

Here Begins the First Book on the Art of Building by Leon Battista Alberti. The Lineaments.¹

I
4—4v* Since we are to treat of the lineaments of buildings, we shall collect, compare, and extract into our own work all the soundest and most useful advice that our learned ancestors have handed down to us in writing, and whatever principles we ourselves have noted in the very execution of their works. We shall go on to report things contrived through our own invention, by careful, painstaking investigation, things we consider to be of some future use. But since it is our desire to be as limpid, clear, and expeditious as possible in dealing with a subject otherwise knotty, awkward, and for the most part thoroughly obscure, we shall explain, as is our custom, the precise nature of our undertaking. For the very springs of our argument should be laid open, so that the discussion that follows may flow more easily.²

Let us therefore begin thus: the whole matter of building is composed of lineaments and structure.³ All the intent and purpose of lineaments lies in finding the correct, infallible way of joining and fitting together those lines and angles which define and enclose the surfaces of the building. It is the function and duty of lineaments, then, to prescribe an appropriate place,⁴ exact numbers,⁵ a proper scale,⁶ and a graceful order for whole buildings and for each of their constituent parts, so that the whole form and appearance of the building may depend on the lineaments alone. Nor do lineaments have anything to do with material, but they are of such a nature that we may recognize the same lineaments in several different buildings that share one and the same form, that is, when the parts, as well as the siting and order, correspond with one another in their every line and angle. It is quite possible to project whole forms in the mind without any recourse to the material, by designating and determining a fixed orientation and conjunction for the various lines and angles. Since that is the case, let lineaments be the precise and correct outline, conceived in the mind, made up of lines and angles, and perfected in the learned intellect and imagination.

Now, as we wish to inquire into the inner nature of building and construction as a whole, it may be of some relevance to consider what were the origins and what the evolution of those dwelling places we call buildings. And, if I am not mistaken, what follows may be taken as the correct account of the whole matter. ♦

2
4v—5v In the beginning, men sought a place of rest in some region safe from danger;⁷ having found a place both suitable and agreeable, they settled

*The corresponding folios in the *editio princeps* appear at the beginning of each chapter.

down and took possession of the site. Not wishing to have all their household and private affairs conducted in the same place, they set aside one space for sleeping, another for the hearth, and allocated other spaces to different uses. After this men began to consider how to build a roof, as a shelter from the sun and the rain. For this purpose they built walls on which a roof could be laid—for they realized that in this way they would be the better protected from icy storms and frosty winds; finally they opened windows and doors in the walls, from floor to roof, so as to allow entry and social gathering within, and also to let in the sunlight and the breezes at the right time, as well as to let out any moisture and vapor that may have formed inside the house. Whoever it was who first started to do these things, the goddess Vesta, daughter of Saturn, or the brothers Heurialus and Hiperbius, or Gallio, or Thraso, or the Cyclops Typhincius,⁸ I believe that such were the original occasion and the original ordinance of building. The business has grown, I believe, through experience and skill, so that it is now almost without bounds, what with the introduction of the various building types; of which some are public, others private, some sacred, others profane, some of practical necessity, others merely for the permanent adornment of the city, while yet others are for more temporary pleasures. But no one will question our account of their origins.

Since this is the case, the elements of which the whole matter of building is composed are clearly six: locality, *area*,⁹ compartition,¹⁰ wall, roof, and opening. If these elements are clearly recognized, what we have to say will be understood more easily. We shall therefore define them as follows: by locality we mean all that land which is seen to surround the prospective building; the *area* is a part of this locality. We shall define the *area* as that certain, particular plot of land which is to be enclosed by a wall for a designated practical use; included in this definition is any surface within the building on which our feet may tread. Compartition is the process of dividing up the site into yet smaller units, so that the building may be considered as being made up of close-fitting smaller buildings, joined together like members of the whole body.¹¹ The wall we shall term all that structure which rises from the ground upward in order to support the weight of the roof, or which acts as a screen to provide privacy for the interior volumes of the building. We shall refer to the roof, not only as that uppermost part of the building which fends off the rain, but also, in general, as whatever is extended in length and breadth above the head of anyone walking below, such as ceilings, vaults, arches, and so forth. We shall call an opening anything within the building affording entry or exit to man or thing.

We shall deal with these matters and their every aspect, but ~~first we will~~ make some observations, which are ~~fundamental~~ to, and so much part of, the whole subject that ~~they~~ are highly relevant to our argument. If we were ~~to consider~~ those attributes with which each of the parts we have enumer-

just enough of a fall to allow rainwater to run off. But enough of this ~~topic~~; we have said more perhaps than the occasion demanded, ~~since many of our comments apply equally to walls. We have thus dealt in the same place with two things that are by nature inseparable. We must now deal with~~ ~~compartition.~~ ♦

9
3v—15

All the power of invention, all the skill and experience in the art of building, are called upon in compartition;⁸⁴ compartition alone divides up the whole building into the parts by which it is articulated, and integrates its every part by composing all the lines and angles into a single, harmonious work that respects utility, dignity, and delight.⁸⁵ If (as the philosophers maintain) the city is like some large house, and the house is in turn like some small city,⁸⁶ cannot the various parts of the house—atria, *xysti*,⁸⁷ dining rooms, porticoes, and so on—be considered miniature buildings? Could anything be omitted from any of these, through inattention and neglect, without detracting from the dignity and worth of the work? The greatest care and attention, then, should be paid to studying these elements, which contribute to the whole work, so as to ensure that even the most insignificant parts appear to have been formed according to the rules of art.

To achieve this properly, all that has been said above about the locality and the *area* is highly relevant: just as with animals members relate to members, so too in buildings part ought to relate to part; from which arose the saying, “Large buildings should have large members.” This was a principle followed by the ancients, who would give everything, including bricks, a larger scale in grand, public buildings than in private ones. Each member should therefore be in the correct zone and position; it should be no larger than utility requires, no smaller than dignity demands, nor should it be strange and unsuitable, but right and proper, so that none could be better;⁸⁸ the most noble part of the house, for example, should not be left in some forgotten corner, nor should the most public be hidden away, nor anything private exposed to view. Account should also be taken of the seasons, so that rooms intended for summer use should not be the same as those intended for use in winter, in that they should have different sizes and locations; summer rooms should be more open, nor is it amiss if winter ones are more closed in; summer ones require shade and draught, while winter ones need sunlight. Care must be taken to prevent the inhabitants’ moving from a cold place to a hot one, without passing through some intermediate zone, or from a warm place to one exposed to the cold and the wind. This can be very detrimental to the body’s health.⁸⁹

The parts ought to be so composed that their overall harmony contributes to the honor and grace of the whole work, and that effort is not expended in adorning one part at the expense of all the rest, but that the harmony is

such that the building appears a single, integral, and well-composed body, rather than a collection of extraneous and unrelated parts.

Moreover, in fashioning the members, the moderation shown by nature ought to be followed; and here, as elsewhere, we should not so much praise sobriety as condemn unruly passion for building: each part should be appropriate, and suit its purpose. For every aspect of building, if you think of it rightly, is born of necessity, nourished by convenience, dignified by use; and only in the end is pleasure provided for, while pleasure itself never fails to shun every excess. Let the building then be such that its members want no more than they already have, and what they have can in no way be faulted.

Then again, I would not wish all the members to have the same shape and size, so that there is no difference between them: it will be agreeable to make some parts large, and good to have some small, while some are valuable for their very mediocrity. It will be equally pleasing to have some members defined by straight lines, others by curved ones, and still others by a combination of the two, provided, of course, that the advice on which I insist is obeyed, and the mistake is avoided of making the building appear like some monster with uneven shoulders and sides. Variety⁹⁰ is always a most pleasing spice, where distant objects agree and conform with one another; but when it causes discord and difference between them, it is extremely disagreeable. Just as in music, where deep voices answer high ones, and intermediate ones are pitched between them, so they ring out in harmony, a wonderfully sonorous balance of proportions results, which increases the pleasure of the audience and captivates them; so it happens in everything else that serves to enchant and move the mind.⁹¹

This whole process should respect the demands of use and convenience, and follow the methods sanctioned by those who are experienced: to contravene established customs often detracts from the general elegance, while conforming to them is considered advantageous and leads to the best results. Although other famous architects seem to recommend by their work either the Doric, or the Ionic, or the Corinthian, or the Tuscan division as being the most convenient, there is no reason why we should follow their design in our work, as though legally obliged; but rather, inspired by their example, we should strive to produce our own inventions, to rival, or, if possible, to surpass the glory of theirs.⁹² We will deal with these matters, however, more thoroughly in the appropriate place, when we consider how the city, the members of the city, and their respective services ought to be disposed.⁹³ ♦

IO
15—16

We shall now deal briefly with the outlines of walls. First, however, I would like to mention a precaution I have observed the ancients always took: they never allowed any one side of an *area* to be drawn too far in a straight line

without being broken by being bent into some curve or cut by an angle. Why such experienced men should take this step is obvious: they wanted to reinforce the wall by offering support.

When considering the methods of walling, it is best to begin with its most noble aspects. This is the place therefore where columns should be considered, and all that relates to the column; in that a row of columns is nothing other than a wall that has been pierced in several places by openings. Indeed, when defining the column itself, it may not be wrong to describe it as a certain, solid, and continuous section of wall, which has been raised perpendicularly from the ground, up high, for the purpose of bearing the roof.

There is nothing to be found in the art of building that deserves more care and expense, or ought to be more graceful, than the column. Columns may differ from one another, but we shall deal here with their similarities, with what constitutes their general characteristics; their differences, which determine individual variations, we shall deal with elsewhere, when appropriate.

So to begin from the very roots, as it were, let it first be said that every column has a foundation. Once they had reached floor level, it was customary to build a little wall on top of the foundations which some may call a cushion but which we shall call a pedestal. On this would sit the base, on the base the column was set up, and above that the capital. Columns would be designed so that the lower half would swell out, and the upper contract, the bottom being one part thicker than the top.

In my opinion the column was originally developed to support the roof. Yet it is remarkable that mortals, once they had developed a passion for nobler things, grew concerned to construct buildings that would be permanent, and as far as possible immortal. They therefore built columns, beams, even entire floors and roofs out of marble. In this, ancient architects closely followed nature's example in their desire not to appear to deviate too far from common ways of building; at the same time they took every possible care to ensure that their work would be not only appropriate to its use and structurally sound, but also delightful in appearance. Certainly Nature first supplied us with columns that were round and of wood, but, later, utility demanded that in some places they should be quadrangular. And, if I judge correctly, noticing the bands of iron or bronze incorporated at either end of the wooden columns to prevent them from splitting under the continual load, the architects also attached a wide straplike ring to the very foot of the marble columns to protect them from the splash of raindrops. Likewise at the top they placed another strap, and above that a collar, devices that they had seen used to strengthen wooden columns. As for the bases of the columns, they would ensure that the lowest part would be rectilinear and rectangular, while the upper surface would follow the outline of the column diameter. Further, both the width and the depth of the base would be greater than its height, and proportionally greater than its top, while the

pedestal would be broader than the base, by the same amount that the foundations would exceed the pedestal; all of these would be positioned above one another, centered on a single plumb line. Meanwhile the capitals would be similar, in that their lower surface would follow the form of the column, and their upper one be rectangular; the top of capitals never fails to be broader than the bottom. So much for columns.

The wall follows the same rules as the column, in that if its height is to equal that of the column complete with capital, its width must equal that of the bottom of the column. They also avoided having any column, base, capital, or wall that did not correspond to the other elements of the same order, in height, width, or indeed any dimension and form. And yet, although it is wrong to make either the width or the height of a wall greater or less than reason and scale⁹⁴ demand, I would prefer to err in excess rather than to underprovide. Here it is worth mentioning a few building defects to heighten our own awareness of the matter. For to have no defect is the greatest honor.

I have noticed in the Basilica of St. Peter's in Rome a crass feature: an extremely long and high wall has been constructed over a continuous series of openings, with no curves to give it strength, and no buttresses to lend it support. It is worth noting that the whole stretch of wall has been pierced by too many openings and built too high, and positioned where it will bear the violence of Aquilo.⁹⁵ As a result, the continual force of the wind has already displaced the wall more than six feet from the vertical; I have no doubt that eventually some gentle pressure or slight movement will make it collapse. Indeed it is quite likely that, had it not been restrained by the roof trusses, it would have collapsed of its own accord already, once it had begun to lean. But perhaps the architect may be excused a little, since, being hemmed in by location and site, he may have considered the hill overlooking the temple sufficient protection from the winds. I would prefer, however, those whole sections of wall to be strengthened on both sides. ♦

I I
16—17

Roofs are the most important elements; for not only do they help to maintain the good health of the residents by defending them from rain, and keeping out the night, and above all keeping out the summer sun, but they provide excellent protection for the whole building as well. Take away the roof, and the woodwork rots, the walls totter and their sides crack; gradually the whole structure falls apart. Even the very foundations, though you may hardly believe it, rely on the protection of the roof for strength. Nor have as many buildings fallen into ruin by fire, sword, enemy hands, or by any other calamity, as have tumbled down for no other reason than human neglect, when left naked and deprived of the roof covering. Indeed, in buildings the covers are the weapon with which they defend themselves against the harmful onslaught of weather.