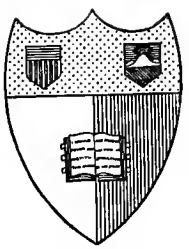
INDICATION
IN ARCHITECTURAL DESIGN

Varon



INDICATION IN ARCHITECTURAL DESIGN

A Natural Method of Studying Architectural Design with the Help of Indication as a Means of Analysis.

By D. VARON

Architect, Diplômé Ecole des Beaux-Arts, Paris. Formerly Professor of Architectural Design at Syracuse University and at the University of Illinois.

NEW YORK
THE WILLIAM T. COMSTOCK COMPANY

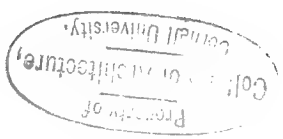


PHOTO-LITHOGRAPHED BY
ROBERT A. WELCKE
178 WILLIAM ST., NEW YORK

PRESS WORK BY VAIL-BALLOU COMPANY
BINGHAMTON AND NEW YORK

To the Memory of my late Professors
JULIEN GUADET
and
EDMOND PAULIN
to my
Fellow Students
Of the Atelier Guadet-Paulin
This book is dedicated

PREFACE

HAVING encountered, as a student of architecture, and in more recent years as a teacher of this art, the many hardships that beset the road of both pupil and instructor, I have made it the main purpose of this work to remove many stumbling blocks from the student's path, and indirectly help the instructor.

But even without any obstacle, the road to a thorough understanding of architecture remains an arduous one. The student should feel a real calling for his chosen profession, and not be moved only by the material end of it. The late Professor Julien Guadet, whenever a youth sought advice about entering the career, would put various questions to him, about his academic preparation for the studies of the Ecole des Beaux Arts, and end up by telling his visitor that if financial considerations were his principal motive he might as well get a job at once in the first grocery store and begin to make money right away.

It is assumed that the student who makes use of this essay is kindled with the sacred fire, and is willing to omit not a single opportunity of using his eyes and his mind.

I wish to acknowledge my indebtedness to Mr. Manoël F. Béhar for his helpful suggestions in correcting the manuscript and proofreading.

D. VARON.

March 1st, 1916.

INTRODUCTION

DURAND, in 1809, a generation before the famous "Pompier" period, to which we now appear to be reverting, said that architecture is both a science and an art. As a science it requires a knowledge of things but as an art it requires talent. Talent is the wise and happy application of a knowledge of things.

The author of this excellent work aims to assist the student in the art of using knowledge of architecture by broadening his perception, by training his powers of visualization, and by making him see as the artist sees.

To draw well, one must see well, to design well, one must do both, and seeing with Mr. Varon's vision clears up many problems which baffle the student.

Since all architects are students, this book will also interest older practitioners by setting forth logically and clearly many things they have discovered after years of experiment and observation.

Because of Mr. Varon's experience as a designer of buildings and as a teacher in schools of architecture in America, he has been able to contribute this material aid to the course of education.

WILLIAM A. BORING.

Columbia University—1916.

CONTENTS

GENERALITIES

PRELIMINARY TRAINING AND SIMULTANEOUS STUDIES

SCHOOLS of architecture in this country leave nothing to be desired in the way of equipment. And yet in one respect they are sometimes incomplete, for a school of art needs the artistic atmosphere, which it is not always possible to find or produce in certain parts of the country. That they are achieving so much is nothing short of a wonder, and proves the efficacy of the methods used. It is easier abroad where after hearing the professor explain a theoretical principle, the student may go out and observe for himself many a concrete example close at hand. This is possible in the United States only in a few art centers, while in most cases we must resort to photographs. But whether actual examples or pictorial reproductions, the student should make it a point to devote to their study as much time and attention as he can, since this means training his eyes to see; and this he should do and form the habit of doing even before entering the architectural school.

While so doing, the student should *familiarize himself* with a great many architectural productions, of all periods and styles. Architecture is, like a spoken language, a mode of expression. Now, as a rule, a child hears the sound of the human voice for many months before it is able to utter a syllable. So it is with architecture. One must contemplate many examples, each many times and from different points of view, under different lights, indoors and out, till at last one feels the desire to reproduce what he sees—to sketch, to draw to scale, to reproduce from memory—even as a child tries to repeat a fragment of speech. In either case the result of the attempt is imperfect. The infant, even after having reached its fifth year, mispronounces most words and not until spelling has been learnt in school is correctness achieved. In like manner the beginner in architecture, before he enters the atelier or school, will find it of great advantage to reproduce in his sketch book the buildings which impress him most and spur most his ambition, so that on entering the drafting room he

will not have to get his eyes opened for the first time by the instructor. The latter will serve him best as an intelligent guide, like the gardener who cultivates his plants. And just as the gardener cannot cause a weed to blossom in beautiful roses, so the instructor, however much he may strive, will never succeed in making an artist out of a person who has not in him the germ of art.

Granting, then, that the beginner has in himself all that is required to become an artist after a fair amount of work,[1] what is the first thing for him to realize and understand thoroughly?

It is to know why he studies what he is told to. In too many cases the program of study is not always thoroughly understood in the relation of the various subjects to the ultimate goal, architectural design. It is generally admitted by the student that the curriculum is arranged with that in view, and he fully trusts those in charge, but few are those who actually see the connections. All students understand the necessity of learning resistance of materials, mechanical drawing, heating, ventilating, carpentry, masonry, and all such technical branches immediately connected with the main subject, but when it comes to the study of the classic authors, of poetry, drama, life drawing or modeling, the majority of students are at a loss. They fulfil the requisites in blind compliance, because otherwise they could not get a degree; but the result of such a state of mind is that no sooner are the examinations over than the misunderstood subjects are allowed to fade from the memory.

Some persons believe that the shape of every work of man should be dictated by pure reason. This would make architecture altogether mechanical. While there are material needs first to be met, one must not disregard those other requirements which Guadet called "moral" or, as usually termed, æsthetic. It is to satisfy æstheticism that special schools of architecture have evolved.

A tradesman without any artistic training whatsoever may build comfortable houses "with all the latest improvements," which meet all the requirements of a shelter for the human animal. But when it comes to expressing on a structure the ideals and aspirations of the owner, his taste for the beautiful, and preserve harmony with the surroundings and with the spirit of the time, then the architect, the man of special training must be called in. And it is towards this

[1] Abroad it takes from three to ten years to get the degree, according to previous preparation.

accomplishment by the man of art that the various courses of a school of architecture have been designed, embracing the study of classic authors, languages and of other cultural subjects.

It is largely through analysis that we improve, and this is greatly helped by comparison. Nothing is more stimulating than the comparative study of two different languages, and of two different architectures. One may know the grammar of a foreign language and possess a rich vocabulary. But that does not constitute a knowledge of that language, for there are idiomatic expressions defying set rules, consecrated by usage. So it is with our art. English domestic architecture, for instance, has a charm which cannot be taught like grammar. With regard to the beautiful one must never go by rule but must make use of the "sixth sense," or the æsthetic sense. The instructor may well help the student compute accurately a truss, a beam or any other element of construction dependent upon mathematics; but when it comes to designing a public building or a private one of a certain character, there will be no absolute rules, but principles which are very elastic, and it is for the artist to use them properly.

The sense of the beautiful is developed by the surroundings in which we live, by the general atmosphere of culture, almost from birth. The study of nature does much to cultivate taste, for the same principles that underlie the achievements of man are found to govern all her works.

It is with this idea in view that the student may profitably learn such a subject as literature. Analysis of a classic reveals, besides adherence to grammatical principles, lofty thought clothed in beautiful expressions, in a "pure style." Thought is essential, but it is not enough, it is also necessary that the exposition of it be attractive and thus be made more eagerly sought and more easily comprehensible.

Each period in history has brought forth works characteristically its own by availing itself of the agencies at its disposal. We are doing the same in our time. Our age, architecturally speaking, is one of metal framing and its exigencies and requirements may call forth expressions unknown to the past. To create new styles without rubbing against the grain of his contemporaries, the architect must act cautiously, using about the same principles as those resorted to in literature. Hence also the importance of studying *les Belles Lettres*.

The principles of rhythm in poetry, of harmony and counterpoint in music, are

paralleled in architecture, the main difference being that instead of the element of time, we have space, while sound is replaced by visibility.

The analogy holds good as regards treatment of subject. An essay on patriotism must be written in a dignified and formal manner, while the style of the description of a pleasure trip should be lighter:

> The sound must seem an echo of the sense.
> Soft is the strain when Zephyr gently blows
> And smooth the stream in smoother numbers flows;
> But when loud surges lash the sounding shore,
> The hoarse, rough verse should like the torrent roar
> When Ajax strives some rock's vast weight to throw,
> The line too labors and the words move slow.[1]

So, in architecture, forms must differ in a rural structure from those of an urban one, in the case of the whole as well as of the details.

The history of architecture and famous architects is of paramount importance inasmuch as it shows under what conditions the works given as examples were executed, that is to say, the relation between the architect and the general culture of his time. This consideration is an important one, as it will keep the youthful architect from falling into error as he might if he were to apply his knowledge without any regard for the human element. Schooling develops ability, but it takes a great deal of practice to learn the tactful handling of men.

Those interested in the history of famous buildings will read with interest the text book of Letarouilly accompanying his splendid work on "The Modern Roman Edifices." It will help them to understand how the principle of variety was observed in different ways by different architects and why there is more variety in one building than in another.

The lives of architects present more than one example of a man entirely devoted to his profession, putting art and honesty above everything, and tell of the struggles of many a promising genius, like Brunelleschi or Michaelangelo. The biographies of such men show also that they were not only familiar with architecture but proficient in many other arts. Their reading tends to develop

[1] Alexander Pope—Essay on Criticism.

patience, perseverance, audacity of imagination and other qualities. Such reading inspires and uplifts.

It is almost superfluous to show the close relation between the study of Latin and architecture. We study Latin for several reasons, the most important being that it has supplied modern languages with a number of roots, as did Greek. How those ancient languages have been transformed or become our vernaculars is a study that architects will be greatly interested in. We cannot build any structure of importance without having to resort more or less to forms borrowed from ancient Rome and Athens. Of course we also use, consciously or unconsciously, forms originating elsewhere and in other periods of history. To make a proper use of our language we have to understand the full sense of a word. Likewise, in architecture the origin of a form or of an ornament must be fully understood.

As to the significance of life-drawing in the program of a college of architecture, those who best seem to appreciate it regard it as a means of training the eye in beautiful forms. In depicting a well chosen model, the draftsman may develop his sense of harmonious lines. But to the architect there is more than this. Man has been given as the perfect creature. He represents the best illustration of the theory that nature derives beauty from sheer satisfaction of a need. The organ responds to its function. Skeleton and muscles are in perfect accord with man's needs, moral and material. Here more than in any other example is æstheticism illustrated. Though all mankind be built alike so far as the general needs of the race are concerned, there are various types, some handsome, others common, others yet having no æsthetic beauty but much expression, such as strength, alertness. There is expression of some sort even in men that are least capable of thought and volition.

It is these principles, of fitting the organ to its function, and of expressiveness, that the study of life drawing is expected to inspire, besides making the student familiar with beautiful forms. The human face has been perfectly devised by nature as man's expressive organ. The frowning of the eye-brows, the contracting of the cheeks for a smile; the lowering of the jaw-bone while the eyes open wide in other moods, all show very clearly the wisdom with which man was created. Indeed here is the great lesson to be derived from nature: first build

solidly and usefully, æstheticism will follow. Beauty will be the fragrance of the perfect creation.

Not only are these somewhat abstract conclusions to be drawn from such a study, but also and more concretely, the simplicity with which the body of the lord of creation has been designed. The delicate instrument of thinking is located where it is so well protected. What has made man so superior to animals? It is said to be the hand. See how simple a design and how much beauty is derived from the proper combination of its simple parts.

When life drawing is thus conducted, there must naturally follow the generalization of those principles which the instructor has helped discover, and, better still, those which the student, through his perspicacity and sagacity, has discovered for himself. To make his observations more fruitful, the student will recollect all he has learned about the physiology of man. Now that he is particularly concerned with proportions, will he not the better admire the beautiful way in which the different parts of this complex organism are balanced? He must reflect that man is the king of creation not only because he possesses intelligence, but because the whole machinery which makes his thinking possible, while elaborate, is nevertheless compact in form, simple in appearance, and beautiful. It is also a structure the frame of which was carefully devised: nature had a problem to solve, and the conditions of the program were many. The problem was solved in a way that is an eternal source of inspiration. The wonderful strides achieved by the Greeks in æsthetics were due to their starting with a reverential study of Nature's solution of that problem.

Taking then the Greek architecture as the ideal initiator to our profession, we must, in order to understand it, look upon it and upon the human organism, to which it is so closely related, from the same point of view as that of the Greeks themselves. When we have understood this relation, we are ready when a new problem is put to us for solution. We will not think first of applying rules and formulas, but will know how to find inspiration from Nature's inexhaustible store. Casting a glance about us at our surroundings will be enough to start the train of ideas leading to the solution. For Creation offers an infinite variety, from the huge mountain to the tiniest flower.

Any organism has a vital center and subservient parts. Man's own conceptions, to be harmonious, must conform to this plan. In his works, the center of

importance will occupy different positions, according to the purpose of the whole, with which its proportions must harmonize. In no two problems will this center be of the same importance. In nature, the proportions of the lion are unlike those of the ant. In architecture, the proportions of the aldermanic chamber in a town hall will differ from those of the senate chamber in a capitol.

To conclude these remarks: life drawing ought to develop the sense of observation and its practice should not be limited to exercises of pure imitation, merely to training the hand to draw beautiful curves. A little observation will show that the varying expressions of man are quite independent of the cut of his clothes. Character or expression can likewise be imparted to any structure without change in the material used. A peasant may be serious or he may be cheerful, just as may a refined metropolitan. Likewise a country estate can be given either a dignified or a welcoming gay aspect, just as can a city mansion. How? This cannot be answered in one sentence, but the underlying idea can: the artists most fortunate in imparting just the appropriate expression to works of various natures and purposes are those who have drawn most inspiration from man and from the works of nature in general.

INDICATION IN ARCHITECTURAL DESIGN

CHAPTER I

ANALYSIS OF SIMPLE ELEMENTS—TRAINING THE EYE AND HAND

ARCHITECTURE being in important respects similar to sculpture, the ideal way of studying it would be through models, which is actually done in some cases, in daily practice, when the contract so provides. When modeling is out of the question on account of its cost, limited time, etc., the least the architect can do is to draw several views in perspective, detailed as much as possible, and absolutely correct only as regards the main proportions, so as to make it expedient to judge whether the various parts harmonize, and just where changes are needed. Plans, elevations, and other straight drawings will not be sufficient.

To be able to conceive any work with the assurance of success, the architect must have trained himself to visualize the whole and every part of his creation as they would appear in perspective—as they would be seen in the actuality. This ability, like every form of skilfulness, proficiency or talent, is acquired through practice begun humbly and earnestly kept up.

The student is therefore urged to draw all the elements of the orders, and various elements of minor importance, from original examples or from carefully selected casts. At first he will draw these elements in a northern light, and when he has grown fairly familiar with these forms and with the technique of whatever medium he uses, he will sketch them outdoors, exposed to sunlight. It will be profitable to draw each object from various positions. The beginner will soon discover that he can now understand details that puzzled him when studying sections, plans and elevations on regular graphic plates, and that he can the quicker and better understand problems of shadows and shades.

Plate I indicates how the student should draw side by side on the same sheet the elevation of an order and its perspective appearance. This should be done

free-hand, so that from the outset the student will train himself in the proper way for an architect to jot down his conceptions and to take notes without instruments.

On Plate II are grouped three orders, analyzed under the same light, for comparison. What is done here with regard to classic orders, can be done with regard to other orders and elements of different styles. Comparative study, which is established in different branches of science, is also of paramount importance in our art. Nothing can be more attractive to the student than a museum of comparative architecture. Comparison is essential inasmuch as it shows convincingly that the differences do not necessarily lie only in details or in any set of mouldings, but also in the general outline and in the main proportions. Thus the Doric order, which expresses strength, differs from the rich and elegant Corinthian not only in the details of the cap and base, but in the general outline of these elements, and in the proportions of the column as a whole. The student should practice drawing free-hand these various proportions until he is able to do it correctly without measurement.

CHAPTER II

ANALYSIS BY SKETCHING: DOORS, CEILINGS, ETC.

THE method applied to the analysis of the orders may be used to advantage in the study of other elements of architecture such as doors or windows, with regard to the exterior; and of flat and vaulted ceilings and other interior details.

Plates III to XV deal with such elements. In Plate III doors are analyzed. The three examples will be sufficient to show the process of analysis and particularly help to illustrate that in most cases architecture consists in making construction beautiful. The elements involved in these doors are essential in good building. To a certain extent, the architect may, according to the exigencies of the case, vary the proportions and even the combinations of these elements without seriously altering their structural characteristics.

These elements are viewed in perspective, the necessity for which mode of expression for the student to practice one cannot too much insist upon, for here more than in any other branch of knowledge, personal observation is essential and theory a supplementary help.

Plates IV to XV represent diverse classes of flat and vaulted ceilings, a variety of which features it is possible for all students to observe even in small towns—in banks, hotel lobbies, courthouses, etc., in which premises good examples of flat ceilings with coffers are not infrequently to be met with. These plates are not to be copied, but are a means of suggesting how to go about making a study from the actual example or from photographs. They simply suggest how to use one's sketch book to best advantage, by giving prominence to the perspective drawing, and setting down around it such straight drawings as plans and sections and other desirable details. They were drawn free-hand, as the student would have to do in a reference library. It will require a good deal of practice to sketch interior details, as it does outside views. At the same time, it is the best way of applying the knowledge of technique gained in the free-hand class.

CHAPTER III

SILHOUETTES

WHILE most engravings and paintings can be enjoyed only at close range, in special settings or under certain conditions, a structure must be conceived with the idea of satisfying the distant onlooker as well as the close beholder, whether in the glare of noon, or at dusk when it cuts a dark outline against the sky. In this respect it is like a piece of sculpture. The Statue of Liberty in New York Harbor was designed to be and is as impressive when discerned through a mist as when clearly seen in the purest atmosphere.

Therefore the beginner must study outlines or silhouettes, beginning with those of the simplest elements in our art. One need not begin with the Cologne Cathedral. A retaining wall with a balustrade and a strong buttress, seen in the twilight, is in many cases very picturesque. Even a simple column can be very interesting in mere outline, as we can verify by several examples in public parks, where a Doric column crowned by a tripod is often erected as a landscape feature.

Accordingly, Plates XLVI, XLVII and XLVIII suggest to the student various exercises for practicing silhouettes, beginning with the simple Doric column and culminating in a whole building be it the Soldiers' Monument, or the Capitol at Washington, etc. Here better than anywhere else may be realized the importance of proportions, the contrasts between horizontal and vertical masses, which serve as a means of introducing variety and contrast in composition, also the treatment of a prominent feature, as in the New York City Hall (Figures 4, 5, 6, Plate XLVII) ; the writing, so to speak, of dignity and majesty into a skyline, as that of the Columbia University Library, (Figure 1, Plate XLVIII) etc.

CHAPTER IV

INDICATING

SINCE a building should be designed with a view to offering beauty even in the skyline, what can be done to please the distant beholder during the daytime? Here the problem has two cases. The first case is that of a location where the atmosphere is hazy, the problem then being practically like that of the twilight silhouette. Where on the other hand the atmosphere is clear, the architect must endeavor so to design his exterior as to endow it with *expression*, in spite of the fact that details vanish with distance. In other words, he must be able to conceive an elevation the attractiveness of which consists of masses of ornament that can be indicated by a few strokes of the pen or pencil. And the best training for this, naturally, is *to master the science of indicating.*

Let it be borne in mind from the outset that indicating is by no means a knack, as is generally believed. This erroneous idea has kept many students from making the efforts necessary for the attainment of very good results. I can say this from my own experience. I used to look with awe upon my upper classmen doing a sketch in no time. It seemed to me then that there was something of magic in their work which not every one could possess; but after filling about a score of sketch books, I realized that application and observation were the requisites.

This science is very beautiful to the student eager to attain a high degree of proficiency in composition, as it offers the means of making several studies in one day, with excellent chances of expressing good ideas in each one, whereas without it he can barely make one study a day, with more than the possibility of failure.

Plates XX to XXV are devoted to this particular study of indicating. The object here is not alone to practise the rapid sketching of beautiful conceptions, from actuality or from photographs, which is of paramount necessity in school as well as in the office, but also to pave the way to the conception, with no wasted mental efforts, of large and complex compositions.

Plate XX shows almost mathematically how different orders, and several features in connection with which they are represented, are simply indicated. A vertical line to indicate the shaft of a column, two dashes, one for the cap and the other for the base, and that is all. And how can we tell one order from the other? By the proportions. The height of the Corinthian cap, for instance, is comparatively much greater than the Ionic or the Doric. Of course when sketching very rapidly and on a small scale one must not try to do more than suggest the main forms. It will be necessary to resort to a larger scale when details are required. So it is with literature. When asked to sketch Alexander in one brief sentence you could not say more than that "he was ancient Greece's greatest ruler."

It has been said of pen and ink drawing that it might be called the shorthand of drawing. This is especially true of indicating. There is very little left to be a so-called knack. On the contrary, every touch of the pencil or pen has a meaning, and it is because of this expression to be found in every dot and dash, and also because of the numerous elements expressed by omission, that sketching or indicating is so rapid, and not because the artist is gifted with a peculiar power.

Consider a column, for instance, which has one side exposed to the sun. The high light will not be represented on the sketch, but will be suggested by omission, while the shady side will be suggested by a line. This is particularly feasible on small scale, where a line may represent a very thick shadow.

The most elaborate vase when seen on the top of a lofty tower will appear as a mere speck, but even this dot may have a peculiar grace if it be in harmony with the general feeling. When vases or other such ornaments are well distributed, from a distance we will enjoy their mere order, their rhythm, their graceful crowning of a series of columns, or of buttresses, etc. (See Plate XLIV-D.)

To attain the degree where he can rapidly represent any given classical feature will require on the part of the student the development, through earnest practice, of a very fine sense of touch. He will have to do with his pencil what the pianist does now with the sustaining pedal and now with the soft, or what the organist does with the stops.

CHAPTER V

THE APPLICATION OF INDICATING TO RESEARCH WORK AND ANALYSIS

ONCE the student has had enough practice in indicating to feel that he can make use of it, he should begin to do so. The first application he will have the opportunity to make of it will be in the reference library, which offers him inspiration, precedents, ideas of proportions, of character, etc.

Now it is with our art as with anything that requires thought. Analysis is the only means of thorough study. Let us illustrate by imagining that a student wishes to study the famous Palazzo Farnesi in Rome. This would be the way to go about it. Naturally the start must be made with the plan. In order the better to understand the grouping of the masses, and their relation, the student must disregard small details and, no matter how elaborate the plans he consults may be, his first sketch will be like Figure 1, Plate XXIV, which shows what is called the block plan, where only the courts and circulations are indicated in white, while the rest is hatched. He will observe that the front and rear parts are thicker than the sides; and that the circulations and vestibules are likewise more generous in the former than in the latter. He can easily read the plan at least in so far as concerns the relationship of the parts to one another and to the whole. He remarks at a glance the thickness of the front wing, which with its monumental access constitutes the most important part of the structure, involving the reception halls and galleries, while the sides are assigned to functions of comparatively lesser importance. He also notes that the circulations on either side are proportionate to the thickness of the structure.

The next step for our analytical student is to consider the same plan more in detail. The first story being the most important, he sketches it, (Figure 2) still on a rather small scale, where he can not do more than indicate the component parts, yet, thanks to the delicate sense of touch which he has developed, he can present a fair idea of this plan in spite of the simplification and the smallness of the scale. For instance, the piers of the court are merely indicated by

dots which, however, are heavier than those representing the columns of the front vestibule. The student, being struck by these interesting piers, sketches the plan of one in detail, as in Figure G. The same process of detailing is used in the case of all parts offering a peculiar interest.

The student has now analyzed in the best way possible the main features of this first story plan.

The advantage of this process over that of tracing from the reference book is manifest, and should not have to be insisted upon. It is the best means of discovering the principal qualities of a plan, and also of acquiring in a measure through one's own efforts the science of composition. For though there be general principles of design, these can not be grasped thoroughly unless their actual exemplifications have been studied.

Next in order for our student to consider is the elevation, and then the section of the palace, and his studies will be like Plates XXV and XXVI which pages of his sketch book he has filled according to the instructions in Chapter I —at the center the whole; at the sides the details. Among the interesting things he is struck with is the way the idea of proportion is observed in every case. For instance the band course of the third floor is decorated in an interesting manner, yet without distracting attention from more essential details. This feature, by the way, is of such a character that it could hardly be seen at a distance, and consequently our student disregards it on the small scale, but his detail (Figure F), shows it distinctly as seen very close.

Stress is also laid upon making perspective views of various elements. There is, for instance, (Plate XXV) a rather interesting cornice, composed, it is said, by Michaelangelo. Our student therefore represents it both in section and in perspective.

The student who reads this will do well to continue sketching in the same way other parts of this same building which has inspired generations of architects—the second floor for instance, and also some interior details, the perspective of a hall or reception room or a staircase hall. His instructors will tell him which other edifices he will find it of advantage to analyze in like manner. Once he gets used to doing this research work, it will prove a most instructive and entertaining way of occupying leisure time.

CHAPTER VI

ELEMENTARY ELEVATION DESIGN—A SIMPLE FAÇADE—APPLICATION OF INDICATING

ONCE the student has mastered the science of indicating, he will be able to design with greater assurance, for, next to the ability to visualize instantly and with little effort, which comes only with years of striving, the ability to jot down ideas quickly and accurately is the most useful possession.

Before giving an example of design by means of indicating, two points are again emphasized: first, that indicating is not a knack but a science, the shorthand of drawing; second, that the subject must be considered from a distance, where smaller details vanish, but not the expression of the whole. If the student bears these points in mind when he begins to design, he will avoid forming the bad habit of drawing too many lines, or meaningless lines, or attempting to represent too much.

As illustration, an exercise is given which, though simple, offers possibilities of treatment limited only by the resources of architecture and the exigencies of taste. The exercise consists of designing façades for a building, the height, width and number of stories and of windows remaining constant. The character or purpose of the building may be varied *ad libitum*, as well as the treatment; and the student may think of a use and suit the treatment to it, or conversely, venture a new treatment and observe the character suggested. No salient feature, such as a tower, projection, or emphasized part, is to be introduced. On the other hand, various roofs may be experimented with.

Nine sketches for such façades, leaving out the sloping roofs, are shown on Plate XXVIII. These nine elevations are plainly indicated and yet convey to the mind a fair idea of the character desired. The laws of unity and variety are observed, without, however, adorning the building with a particularly prominent feature—just as in the case of the Palazzo Farnesi, where the law of variety is obeyed by the slight changes between one floor and the other, alter-

nating a plain trimmed window with one crowned with a pediment, which treatment, though a little monotonous, lends an air of grandeur to the building.

The first sketch conveys the idea of seriousness and strength. This treatment would suit a police headquarters building. In Figure 2 this expression is allayed by the white surface on the upper stories and the strong horizontal line forming a demarcation between the first and the two upper stories.

The other figures introduce columns or pilasters, now on the first stories, now on the upper ones, and again these pilasters are transformed into quoins. In several of these figures we see two dominant horizontals, the band accentuating the first floor and the top cornice crowning the whole structure. In the last, however, we see three horizontal lines, which emphasizes the character of stability. We had seen already the application of these horizontals in the Palazzo Farnesi, where the two lower bands cast comparatively narrow shadows, leading up, as it were, to the dominant top cornice. The principle of stability is well emphasized by these dominant, unbroken horizontal lines.

In such structures the regularity of the spacing of the different elements is in itself significant, contrasting with the many buildings where irregularity is not unfrequent. Indeed, it sometimes takes a great deal of work properly to distribute the plan in order to suit both the actual need of the program and regularity in the exterior appearance. It goes without saying that in such structures the execution has much to do with the general impression, as the units are repeated and it is absolutely necessary that like features be identical in execution.

It is interesting to notice that one cannot reverse the proportions, as is seen in Figures 2 and 3 (in Figure 2 the upper part is dominant, while in Figure 3 it is the lower one), without taking particular care in the study of the reversed proportions. The same applies to Figures 5 and 6: we could not reverse altogether, that is, put a rusticated story on top and two blank stories below, for the reason that the rustication suggests more strength, and this feeling is needed more at the base than at the top; but the proportions of Figure 6 are quite often met with. We find their origin in the Roman triumphal arch.

In Figure 8 we have supposed a sort of loggia, which is not quite according to the program of the exercise, but suggests the multiplicity of possibilities in the quest of variety, even without the addition of various roofs.

CHAPTER VII

DESIGN OF ELEVATIONS INVOLVING SALIENT FEATURES

HAVING become acquainted with many of the countless modes of simple façade treatment, and familiar with most of the classic ones, the student is ready to pass on to the study and design of façades involving one or more salient features.

As was pointed out above, simplicity, regularity and symmetry may of themselves constitute characteristics of elevations, and they are usually desirable qualities—simplicity always is. A very simple, symmetrical and uniform façade, well executed, invariably possesses charm and nobility of expression.

Such austerity in a large or long structure, however, may be too severe or monotonous, precluding beauty and detracting from the grandeur sought in a big building.

Severity and uniformity may be allayed, and proper expression obtained, by accentuating one or more important parts of the plan, resulting in as many salient features in the elevation.

This may be done not only in the case of large or long structures, to relieve the monotony or avoid severity, but in smaller buildings, too; and sometimes the program not only allows it but makes it necessary, according to the character of the plan.

A part may be accentuated by having it project upwards, outwards, or in both these directions. The conspicuousness of a feature will depend upon (1) its location, (2) the extent and direction of its projection, (3) the difference between its surface or treatment and that of the rest of the façade, (4) the number of other features, and (5) its relative importance with respect to other features.

There are no absolute rules governing these factors. Great latitude is permissible, and here if anywhere it may be asserted that absolutism stifles art.

One rule, however, though it may not at once be deemed essential, must be

rigidly adhered to: Always consider the plan when designing the elevation. The successful creation will frequently be a compromise between the material requirements of the plan and the æsthetic needs of the elevation.

Indeed, there must be a *raison d'être* for every emphasis, and the resulting feature must be the outward expression of a function. Such are the church steeple, the mosque minaret, the town hall, belfry or clock tower, and even the porte-cochère in the case of the residence.

Therefore, the fewer the features, the better—the more they will be noticed, and the general effect be reposeful and dignified; while the opposite impression will prevail with a multiplicity of accents. The effect may then be fatiguing, unless the treatment be of such character as to suggest animation and merriment, as is the case in amusement parks. But even there sobriety in motives is a safe rule.

The treatment of a feature need not always be radically different from that of the rest of the façade. Contrast is necessary and is usually obtained, in classic examples, by the dissimilarity in the depths of shadows and shades. The feature may have isolated columns, standing out vividly against deep shadows, while the wings have engaged columns or flat surfaces—and vice versa.

* * * * * * * *

Only five types of elevations with salient features will be discussed, and each case illustrated by a very few examples. The object here is not to have the student burden his memory with many combinations of features, but to induce him to study some of the best existing elevations until he thoroughly understands their underlying principles.

On Plate XXX elevations are shown involving one feature, accentuated in various ways. In Figure 1 it projects upward a little, as well as forward, and affects a massive form contrasting with the length of the sides—a dignified and severe treatment. In Figure 2 the lines of the feature are more graceful. A feeling of nobility, richness and gracefulness is conveyed. Quite a different effect is produced in Figure 3, where of necessity the feature springs upward. So it is in Figure 4, the Trinity Church in Paris. In Figure 5, a courthouse in Hâvre, we have an elevation similar in certain ways to Figure 1, except that the proportion between the accent and the side wings is quite different. In the former case the wings are dominant, which emphasizes the idea of length of

the composition, while in the latter it is the center, which, considering the plan, constitutes a perfect architectonic feature. Figure 6, the rear of the White House, shows a salient feature formed only by a projection in plan. The charm of this façade illustrates the effectiveness of simplicity.

In Plate XXXI the two-feature elevation is shown. These terminal accents have not the same expression as the central feature, on account of the sculptural character of the architecture expressed by deep shadows. The mere difference between these and the light shadows of the features is enough to create a strong contrast, even though the details do not materially differ. This is well illustrated in the various examples given. Figure 1, the Ministry of War in Paris, has a gallery in the center, with a great effect of shade, while the sides, being more massive and flatter, contrast sharply.

The massiveness of the sides varies according to the building. For instance, in Figure 2, the end features are more slender than in the preceding example. In Figure 3, the proportions between center and features are altogether different from those in any of the other examples. The great arches in Figure 5, a recent railroad station in Paris, constitute the most attractive part of the whole. There is always grandeur and dignity in such arches, and the side features, composed of smaller elements, serve only as contrasts.

In Figure 6 we have an altogether different type of two-feature elevation, where center and sides are both very interesting, and the little towers, with their balconies, add much charm to the composition, seeming like graceful arms inviting the beholder. (An apt metaphor in this case, the Casino at Monte Carlo.)

These are just a few examples among hundreds which the student will do well to study for himself, and to analyze in the same way, by sketching elevation and perspective, laying particular stress on the proportions of the masses, on the way the features are brought out, whether by projecting upwards, outwards, or in both ways; then always notice what is the purpose of each structure, to see whether the general impression produced by the composition is in keeping with the program.

We may speak in the same way of the three-feature elevation, and also refer to the great variety that such compositions allow. On Plate XXXII from Figure 1 to Figure 6 this law of variety is well observed. In the case of such monuments

as the Louvre, of great length, a central feature and two end ones come in very naturally. In this case the monarch's entrance is obviously the center, and two monumental staircases the terminal accents. This arrangement was selected both for emphasizing the main point of the plan and also for avoiding monotony, for though a colonnade like that of the Louvre is elegant and impressive on account of its deep shadows, this impressiveness is enhanced by the contrast afforded by the more subdued ends and center.

In other examples, the proportions between features and wings are all unlike one another. This is instructive in showing that we are not bound to follow one single formula, but are to be guided by principles. The only thing we must pursue is expression, clearly written. Structures are similar to some extent to natural organisms. Some have very delicate proportions, others are imposing. To the infinite variety of expressions in beings may correspond a like variety of proportions in architecture. Figure 1 represents something royal. The proportions are wide. Figure 3 is more unassuming, though very interesting. Figure 5 is richer in effect; there is more grace and nobility. Figure 6 reminds us somewhat of Figure 6 of the previous plate. There is animation in both.

Passing on to the next Plate, XXXIII, we have examples of compound features. In the first four illustrations it almost seems as if we had taken a whole building and used it as a feature. Splendid as these examples are, the Louvre, Figure 4, is yet superior to the Hôtel de Ville for the reason that while the central compound of the latter might exist independently, that of the Louvre could not.

* * * * * * * *

It is no more possible to lay down rigid rules for designing an elevation than it is for sculpture. General culture, taste, and above all, understanding of natural laws will always guide the hand. A well-designed structure may be compared to an organism, especially to man. According to his moods man assumes all sorts of attitudes, now that of aggressiveness, now that of indolence. And just as there are degrees in human emotions, so there are in architecture. There are gradations between a smile and laughter, and correspondingly the proportions in architecture may vary from gay to light, from serious, through stern, to impressive.

Most of the qualities attributable to man may be met with in architectural

compositions, being written by differentiations of proportions. Is there not a thorough harmony between the warrior of the Middle Ages and the castle? between the cultured Italian lady of the Renaissance and the Italian villa?

We cannot insist too much upon the necessity of observing the human form, both from life and in its interpretation and idealization in sculpture. By the time the student reaches this chapter, he doubtless has begun to appreciate the value of life drawing and to discover its relationship to his main study. Here, for instance, is a huddled up old man trying to keep warm. Does not the student feel that the well built winter house, or one erected on the summit of a mountain, possesses in its general outline something of the same character? It is natural, since the same reasons that dictate the man's attitude are likely to affect the house's general appearance. Again, here is a person enjoying outdoor life in shirt sleeves; then the summer home breathes the same longings: porticoes and galleries joyously spring forth in several directions, with the freedom felt by some one sprawled out on the grass.

CHAPTER VIII

PLANNING

BEFORE composing plans according to given problems one must be capable of judging the qualities of a masterpiece from both the practical and theoretical standpoints.

Plate XXXVIII shows the analysis of Caracalla's baths in Rome—a beautiful, compact plan. The program, while no doubt it had many items specified, might be expressed in this way: baths for the two sexes, each having adequate steam rooms, pools, rest chambers, other necessary accommodations, and the spacious court with gardens in the center which was one of the delights of those times. Between the two baths was to be the common part for men and women, where festivities, athletic competitions and other events were held. The artist solved it in a wonderfully simple manner. The plan is both compact and airy. There is no lost space. See how simply the various components are grouped around the courts (Figures 5 and 6). In those times congestion was hardly possible and the usual scheme was a court for a light centre and also as a natural result of a common-sense time-saving grouping of the parts. The centre in Figure 6 is the most decorative part of the whole and it is shown at once in the plan by the difference in the thickness of the walls which tells of its loftiness in comparison with the rest. Guadet advocates very strongly the careful study of the central lobby of this bath as it is the nucleus of many a great modern composition. It has in fact been used in many churches and other public and private buildings.

Such a study, of merely copying a plan, would be of little avail but for the other parallel research work on the restored elevations and other drawings by authoritative masters. See for instance the perspectives of main halls by E. Paulin in the D'Espouy reproductions of the Envois de Rome. It is a fascinating study. I have known students to become so enthusiastic over these restorations that they would sit for hours feasting their eyes on their beauties—

vanished forever in the concrete but conjured out of the dim past by the magic of reconstructive minds—even in preference to sports or other extra-curricular attractions. Learn to enjoy such works, then set to work to analyze them in whatever medium you choose and in whatever order you wish, provided you have the order in the ideas. Canina, Palladio and several other authors have given the plans of Caracalla's Baths in their works. It is worth while studying them under the light of both history of Rome and theory of architecture. Compare the Roman baths of different periods. Learn to discern at a glance, from the mere proportions, the simple grandeur of the one as distinguished from the elaborate richness of the other. One should devote to this study of antiquity at least as much time as he does to that of Latin roots in studying advanced English. It has a corresponding importance.

Plate XXXIX takes up in the same way another important plan: The Paris Opera House. As in the previous example one must have a fair idea of its elaborate program, which in this case is accessible to the student. One item, dictated by experience, dominated all others: the necessity of separating the stage from the auditorium in such a way as to avert the danger of fire. Then again the stage was made high enough to accommodate in its upper part the entire scenery of a quick change. The daring of such a solution as that offered by Garnier is rarely seen, and it is worth devoting a great deal of study to by comparing it to other important theaters (there are several important treatises on the modern theatre). The plate is self explanatory. If one were to compare the foyer with that of any theater at home, he would wonder why so much space was given to mere promenading during the intermission. To appreciate this one must carry one's self back to the time when it was planned, when France had a court. The foyer at the Opera often served as a great reception hall. To-day it offers to the French Government the possibility of tendering a royal reception to an honored guest. The sight of the famous staircase on a gala evening leaves as much impression in the foreign visitor's memory as would the best performance.

Observe the simplicity of distribution of the various parts of the plan. Figures 2, 3, 4, 5 and 6 show how plainly the administration, the stage, the auditorium and the foyer have been distributed, yet to some degree observing symmetry. Notice the emphatic accent of the imperial entrance at A in the plan.

While it looks simple, it necessitated arduous study to locate it so centrally on the outside, yet leading straight to the imperial loge.

One of the most novel problems the architect had to solve—and he did it in a masterly way—was to raise the stage to satisfy the new theatrical exigencies. It is in itself something well worth the student's careful attention. And what simplicity of general outline in spite of the elaborate program! But what pleases most the investigating eye is the simplicity of the ratios in the general proportions (see Figures 3 and 4). These ratios are not given here as formulas to follow blindly but as evidence of the architect's determination not to leave the mind in doubt about these proportions: The ratios of 1 : 2, 1 : 3, 1 : 5 and others occur often in this composition.

Compare the different story plans. Though they differ greatly from one another, one could with a little perception almost make out the upper and lower stories from any one plan, thanks to the superimposition of the main elements of construction, which is a characteristic of perfect planning.

We have called the student's special attention to the plan. It furnishes an excellent illustration of how the mere thickness of walls, the width of windows and piers, etc., may proclaim the character of each part of a composition.

Attention is now called to what in architecture is termed "scale," and which is so well marked in this plan as well as on the previous one. To illustrate: the administration, for instance, uses smaller elements, this department of the structure being a comparatively secondary one. The stories have less height, the walls are thinner, the windows smaller, the piers separating them narrower, etc. The more the conception rises in grandeur the more the elements are given scale: The piers are set farther apart and are stronger, and greater height is given to the stories to impart more majesty and richness, according to the case. Thus the foyer is about as high as three stories of the administration department. The reason is simply that in the latter the heights were figured to satisfy the material need, while here it is to provide the possibility of displaying art and to give the eye pleasures of the highest type, through mural paintings and sculpture which carry the mind far beyond the confines of the hall. Here the decorations are gorgeous, while in the secondary parts, even in the main public vestibule, there is more simplicity, this in order to give the foyer the greatest artistic attractiveness and make it the climax in the general artistic treatment of the whole struc-

ture. Scale is thus shown here to be essential in establishing harmony between the parts and the whole from any particular standpoint.

One of the difficulties of architectural design is precisely, to unite elements of different scale. The axial arrangement is used in this example and in the previous one, where the eye is carried gradually from the monumental central hall to the less important porticoes of the side courts.

The qualities of plan are set off by contrast. Compare this structure to others of different destination and of an equal artistic merit and you will see still more distinctly what character and harmony mean. For instance, there is dignity here, but there is also dignity in a well designed Courthouse; the difference lies in this, that the dignity of the Opera is attractive while in the Courthouse it is stern and majestic.

Fulfilment of the program broad-mindedly, simplicity in the distribution, proper accentuation—or distribution of features—taste in the decoration of the interior as well as of the exterior, these are a few of the numerous qualities of the Opera House. The reading of the history[1] of this structure will prove most instructive to the ambitious artist.

* * * * * * * *

Importance has been attached to studying famous structures in all their aspects before beginning to compose, for it is in this way that the means of expression may be acquired. One could not express grandeur on a plan without having become familiar with this quality in well known examples. Nor could one have an idea of scale without studying this somewhat abstract subject in existing works of art or in famous compositions. All this being acquired, the student may start composing plans.

Planning consists of two things: the material satisfaction of the program in a mechanical way, and then the introduction of the artistic or expressive element. Mechanical here means common-sense. The building may offer treasures of exterior decoration; but if it does not answer the material requirements in every component part, in the easy access to them; if serviceability is not allied with æstheticism, the composition will be a failure.

In Plates XXXIV, XXXV and XXXVI simple rational arrangements of elements are reviewed, culminating in a monumental application of the T

[1] L'Opéra de Paris, by Ch. Garnier.

shape. The diagrams besides each example suggest the conception by assorted groups of elements, in a systematic way, which process is of inestimable value in reasoning out plan schemes.

The beginner often lets himself be carried away by minor considerations, to the detriment of order and harmony. It is sometimes amusing to see him mar a whole front on account of too much earnestness in his desire fully to satisfy the conditions of the program, this desire often resulting in the production of offensive warts. "Thinking in blocks," in an analytic and systematic way, one will naturally collocate elements which belong to the same class though having different names. Groups may either match one another on the same floor if they are of equal importance and of similar nature, or be superposed. In the H plan, for instance, the right branch may be composed of two distinct groups, on either side of the vinculum, while on the left there may be only one group.

The same applies to any other symmetrical shape, the T for instance. The essential is to avoid confusion. Thus in many art museums the entire first story is given up to sculpture while the other stories are devoted respectively to painting and to minor arts.

Classification of elements and distribution may be carried out in the planning of a residence as well as in a public building. Reception, sleeping quarters, kitchen, etc., are distinct parts which may either balance one another to some extent, as in the symmetrical plan, or—as is most often the case in city houses built on narrow lots—be superposed, beginning with the service in the basement, then reception, living, sleeping, servants' quarters, etc. This is self-evident to those familiar with well built houses, and no stress need be laid on it except for the necessity of impressing the student with the idea that the fundamental principles must be observed, however small the program may be: proportions, order and clearness, easy access, and good connections between the various elements ought to prevail.

Thus the process of planning follows that of small scale sketching from any good composition. We begin by satisfying the main qualities: order and harmonious proportions, while details may be indicated vaguely or even hardly touched; the general scheme must on the contrary be very clear.

This does not mean that one must necessarily adopt a typical shape, such as an H or a T or any of the combined forms of plans. The student at first is likely

to memorize such schemes and to apply them on the first occasion offered to him. It is natural for a beginner to do so, as it provides him with an opportunity the better to analyze the advantages of such a type of plan—and then it is supposed that the program to some extent favors such a selection. But in the more advanced stages the student will combine different shapes for himself, to suit both the program and his own ideal. This combination will have to be very distinct even in a sketch. It is in this little block plan that the budding architect will show some of his creative potentialities. A well conceived program always offers possibilities of injecting individuality, be it the result of differing from the others in certain basic ideas, or because of temperamental distinction. For instance, consider the competition[1] for the Petit Palais. The various conceptions differ from one another mainly by the shape of the plan. Here it is well to note that the winning design was chosen because it answered thoroughly both the material requirements and the æsthetic needs. It is most instructive to compare the winning to the competitive designs.

In good composition, the plan—particularly if it is situated on an isolated plot—will assume a special outline. This should not definitely be decided upon in the scheme before the silhouette of the perspective or of the elevation has been tried. It will be advisable for the student to practice drawing such silhouettes, as in Plate XLIX, first from actual examples or from good photographs, and then from memory, to develop the sense of proportion. It is only after many such exercises that the student will be able to apply the process in the quest of the plan outline best fitting both the program and his own ideal.

Plate XLIX shows several elements serving in these silhouettes. Their possibilities are unlimited. One thing is prevalent in this variety of forms and that is clearness, or order. Abundance of air and light is also conspicuous. This should always be possible, regardless of the great advantages of artificial light and artificial ventilation. There are exceptions in the order of things, but the architect should be the first to oppose any excess of artificiality. It is in his power to make the city a paradise or its opposite, by favoring natural conditions or hindering them. The idea is spread that an economical plan must be compact. This is right and there should therefore be economy in the distribution

[1] Concours Publiques, Exposition Internationale, Paris, 1900; and various architectural periodicals, 1894 and 1895.

of circulations and vestibules. However, the satisfaction of economy does not require the suppression of natural light and ventilation.

If for nothing else but the sake of returning to more natural living conditions and to learn the architect's part in this respect, it is well to study the Buildings of Modern Rome.[1] It is evident from the first inspection of a few of these plans that the architects sought to give the inhabitants of these premises the greatest amount of conveniences possible in that period—and of æsthetic pleasure. Air and light enter there abundantly. Wherever possible the architect manages a nice perspective, a vista: a niche with a fountain, etc. We are not living in the Fifteenth Century and economic conditions have greatly changed; but air, light and a fair amount of beauty are always in demand even in the most utilitarian buildings.

In Figures 13 and 14 on Plate XLIX, which are Grand Prix de Rome compositions, 1894, 1895, all the above mentioned principles and qualities to be met with in the Modern Roman Edifices are made patent, and to the end that these compositions should not be doomed to be mere theory, the same plate presents a block plan of the Sorbonne (the University of Paris), where theory was put in practice. In spite of disconcerting limitations, space, air and light were made to abound everywhere, so that scholars reared in such an atmosphere could not but spread abroad the influence of such healthy environments. The appreciation of this plan requires knowledge of the conditions imposed upon its author, and of the ideas prevailing in France at that time with regard to education. (Sports had little place, if any place at all, in the curriculum.)

The application of the principles of design is still more interesting when one has to deal with an odd-shaped lot or when the lot is between party walls.

It is always easier to achieve success when conditions are favorable, but when obstacles arise the architect has to overcome them. The Concours Publics, a publication of public competitions, offers a great many elegant solutions of such problems on odd-shaped lots. They are interesting from artistic considerations, skill and ability, and from the point of view of the standard of education. For instance, the tenement is given much attention in the attempt of providing for the wage earner as many artistic satisfactions at home as is possible under the circumstances. In such plans even the light court is made attractive.

[1] Edifices de Rome Moderne by Letarouilly.

CHAPTER IX

SOLVING A PROBLEM

HERE we reach the student's ultimate goal. He is given a program and is to study it on a given lot. At this point he is supposed not only to be familiar with the words, the grammar of his art, but to be capable of expressing an idea, of interpreting a principle in various ways to suit the case.

Now, no matter how much theoretical knowledge one may have acquired, he is bound to make mistakes at the beginning. Nevertheless a few suggestions will keep the beginner from making too big mistakes.

To begin with the student must bear two things in mind: First, that he will not be given far-fetched problems, but programs similar to those he has already seen either executed or in composition, and second, that his instructor is entitled to expect a great deal of self-development on his part. Indeed it should be incentive enough if the instructor suggests an idea, for the student to go at it with enthusiasm.

The student who is anxious to develop his ability to design and plan is strongly urged to classify buildings into a certain number of special classes, such as educational, religious, judiciary, administrative, funeral, festival, purely decorative, purely utilitarian, commercial, transportation, amusement, charitable, etc.

Taking up the hospital class, for instance, the student will see hundreds of them in different parts of the world, no two of them being alike, yet all having certain things in common: conditions dictated by the scrupulous observance of thorough hygiene; by true humanity and consideration for all patients; air, light and spaciousness, and a fair rate of beauty. Now, in cities where land is very high, gardens and spacious private rooms may not always be possible. And yet, the building must be so designed as to cure patients not only by medical and surgical attention, but by comfortable, restful, even homelike surroundings. To what extent this is achieved either in existing examples or in the best compositions, that is what the student will study with interest. He should not always

rely upon executed examples; each one of these may be considered but a step in the direction of the ideal.

Once this process of study has been applied by the student to various classes of structures, he will never be taken unawares or unprepared when confronted by any program which he must solve without outside help.

While studying each class of buildings he has also paid attention not only to the practical side but also to the way the respective decorative schemes were carried out in harmony with the character of each class. He has noticed the profusion of features in one class, their absence in another, and the intermediate degrees. In old types of buildings he has not neglected appreciating the adherence to traditions. The history of architecture tells that many a detail of the Parthenon was a stone interpretation of traditional forms traceable to the wooden shrines. The architects had to follow tradition to meet with success before the public. This example is a striking and an instructive one inasmuch as it suggests never to solve a new problem in an altogether unusual manner but in one to some extent familiar. It is only by degrees that new expressions will be accepted. The public must be prepared.

This peculiar consideration of traditional styles and features is well illustrated in modern town halls. The student will notice in his researches that in the North as well as in the South of Europe, in spite of the many and varied styles of these buildings, they have one thing in common, and that is the peculiar and pleasing expression which makes each truly represent the People's House which it is. Then there are bell towers or belfries, or campaniles—or corner towers reminiscent of the time when fortifications were a necessary feature. Not unfrequently one of the characteristics is a wide portico surrounding the building and serving in rough weather as a shelter for the public market tradesfolk. (Public markets and town halls were always closely related, particularly in Northern Europe.)

Since reference has been made to town halls, let us suppose that the program of a problem put to a student is such an edifice on a well defined lot; (Plate L), the location to be, say, a New England State, so that conditions will differ materially from abroad. It would be a great mistake on his part to search his memory for any town hall, whether at home or abroad, and try to adapt it. Practical considerations would immediately knock down this plagiarism in

spite of the artistic aspiration. More than one failure is due to this process of slavishly adapting one solution to different problems. Instead, the student will make use of his imagination, guided by his taste and experience. First of all he will group the items, as advised in the preceding chapter, and then try different arrangements suiting the nature of the ground and the program. In his various attempts he will not disregard tradition, be it satisfied in the form of a belfry or of a campanile. Then he will make silhouettes in perspective or at least in elevation of the various arrangements, and these will make it possible for him to choose the one best scheme without indecision. Easy access to the public to all parts will be the first consideration affecting his selection. Then, coming to the question of features, there will be considerations for keeping or rejecting this or that attempt. Sobriety in tone, suited to the town's population; taste in the decoration, according to the degree and nature of their culture; compliance with the laws of nature, with the dictates of the climate, etc. The tendencies of youth will be towards achieving such magnificent effects as in the Hotels de Ville of Brussels, of Ypres, of Bruges, Arras, or Antwerp. They should be curbed unless the requirements of harmony allow their free sway.

Details will have to be left aside for awhile until the masses are fully decided upon, then worked up little by little not too fast—so as not to choke the imagination by trying to create all in a trice. The next day may bring an idea which may lend the whole structure a stronger character than that hastily decided upon. The process of composing as one analyzes is just the reverse of sketching from executed works.

At school as well as at the office a scheme should be elastic enough not to bind one too strictly. This freedom is important at school to allow the play of the parts the better to study the definite proportions and the thorough adjustment of the parts. Sketches for a scheme that are too sharp and definite and with too many details frequently involve the student in a tangle of difficulties. This may be good in a sense, but is by no means necessary. Geniuses and men of great experience may allow themselves to set their conceptions on paper rapidly and yet with the certitude of ultimate success. It requires, however, a great deal of ability and of practice.

It will not be sufficient to be prepared in the grammar of architecture, in different expressions of character, in the knowledge of the requirements of

different classes of buildings, it will be necessary for the student's mind to work perfectly when the test comes. Men of talent sometimes fail on that account, while some others find inspiration. In other words, to be ready for the esquisse of a problem, the mind must be in perfect condition. All cares should be cast aside, for the throes of creation require absolute concentration. The student must feel self-possessed. Doubt and lack of confidence will prevent excellence of conception. Conviction and enthusiasm are constant companions of the creative thinker. This does not preclude reflection; on the contrary he will constantly be held within the bounds of reason by it.

It should be also borne in mind that human beings, to whatever class of society they belong, ought to be considered as human beings. This applies especially to public buildings, where mechanical devices must be introduced with care. It is this thoughtfulness for the human element that will be particularly noticed in a good composition. This, we have seen, is to be developed by the study of ancient and modern masterpieces all over the world. While conditions in this country at the present time are different from those in Rome in the Fifteenth Century, the principles best followed at that time may yet guide us in our quest of beauty.

CONCLUSION

IN the preceding chapters we have followed the student of architecture step by step from the analysis of architectural elements to the search for the best solution of a problem. We have endeavored to demonstrate that no rigid rules could be laid down, except they be the direct derivatives of principles in turn based upon the eternal laws of nature. We wish to conclude with a few words of which the text is the classic statement of the three immutable principles underlying art: the TRUE, the GOOD, the BEAUTIFUL.

THE TRUE

Plato declared that "Beauty in art is the splendor of Truth." The late Professor Guadet, who was wont to quote this definition, said about the dome of the Pantheon in Rome and the gradients surrounding its base: "This must be so because it could not be not so." This is an emphatic assertion of the principle of Truth, or SINCERITY. Indeed these steps were not put there out of fancy, but through absolute necessity arising from the construction of the period, when it was not possible to resist the thrust of the dome with a steel girdle, and the walls had to be designed thick enough to counteract it. To protect these walls from the effects of weather, their top thickness was divided into several parts, preventing water from stagnating on wide surfaces. In like manner all classic forms and elements were resultant of needs, and Guadet admonishes the student never to imitate them through mere caprice. So much was he convinced of the importance of the principle of Truth that we find this word in almost every chapter of his treatise.

Sham architecture is not new. It has cropped up in all civilized countries since the emancipation of the mass of society in each. The triumphs of democracy have unfortunately been accompanied by the appearance of mushroom squirarchies. The craving of vulgar parvenus for magnificent structures has led architects to resort to imitations, false materials, and the indiscriminate introduction of extravagant elements, uncalled for by actual need or by the character

of the structure. Thus there may be seen still standing to-day wooden churches with counterfeits of stone buttresses, each an indefensible violation of Truth. Traditional forms may of course be recalled, but through interpretations, not obsequious imitations which are only degrading and contemptible. Here is where Greek teaching is eloquent. See with what discretion and taste the architect of the Parthenon suggested wooden forms in his stone structure. The Romans built concrete walls faced with stucco or with marble—as is the case in the Pantheon—but never tried to imitate stone by tracing false joints on the stucco. The Pompeian architect covered his brickwork with a coat of plaster; but he too was sincere enough not to try to deceive the beholder. The inside materials were compared by him to flesh and bones while the outside was a sort of skin uniting and beautifying the whole. We see in the Middle Ages and later on in the Renaissance periods still more excellent examples of Truth in architecture when brick and stone were harmoniously allied. There is no mean material but has its place even in a conspicuous location when the artist knows how to use it.

THE GOOD

This hardly needs to be dwelt upon. Of course what we build must be useful and yet, owing to some false ideas about art, many have indulged in useless heaping of stone and marble, multiplying galleries and lobbies where no one ever would think of passing, making secondary parts as conspicuous as the most important, and so on. The function must create the organ. A dome which forms a feature outside but which you would vainly hunt for inside is a blasphemy against the True and especially against the Good. Such cases are only too frequent, and therefore we wish to warn the student against the misleading influence of some existing structures.

We have seen while analyzing the Paris opera house that the foyer was as high as three floors of the administration part, and that there was a reason for this. One would be shocked if such a secondary part as the dressing room section were as high as the foyer. By the same token we should like that a porch in the residence be treated as a porch must be, that is, as a shelter from the sun or weather. When a narrow porch, under the pretext of having a monumental feature, is made so high that you must keep your umbrella open under it on a rainy day, then it loses its character. It's *useless* as a porch.

THE BEAUTIFUL

It does not always require more expense or time for the tailor to cut a suit of clothes beautifully. The scissors might just as well be used in one direction as in the other, were it not for the sake of æsthetics. So it is with architecture. This is illustrated in Plate XLIII, the evolution of the modern pavilion from the castle tower. It will be seen that in the mediæval château, even such aggressive elements as battlements, machicolations, oriels, etc., are effectively, almost beautifully arranged, without ornamentation. Harmony and order have achieved this with the help of proportion. Hercules inspires us with awe, while Apollo charms us. It is nothing but a matter of proportions. In the one they are powerful, in the other elegant. The proportions of even a plain room or of a plain window may be made pleasant. The sense of architectural proportions can be greatly developed by sketching good examples in one's immediate surroundings, and by analysis. The space devoted to this text being far too limited to go into details regarding the principle of proportions, suffice it to say that here the study of life drawing is inestimable. The proportions of man differ from those of woman and those of the child from both of them. A child with the proportions of a man would be a dwarf. A man with the proportions of a woman would be effeminate. A man with the proportions of a child would be considered a monstrosity. Apply these remarks to architectural composition and you will see that a structure should not be a reproduction of another, no matter how beautiful, if the latter is either much larger or much smaller. Should a small city slavishly copy the Louvre on a reduced scale, the result would be ridiculous to the cultivated beholder. "Plagiarism" and "dwarfishness" will be the impressions.

Rhythm and harmony are factors in both music and architecture. The harmonies of religious music are almost the voice of a beautiful cathedral. So, too, colors of light-and-shade have almost as much to do with architectural beauty as with the pictorial arts. We call such abstract subjects to the student's attention to make him feel the more that architecture is a noble art, that while mathematics is essential in connection with resistance of materials it will never furnish him with equations solving æsthetic problems. Architecture evolves with man. Should there have been a definite rule to build a house, the human habitation

would have never changed. We see how great is the difference between the modern house and that of ancient Egypt.[1] With the evolution of science and the advent of fairies such as electricity many dreams have become a reality. We are taken without fatigue to the fiftieth floor and rapidly transported far from the center of business. We shall soon be compelled to consider proper accommodations for aeroplane garages.

Common sense and a keen sense of fitness and of proportions, of harmony and rhythm, will guide the creator, who will have to study the purely material or utilitarian temporary shelters and do for them what the Greek artist did with the old shrine.

The natural conclusion of all this is that culture is essential to the student. The architect must above all be a thinker if he wishes to leave "footprints on the sands of time." He must be interested in whatever goes on around him, keep alive to the progress of every human activity and register his upward aspirations on his conceptions. If the Mediæval artists wrought such noble works of religious architecture it is probably because they were themselves religious in the spiritual sense, and saw the Greatness of Creation even in the minute blade of grass. (See the variegated vegetation represented on the Gothic caps.) Those architects were true, looked for the useful—fire proofing was the first object of covering churches with stone vaults—and to this they added their sense of the beautiful, particularly in their churches, echoing in their naves the impressions received in the forest.

In those times instruction was not widespread, but man lived closer to nature and the sense of poetry throve comparatively more than in our time, in spite of our numerous schools and our system of compulsory instruction. Those craftsmen thought and observed, and there lies the key of their success. The book of nature is still open before us, the planet still offers the thrilling, bewildering sceneries of each season. Let us open our hearts, become more fervent lovers of nature, and, like past generations, we shall keep going towards the True, the Useful and the Beautiful.

[1] History of Human Habitation by Charles Garnier, Paris.

PLATES

This suggests the way the student ought to draw side by side the perspective as well as the elevation and section of an order, with the simplification of the details and their indication in the distance.

PLATE I

SUGGESTION FOR THE ANALYSIS OF ELEMENTS OF ARCHITECTURE. ITS APPLICATION TO THE ORDERS

While drawing the perspective of an order, care should be taken to analyse the forms the better to grasp the importance of each, both as expressing a function and also as a requirement of æsthetics. This analysis should also be carried in the simplification of forms as they appear far off. Groups A, B, C are self-explanatory. Sketches D, E, F show the simplification of the same orders in their applications. To note the difference in the general proportions as well as in the details, particular attention is called to group C, figures 18–23 carrying simplification to its limits.

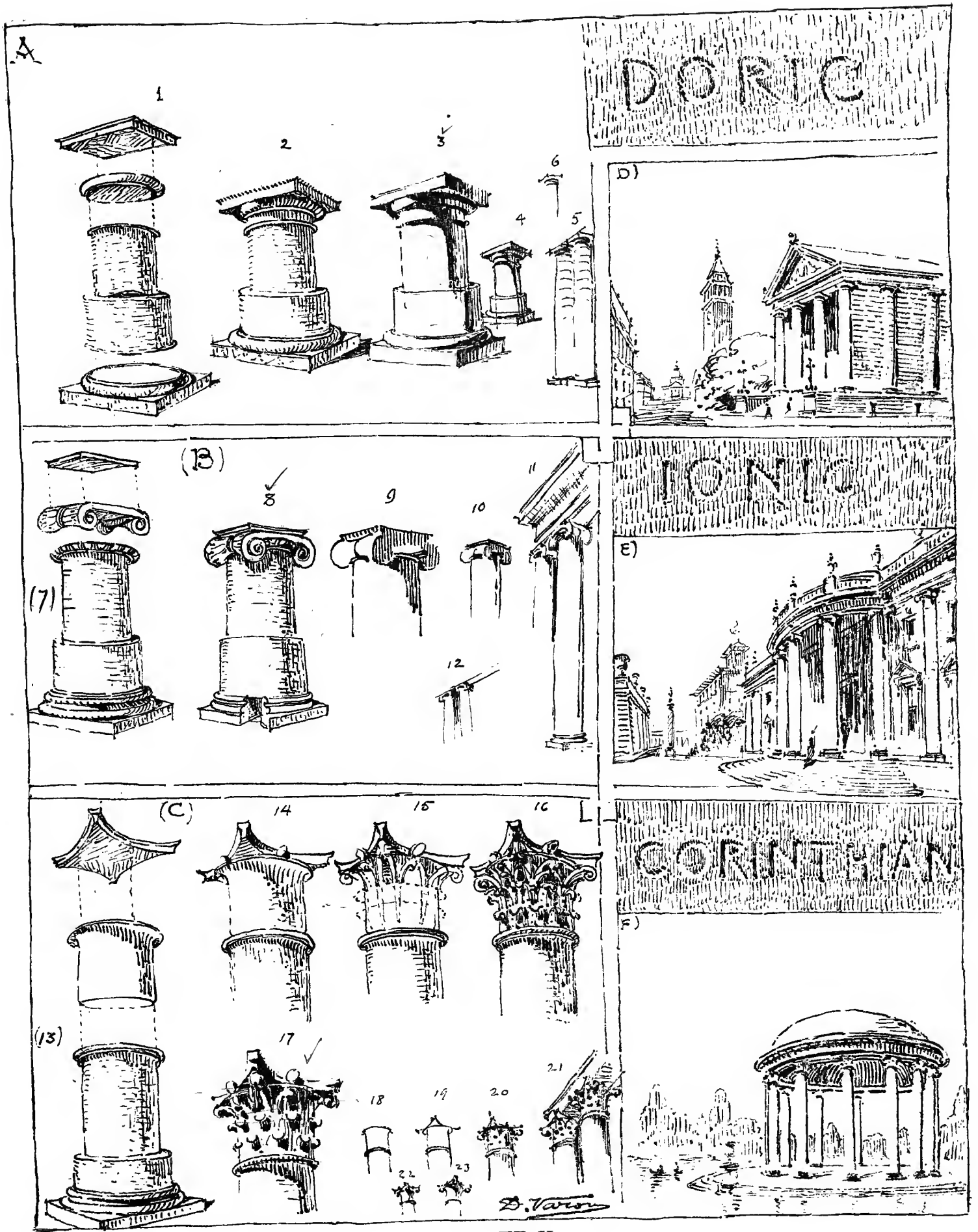

A
1
2
3
4
5
6
(7)
(B)
8
9
10
11
12
(13)
(C)
14
15
16
17
18
19
20
21
22
23
DORIC
D)
IONIC
E)
CORINTHIAN
F)
B. Varon

PLATE II

ANALYSIS OF ELEMENTS OF ARCHITECTURE. APPLICATION TO THE STUDY OF DOORS

The spirit of analysis applied to a current architectural element: the door. Three doors, A, with simple trim, B, with an entablature, and C with pediment, are indicated in elevation, in section, and simplified at small scale for easy indication; with elements taken apart, A^1, B^1, C^1, and the whole shown in perspective, A^2, B^2, C^2.

A good practice would be to analyse in the same way other doors and windows of different composition, such as with columns, with circular openings, etc. . . . This process of analysis helps the student to see always in his imagination the elements of architecture in their three dimensions.

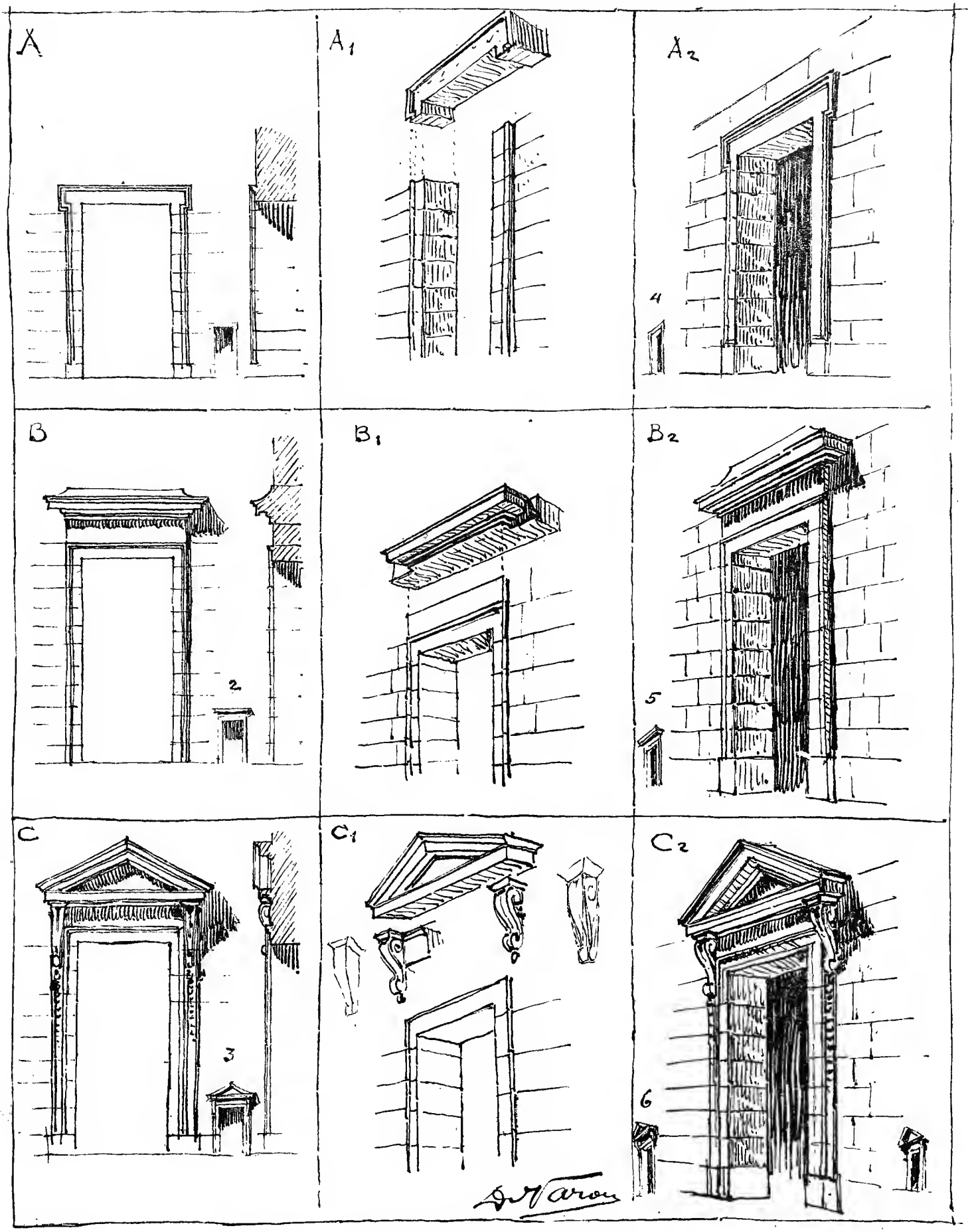


PLATE III

SKETCHING INTERIORS IN PERSPECTIVE. CEILINGS FORMING COFFERS

The series of twelve plates beginning with this one is intended to suggest to the student the method of studying details of interiors as he has studied exteriors, from the flat ceiling with coffers to the most interesting annular vault. The present plate shows a feature very much in use in nearly every bank building in the country. The coffer is one of the most architectonic features and most effective at the same time, for it means, when properly applied, construction made beautiful. It points the way to the ideal means of decorating architecture, of lending to the whole an expressive appearance, through the emphasis of good construction.

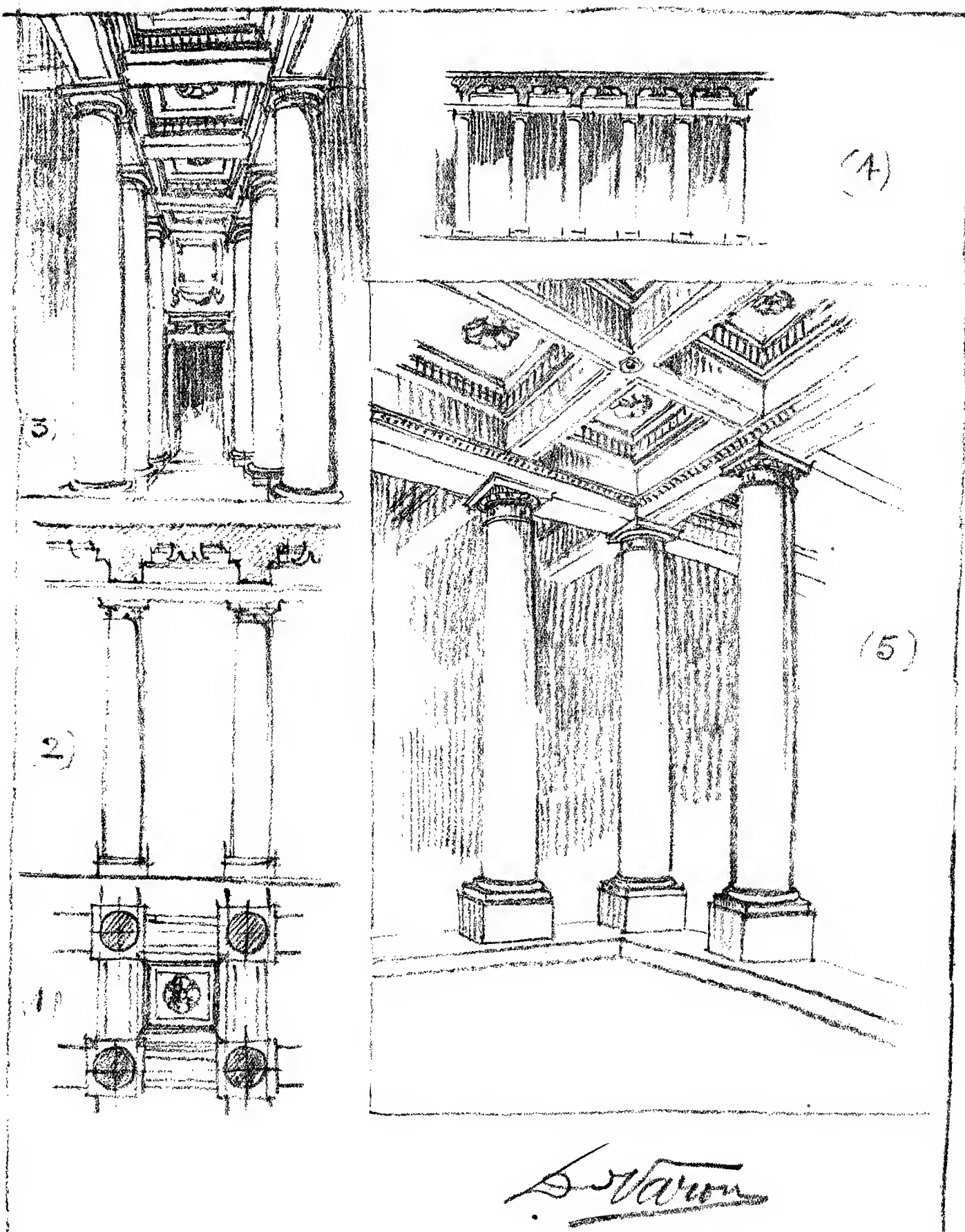


PLATE IV

SKETCHING INTERIORS IN PERSPECTIVE. DOME SUPPORTED BY A COLONNADE WITH SIDE COFFERS

The colonnade is applied to a circular form supporting a dome. The surrounding gallery is decorated with coffers. Deep recesses such as the coffers afford are essential for effective decoration in interiors, depending only on light and shade for expression. Notice the beautiful changes wrought in the appearance of each cap by the perspective of the circular plan. One draws projections of such elements much more easily after having become thoroughly familiar with these different appearances in perspective.

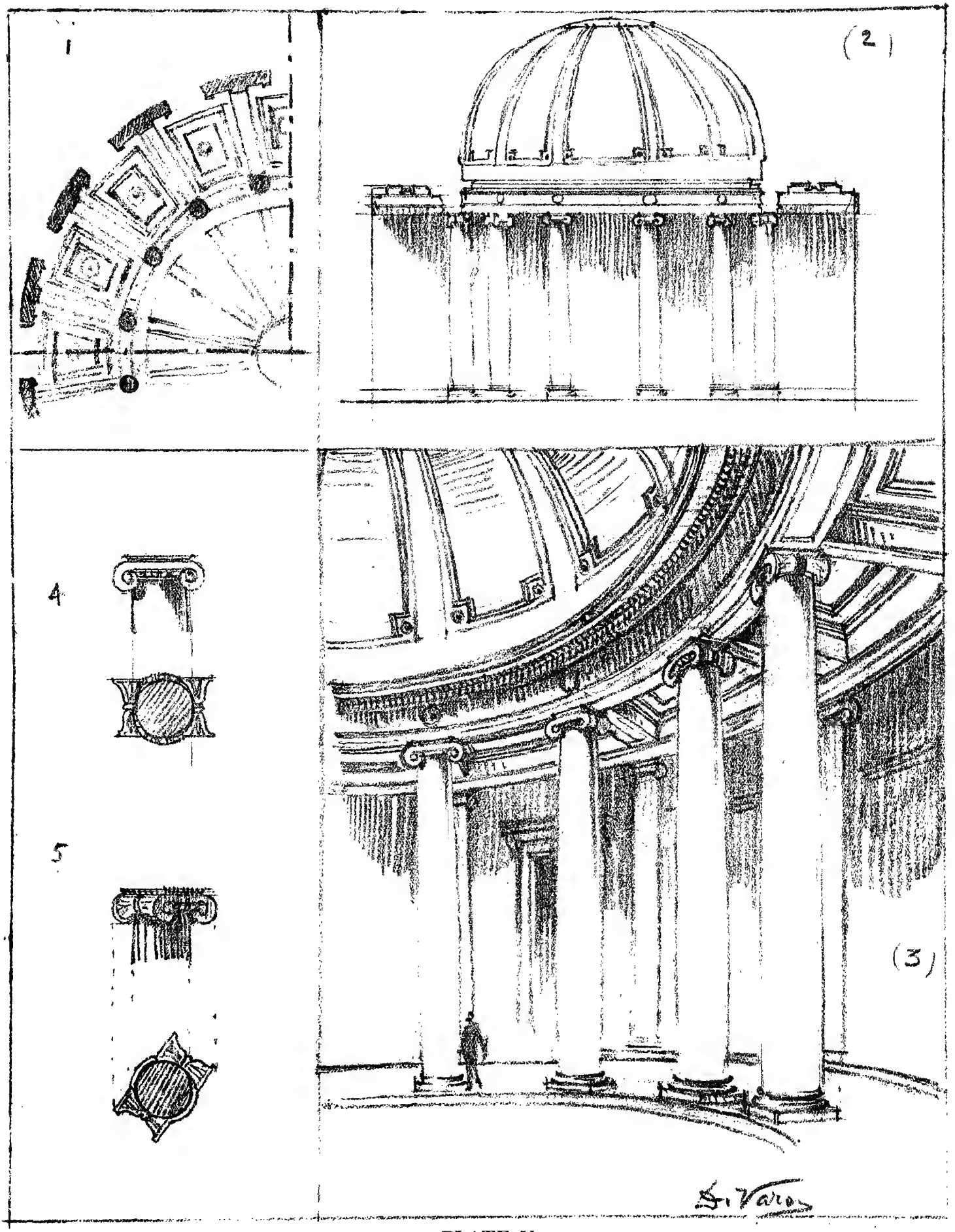


PLATE V

SKETCHING INTERIORS IN PERSPECTIVE. BARREL VAULT WITH RIBS

It is interesting to see how the ribs, which originally were only used as essential organs of construction, add beauty to this simplest of all vaults. This architectonic effect is increased when the ribs are of cut stone and the rest in smaller material: brick or ashlar. Such a vault inspires a feeling of repose. Much depends, of course, on the proportions.

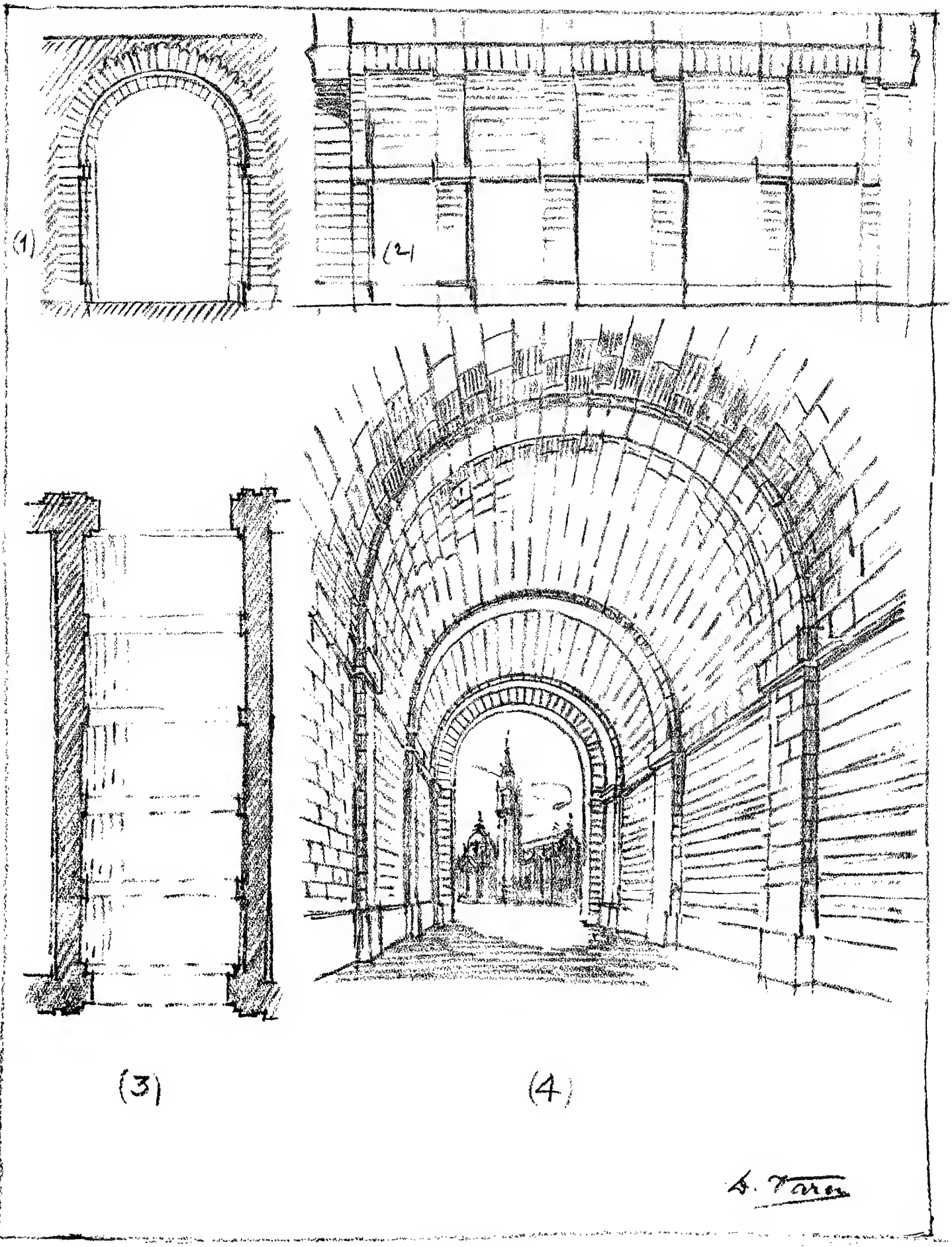
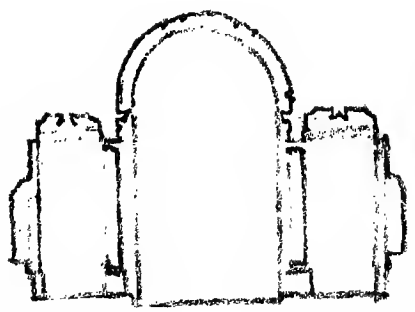


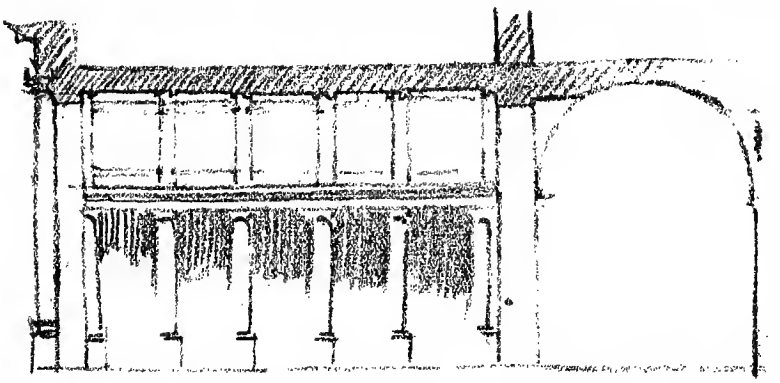
PLATE VI

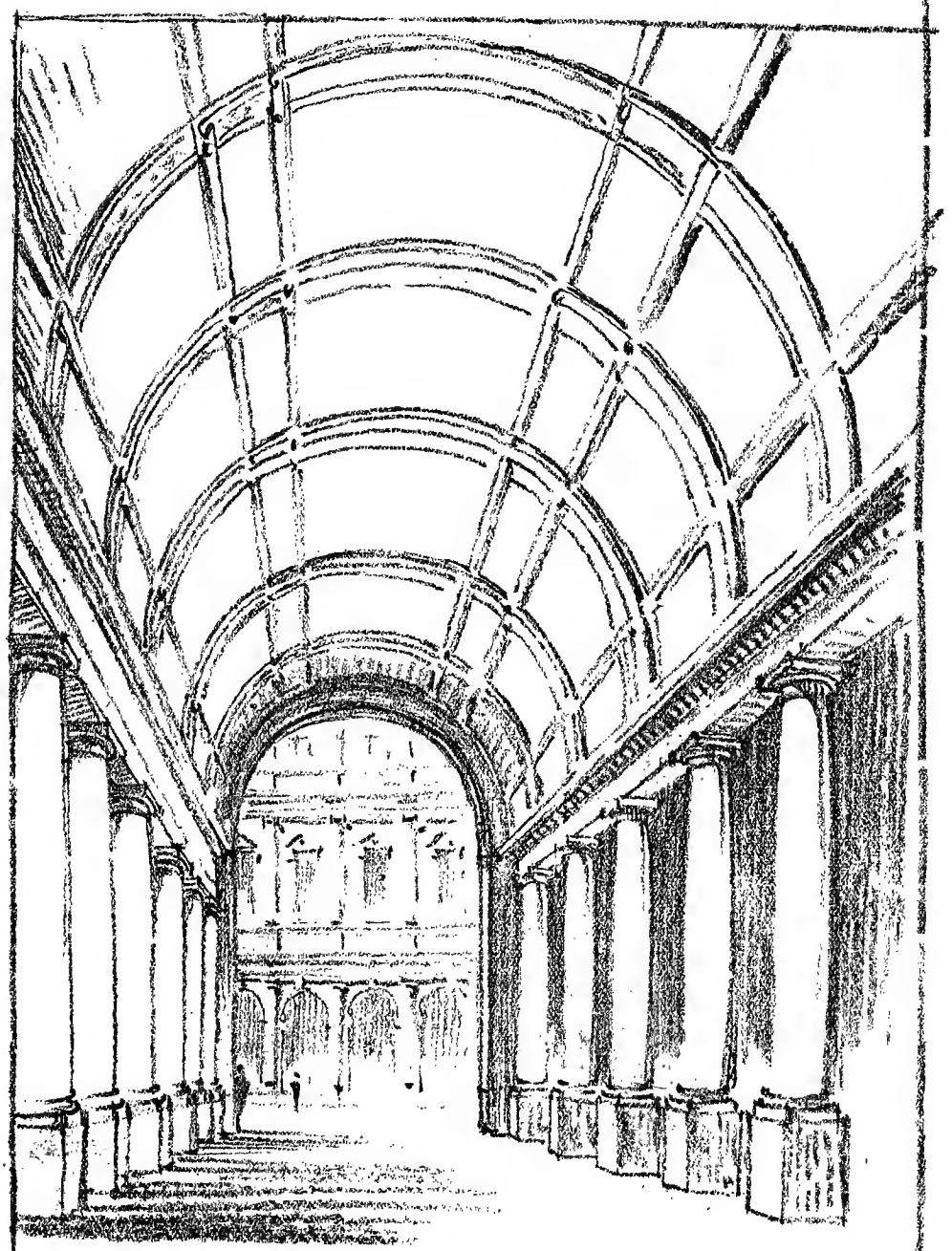
SKETCHING INTERIORS IN PERSPECTIVE. BARREL VAULT WITH COMPARTMENTS, SUPPORTED BY CLOSELY SPACED COLUMNS

The vestibule of the Palazzo Farnesi is one of the best examples. The perspective adds a great deal to the charm of such a composition. It will prove very interesting to replace in other sketches the columns by piers, alone or accompanied with columns. Such combinations are dependent upon the scale of the structure and also upon its general character. Observe how simply the elements, Figures 1, 2, and 3, may be indicated. No attempt is made to do more than suggest the cornice receiving the vault, or the bases and caps of the columns. This is all that is necessary when the student is familiar with the elements thus suggested, provided the general proportions are observed.

References: Palazzo Farnesi, Rome (Letarouilly—Edifices de Rome Moderne); Palais du Louvre, Paris; municipal office building, New York City.







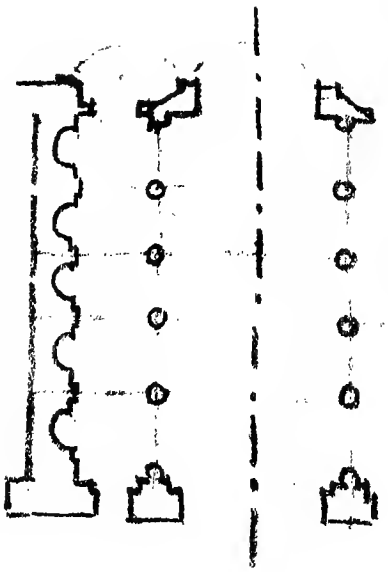


PLATE VII

SKETCHING INTERIORS IN PERSPECTIVE. BARREL VAULT WITH PENETRATIONS

This feature is met with very frequently in the Renaissance structures, examples abounding in the churches particularly. In modern buildings it is also very frequent in the simplest as well as in the most elaborate structures. The curves of these penetrations are always charming in perspective, introducing variety by the changing of their appearance as they retreat from the foreground. In a long nave, to the changing of form we must add the vanishing of details due to the remoteness and to veiling atmosphere; this is one of the reasons why repetition of the same feature does not fatigue the eye.

References: Letarouilly—Edifices de Rome Moderne; H. Strack—Rome in Photographs.

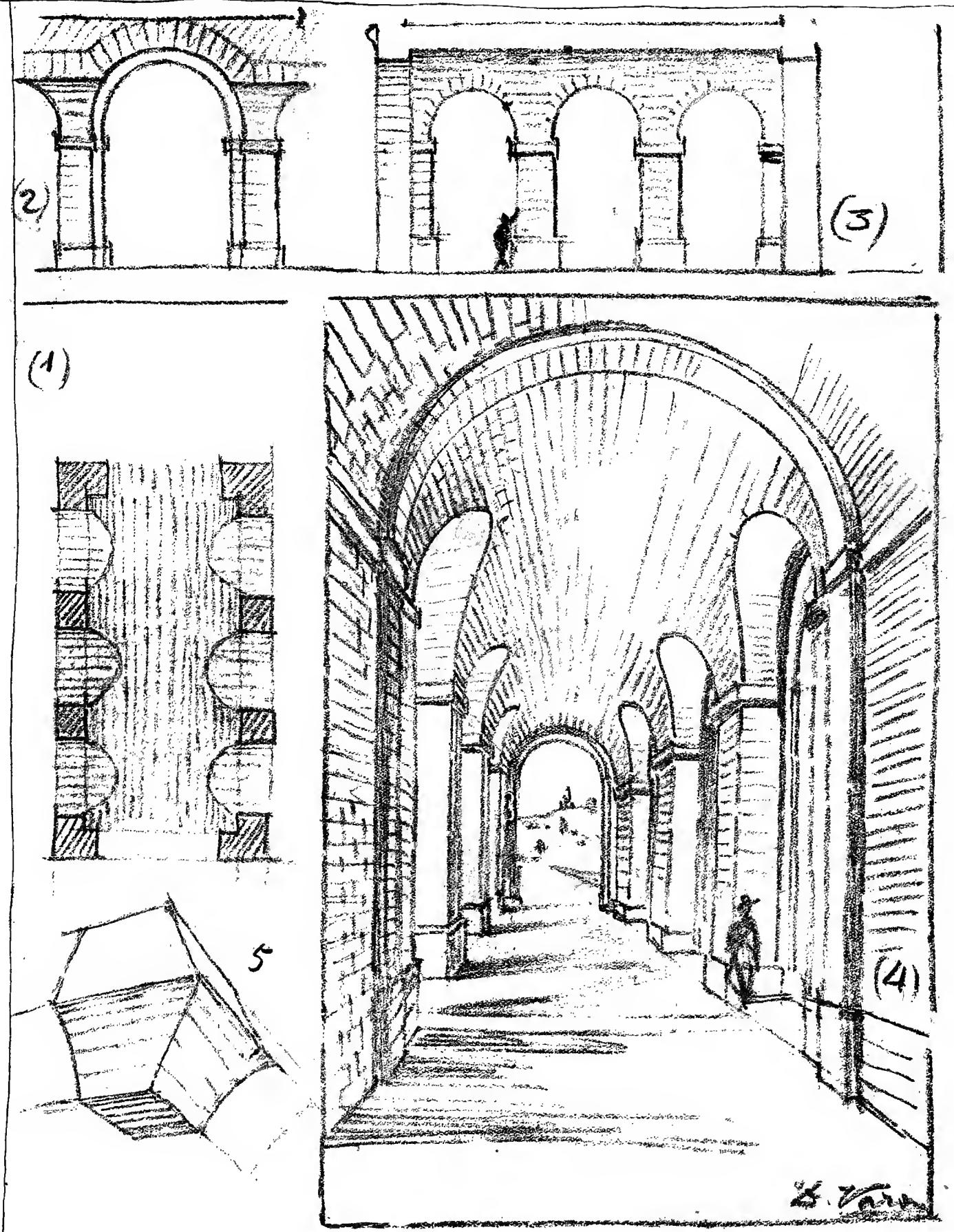
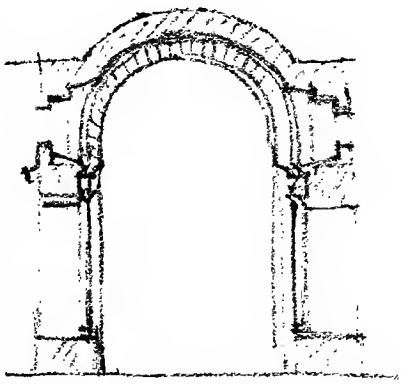


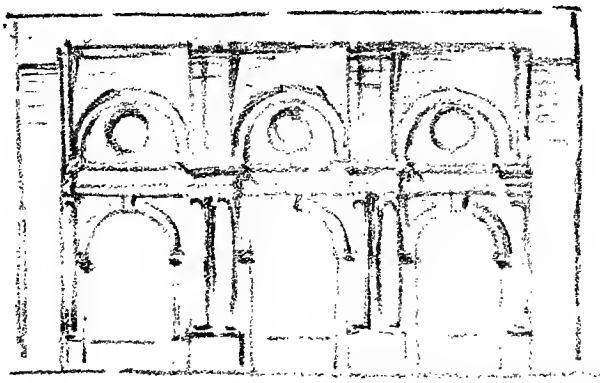
PLATE VIII

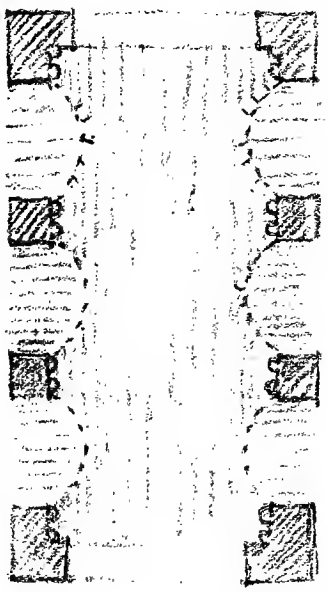
SKETCHING INTERIORS IN PERSPECTIVE. BARREL VAULT WITH RIBS AND PENETRATIONS

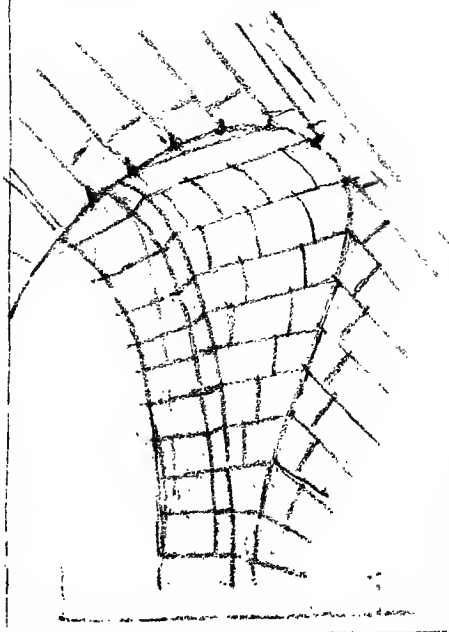
The ribs supported by either piers or columns add much to the monumental effect. Examples abound with ribs resting on engaged or on isolated columns. Ribs and columns lend to the composition a sculptural character.

References: Italian and French palaces and churches.









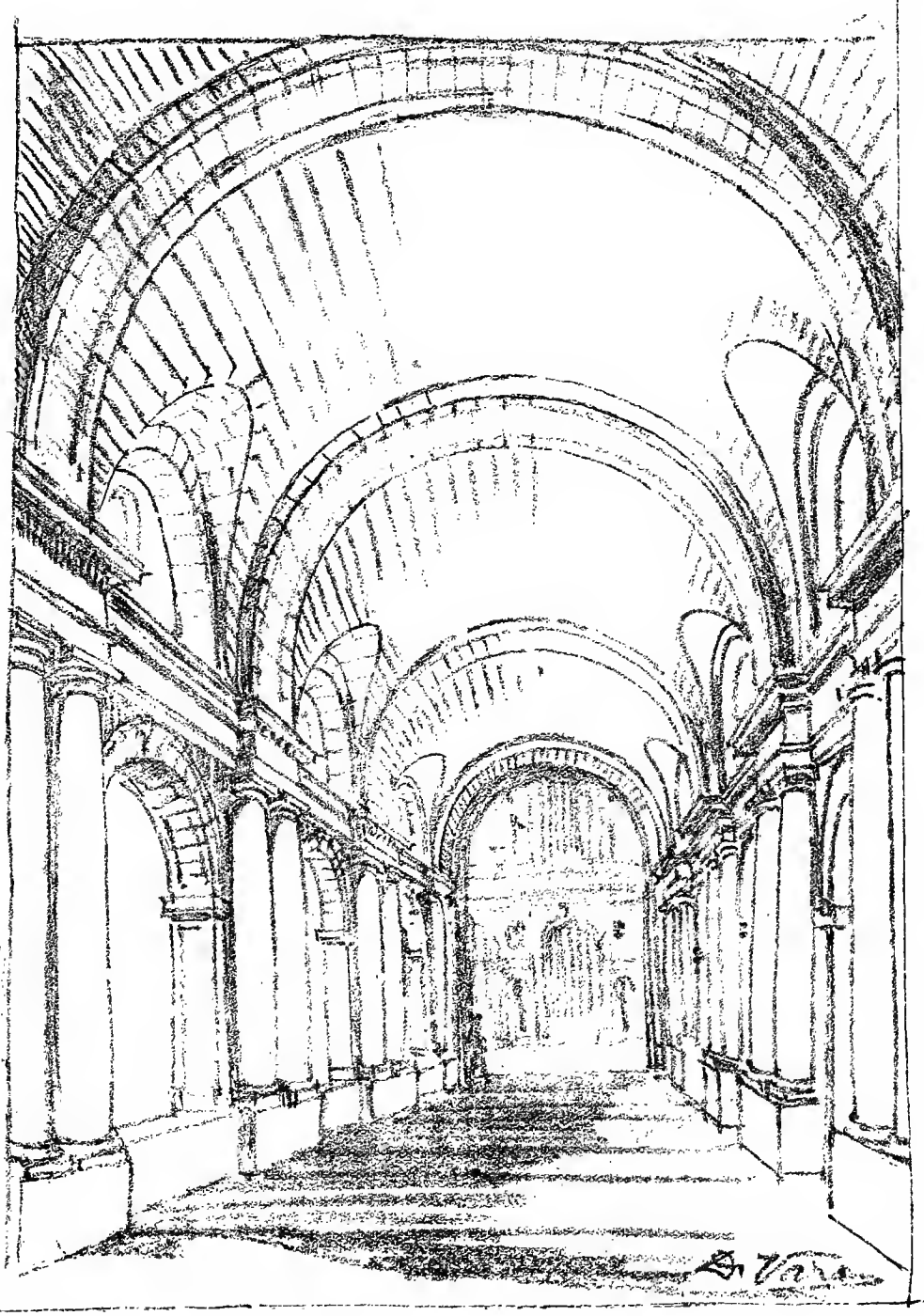


PLATE IX

SKETCHING INTERIORS IN PERSPECTIVE. GROINED VAULTS

They were used a great deal by the Romans and also by the Renaissance architects. Practically all the Roman edifices—drawn by Letarouilly—have some parts vaulted in this way. It allows more air and light. This system of vaulting reached its climax of character under the Romans when they applied it to their public baths. It ought to prove interesting to compare the same element in its different treatments in the same structure. Compare the ancient buildings to modern creations, the better to understand the real merit of the type which serves us as inspiration. Figure 5 shows the detail of a corner. The student will undoubtedly take interest in drawing a detail, in perspective, of the key stone at the meeting point of the two crossing vaults.

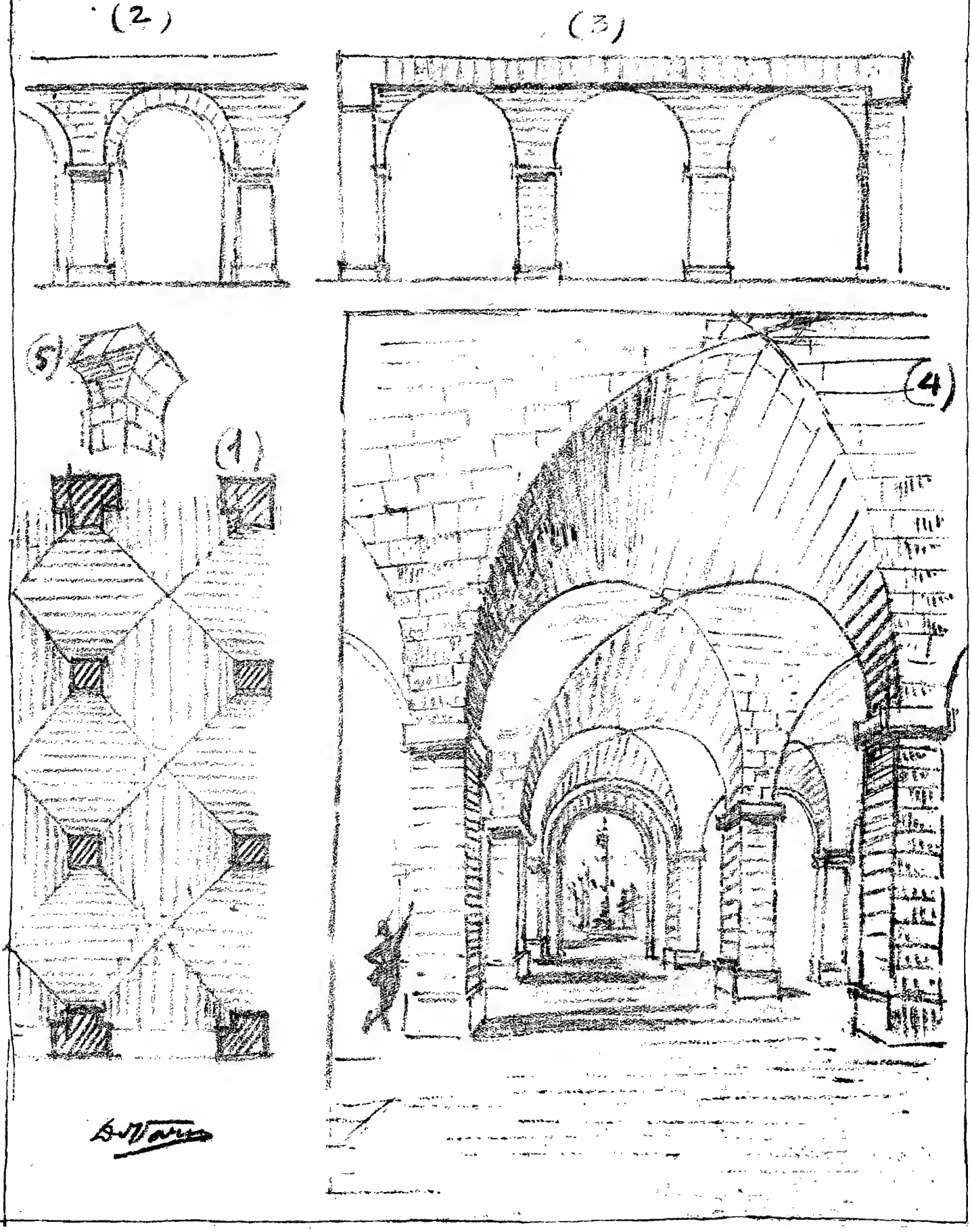


PLATE X

SKETCHING INTERIORS IN PERSPECTIVE. GROINED VAULTS WITH RIBS

All elements which can be added to the barrel vault may be used also in the case of the groined, except that in the case of the former we had one direction, while here there are two in which to apply the combination adopted for the pier. This requires a little more study. Observe the plan of a pier or what is usually called the "Poche." The part that supports the vault is very distinct from that added on each face to receive the ribs. Figure 5 makes this detail still clearer.

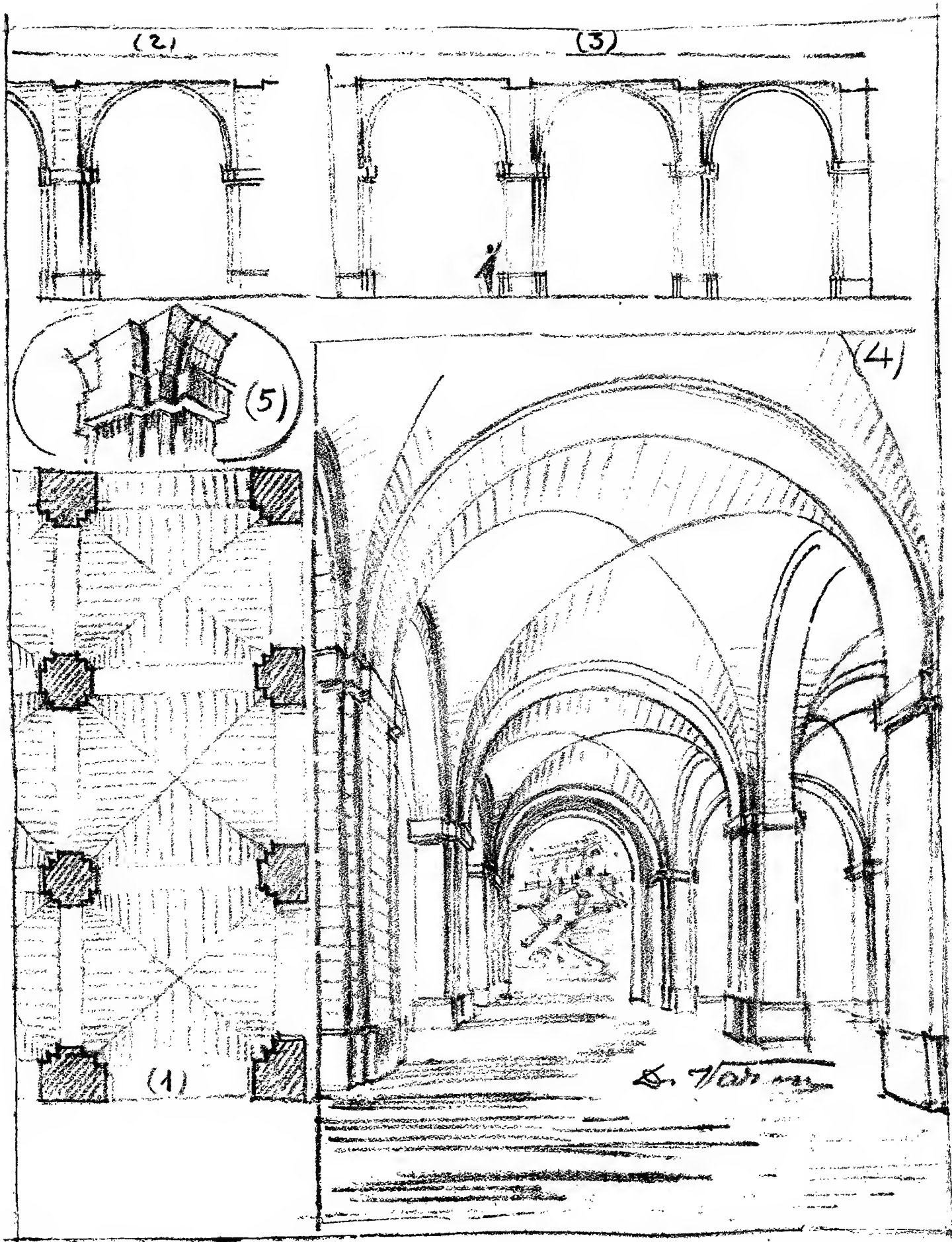


PLATE XI

SKETCHING INTERIORS IN PERSPECTIVE.
CLOISTER VAULTS

These vaults have been made famous by the galleries or "Loggias," painted by Raphael in the Vatican. It is to some extent a sort of curved coffer. The plan may be altogether different from the squares shown here. The famous dome of Brunelleschi in Santa Maria del Fiore in Milan is nothing but a most monumental cloister vault on an octagonal plan. Increase the number of the sides of your plan and you reach the dome which is nothing but the evolution of the cloister vault.

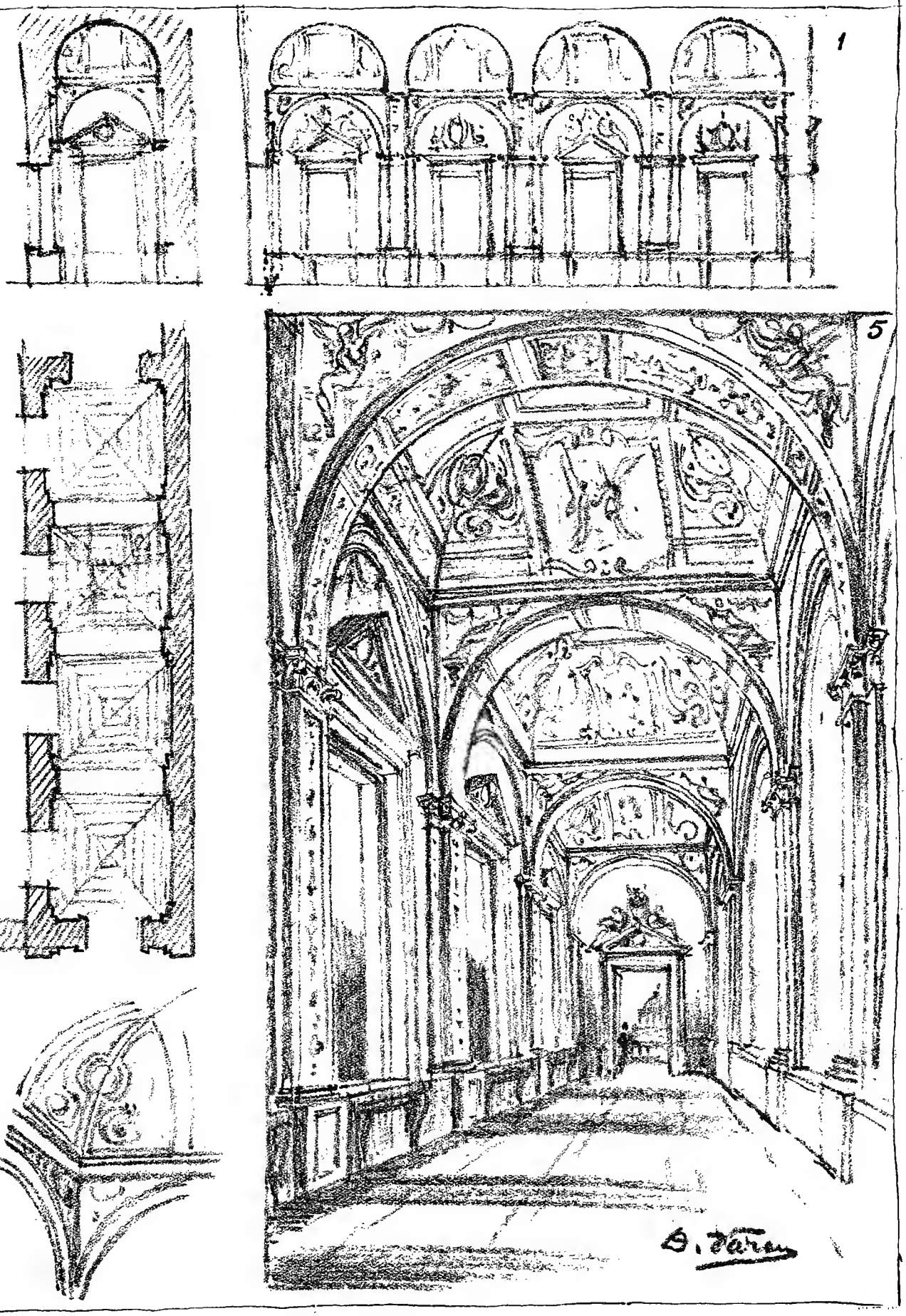
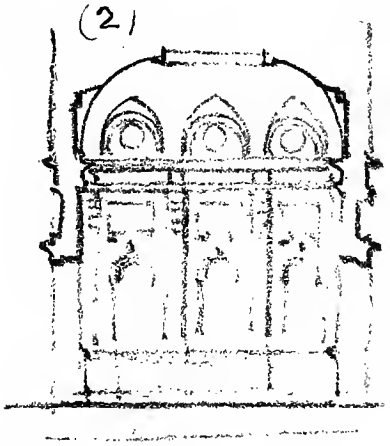


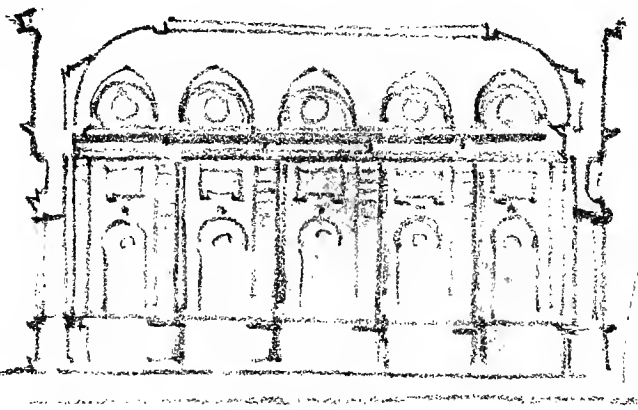
PLATE XII

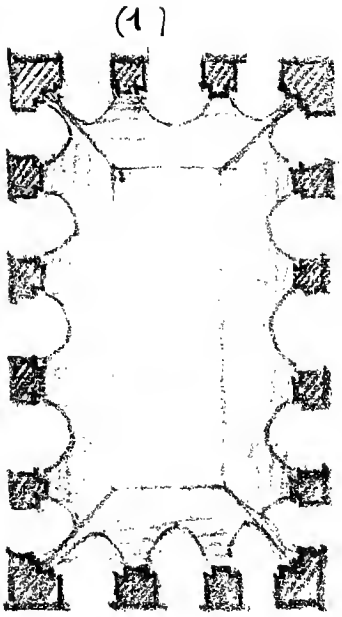
SKETCHING INTERIORS IN PERSPECTIVE.
FRENCH COVE

A cove with penetrations is often met with in museums where a skylight is a necessity, and even in halls abounding in side light; but its application to the former case may be called architectonic, as it answers a need so well. The inspection of Figures 1, 2, 3 dispenses with any further explanation regarding this architectonic quality of this form of vault in the particular case of buildings needing light from the top.

References: Halls of exhibit, Palais du Louvre, Paris.







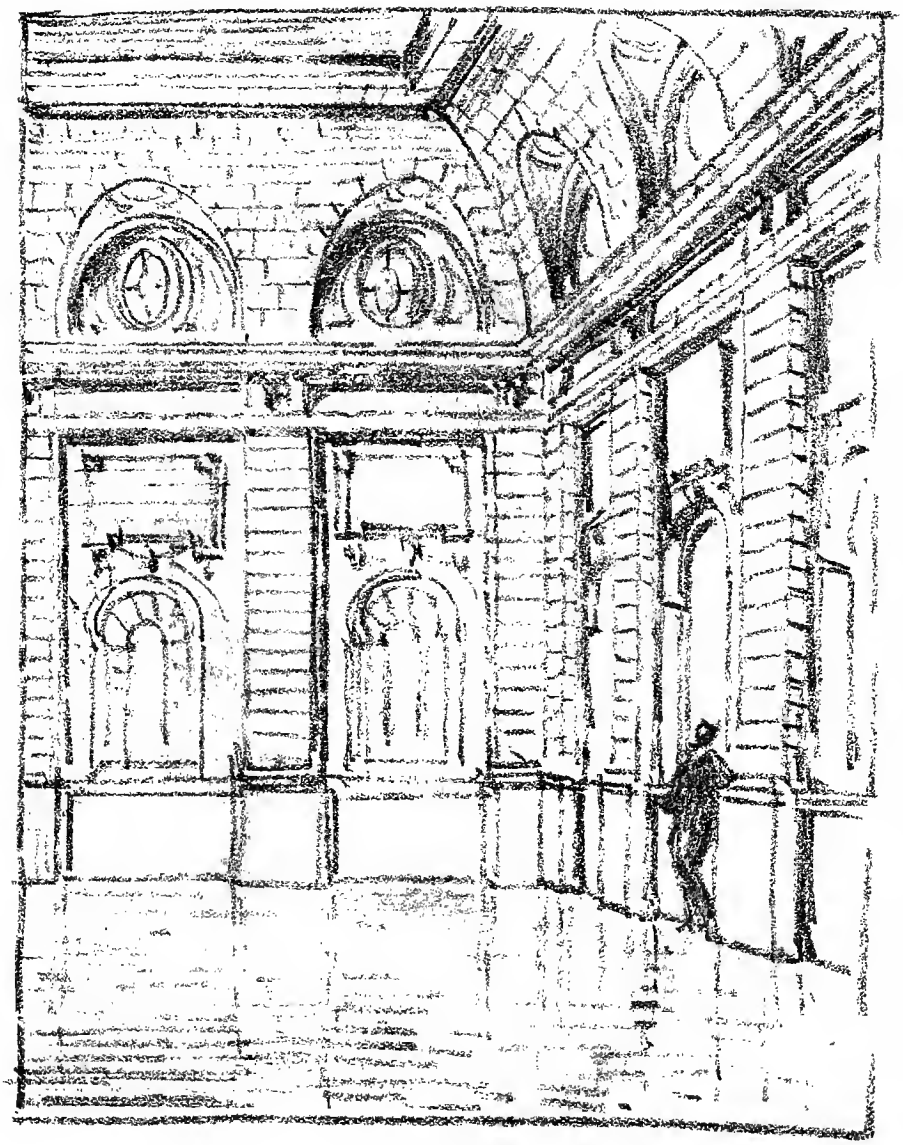


PLATE XIII

SKETCHING INTERIORS IN PERSPECTIVE. DOME ON PENDENTIVES

The most famous example of this form of vault is to be seen in Saint Sophia at Constantinople. Pictures of this wonder abound. The Pantheon of Agrippa in Rome is also covered with a dome; but the interest lies in that while the dome in the Pantheon is supported by a round wall, the one in Saint Sophia is supported by pendentives resting on square piers. Nothing could have more grandeur than this conception of vaulting. It has been applied in different combinations in numberless buildings ever since the system was invented. Architecturally speaking the pier supporting the pendentive could be a mere square, yet a rib added to each side of the square forms a very handsome transition between the spherical surface of the dome and the usually cylindrical nave.

References: Italian and French palaces and churches.

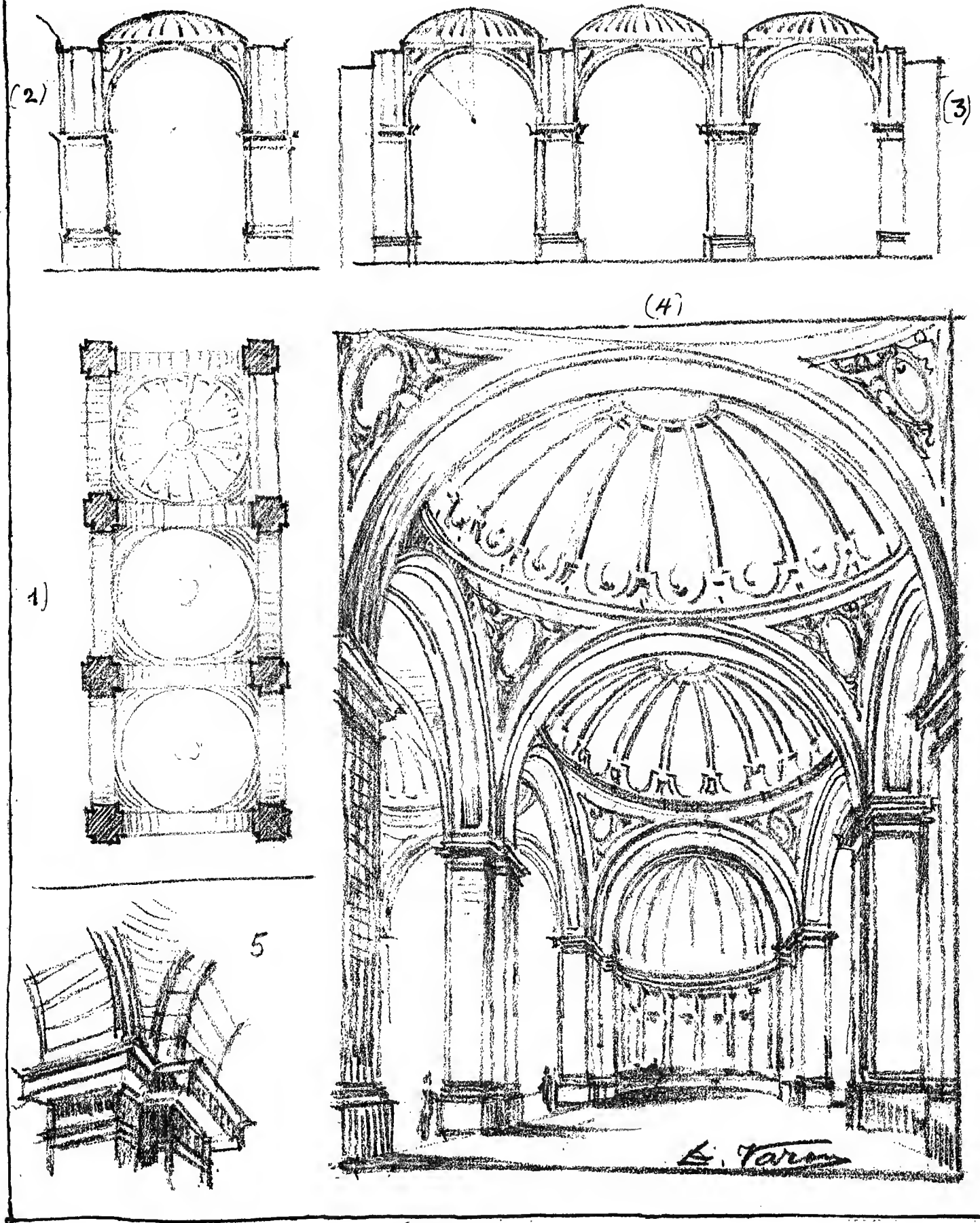
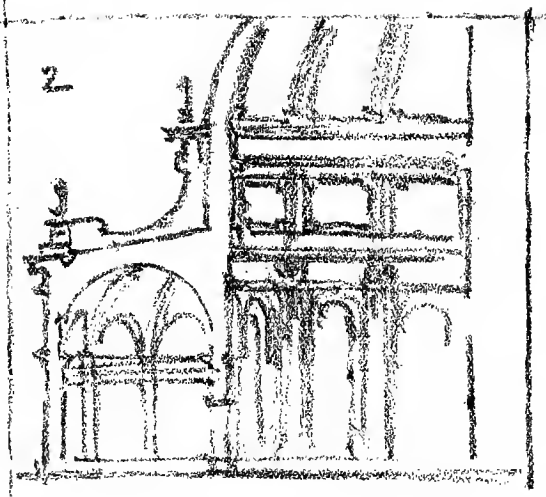
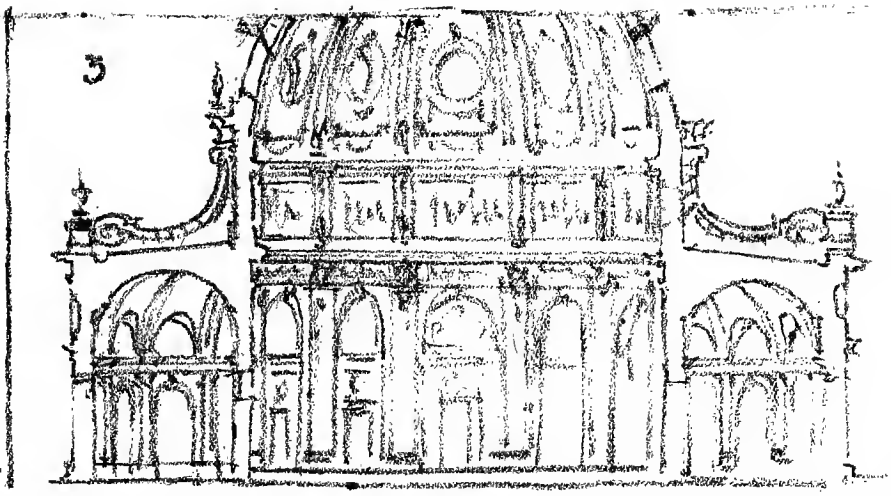


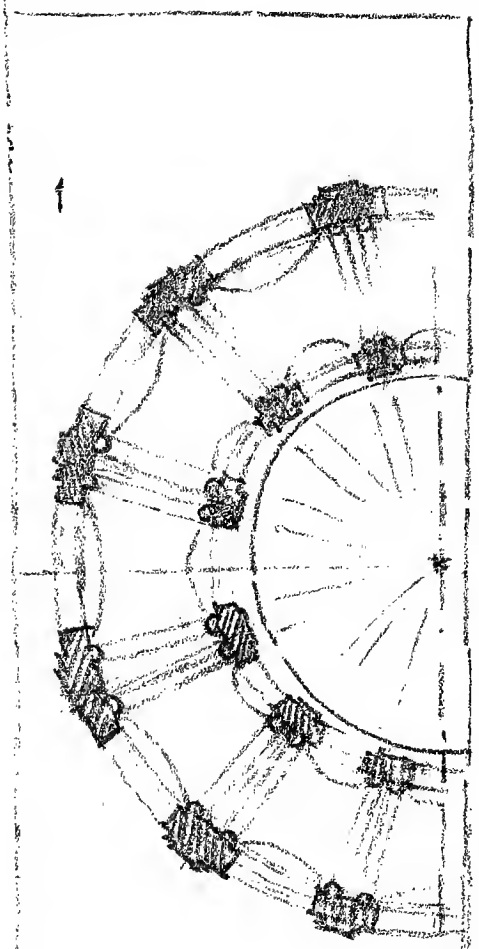
PLATE XIV

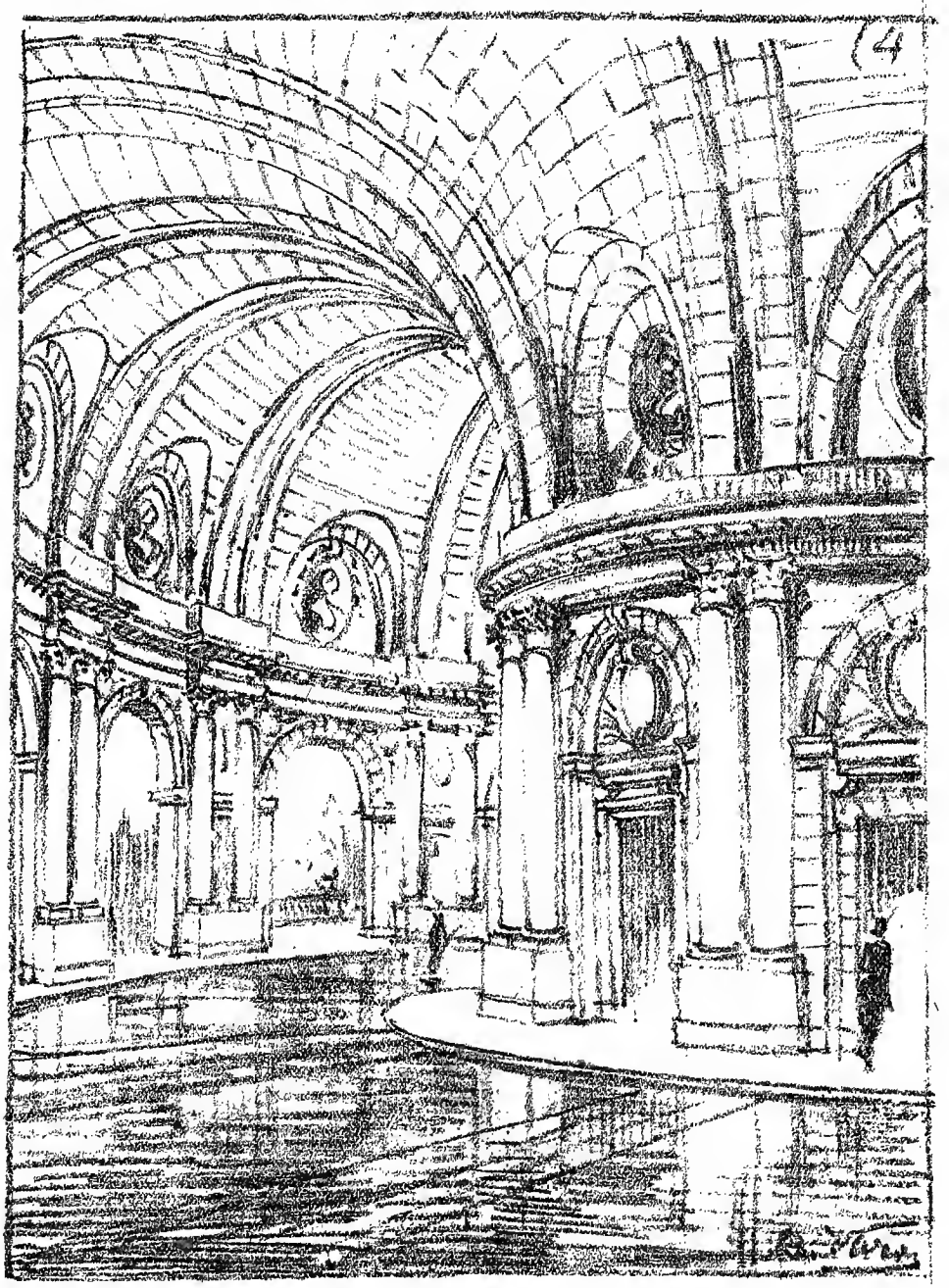
SKETCHING INTERIORS IN PERSPECTIVE. ANNULAR VAULT

It is particularly met with in chancels of churches, but a very beautiful example of it is to be seen in the villa of Pope Julius in Rome. It may find a fitting place in almost any composition of monumental character, such as a capitol building or other great meeting halls.









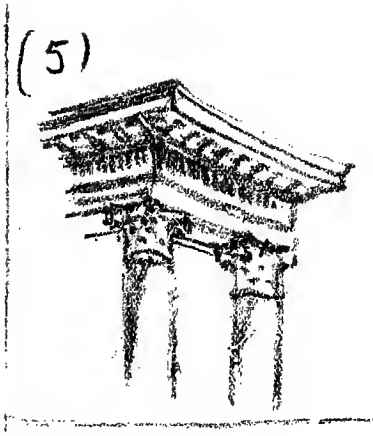


PLATE XV

STUDY OF ELEMENTS OF ARCHITECTURE IN ELEVATION AND IN PERSPECTIVE CONSIDERED FROM DIFFERENT DISTANCES

Remoteness takes away the sharpness of details. It is on this account that elements must be so composed as to afford beauty even when their representation is reduced to the minimum. In this case the console of a door serves to demonstrate how this principle should be applied. While no details whatsoever can be seen in Figure 1, yet the general appearance of the console is attractive on account of the good distribution of the accents, the alternation of lights and shades. In Figure 2 details are clearer and in Figure 3 you can see the details of the acanthus leaf accentuating the lower end of the element. This vanishing of details helps also in the indicating of such elements in elevation (Figure 4) which enlarged might give something like Figures 5 and 6. We shall see further that this Figure 4 might have been interpreted in many other ways.

The student is advised to consider each element in connection with the whole.

Reference: César Daly—Motifs Historiques.

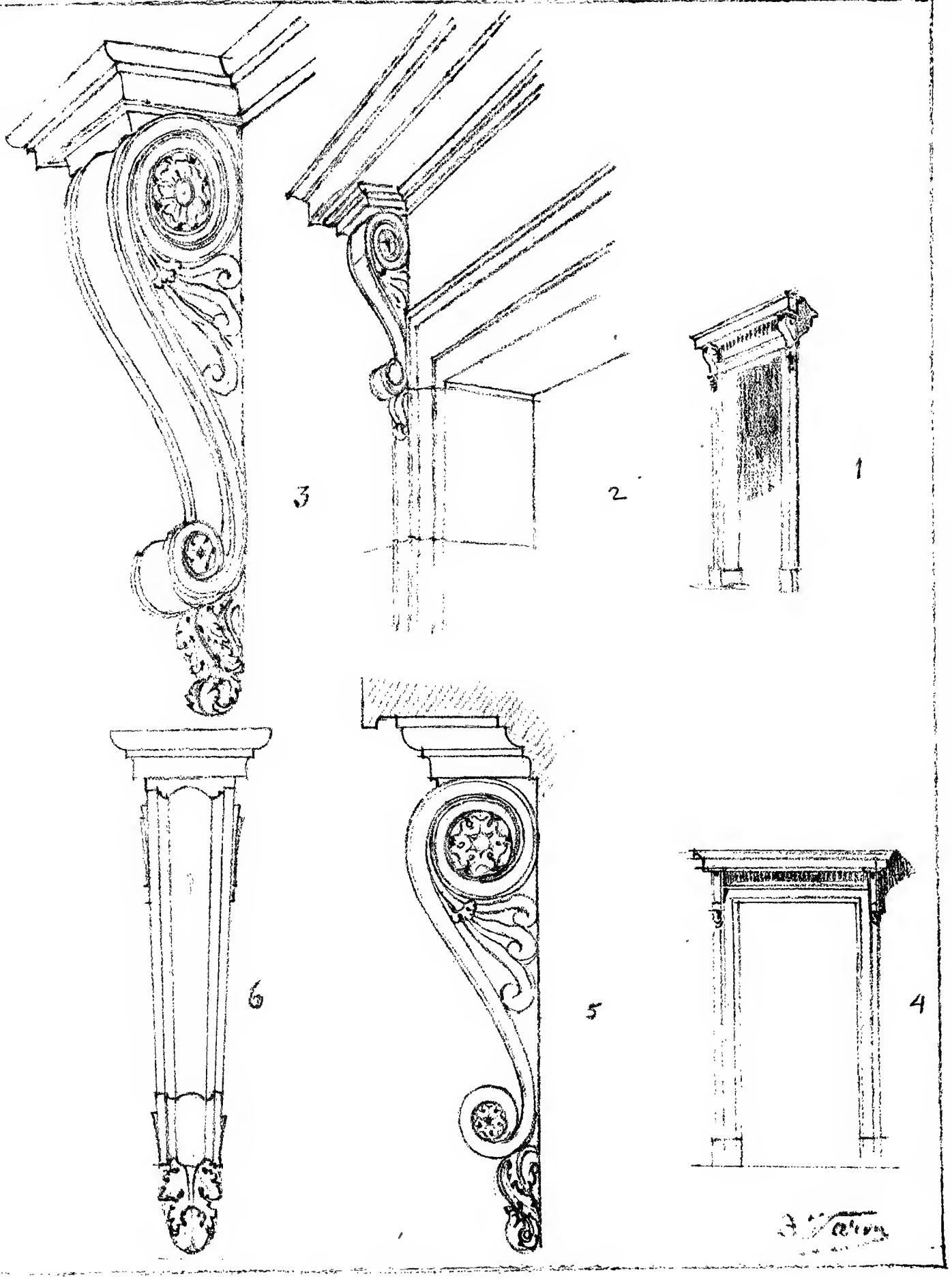


PLATE XVI

STUDY OF STATUARY FROM DIFFERENT DISTANCES

The principle referred to in the preceding plate finds its place in sculpture. What could be seen of the statue of Liberty standing on an isolated island but for the simple and expressive outline carefully designed by the artist? A mile off you can detect hardly more than what Figure 1 shows. Gradually the haziness disappears as one comes nearer (Figures 2 and 3) and upon very close approach to it the details of every part become quite distinct and the interest goes on increasing. We can compare these outlines to the titles of books.

References: Statuary of the Paris Opera-House; Baron de Clarac—Museums of Sculpture, several volumes.

PLATE XVII

COMPARATIVE STUDY OF ARCHITECTURE. ALL SKETCHES TO BE DONE FREE-HAND

Two temples, one in Greek Doric order, Figure 1. The other, Figure 3, in the Roman Doric order. Figures 2 and 4, respective caps. The interests of such a study in a sketch book lies in that such qualities as robustness or elegance may be suggested without resorting to elaborate details. It is the best proof that general proportions have to do with first impressions. The details in Figures 2 and 4 show also the perfect harmony between the parts and the whole.

It is interesting and very important to do such comparative studies between different orders in their application; between similar elements in different styles of architecture, or in structures of different destination and character. Compare different applications of the Doric order, for instance on interiors and exteriors, between rich examples and simple ones; the fluted stone shaft and the smooth one of veined marble or granite, etc. It is not less important to practise drawing some examples from memory. This is the surest proof of the progress made in the appreciation of expression in architecture and the best means of developing the sense of proportions.

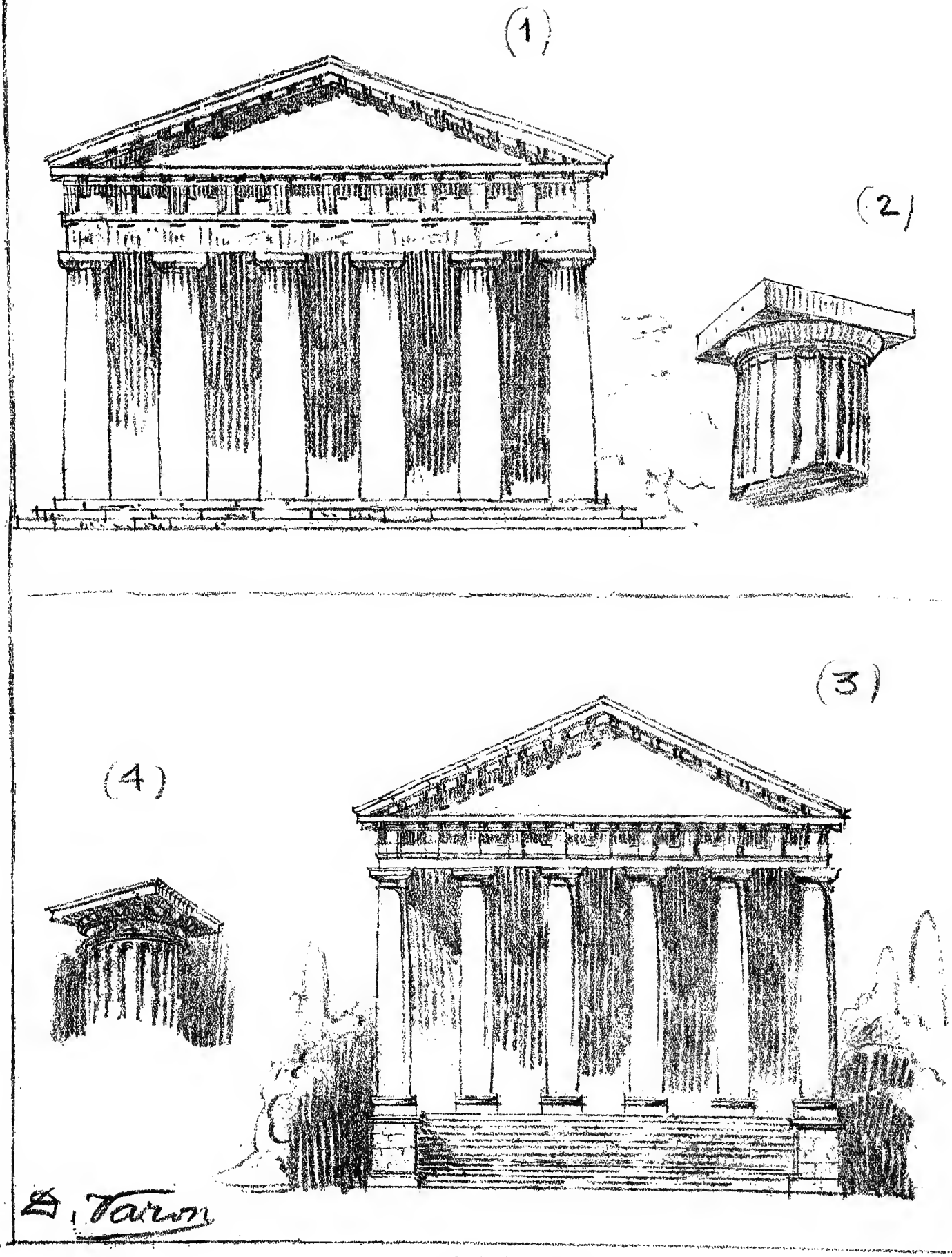
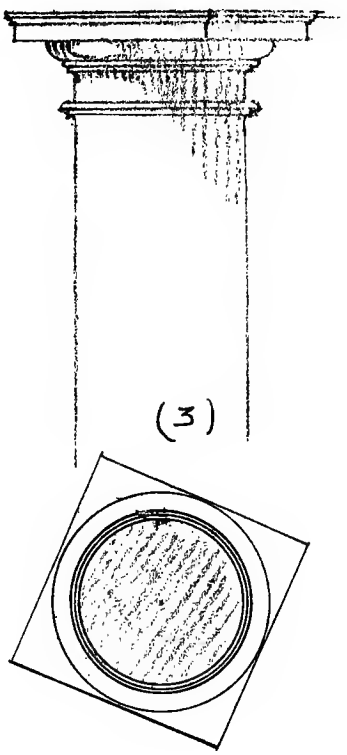
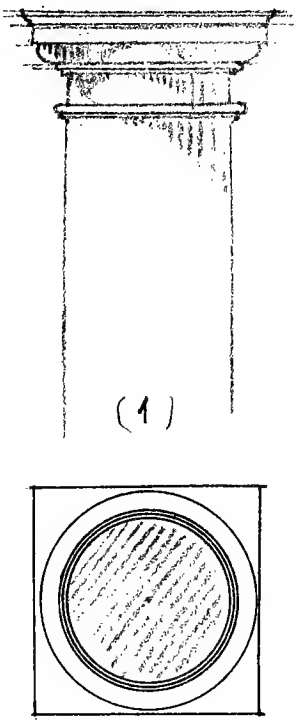


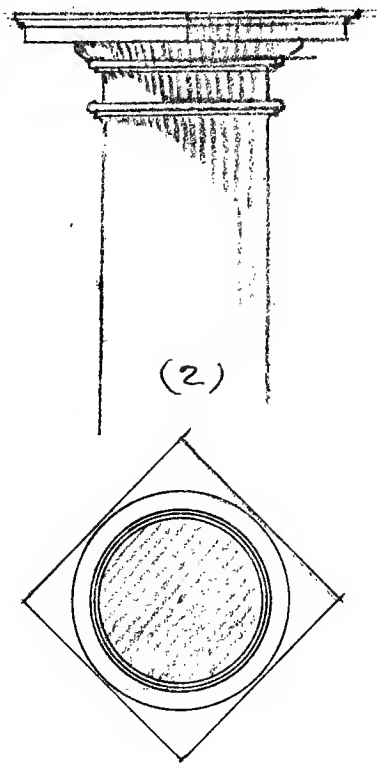
PLATE XVIII

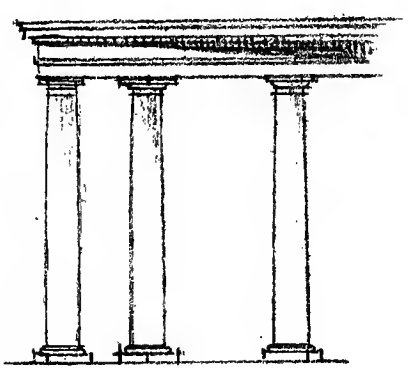
ARCHITECTURAL ELEMENTS SEEN IN PROJECTION

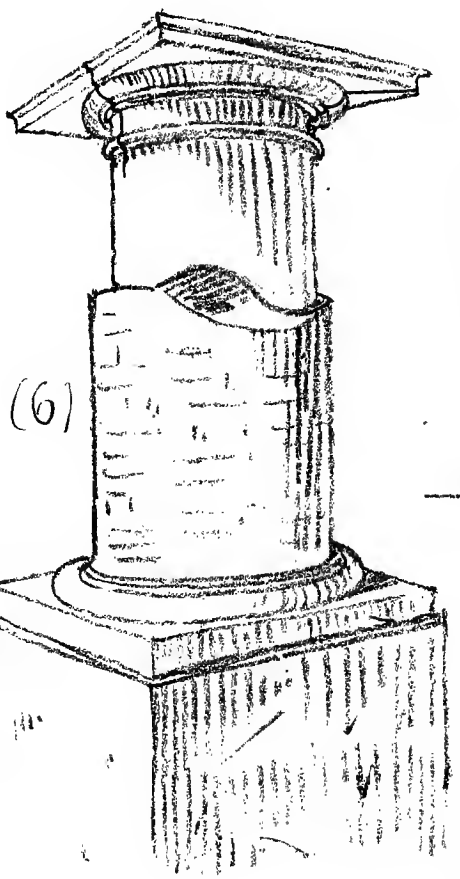
It happens that elements or whole structures have to be drawn in projection. In such cases the caps and bases will be seen in positions similar to those in Figure 4 (plan). To properly indicate such projections on small scale when simplification is a necessity one must first study the character of such projections on large scale, as in Figures 2 and 3. The perspective Figure 6 indicates distinctly what the projections of Figures 1 and 2 correspond to. Figure 5 is the plan and elevation of a colonnade seen at a 45° angle. The abacus is clearly indicated with the point of the square forward. Such studies ought to be done with other caps. The Ionic has been shown in Plate V.

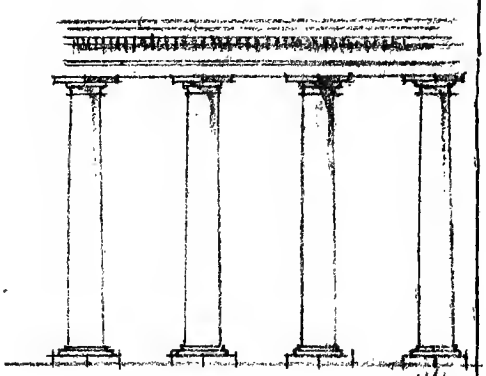


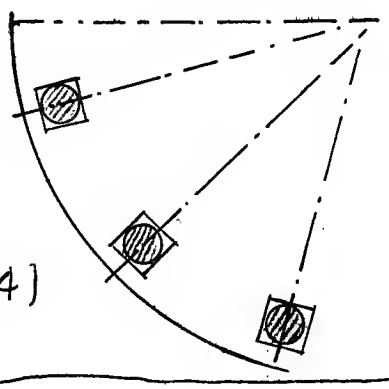












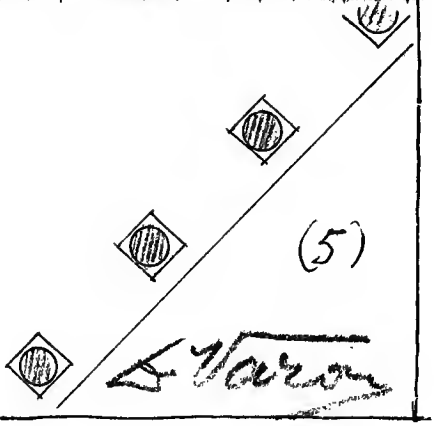


PLATE XIX

THE BEGINNINGS OF INDICATION

The application of elementary sketching to architectural elements and to simple compositions. Figure 1, the simple colonnade, Figures 2 and 3, its application to actual structures such as churches, bank buildings, etc., Figure 4, the double column pier, and Figures 5 and 6, applications. Not a single line is useless. Wherever possible lines are omitted. Figure 7 is another form of complex pier suggesting a great deal more than the others the idea of power, and Figures 8 and 9 show applications. Figures 10, 11, and 12 show three more forms of piers in their application.

Students ought to master indicating elements in elevation and in perspective previous to starting with big compositions. (See Plate II.)

Architectural indication is based upon observation. Details vanish in the distance, and a mass of elaborate details such as a cornice and frieze of the Corinthian order will vanish to a mere shadow represented by a line the likeness of which will depend upon the scale of the sketch. One line on the right side will be sufficient to indicate the shaft of a column by its shade. No line will be necessary for the left side where the high light strikes. The width of the shaft will be suggested by that of the shadow of the cap—another line more or less round.

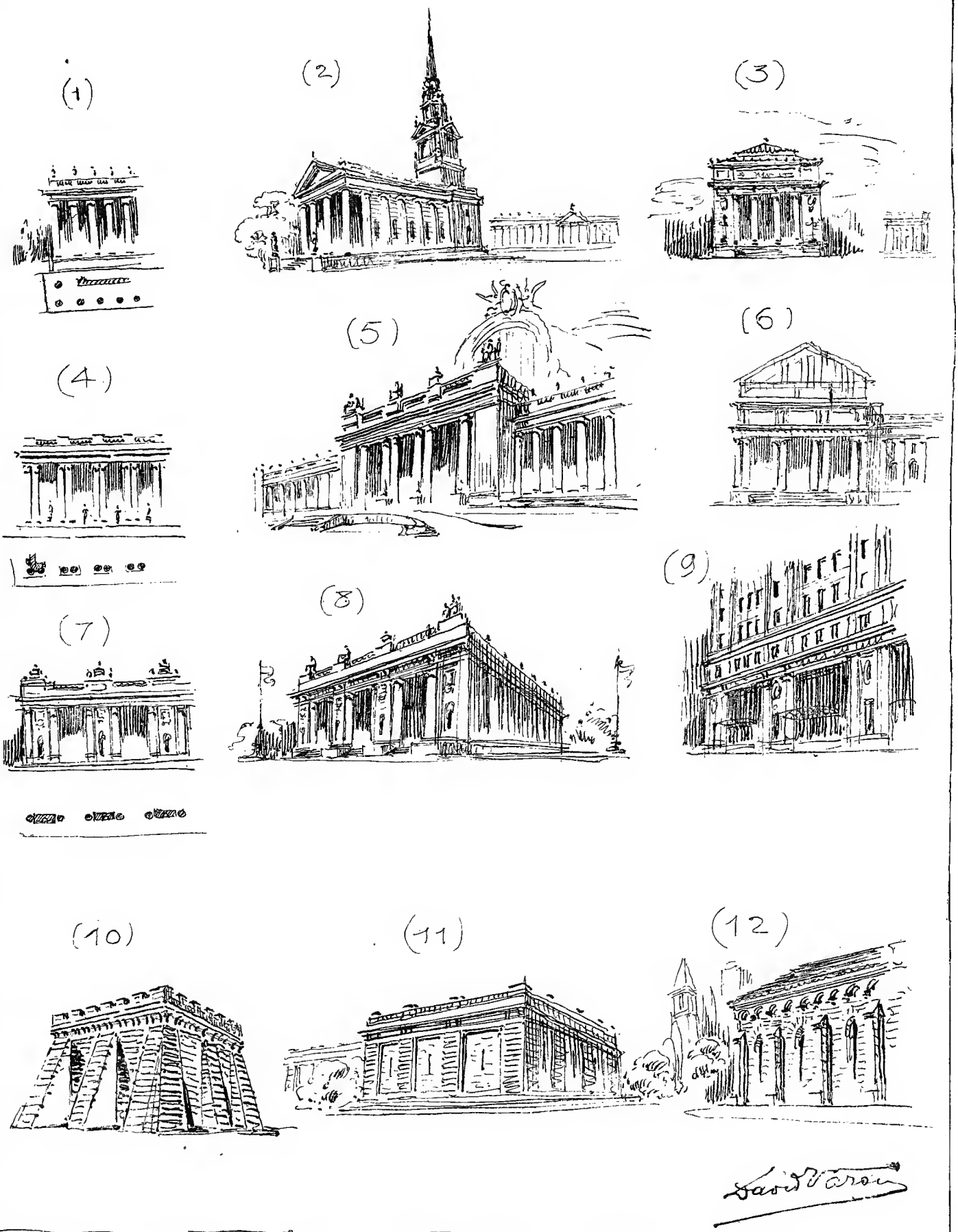
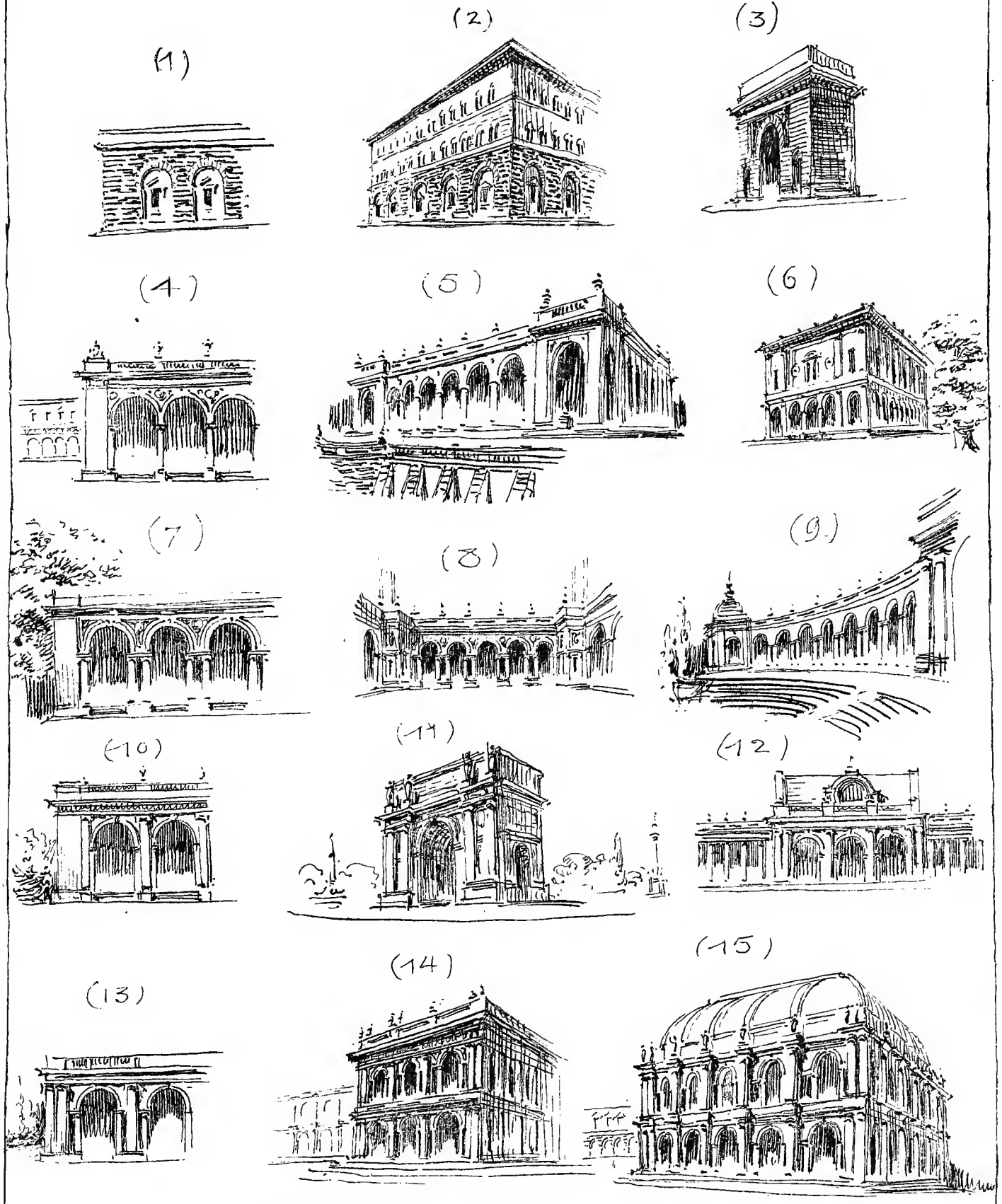


PLATE XX

THE PRINCIPLES OF INDICATION (CONTINUED)

Applied to various piers supporting the arch, Figures 1, 4, 7, 10, 13, and their applications to actual structures, as Figure 2, a Florentine palace, or Figure 15, the Basilica of Vicenza, by Palladio, or to imaginative buildings like Figures 8 and 9. Each one of these examples has an expression of its own depending not so much on the details as on the general lines. Note in Figure 8 how a balustrade is suggested, or the elaborate cornice in Figure 2. Elimination of the secondary is the law and emphasizing the essential is the other extreme of the same principle.



A FEW COMBINATIONS of
Arches and Columns, piers, etc...

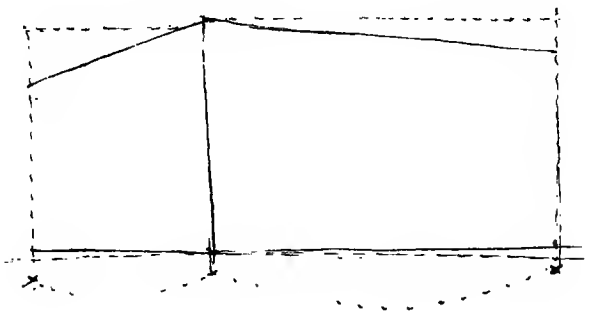
David Varon

PLATE XXI

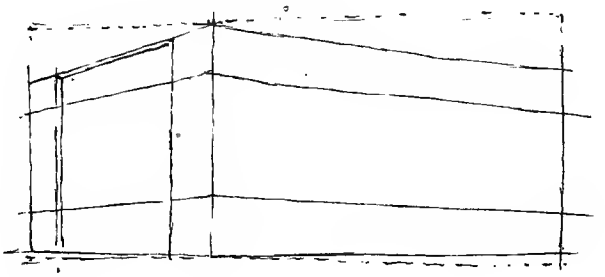
STAGES OF A SKETCH FROM THE ACTUAL STRUCTURE OR FROM A PHOTOGRAPH

When one has come to master the indication of the elements at small scale in elevation, and in perspective as well, he will be tempted to take down whole composition in his sketch book. This sheet shows the various stages of the sketch of an actual architectural composition in perspective. When a mistake is made in establishing the main lines, as in Figure 1, then no matter how delightful the details may be, the impression is bound to be a failure on account of the deficiency in the main proportions. The rest is self explanatory. Figure 3 shows how to establish the perspective centre. Not a dot is useless in Figure 6, in fact dots are used to suggest the shadow of the statues on the attic wall. A short dash suggests the cap, another one suggests the base. Avoid making such indications mechanical. To aid this purpose draw a large cap as in Plates I and II and gradually reduce the scale until you reach the limit, where a very small tapering dash will suggest the complicated shadows of a base.

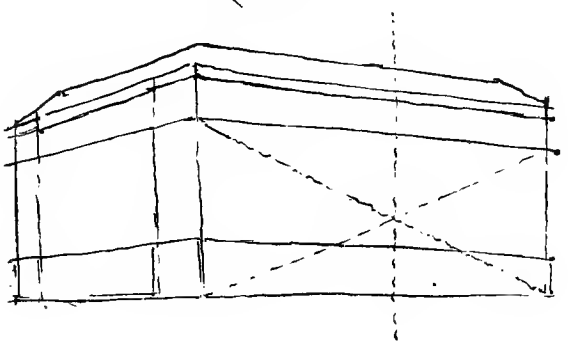
(1)



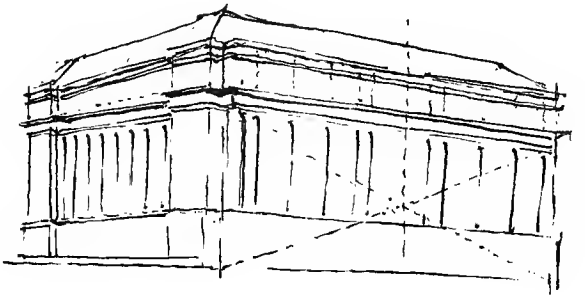
(2)



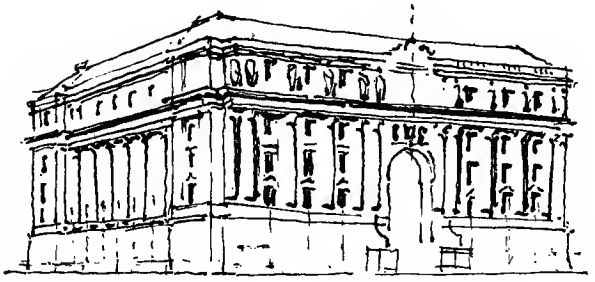
(3)



(4)



(5)



(6)

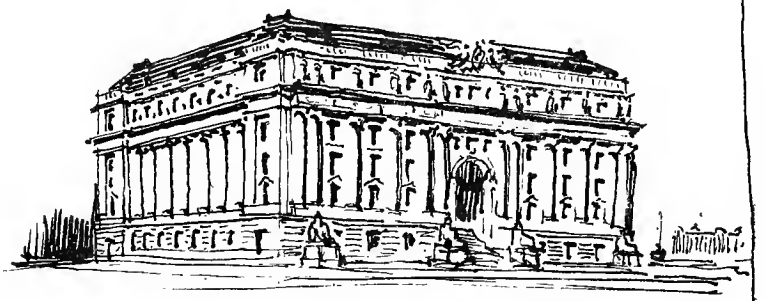
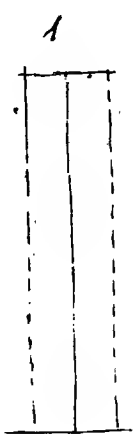
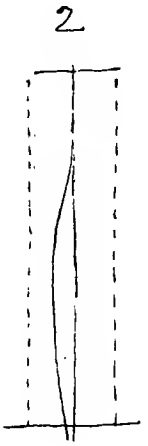


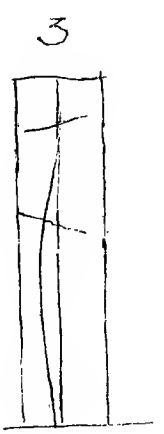
PLATE XXII

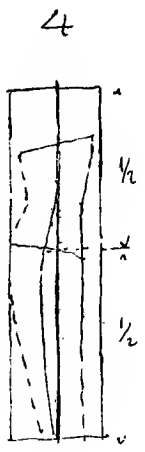
To appreciate these constructions, one has to cast the eyes on various positions of a skeleton so as to understand that the body at rest assumes a certain curve in its central line as shown in Figure 2.

The important thing to note is that the head and the bearing foot are on the same vertical and the extremes of the above mentioned curve. Further it is important to note the opposite inclinations of the shoulders and of the hip lines. The hip is higher on the bearing foot side. The rest is self explanatory. There is not much in Figure 8, yet enough to suggest the figure, thanks to the observance of the law of proportions. The still reduced Figure 10 is interesting on account of its great simplifications. It is not the figure, but a figure.









THE NINE STAGES IN THE INDICATION OF A CARYATID

APPLICATION OF INDICATION TO RESEARCH WORK IN THE STUDY OF A PLAN

The student having acquired enough skill in indicating, he has been asked to gather some information from a reference book about a famous plan, for instance. This plate shows the way in which he could do so to greater advantage than by tracing, thus saving space and time and above all developing the habit of analysis. What has been done here with the first floor of the Palazzo Farnesi should be done with other floors. Notice in the block plan, Figure 1, where only circulations are seen, halls and rooms are hatched. It is the commencement of grouping ideas. See Chapter V for full explanation of this plate.

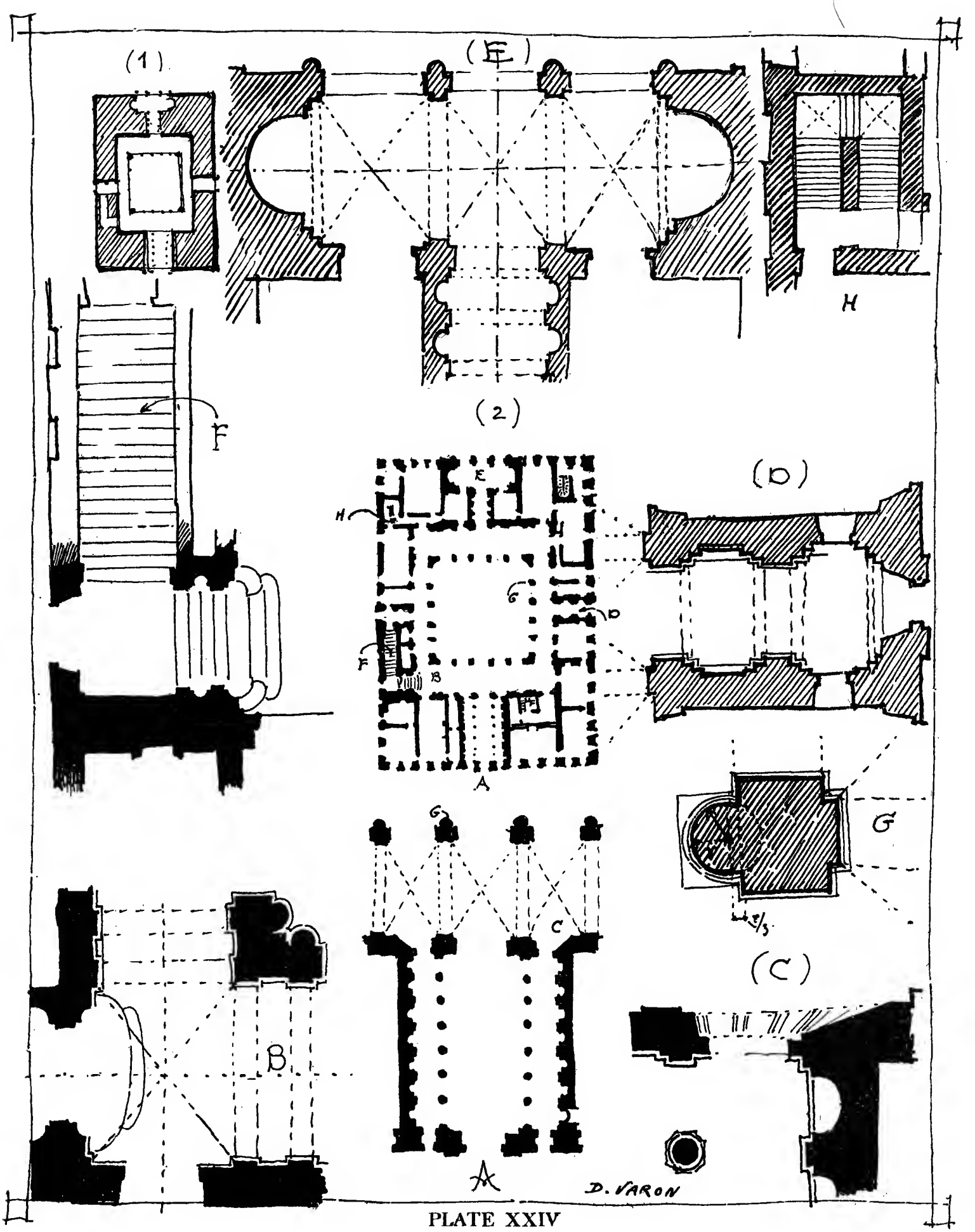


PLATE XXIV

APPLICATION OF INDICATION TO RESEARCH WORK IN ELEVATIONS

Here indication is applied to an elevation. The latter occupies the centre of the sheet, the details being scattered around it to avoid confusion. Wherever opportune it is advised to resort to perspective as in the case of the top cornice, a famous one in this case, that of the Palazzo Farnesi. The whole structure has been carefully measured and engraved by Letarouilly, in Volume II of his work on the "Edifices de Rome." It is interesting to see how one can group on the same sheet details and subdetails without confusion and without crowding the sheet, Figure J is interesting in that it shows the simplest way of getting the right proportions of such an elevation at any scale. No one would think of indicating the detail figure at such a small scale as Figure 1, where indication is pushed almost to its limits. Notice the variety in the windows and freedom in the interpretation of the elements. Properly speaking, detail Figure *b* is more correct than Figure *c* and Figure *a* even more than Figure *b*, for the elements used in the windows are altogether in scale, while Figure *b* and Figure *c* are a little free from this rule. Structurally speaking, Figure *b* is more correct than Figure *c*, and Figure *a* even more than Figure *b*, for the elements used in the window Figure *a* are altogether in harmony with the requirements of its construction, while the columns used in Figure *b* and Figure *c* are more of a decorative character. A column as a rule suggests the idea of support. It is altogether architectonic in the case of a portico; but when used around a door or a window it becomes an architectural decoration. To appreciate this one must remember that in such palaces the lowest story was always left to the serving staff, while the upper ones were used by the masters.

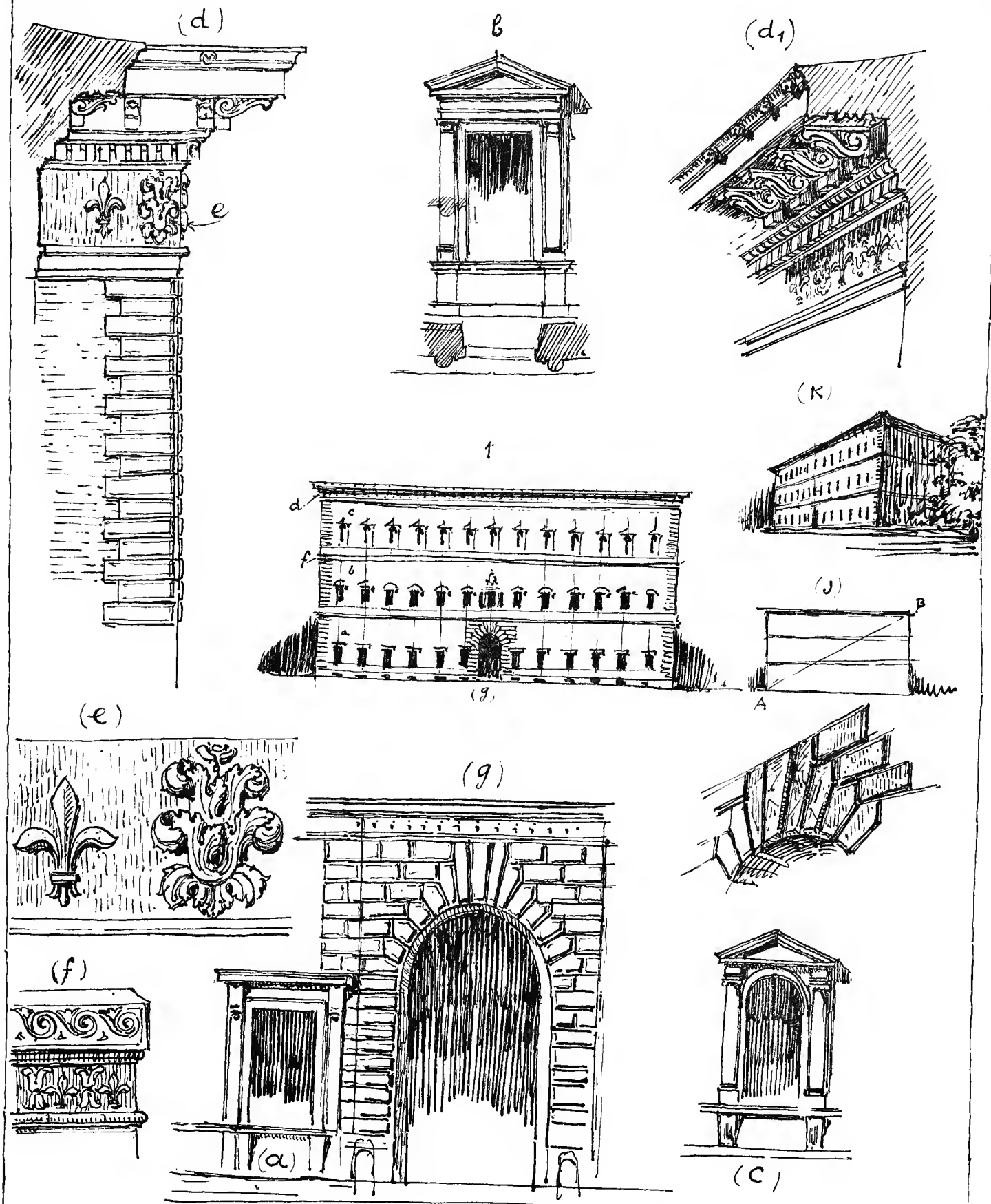


PLATE XXV

APPLICATION OF INDICATION TO RESEARCH WORK (SECTIONS)

A section through the court of the Palazzo Farnesi—the court is one of the characteristics of the Italian plan, a very ancient tradition. It was treated here with dignity. It is suggested that a perspective of it should be drawn, to have the right idea. Particular care has been given to the study of the superimposed orders, the strongest one and the highest too being at the base. Nothing is more interesting than the study of this section in Letarouilly. The second story order is smaller than the basal one yet the second story is higher than the first wherever required. It is a most instructive analysis and shows by what subterfuge, and, as Guadet says in his "Theory of Architecture," by what sacrifices, architectural problems can be solved. See Strack "Rome in photographs" the better to appreciate such details as Figures *a* and *f*.

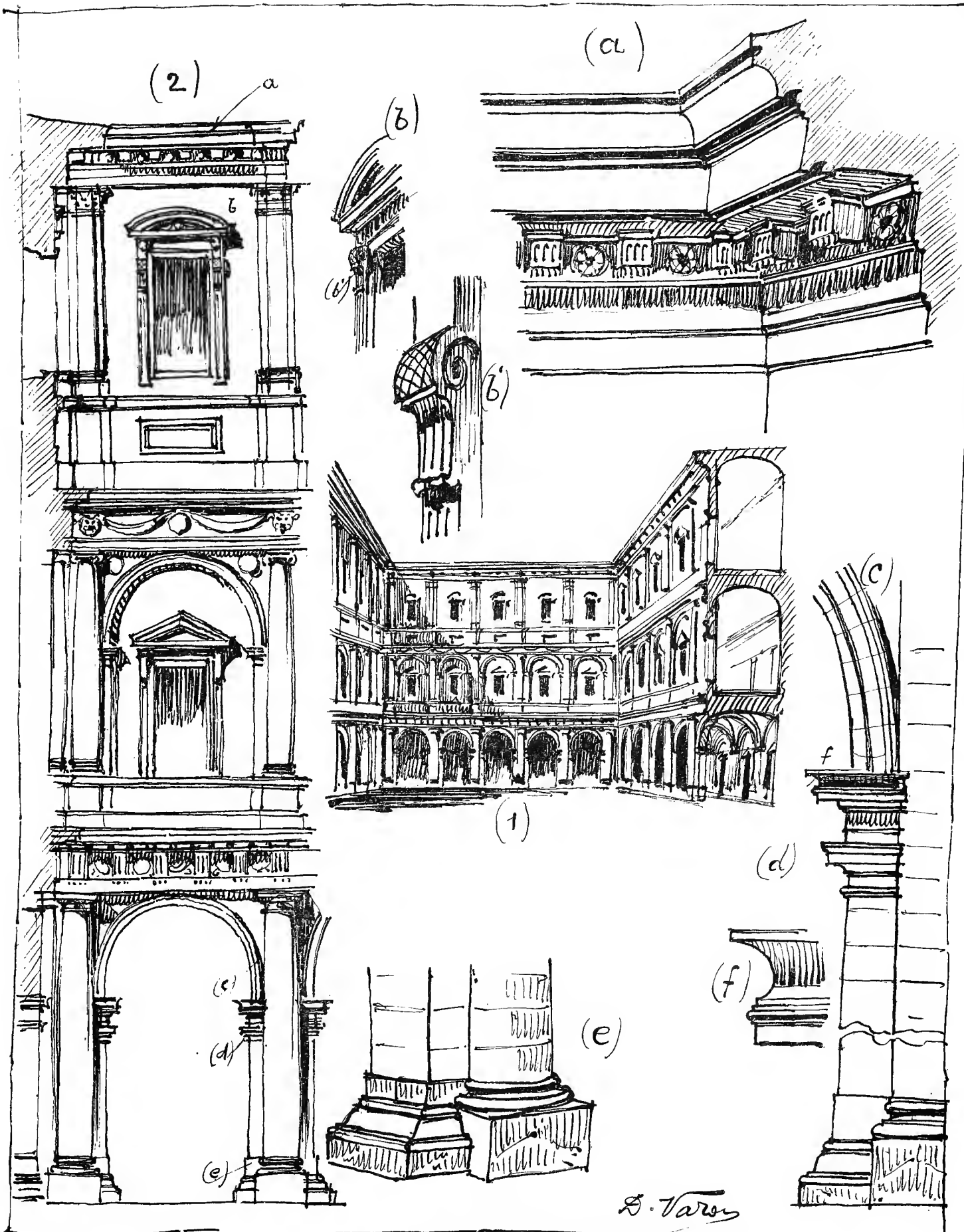
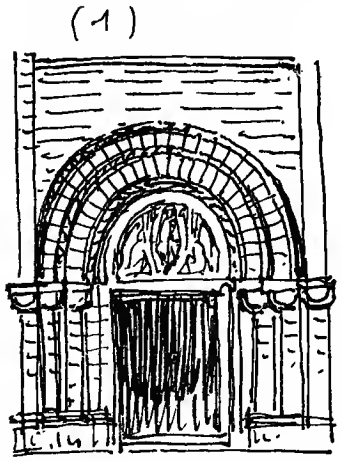
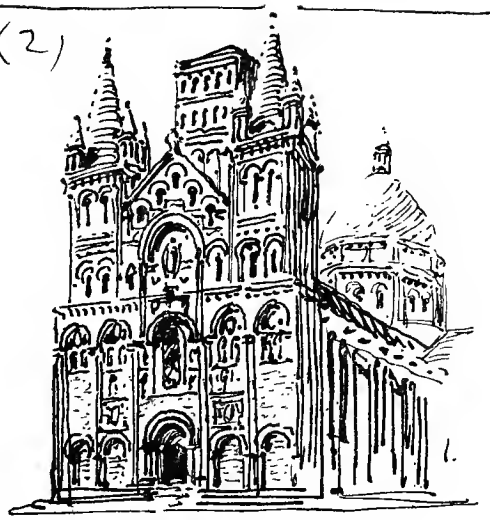


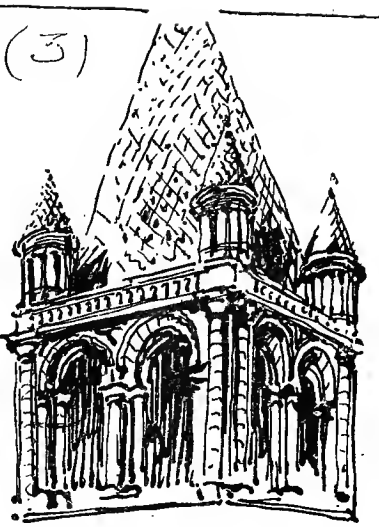
PLATE XXVI

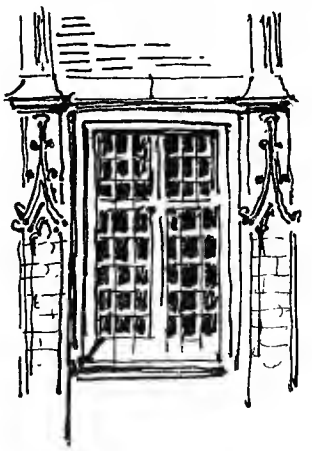
APPLICATION OF INDICATION TO COMPARATIVE STUDY OF STYLES IN MASSES AND THEIR DETAILS

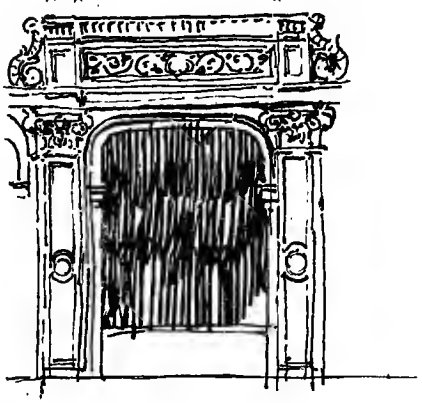
For more than one reason we have to study the past and therefore the architecture of the different epochs. Such study will prove most beneficial and easy after one has become familiar with the modern architecture, for then comparison will play a great part. This sheet suggests a comparative study of styles: Romanesque, Gothic, and transition. It is because the style is carried not only in the details but also in the masses that this study is possible even through indication as in Figures 2, 5, and 8 supplemented by the details on the right and left. Figure 7 details the lowest window of Figure 8, and Figure 9 the highest. These details may be subdetailed at a much larger scale, in cases where absolute accuracy is necessary. As it is, the difference of treatment in the three arches, Romanesque, Gothic and Renaissance, can easily be seen.

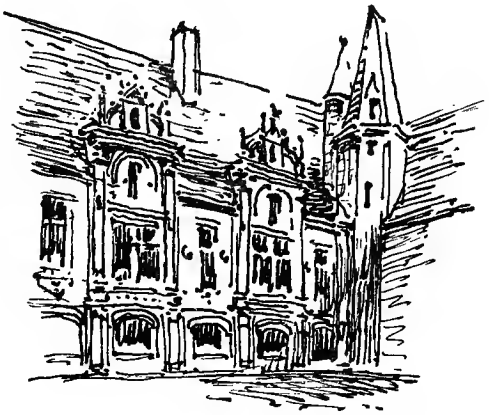












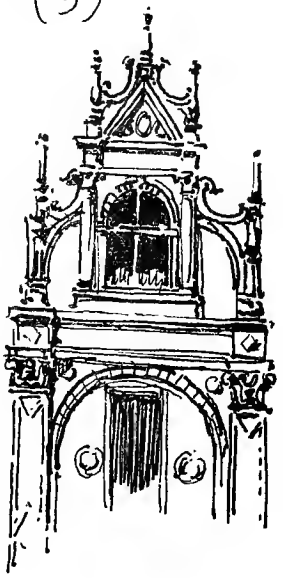
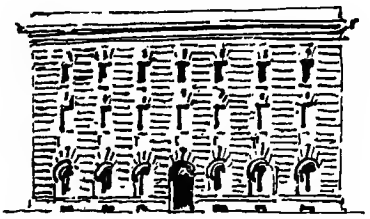


PLATE XXVII

BEGINNINGS OF DESIGN AND OF RESEARCH. CHARACTER IN ARCHITECTURE

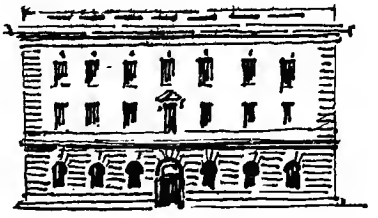
The student can see here how without any detail whatsoever character can be imparted to an elevation. The nine sketches represent nine different studies of the same front with only one change, Figure 8, where the windows of the third story are changed to arches resting on double columns forming a loggia. By as many sketches so many different characters are obtained by very simple means: now it is due to the prevalence of the horizontal line and then to the vertical, here we use columns on top and there at the bottom, each time the study differs. How many more ways of studying this elevation there are it is useless to dwell upon, particularly if we take into account the introduction of the change in the material. This plate suffices to demonstrate the great advantage to be derived from sketching in the drafting room as well as in the reference library.

(1)



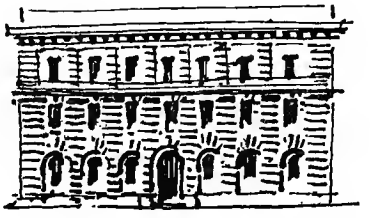
THE WALL WITHOUT ANY PREVAILING LINE EITHER HORIZONTAL OR VERTICAL BUT HORIZONTAL PREVAILS IN THE FORM OF RUSTICATION. CHARACTER : SEVERE.

(2)



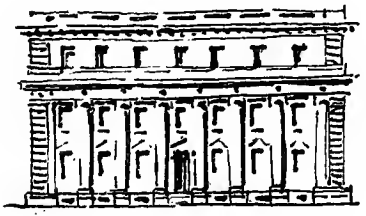
FIRST FLOOR RUSTICATED EMPHAZISES THE BASE OF THE STRUCTURE. EFFECTIVE CONTRAST BETWEEN ROUGH BASE AND SMOOTH UPPER FLOORS. QUOINS END WELL THE COMPOSITION. SEMI-SEVERE

(3)



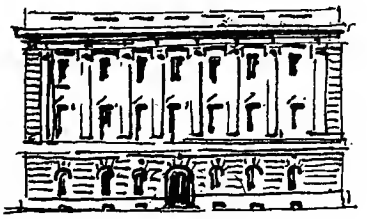
PROPORTION OF DIVISIONS IN THE VERTICAL REVERSED TOP LIGHTER. VERTICAL APPEARS: RUSTICATED PIER CORNER QUOINS STRONGER THAN MIDDLE ONES ACCENT THE END OF SEVERE COMPOSITION

(4)



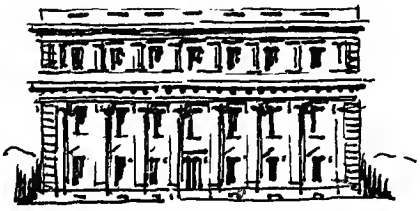
HORIZONTAL AND VERTICAL STRONG LINES APPEAR EMPHAZING PIER AND LINTEL. ENGAGED COLUMNS INTRODUCE MODELLING EFFECTS. LIGHTNESS ALLIED TO STRENGTH, ELEGANCE

(5)



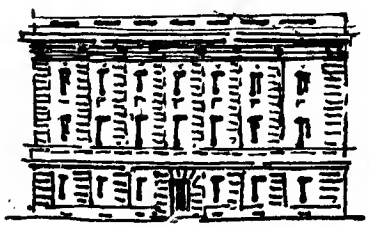
REVERSED PROPORTIONS STRENGTH AND ELEGANCE MORE NATURALLY SUPERIMPOSED. VERTICAL COLUMNS OPPOSED TO STRONG HORIZONTAL RUSTICATIONS VARIETY BETWEEN THE FLOORS CHARACTER : SERIOUS

(6)



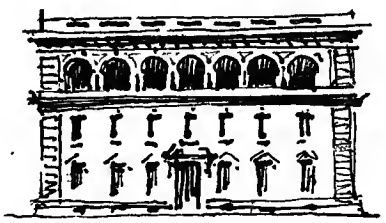
UNITY IN SPIRIT PURSUIT UPPER PIERS EMPHASIZE PROPORTIONS OF VERTICAL DIVISIONS. HORIZONTALS RICHER THE BETTER TO DIFFERENTIATE THEM OTHERWISE THAN BY THEIR DIRECTION. DIGNIFIED

(7)



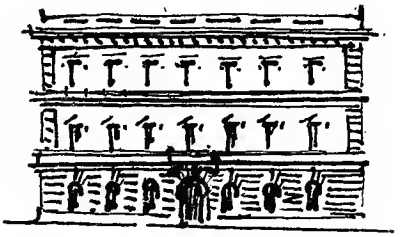
PIERS COMBINING VERTICAL AND HORIZONTAL. ESTABLISHING MORE PLAY ALLAYING IN A MEASURE SEVERITY AND EMPHASIZING STABILITY

(8)



CONTRAST BETWEEN ELABORATE TOP (LOGGIA) AND LOWER FLOORS. QUOINS RECALL THE RICH EFFECT OF TOP ON BOTTOM. CONTRASTE BETWEEN CORNERS AND MIDDLE SURFACE

(9)



HORIZONTAL DOMINANT TAKING ADVANTAGE OF FLOOR LINES TO ACCENTUATE HORIZONTALS. RUSTICATIONS MARK STRONGLY BASE, QUOINS EMPHASIZE ENDS OF COMPOSITION.

A FEW TYPES OF ELEVATIONS AND THEIR DIAGRAMMATIC EXPRESSIONS

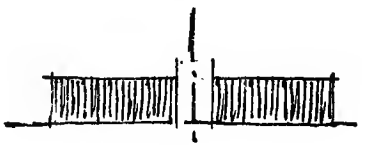
Regularity and symmetry in comparatively small buildings are in themselves attractive in architecture, particularly when the units,—colonnade, arcade, or equally spaced windows, etc. —are chosen in keeping with the program of the structure. In such cases there is hardly need for any accent or emphasis, or feature. But there are cases where one, two or more features are in keeping. This sheet shows examples of four cases applied to public buildings and to residences. In the left column are indicated the various diagrams.

(1)

(5)

(6)

(2)



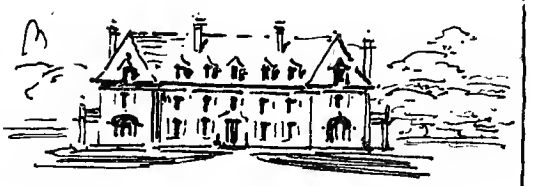
(7)

(8)

(3)

(9)

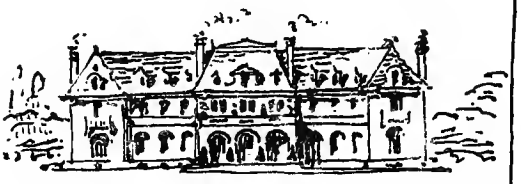
(10)



4

(11)

(12)



S. Varon

PLATE XXIX

ONE FEATURE ELEVATIONS. DIAGRAM II OF PRECEDING PLATE APPLIED TO VARIOUS STRUCTURES

The six examples of one feature elevations are enough to let every one understand the possibilities when change in the proportions is introduced. In each case there is a particular reason to emphasize a certain point; but as the program and objects of the structures are different from one another, so will be the forms and proportions of the features used.

The examples selected in this plate are:

(1) The "Monnaie" (or Mint) in Paris, by Gabriel.
(2) The Ecole Militaire, Paris, by Gabriel.
(3) The Belfry, Bruges, Belgium.
(4) The Trinity Church, Paris.
(5) The Court House, Havre, France.
(6) The rear elevation of the White House, Washington, D. C.

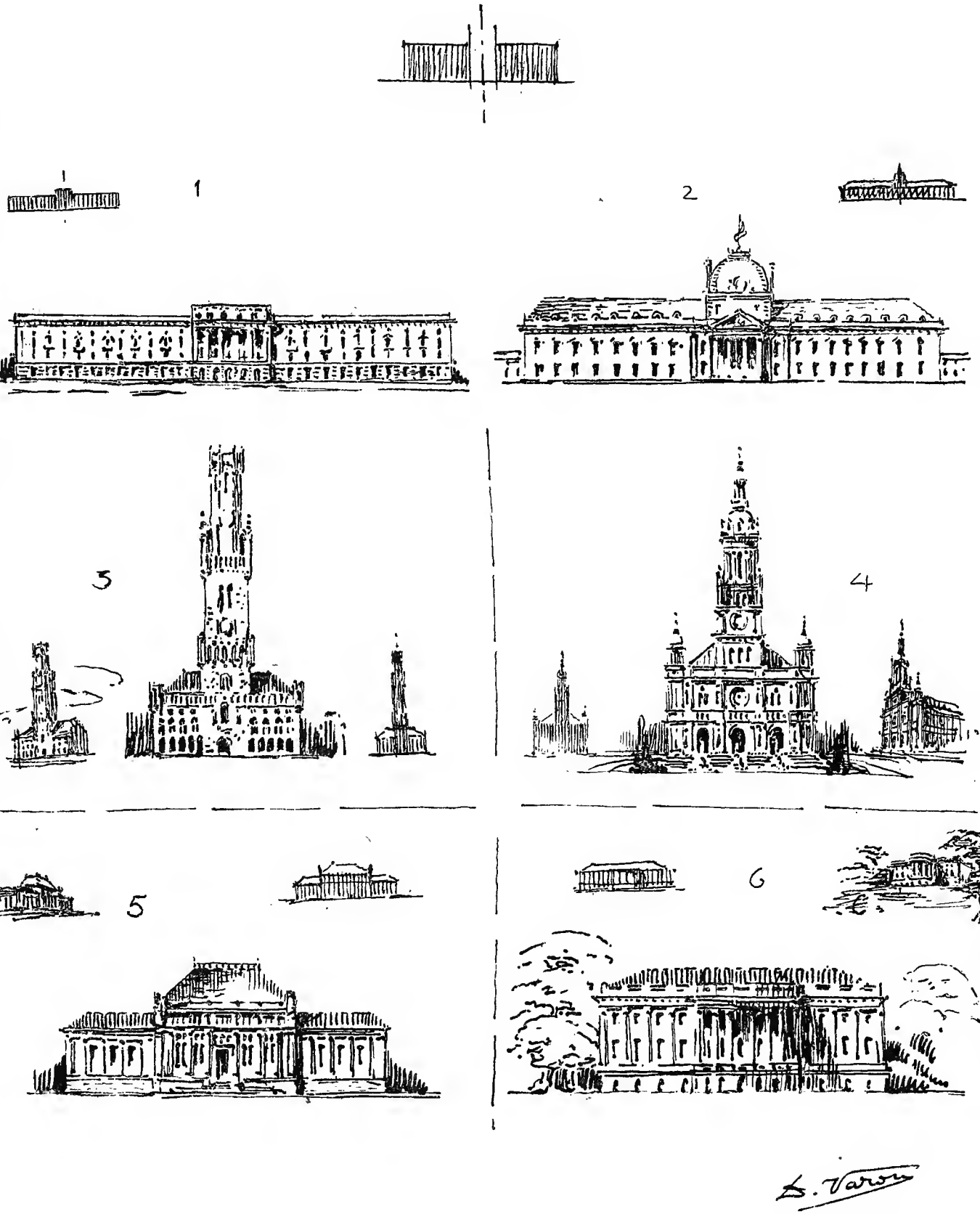


PLATE XXX

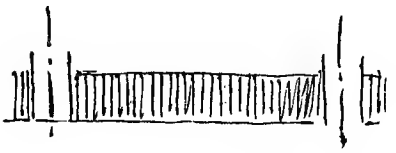
TWO FEATURE ELEVATIONS. DIAGRAM III OF PLATE XXIX APPLIED TO STRUCTURES OF DIFFERENT CHARACTERS

In this case the result of having two end features is to attract the attention the more to the centre which ought to be in consequence even more attractive than the features themselves. Here, again, the program and the proportions foster variety in the expressions.

Notice the deep shadows in every example as a proof of the foregoing statement. In Figure 1 the centre is a loggia, in Figure 2 a series of very wide windows. In Notre-Dame (Figure 3) the main entrance and the tracery accentuate the centre enough to attract the eye in spite of the overpowering towers so closely placed.

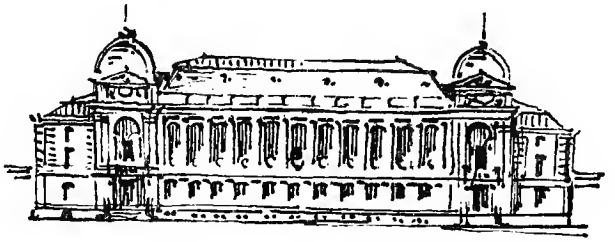
The examples selected on this plate are:

(1) The "Garde-meubles," Paris, by Gabriel.
(2) Museum of Natural History, Paris, by André.
(3) Notre-Dame Cathedral in Paris.
(4) Court elevation (fragment) of the Villa Medici, Rome.
(5) "Gare d'Orsay," railroad station opposite the Louvre, Paris.
(6) Theatre of Monaco, by Ch. Garnier.

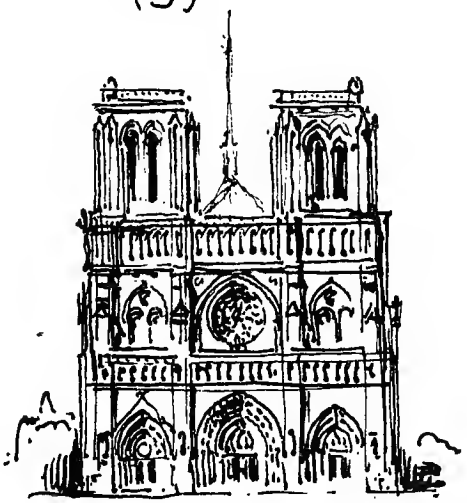


(1)

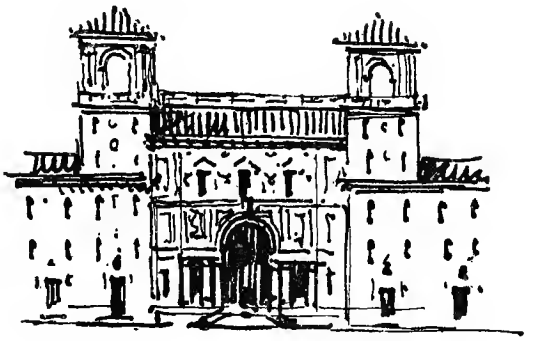
(2)



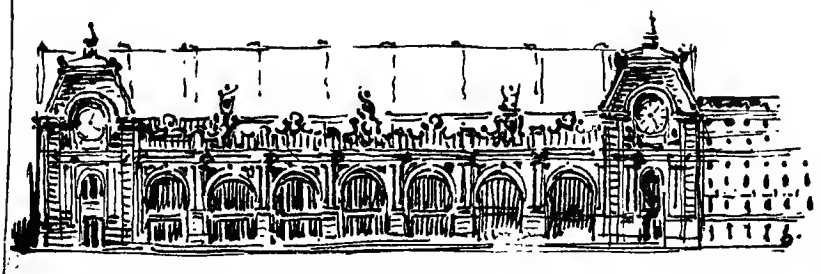
(3)



(4)



(5)



(6)

PLATE XXXI

THREE FEATURE ELEVATIONS. DIAGRAM IV OF PLATE XXIX APPLIED TO STRUCTURES OF DIFFERENT CONTOURS AND CHARACTER

In this case, while the centre is the most important part and is given proper emphasis, the end features enhance it by some contrast. For instance in the elevation of the Louvre, Paris, (Figure 1) the central feature is crowned with a pediment, while the sides are flat. The number of features increases the impression of richness in public buildings, and it also adds interest to private structures without additional cost if the plan is properly designed. Expression does not always need an elaborate display. Rusticity is in itself often a very attractive expression (see some parts of Fontainebleau palace).

The examples represented on this plate are:

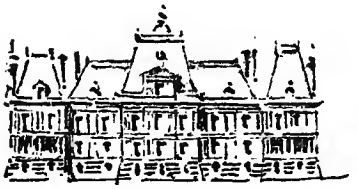
(1) The Louvre, main façade, Paris.
(2) The New York Public Library.
(3) The City Hall, New York.
(4) The "Chateau de Maisons," near Paris, by Mansart.
(5) The "Institut" or "Académie Française," Paris.
(6) The cathedral of Nancy, France.

1

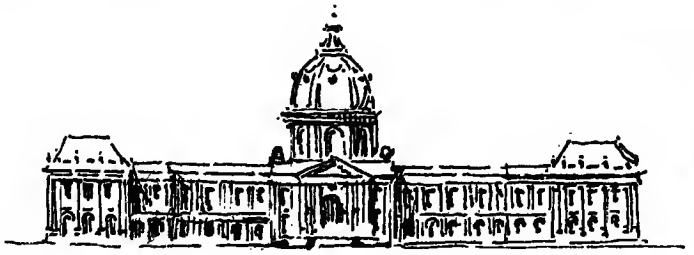
2

3

4



5



6

PLATE XXXII

COMPOUND FEATURES

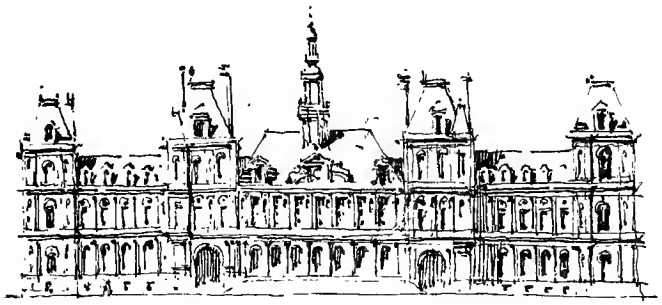
These occur in general in architectural compositions conceived on a large scale such as the palace of the Louvre and other royal residences. The solution is ideal when the feature could not exist as a unit by itself, which might be the case with Figures 1 and 2, but like 3 and 4 which are decidedly features and nothing else. Compare other large compositions in the same light, and draw them—at least their general masses—from memory. See also compositions with more than three features.

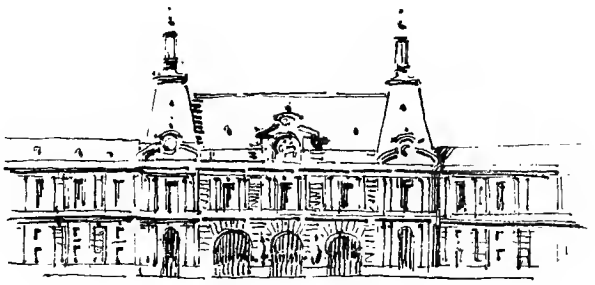
The examples selected in this plate are:

(1) The "Hotel de Ville" (city hall) of Paris.
(2) One of the main gates of the Palais du Louvre, Paris.
(3) A competition for the Prix de Rome, by Duquesne.
(4) An interior compound feature of the Palais du Louvre, Paris.

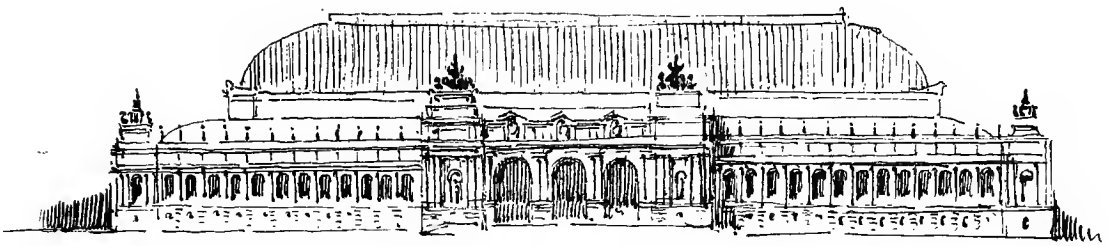
1

2

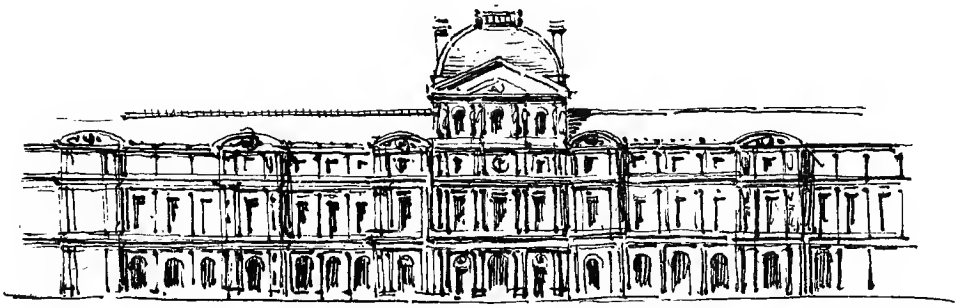




3



4

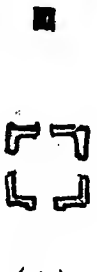


LOUVRE

PLATE XXXIII

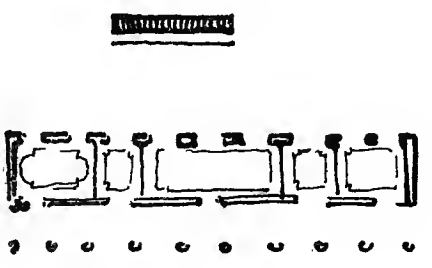
PLANNING PRINCIPLES FROM THE MERE ENCLOSED SPACE, OR ROOM, TO THE COURT SURROUNDED WITH A DOUBLE ROW OF ROOMS

This is a mechanical arrangement. See in the classic plans applications of this plain scheme to monumental compositions. The importance of exercises suggested by this plate is to get used to the simplicity of the diagrammatic indication of each sort of composition, taking different items of a plan in a group, which is the only way of composing with art.



(1)

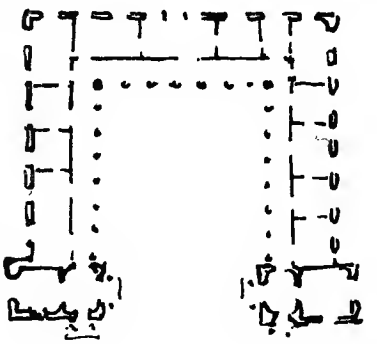
(2)



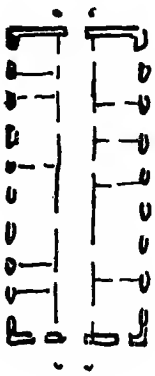
(3)

(4)

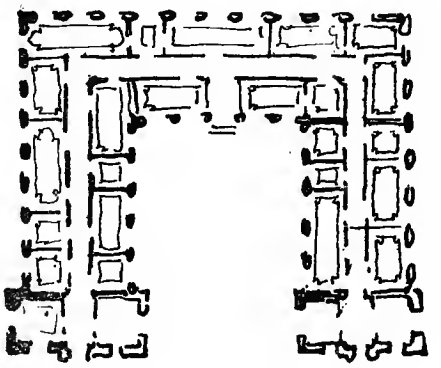
(6)



(5)



(7)



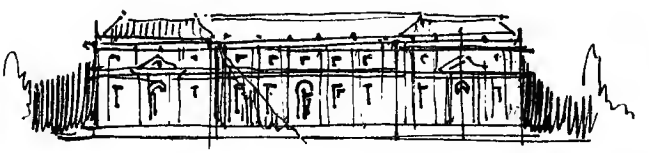


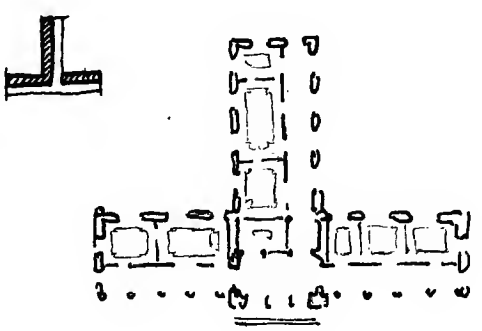
PLATE XXXIV

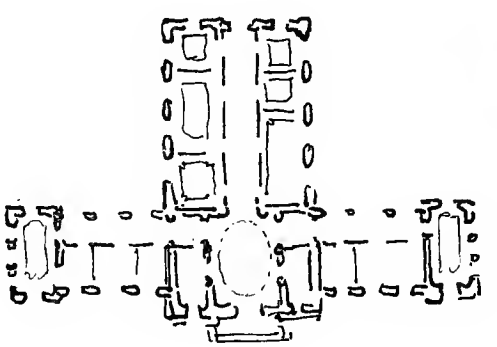
T-SHAPED PLANS IN DIFFERENT APPLICATIONS

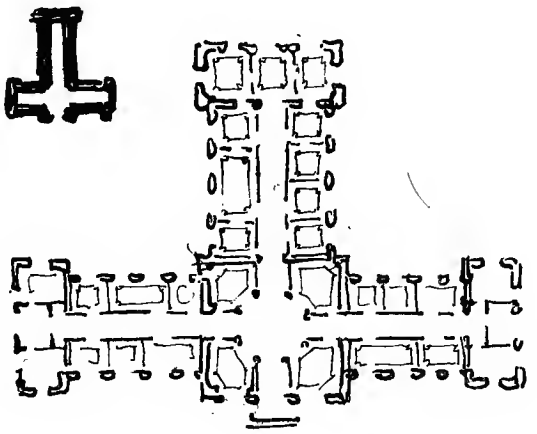
Figures 1, 2 and 3 are more or less mechanical. Figures 4 and 5 are more architectural, rather more monumental. Observe the simplicity of the diagrams which could be further simplified when using a still smaller scale.

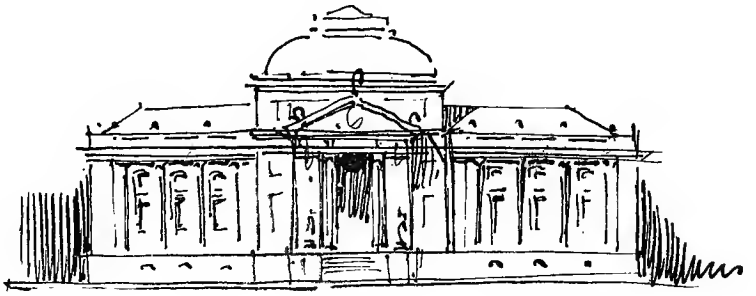
This shape of plan is often used, when space allows it, for the composition of a plan requiring three distinct parts to which access must be had from a central lobby or vestibule.

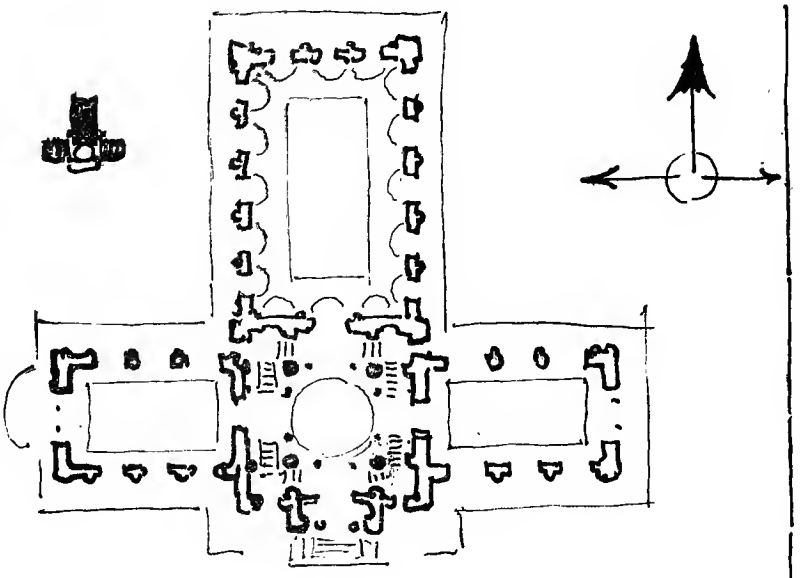
Its applications in executed works and in school compositions are numerous. It is interesting to study these different applications in their variety.











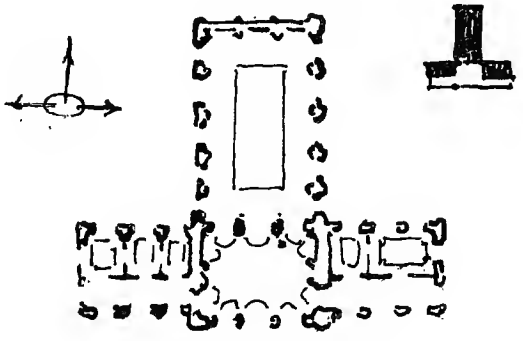


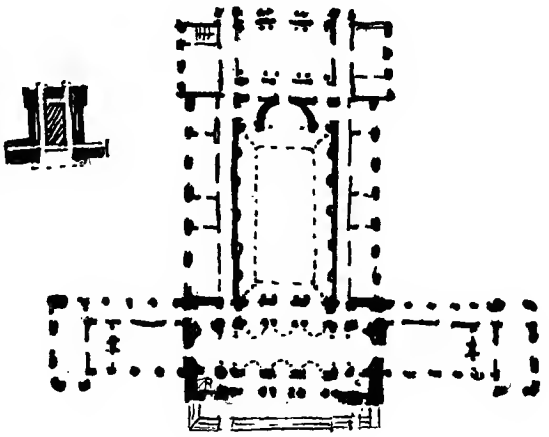
PLATE XXXV

T-SHAPED PLANS (CONTINUED)

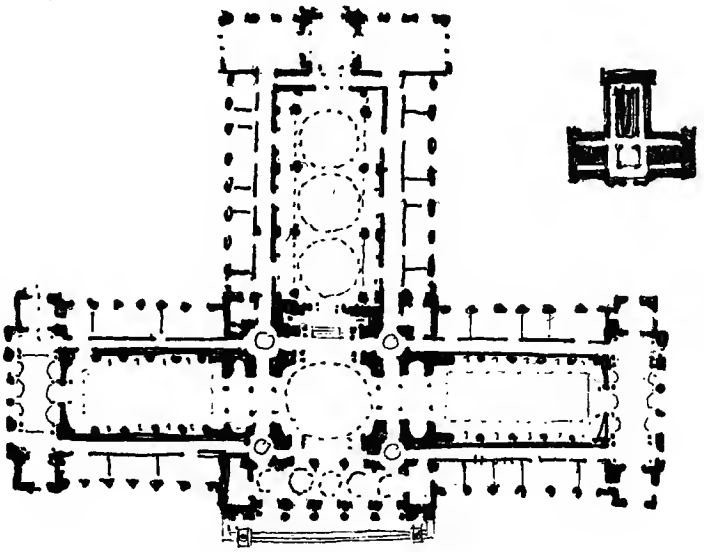
Continuing the T-shaped plans we see the application of the T to various monumental compositions. It should fit the program and one should not try to force it on the program for then the composition loses all its character. In Figure 4 the branches of the T are constituted by courts coming together in a central court. This type of plan is quite often met with. In each case it requires a special study. The two branches of Figure 3 are semicircular just to show other possibilities in such a type of plan. In this figure every thing differs from the rest; elements and expression. Only the diagram, a T, remains the same.

In some large hotels such courts are transformed into conservatories by covering them with a skylight. In large public buildings the same courts are made available as working space on the ground floor through the same device (Post Office, Buffalo, and several well planned department stores, the Custom House, New York, etc.).

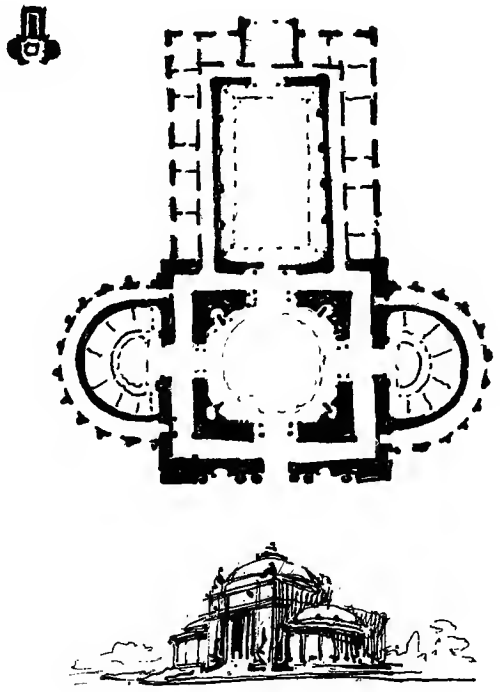
1



2



3



4

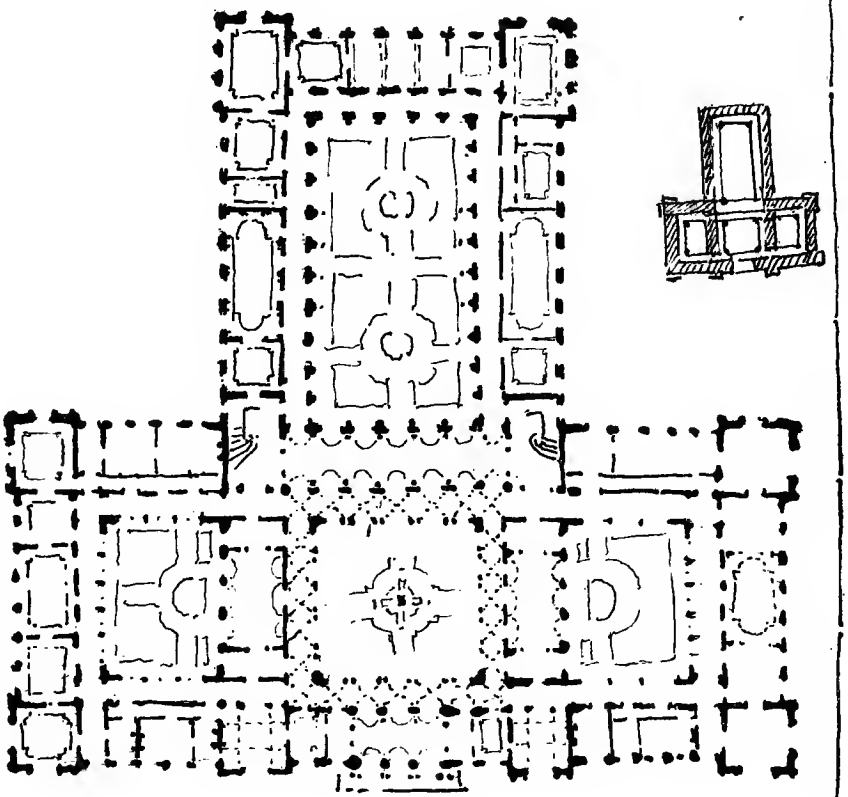


PLATE XXXVI

STUDY OF PLAN UNITS

Architectural effects are obtained frequently through the use of different units in the composition. These units are at most times dictated by necessity. A mere gallery, Figure 2, will be composed of square elements, Figure 1, while a vast loggia, Figure 5, will be composed of oblong elements like Figure 4, which implies two measure units. Figure 8 shows the first combination of both and, Figure 9, the character obtained in section where the small element enhances the effect of the big one. The turning points in circulations are always important. Figure 11 shows one of the simplest solutions. Study Palazzo Farnesi and different inspirations from it on various classic plans the better to learn how to derive inspiration without servilely copying a feature, and to see how to adapt a principle to a different case. Turning points may affect different forms. Easy circulation is the first aim. This is taken advantage of to make it a feature.

References: M. P. Gautier—Edifices de Gênes; Letarouilly—Edifices de Rome Moderne; Blondel—Cours d'Architecture.

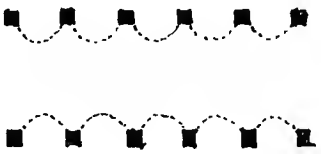
(1)

(2)

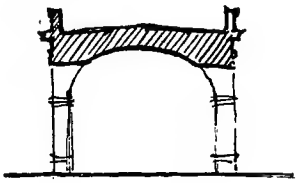
(3)

B

(4)



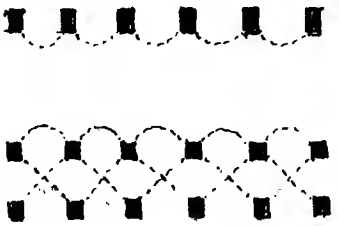
(5)



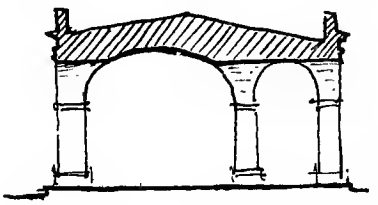
(6)

C

(7)



(8)

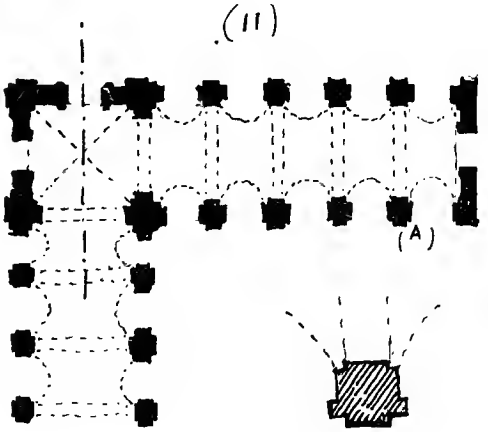


(9)

b

(10)

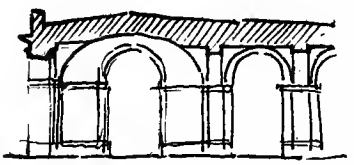
(11)



A

(13)

(12.)



S. Varon

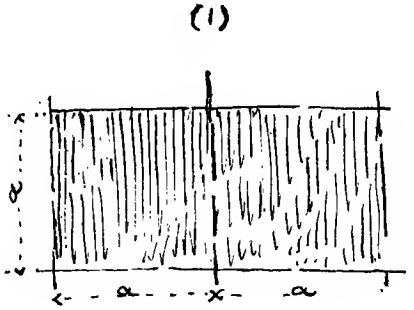
PLATE XXXVII

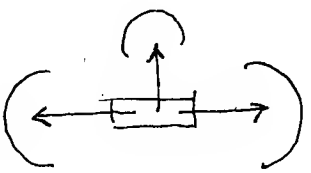
ANALYSIS OF CLASSIC PLANS OF ANTIQUITY

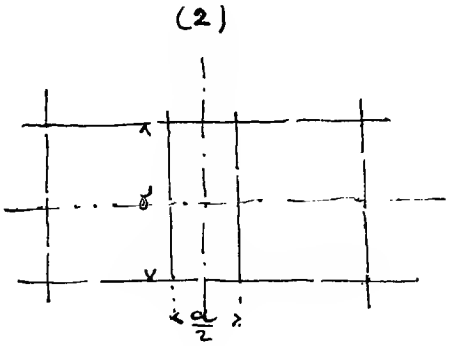
This teaches analysis of a comparatively elaborate plan. The Thermae of Caracalla—Roman public baths—are here shown in the different stages of development.

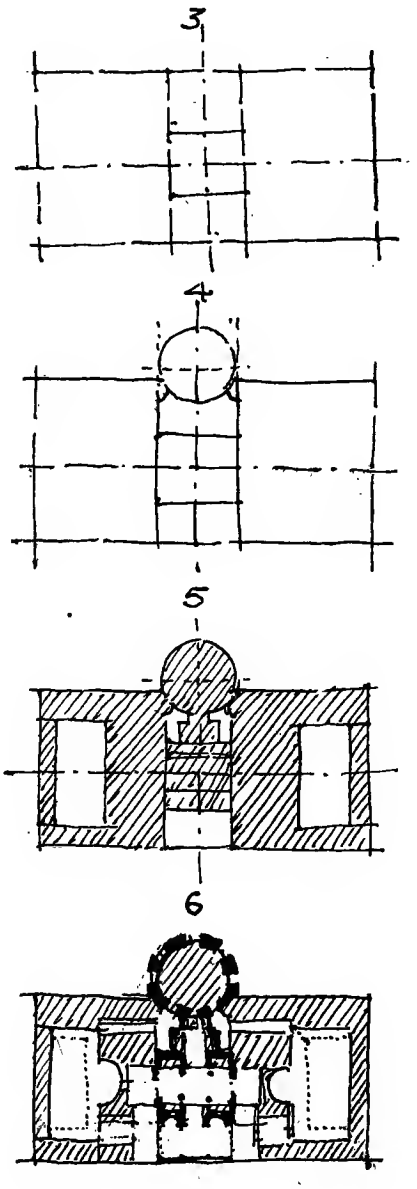
The two squares correspond to the two sexes, the plan being thus conceived in a very compact way. Figure 5 shows the different items grouped in such a way that access is easy to every part. Space and light abound. Figure 6 shows the part of the plan in which a monumental display occurs more particularly, the part common to all bathers, where special performances took place and therefore architectural setting was in keeping. Observe the scale. Compare the central feature to other parts of the plan. Refer to Canina the Italian author, Palladio and other authors, and read text the better to appreciate the qualities of this plan. Compare with other thermae of different emperors. See the application of such a central feature in modern structures abroad and at home (Pennsylvania R. R. Station, N. Y. C.).

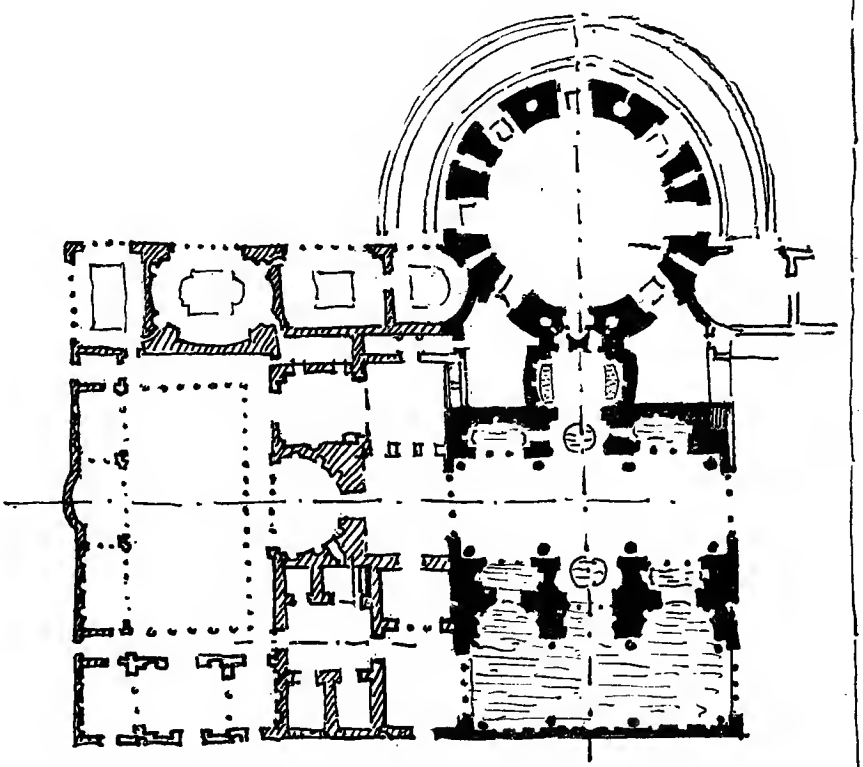
References: Gaillabaud—Traité d'Architecture; Leonce Reynaud—Traité d'Architecture; Palladio—Plan Compositions; Canina—Old Edifices of Rome; D'Espouy—Envois de Rome; Guadet—Volume I.











ANALYTICAL SKETCH OF A ROMAN PLAN:
THE THERMAE OF CARACALLA
AND
THE DIFFERENT STAGES OF A SKETCH OF SUCH A PLAN at a small SCALE.

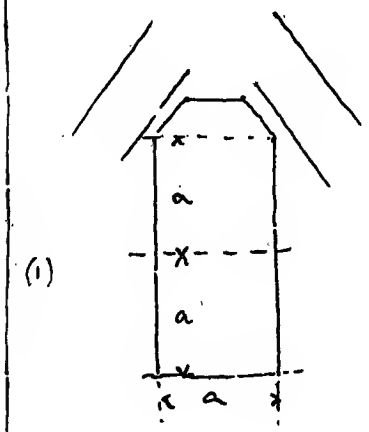
L. Varon

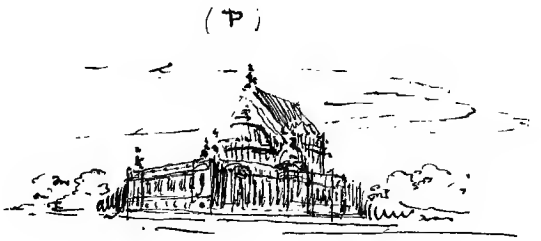
PLATE XXXVIII

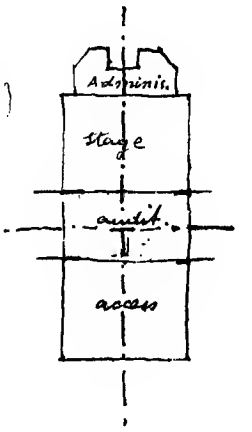
PLAN ANALYSIS OF MODERN STRUCTURES. THE PARIS OPERA HOUSE

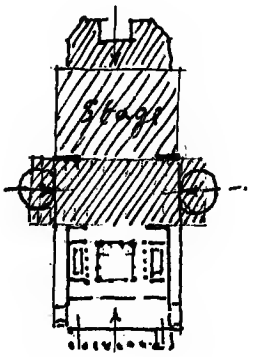
The process of analysis followed in the preceding plate was applied here to a modern building: the Opera House of Paris. What makes its merit is the simplicity and the grandeur of its conception. It is also sketched with the intention of showing the student how to group together items of the same nature, or belonging to one class; this for the purpose of clearness. Figures 2, 3, 4, 5, and 6 show the different steps of the sketch and Figure 7 the way of expressing variety in the architectural development of the different parts through the thicknesses of the walls which requires, as stated in the text, a delicate touch of the hand when using either the pen or the pencil.

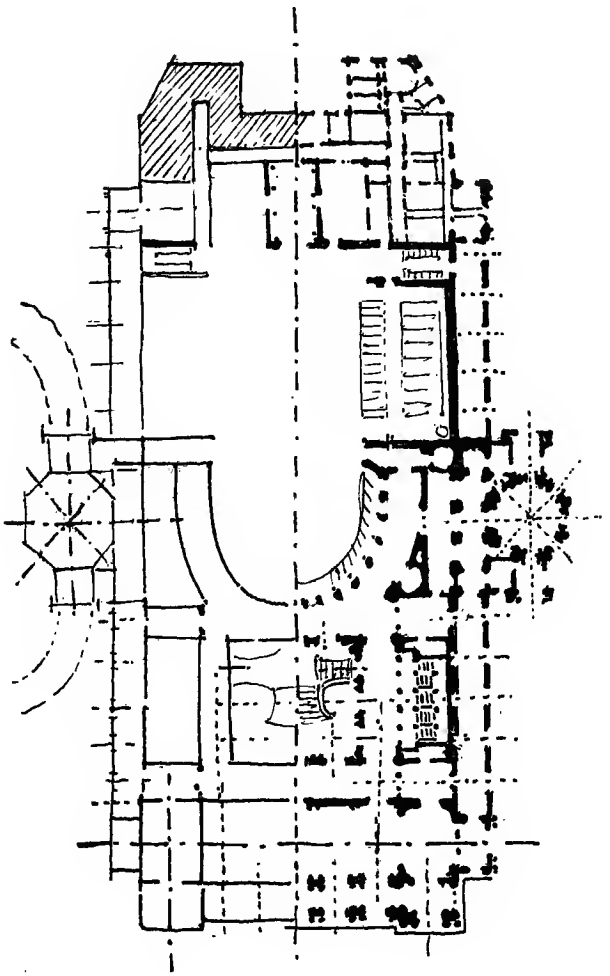
References: Garnier—L'Opéra de Paris; Guadet—Volume II.

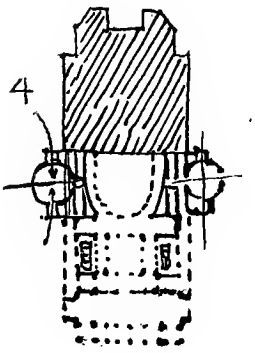


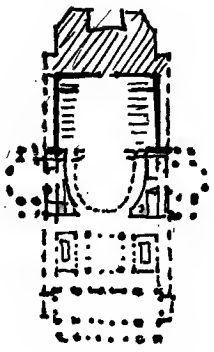


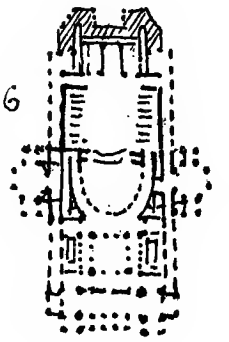












(7)

PLATE XXXIX

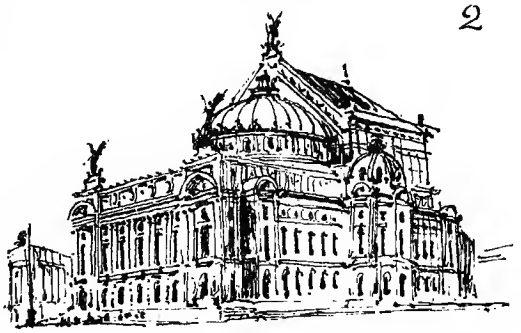
ANALYSIS OF MODERN STRUCTURES. THE PARIS OPERA HOUSE (CONTINUED)

One cannot say he knows anything thoroughly until he has thoroughly analyzed it. To the architect the sketch is the best means of analysis. If there is in modern times a structure worth time and painstaking to be analyzed it is the Opera-House of Paris. To understand its merits one must not only admire the beautiful proportions, the infinite variety in the unity of its sculpture, but make a comparative study of theatres. It is only when the student realizes the problem confronting the architect that he will comprehend what architecture is. Only then will he appreciate the struggle between art and the material need. Here the height of the stage was the architect's problem on account of scenery requirements. He had to submit to this condition. Not only did Garnier do so but he turned the difficulty into an advantage. This high pediment of the stage roof against which the dome crowning the auditorium stands in relief, useless in a measure, but required by æsthetics (see sketched section Figure 7), forms from the distance the most imposing feature of this splendid composition. It imparts so much dignity to the whole that it constitutes an object lesson in composition.

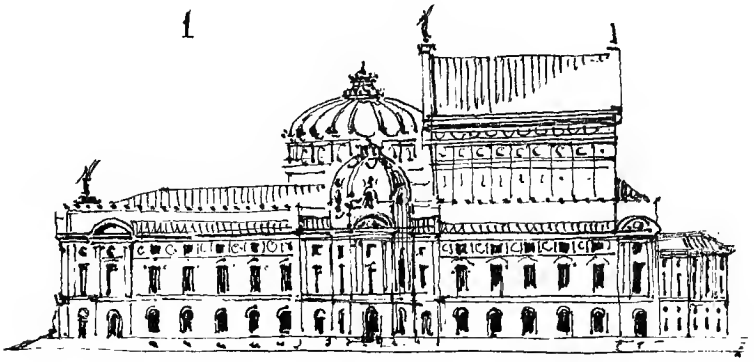
For many generations yet to come this structure will serve as a guidance to the architect who may have the honor to be taxed with the solving of a novel problem. Not only will the student look at it with profound admiration, but the mature man will always look at it as a source of inspiration. In fact it is particularly the experienced artist who can best appreciate the qualities of this masterpiece. Every requisite of the program was provided for, the foyer allowed generous space, and safety was secured by thoroughly cutting the communications between the stage and the auditorium. See what simplicity there is in the proportions of the main front (Figures 3 and 4). The ratios of ½, ⅓, and ⅕ are to be met in this classic piece. It does not follow that one always has to apply these ratios, but it suggests that the nearer we come to simple ratios the better the effect, the more striking. Of course the law of variety requires that those proportions, even as man's, should vary somewhat.

It is well to notice how the first story or base looks like one solid horizontal mass in spite of the doors opened into it, and how much more architectonic and elegant the columns look standing on such a firm mass.

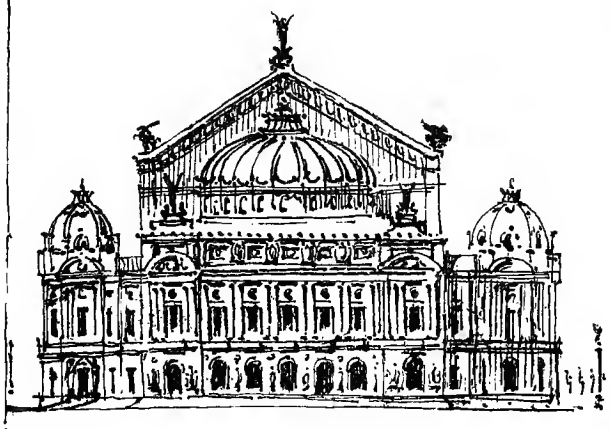
One might say that one of the best proofs of the good qualities of the composition of this masterpiece lies in the fact that it can be sketched in a few lines.



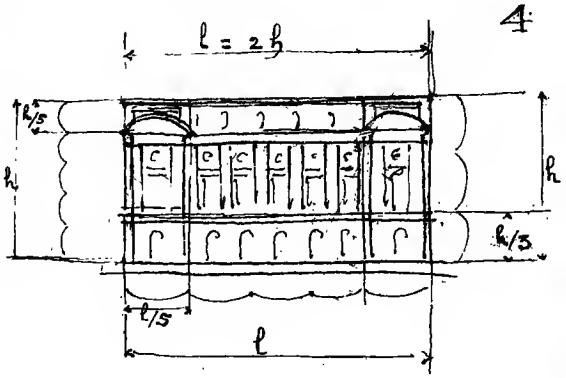
2



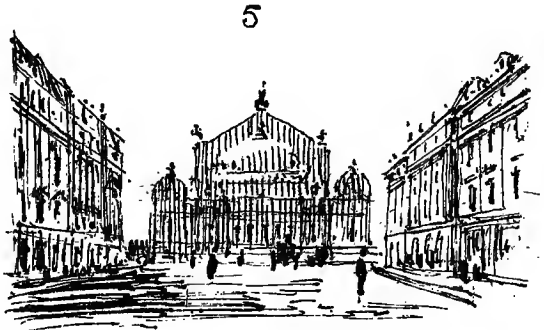
1



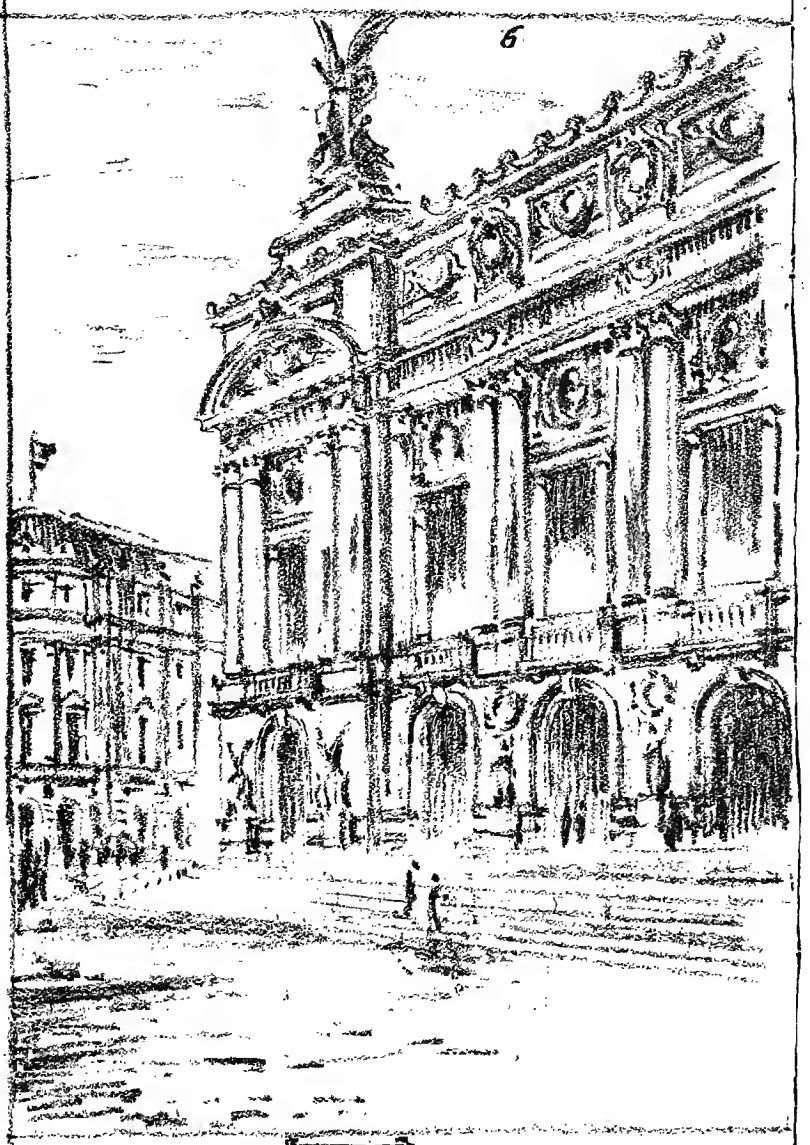
3



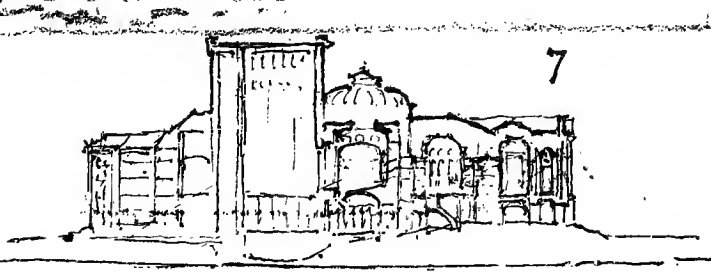
4



5



6



7

PLATE XI

The idea of shelter prevailing. When this idea is carried into a residential composition the result will always be an impression of rest, most fitting to a house. The winter and the summer resorts may be compared to the attitude of man in those seasons. All shrivelled up in winter, hardly putting his nose out of his hood, and on the contrary all life and freedom in summer, lightly dressed and bare armed, with a broad straw hat casting a protecting shadow over his eyes. The well designed home is the image of life in the season for which it is built.

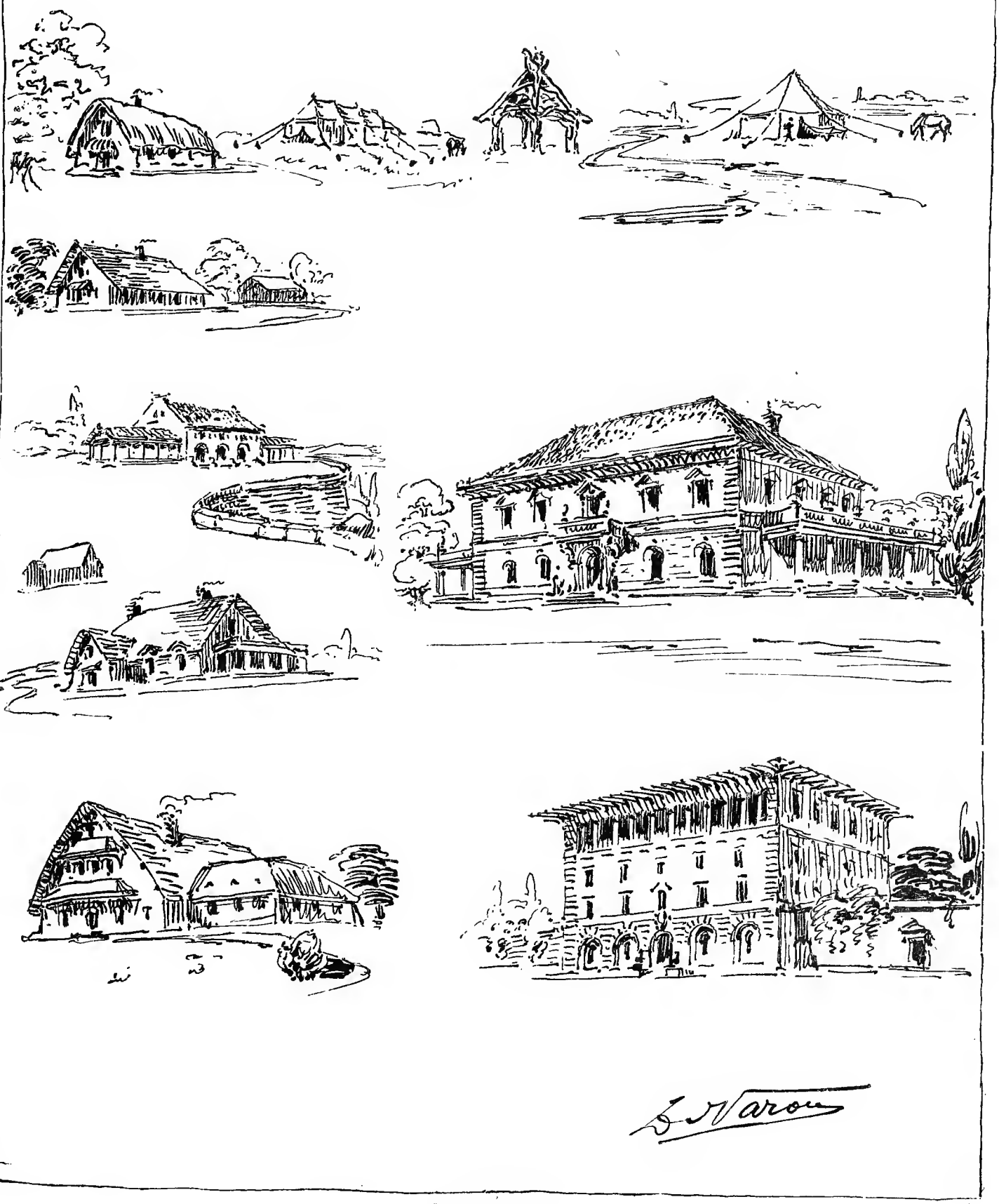


PLATE XLI

STAGES IN THE EVOLUTION OF THE MODERN PAVILION

Before architecture developed its modern attainments it passed through different stages and many an attractive feature may be traced to the days when it was intended for aggression or for defensive purposes. Such is the case with the round tower for instance. Figure 1 shows it with aggressive galleries right under the room. Figure 2 shows the evolution from the previous form. The tower is still round but no longer battlemented nor loop-holed. Only the sculptural or rather architectural character of the tower has been preserved. See the various effects in the distant silhouettes.

Reference: Sauvageot—Chateaux de France.

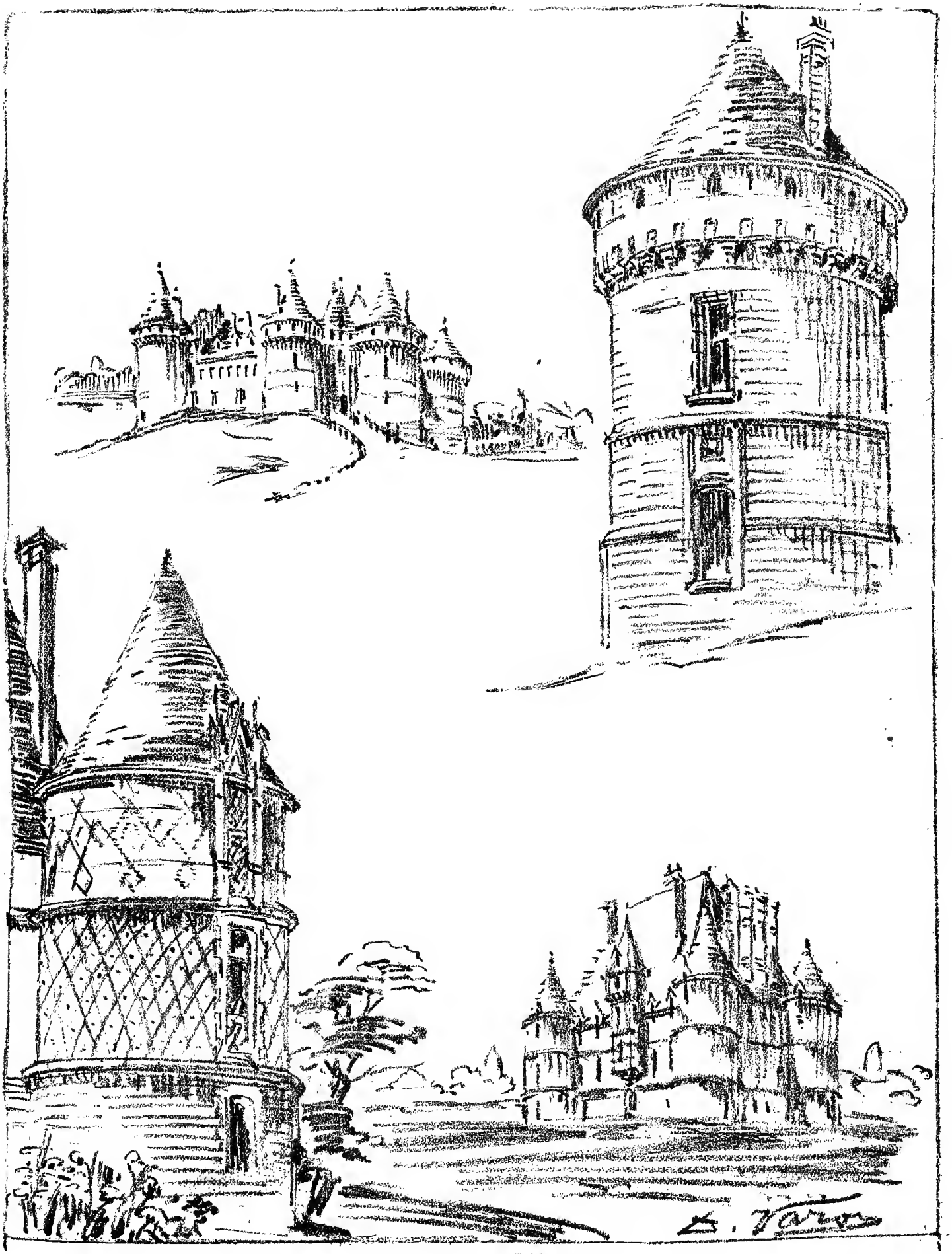


PLATE XLII

STAGES IN THE EVOLUTION OF THE MODERN PAVILION (CONTINUED)

The tower continues to evolve. From round it became square, this shape being more habitable. Its massiveness and the comparatively rare windows still impart to it an air of distrust. Finally the tower becomes a mere pavilion, nothing more than a reminiscence of a tower, a feature (Figure 1). But the round tower or the square and dominating one as in Figure 1, or the mere pavilion as in Figure 2, have in their mass a special character. Their study is infinite and the tower can impart various expressions to the structure with which it is associated. It is a most architectural feature. The study of its evolution is very instructive, particularly when made in a comparative manner.

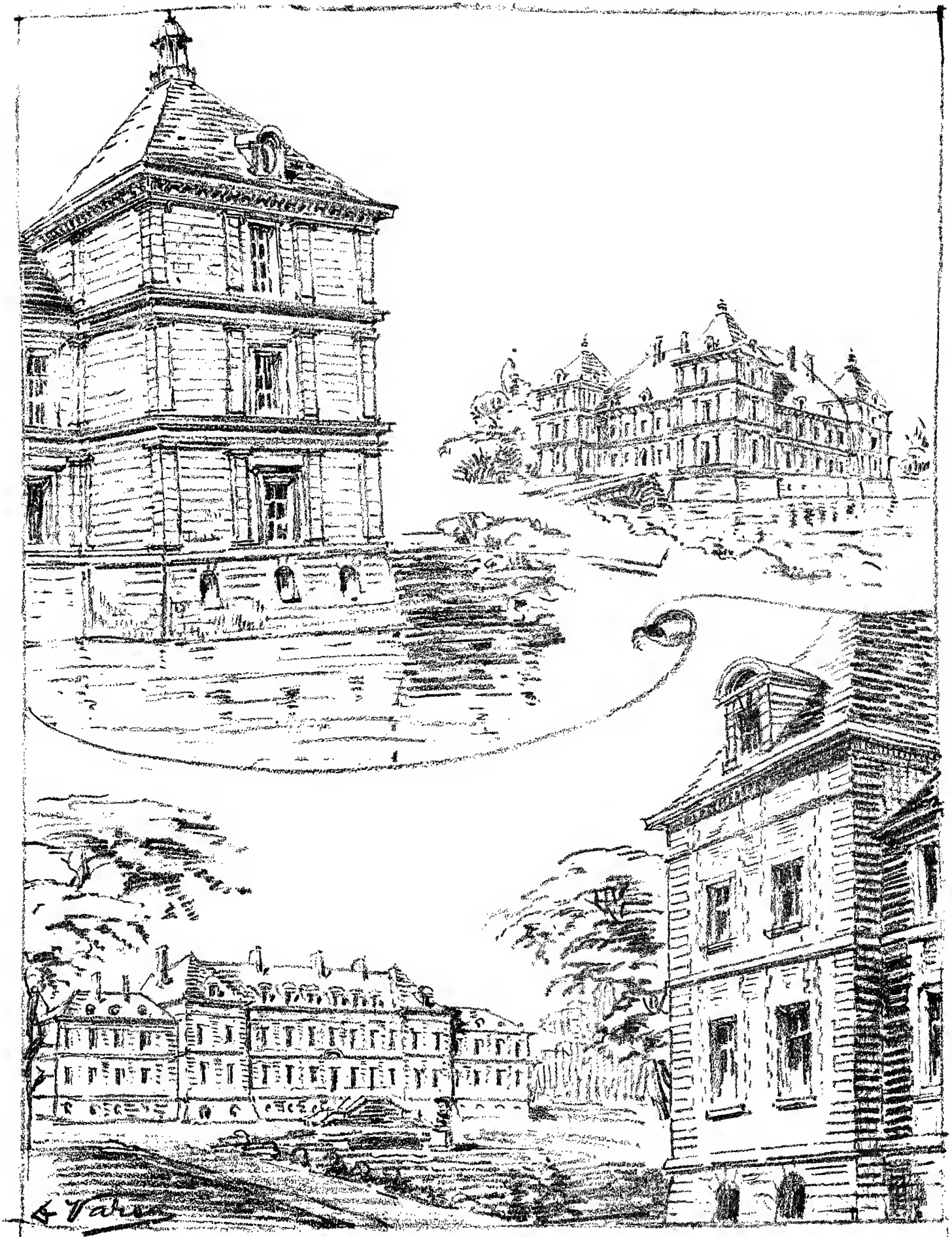


PLATE XLIII

INDICATION.
SUPPLEMENT TO PLATES XX AND XXI.

Showing the development of forms from the speck appearance, as in the vases crowning the top cornice of the round pavilion, to distinct schemes as in Figures 1, 4, 7 of sections A, B, C. The plate shows distinctly the different stages and demonstrates the importance of a simple and attractive outline to satisfy the eye in any situation. The forms of vases must vary not alone according to the fanciful need but also according to their destination and the material and the particular lighting of the place. These considerations add greatly to novelty in art. Diffused lighting requires different architectural and decorative solutions from direct lighting.

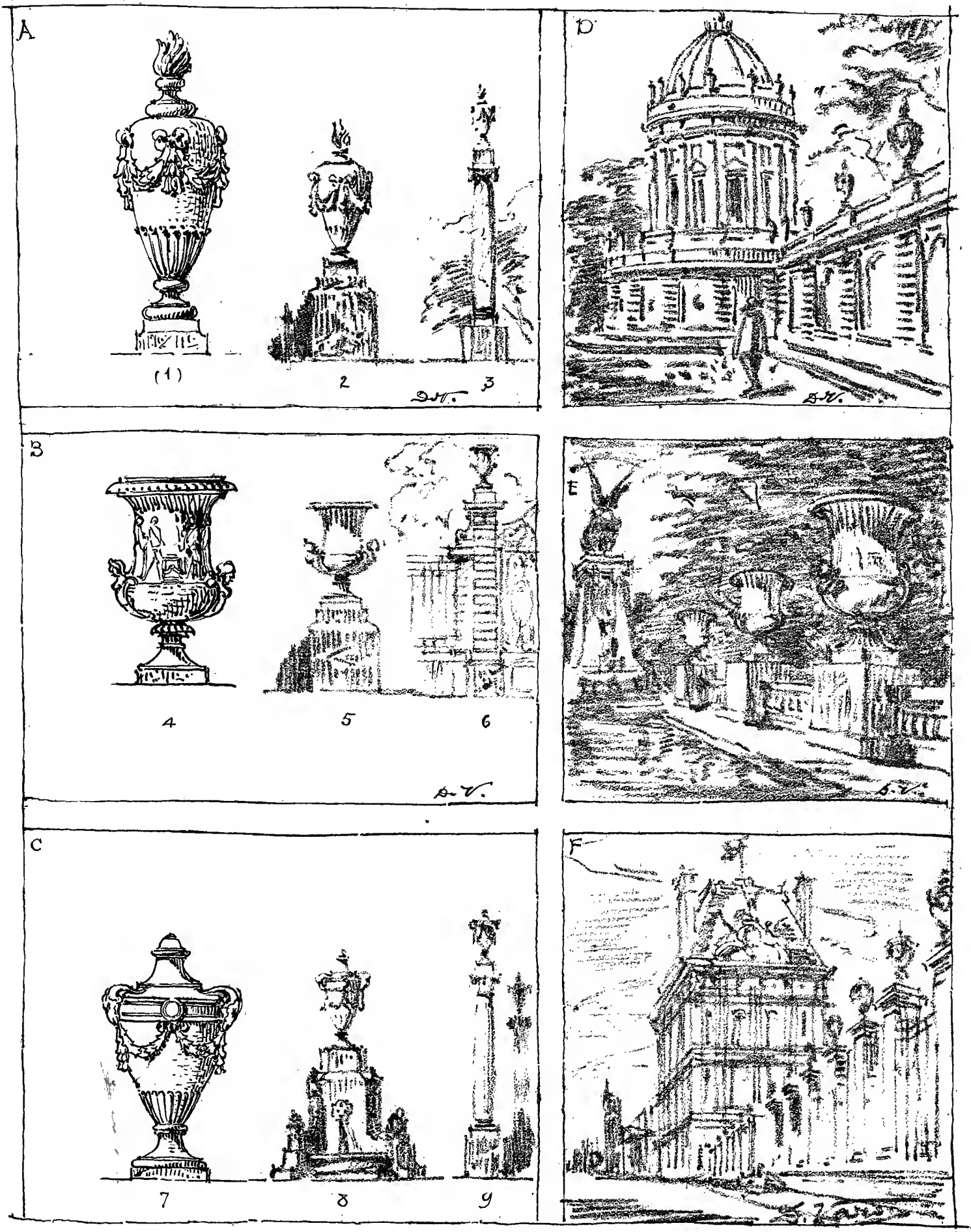


PLATE XLIV

INVENTING FORMS

This plate is aimed to direct the first steps of the student in his creative efforts in analysing the possibilities of variety in the treatment of a simple console of a door, resorting either to vegetation for inspiration or allying natural and geometrical forms, accentuating the various parts of the curves according to the case, etc. This great variety and many more may all be indicated by a simple touch, a stroke of the pencil, an accent almost. With such variety in the development of a small indication it is readily seen what advantage can be gained from this principle when sketching from a given structure, what changes can be brought in without altering the beauty of the feature, yet bringing in some individual qualities.

Sections D, E, F, are only variations of the previous sections as applied to balconies and to cornices.

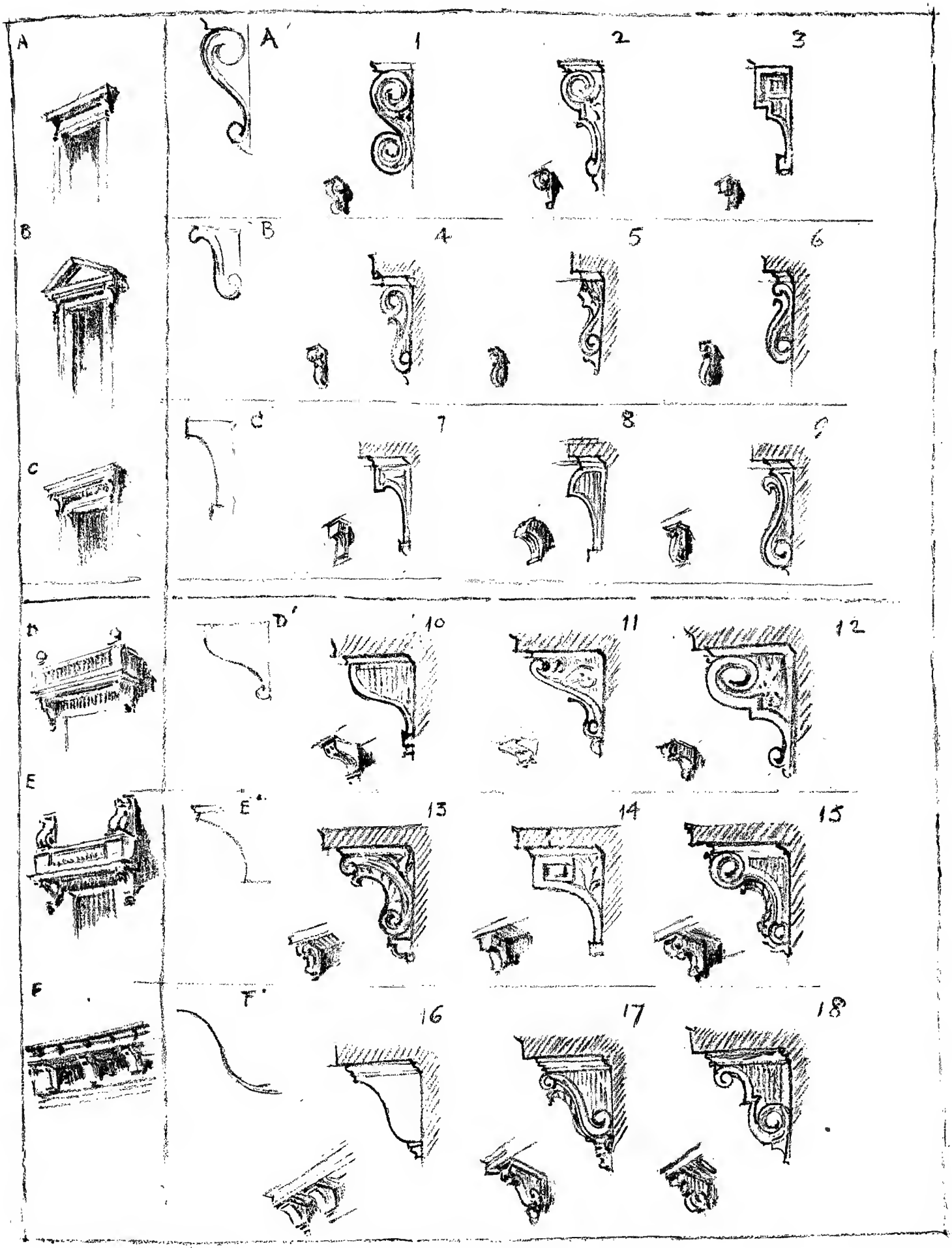


PLATE XLV

ARCHITECTURAL SILHOUETTES

Architecture differs from painting and engraving in more than one way, as in its possibilities for silhouettes at dusk or in hazy weather. Design is much concerned with this part and its study begins with the importance of the silhouette of a mere Doric column (Figure 1) and culminates in the outline of a complex composition. Purely decorative features such as fountains (Figure 8, Fountain of the Innocents, Paris, and Figure 14, a typical Italian fountain), are particularly studied with the silhouette in view, the more so as the material may be bronze and from the distance the play of shadows and lights is little to be seen. A mere column with a tripod on its top (Figure 6) has proved a very effective ornament in our modern squares, the more so when the composition detaches itself on a sunset sky. Such silhouettes with the light appearing through their elements, as in Figure 6, are very effective particularly in cases like the spires in the cathedral of Burgos, Spain, and other famous examples of the same nature.

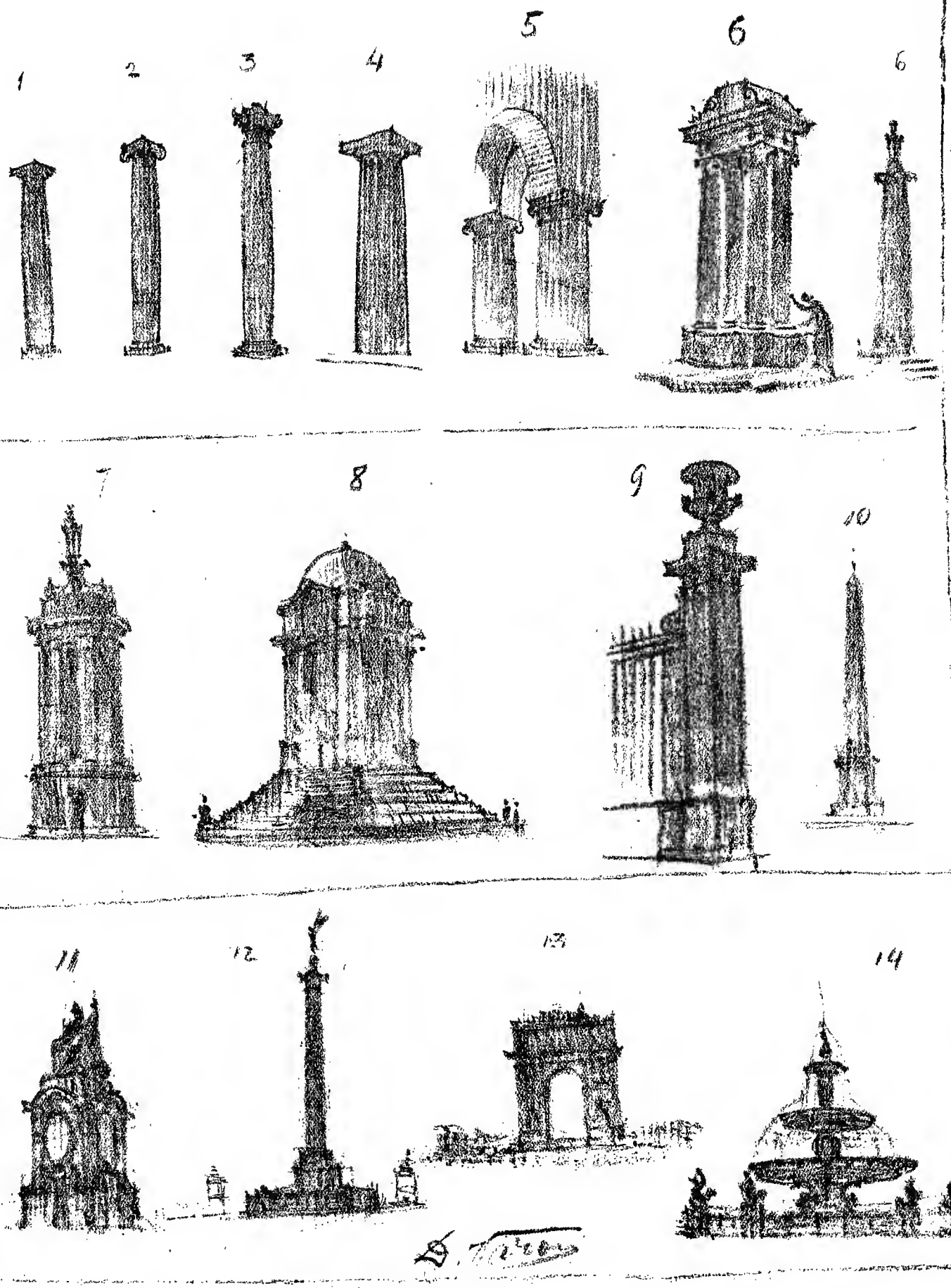


PLATE XLVI

ARCHITECTURAL SILHOUETTES (CONTINUED)

A continuation of the study of silhouettes as applied to monumental compositions of every character from the castle to an exhibition palace (Figure 8)—the plate is self explanatory. The variety in study is carried not only in the minute details of a cap or of a door but in the general outline. Majesty in Figure 2, welcome in Figure 5 and grandeur in Figure 8 are conveyed through their respective skylines. Beginners are urged to apply this manner of analysis to various examples of the same class of buildings and also to the study of the different classes, as it may lead later on to an easy way of finding the proper scheme fitting a given program. Here the study of proportion will be important, for no detail may be expected to remedy a defect in the effect of the silhouette, which is all grey or almost black.

The examples selected in this plate are:
U. S. Capitol, Washington, D. C. Memory sketch.
City Hall, New York City. Memory sketch.
Grand Palais, Paris. Memory sketch.

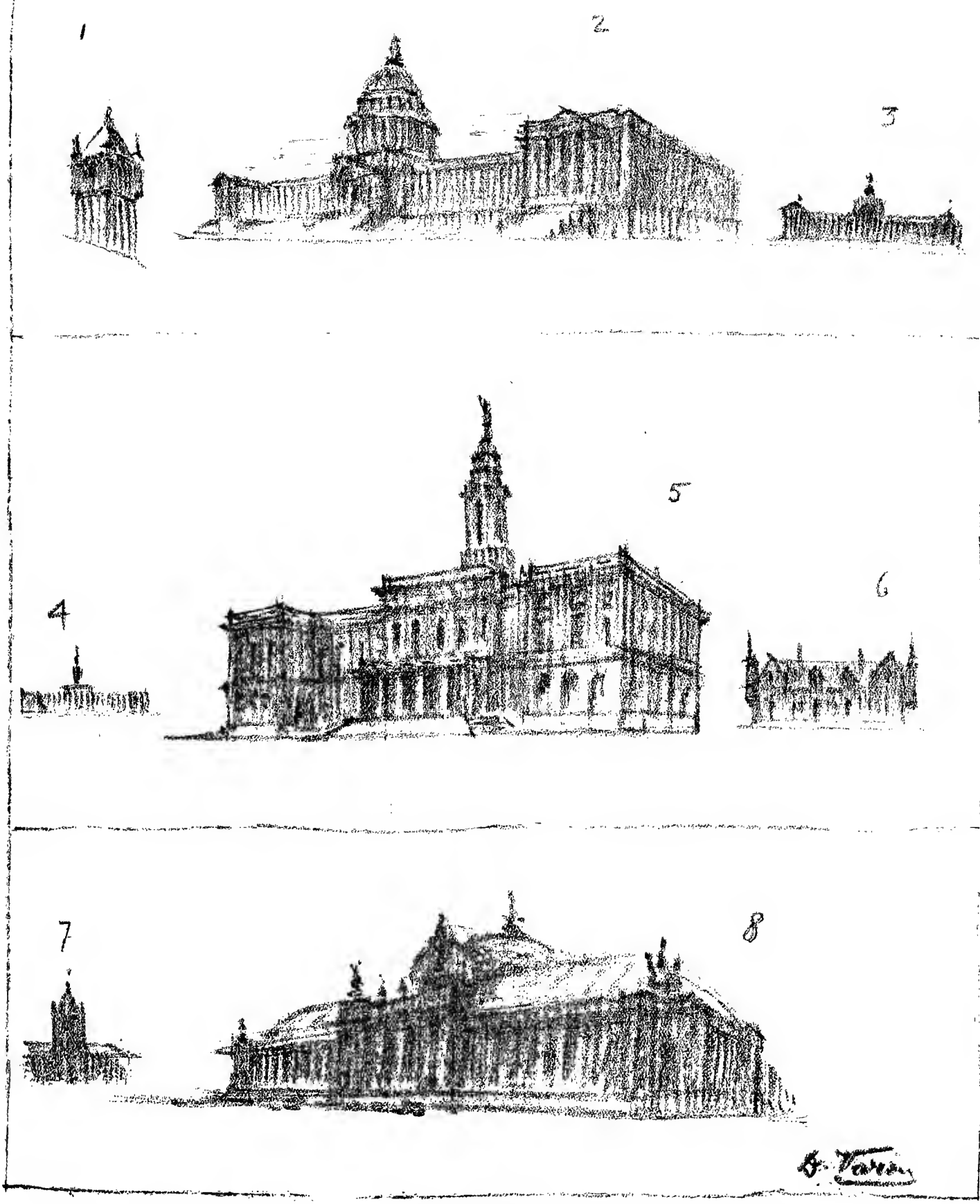


PLATE XLVII

ARCHITECTURAL SILHOUETTES. APPLICATION TO VARIOUS TYPES OF ISOLATED BUILDINGS

It is well to point out that outline is particularly possible in isolated structures such as most public buildings and sometimes private ones. Figure 1 is an imposing outline fitting the programme (main library Columbia University). It has something in common with the silhouette of a temple which is very befitting to a library. Other libraries may have similar outline without necessarily being actual replicas as we have seen in how many ways an accent may be interpreted. The outline bespeaks of the general character of the whole structure.

The examples selected in this plate are:
Columbia University Library. Memory sketch.
Saint Paul, London. Memory sketch.
Saint Martin's in the Field, London. Memory sketch.

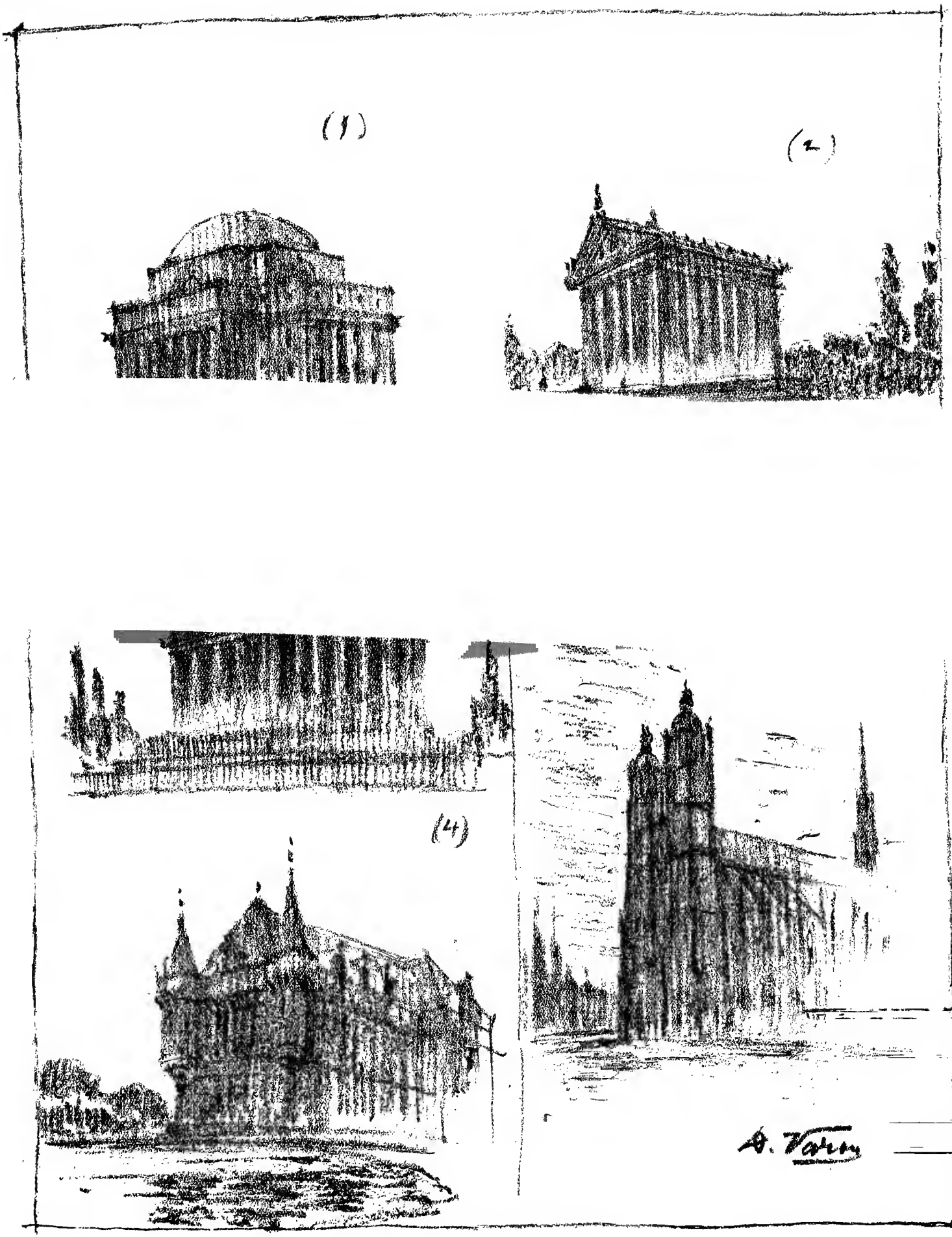


PLATE XLVIII

ARCHITECTURAL SILHOUETTES. APPLICATION TO VARIOUS TYPES OF ISOLATED BUILDINGS

It is well to point out that outline is particularly possible in isolated structures such as most public buildings and sometimes private ones. Figure 1 is an imposing outline fitting the programme (main library Columbia University). It has something in common with the silhouette of a temple which is very befitting to a library. Other libraries may have similar outline without necessarily being actual replicas as we have seen in how many ways an accent may be interpreted. The outline bespeaks of the general character of the whole structure.

ERRATUM

The examples shown on this plate are:

Columbia University Library. Memory Sketch.
Typical Roman Temple.
Typical Mausoleum Composition.
Château Azey-Le-Rideau. Memory Sketch.
Silhouette of Tours Cathedral. Memory Sketch.

These replace the examples originally cited.

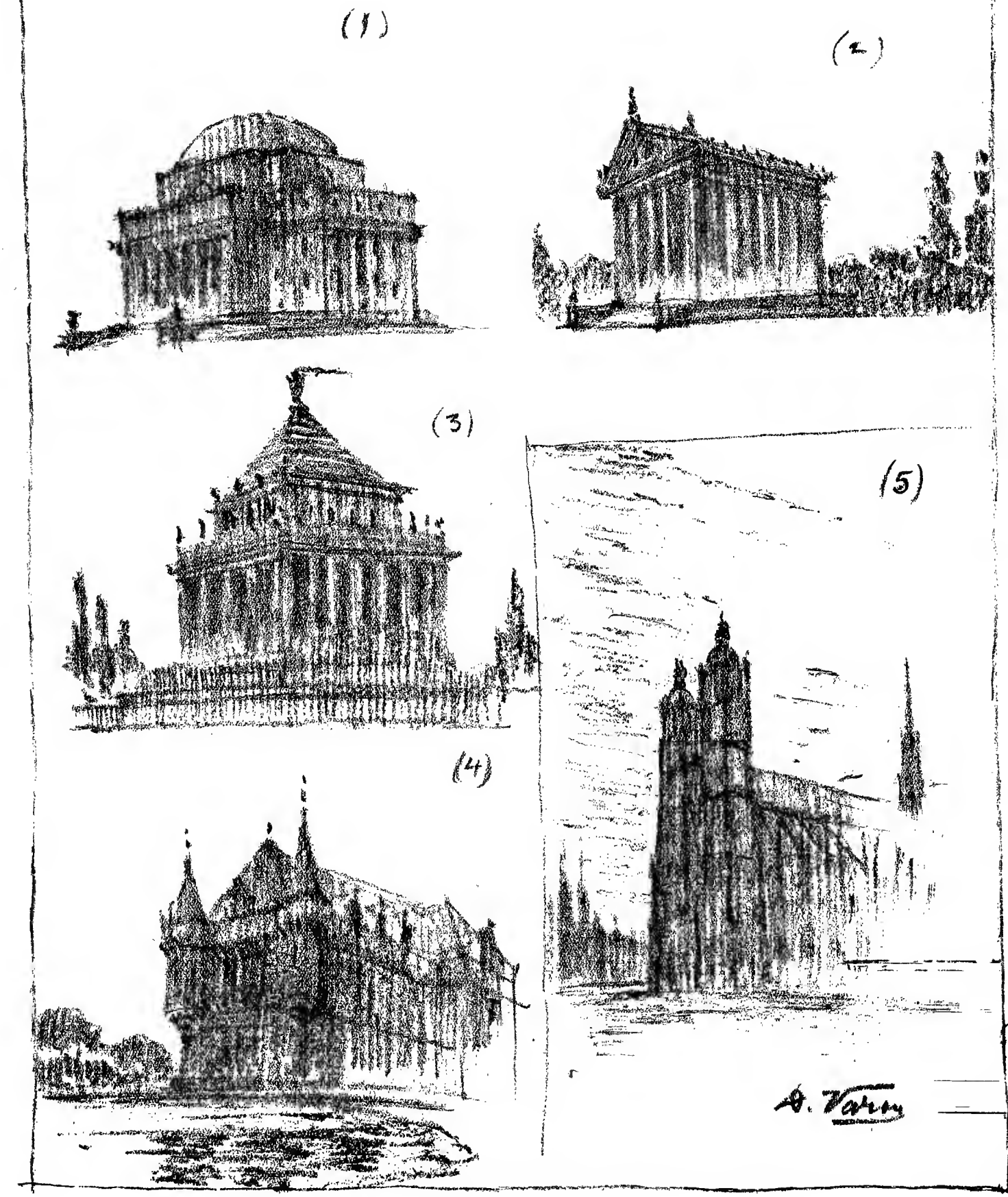


PLATE XLVIII

INDICATION APPLIED TO THE ELEMENTS OF PLANNING

A most important item which may be applied daily to the solution of problems of more than ordinary size. Section A shows the elements of covered space. Assuming the program read and the amount of space required put into a concrete form it may assume either of the forms indicated from Figure 1 to 5″. No special rule will be fixed for the solution of a given program but principles are to be followed. Section B shows combinations of court units using some of the typical forms indicated in the previous section. Section C to the left shows the regular plan element used, plus the extraordinary element, such as a large hall. From Figures 9 to 11 we see various ways of harmoniously locating this element, always letting it become a feature. The student may try some more combinations. Section D shows the combination of three important items, a court on either side and a hall in the centre. Proportions of such combinations may vary to the infinite (See Figures 12′ and 12″). Section E likewise shows diagrams of plan combinations. Here the problem is: from one main lobby to get to the different parts of the composition in an easy way. (Students desirous of seeing more closely the original of this composition are referred to the photograph of the Grand Prix de Rome of 1895 by Chaussemiche.) The court—a complex element by itself—serves here as a unit and is grouped around the main feature containing the large assembly hall. Section F shows a complex problem and a diagram of its circulations. The program is composed of two well defined items: a technical school comprising the study Figure G and the shops Figure H. The whole scheme may be summed up as in Figure *h*. It simply shows that the shops need to be remote from the study and that they need more space for wagons for loading and unloading goods, etc. Particular care is taken that the noise should not interfere with the calm required by the section for studies.

While all the previous items are mere theoretical elements affording convenient possibilities both practical and monumental, Section K shows the application of those elements to a most interesting actual building; the University of Paris. A compact plan embraces several blocks, yet there is much air and space answering the necessities of the program. It is interesting to note the way the preexisting church has been incorporated into the whole structure, making the side access a central feature to the main court. (See arrows.)

References: Guadet—Volume II; Prix de Rome; Médailles d'Architecture; Concours Publies; Handbuch der Architektur.

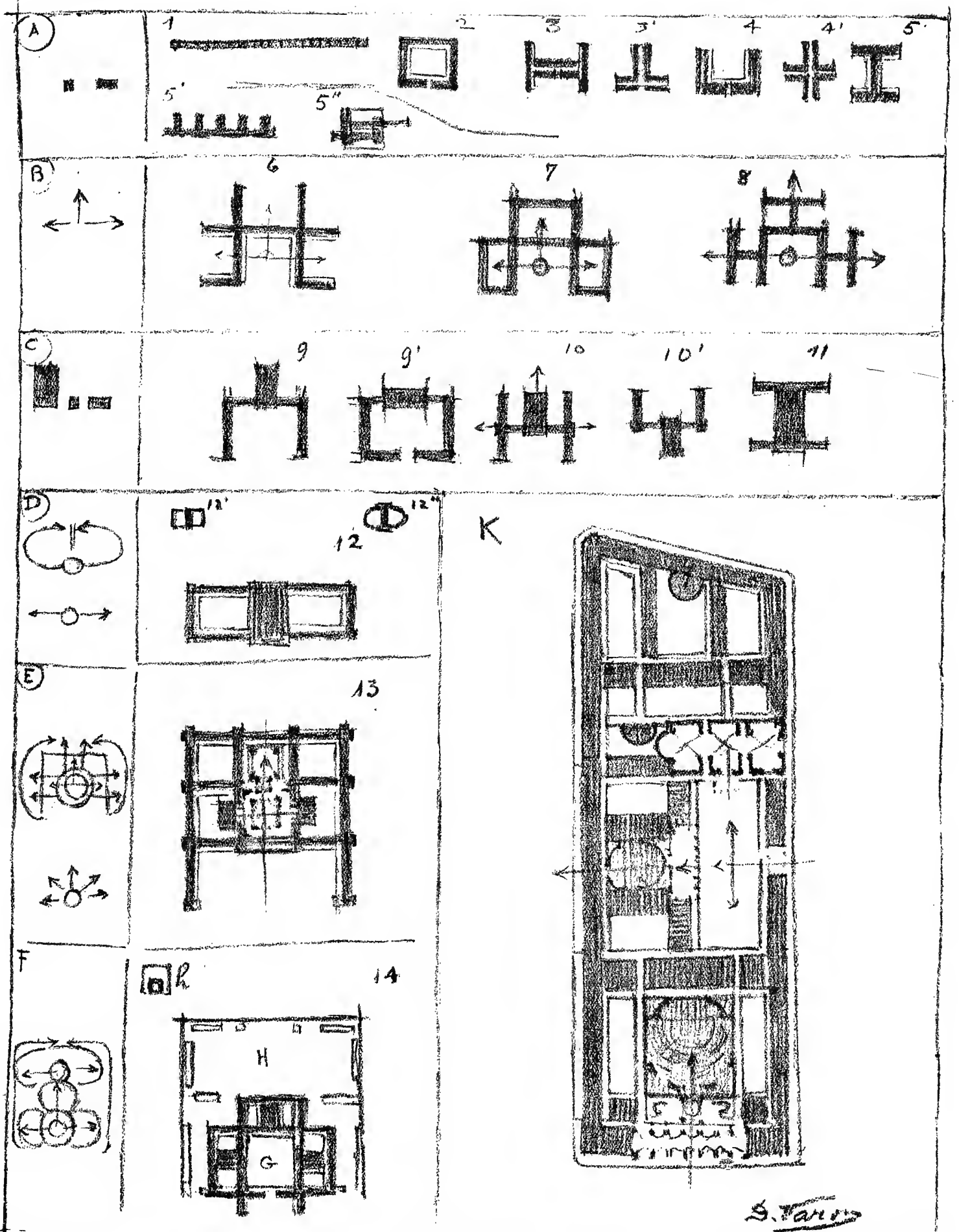


PLATE XLIX

LOOKING FOR A "PARTI" (SCHEME)

Having learned to analyze plans in verifying the solution with the program, such as the "Grand Prix de Rome, Médailles de l'Ecole des Beaux Arts"—as far as theoretical teaching is concerned—as well as some practical compositions such as public competitions from here and abroad, the student has his mind matured by degrees for the solution of small architectural problems. This plate shows first of all the possibility of suggesting the most promising elevation by a few strokes of the pencil or pen. Figures 1 to 4 are various suggestions, such as a little pavilion, a summer house, the Pantheon of Rome and the City Hall of Paris. The very outlines differ from one another. Taking now various city halls, we see them rapidly suggested by their skylines from Figures 4 to 10. The student having practiced in this way not only for the plan but also for the elevation, will have kept some of the principles when coming to solve by himself a problem consisting of a little town hall (Section B). The lot is indicated in Figure 15. Having read the program and seen how the various items may be harmoniously grouped together, the student tries in Figure 14 a simple assemblage of the various groups, having also in mind some idea about his desire for the elevation (Figure 11). Perhaps he will prefer the combination, Figures 17 or 19 or 20, with possibilites of elevation as in Figures 12, 16, 18 and 21, with sections suggested like Figures 13 and 18. It is interesting to find out that one of the traditional features for such a public building is the little campanile, which is only a remembrance of the belfry. It immediately lends to the structure an air of distinction from the private building and also from other public buildings. This campanile or belfry—according to the size—serves as a feature. Quite often it suffices in itself. At other times it is accompanied by other features to make the whole more conspicuous, like that of Paris, which is so much larger than the regular town hall and which represents the whole Parisian population.

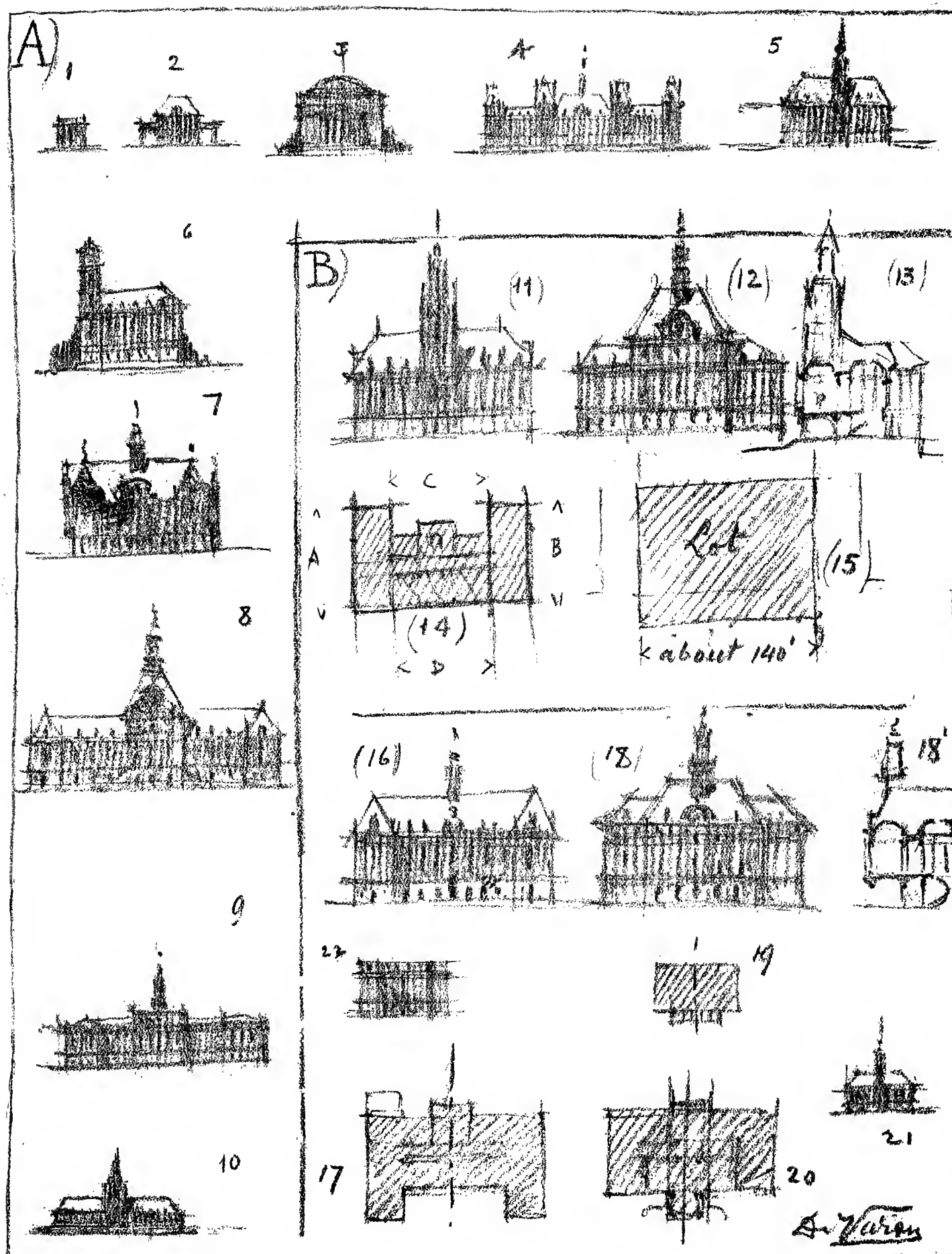

A)
1
2
3
4
5
6
7
8
9
10
B)
(11)
(12)
(13)
A
B
C
D
(14)
Lot
(15)
about 140'
(16)
(18)
18'
22
19
17
20
21

PLATE L

REFERENCES

Paul Letarouilly: Edifices de Rome Moderne
H. Strack: Rome in Photographs
Leonce Reynaud: Traité d'Architecture
Andrea Palladio: Plan Compositions
César Daly; Motifs Historiques
M. P. Gautier: Edifices de Gênes
Baron de Clarac: Museums of Sculpture
Guadet: Eléments et Theorie de l'Architecture
L. Canina: Old Edifices of Rome
D'Espouy: Envois de Rome
F. Blondel: Cours d'Architecture
J. Gailhabaud: Traité d'Architecture
C. Sauvageot: Châteaux de France
Schutz: Die Renaissance in Italien
Baldus: Louvre
Gotch & Brown: Architecture of the Renaissance in England
Belcher & McCartney: Later Renaissance in England
Reinhardt: Photographs of Italian Palaces, Genoa
Tuckerman: Renaissance in Italy
L. Durand: Précis d'Architecture
J. Bühlmann: Architecture of Classic Antiquity and of the Renaissance
Prix de Rome
Médailles d'Architecture
Concours Publics
Handbuch der Architektur