of indefiniteness that is at least surprising. The contractor often does not know what to figure on, the manufacturers are themselves at sea; but all of them of course have exactly what is desired. The contractor may believe the man who makes the cheapest material—the wish being father to the thought,—and submit a figure on that basis, and if he gets the job, often succeeds in convincing the architect that his specifications really meant the material on which the bid was based. On the other hand, to protect himself, the contractor may have bid on the most expensive material. If he gets the job, his process may be exactly the same—he may work for the approval of the cheapest material that the indefinite specifications will admit—and get paid on the basis of the most expensive.

There came to my desk a short time ago, issuing from one of the largest architect's offices in the country, a specification which was a marvel of indefiniteness. The specification for waterproofing materials, for example, included three proprietary membrane systems, two proprietary interior plaster coat systems, four proprietary integral systems with the ubiquitous "or equal" clause at the end. What did the architect mean? What did he want? How and by what process could equality be established among asphalt, coal tar pitch, calcium chloride and iron dust treated with salammoniac? On its face it is ridiculous. No manufacturer has a panacea, a material of universal application. Some one class of the materials specified must have been better adapted to that particular job than the remaining class. If so, that class should have been specified alone and the others excluded. In this case, what did the contractor do? He figured on the highest priced material, and used the cheapest. The difference went into his pocket. But it came out of the pocket of the owner who was paying the architect for his knowledge of building materials.

Another phase of this same question is seen in the custom, all too prevalent, of writing very general and hence indefinite specifications and placing upon the contractor the real burden of the selection of materials, of filling in the gaps. This is obviously wrong from many angles. It places the selection of materials with those whose financial interest it is to purchase the cheapest material available. It is a direct avoidance or shifting of the responsibility the architect is being paid to assume. The architect has been retained by his client both for his artistic ability and for his knowledge of construction materials. Either the architect possesses a sufficient knowledge of materials to assume his own responsibility and make his own decisions or he does not. If he does, it is his business to use it. If he does not, he has not represented fairly the service he is able to render. Finally, such a practice in specification writing gnaws at the very roots of sound manufacture by putting a premium on inferiority and cheapness. If the architect has any ambition to improve construction methods and construction

materials, i.e., to produce better buildings, he could not select a more effective way of preventing the realization of that ambition than by passing to the contractor both the privilege and the responsibility of the selection of materials.

An equally important advantage of the method of specification writing advocated above is that it opens wide and keeps open the door to improvements in materials. The manufacturers in this country are not as a rule satisfied with existing building products. They realize their faults, their limitations, and are constantly trying to remove both. In some cases it is a question of a manufacturer improving his own product; in others new manufacturers, recognizing these faults and limitations, and seeing how they can be removed, produce a new and a better material. If the material happens to be in the nature of a mechanical unit so that the architect can readily see its operation, his pathway is not so difficult. If, however, the material is what might be termed one of the basic construction materials, where the determination of its quality cannot be shown by immediate and ocular demonstration, but can be proved by other and equally conclusive methods, a different situation exists. Such a material cannot possibly find its way into use unless the standardized methods of quality determination are recognized and are made the basis of the specification. At present it must be admitted that, in general, such a material would be discarded by the architect until it gets a reputation. It must be obvious that this condition can lead only to one end—absolute and complete stagnation. It slams the door in the face of progress and in effect denies that any improvement is possible. It is destructive of every incentive a manufacturer can have for the improvement and betterment of materials. Manufacturers have their ideals just as the architect has. But like the architects they are not altruists. No architect will, out of his own funds, build a structure only for the satisfaction of showing that he can make it more artistic, more beautiful, more permanent than his fellow practitioner. Nor is any manufacturer sufficiently foolhardy to expend his time, his brains and his capital merely to show that he can make a better material than another. If his material is better than another which performs the same function in a building, and if there are accepted methods by which this can be shown, the architect owes it to himself, to his profession, to his client, and to the manufacturer to examine the proofs of this superiority and to encourage rather than discourage its promotion. "Be not the first by whom the new is tried, nor yet the last to lay the old aside" is in many cases an excellent maxim to follow. Like every other rule of thumb, however, to have value its limitations must be realized and it must be applied with intelligence. Because a material is new forms no basis either for its use or its rejection. It is the architect's business to learn how and where to draw the line, to discriminate between the good and the bad without regard to age, the name they bear, or the publicity that has been given to them.

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If he does not do so his specifications will be redolent of the days when journeys were made on horseback instead of in a Pullman car.

Falling under the same general discussion is the matter of guarantees. The first question an architect asks about a material with the name of which he is not familiar is for how long it is guaranteed. A guarantee has grown to be a sort of stock basis for specifying certain classes of materials. The psychology behind it is that a manufacturer ought to have enough faith in his product to stand behind it with guarantees. On its face it sounds reasonable, but why should not the architect have enough faith in his judgment of materials to stand behind his selection? Most guarantees that are required are practically meaningless and are frequently a source of trouble both to the architect and the manufacturer. In specifying any class of materials whose quality and serviceability are predeterminable by standardized methods, there is no reason for guarantees. They are only of value where quality cannot be determined by any method of measurement other than that of experience under service conditions. If a material is good, guarantees are unnecessary as they cannot make it better. If it is not good, a safe deposit box full of guarantees cannot cure its inherent defects. What specifications need is less mention of guarantees of material and a closer definition of quality of material. The facts are that if the proper material is specified for a given purpose the desired result will be obtained if it is properly installed. If a wrong material is specified, a guarantee will not remedy the evil no matter how thoroughly the installation work may be done. In neither case is it apparent how guarantees can be of benefit.

This does not refer, of course, to guarantees as to quality of workmanship. These are required to insure the needed supervision of labor. The ineptitude, the carelessness of the human element must be guarded against, and the most effective way of doing it is by appropriate guarantee requirements that will penalize poor workmanship.

That this attitude towards material guarantees is not unreasonable, but is in fact supported, though perhaps unconsciously, by existing practice, is shown in the use of concrete. It is doubtful if any one has ever seen in any architect's specification a requirement that the contractor shall guarantee either the quality of the cement used or that the concrete shall have a minimum compressive strength. This is because the architect is dealing with standardized materials, standardized methods of mixing, standardized proportions, standardized methods of curing. These are known to give definite results. It is a question only of workmanship, of such supervision as will insure that the mechanics of the specification are carried out. But these things are standard only because there are standard methods of measurement. If there were no such methods there would be no standards. If this practice is proper and logical in the case of concrete, it is equally

logical in handling other classes of materials where standardized methods of quality determination exist, and it should be so extended. It is human nature to want to get something for nothing. If two materials of equal quality are offered at an equal price, one guaranteed (whatever that may or may not mean), the other not, we feel that in using the guaranteed product we are getting something for nothing, something extra thrown in. My own experience has been that when I get something for nothing, intrinsically it is worth precisely what I paid for it.

Many materials, as well as a wide range of mechanical appliances, electrical equipment, patented articles, etc., of course, enter into a building and are of such character that no standard methods of measuring their quality have as yet been worked out. Much has been said in this discussion that naturally has no application to such items as these. Such materials must either be specified by trade name or by such physical or chemical properties as commend themselves for the particular use to which they are to be put. Any tests applied to such materials will of course be purely arbitrary. Time test, service records, past performance, must of course be the guide and must form the basis of specifications. But as time passes, the number of such materials is growing less and less. Eventually it is inevitable that practically all of the important materials that enter into construction will be put on a plane where their quality can be definitely described by reference to generally accepted standards. As rapidly as this is done, the method of specifying should be changed.

In concluding this discussion of architects' specifications, it might not be out of place to say a word as to a desirable relationship between the architect and the manufacturer. The products of the manufacturer and of the architect both have their origin in the vision and the imagination of their creators. They are both mind products visualized; and the manufacturer is just as proud of his conception as is the architect of his. The architect has no monopoly of ideals. The manufacturer has his as well and I venture the opinion that they are just as high as those of the architect. The only difference lies in their methods of expression. The architect practices his business to make money. So does the manufacturer. But with either is money the only end or indeed the most satisfying end. The balance sheet is only an evidence of success; it is not success itself. The manufacturer strives to produce the best materials of their class, works and tests and experiments to improve them, to make them more permanent and better functioning. That is his real success,—playing his part in the creation of a better building. Is not the ideal of the architect the same? Is he not exerting his force and power and the training of his mind to the same end? Between them then there should be a complete meeting of the minds, a mutual recognition and respect for a common purpose and a common ideal, a co-operative and concerted effort in the interests of sounder and better construction.

THE SPECIFICATION WRITER AND MANUFACTURERS' LITERATURE

BY SULLIVAN W. JONES

Technical Director, Structural Service Committee, American Institute of Architects.

DURING the last three years the Structural Service Committee of the American Institute of Architects has been devoting a constantly increasing amount of time and energy to the improvement of the architect's specification. The policy guiding the work has been that of making available to the architectural profession all existing information which would aid in writing intelligible and enforceable specifications—to furnish the substance of the specification rather than the specification itself.

No attempt has been made to unify practice with respect to the form and arrangement of specifications. The absence of any set logical arrangement or sequence of divisions, the haphazard manner in which subjects are dealt with, the duplications which characterize many specifications and unavoidably result in inconsistencies and obscurity, indicate beyond peradventure the real need for some competent body to undertake this job.

The Structural Service Committee may have to do it for the architectural profession. But the field is larger than that. The engineers, big industrial corporations, and others who write purchase specifications for buildings, ought to be brought into the work.

The Structural Service Committee has done and is doing much collaborative work with other technical bodies and manufacturers in the preparation of standard specifications of a number of classes of materials and equipment, as for example, terra cotta, limestone, glass for glazing, concrete, plastering, elevators, refrigeration. The volume of this work is constantly increasing.

Then, of course, the work of the Committee on Standardization through the American Engineering Standards Committee, United States Bureau of Standards, the Division of Simplified Practice of the Department of Commerce, the Federal Specification Board of the Bureau of the Budget, the National Lumber Manufacturers Association, and the United States Forest Products Laboratories, embracing specifications, standards of sizes and qualities, codes, research and nomenclatures all finally focus in the specification. The product of the whole vast standardization movement and of scientific research is the material out of which specifications are constructed.

This work also furnishes the criteria by which to judge the relative suitabilities and worths for specific purposes of competitive products.

But the Committee's prime function is that of opening up the channels through which may flow information and data to the architect and specification writer which is needed to make wise decisions and intelligent use of the vast variety of things and methods employed in the manufacture of the modern building. The ability to make wise decisions with respect to materials and their utilization is of course an essential prerequisite to the writing of an adequate specification.

One of the channels—a very important channel—and one of great potential value to the specification writer is the manufacturer's advertising literature. The term literature is used in its broadest sense and embraces all literature published by manufacturers, whether it be of the purely promotional type or largely technical. This channel has been choked by the "each man for himself" policy forced upon each manufacturer by the behavior of others in the struggle to get through. This situation has been described as the result of "individual initiative run riot." Whatever the cause, the result is that perhaps 90% of the printed matter sent to architects is of no use or interest to the architect and therefore quite worthless to the manufacturer. Moreover the waste involved is enormous. The cost of this futile effort on the part of manufacturers to interest the architect is charged to the consuming public and becomes a part of the principal invested in buildings on which the users of buildings must pay interest forever.

In addressing the specification writer it is unnecessary to elaborate this statement, even in the interest of emphasis. The specification writer knows if any one does, what a large percentage of the daily deposit of advertising in the office goes into the waste basket. He knows, if any one does, how valuable this advertising might be to him if it could be made really informative and reliable. To make this advertising progressively more valuable to the architect is the purpose of the work the Structural Service Committee is doing with producers through the mechanism of the Producers Section.

The Producers Section was created as the result of action taken by the 55th Annual Convention of the A. I. A., which adopted the following resolution:—

"Whereas the Joint Conference on Better Advertising to Architects between the Board of Directors of the American Institute of Architects and the Building Materials Producers of the United

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States held at Indianapolis and reported in the Journal of the A. I. A. of April, 1922, and the Conference in Chicago, held June 5th, and 6th, 1922, has demonstrated the great desirability of a better understanding among Architects and Producers as to their common interest in the characteristics, presentation, and appropriate utilization of products entering into construction, be it

"RESOLVED, by the American Institute of Architects, in 55th Annual Convention assembled, that the Structural Service Committee of the American Institute of Architects be authorized to create a Producers Section of the Structural Service Committee as a sustaining body to collaborate in the following duties:

"A. To advise and counsel with manufacturers, who may so desire, on the character of their advertising, as to size, form and content.

"B. To assist in furthering the use, by Architects and Producers, of the Standard Construction Classification adopted by the American Institute of Architects.

"C. To promote sincerity and reliability of statement in advertising."

This resolution was the outcome of more than eighteen months of study by a joint committee of architects and producers appointed by the November, 1921, Indianapolis conference between the A. I. A. and the building materials producers of the country on "Better Advertising to the Architect." This conference signalized the fact that the A. I. A. had become officially cognizant of the potential value of advertising as an information medium and the waste resulting from the failure to develop that value.

Following the adoption of the resolution quoted above by the 55th Convention of the A. I. A., the Producers Section was organized and the Committee began to render the service of advice and counsel with manufacturers on their advertising literature intended for architects.

The Committee is confronted in this connection with a double problem; first, how to reduce the volume of direct by mail advertising, and second, how to make the remainder of such value to the architect that he will preserve it for reference purposes.

The importance of reducing the volume of direct by mail advertising is clearly demonstrated by the results of a test made by the Committee last summer. Several architects' offices were requested to save every piece of direct by mail advertising received during a two weeks' period. At the same time a survey was made of advertising in the five leading architectural periodicals. The data secured established the fact that advertisers collectively *hoped* that each architect would read each working day the equivalent of 74 pages of periodical advertising. Seventy-four pages of an interesting connected story would not be an unusual daily dose, but when the literature deals with perhaps 100 subjects and is kaleidoscopic in style and method of presentation, the reading becomes an arduous task. Ad-

vertising in such volume defeats its own ends because of the volume. It isn't read. No architect can or should be expected to devote the time necessary to sift out of the mass that which appears to him to be worth saving. Result: the worthless material more often than not carries the good with it into the wastebasket.

But suppose that instead of 90% of the daily deposit of advertising in the architects' office being worthless, the same percentage was sufficiently valuable from the informational standpoint to justify preservation, would it not lose much of its value to both the architect and the advertiser if it could not be readily found when wanted?

A survey of filing systems in architects' offices made by the Committee indicates that most offices have some sort of an information file; but that most of them are unsatisfactory to the architects who maintain them. The equipments consist of everything from a large number of standard vertical file sections to open shelves with catalogs piled upon them. The Committee felt that it could not with good grace ask manufacturers to so alter the character of their printed matter as to make it more useful to the architect unless it could at the same time say that the chances of this better advertising being preserved and used were increasing.

In order that it might make this statement to advertisers the Committee prepared a Classification which was adopted as standard by the A. I. A. and is now published as A. I. A. Document 172. With the co-operation of the manufacturers of filing equipments the Committee has standardized a filing system to be used with this standard classification. The Committee now urges manufacturers to index their advertising by printing on the front cover of each publication the A. I. A. standard file number. This is being done by an ever increasing number of firms. I need not emphasize the importance, as a time saving measure, of installing the standard file and taking advantage of the manufacturers' co-operation in indexing his advertising.

The Committee also operates an information service for the benefit of the architectural profession. This service consists in answering questions relating to methods, materials and practices. Often the question asked cannot be answered out of the information in the Committee's files. In such cases the Committee taps all known sources of authentic data upon the subject and in addition sends out a questionnaire to a selected list of architects. The answer to the question, therefore, comprehends not only the pooling of actual experience but also all available technical knowledge. The information to answer some questions does not exist. In such cases the subject, if of sufficient importance, becomes the matter of the formulation with some research organization of a program for investigation and study.

Up to the present time this information service has been rendered free to all comers. The cost, however, has become so great that the A. I. A. can not foot the bill, and it is expected that the service will be so organized after the first of the year that it will be self-supporting.

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It has been necessary to outline rather completely the work of the Committee in order to indicate the extent of the service available to specification writers and the manner in which the service is being directed toward aiding the specification writer through improving the manufacturers' advertising. The time required to bring this effort in connection with advertising to full fruition depends largely upon the extent to which the specification writer co-operates with the Structural Service Committee. To answer the question which this statement suggests and which will doubtless occur to the interested writer—"In what way can I help?"—let me conclude by making a few definite suggestions.

When a specification writer receives a piece of advertising which is of little value to him and is therefore waste, he may either write to the manufacturer suggesting that in the interest of making his advertising more effective in capturing the architect's interest he ought to consult with the Structural Service Committee, or he may make the same suggestion to the manufacturer's representative on the occasion of his next call at the office.

If the specification writer prefers, he may write a memorandum to the Committee with reference to advertising which he believes might be improved from the standpoint of its value to him, and the Committee will make the initial move with the manufacturer.

The specification writer should utilize to the full the Committee's information service. Questions as to existing standards, the experience of others with materials and methods, recommended practices, structural problems, the behavior of materials under certain conditions, and any of the numberless other matters which are often perplexing should be referred to the Committee. The larger the number of such questions asked and answered, the larger becomes the Committee's store of information and the more readily will questions of the future be answered; and the greater becomes the Committee's prestige in the eyes of the manufacturer.

The Committee makes the following very general recommendation to manufacturers with respect to size, form and content of advertising to architects.

If all architects, specification writers and draftsmen will familiarize themselves with these recommendations and constantly bring them to the attention of manufacturers and their representatives, much will be achieved toward hastening the general adoption of these suggestions.

Advertising which contains technical information

and is intended to be preserved for future reference should fulfill the following general requirements:—

Substance. The piece of printed matter should present the facts which an architect is likely to require. Authentic reports of tests should be included. If drawings are necessary they should be reproduced accurately and at an indicated scale.

Size and Form. The American Institute of Architects recommends that advertisers adopt 8½"x11" as the size for all catalogs, circulars and other publications. It also approves as a minimum size 7½"x10⅝". Either of these sizes may be folded once and saddle stitched to open flat in the file.

Each piece of advertising should have printed on its cover or front page the correct index number taken from the Standard Classification. The index number should be secured from the Committee on Structural Service and printed both on the upper left hand corner and lower right hand corner to read from the right and left sides respectively.

Clarity of Statement. All statements should be as brief and to the point as adequate presentation of the subject will permit. The arrangement of information should be such as to facilitate reference and ready comprehension. Irrelevant matter and testimonials from persons not especially qualified to pass judgment should be eliminated.

Appearance. Advertising should be attractive enough, measured by the architect's standards, to capture his attention and obtain a reading. Pictorial and other illustrations should be so selected and of such a character as to establish some desirable association between the product and the character of work in which the product is used. Heavy, ornate and expensive covers should be avoided.

Compliance with these general rules does not necessarily give to advertising its fullest value, or, indeed, any value. Each piece of literature is a separate problem for study. Every subject may be presented in any one of a number of ways, but there is always one presentation that is best from the standpoint of the architect's needs, and the architect knows better than any one else just what his needs are. The Committee functions as the medium by which the manufacturer may secure not an individual architect's opinion in regard to a piece of proposed advertising, but a collective architectural opinion.

Note—All communications intended for the Structural Service Committee should be addressed as follows, Structural Service Committee, American Institute of Architects, 19 West 44th St., New York City.

THE SPECIFICATION DESK

A Department for Specification Writers

MISCELLANEOUS ITEMS OF CONSTRUCTION

PART X.

BY OTTO GAERTNER.

In this series of notes Mr. Gaertner of the staff of McKim, Mead & White, Architects, will treat of a number of the minor matters of construction that are troublesome unless the architect happens to have met a similar problem previously—matters of a more or less special nature.—Ed.

Garages (Continued)—But of the ordinary garages, built without the staggered floor system, those with a ramp have many advantages over those with elevators. The ramp makes it possible for automobiles to ascend under their own power, or to be towed upward from the street to any floor of the building. Stairs and elevators may be omitted and the initial investment materially decreased, since the cost of the ramp is very much less than that of the stairs and elevators. The yearly interest on the difference can be considered as additional profit instead of being added to the cost of overhead. Likewise, there is a great saving in overhead in the maintenance column because the high cost of maintenance of the elevator, the cost of an operator, and the maintenance of the stairs, such as painting, etc., is eliminated. The cost of maintenance of the ramp is small.

It is true that in the ordinary garage each ramp is longer, taking up about the storage space of ten or twelve cars, but that is no more than is required for two of the shorter ramps needed for a complete story rise in the other type of garage. Of course, the disadvantage of the longer ramp being that, as before mentioned, it is more difficult to incorporate in the plan, it becomes more difficult still as the floor area of the building decreases. But if the space for the ramp is to be had, consider the advantages of the ramp in the conducting of the business as compared to a business conducted in an elevator garage even when enough elevators are provided to give as rapid a service.

People have a dread of driving on an elevator and are quick to criticize the management on account of delays. They will patronize the garage where they can come and leave rapidly by means of a ramp. As the number of elevators required in the building increases, the more satisfactory and the cheaper does the ramp become in comparison. An increase in the number of elevators again increases the initial cost, the cost of maintenance and the loss of car storage space.

The slightly larger loss of car storage space in the ramp system over the single elevator system is not a disadvantage since the loss of storage rental is more than made up in time saved and convenience in conducting the business. Also as the number of elevators increases, even this seeming disadvantage is lost entirely. And generally there is more than one elevator, for if only one is provided and it breaks down, the whole garage business may be at a standstill, causing much loss. For instance, if taxicabs are stored on an upper floor and cannot be taken out, the loss to their owners must be borne by the garage owner based on an hourly fee. Therefore, there are usually two elevators, one being used only in emergencies. It represents a certain amount of dead capital when it is not in use. Also, it entails additional maintenance cost. It is important that the problems involved in each individual garage be studied before the ramp system is designed, as the question of single-track or double-track ramps and the question of one or two single, one-way ramps must be decided. Often a double-track ramp is provided when a single-track ramp will answer the purpose, but the error has the advantage of providing additional facilities needed in case of a change in the kind of business or during emergencies.

(To be Continued)

PUBLICATIONS OF INTEREST TO THE SPECIFICATION WRITER.

Any publication mentioned under this heading will be sent free, unless otherwise noted, upon request, to readers of PENCIL POINTS by the firm issuing the publication. When writing for any of these items please mention PENCIL POINTS.

Panel Boards and Cabinets—Catalog with thumb index; punched for loose-leaf filing if desired. Complete specification data, directions for ordering, dimensions, diagrams covering all types of panel boards and cabinets. 70 pp. 8 x 10½ in. Sprague Electric Works, of General Electric Co., 527 West 34th St., New York.

Marbleoid Universal Flooring—Illustrated brochure showing many typical installations with data sheets, covering hospitals and schools. 32 pp. 7 x 10 in. The Marbleoid Co., 461—8th Ave., New York.

Electrical Wiring Specification—How to lay out a completely wired home, also specifications for apartment houses, floor plans and complete specification data. 12 pp. 8½ x 11 in. Bryant Electric Co., Bridgeport, Conn.

Soss Invisible Hinges—Convenient catalog showing complete line of invisible hinges for cabinet work and furniture, as well as for use in building construction. Shows new type of hinge requiring only two screw holes. 20 pp. Soss Mfg. Co., Grand Ave. and Bergen St., Brooklyn, N. Y.

The Uses of Mineral Wool in Architecture—Booklet on the subject of insulation, fireproofing, sound deadening, etc. 24 pp. 5 x 7 in. United States Mineral Wool Co., 280 Madison Ave., New York.

The Fire on the Hearth—Catalog of fireplace dampers and other specialties for building good wood burning fireplaces. Cross sections, ash removal, tables of sizes, etc. 12 pp. 5½ x 8 in. H. W. Covert Co., 137 East 46th St., New York.

Ultra Violet Ray Sterilization—Service bulletins, loose-leaf in convenient cover, covering the subject of water purification for drinking, swimming pools, ice manufacture, etc. 8½ x 11 in. R. U. V. Co., Inc., 165 Broadway, New York.

Kenney Curtainless Shower—File and reference sheet showing roughing-in measurements on stationary models. Also descriptive booklet of portable as well as built-in models. Kenney-Cutting Products Corp., 507—5th Ave., New York.

Roofing Material Bulletin—A. I. A. standard classification File No. 12-B-1. Covers properties of various asphalts including specifications. Also data on felt and other roofing materials. 16 pp. 8½ x 11 in. Gardiner & Lewis, Inc., 30 Church St., New York.

Viking Reflector and Sign Bulletin—Showing typical installation as used in New York Trust Company building. Diagrams. 4 pp. 8½ x 11 in. Viking Sign Co., 422 West 42nd St., New York.

Swimming Pool Design and Equipment—Specification Bulletin indexed for detailed estimates. Sectional drawings showing improved construction. J. Francis Booraem, 52 Vanderbilt Ave., New York.

Economy Drawing Tables and Sectional Filing Cases—Catalog N. Shows full line of special drafting-room furniture and equipment. Profusely illustrated. 32 pp. 7 x 10 in. Economy Drawing Table & Mfg. Co., Adrain, Mich.

Interphone Specifications—Collection of bulletins covering subject of interior telephone layouts, installation, maintenance, etc. Diagrams and much engineering data. 8 x 11 in. Western Electric Co., 195 Broadway, New York.

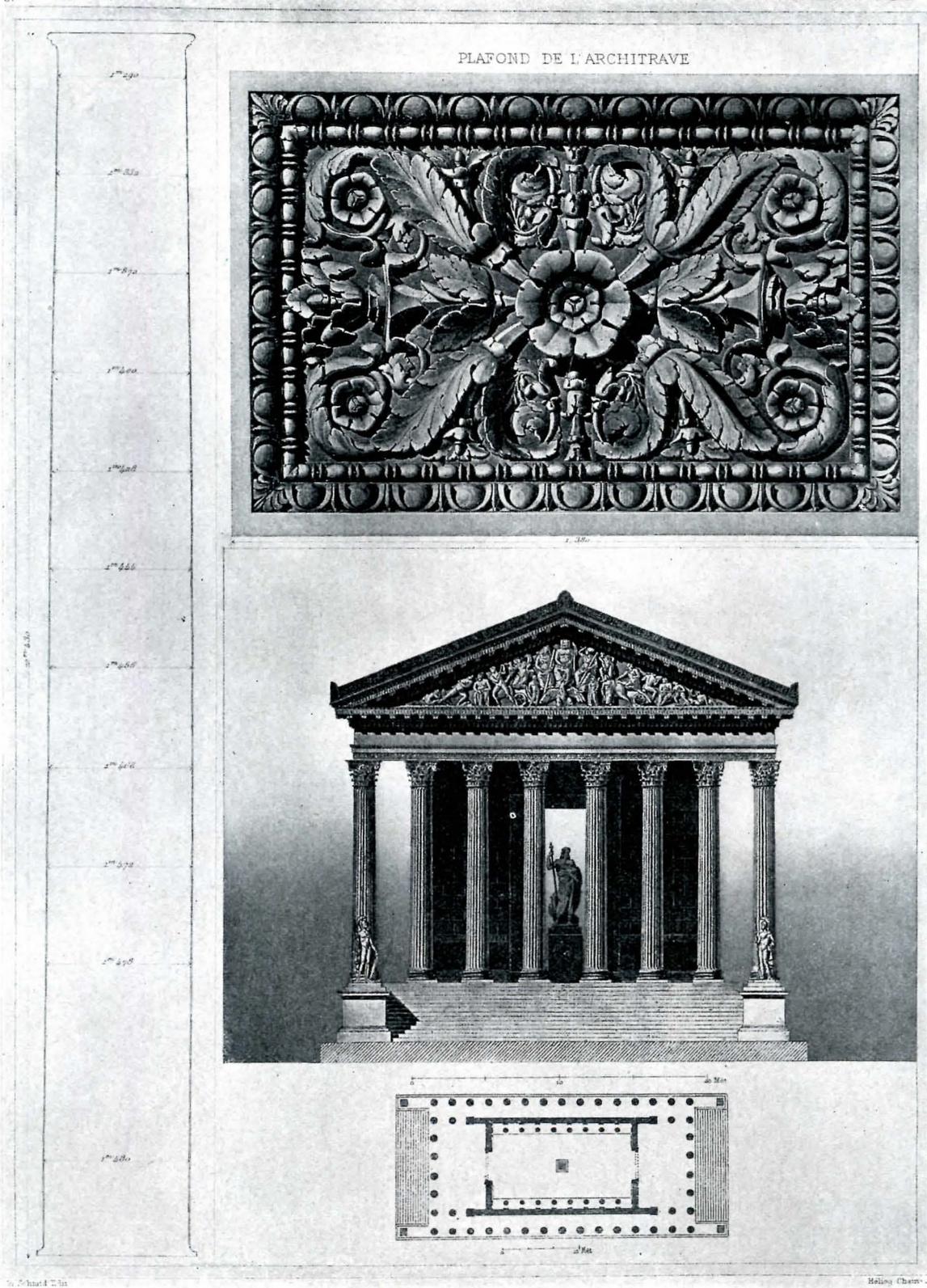
Asbestolith Fireproof Flooring—Data sheet with specification information. Diagram showing method of laying. Fire tests, etc. 8 x 11 in. Asbestolith Mfg. Co., One Madison Ave., New York.

Paint Mileage—Illustrated brochure in duotone with detailed specifications for finishing various woods, concrete, brick, plaster, wall board, etc. 60 pp. 8½ x 11 in. The Hockaday Co., 1823 Carroll Ave., Chicago, Ill.

Boca Solid Steel Sash—Catalog E. 22. Diagrams, sections and complete data for specification of various types of steel windows and doors. 24 pp. 8½ x 11 in. Bogert & Carlough Co., 520 Straight St., Paterson, N. J.

Bostwick Service Sheet—This service sheet covers the subject of exterior and interior use of metal lath in connection with stucco and plaster. Sectional drawings. Bostwick Steel Lath Co., Niles, Ohio.

Corrugated Wire Glass—Catalog No. 8. Covers subject of skylights of different types for application in various classes of buildings. 20 full page plates and drawings. Complete specification data. Pennsylvania Wire Glass Co., Pennsylvania Bldg., Philadelphia, Pa.



TEMPLE OF JUPITER STATOR AT ROME
FROM D'ESPOUY'S "FRAGMENTS D'ARCHITECTURE ANTIQUE".

On the other side of this sheet is shown the restoration of the Temple of Jupiter Stator, also known as the Temple of Dioscuri or of Castor and Pollux at Rome. This temple is regarded as an especially fine example of the Corinthian order. The capitals are unusually good. The remains of this temple consist of three columns with their entablature; the columns are 47.65 feet in height and the lower diameter is 4.84 feet. The height of the entablature is a small fraction less than one-quarter the height of the column. The intercolumniations are 1.5 times the diameter of the columns.



PENCIL SKETCH BY H. VAN BUREN MAGONIGLE

The admirable sketch reproduced on the other side of this sheet is one of the large number made by Mr. Magonigle when he was abroad many years ago as winner of the Rotch Travelling Scholarship. It may well be studied as an example of the type of sketch that is most helpful to the student to make, as well as a delightful presentation of an interesting subject.



OLD JEFFERSON MARKET, NEW YORK CITY. DRAWN ON STONE BY HUGH FERRISS.
LITHOGRAPH PULLED BY BOLTON BROWN.

The character of a bit of old New York has been especially well rendered in the lithograph reproduced on the other side of this sheet. This drawing was made by Hugh Ferriss with lithographic pencil directly on the stone and the proof was pulled by Bolton Brown. It is one of a series of studies of old buildings that show Mr. Ferriss's sense of pictorial values as well as of the character of architectural subjects.

PENCIL POINTS

Vol. IV, No. 1

PLATE IV



BUTCHER'S ROW AND THE WOOLWORTH BUILDING, NEW YORK CITY.
PENCIL SKETCH BY CHESTER B. PRICE.

The pencil sketch by Chester B. Price which is reproduced on the other side of this sheet shows the simplification necessary in rendering large buildings and at the same time suggests the beauty of detail and conveys the impression of a satisfactory statement. The structures in the foreground are equally well handled in their own way and the whole composition is masterly and well carried out.

PENCIL POINTS

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AWARDS IN CLOCK CASE COMPETITION.

DESIGNS of unusual interest and merit, in the opinion of a distinguished jury of artists and art critics, were included among the hundreds submitted from all parts of the United States, Canada, and Great Britain, in the contest in clock case design conducted by the Cloister Clock Corporation of Buffalo, N. Y. The aim of the Cloister Clock Corporation in arranging the competition was to stimulate the creation of designs purely American in character, and therefore in harmony with a timepiece which is mechanically a distinctive American achievement. The clock which will be contained in the new cases is a radical departure from usual practice, being operated on the electro-magnetic principle by a small dry cell which functions for a year or more without replacement.

The Cloister Clock Corporation announces the winners to be: Class A: E. Stetson Crawford, The Enclosure, Nutley, N. J.; George F. Parker, Newburyport, Mass.; Henry A. Goldsmith, New York City. Honorable mention: H. P. Koeppel, Fort Worth, Texas; Marie Derge, Berkeley, Cal.; Hermann A. L. Behlen, New York City. Class B: Fred A. Vuilleminot, Toledo, Ohio; G. Alessandrini, Grand Rapids, Mich.; Richard Mueller, New York City. Honorable mention: Frederick L. Gerhold, Cincinnati, Ohio; A. Reimherr, Bridgeport, Conn.; Henry A. Goldsmith, New York City. Class C: Ruth Koch Gerth, Minneapolis, Minn.; second, Ruth Koch Gerth; George Lloyd Barnum, Chicago. Honorable mention: F. Cowles Potter, Rochester, N. Y.; Edwin Dickman, Riverside, Cal.; Frederick L. Gerhold, Cincinnati, Ohio. The prize money, \$1,200 in all, was divided into three first prizes of \$250 each; three seconds of \$100 each, and three thirds of \$50 each. The award of honorable mention carries with it the privilege to the company of purchasing the design. Class A prizes were offered for designs of an upright mantel clock case of wood, greater in height than breadth. Class B called for designs of the same proportions, to be executed in metal. Class C designated mantel clock cases of wood greater in breadth, at the base, than in height.

The jury of award consisted of Charles Dana Gibson; Richard F. Bach, Metropolitan Museum of Art; Albert M. Kohn, jeweler; C. Matlack Price, editor and art critic; and Russell F. Whitehead, secretary of the Architectural League.

JURY OF AWARD NAMED.

THE following five architects have consented to serve as members of the Jury of Award in the competition for the prizes offered by the American Face Brick Association for designs for architectural features of face brick suitable for the grounds or gardens connected with residences; Mr. Alfred Hoyt Granger, Chicago, Ill.; Mr. Russell F. Whitehead, New York City; Mr. George A. Chapman, Minneapolis, Minn.; Mr. Frederick W. Garber, Cincinnati, Ohio; Mr. Edward Stotz, Pittsburgh, Pa. The purpose of this competition is to stimulate a wider interest in the designing of garden features of this kind and to secure designs that will afford helpful suggestions for the use of face brick in the construction of such features.

An announcement and full statement of the conditions of this competition will be found on another page of this issue. This competition is being conducted by the publishers of PENCIL POINTS, is open to all architects, architectural draftsmen, architectural students, and all others desiring to compete. The prizes aggregate \$1,550. The competition closes at noon, February 5, 1923, and the judgment will take place in Chicago shortly after that date.

A BOOST FROM TEXAS.

HERBERT M. GREEN CO., architects of Dallas, Texas, not only like PENCIL POINTS but have adopted a novel manner of passing the good word along. We quote from a letter just received: "We have just instituted the practice of putting the following postscript on letters which we have occasion to write in answer to applications for positions in this office: 'P. S.—Do you read PENCIL POINTS?' We think that PENCIL POINTS is the best magazine that a draftsman can read and feel that a draftsman who does not read it is missing a lot."

T-SQUARE CLUB, PHILADELPHIA.

THE program for the December 13 meeting of the T-Square Club, Philadelphia, included an illustrated talk by Mr. Albert Kelsey on the subject, "What I Saw from the Dome of St. Peter's."

The meeting was the first "Ladies' Night" of the season, and members were invited to have ladies accompany them, both to the talk and to the dinner which preceded it.

There was also an exhibition. The occasion was entirely informal. Dancing followed the talk.

PERSONALS.

CHAS. C. CORNFELDT has opened offices for the general practice of architecture at 462 Woodrow Boulevard, Toledo, Ohio.

HARRY J. FARWELL, Architect, has removed his offices from 190 Massachusetts Avenue to 35 Ford Avenue, Highland Park, Mich.

HAROLD M. SHEPHERD has opened an office for the practice of architecture at 3-238 General Motors Building, Detroit, Mich.

LAWRENCE S. FUNKE has opened an office for the practice of architecture at 368 Peachtree Street, Atlanta, Ga.

WANTED—Draftsman with experience in first class offices, who handles his pencil easily, and can make complete working drawings from sketches (except engineering). Also good detail man or junior draftsman. The office is situated in a beautiful and wide-awake city in the middle west, of 100,000 population; well organized in attractive quarters, and the firm does the highest class work; members of the American Institute and work of the office nationally known. Opportunity for a man who wishes to better his condition. State salary wanted. Permanent position. Address Box 61, PENCIL POINTS.
—Adv.

PENCIL POINTS

COMPETITION FOR LAMP DESIGN

A COMPETITION for a lamp design is announced under the auspices of the Art Alliance of America by the Decorative Arts League. First prize \$300, second prize \$200, third prize \$100. Three additional prizes of \$100 each may be awarded for meritorious designs. Contest open to everyone. Closing date February 1, 1923. Competition program may be had by writing to Lamp Design Competition Committee, Decorative Arts League, care of Art Alliance of America, 65 East 56th Street, New York City.

AWARDS IN HOME GARDEN COMPETITION.

THE Society of Little Gardens, with the object of stimulating interest in the artistic development of the small home garden, recently conducted a competition to be judged from photographs of actual small gardens. The Jury of Award consisted of Miss Harriet Sartain, Miss Elizabeth Leighton Lee, and Miss Elizabeth Wilson Fisher.

One prize of fifty dollars and two of fifteen dollars each were offered. The prizes were awarded as follows: First prize, to Miss Florence M. Underwood, Lake Forest, Ill.; second prize, to Mrs. Rademacher Pickenbach, West Orange, N. J.; third prize, Messrs. Kirkhuff and Schaff, Santa Barbara, Cal., for two separate photographs of city house fronts. The designs being considered of equal merit, the prize was divided between them. A number of honorable mentions were awarded.

The work of this society, of which Mrs. Charles Davis Clark of Philadelphia, is president, is highly commendable, for it arouses interest in the gardening possibilities of the area around the average American home, and does much to make our homes and cities more livable and beautiful.

ANNUAL DINNER OF YORK & SAWYER'S OFFICE.

THE third annual dinner of the office of York & Sawyer was held on the evening of December 20 at Delmonico's. The members of the firm, Messrs. York, Sawyer, Benedict, Franklin and Ayres, were the guests of the force. Mr. Slocum Kingsbury was master of ceremonies. He first presented Mr. Wehrell who told of the beginning of the partnership of York and Sawyer as he had heard the story. A very enjoyable meal then followed. The courses were interspersed with songs in which all joined heartily. Novelty hats, balloons, streamers, etc., added to the gaiety.

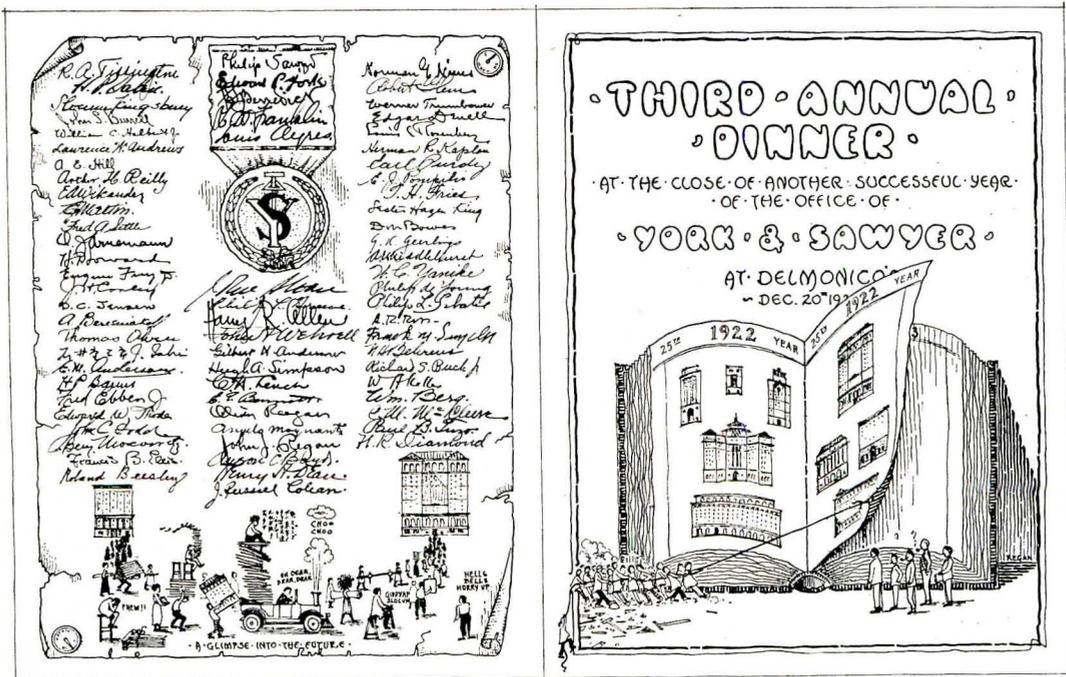
Mr. Sawyer told of some humorous incidents in which Mr. York and he figured in the earlier years of their association and Mr. York responded in an equally happy vein.

Brevity was the order of the day in the matter of speeches and Mr. Kingsbury called upon only a few others. They were Messrs. Nims, Ross, Allen, Middlehurst and Regan, whose lively remarks kept the company in high spirits. Vocal solos were well rendered by Messrs. Frey and Behrens, and a whistling number was given by Mr. Reilly. Mr. Tissington at the piano and Mr. Sabatie with the violin supplied the accompaniment.

At the conclusion, Mr. Sawyer invited all to bring their friends to a theatre party to be given by the firm on the evening of January 22. The entire front part of the orchestra of the Booth Theatre has been reserved for the party.

Underlying the fun of the evening was a feeling of pride on the part of all present, not merely in the continued success of the firm but in being led by a group of men who have inspired the admiration and loyalty that is the spirit of the office.

Below is shown, at reduced size, the design for the cover of the program of the annual dinner of the office of York & Sawyer. This design by John J. Regan was the winner in the competition held among members of the staff. The members of the firm acted as judges. This illustration was made from the original tracing from which the program covers were printed and then enlivened by the use of colored pencils. The idea is clever and well worked out, showing the members of the staff all pulling together to close a successful year's business, the twenty-fifth year of the partnership of Mr. York and Mr. Sawyer. The members of the firm are represented in the group standing at the right. On the back cover, are seen the autographs of the members of the firm and of the staff.





John Mead Howells



Raymond M. Hood

JOHN MEAD HOWELLS AND RAYMOND M. HOOD
WIN FIRST PRIZE IN CHICAGO
TRIBUNE COMPETITION.

THE first prize in the Chicago *Tribune's* \$100,000 competition has been won by John Mead Howells and Raymond M. Hood, associate architects, who thus become the architects of *The Tribune's* new \$7,000,000 building. Mr. Howells is the son of William Dean Howells, the great American novelist.

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

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

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

The new structure will be named the "Tribune Tower." The design will be executed in stone of a light color. Its style is a Gothic expression of the American skyscraper theme; in other words, an expression of the structural fundamental of the theme.

The design by Mr. Howells and Mr. Hood is a unit, not a tower and a building, it is all one building, a practically square tower four hundred feet high. It climbs up into the air naturally, carrying up its main structural lines, and binding them together with a high open parapet. The result is an effect both towering and militant—but beautiful and instinct with grace.

The architects have let the blue sky into the embattled crown of the building. From every point of view there will be glimpses of sunlight and of cloud between the eight flying buttresses, which give power to the culminating feature.

By the combined dignity and spirituality of their con-

ception the architects have lifted the new home of *The Tribune* out of the category of the commercial and made it a building which will be an ornament to the city and an inspiration to all who look upon it. In this, as in other ways they fulfil the hopes of *The Tribune* in instituting this competition.

SLATE INDUSTRY MEETINGS.

MEETINGS of the Slate Industry will be held in New York City at the Commodore Hotel on Monday and Tuesday, January 22 and 23, 1923, under the auspices of the National Slate Association. Operators of quarries producing slate, representatives of mills and plants manufacturing slate products, and any one from any branch of the slate industry will be welcome.

Dr. Oliver Bowles, of the U. S. Bureau of Mines, will preside at the opening session. President Keenan and the Board of Directors will announce the winning slogan and insignia. There will be a discussion of quarry and production problems, and of new uses of slate. Opportunity will be given equipment manufacturers to demonstrate new apparatus and methods. As advertising, research and other activities of 1923 will be decided upon, these meetings will be important to everyone who wants more slate used.

"SOLID BRASS."

IN A paper contributed by George C. St. John, Vice-President of U. T. Hungerford Brass & Copper Co., on "Substitution, the Fraud of the Day," attention is directed to the extent to which articles such as locks, bolts, doorknobs, etc., etc., are sold as solid brass when as a matter of fact they are iron or steel plated or dipped with brass. Corrective measures are urged, including legislation, and the education of dealers and salesmen. Mr. St. John urges that buyers, if they want solid brass, should specifically demand it, and should insist that invoices or cash sales slips specify exactly what is being sold, otherwise it may be difficult for the purchaser to secure refund or other redress later.

THE MART

A SATISFACTORY WHITE WATER COLOR AT LAST. Johnston's "Snow White" water color possesses many virtues and no vices, when fairly handled. It is a first class white ink, an excellent white water color, either as a white; or as a base for all tint colors; or as an air brush spray. Does not powder or freeze. Flows readily. No waste. Jar by return mail for 25c in stamps or coin to J. W. Johnston, New Arts Bldg., Rochester, N. Y.

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INDICATION IN ARCHITECTURAL DESIGN, by Varon. Second edition—enlarged, 1922. Fifty-eight full-page plates and text cloth, \$6.00. The Wm. T. Comstock Co., 23 Warren Street, New York.

P. M. LYNCH—Blue Litho and Photo Prints.—Drawing Materials; with Central Blue Print Company, 709 Sixth Avenue, New York City. Telephone, Bryant 5450. Prompt messenger service.

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GROWTH

EVERYTHING that lives undergoes changes, if sound and healthy, it grows, develops and becomes stronger, up to a certain point, as time goes on; without, as a rule, losing the main characteristics that mark its individuality. This is true of every *live* magazine and, though PENCIL POINTS has attained a phenomenal circulation in the two and one-half years of its life, we intend that its growth shall not slacken. To this end, the publishers mean to adhere to the policy announced at the outset, of publishing PENCIL POINTS *with* rather than *for* its readers. Consequently, we wish to tell you what we are planning for the coming months and to ask your suggestions and criticisms.

If any charter member of the PENCIL POINTS family will turn to his files of this journal, he will find that all the issues from the very first have the same essential character, but that there is, nevertheless, a great variety of material and that the placing of the emphasis on one phase or another of architectural practice or study has changed from month to month. For example, in the January issue we devoted all the space, excepting the plate pages and news section, to the subject of specification writing; while in the present issue the design side of architecture and the allied subjects of mural painting and sculpture are given the places of greater importance, the subject of specification writing not being neglected, however.

Now, during the coming months, we plan to publish just as many plate-page reproductions of masterly pencil sketches and renderings as in the past, just as much on the design side of architecture, and a number of articles by men who have distinguished themselves in architectural rendering—articles of the same general character as the "Genesis of a Rendering" by Otto R. Eggers, which appeared in the November number, and "Rendering in Charcoal" by Schell Lewis, in the August issue. A number of well-known men have already promised to prepare articles describing in detail their methods of sketching and rendering, telling just how they made some of their best drawings, which will be reproduced in connection with the descriptions.

Recognizing the value of clear reproductions of drawings by Beaux-Arts men, winners of the Grand Prix and others, such as have appeared in connection with Mr. Harbeson's serial article, we expect to make a feature of such reproductions.

Among the notable articles which have been promised us by men of the highest standing are the following: An article by Charles A. Platt, on a subject to be announced later; "The Use of Color in Architecture" by Jules Guerin; "Drawing from Life" by Frank Vincent DuMond; and "Watercolor Rendering" by Birch Burdette Long. Francis S. Swales will write on "Rendering in Wash," explaining methods by which results can be obtained with sureness and speed. Mr. Swales's experience has

especially well qualified him to write a very helpful article on this subject. Mr. Bolton Brown, who has specialized in lithography as an art, will describe the process of making lithographs. This article will be illustrated with photographs which we have had taken especially, showing the author engaged in the work he describes. The last mentioned article represents a class of subjects that we feel should not be neglected, for though such matters as lithography, etching, the making of linoleum prints (a subject which, by the way, was covered in this magazine during the past year) are not a part of the architect's and draftsman's work, many of our readers have taken up some such art for the pleasure they derive from it.

We expect to give just as much attention to architectural education as in the past, for it is a matter in which all of our readers are interested, either for their own improvement or from the standpoint of the older and more experienced man who is desirous of rendering what assistance he can in the development of the younger men in the profession.

The study of materials with a view to their best use from an æsthetic standpoint, we feel, should be continued, the necessary research work being carried on with the greatest thoroughness, the articles packed with detailed information and illustrated with photographs which clearly show the characteristics of the materials and the methods of working them.

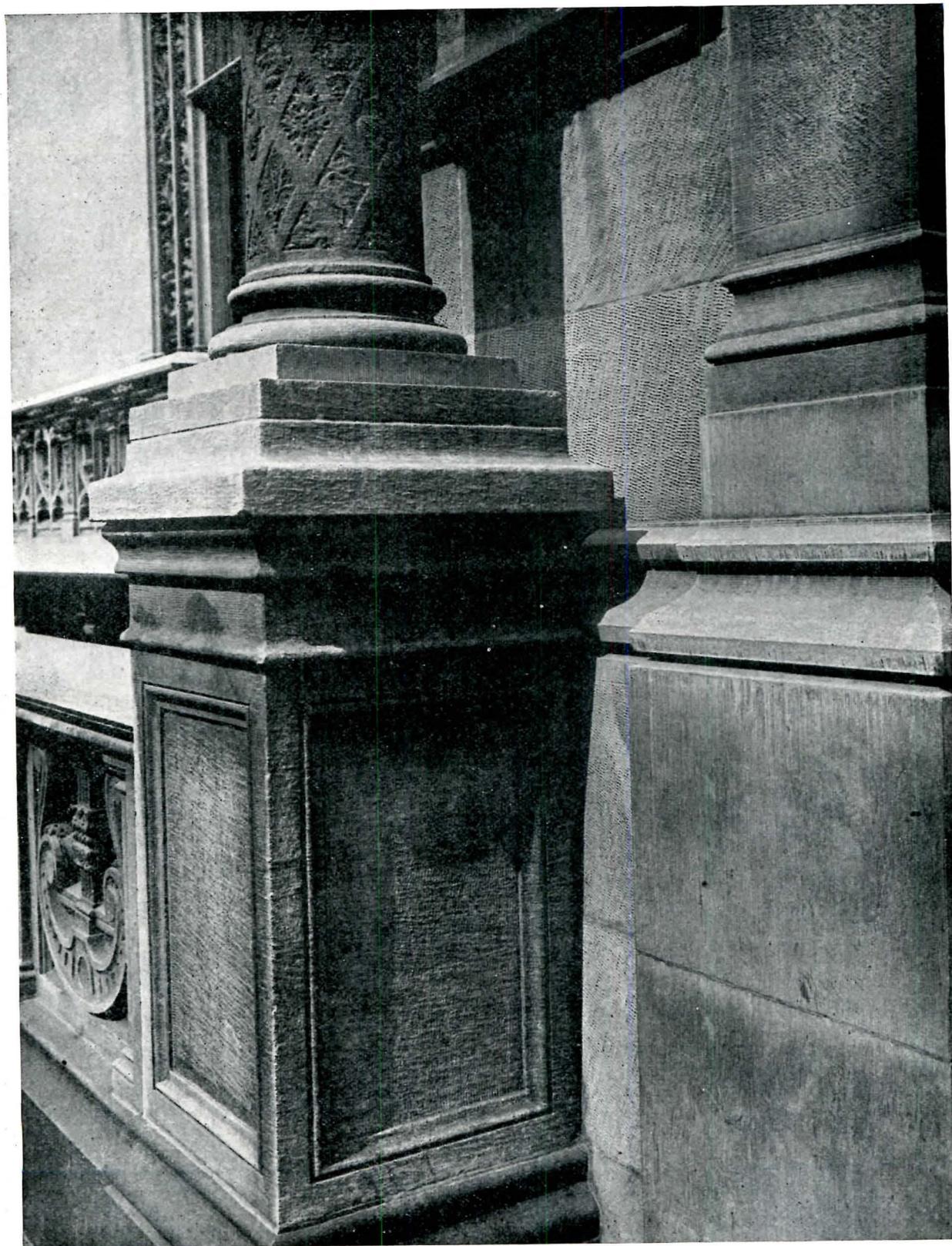
We believe that the discussion of specification writing started with the January issue should be kept up, the views of various men being presented from month to month in the department "The Specification Desk." Several excellent contributions have already been received, assuring us of the continuation of this discussion.

A kind of article to which we believe much more space should be given than we have found it possible to allot in the past is that describing the practical methods of doing drafting room work, the making of full-size details and various other parts of the work that has to be done in every architect's office and that it is highly desirable should be done in the most direct and time-saving way.

The importance of bringing the men throughout the country into closer touch with each other by means of news items concerning the activities of architectural clubs and other organizations of the kind, and the publication of news of general interest, such as the announcement of competitions and of the awards in competitions—these and all of the things that go to make up the human side of the architectural profession, we plan to give ample space to. In this part of the program, we especially need the continued co-operation of our readers.

This is the thing as we see it—now, we ask that you write us your views, criticisms and suggestions; for our policy is, as it has been from the first, to edit PENCIL POINTS *with* rather than *for* its readers.

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*Close-up Photograph Showing Contrasts in Texture of Stonework, Vanderbilt House, Fifth Avenue.
Richard M. Hunt, Architect.*

SPECIFICATIONS AND PERSONALITY

BY JOHN VREDENBURGH VAN PELT

THIS article will undoubtedly appear so anti-quatedly reactionary that it will seem radical,—like the gown of a preceding generation to which the fashion has not yet come around. Specification writing is ordinarily entrusted to specialists, many of whom have a scant knowledge of design. They will not like what I have to say. In the average office in the larger cities the architect himself finds so many demands upon his time and energies that he considers the writing of a specification quite outside the sphere of his activities. In the early days of his practice he may have slaved over such unsympathetic chores, but those days are only dimly remembered nightmares of the past. He would not willingly admit that he has forgotten this important essential of his art, still less that he was never master of it, never could write a well-classified, complete, up-to-date, practical description of the component parts of a building. He is an architect and, before the client, an architect knows all such things, only he is too busy to waste his valuable time, the time of a trained and inspired artist, on such drudgery. Therefore, he too may not like what I have to say.

There was an epoch when architects really built the great monuments of the world. Monks, some of them appeared, but all were true architects. They not only conceived and drew out their designs, but they occupied the close relation of the present-day contractor, nay, of the sub-contractor to the work.

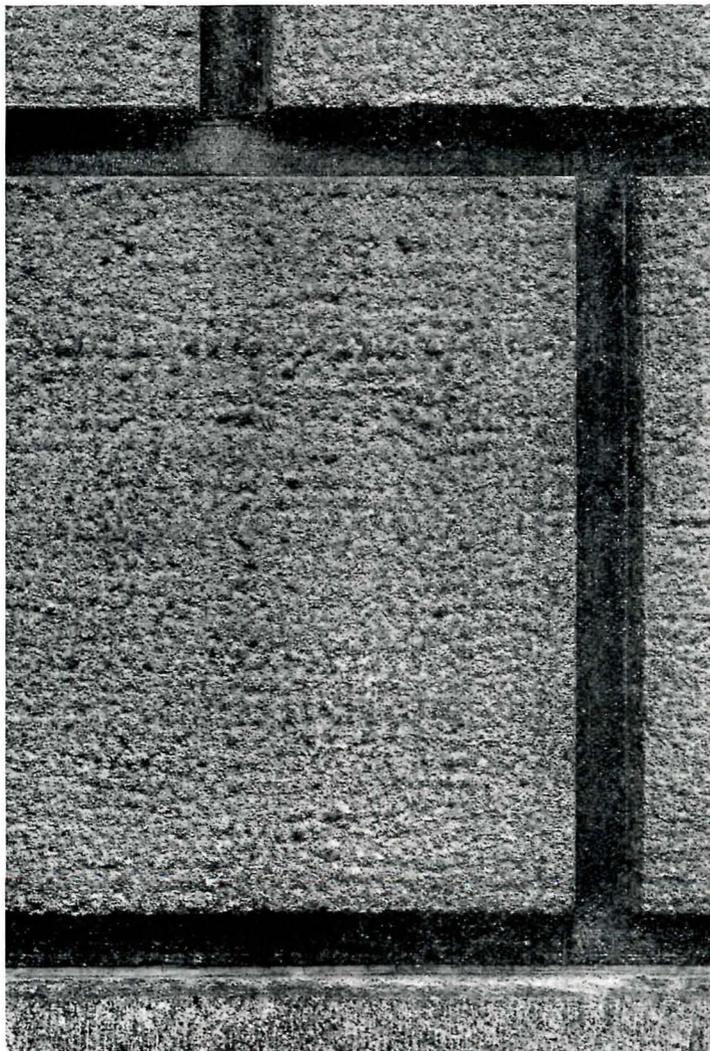
The specification as we understand it was unnecessary. The architect was "on the job."

There are men today who build as well as conceive their ideas and, from time to time, their ideals. They follow the cutting of the stone themselves and watch to see that each is set in its appointed place and manner. They do not delegate the care of the growth and development of the child to a nurse, even though that nurse may have proved reliable or have come with the best references. "But," our offended specification writers and architects will say, "the personal service method is impossible if there is more than one job in the office

at a time. Organization is the watchword of the day." True, and it is a good watch-word. It is a fact that only men of established fame could afford to seclude themselves, turn their backs to the time-devouring channels through which work is obtained, refuse the small job that leads to the one on which they wish to concentrate and have any work left.

An *impasse!* Is there no solution? Would it be worth while if there were one? I believe there is and that it would make for better architecture.

Architectural work divides itself into two classes, the commercial and the personal. The terms are possible of misconstruction, for some of the work built for commerce still requires the personal touch and some of the work for individual clients is, after all, only routine. The Alexander Shoe Store on Fifth Avenue, New



Close-up Photograph Showing Machine Crandalled Finish on Indiana Limestone. Detail of Globe Indemnity Building, Newark, N. J.

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*Photographic View Showing Sgraffito Detail on a Portion of the Façade of the Store of Andrew Alexander, Fifth Avenue, New York City.
Carrère & Hastings, Architects.*

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*Close-up Photograph of Terra Cotta Detail, Pershing Square Building,
New York City. York & Sawyer and John Sloan, Architects.*

PENCIL POINTS

York, page 12, Carrère & Hastings, Architects, has a *sgraffito* elevation that must have been carried out under the continued watchfulness of the designer, and we are all familiar with the client who brings in a page of a current popular magazine, says she wants a house just like the one on page 273, and not only says so, but gets it.

Really personal work, be it house or shop or monument, requires at all points the permeating touch of the man who dreamed it. No one can doubt that if Henry Bacon had been engrossed in putting up acres of speculative apartment houses and blocks of office buildings while the Lincoln Memorial was rising above its mirror lake we might have been well satisfied to do without the reflection.

If in an organization there must be a job getter, there must also be a designer. It happens too often that the job getter, who in order to give a semblance of reality to his pose of eminent artist makes the sketch or initial design, in order also to have time to continue his fundamental activity, relegates this design to a subordinate. He in turn delegates the different operations (among which is the compiling of the specification) to other subordinates, no two of whom have any really sympathetic touch or understand the undeveloped thought of what may originally have been an artistic conception. So the personal quality is lost. The germ that may have existed has vanished.

New York City has monuments, some of them buildings that occupy one or more blocks, that are sad results of this very method. It may be that in the case of some of these the architect gave the particular building his personal attention, but was so out of practice in his *metier* of builder that he did not know how to impart the personal touch or actually lacked that quality entirely.

"Here we have it!" you will say. "That is an argument for the expert. No architect can remain proficient in all the numberless, diverse departments of his business." Well and good. Truly, an expert is needed to design the steel skeleton or lay out and calculate the radiation, and an expert may well write the specification. First, though, he must be an *expert* for that particular kind of work. Not every structural engineer has the ability or appreciation of architectural beauty to devise a skeleton that will *serve*, not *master* the design. I believe there are few specification writers who have the intuitive quality that would permit them to search out, sense, and interpret the subtleties that are needed to give the completed building personality. If they had, nine times in ten they would not remain specification writers.

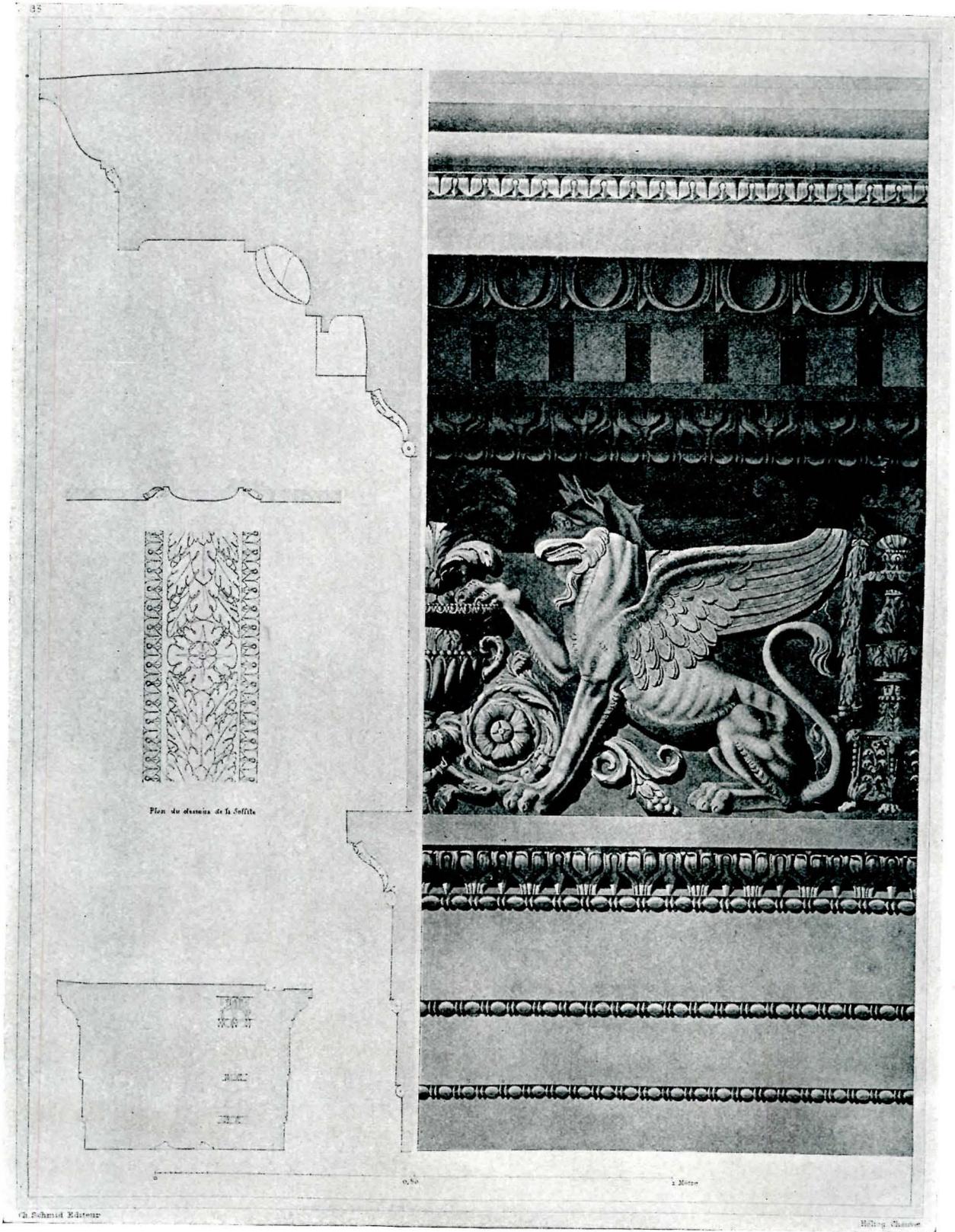
The remedy for our dilemma can come from two directions. The architect, or at least he of the organization who creates the design and carries it through (and he also, I believe, should watch the

construction), must read and revise the specification if he does not actually write the first draft. And the specification writer must become more of a designer and must ponder and assimilate the original thought as well as give a glance to the working drawings. A singer will tell you that there are many who can play brilliantly, but few who can acceptably accompany a simple lullaby.

Best, though is the architect who is willing to concentrate all his energies on the work he undertakes and who, into all its parts, infuses himself. Although Richard M. Hunt had many draftsmen and students in his office, he could only have obtained the beautiful contrasts of texture in the house of William K. Vanderbilt, Sr., (see page 10) by the most careful personal attention to the work in its minutest detail. The close-up on page 11 is a machine-crandalled finish of the Globe Indemnity Building of Newark, N. J., by Frank Goodwillie and Wesley S. Bessell. It was through the personal work of Mr. Bessell in the stone cutter's yard that this very soft and beautiful finish was developed.* The terra cotta motive on page 13, taken from the Pershing Square Building, New York City (York & Sawyer and John Sloan, Architects), is another evidence of the designer's close scrutiny of the execution of his work. This terra cotta has a base tone of gray, rough texture and is fire-flashed in golden brown. Dark polychrome colors are used in the backgrounds to accentuate natural shadow. The terra cotta harmonizes in color and texture with the wire cut brick, and for scale harmony the terra cotta is jointed in small pieces. It may be that this was not expressed in the written specification, rather in a later verbal one between designer and shop foreman during manufacture. The point is that the original design and its execution cannot be severed.

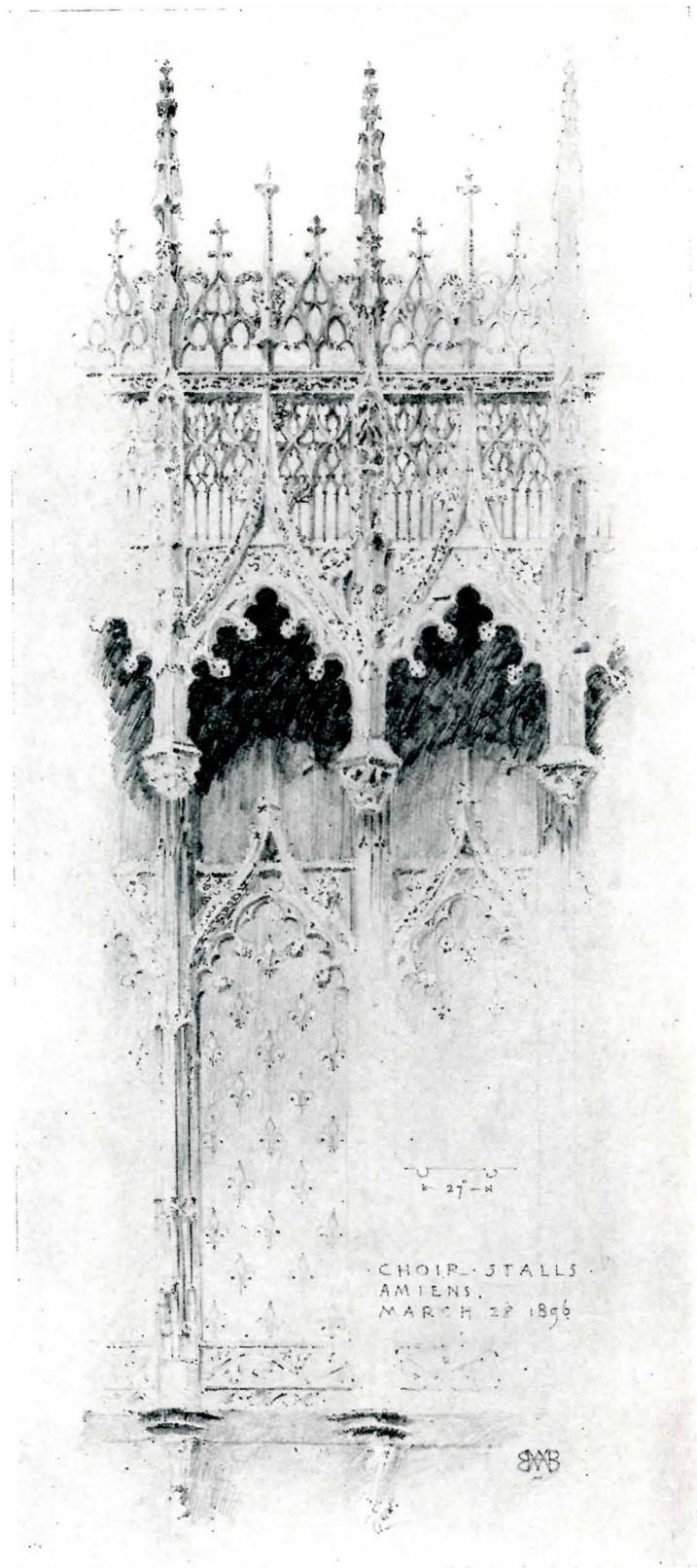
After all, what is the use of doing mediocre work? A little more money? A man can only use so much in his life time and his children would be better citizens if they had to earn theirs. The small town architect has greater opportunity for contentment than the man with a numerous drafting force. The former is at least in close touch with his work. He has the opportunity, whether he embraces it or not, to make each building as nearly perfect as within him lies. If he does that he will find consolation for the mistakes when he looks back over his career. Each building that records such an effort will be a memorial to its author, a monument to him as long as it remains for it will record the vivifying touch of a personality.

*Note—The available appropriation for this building did not warrant a hand-crandalled finish. The finish devised and here shown is obtained by placing the block beneath a pneumatic tool having a series of points. This is expeditiously guided by hand and moved across the face of the stone.



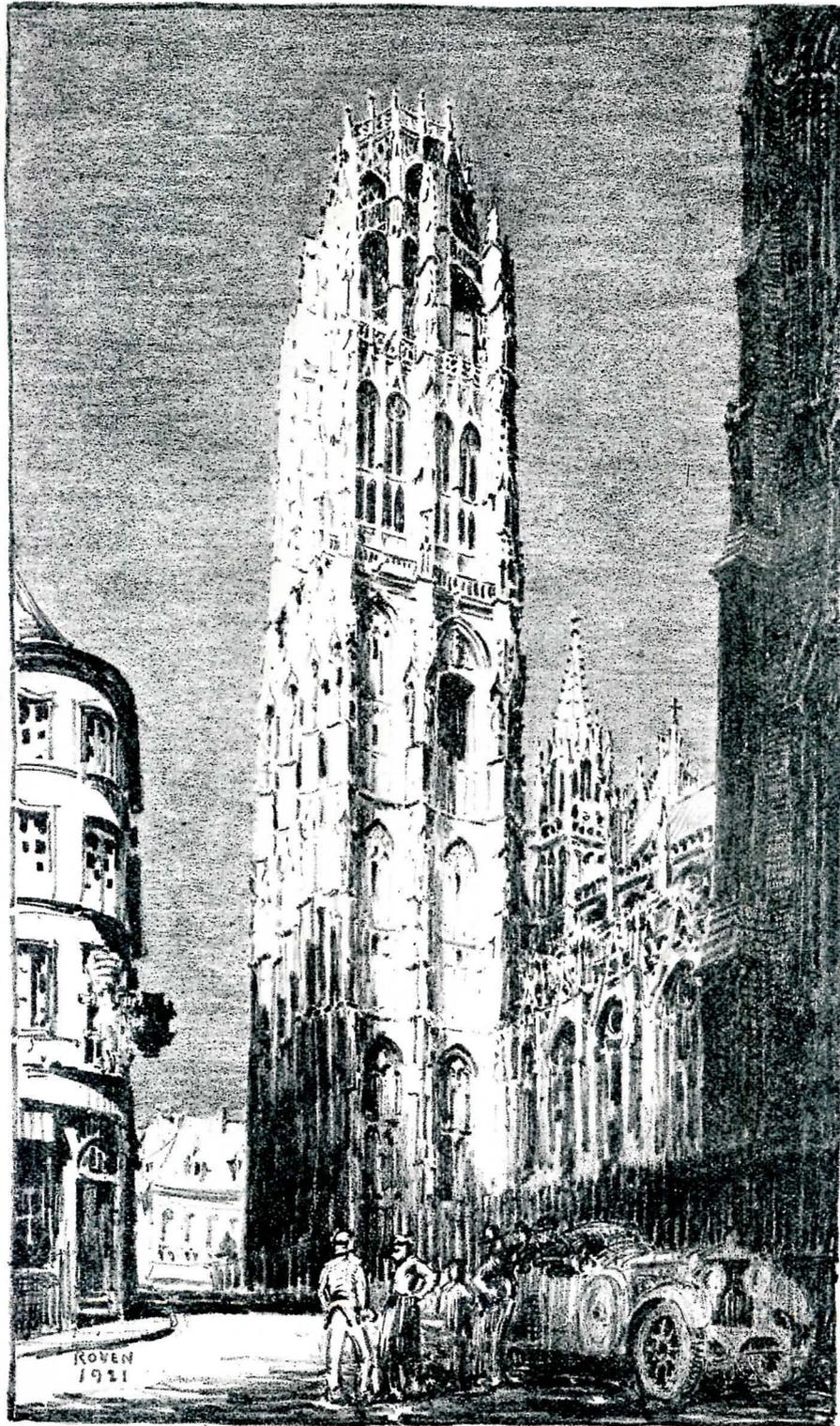
DETAIL FROM THE FORUM OF TRAJAN, ROME
FROM D'ESPOUY'S "FRAGMENTS D'ARCHITECTURE ANTIQUE".

An effective sketch by John R. Rowe, a student at the Ecole des Beaux Arts, Paris, is shown on the other side of this sheet. Mr. Rowe was in this country recently on a visit and while he was here PENCIL POINTS borrowed of his sketches for reproduction. Mr. Rowe sailed about a month ago to continue his work in the Atelier Laloux. His sketches have been shown in a number of exhibitions in this country.



PENCIL SKETCH BY H. VAN BUREN MAGONIGLE

On the other side of this sheet is reproduced a pencil sketch of architectural detail that is interesting both as a presentation of a fine design and as an example of the way in which architectural detail should be sketched by the architect or student who wishes to develop himself through study of fine works and to preserve a record for possible future reference in his work. This is one of Mr. Magonigle's early sketches, having been made when he was abroad as holder of the Rotch Travelling scholarship.



SKETCH BY JOHN R. ROWE

The detail from the Forum of Trajan reproduced on the other side of this sheet shows a spirited rendering of a mythical animal motive that will repay study for the vigor of drawing it shows. The remains of the Forum of Trajan represent some of the most interesting developments of Roman architecture.

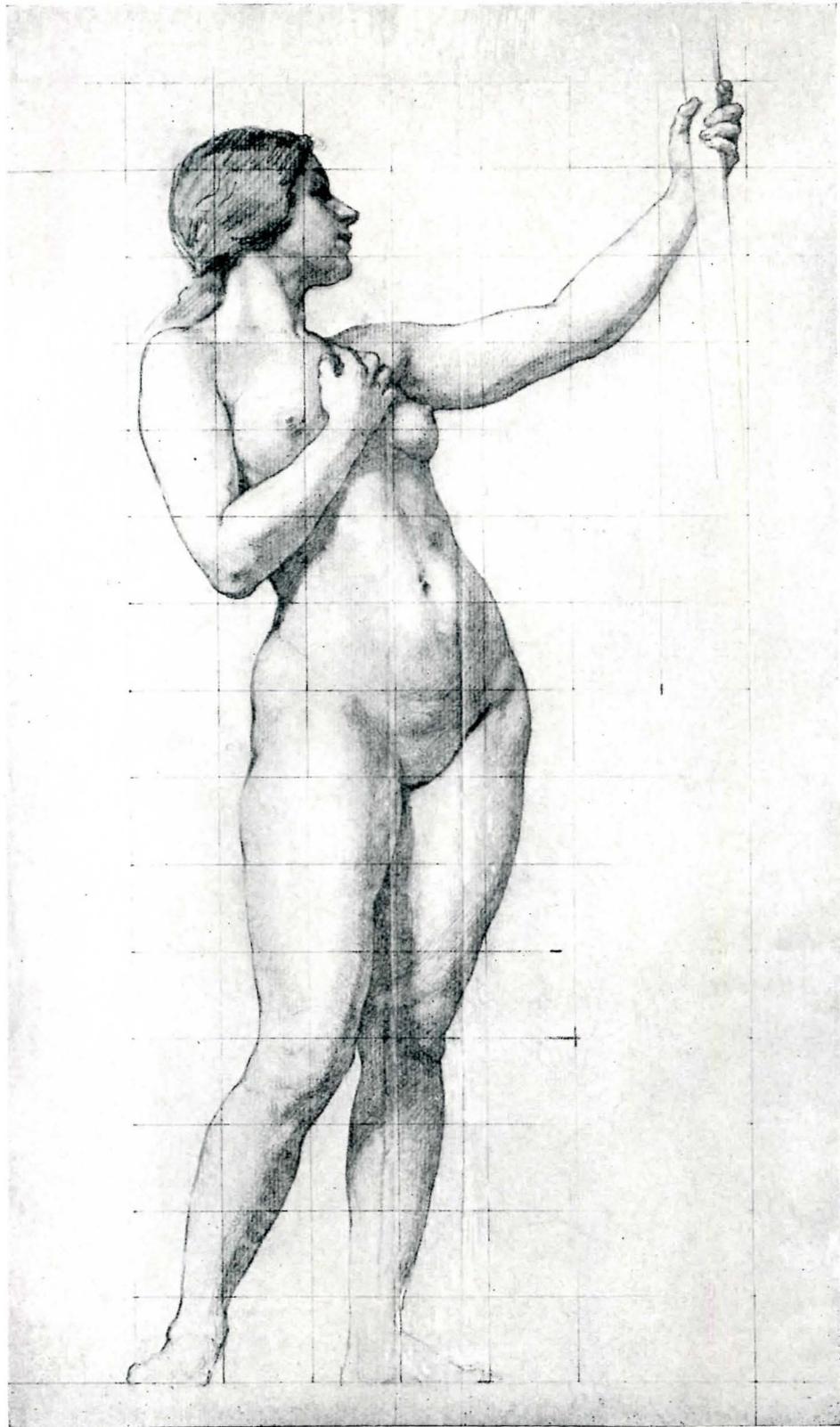


FIGURE STUDY BY KENYON COX

A remarkably fine figure study in pencil is shown on the other side of this sheet. It is one of the best of the studies by that master of life drawing, the late Kenyon Cox, and is one of several drawings loaned to this magazine by Mrs. Cox.