CHAPTER I

THE ORIGINS OF THE THREE ORDERS, AND THE PROPORTIONS OF THE CORINTHIAN CAPITAL

1. CORINTHIAN columns are, excepting in their capitals, of the same proportions in all respects as Ionic; but the height of their capitals gives them proportionately a taller and more slender effect. This is because the height of the Ionic capital is only one third of the thickness of the column, while that of the Corinthian is the entire thickness of the shaft. Hence, as two thirds are added in Corinthian capitals, their tallness gives a more slender appearance to the columns themselves.

2. The other members which are placed above the columns, are, for Corinthian columns, composed either of the Doric proportions or according to the Ionic usages; for the Corinthian order never had any scheme peculiar to itself for its cornices or other ornaments, but may have mutules in the coronae and guttae on the architraves according to the triglyph system of the Doric style, or, according to Ionic practices, it may be arranged with a frieze adorned with sculptures and accompanied with dentils and coronae.

3. Thus a third architectural order, distinguished by its capital, was produced out of the two other orders. To the forms of their columns are due the names of the three orders, Doric, Ionic, and Corinthian, of which the Doric was the first to arise, and in early times. For Dorus, the son of Hellen and the nymph Phthia, was king of Achaea and all the Peloponnesus, and he built a fane, which chanced to be of this order, in the precinct of Juno at Argolis, a very ancient city, and subsequently others of the same order in the other cities of Achaea, although the rules of symmetry were not yet in existence.

4. Later, the Athenians, in obedience to oracles of the Delphic Apollo, and with the general agreement of all Hellas, despatched

thirteen colonies at one time to Asia Minor, appointing leaders for each colony and giving the command-in-chief to Ion, son of Xuthus and Creusa (whom further Apollo at Delphi in the oracles had acknowledged as his son). Ion conducted those colonies to Asia Minor, took possession of the land of Caria, and there founded the grand cities of Ephesus, Miletus, Myus (long ago engulfed by the water, and its sacred rites and suffrage handed over by the Ionians to the Milesians), Priene, Samos, Teos, Colophon, Chius, Erythrae, Phocaea, Clazomenae, Lebedos, and Melite. This Melite, on account of the arrogance of its citizens, was destroyed by the other cities in a war declared by general agreement, and in its place, through the kindness of King Attalus and Arsinoe, the city of the Smyrnaeans was admitted among the Ionians.

5. Now these cities, after driving out the Carians and Lelegans, called that part of the world Ionia from their leader Ion, and there they set off precincts for the immortal gods and began to build fanes: first of all, a temple to Panionion Apollo such as they had seen in Achaea, calling it Doric because they had first seen that kind of temple built in the states of the Dorians.

6. Wishing to set up columns in that temple, but not having rules for their symmetry, and being in search of some way by which they could render them fit to bear a load and also of a satisfactory beauty of appearance, they measured the imprint of a man's foot and compared this with his height. On finding that, in a man, the foot was one sixth of the height, they applied the same principle to the column, and reared the shaft, including the capital, to a height six times its thickness at its base. Thus the Doric column, as used in buildings, began to exhibit the proportions, strength, and beauty of the body of a man.

7. Just so afterwards, when they desired to construct a temple to Diana in a new style of beauty, they translated these footprints into terms characteristic of the slenderness of women, and thus first made a column the thickness of which was only one eighth of its height, so that it might have a taller look. At the

foot they substituted the base in place of a shoe; in the capital they placed the volutes, hanging down at the right and left like curly ringlets, and ornamented its front with cymatia and with festoons of fruit arranged in place of hair, while they brought the flutes down the whole shaft, falling like the folds in the robes worn by matrons. Thus in the invention of the two different kinds of columns, they borrowed manly beauty, naked and unadorned, for the one, and for the other the delicacy, adornment, and proportions characteristic of women.

8. It is true that posterity, having made progress in refinement and delicacy of feeling, and finding pleasure in more slender proportions, has established seven diameters of the thickness as the height of the Doric column, and nine as that of the Ionic. The Ionians, however, originated the order which is therefore named Ionic.

The third order, called Corinthian, is an imitation of the slenderness of a maiden; for the outlines and limbs of maidens, being more slender on account of their tender years, admit of prettier effects in the way of adornment.

9. It is related that the original discovery of this form of capital was as follows. A freeborn maiden of Corinth, just of marriageable age, was attacked by an illness and passed away. After her burial, her nurse, collecting a few little things which used to give the girl pleasure while she was alive, put them in a basket, carried it to the tomb, and laid it on top thereof, covering it with a roof-tile so that the things might last longer in the open air. This basket happened to be placed just above the root of an acanthus. The acanthus root, pressed down meanwhile though it was by the weight, when springtime came round put forth leaves and stalks in the middle, and the stalks, growing up along the sides of the basket, and pressed out by the corners of the tile through the compulsion of its weight, were forced to bend into volutes at the outer edges.

10. Just then Callimachus, whom the Athenians called *κατατηξίτεχνος* for the refinement and delicacy of his artistic work,

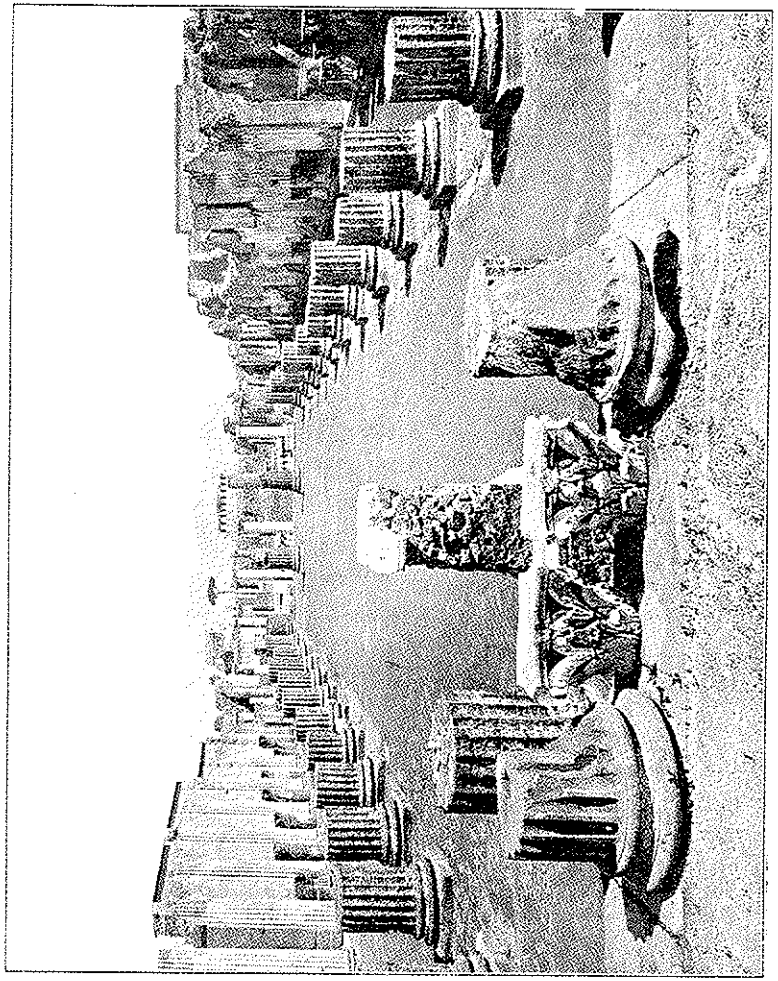

Photo. Sommer

THE BASILICA AT POMPEII

passed by this tomb and observed the basket with the tender young leaves growing round it. Delighted with the novel style and form, he built some columns after that pattern for the Corinthians, determined their symmetrical proportions, and established from that time forth the rules to be followed in finished works of the Corinthian order.

11. The proportions of this capital should be fixed as follows. Let the height of the capital, including its abacus, be equivalent to the thickness of the base of a column. Let the breadth of the abacus be proportioned so that diagonals drawn from one corner of it to the other shall be twice the height of the capitals, which will give the proper breadth to each face of the abacus. The faces should curve inwards, by one ninth of the breadth of the face, from the outside edge of the corners of the abacus. At the bottom the capital should be of the thickness of the top of the column omitting the congé and astragal. The height of the abacus is one seventh of the height of the capital.

12. Omitting the height of the abacus, let the rest be divided into three parts, of which one should be given to the lowest leaf. Let the second leaf occupy the middle part of the height. Of the same height should be the stalks, out of which grow leaves projected so as to support the volutes which proceed from the stalks, and run out to the utmost corners of the abacus; the smaller spirals between them should be carved just under the flower which is on the abacus. The flowers on the four sides are to be made as large as the height of the abacus. On these principles of proportion, Corinthian capitals will be finished as they ought to be.

There are other kinds of capitals set upon these same columns and called by various names, but they have no peculiarities of proportion of which we can speak, nor can we recognize from them another order of columns. Even their very names are, as we can see, derived with some changes from the Corinthian, the cushion-shaped, and the Doric, whose symmetrical proportions have been thus transferred to delicate sculptures of novel form.

CHAPTER II

THE ORNAMENTS OF THE ORDERS

1. Since the origin and invention of the orders of columns have been described above, I think it not out of place to speak in the same way about their ornaments, showing how these arose and from what original elements they were devised. The upper parts of all buildings contain timber work to which various terms are applied. And not only in its terminology but actually in its uses it exhibits variety. The main beams are those which are laid upon columns, pilasters, and antae; tie-beams and rafters are found in the framing. Under the roof, if the span is pretty large, are the crossbeams and struts; if it is of moderate extent, only the ridgepole, with the principal rafters extending to the outer edge of the eaves. Over the principal rafters are the purlines, and then above these and under the roof-tiles come the common rafters, extending so far that the walls are covered by their projection.

2. Thus each and every detail has a place, origin, and order of its own. In accordance with these details, and starting from carpenter's work, artists in building temples of stone and marble imitated those arrangements in their sculptures, believing that they must follow those inventions. So it was that some ancient carpenters, engaged in building somewhere or other, after laying the tie-beams so that they projected from the inside to the outside of the walls, closed up the space between the beams, and above them ornamented the coronae and gables with carpentry work of beauty greater than usual; then they cut off the projecting ends of the beams, bringing them into line and flush with the face of the walls; next, as this had an ugly look to them, they fastened boards, shaped as triglyphs are now made, on the ends of the beams, where they had been cut off in front, and painted them with blue wax so that the cutting off of the ends of the beams, being concealed, would not offend the eye. Hence it was in imitation of the arrangement of the tie-beams that men

Here Begins the Sixth Book of Leon Battista Alberti. On Ornament.

I
92—93

The lineaments,[1] the materials for construction, and the employment of craftsmen; also anything else that might seem relevant to the construction of buildings, both public and private, sacred and profane; again, anything that would protect them from the assaults of bad weather and make them adaptable to the requirements of place, time, man, or thing—we have dealt with all this in the five preceding books. How thoroughly we have done so you may yourself discover as you examine them. I do not think you would want greater application in dealing with such matters. As heaven is my witness, it was a more demanding task than I could have imagined when I embarked on it. Frequent problems in explaining matters, inventing terms, and handling material discouraged me and often made me want to abandon the whole enterprise. On the other hand, the very reasons that first induced me to embark on it summoned me back to my undertaking and encouraged me to continue. For I grieved that so many works of such brilliant writers had been destroyed by the hostility of time and of man, and that almost the sole survivor from this vast shipwreck is Vitruvius, an author of unquestioned experience, though one whose writings have been so corrupted by time that there are many omissions and many shortcomings. What he handed down was in any case not refined, and his speech such that the Latins might think that he wanted to appear a Greek, while the Greeks would think that he babbled Latin. However, his very text is evidence that he wrote neither Latin nor Greek, so that as far as we are concerned he might just as well not have written at all, rather than write something that we cannot understand.

Examples of ancient temples and theaters have survived that may teach us as much as any professor,[2] but I see—not without sorrow—these very buildings being despoiled more each day.[3] And anyone who happens to build nowadays draws his inspiration from inept modern nonsense rather than proven and much commended methods. Nobody would deny that as a result of all this a whole section of our life and learning could disappear altogether.

Since that is how things stood, I could not help but consider long and often whether it was not my duty to write a commentary on this subject. As I was exploring this matter, many noble, useful things, vital to the existence of man, came to my notice, which I decided not to neglect in writing. Moreover, I felt it the duty of any gentleman or any person of learning to save from total extinction a discipline that our prudent ancestors had valued so highly.

As I vacillated, and hesitated whether to press ahead or give up, my love of work and enthusiasm for learning prevailed; and where intelligence failed me, enthusiastic study and hard application supplied. No building of the

ancients that had attracted praise, wherever it might be, but I immediately examined it carefully, to see what I could learn from it. Therefore I never stopped exploring, considering, and measuring everything, and comparing the information through line drawings, until I had grasped and understood fully what each had to contribute in terms of ingenuity or skill; this is how my passion and delight in learning relieved the labor of writing. Yet to collate material from sources so varied, heterogeneous, and dispersed, material from outside the normal range and skill of any writer, to review it in a dignified manner, to arrange in a proper order, to articulate precisely and explain rationally, surely all this required an ability and learning greater than I would profess to have. Even this will not cause me to repine, if I have succeeded in the general aim I set myself of convincing the reader that I would rather my speech seemed lucid than appeared eloquent. Those with any experience in this field of writing will appreciate how difficult this is, better than those who have never taken such a risk. What we have written is (unless I am mistaken) in proper Latin, and in comprehensible form. We shall do our utmost to continue like this in the remainder of the work.

Of the three conditions that apply to every form of construction—that what we construct should be appropriate to its use, lasting in structure, and graceful and pleasing in appearance—the first two have been dealt with, and there remains the third, the noblest and most necessary of all. ◆

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93—94

Now graceful and pleasant appearance, so it is thought, derives from beauty and ornament alone, since there can be no one, however surly or slow, rough or boorish, who would not be attracted to what is most beautiful, seek the finest ornament at the expense of all else, be offended by what is unsightly, shun all that is inelegant or shabby, and feel that any shortcomings an object may have in its ornament will detract equally from its grace and from its dignity.

Most noble is beauty, therefore, and it must be sought most eagerly by anyone who does not wish what he owns to seem distasteful. What remarkable importance our ancestors, men of great prudence, attached to it is shown by the care they took that their legal, military, and religious institutions—indeed, the whole commonwealth—should be much embellished; and by their letting it be known that if all these institutions, without which man could scarce exist, were to be stripped of their pomp and finery, their business would appear insipid and shabby. When we gaze at the wondrous works of the heavenly gods, we admire the beauty we see, rather than the utility that we recognize. Need I go further? Nature herself, as is everywhere plain to see, does not desist from basking in a daily orgy of beauty—let the hues of her flowers serve as my one example.

But if this quality is desirable anywhere, surely it cannot be absent from buildings, without offending experienced and inexperienced alike. What

would be our reaction to a deformed and ill-considered[4] pile of stones, other than the more to criticize it the greater the expense, and to condemn the wanton greed for piling up stones? To have satisfied necessity is trite and insignificant, to have catered to convenience unrewarding when the inelegance in a work causes offense.

In addition, there is one particular quality that may greatly increase the convenience and even the life of a building. Who would not claim to dwell more comfortably between walls that are ornate, rather than neglected? What other human art might sufficiently protect a building to save it from human attack? Beauty may even influence an enemy, by restraining his anger and so preventing the work from being violated. Thus I might be so bold as to state: No other means is as effective in protecting a work from damage and human injury as is dignity and grace of form.[5] All care, all diligence, all financial consideration must be directed to ensuring that what is built is useful, commodious, yes—but also embellished and wholly graceful, so that anyone seeing it would not feel that the expense might have been invested better elsewhere.

The precise nature of beauty and ornament, and the difference between them, the mind could perhaps visualize more clearly than my words could explain. For the sake of brevity, however, let us define them as follows: Beauty is that reasoned harmony of all the parts within a body, so that nothing may be added, taken away, or altered, but for the worse.[6] It is a great and holy matter; all our resources of skill and ingenuity will be taxed in achieving it; and rarely is it granted, even to Nature herself, to produce anything that is entirely complete and perfect in every respect. "How rare," remarks a character in Cicero, "is a beautiful youth in Athens!"[7] That connoisseur found their forms wanting because they either had too much or too little of something by which they failed to conform to the laws of beauty. In this case, unless I am mistaken, had ornament been applied by painting and masking anything ugly, or by grooming and polishing the attractive, it would have had the effect of making the displeasing less offensive and the pleasing more delightful. If this is conceded, ornament may be defined as a form of auxiliary light and complement to beauty. From this it follows, I believe, that beauty is some inherent property, to be found suffused all through the body of that which may be called beautiful; whereas ornament, rather than being inherent, has the character of something attached or additional.[8]

This granted, I continue: Anyone who builds so as to be praised for it—as anyone with good sense would—must adhere to a consistent theory; for to follow a consistent theory is the mark of true art. Who would deny that only through art can correct and worthy building be achieved? And after all this particular part concerning beauty and ornament, being the most important of all, must depend on some sure and consistent method and art,

which it would be most foolish to ignore. Yet some would disagree who maintain that beauty, and indeed every aspect of building, is judged by relative and variable criteria, and that the forms of buildings should vary according to individual taste and must not be bound by any rules of art. A common fault, this, among the ignorant—to deny the existence of anything they do not understand. I have decided to correct this error; not that I shall attempt (since I would need detailed and extended argument for it) to explain the arts from their origins, by what reasoning they developed, and by what experience they were nourished; let me simply repeat what has been said, that the arts were born of Chance and Observation, fostered by Use and Experiment, and matured by Knowledge and Reason.

Thus medicine, they say, was developed by a million people over a thousand years; sailing too, as almost every other art, advanced by minute steps. ◆

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94—95v

Building, so far as we can tell from ancient monuments, enjoyed her first gush of youth, as it were, in Asia, flowered in Greece, and later reached her glorious maturity in Italy. It would seem to me quite likely that the kings of Asia, being men of considerable wealth and leisure, when reflecting on their own standing, their wealth, and the majesty and greatness of their thrones,[9] saw the need for grander roofs and more dignified walls, and began to search out and collect anything that might be of use to this end; then, perhaps, to make their buildings as large and splendid as possible, they used the largest trees available for their roofs and built their walls of a finer stone. Their buildings became impressive as well as graceful.

Then, thinking that it was the huge scale of their works that was admired, and that one of the primary tasks of a king was to build what lay beyond the capacity of the private citizen, these kings became enamored of the immensity of their works, until their rivalry led to the folly of constructing pyramids.

I believe that experience in building gave them an opportunity to discern differences in number, order, arrangement, and exterior appearance in their buildings, and allowed them to compare one to another.[10] In this way they learned to appreciate the graceful and to spurn the ill-considered.

Next came Greece, a country where upright and noble minds flourished, and the desire for embellishing what was theirs was evident, and, above all, great attention was given to the construction of temples. Therefore they began by examining the works of the Assyrians and the Egyptians, from which they realized that in such matters the artist's skill attracted more praise than the wealth of the king: for vast works need only great wealth; praise belongs to those with whom the experts find no fault. The Greeks therefore decided that it was their part to surpass through ingenuity those