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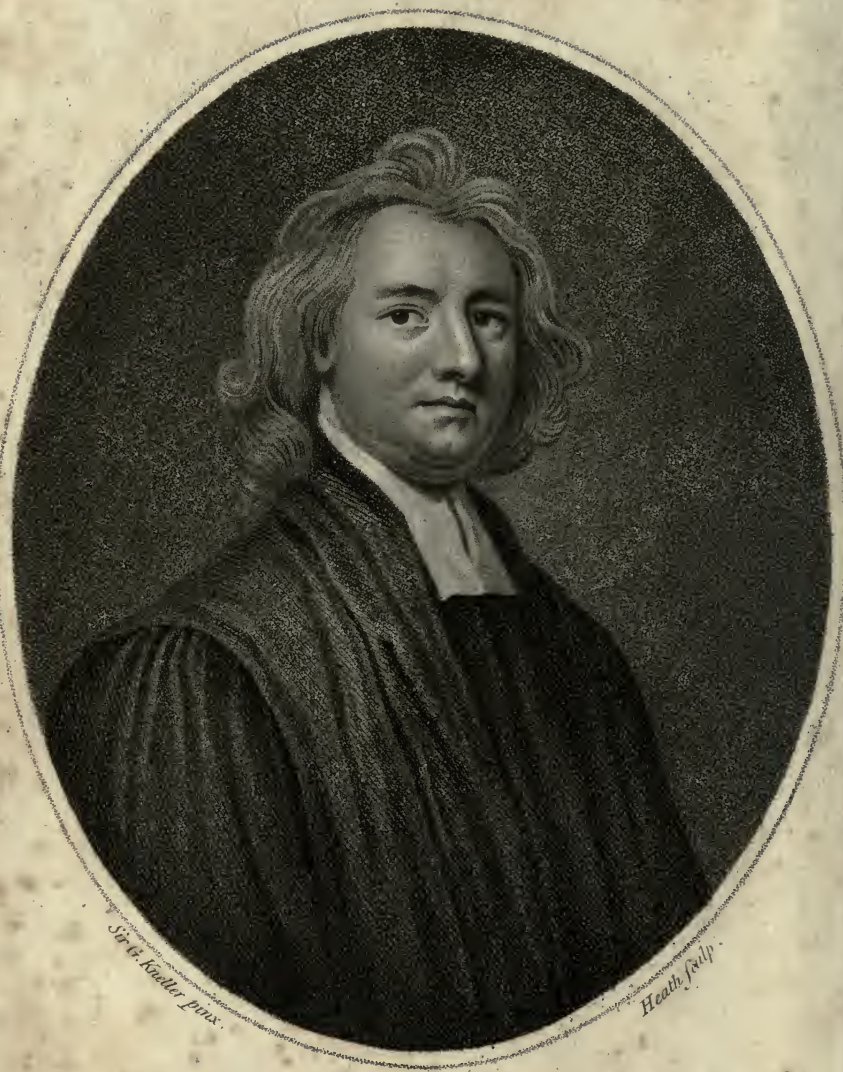
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Sir G. Kneller pinx.

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THE
ELEMENTS
OF
CIVIL ARCHITECTURE,

ACCORDING TO

Vitruvius and other Ancients,

AND THE

MOST APPROVED PRACTICE OF MODERN AUTHORS,

ESPECIALLY PALLADIO.

BY HENRY ALDRICH, D. D.

FORMERLY DEAN OF CHRIST CHURCH

TRANSLATED BY

THE REV. PHILIP SMYTH, LL. B.

FELLOW OF NEW COLLEGE.

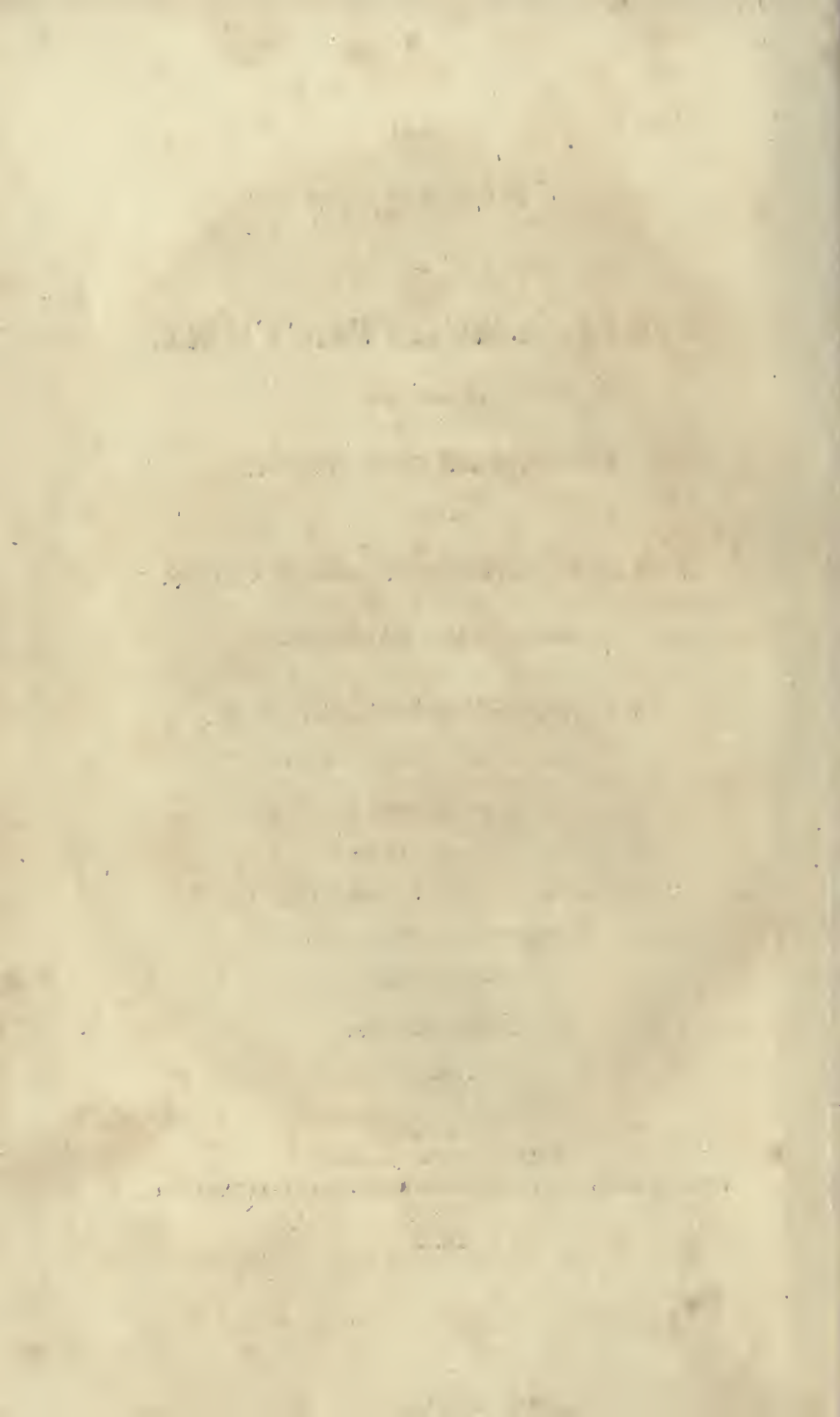
THIRD EDITION.

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PREFACE

TO

THE SECOND EDITION.

A COMPENDIUM of Roman and Italian Architecture will not, it is presumed, be without its use to the public at large, while to the traveller it may be considered as supplying a deficiency in the portable library, which has been long and seriously lamented.- Our best books of travels give but little else than loose and vague hints on this subject: the Guides and local books of description are too confined in their nature, and the general elementary treatises too diffuse, for the purpose required.

There appears in the present work a short critical history of the Art in Italy, such as is necessary to be studied before any real interest can be felt in visiting the beautiful specimens which that country affords. Next follow, a description of the five Orders, and a copious list of

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terms, accompanied with plates: some illustrations of ancient Architecture, and plans of Grecian and Roman houses, which will be found useful in examining the remains of Herculaneum and Pompeii: then a selection of engravings from the best works of Bramante, Raffaelli, J. Romano, Peruzzi, Palladio, Vignola, &c.

That it is not of the *light trumpery of the day*, the name of ALDRICH, by whom the history was composed, will be held a sufficient guarantee.

It would be an insult upon the reader's understanding to urge any arguments upon the utility of the study of Architecture, and to attempt either to point out the numerous sources of instruction and profit to be derived from its pursuit at home, or the numerous opportunities of improvement that are lost to an ignorant man who traverses the country of Palladio.

ADVERTISEMENT.

IT is presumed that the following notices, concerning Architecture and Architects, can scarce prove unacceptable to the readers, for whose ease the Translation they precede is intended. The entire novice in that Science—the artist, whose attention the engagements of an early practice have withdrawn from the history of his profession—the traveller, who sets out unprepared for countries in which the wonders of ancient art, and the rival works of masters, who from them have learned almost to equal them, are every where obvious—persons of these descriptions must, it is presumed, receive with no unwilling

hand the tender of such information, as officious industry has here collected for them from the best sources, and endeavoured to bring within the shortest compass. A pure view to utility suggested the attempt: and a candid acceptance is all that is hoped, in return for a labour which no vanity could beguile, since no praise can await its best success.

It is due to the respectable Author of the Translation to declare, that he is totally unaccountable for any mistakes or defects in the sketch he has honoured with a place at the head of his version.

INTRODUCTION.

THE wants of man, in solitude or in society, are the sources of his invention and industry. The first of his needs, after the means of subsistence, is that of protection for his person and stores, against the severity of climate and the mutability of seasons.

His earliest attempts, to provide a permanent shelter for both above ground^a, must have been determined by the easiest application of the most obvious materials, such as trees and their branches, reeds, shrubs, rushes, clay, mud, &c.

^a If ever there was a time when man inhabited caves in rocks, or burrowed under ground*, that mode of dwelling is antecedent to the first idea of structure, and therefore foreign to the present purpose; not to mention that the gloom and humidity of such retreats must soon have compelled him to the contrivance of a less uncomfortable abode. We read, indeed, in P. Mela and in Pliny, of an African nation of Troglodytes, i. e. (etymologically) dwellers in caverns, on the southwestern coast of the Sinus Arabicus, or Red Sea; but Mela's further description of this people, as creaking rather than speaking, and living upon serpents, gives their whole article a very fabulous cast.

* Vitruv. b. ii. c. 1.

In whatever artless manner these may at first have been employed, as infant society became less rude, and practice introduced dexterity, his structures would naturally assume some regularity of form.

The usage of all the less cultivated tribes of men, in the various distant regions of our earth, seems to shew that the conical hut was the primary essay in this kind^b. We find it with the Kamkatschan and the Hottentot; we meet with it in the American Wigwam; among the ancient inhabitants of Asia Minor^c, and those of the new discovered islands in the southern ocean. It is of ready erection, as easy removal, has declivity for rain to run off, and sufficient resistance to the ordinary force of winds.

Further experience of this form, incapable of suitable enlargement when increasing families were to be assembled under it, suggested the more convenient one of the cubical hovel, constructed of upright trunks, or beams, planted in the ground, with other beams laid horizontally along their tops, and connected, at the angles where they join to terminate the four sides, by ligature or other fastening; after which, the open interstices might be filled up with the small branches of the trunks employed for support, reeds, shrubs, &c.

^b Sir W. Chambers's Civ. Arch. pag. 1. pl. 1.

^c Vitruv. b. ii. c. 1.

Requisite enlargement, and partition of such an inclosure vertically, may have furnished the first idea of apartments for separate use. The conical hut must have taught the builder the advantage of giving declivity to the roof of his next invented habitation; and further consideration would in time shew him, that as this roof might be laid on at any moderate height, some additional solidity and elevation of his walls would render his inclosed space divisible horizontally by a flooring, and so gain him a story above his ground plot. Such seems to have been the first simple model of convenient structure for private habitation; the species of fabric with which the following treatise is chiefly concerned.

How the component parts of this once established form were, in the course of ages, progressively improved; plain props into columns; their superincumbent beams into entablatures; the members of these rendered distinct and pleasing to the eye, by variety of mouldings of different heights, projections, &c. aptly combined and properly ornamented, is briefly explained in the ensuing pages. Suffice it to have hinted here, that, from such rude beginnings, the practice of building grew to the dignity of an Art, whose productions have been the pride of sovereigns and the boast of nations.

To trace its progress towards perfection through the several regions of the world, where

it has in its birth, growth, and decline, followed the fortune of empires; if it could be done with any degree of success, would be an attempt much beyond the limits and design of this introduction, intended only to give the reader, new to the subject, some very general notion of the origin of Architecture, and of the means of its revival in Europe; and to make him somewhat more particularly acquainted with those artists and writers who contributed most largely to that revival by their researches and communications.

In Greece, some few years before ^dthe Peloponnesian war, the liberal arts had advanced the nearest to attainable perfection, that the records of them, come down to the present time, have shewn them any where to have arrived. Three of the universally received Orders of Architecture bear the name of Grecian, in acknowledgment of the country where they originated, at least whence the Romans received them.

The present Canons of Architecture seem to have been formed upon the remains of Roman magnificence, carried to its summit, in this kind, during the reign of Augustus. What examples of that magnificence the devastation of the seat of Empire, involving the ruin of its proudest monuments, had left standing at the revival of

^d. About 440 years before the Christian æra.

the Arts, it was the first business of imitative ability to consult. The measurement and comparison of these imperial fragments, in their whole and in their parts, gave rise to the earliest labours; the variable proportion, combination, and ornament of their parts engaged the first studies; and the resulting judgment of the best forms, producible from these varied combinations and proportions, determined the subsequent practice of those masters, whose structures and writings are now resorted to, as of decisive authority for their successors.

Their vicinity to the best remaining models gave the natives of Italy the priority to those of other countries, in the recovery of the arts of Painting, Sculpture, and Architecture: but it would be injustice to suppose, that to this advantage alone they owe their allowed superiority in them. Like the Greeks, their forerunners in every walk of genius, the Italians are endowed with quick perception, nice discernment, rich invention. Of exquisite sensibility to every kind and form of beauty, it is equally theirs to recognize and to exhibit excellence, by taste and by performance.

The business of the following pages is confined to their architects, and, among those, chiefly to the few who have written judiciously on the Art, as well as practised it with allowed success. Their varieties in the doctrine of the

Orders have been shewn, in parallel, by different professors, as Messrs. ^eChambray, Blondel, Perrault, in French; Count Alexander Pompei, in Italian, &c.; and different schemes have been proposed for fixing, from comparison of authorities, the proportion of the entire Orders and their parts; none of which have been generally received. The distributions of Vignola and Palladio have been most followed in practice; and those of the latter with preference in this country.

But, before we proceed to these restorers of classical Architecture, we must not fail to pay our first respects to an ancient^f, who has left us the only treatise on that art, of so early date, now extant. No artist, or scholar, can be ignorant that Vitruvius is here meant; as there is no subsequent writer, who has not acknowledged the large assistance all have derived from him, in what relates to the history and practice of Greek and Roman Architecture. Most of the literature of the Art is contained in his ten books; and whoever is unread in them will hardly be deemed worthy to rank with its qualified professors.

Though Vitruvius is named by Roman authors^g, little more is known of him than what

^e Translated by Mr. Evelyn.

^f Vitruvius Pollio flourished between 44 and 31 before Christ.

^g The elder Pliny, Frontinus, &c.

has been collected from scattered passages in his own work. The most probable opinion, suggested by much disquisition concerning the place of his birth, is, that he was born at or near Formiæ^b in new Latium. From sepulchral inscriptions, found there and in the vicinity, it is evident that a family of the name was settled in that district; and there is no degree of presumption, from any hint he has left us, that he was born elsewhere. The gratitude he, in the preface to his sixth book, expresses for the indulgence of his parents to him in a liberal education, together with the information he displays through the whole of his treatise, shews that he was well instructed in all that could accomplish him for his profession; and, at the same time, speaks him descended from persons of some ability. It further appears, from his own account of himself, that he made some campaigns under Julius Cæsari, and was known to him as an architect. Upon the death of Julius, he passed to the service of his great nephew and successor Augustus, at the recommendation of that emperor's sister Octavia Major; was by him entrusted with a share^k in the management of his military machines, and rewarded with a pension for life. In acknow-

^b Now Mola di Gaeta.

ⁱ Vitruv. b. viii. c. 4. Pref. to b. i.

^k Conjointly with M. Aurelius, P. Numidius, and Cn. Cornelius. See Pref. to b. i.

ledgment of these benefits, Vitruvius dedicated his ten books of Architecture to his patron and sovereign. In them he mentions but one building of which he was himself the architect, the Basilica at Fano¹. The Theatre of Marcellus, at Rome, has been ascribed to him, but falsely, if his practice of the Doric Order were consistent with his doctrine concerning it; dentils, to which he has given express exclusion, being there employed in the cornice. His complaints^m of the prevalence of intrigue and ignorance, over probity and skill, in the profession of Architecture seem to imply, that he had not his expected share in the design and conduct of the works executed, or going forward, in his time. The particular attention he gives to moral qualities, in his description of a good architectⁿ, leaves no doubt of his having been himself distinguished for private and professional integrity. Provided with the necessaries of life, the precepts of philosophy with which his education had furnished him, concurring with his natural moderation, enabled him to confine his desires to the level of his humble fortune; and to console himself for any deficiency of present reputation^o, with the prospect of those honours he hoped to deserve and receive from an impartial posterity. He represents him-

¹ See his description of it, b. v. c. 1.

^m See Pref. to b. iii. and vi.

ⁿ B. i. c. 1.

^o Pref. to b. vi.

self^p as low of stature, of infirm constitution, and (at the time he dedicated his book) of an ill-favoured countenance, from the alteration in feature occasioned by age. He appears to have been aware that his style^q required some apology, as deficient in purity and elegance, if confronted with that of other Roman writers of his time: but, surely, the novelty and nature of his subject, abounding with terms and notions hard to Latinize, should have mitigated the censure of Alberti, Mercurialis, and others; too nicely attentive to the manner, to be duly sensible to the value of his communications. When our need is urgent, and no choice of help at hand, should we thanklessly refuse the sole assistant that offers, because he is not perfectly well dressed? Every art has its vocabulary, and its phraseology too; harsh, it may be, and strange to the uninitiated, but replete with convenience to those, who are obliged to equal dispatch in operation and discourse, amidst the hurry of increasing employment and the momentary demand for a perplexing variety of directions. The mention, made by^r himself, of his having been, for a length of time, host to a C. Julius, son of Masinissa who served under J. Cæsar, has been adduced in proof of the personal consideration in which

^p Pref. to b. ii.

^q Pref. to b. vii. sub finem; and Pref. to b. v.

^r B. viii. c. 4.

Vitruvius was held: but who this C. Julius, unnoticed by any cotemporary writer, was, cannot now be ascertained. The very ingenious Marquis Galiani, after refuting some conjectures on the point, offers a correction of the text, reading Masinthæ for Masinissæ, which he supports by historical evidence of some force^s. From the few chronological data found in his work, he appears to have been at the height of his reputation between the death of J. Cæsar and the battle of Actium; that is, from the year 44 to 31 before Christ. His knowledge of the Grecian Architecture must have been derived from books; seeing he has no where intimated his having travelled in Greece. The treatise he left on that art was first found by Poggio, a Florentine, in the monastery of St. Gall, as is affirmed by himself, p. 346 of his^t Epistles^u.

^s Vide note 11. p. 22. of his Life of Vitruvius, prefixed to his Italian translation.

^t Vide Fabricius's account of Vitruvius, in his Biblioth. Lat. by Ernesti, Lipsiæ 1773. vol. i. p. 483.

^u What is become of this copy is unknown; nor is it even mentioned by the Marquis Poleni in his Exercitationes Vitruvianæ primæ, Padua 1739, 4to. wherein he has given an elaborate series of the editions, translations, commentaries, abridgments of Vitruvius; together with a list of Manuscripts he had collated, in preparation for a critical edition of this author he had long purposed to give. The first intelligent editor of Vitruvius was Fra. Giocondo of Verona; whose publication appeared at Venice 1511, fol. again with Frontinus at Florence 1513, 8vo. The edition generally most

The same obligation to brevity (in an introduction to the translation of a piece of but 54 pages in the original) which forbade any attempt to trace the progress of improving Architecture, equally excludes all endeavour to give the less pleasing account of its decline. It seems to require the comparative experience of ages to determine what is most durably satisfactory, to the eye and to the understanding, in the works of art; to discover the reasons of that effect; and to form upon them such rules as should generally guide successful practice. These, once settled and exemplified by superior artists, become the standard of execution and of judgment; and, for a season, confine the operations of art to that chastity, propriety, and dignity of manner, which ennoble its productions. But, alas, this state is

esteemed is that of John de Laet. Amst. apud L. Elzev. 1649, folio. Of the various translations, those of Cl. Perrault in French, 2d edition, Paris 1684, fol. maj. and of the Marquis Berardo Galiani in Italian, Naples 1758, are incomparably the best. Upon the authority of Cælio Calcagnini in a letter to J. Ziegler, the celebrated Raphael of Urbino has been numbered among the commentators on Vitruvius. His labours to this purpose have never appeared; nor is it very probable that a first-rate genius, who executed so many great works, loved society, was gay and amorous, and died at thirty-seven, should have bestowed a length of close application on so difficult an author; even supposing him provided with the learning requisite for the undertaking. See Poleni Exercitat. Vitruv. primæ, p. 27.

never lasting ! Tired of the monotony of perfection, restless imagination, excited by the love of novelty, soon breaks through the restraint of rules ; indulges itself in all the extravagances of lawless caprice, introduces every species of incongruity, and finally triumphs in absurdity and confusion. Having presented this general idea of the improvement and perversion of the arts, it remains to offer a slight sketch of the restoration of that of Architecture, from its growing corruptions after the decline of the Roman empire.

Its more observable advance in recovery began with FILIPPO BRUNELLESCHI^x, a Florentine, born in 1377, who distinguished himself in the beginning of the fifteenth century. His first employment was that of a Goldsmith, from which he afterwards turned his application to Sculpture, and finally attached himself to Architecture. He had some acquaintance with the literature of his time ; and was enough versed in Geometry and Perspective to teach the latter to his countryman Masaccio, the first painter who naturalized the stiff manner of Giotto, and set his figures fairly on their feet. He is said to have learned the rudiments of his art from the churches of St. John Baptist and Sant' Apostolo in Florence ; the first of which is supposed to have been, in the ages of idolatry, a temple of Mars ; the se-

^x Brunelleschi, born 1377, died 1444, æt. 67.

cond of very ancient date and unknown invention: both admirable for the excellence of their construction. The main proficiency, however, of Brunelleschi was owing to his diligent study of Roman Architecture, in his repeated visits to its stupendous remains, then numerous in the capital of that empire. Here he conceived that boldness of design and ardour of enterprize, which stimulated him to undertake the cupola of the dome at Florence, called Santa Maria del Fiore. His proposal, rejected from the first, was, at a convention, solicited by himself, of Italian and Oltramontane artists, with the curators of the fabric, on that business in 1420, generally thought so extravagant, that he was hissed and driven by force out of the assembly. After this ill treatment he retired to Rome, where having well considered his project, and re-examined whatever was to be found instructive for effecting it, he, upon his recall to Florence, persisted in asserting his competency to the undertaking; which, after an experiment or two of his method on a smaller scale, was committed to him in 1421, with permission to conduct it, by way of trial, to the height of 12 braccia. A very insufficient colleague was, at the same time, joined with him in the person of Lorenzo Ghiberti; of whom, by a little management, he soon got rid, and remained alone in the direction to his death in his 67th year, when he had carried

it up and closed it in to the foot of the lantern; for which, and the ball and cross above it, he left designs and instructions. The height, from the pavement of the church to the foot of the lantern is 154 architectural Florentine braccia^y; the height of the lantern 36; the diameter of the copper ball 4; the cross 8: the aggregate of these sums 202.

Cupolas^z had been built at Constantinople, Venice, Pisa, &c. before. The truly marvellous circumstances in this great work are its volume; the height at which it begins, and that to which it was carried up, from the walls, without any frame of timbers for its intermediate support; its being double, with passage room between the vaults; and its having no apparent reinforcements of masonry. Its form is octagonal. Among the various awkward expedients, suggested at the meeting of national and foreign architects above mentioned, one was to carry up an enormous pier of earth, with pieces of money inter-

^y The tables of measures in the French *Encyclopedie Methodique* (the only authority at hand) state the braccio, used at Florence by architects, as equal to 243 lines, or twenty inches and one fourth of the pied du Roi, which is to the English foot as 144 to 135.

^z It is not uncommon, even with persons of education, to call a cupola a dome; which properly signifies the cathedral, or principal church in a city or great town. This being in Italy (whence we have both terms) generally crowned with a cupola, has occasioned the mistake of the whole for the part.

spersed as it rose; on its summit, properly moulded, to turn the vault of the cupola; and, when it was set, to let the populace remove the earth for the money scattered in it. Though Brunelleschi was so saving of time, as to provide booths and victuallers on the top of the church; that the workmen might have to come up and go down but once in the day, he spent twenty-three years in assiduous prosecution of the task he had the mortification to leave unfinished. His regrets, however, were tempered with the consolation of having lived to accomplish the most difficult part of the undertaking, and settle the plan of the remainder. His countrymen are fond of ascribing to him the honour of having first distinguished the characters of the three Grecian Orders, and employed them with judgment. The Neapolitans claim this merit for Stefano, called after his master Masuccio II. who died in 1388; and allege in proof the Campanile of Santa Chiara, where he meant to exhibit the five Orders in proper situation; but the building was carried no higher than the third story, or place of the Ionic.

The first great reformer of Architecture was buried in the church he had so long laboured to adorn; where his obsequies were attended by a concourse of his fellow-citizens of all orders, with every demonstration of the most affectionate regret. Nor were their endeavours to perpe-

tuates his memory wanting, as his bust, done by his disciple Buggiano, and placed on the right hand of the door of the same church, by the side of that of Giotto, serves to shew.

His other buildings and designs in Florence are the Sagresty (vestry) and great part of the church of St. Lorenzo, with the lodgings of the canons. The unskilfulness, or malice, of those who continued the church has much hurt the effect. S. Spirito, and the habitations of the religious there. The Capitolo de' Pazzi in Santa Croce; where, by the side of the altar, were deposited the remains of the illustrious Galileo Galilei. The uncovered and almost ruined church degli Angeli, an octagon, for the noble family degli Scolari, was carried up to the cornice after his design, preserved in the library de' P. P. Camaldolesi of Florence. The tribune of Santa Maria Ughi was his idea.

He made the model of a superb palace of his own invention for Cosimo de' Medici, to be built facing St. Lorenzo: but the execution being dropped, through fear of offence to the public, the author in a pet broke the model. The palace Pitti was conducted after his design as far as the second tier of windows; the rest of the fabric, with the court, was carried on by Bartolomeo Ammanati, the drawings of Brunelleschi being lost. Leonora of Toledo, consort of Duke Cosimo, bought this palace (for the residence of

the grand Dukes) of the representative of Mr. Luca Pitti, for whom it was built. He gave the model of the Casa de Busini, for two families; that of the house and loggie degli Innocenti; he designed a house for the Barbadori, unexecuted; another of the Giuntini in the ^a Place d'Ogni Santi. The portico of the hospital de' Convalescenti is believed to be his; as was the continuation of the Palazzo de' Capitani, with much improvement of the first plan given by Francesco della Luna. Out of the Gate of St. Nicholas a Villa for the aforesaid Mr. Luca Pitti. By order and at the cost of Cosimo de Medici he designed the Abbey of the Canons regular of Fiesole, in site and manner equally convenient and pleasing.

At Milan he planned a fortress and other works for the reigning Duke Filippo Maria; and contributed his assistance in the Dome there.

^aPlace, conformably to the French rendering, is the only word that occurs as correspondent to the Italian Piazza. And here it may be for the service of the mere English reader, to apprise him of a strange mistake, often made, as to the meaning of the word Piazza; by employing it to signify the surrounding porticos, e. g. of Covent Garden, instead of the large area they inclose, where the market is held, which is the real Piazza, or Place. Mr. Pope, in one of his letters, has (in respect to his talents I had almost said) authorized this mistake; a small one indeed, and that in a foreign language, when compensated by the most perfect possession of his own, that the longest use of it could give to the nicest ear and intellect.

The fortress of Vico Pisano was after his model ; as was the old citadel at Pisa. At the new citadel he suggested the idea of shutting up the bridge by the two towers. The fortress of the port of Pesaro was after his plan. In 1445 (says Vasari) he was sent by the Republic to the assistance of the Marquis of Mantua, for whom he directed the embankment of a tract of the Po and other works.

An admirable crucifix in wood of his execution, in the cappella de Gondi in Santa Maria novella at Florence, attests his excellence in sculpture.

Scamozzi, who was in possession of their MSS. affirms that Antonio Filarete, a Florentine, and Francesco Sanese, (of the family of Martini of Sienna,) were of the earliest writers on Architecture. Both were good practitioners for their time ; but the book, which the former in 1464 dedicated to Pietro de' Medici, does him little credit as an author. Therefore we may truly say, that the first considerable writer on the subject was

LEON BATTISTA ALBERTI ^b, canon of the metropolitan church of Florence. His father was Lorenzo Alberti, of a family noble and powerful at Florence. His paternal uncle, for his virtues and talents displayed in the council of Florence,

^b Leon Battista Alberti born 1398, his death uncertain.

was created a cardinal by Pope Eugene IV. His brothers, who had the same excellent education with himself, were all men of ability. Our Alberti, joining the most assiduous application to the largest opportunities of instruction his father could procure for him, became one of the most generally learned men of that age; and a very eminent contributor to the restoration of literature and the arts. Equally profound and elegant, philosophy, law, mathematics, philology, poetry, were all familiar to him. He was practically conversant with Painting and Sculpture; in Architecture superior (taking theory and execution together as necessary to complete the artist) to all of his time. His work *De re Ædificatoria* was the first systematical treatise on the subject, since the earliest revival of the fine arts, that received and has retained the approbation of posterity. He distributed it into ten books, in imitation, probably, of Vitruvius, of whom he appears to have been a little invidiously emulous, by his diligence in bringing forward that author's errors in doctrine and faults of style. As a practical architect he was employed in Rome by Pope Nicolas V. in the repair of the conduit of the Acqua Vergine; and for the construction of the Fontana di Trevi; since rebuilt by Salvi, with much magnificence, at the expence of Clement XII. At the same time, Alberti furnished a design for covering the bridge of St. Angelo,

one of the most frequented passages in that capital, where multitudes are still exposed to the full effect of a scorching sun in the hottest months, for want of such a protection. For Sigismond Pandolf Malatesta he conducted, what is generally considered as his master-piece, the new works and embellishments of the church of St. Francis at Rimini, left, however, unfinished by him. For Lewis Gonzaga the reigning Marquis, among other buildings in Mantua, he constructed the church of St. Andrew, now much deformed in the inside by pretended modern improvements. Though the principal front of the church of Santa Maria novella at Florence be deemed unworthy of him, the portal is certainly a design of Alberti. The loggie of the Corinthian order, and the Doric front of the Palazzo Rucellai in the same town, are allowed to be of his invention. Vasari thinks the architecture of a chapel, he planned for the Rucellai family in Rome, the best specimen of his skill in that art.

His writings are very numerous^c. Many of his

^c The titles of some of them are *Momus*, a moral and political work in four books. *Trattato di Matematica*, translated by Bartoli from the inedited original. *De Jure ined.* translated by the same, with title *Dello amministrare la Ragione*. *De Causis Senatoriis*, printed at Basil. *Chorographia urbis Romæ antiquæ*. *Libellus Apologorum*, translated by the same. *Philodoxos*, comœdia Latina. *Dell' Economia tre libri*, Italian. *Dialoghi della Republica*; della *Vita civile e rusticana*; della *Fortuna*; published by Bartoli. *De Amore et de Remedio*

Latin compositions, (inedited as well as edited,) including his ten books *De re Ædificatoria*, were translated into Italian by Cosimo Bartoli, a Florentine gentleman. His erudition and his Latin style are equally applauded by the learned of his time. Politian, no spendthrift of praise upon his cotemporaries, is very large and explicit, to his own patron Lorenzo de' Medici^d, in that of Alberti. It is known that this great man lived to an advanced age; but the time of his death is unascertained.

The reformation of Architecture, begun by Brunelleschi and greatly furthered by Alberti, was by none of the intermediate artists so considerably forwarded, as by the labours of BRAMANTE^e, a native of the dutchy of Urbino. The strong inclination he had from nature to this profession could not be repressed by the disadvantages of a mean extraction. His activity in quest of information, and his diligence in applying it, compensated his want of the usual resources. He first studied the celebrated edifices in Lombardy; but soon repaired to Rome, as the

Amoris; Latin titles to Italian treatises. Much Latin and Tuscan poetry. Statua, Latine ined. translated by the same. De Pictura libri tres, Latine at Basil 1540; again with John de Laet's edit. of Vitruvius, Amstel. 1649; translated by Bartoli and Domenichi.

^d Vide Epist. VII. b. x.

^e Bramante da Castel Durante o Fermignano, born 1444, died 1514, æt. 70.

amplest field of instruction in the fine arts. His earliest patron there was the Cardinal Oliver Caraffa, who employed him in building a cloister for the religious Della Pace. He next served Pope Alexander VI. as subarchitect, in the fountain of Transtevere, and on other occasions. He was principally concerned in the Palazzo della Cancelleria^f; in the church of St. Lorenzo in Damaso; and gave the design of the palace built 1504 by Cardinal Adriano da Corneto^g, in the place of St. Giacomo Scossacavalli; which was afterwards by the said Cardinal (who had been Nunzio in Scotland) presented to the king of England; has since the Reformation been in possession of Cardinal Hieronymo Colonna; and is now in that of the S. S. Counts Giraud. That of the Dukes of Sora, nella regione di Parione, raised by the Cardinal Nicoló de' Fieschi, was likewise his invention^h. The palace of the Marchese Corsini was begun on his design.

He superintended the construction of a house planned by the great Raphael d'Urbinoⁱ, for his own habitation in Borgo Nuovo; a condescension which nothing but the officiousness of friendship could suggest; if what tradition re-

^f Built about 1512. See an elevation of this in Pietro Ferrerio's *Palazzi di Roma*, tom. i. plate 24.

^g Vide Elements, plate 53. fig. 1.

^h Vide Elements, plate 53. fig. 2.

ⁱ About 1513. Ibid. plate 54. fig. 1.

ports be true, that Raphael was indebted to Bramante for his knowledge of Architecture. The gratitude of that prince of painters was, however, not inadequate to this and his other obligations to his compatriot artist; seeing he has transmitted him to posterity in two portraits, inserted in his grand work in the Vatican. In the piece called the School of Athens, he is in the character of the Geometrician; in that of the dispute on the Holy Sacrament, his features are given to the bald and beardless figure, that leans himself and rests a book on the marble parapet, and, with the left hand, points to the contents, turning himself at the same time towards one who seems to be his opponent.

Giulius II. created Pope in 1503, found in Bramante an architect, by quickness of conception, invention, and execution, equal to the projects of his own ardent and enterprising genius. At the command of this Pontif, he formed the plan of that immense court (400 paces long) between the old Vatican and Belvedere; to serve as a rectangular theatre for tournaments and other solemn spectacles. In the execution, he had to contend with a great inequality of the area; which he so judiciously divided into two planes, as to obviate the bad effect of much disproportion between length and breadth, and to bring out, by his well-distributed decorations, a fine perspective view of the whole from the en-

trance. A detail of this noble design may be seen in Vasari; an indifferent engraving of it, by Van Schoel, in the grand collection of prints belonging to the Corsini library in Rome. The whole of this masterpiece was deformed by the erection of the present pontifical library, the site of which was, by order of Pope Sextus V. so fixed as to cut the magnificent theatre of Bramante through the middle, and make of it two courts and a private garden for the Librarian.

The repository in Belvedere, formed in niches for the reception of those invaluable specimens of ancient statuary the Laocoon, Apollo, Antinous, &c. was designed by this great architect; as were also a variety of staircases, there and in other apartments of the Vatican, all much admired for the singular ingenuity and elegance of their contrivance. The grand semicircular one, which occupied the nether end of the great court of which we have just lamented the deformation, was long since, with some others, destroyed by neglect, or removal of the materials.

The little round temple, in the middle of the cloister of St. Pietro in Montorio, is a much applauded design of Bramante; though open to some objections when examined in detail. In Rome, and throughout the ecclesiastical state, he furnished an infinity of plans for houses, churches, &c. but the grand effort of his inven-

tion was reserved for a work worthy of it. Julius the Second having conceived the idea of pulling down the church of St. Peter, and replacing it by one that should surpass in magnificence every thing of the kind then extant; Bramante laboured to fulfill the desire of the ambitious Pontif by a variety of designs; more particularly by one, which placed the great front between two steeples, as represented in the commemorative medals, struck under Julius II. and Leo the Tenth, and wrought by the hand of the famous Caradosso.

Without the walls of Todi^k our artist built an insulated temple, in form of the Greek cross with a beautiful cupola in the middle; which appears to have been the model of St. Peter's. The execution of this great design, actually begun in 1513, and carried on with all possible industry, was stopped short by the death of the Pope, and his own, within a year of its commencement. The succeeding architects reduced, and made such changes in his plan, as left little distinguishable for his.

Julius rewarded this favourite architect with the office del Piombo, by which he was enabled to live with credit, and to indulge his liberality in acts of beneficence to distressed artists and other meritorious objects. He died at 70, and

^k In Umbria, dutchy of Spoleto.

was buried in St. Peter's, where his funeral was attended by the Papal court, and the whole body of professors of the fine arts.

RAPHAEL SANZIO D'URBINO¹ is so generally known, as the most distinguished name in the modern annals of painting, that any particulars concerning him, but as an architect, would be superfluous to the present design. He was called to Florence by Leo X. to design and conduct a front for the church of St. Lorenzo, which was not executed. During his residence there, he was architect of the Palazzo Ugoccioni, since Pandolfini, in the grand Ducal Place. Attracted to Rome by the notice of the same Pontif and the solicitation of his countryman (and as some say relation) Bramante, he there built the stables of Agostino Chigi alla Lungara, near the little Farnese; as likewise the ^mPalazzo Caffarelli, since become that of the Cardinal Stoppani, near St. Andrea della Valle. The house he planned and raised at the cost of Leo X. in ⁿBorgo Nuovo for himself, has been mentioned in the article of Bramante. It stood in the vicinity of St. Peter's, and was taken down, with some others, to clear the ground for the Place and Portico adjoining to that celebrated fabric.

¹ Raffaello Sanzio d'Urbino, born 1483, died 1520, æt. 37.

^m A. D. 1515. Vide Elements, pl. 53. fig. 3.

ⁿ A. D. 1513. Ibid. pl. 54. fig. 1. Compare P. Ferrerio, tom. i. no. 15. to see the ineptiæ rejected.

Upon the death of Bramante, Raphael was appointed to succeed him as one of the architects of that Dome; for which he made a design in form of a Latin cross, not much approved at the time, or since. The gardens of the Vatican were laid out by him; a business, in that age and too long after, thought more within the province of the architect than that of the painter. Happy for the works of the present day that the analogy has shifted!

BALDASSARE PERUZZI^o, son of Antonio, of a noble family in Sienna, was in his infancy carried by his father into retirement at Volterra, from the civil broils of his native district. This city of refuge being afterwards sacked, the family returned in indigence to its original settlement at Sienna. Our young artist, initiated in Geometry and Perspective, applied to Design and Painting for subsistence, with uncommon credit: but, to indulge his genius, and enlarge his means of living, soon joined the study of Architecture to his former pursuits, and with equal success. Rome is the general resort of all who cultivate the fine arts with desire of excellence. Baldassare found a warm patron there in Agostino Chigi, for whom he built a palace alla Lungara^p, which, having since passed to the serene house

^o Baldassare Peruzzi, born 1481, died 1536, æt. 55.

^p A. D. 1518. See Elements, pl. 54. fig. 2.

of Farnese, now goes by the name of the Farnesina. There he moreover displayed the magic of his pencil, in a manner that deceived and astonished even Titian. Monsignor Bottari, in a note to the Neapolitan edition of Vasari, affirms, that all these paintings of Peruzzi, excepting some clair-obscures on outwalls, were in good preservation in 1759, and the painted cornices still of a relief that deceived every unapprised spectator.

Transferring himself, for a while, to Bologna, he there made two models, in different manners, for the front of S. Petronio, and other designs for the service of that fabric. In the same city he repaired, with additions, the palace of Count Giobattista Bentivoglio; very dexterously adapting new constructions to the preserved parts of the old. The portal of the Church of St. Michele in Bosco, at a little distance out of Bologna, was of his invention.

At Carpi, in the states of Modena, he gave the design and model of the dome, which was executed under his direction; and began the church of St. Nicholas.

Returning to Sienna, he planned the fortifications of that city, and made designs for some houses in it. After these engagements were completed, repairing again to Rome, he was employed by Leo X. in the fabric of St. Peter's; for which that Pontif began to think the plan of

Bramante too extensive ; and therefore wished for another, which might appear sufficiently magnificent under less volume. This the ingenuity of Peruzzi soon furnished, as may be seen in Serlio's book, much to the credit of the inventor.

The deposit of Adrian VI. in the Church dell' Anima, is of Peruzzi's architecture ; the sculpture of it by Michel Angelo of Sienna, with his assistance.

When the Calandra of Cardinal Bibiena (the first Italian comedy in prose) was performed before the Pope, the theatrical decorations were contrived by this artist ; who exhibited two scenes of such striking effect, as to excite the emulation and inform the practice of those who followed him in that line of painting.

Under his conduct were likewise made the preparations for the coronation of Clement VII. in 1524.

In less than three years after (1527) he was taken prisoner, stripped of all he had, and extremely ill used by the Spanish soldiers, in the sack of Rome by Charles de Bourbon, rebel constable of France.

Our architect's good mien and person caused him to be taken for somebody of importance, and tortured for discovery of his supposed valuable effects. When found to be a painter, his captors obliged him, notwithstanding his evil

plight from their cruel treatment, to make a portrait of the constable, who was killed as he was mounting the ladder to the assault^a. Escaped from his persecutors, Baldassare embarked for Porto Ercole in his way to Sienna. On his road thither he was again assaulted, and so completely despoiled, as to be obliged to proceed on his journey naked.

When the attention of his friends there had recovered him, and supplied him with necessaries, he undertook the execution of his own designs for the fortification of that city. Resolved not to act against his country, he refused to serve the Pope (Clement VII.) in the siege of Florence, its capital. The Pontif, by the good offices of three Cardinals, friends to Peruzzi, was, after some time, so far reconciled as to allow him to return to Rome, where he built two palaces for the family of Massimi^r, (one of them an oval of very difficult construction, which he left unfinished,) and made designs for two villas of the S. S.^s Orsini, near Viterbo, that were carried into execution—as likewise others for edifices in Puglia.

In this situation he began a treatise on the Antiquities of Rome, and a commentary on Vi-

^a May 6, 1527.

^r See that of Massimi Alla Valle in P. Ferrerio, tom. i. no. 18.

^s See P. Ferrerio, tom. ii. no. 34. date uncertain.

truvius; making drawings for the latter as he went on with the work. Parts of these undertakings were, when Vasari wrote, in the hands of Francesco Sanese his disciple. Sebastian Serlio, a Bolognese, and Giacomo Melighino of Ferrara, architect to Paul III. became possessed of the remaining part of what Peruzzi left behind him; the former profited largely by his collections, observations, and designs, in composing his own book on Architecture.

The court of the palace of the ducal family of Altemps, in Rome, is supposed to have been repaired and refitted by Peruzzi. The palace of the Marquis Silvestri, opposite St. Lorenzo in Damaso^s, and the House of Sig. Giuseppe Costa in Borgo^t Nuovo, were built after his designs: the latter was probably taken down for its vicinity to St. Peter's.

This great architect and painter was born in family distress; harrassed, through life, with misfortune; and never in any comfortable degree approached to easy circumstances. His attention was more earnestly exerted in the attainment of professional excellence, than of the gain due to his services. Of this indifference to pecuniary reward the most opulent of his employers are said to have taken such unworthy

^s See P. Ferrerio, tom. ii. no. 34. date uncertain.

^t Ibid. no. 46. date uncertain.

advantage, as left his mind a prey to anxiety for the fortunes of his family, and his health to decline under that pressure, without the alleviations of domestic convenience. His all was a salary of 250 Roman crowns a year, as architect of St. Peter's. When in extremity, the reigning Pope, Paul III. sent him 100 crowns, with many unseasonable offers of promotion. Thus is acknowledged merit, when unassuming as it generally is, left to live on empty praise; while the man of mean talents, backed by effrontery and upheld by intrigue, states his own claims, and none dares to delay or refuse them.—He was buried in the Rotonda, by the side of Raphael d'Urbino, with the usual attendance of Artists, &c.

FRATER JOHANNES JOCUNDUS^u. Neither the extraction of this very learned ecclesiastic, nor the exact time of his birth, are yet ascertained. That he was a native of Verona is on all hands allowed. It has been said that his family name was Monsignori, but without proof. J. Cæsar Scaliger has affirmed his descent to have been noble. Perhaps the vanity which prompted that great scholar's endeavours to establish his own high birth, might incline him to indulge nobility to one, whom (though the fact be somewhat

^u Fra. Giocondo, born some years before the middle of the fifteenth century; death uncertain.

dubious) he declares to have been *his* preceptor; without considering that the respectability of Jocundus, as well as his own, stood on better ground than that of ancestry. He was, most probably, born some years earlier than the middle of the fifteenth century, the commonly assigned date of his nativity. To what religious society he belonged has been matter of further controversy; some calling him a Dominican, others a Franciscan. The very accurate Marquis J. Poleni^x, after stating the varying authorities on this point, endeavours to adjust the differences, by supposing him first a Dominican; afterwards to have quitted that order, and lived in the world as a secular priest; and to have finally joined the society of the Franciscans. No man of his time was superior to him as a divine, philosopher, mathematician, or polite scholar. All the arts of design he possessed in an eminent degree: in Architecture he was consummate. At an early age he visited Rome and its adjacencies; where he applied himself with singular industry to all the remains of antiquity. One fruit of this application was a volume of collections he presented to Lorenzo de' Medici, mentioned by Politian^y, with high commendation of the author. This is said to have con-

^x Exercit. Vitruv. primæ, p. 21.

^y Miscellan. cent. 1. cap. 77. edit. Ascensii, fol. cliiii.

tained more than 2000 inscriptions. The original volume is missing: but the libraries of the learned Marquis Scipio Maffei at Verona, and that of Magliabecchi at Florence, have copies of it. He resided some time in Germany, with the emperor Maximilian, by whom he was much esteemed. Invited by Lewis XII. into France, among other buildings for that sovereign, he directed the construction of two bridges, of his own invention, over the Seine at Paris; but certainly did not superintend the whole of the execution; as these were finished in 1507, and Jocundus was at Venice in 1506 and 1508. During his abode in Paris, he had the good fortune to find, in an old library there, a more complete MS. than any then known of the younger Pliny's Epistles^z, from which he procured an edition of them at Bologna, 1498, 4to. Under favour of the same opportunity, he assisted Budæus in reading Vitruvius, by his drawings as well as oral explanations.

In 1506 a most important service was rendered by him to the Republic of Venice. Consulted on the growing danger of the Lagunes being filled up, with the earth and sand discharged into them by the mouth of the Brenta, he recommended the making a cut to divert part of its water, with

^z Vide Annotationes prior. et posterior. G. Budæi in Pandect. Lutet. 1556. p. 39. F. p. 120. D.

the matters brought down by it, towards Chioggia. In consequence of that expedient, the wash since carried that way has made a tract of good ground of what before was sea, and the Lagunes are kept free from what accumulates there. In acknowledgment of this service, the celebrated Lewis Cornaro called *Jocundus* the second founder of Venice. It was afterwards thought still more conducive to the end proposed to lead the outlet farther southward, where it now enters the sea at Porto Brondoli.

In 1511 he superintended his own edition of *Vitruvius*, fol. at Venice, in which he very considerably amended the text, and, by drawings and other illustrations, facilitated the study of his author. In 1513, when most of the quarter of Rialto, in that city, was destroyed by fire, he furnished a magnificent design for rebuilding it. It consisted of a forum surrounded by porticos, with houses and warehouses for the merchants, church, exchange, an ornamental bridge, &c. To his infinite discontent this great plan was laid aside, and a wretched one of *Zamfragnino*, a very inferior architect, carried into execution some years after. This and other designs of our artist were in possession of the *Bragadini* family, opposite *S. Marina*.

Upon the death of *Bramante*, in 1514, he was joined with *Raphael* of *Urbino*, and *Antonio Sangallo*, in the direction of the fabric of *St.*

Peter, of the Vatican, then thought in danger of ruin through the insufficiency of the foundations. These he assisted in making good by proper underbuilding of piers and arches turned upon them, so well applied as to ensure the stupendous masses they help to support.

He restored, in 1521, the Ponte della Pietra, at Verona, and, by a very simple process of planking, fortified the middle pier, several times destroyed by floods. After which repair it continued immoveable till 1757, when the whole was borne down by a most formidable swell of the Adige.

Jocundus was critically possessed of the Greek and Latin languages. To him are owing the first useful edition of Vitruvius—Illustrations of Cæsar's Commentaries, with the earliest plan of his bridge over the Rhine, in an edition of the Latin text, printed by Aldus. Ven. 1517. fol.—Frontinus de Aquæductibus, published with his Vitruvius. Flor. 1513. 8vo.—Pliny's Epistles, before mentioned.—Julius Obsequens was presented by Jocundus to Aldus, who printed the first edition of this author, 1508. 8vo.—Cato de re Rustica, and the Epitome of Victor, were likewise edited by our Franciscan.

That this indefatigable promoter of arts and sciences lived to a very advanced age is certain; but the time and place of his decease are unknown.

MICHEL SANMICHELI^a was born at Verona, in 1484. From his father John and his paternal uncle Bartholomew, both excellent architects, he learned the rudiments of their art. At sixteen he went to study at Rome, where his application and discernment, exercised on the best models, perfected that ability, of which domestic instruction had laid the ground-work. Thus qualified for practice, he began his career with the Dome of Monte Fiascone, of an octangular form, crowned with an elegant cupola. His talent was further displayed in the Church of St. Domenico, in Orvieto, and several houses in both those towns. His reputation as an architect increasing, he was employed, in conjunction with Antonio Sangallo, by Pope Clement VII. in visiting all the fortifications of the ecclesiastical state. That commission fulfilled, he returned to his own country; where, prompted by curiosity and desire of improvement, he made a tour for the inspection of the fortresses of the Venetian territories. In this journey, his very attentive observation of those objects caused him to be taken up for a spy at Padua: but his innocence of the charge being soon proved, and his ability recognized, he was strongly pressed to engage in the service of the Republic. This invitation his obligations to the Pope would not

^a Michel Sanmicheli, born 1484, died 1559, æt. 75.

permit him, at that time, to accept. The solicitations, however, of the Republic, added to his own, procured him, not long after, leave to retire from his employments under the holy see, to adorn and defend his country.

His fellow-citizens, with much appearance of reason, ascribed to Sanmicheli the invention of the improved mode of fortification now in use; though the French have done themselves the honour of it, and few of the Italians suspect that it originated with a national of their own. He first introduced the pentagonal bastion, with flat faces and flanks, whereas those before in use were either round or square; and it is pretended that the dawn and progress of this improvement may be traced in the bastions of his construction at Verona, beginning with that delle Maddalene, erected in 1527, wherein it is said that the expiring old manner and the new-born amendment are both observable. Count Pompei gives this distinguished engineer the further credit of the Orillon bastion (Baloardo con gli Orecchioni) and other inventions, which have been only modified by succeeding military architects. These new methods he applied in the fortifications of Legnago, Orzi Nuovo, Castello, &c. Upon the apprehension of a war with the Turks, he made good all the Venetian strong holds in Dalmatia, Corfu, the Morea, the Levant, Cyprus, &c. By the works he raised for its defence, the city of

Candia, metropolis of the island of that name, was enabled to stand out a ten years' siege by the Turks; to whom, after that long course of devastation and carnage, it was given up by capitulation, Sept. 6, 1669, a mere field of ruins.

But the merit of all these specimens of his ability as an engineer disappears, when they are compared with that astonishing fortress del Lido, at the mouth of the Port of Venice. The soil, on which this enormous mass is built, was marsh surrounded by the sea. Notwithstanding which difficulty, our artist contrived, by the choice of his materials, the solidity of his foundations, the massiveness of the stones, and the care in their conjunction, so to complete his enterprize, that no changes of weather, nor constant agitation of the sea, nor incidental storm, have in any degree affected this construction; which, by its compactness, seems rather cut out of a rock, than built by hand. Envy soon suggested that the great quantity of heavy artillery required to furnish this fortress, would, when discharged, infallibly occasion its ruin. Sanmicheli, in order to do away at once this malevolent suggestion, begged leave to have the largest cannon of the arsenal brought thither; and, furnishing all the embrasures, ordered a discharge of the whole number of pieces at once. This formidable experiment caused not the least breach or crack in

the works, and effectually silenced the presages of the envious.

In Venice Sanmicheli gave the model of the monastery of the Nuns of St. Biagio Catoldo. He designed the palace de' Cornari a S. Paolo; and that of Grimani, near St. Luke's, upon the great canal.

At Castel Franco, between Padua and Treviso, he built the Villa Soranzo, much applauded for its beauty and commodiousness. At Padua, a Deposit in the Church of St. Antonio, for Alexander Contarini, of a curious design.

In Verona, his native town, la Porta Nuova—la Porta del Palio—la Porta di San Zenone—la Cappella Guareschi in S. Bernardino, in form of a little round Corinthian temple: this, through various avocations, he did not finish, and with sorrow beheld his plan debased by those who continued the work. He gave the design of the front of Santa Maria in Organo, of the Olivetans, begun to be executed after his death, but stopped short in the outset. In the Church of St. George he contrived to strengthen the sides, so as to allow him to erect a cupola upon them, which no other artist had dared to attempt. His circular temple of the Madonna di Campagna was lamed in the execution by another hand—and still more so his admirable design for the Lazzaretto, through a sordid economy. He designed the Campanile of the Cathedral,

strangely deformed, and at last let down by the incompetence of the builder. Bernardino Brugnoli, his nephew by a sister, rebuilt it, as he did likewise that of St. George after a plan of his uncle. The palaces Canossa, Bevilacqua, Pellegrini, Pompei, Verzi, are elegant designs of Sanmicheli. The portals of the Pretorian and Prefectital palaces at Verona are his. Many of this great architect's work, to his undeserved discredit, either remained imperfect, or were finished by incompetent hands. Where his own superintendence could be given, all was so well conducted, that Vasari says, no building of his ever shewed the least crack.

His two cousins german, Matthew and Paul, were famous architects; the former planned the works and citadel of Casale, the capital of Montserrat, at that time reputed one of the strongest places in Italy; and likewise designed a grand deposit of marble, in the Church of S. Francesco, in that city. The latter was father of his favourite disciple and cousin, John Jerome. The death of this able artist (not without suspicion of poison) at Famagosta in the isle of Cyprus, in his 46th year, so deeply afflicted our Sanmicheli, that he survived it but a very short time. He expired at Verona in 1559, æt. 75. The excellent school he left there was some reparation of this loss to Architecture.

Bernardino Brugnoli, his nephew above men-

tioned, designed and executed the high Altar at St. George's in Verona ; which Monsig. D. Barbaro, who translated and commented Vitruvius in Italian, declares to be, both for the perfection of the architecture and that of the carving, the completest thing of the kind he ever saw, though little noticed by the present artists there.

The orders of Sanmicheli were published by Count Alexander Pompei of Verona, 1735, printed for Jacopo Vallarsi, Verona, in folio. Italian.

MICHEL ANGELO BUONARROTI^b. This powerful and comprehensive genius, who became possessed of the three great arts of design almost as soon as he attempted them, was born 1474, at the castle of Caprese in the diocese of Arezzo, where his father Ludovico, di Lionardo, Buonarroti Simoni was magistrate of the district. The life of this eminent artist having been so largely written, by different hands, and so generally read, it will be sufficient for the present purpose to select, from the mass of particulars concerning him, only what relates to his operative history as an architect. It is said that he was 40 years of age when he took to the study of Architecture, and then without a master. But these circumstances cannot make his success seem marvellous, when we consider that he

^b Michel Angelo Buonarroti, born 1474, died 1564, æt. 90.

was beforehand consummate in painting and statuary, and perfectly acquainted with the ancient remains of every kind.

At Florence he built the Medicean Library: there too he was architect of the Sagrestia Nuova of St. Lorenzo, deemed his best work after St. Peter's. In 1527, when the Medici family were driven out of Florence, he was appointed surveyor general of all the fortifications of the Florentine state. His military works, in the capital of Tuscany, and at S. Miniato, have been much applauded by competent judges of their merit.

Upon the death of Antonio Sangallo, in 1546, M. Angelo was, in spite of his own remonstrances against the choice, declared by Paul III. architect of St. Peter's, with full power to act at will in his charge. His final acceptance of this commission was accompanied by a renunciation of all emolument from it: a resolution he strictly adhered to, notwithstanding the most pressing instances of the Sovereign Pontiff. Disapproving the designs of his predecessor in office as faulty, of infinite expence, and tedious execution, he, in fifteen days, made a model of his own, at the small cost of twenty-five crowns; whereas that of Sangallo had employed several years, and cost above four thousand crowns. His procedures in the reform of this grand fabric, many years continued, must be learned

from ampler accounts of his works of this kind, than the present summary was intended to give.

While those were going on, he was called to the rebuilding of the Capitol, which he began with the middle palace, or habitation of the sole senator of modern Rome. The double-ramp outward stairs were conducted by him, but no other part of this edifice. The side one, or wing occupied by the Conservators of Rome, was entirely of his design; in which there are thought to be some things to blame, among many to commend; and in the former perhaps, Giacomo della Porta and others, who, after him, undertook the conduct of the work, may have had their share. In the descent from the Capitol towards the city, M. Angelo designed a *Cordonata*, with a balustered Parapet at its top, adorned with statues and ancient monuments. In the middle of the place, inclosed by the fore-mentioned buildings on three sides, is the famous equestrian statue of Marcus Aurelius, upon a simple and well-proportioned pedestal designed by Buonarroti. The great Farnese Palace having been left by Sangallo, its architect, without a cornice, our artist was employed to give it that finishing. For this purpose he made a model in wood, six braccia in height, and placed it upon one of the angles of the edifice, in order to take opinion of the effect; which proving much in its

favour, the design was executed. The Drum, upon which the Cupola of St. Peter's was to be placed, being well conducted to its height; M. Angelo (who had been obliged to retire from the office of architect to that fabric, with a compensation of one hundred crowns a month, rejected on the first tender of payment) was importuned by his friends, of all ranks, to make a model of the cupola, as a precaution against any oversight on his part, or foul play of those to whom the execution was entrusted. This he first performed in clay and in small; and, from that, formed, with much attention and care, a large one of wood, of which Gio. Farnese was the chief workman. This was much applauded and actually executed under Sixtus V. Notwithstanding all his circumspection, envy, of his superior talents and disinterested use of them, continued to excite cabals against him, to occasion opposition to his plans and misconduct in the performance of them, by his less competent successors: till, upon his complaint to Pius IV., it was ordered that no changes should be made in his designs; which order was renewed by Pius V. and duly enforced.

By order of the former of these Pontiffs, he made three designs for the Porta Nomentana; to be thenceforwards called Porta Pia. The least costly of these was preferred and erected, though an irregular and capricious composition.

When very far advanced in years, he dictated five designs to Tiberio Calcagni, an able Florentine sculptor, for the Church of St. John of the Florentines in Rome; the richest of which was chosen by the delegates. Of it a wooden model was made, and preserved long after; but, when under Clement XII. the front was to have been built, that model was not to be found.

It being proposed to convert the magnificent remains of Diocletian's Baths into a Church of the Chartreux, upon a competition of many architects for that undertaking, the plan of Michel Angelo had the preference, and was carried into execution with general approbation; though since reformed by a modern artist Luigi Vanvitelli, too much in countersense.

The Cappella Strozzi, at Florence, was designed by M. Angelo; as likewise the College of the Sapienza in Rome, excepting the part where the church is situated.

When, at the great age of 90, this so variously excellent artist yielded to God a life spent in the most unremitting exertion of the rich talents with which his bounty had endowed him, the reigning Pontiff, Pius IV. ordered his remains to be transferred, from the church of the Apostles, where they were first inhumed, to that of St. Peter of the Vatican. But Cosimo I. then grand duke of Tuscany, contrived, by the means of the deceased's nephew Leonardo Buonarroti,

to get them removed by stealth to Florence, where they were received with every imaginable testimony of respect; and, after the most magnificent funeral rites (in the church of St. Lorenzo, reserved for those of the sovereigns of Tuscany only) that the joint efforts of genius and opulence could devise, finally deposited in that of Santa Croce, where he had desired to rest among his honourable ancestors.

GIULIO PIPPI, commonly called GIULIO ROMANO^c, well known as the second name in the Roman school of painting, has an equal title to rank high as an architect. In Rome he designed the Villa Madama, with a Palazzine now ruined. Above St. Pietro Montorio another Palazzine in possession of the Duca Lante. The plan of the church of the Madonna dell' Orto. Palazzo Ciccia porci^d in the Strada di Banchi. And that of Cenci^e in the place of St. Eustachio, contiguous to the Palazzo Lante.

The Duke of Mantua, enamoured of Giulio's talent in Architecture, left nothing undone to draw him thither; and, when he had effected it, treated him with great distinction. The Palace T, (so called from the resemblance of its ground-plan to the form of that letter,) built by him, a

^c Giulio Romano, born 1492, died 1546, æt. 54.

^d Qu. whether the same with no. 40. tom. 1, of Pietro Ferrerio?

^e Vide Elements, pl. 54. fig. 3.

little out of Mantua, is one of the most renowned edifices in Italy. In addition to the merit of its construction, it has to boast some of the noblest efforts of his pencil; in particular the Hall of the Giants, where their fall is represented in a style correspondent to the magnitude of the subject. This invaluable work suffered greatly by the barbarism of Pandours and Hussars, who used it as a guard-room, in the war terminated by the peace of Aix la Chapelle in 1748. He modernized and enlarged the Ducal Palace, and built another at Marmiruolo, five miles from his capital, for the same sovereign. In Mantua he erected a house for his own residence; and there refitted the church of St. Benedict, of the religious of Monte Cassino, and rebuilt the Dome. There, indeed, and in the vicinity his works of Architecture are so numerous, that the Cardinal Gonzaga was used to say, that Mantua was a creation of Giulio Romano, and all there his own.

His design for the front of St. Petronio was deemed the most suitable, of several presented by celebrated architects. Arrived to the fulness of his fame, it was confirmed to him by his appointment to the envied charge of architect of St. Peter's of the Vatican. Resolved to remove thither with his whole household, and in actual preparation for a departure, not a little displeasing to the Duke of Mantua and his own family,

he was seized with an illness that, in the issue, finally closed his labours and concerns in this life.

The buildings he left unfinished in Mantua were carried on by Bertani, who erected the Church and Campanile of Santa Barbara, called the Quattrizonio, the best in Italy.

SEBASTIAN SERLIO^f, of whom Vasari, our general guide in this walk of biography, says little or nothing, was born in the Bolognese; and distinguished himself as an architect in Lombardy, about 1530. His master in Geometry, Perspective, Painting, and Architecture, was Baldassare Peruzzi of Sienna, who formed many other great artists. Serlio was one of the most attentive observers of the remains of the ancient Roman edifices, and the first that gave their measurement, in detail, with reasonable accuracy^g. He is by the Marquis Maffei^h highly commended for his particular treatment of the amphitheatres; having in his book given designs of those of Rome, Verona, Pola, with elevations, sections, plans, and profiles. He resided sometime in Venice, where he published his fourth book, the first that appeared. This procured him the favour, largesses, and invitation of

^f Sebastian Serlio died 1552.

^g See in his third book a valuable collection of them.

^h Book ii. c. 1. of his Treatise on amphitheatres.

Francis the First to his service. The honour thereby done him he did not immediately accept; since it appears from the dedication of his fourth book to the Marquis del Vasto, upon his republication of it at Venice, with additions, in 1540ⁱ, wherein he says *here in Venice*, that he was there in the month of February that year. It is probable that he very soon after transferred himself to the actual service of his royal patron, who survived this acquisition but seven years. Many works he certainly conducted for that monarch, at the Louvre, Fontainbleau, the Tournelles, and elsewhere, (besides private services,) of which we have no description, nor even catalogue. His intervals of leisure he employed in the prosecution of his Treatise on Architecture. The third book of this work appeared a year after the fourth, and was dedicated to Francis I. In the service of that monarch he published his first and second books; the former containing the elements of Geometry, the latter those of Perspective, necessary to an architect. These were followed by the fifth, (dedicated to the Queen of Navarre^k,) the sixth, and seventh^l.

The war with the Emperor, which recom-

ⁱ Presso Francesco Marcolini da Forli.

^k Niece of Francis I. and mother of Henry IV. of France.

^l The complete editions of Serlio's Architecture are those of Francesco Sanese, in Venetian, 1566, 4to. and 1588, folio.

menced in 1542, could not but give some check to the works Francis I. had projected for the employment of Serlio; and though that terminated by the peace of Crespi in 1544, the short remainder of this monarch's life, still involved in a war with England ended but in 1546, and perplexed with the intrigues of his court and the contests with his protestant subjects, must have rendered his good will to the arts less effective than zealous. Conformably to this conjecture, it is recorded that Serlio retired to Lyons, where he lived gouty and indigent; and that he afterwards removed to Fontainebleau, and there ended his days, as scanty of comfort as rich in renown.

PIRRO LIGORIO^m. The very honourable mention the author of the Elements has made of this artist, and the elevation of a palace of his design given in the last figure of the plates, seem to require that something be here briefly said of him. He was a noble Neapolitan of the Seggio di Porta Nuovaⁿ, deeply versed in the study of antiquity and the fine arts. By Paul IV. he was appointed architect of St. Peter's; but in that office conducted himself so offensively, by his contempts of the venerable and yet capable

^m Pirro Ligorio Napolitano died 1580.

ⁿ A sort of lodges, in different parts of the city, into which the nobles are distributed.

M. A. Buonarroti, and his rude disputes with him on matters relative to his charge, that all the Pope's partiality to him, as a countryman, could not keep him where he had placed him.

Pius IV. employed him to design the deposit of Paul IV. The Palazzine in the wood of Belvedere is thought to be his architecture. The Palace Lancelotti^o, in Piazza Navona, is likewise his invention—and he moreover painted some clair-obscurés, of a colour resembling bronze, in Rome.

Alfonso II. last Duke of Ferrara, used his service as an engineer, in securing his capital from the damage it was exposed to by the inundations of the Po. In this employment he ended his days at Ferrara. A great part of his designs of ancient monuments (of which his measures are found to be not always just) may be seen in the Royal Library at Turin.

GIACOMO BAROZZI^p, usually called VIGNOLA, from a place of that name in the Modenese, where he was born in 1507, was son of Clement Barozzi, a Milanese of genteel family; who, not being suitably provided with the aids of fortune, and apprehending the effects of civil discord, left his abode at Milan for a retirement at Vignola, where he died while this son was yet very

^o Vide Elements, plate 55. fig. 3.

^p Giacomo Barozzi da Vignola, born 1507, died 1573, æt. 66.

young. Thus early deprived of his best support, our Barozzi yielded to the direction of genius, and betook himself to the study and practice of painting in Bologna. This pursuit soon discovering to him the necessity of a good knowledge of perspective, he so earnestly laboured to possess himself of that part of science, as to supply the want of instruction by the invention of a method for himself^a. While the exercise of his pencil supplied him with the mere necessaries of life, what leisure his occupations of that kind left him he employed in investigating the principles of those arts, he could not be content to practise from a sole habit of imitation. It was during this first residence at Bologna that he is said to have furnished Francesco Guicciardini, the celebrated historian, (then governor of that city,) with some excellent designs, afterwards executed, at Florence, in Tarsià, a sort of mosaic of differently coloured woods, formed into landscapes, architecture, and other picturesque representations.

The passage was easy, from a deep acquaintance with geometry, perspective, and design, to Architecture. Vitruvius he had carefully studied. Yet the attention he bestowed on that first of au-

^a This he has given in a treatise entitled *Le due regole della Prospettiva pratica di Giacomo Barozzi da Vignola*, republished *Coi Commentarj di Egnazio Danti*, in Roma, 1583, folio.

thors in this science served but to convince him, that something more than writing could teach was wanted to form the real architect. Where to seek this the custom of all his antecessors in that profession had informed him. Arrived in Rome, he endeavoured to maintain himself as before by his pencil, with a success by no means equal to his industry; and therefore, throwing aside the pallet in disgust, he sought a new resource in measuring the ancient remains for the Academy of Architecture, newly set on foot in Rome. This employment, conducive alike to his subsistence and improvement, engaged his attention so strongly, as, probably, to have given birth to the Treatise on the five Orders under his name; which all conversant with this study must have read, and some prefer to whatever else has been written on the subject^r. He next became assistant, in the Belvedere, to Giacomo Melinghini of Ferrara, an excellent architect; and was allowed to frequent the meetings of the Academy of Architecture, where Marcello Cervini, afterwards Pope Marcello II. M. (afterwards Cardinal) Maffei, Alexander Manzuoli, and other persons of distinction attended; who employed Vignola in designs and works that contributed to his support, and extended his reputation.

^r Vignola's Orders have passed many editions and translations. The Italian one at Venice, 1570, is an early one, if not the first.

Francesco Primaticcio, a Bolognese and excellent painter, coming to Rome about this time from France to collect pictures, and procure copies of the most celebrated statues and reliefs, in order to their being cast in bronze, as ornaments for the royal palaces, singled out Vignola for his assistant there; and at his return carried him into France, where he passed two years in planning many works which failed of execution, through the distress of the times, by the foreign wars and civil disturbances, with which Francis I. was continually harrassed.

Returned to Bologna, he gave a design for the front of St. Petronio, much approved by Giulio Romano and Christoforo Lombardi^s. In the Facciata de' Banchi, that makes a sort of wing to that Cathedral, his dextrous management of the site, and some old buildings that could not be removed, exhibited a further most advantageous display of his ability; though his design was dropped short by the omission of two turrets, that would have added greatly to its effect. At Minerbio, near Bologna, he built a palace for Count Isolani. But the most important service, that neighbourhood owed to Vignola, was his conducting the Canale del Naviglio, which ran three miles wide of it, into Bologna; an achievement spoken of with high applause by Vasari.

^s Architect of the Dome at Milan.

Meanly recompensed for this great work, he removed to Piacenza; where he gave the plan and superintended the foundations of the Ducal Palace, of which he left the further direction to his son Giacinto. The citadel of Piacenza was likewise formed by him. It is not easy to ascertain either the number, or the dates, of the various edifices of this great artist dispersed through Italy. Some of them are the churches of Mazzano, St. Oreste, della Madonna degli Angeli in Assisi, and a beautiful chapel in that of St. Francesco in Perugia.

Upon his revisiting Rome, he was by Julius III. appointed his architect, entrusted with the direction of the acqua di Trevi, and the construction of the Villa, without the Porta del Popolo, called Papa Giulio^t. At a small distance, on the Flaminian way, Vignola built a chapel in the style of the ancient temples, called St. Andrea di Ponte molle, a work much applauded. The plan of it is rectangular, the pilasters Corinthian, without pedestals. In Rome he refitted that Palace of the SSi de' Monti, which has since been called the Palace of Florence; being become the property of the Grand Duke. For the same family he began a palace opposite that of the household of Borghese, but was not allowed to conduct it much above the

^t Vide Elements, plate 55. fig. 1.

foundations. The Cardinal Alexander Farnese, who thought highly of Vignola's intelligence of his art, committed to him that part of the great Farnese Palace which contains the famous gallery painted by the Carracci. By his order likewise our architect built the elegant Corinthian portal of St. Lorenzo in Damaso; and a rustic door to the Farnese gardens, that does credit to its inventor. The great favour of this Cardinal to the order of Jesuits suggesting to him the building of the magnificent church del Gesù, Vignola was employed to design and conduct the fabric. The foundation was laid in 1568, but the superstructure was not carried on by him to its termination. So far as it had the benefit of his direction, it has every merit; but the alterations made in his plan by Giacomo della Porta, who succeeded him in the superintendance, are by no means to the advantage of the work.

S. Anna de' Palafrenieri, near the Vatican, is supposed to have been built by Giacinto Barozzi, after a design of his father Giacomo;—the Oratory of S. Marcello, the Cappella Ricci in Santa Caterina de' Funari, the deposit of Cardinal Ranuccio Farnese in S. Gio. Laterano, are all believed to be inventions of Vignola.

But, if every proof of his skill hitherto specified were away, the sole palace of Caprarola, about

thirty miles from Rome towards Viterbo, would establish the superiority of his professional talents. This singularly magnificent and commodious edifice stands solitary, on the brow of a barren hill, surrounded by other rocky eminences, in a sort of gut opening into a delicious country. The offices are distributed into several courts, round the mid-rise of the hill, on whose summit the palace is placed. It is externally of a pentagonal form, flanked by five bastions, in manner to give it the commanding air of a fortress. When you have passed the entrance, the area within is circular, and the fabric rises by two stories of porticos. One side of the pentagon is occupied by a grand loggia and staircase; and in the other four there are, on each story, four great apartments complete; which are kept free from all communication by means of the porticos, that run round the great circular court. More detailed descriptions of this masterpiece of a great master may be seen in Vasari, Danti; and, with designs of the whole and the parts, in D'Aviler's *Cours d'Architecture*. It may, however, be useful to add, that this palace is no less respectable for the paintings of the Zuccari (historical of the Farnese family) and the perspectives of Vignola that adorn it, than for its architecture. Mons. D. Barbaro, upon a critical survey of the whole, for which he was

eminently qualified, is said to have exclaimed, *Vincit præsentia famam*^u.

After the death of Michel Angelo, Barozzi was declared architect of St. Peter's, and in that office erected the two lateral cupolas with the most agreeable effect. When the Baron Bernardino Martirani arrived in Rome from Spain, to collect designs for the Escorial, and had got together twenty-two by the most eminent architects of Italy, he shewed the whole collection to Vignola; who, judiciously selecting and combining what was most masterly and congruous in the ideas of so many great artists, and adding his own to their best conceptions, composed a design greatly superior to any single one that had been shewn him. This, when presented and examined, was favoured with the preference of the monarch, and an invitation of its author to superintend its execution; an honour his attachment to Rome would not permit him to accept. In regard to the general esteem of his probity and ability, he was commissioned by Gregory XIII. to settle his differences with the Grand Duke of Tuscany, concerning the boundaries of their respective states near Città di Castello; and, having acquitted himself to the satisfaction of his employer, died immediately upon his return to Rome in 1573. His remains were deposited

^u The reality exceeds all report.

in S. Maria della Rotunda*, with the most respectful attendance of the Academicians and Professors. It was, says D'Aviler, but just, that the greatest partizan of ancient Architecture should have sepulture in the most magnificent remaining edifice of antiquity. But will not the want of some monument, or record there, to attest the fact and mark the spot, ultimately defeat the intention in his case, as in that of B. Peruzzi and other worthies, that sleep there unnoticed by the numerous successive visitants of that august structure?

Our great artist has been, not unfitly, called the Legislator of Architecture. He, indeed, first reduced the vague and fluctuating use of the best authorities to system, and rendered the detail of that system easy in practice. Of fruitful yet sober invention; ever attentive to propriety and convenience; solid, simple, and majestic, in great works; elegant and chaste in such as required the attraction of ornament; as quick in availing himself of the advantages of site, as dextrous in eluding the constraints, or impediments, it might oppose to his designs; had he lived nearer the times when philosophy (i. e. reason and nature) was to fix the principles of the fine arts, he had left us an Architecture (of finite intellect we can at best say) only not perfect.

* The ancient Pantheon.

ANDREA PALLADIO^y was born at Vicenza, A. D. 1508, on the 30th of November, St. Andrew's day, whence the choice of his Christian name. His earliest application was to sculpture; but, having the good fortune to attract the notice of his illustrious townsman Count John George Trissino^z, who discovered his natural

^y Andrea Palladio born 1508; died 1580; æt. 72.

^z Son of Gaspar Trissino, and Cecilia Bevilacqua of a noble family in Verona, born at Vicenza A. D. 1478. Though he lost his father when but seven years old, his education was so well conducted, that he became one of the most knowing and accomplished noblemen of his time. He was instructed in Greek, at Milan, by Demetrius Chalcondyles. When 22 years old he went to Rome, in view to improve himself by conversation with the many learned men resident there. On his return, at 24, he married a lady of his own name and family; but still continued his favourite studies, particularly those of Poetry and Architecture. He gave the design for reforming, and in good part rebuilding, his seat at Cricoli near Vicenza, commonly ascribed to Palladio; who, probably, only superintended the execution. Losing his lady early, to divert his grief he returned to Rome, and there composed his tragedy of Sophonisba, (the first regular piece of its kind in the Italian language, and in blank-verse,) which was represented in a most splendid manner at the expence of Leo X. The author was by that Pontiff sent ambassador to the Emperor Maximilian I. in 1516, who honoured him with the order of the Golden Fleece, and employed him, as did afterwards his successor Charles V. in many important negociations with different Sovereigns. Those ended, he was called to Rome by Clement VII. and appointed his ambassador to Charles V. and the Republic of Venice. Restored to repose in his own country, in 1521, he married a second time a lady of his own name and

propensity to mathematical science, he was by his new patron directed to the reading of Euclid, Vitruvius, and Alberti, and afterwards taken by him thrice to Rome, where he diligently measured and designed the choicest remains of ancient Architecture. He visited Rome a fourth time, in consequence of a call to employment in the fabric of St. Peter; but, finding on his arrival there the Pope dead, and all things in confusion, he made no other advantage of that journey than to review and remeasure those relics of Roman magnificence, he had before examined and admired. He further corrected his measures and designs in a fifth journey to that capital, in company of some Venetian gentlemen his friends. About this time he printed a little book of those antiquities, usually joined to that entitled Mira-

family, Bianca Trissina. By the former match with Giovanna Trissina, he had two sons, Francis and Julius; by this latter a third, named Cyrus. When the issue of both grew towards manhood, quarrels on matters of interest arose between them, which involved their father in a long law-suit, and, in the end, deprived him of most of his property. Worn out with vexation, and thus reduced in circumstances, he abandoned his country, and repaired to Rome; where he died the following year, 1550, and was buried in the church of St. Agatha. In the midst of his serious occupations he found time to compose many considerable works in verse and prose; among which is the epic poem of the Italian liberata da' Gotti.

The respect to a character so early illustrious in literature, that prompted this note, will, it is hoped, render its length pardonable.

bilis Romæ. Thus diligently prepared, he at his return entered vigorously on practice, with the most advantageous offers of employment in his own country, and out of it. At 29 years he was entrusted with the conduct of the public Palace at Udinè, called Il Castello, begun by John Fontana. Near the same time he planned, and directed the execution of, the porticos inclosing on three sides the great hall of justice at Vicenza; a work of which he speaks (b. iii. c. 20. of his Architecture) with more consciousness of his success than he has upon any other occasion discovered. He was invited by the Cardinal of Trent to build his palace in that city. By Emanuel Filibert, Duke of Savoy, on the same account. By the city of Bologna, for the front of the great church of St. Petronio, for which he made four different designs. By that of Brescia, for the rebuilding the public palace there, nearly destroyed by fire. The Republic of Venice, his natural sovereign, both pensioned and employed him, after the death of Sansovino, on all occasions. In Vicenza, and its neighbourhood, he left ample proof of his superior taste and skill in a great variety of houses, villas, churches, and other public buildings. The designs of most of these he has inserted in his well-known book of Architecture. It is observable, however, that those, who have taken his measures from the actual fabrics and compared

them with what are set down in the designs there given, have found many differences of proportion; but, if these are not improvements as to effect, it has not been noticed that they are prejudicial to it.

Palladio is generally believed to have had a fifth book of his Architecture nearly ready for the press when he died, containing designs of ancient temples, arches, sepulchres, baths, &c. which, with his other unpublished plans and writings, he left to his particular friend, the Senator Giacomo Contarini, (no mean judge of that art,) upon whose demise they were all dispersed. Some the late Earl of Burlington collected in his travels, and printed with great magnificence at his own expence. It is highly probable that many of those scattered designs were executed in different places, at different intervals, after his death; with no other indication of their author than what their manner must afford the discerning observer. It is not therefore always safe to deny him the credit of an invention, the style should warrant his, because the date of the execution is posterior to his decease.

He was particularly curious in whatever related to the art of war, as practised by the ancients; and laboured much in the explanation of Polybius and Cæsar, by plans and discourses. His elucidations of the former author, yet unpublished, were dedicated to Francis the reign-

ing grand Duke of Tuscany. Those of the latter are printed with Baldelli's Italian translation of the Commentaries. It is certain that the profound erudition of his noble friend Trissino assisted him greatly, in the study of the Roman art of war; and thence, by mistake, might arise the tradition of the same friend having been his master in Architecture likewise. Palladio explained many difficulties in Vitruvius to Mons. D. Barbaro; and furnished him the drawings, that accompany his Italian translation of that author with a commentary.

The last great effort of our architect's genius was the design of the Olympic Theatre^a in Vicenza, begun the twenty-third of May, 1580, by an Academy of that name instituted in 1555, of which he was a member, and had been one of the first promoters. In this work he meant to realize his own idea of the ancient theatres, as derived from Vitruvius and the remaining Roman structures of that kind; but he lived not to conduct it further than a part of the foundations. His surviving son Silla was appointed to the superintendence upon his decease; and Scamozzi (as himself declares) directed the standing scenes. The completed fabric was viewed, by the best judges of the time, with rapturous ad-

^a For a description and critical examination of this, see *Il Teatro Olimpico* of Count Gio. Montenari. Padova, 1749, 8vo.

miration ; and has, ever since, been reputed a prodigy of the art, in a country where its wonders are not rare even to the critical eye. Its form differs from that of the ancient models, in being a half ellipse instead of a semicircle. This change was an accommodation to site, no little contributive to the merit of the whole invention.

Palladio is described as rather low of stature, of a pleasing countenance, cheerful and open in conversation, but ever observant of his superiors in rank or knowledge. Fond of the society of men of letters, and well able to bear his part in discourse with them. In the exercise of his profession, he is said to have been communicative and engaging to his workmen, without descending to a familiarity derogatory from the respect they owed him.

Beside his surviving son Silla, he had Leonidas, bred an architect likewise ; and Horatio, who applied to law. Both these died young, within three months one of the other. Their untimely loss he laments in his dissertation on the Roman militia, prefixed to the above-mentioned translation of Cæsar's Commentaries. His own death happened on the nineteenth of August, 1580, æt. 72, at Vicenza, where he was buried, with the usual honours of a superior artist, in the church of the Santa Corona, of the Dominicans.

Among the numerous good Italian architects of the sixteenth century, fruitful in genius of every kind, pre-eminence is, by the joint suffrages of his countrymen and of foreigners, assigned to Palladio. A perfect acquaintance with the literature and sciences subservient to his art, a profound study of the ancient models, and a quick perception of whatever contributes to the greatness of effect that distinguishes them, conspired to advance his natural aptitude for his profession to excellence. Not content to measure and design the edifices of antiquity, as a matter of form, he traced them to their foundations, examined their grosser materials, and the various modes of combining them, as conducive to strength, or reductive of expence. In the superintendence of his own works he was particularly attentive to the manual execution.

If we examine his peculiar style, his greater buildings have an air of grandeur, that seems to be the result of volume, proportion, and ornament, dictated by propriety. His Villas speak themselves the retreats of nobility, veiled but not hid.—If analogy between the human and material fabrics (much resorted to by writers on Architecture) be allowable here, perhaps we may not unfitly say that the general effect of Palladio's edifices is similar to that of personal dignity well dressed. In a word, the perfection of

his whole manner has occasioned him to be called the *RAPHAEL* of architects^b.

VINCENZO SCAMOZZI^c succeeded to the public appointments of Palladio. He was born in Vicenza, of parents in good circumstances. His father Gio. Domenico, a man of letters and a good architect, procured him the best masters; particularly for mathematics and design. Under these his proficiency was such, as enabled him to compose a large work on Perspective at the age of 22, while he yet remained at Vicenza. To advance himself in Architecture, he studied with emulous attention the fabrics of Sansovino and Palladio, then going on at Venice. With

^b Of the buildings ascribed to him, not in his book, are, in Venice, the Church of S. Giorgio Maggiore, the Refectory and other pieces of the Monastery—Front of that of S. Francesco della Vigna, built by Sansovino—del Redentore alla Zuecca de' Cappucini—delle Zitelle—di S. Lucia—some repairs of the Ducal Palace. At Vicenza, Santa Maria Nuova—Palazzo Prefettizio, his name on the east front—Façade of the Palazzo Tornieri—that of the Pal. del Conte L. Schio—a house of his design supposed for himself, but which, it appears, he could have occupied only as a renter—Arco delle Scale del Monte, from the manner thought to be a design of his—Doric Loggia, and a door, in the garden of the Counts Valmarana—two rustic doors in the garden of Count Porto. In Padua, nel Borgo di Santa Croce, a house of singular contrivance, for the conveniences it includes in small area. In Bologna, northern front and court of Pal. Ruini, since Ranucci. In Parma, part of the Theatre, carried on by Bernini, Spada, and Magnani.

^c Vincenzo Scamozzi born 1552, died 1616, æt. 64.

the same view he next visited Rome; where he perfected himself in mathematical science by the instructions of the celebrated P. Clavius; and availed himself of all the advantages his situation afforded for accomplishing himself in his profession, by the most studious observation of the ancient edifices subsisting there. Not satisfied with these, his still eager curiosity carried him to Naples and its adjacencies.

Upon his return he fixed at Venice, and began his practical career with the Deposit of the Doge Niccolò da Ponte in the church of Sa. Maria della Carità; which gained him such credit as procured him further honourable employment, in the prosecution of the library of St. Mark, begun by Sansovino, and the addition of the public museum to it. He had afterwards the preference of those in trust for the continuation of the Procuratie Nuove, in the piazza of St. Mark; in which he added a third order to the design of Sansovino; an alteration not generally approved. In his own way he did not conduct the work to its completion. That was effected by his successor in office Baldassare Longhena.

Having conceived the design of giving to the public his great work, entitled *Idea dell' Architettura Universale*, and feeling the want of some information not to be acquired on his side the Alps, he took the opportunity of an embassy from Venice in 1600, to travel through France,

Lorraine, Germany, and Hungary. The enlargement a mind like his must receive from such a field of observation as this could not but dispose public opinion still more in his favour; and, accordingly, the demand for his services became at his return to Venice distressfully great. In consequence, the public and private buildings, in which he was more or less concerned, in the capital, at Vicenza, Padua, and other places of the Venetian domain, are too numerous to be all mentioned in an abridgment like this. The more distinguished fabrics of his design are—in Venice, the palace Cornaro, on the great canal, of three orders, Doric, Ionic, and Corinthian, including a magnificent court—in Vicenza, the palace Trissino, now Trento, a noble structure—at Sabionetta in the Mantuan, a Theatre after the ancient model, for the Duke Vespasian Gonzaga of that title—at Florence, the second story of the palace Strozzi—in Genoa, Palazzo Rivaschieri of three stories, Rustic, Ionic, Corinthian. In 1604 he was called to Saltsburg, where he built the Cathedral. His skill as a military architect is proved by the famous fortress of Palma in Friuli, of which he laid the first stone in presence of the Venetian generals in 1593. Besides his more known constructions in Italy, he furnished a great number of designs for foreign countries, at the request of sovereigns and other personages.

This multiplicity of occupations much shortened the leisure he wished to employ on the above-mentioned ample Treatise of Architecture, which he intended to divide into twelve books. He therefore reduced it to ten; but, though such is the number announced in the title-page, the work as published in 1615 contains but six, i. e. books 1, 2, 3, of the first part, and 6, 7, 8, of the second. The supply of this imperfection was unhappily prevented by his death in 1616, at the age of 64, in Venice, where he had sepulture in the church of St. Giovanni e Paolo, without a monument; but one was, many years after, erected to his memory in the church of St. Lorenzo in Vicenza, his native city. His effects were left to an adoptive son Andrea Toldo, of the family of Gregorj, who took the name of Scamozzi.

Concerning the professional merit of Scamozzi judgments have been different and extreme. Some (among these Mons. de Chambray) disgusted, perhaps, with his ostentation of extraneous erudition, his intimations of his own superiority, and reticences concerning other artists, have refused him the praise justly due to him. The title of his work on Architecture^d, and many passages in it, certainly indicate an

^d *Idea dell' Architettura Universale di V. Scamozzi, in Venezia, per Giorgio Valentino, 2 tom. in folio, 1615, first edition, very rare.*

extravagant opinion of his own sufficiency; but this does not prove that it had no support in real ability. His sixth book, on the Orders, was thought to deserve a translation into French by Daviler, magnificently republished, with additions from other parts of the author's works, by Du Ruy at Leyden, 1713. Of his book of Antiquities^e the learned Marquis Maffei affirms^f, that it is the only one where any thing is said on the internal repartition and distribution of amphitheatres, and contains information on the subject never before given or sought for. The judicious Count A. Pompei is large and particular in praise of his Orders, and pronounces the designs in his book and many of his buildings highly commendable; among the latter he specifies the palace Cornaro as a master-piece of art. When he succeeded to the direction of fabrics, that were to be continued upon settled and well-concerted plans, it must be allowed that he was too prone to indulge his self opinion, in the attempt to do more than enough, and better than well.

^e Discorsi sopra l'Antichità di Roma di V. Scamozzi, con XL Tavole in rame per Battista Pittoni, in Venezia per Francesco Ziletti, 1582, in folio, very rare likewise, the plates from designs of Baldassare Peruzzi.

^f Libro 2^{do} degli Anfiteatri.

THE Author of the ensuing Elements died Dean of Christ Church in 1710. An article relating to him in the Biographia Britannica (perhaps not the most accurate, or complete, in that valuable collection) saves the necessity of mentioning things generally known concerning him, and leaves us at liberty to conform to our plan by hinting only what may be supposed to affect his qualification, as a judge and teacher of the fine arts. A person he, undoubtedly, was of true and versatile genius, assisted by learning, converse, and travel. An acute and accurate observer, a patient thinker, a deep and clear reasoner. His natural portion of these faculties was improved by a perfect acquaintance with mathematical science, and quickened by the subtlety of the scholastic logic. That the vigour of his conceptions might be transmitted unimpaired by the expression of them, he sought, in a familiarity with classical elegance and propriety, the habit of exhibiting them with force and lustre. The warm suns of Italy, the domesticity with congenial spirits he contracted there, exalted his inbred taste, and rendered it excursive through the whole field of arts. There he became impassioned for Architecture and Music, from such specimens of both as no other country can afford. That the impression was not merely local and momentary, his executed de-

signs ^g in the one, and his yet daily recited compositions ^h in the other, would enable his historian to prove.

Become President of a numerous and learned society, in one of the two Universities that distinguish our island as a nursing mother of science, the suavity of his manners, the hilarity of his conversation, the variety and excellence of his talents, in conjunction with a fine person, conciliated and attached all committed to his superintendence to such a degree, that his latest surviving disciples, of the first rank, have been seen unable to speak, recollectedly, of their intercourse with him, without the tenderest indications of affection to his memory. Ever ready to direct, assist, and encourage their endeavours in pursuit of useful knowledge, he lowered himself (if such works be not rather fit only for a great master) to the composition of different elementary piecesⁱ for their instruction. Among these, in favour of the few, whose happier fortunes permit them to join elegant with solid information, he compiled the rudiments of Architecture now of-

^g The Peckwater Quadrangle at Christ Church, the Church and beautiful Campanile of All Saints in Oxford, are of the number, and, most probably, Trinity College Chapel. See Mr. Warton's *Life of Dr. Bathurst*, p. 71.

^h Those of the devotional kind are still current in all our best choirs.

ⁱ On Logic, Geometry, &c.

ferred to the public, through the very liberal concession of the governing Members of Worcester College, friends to science too true, too zealous, to rejoice in the exclusive possession of any means subservient to its propagation.

1875
The following is a list of the names of the
persons who have been appointed to the
positions of the various departments of the
Government of the State of New York
for the year 1875.

THE FIRST PART
OF THE
ELEMENTS
OF
CIVIL ARCHITECTURE.

ARCHITECTURE is the art of building well:—the Architect, he who practises the art; who may be considered in three views. 1. The sumptuary, who furnishes the expence of the building. 2. The projector, who designs the plan. 3. The ^aoperator, or he who erects, or adorns, an edifice.

Architecture is twofold: one, Civil, which is concerned in edifices destined to the uses of peace, and its attendants, the liberal arts, &c. such as churches, palaces, porticos, &c. The other Military, whose province is fortification and the construction of machines for war. Of the first, beauty is the chief object; of the second, security; of both, conveniency.

Of this science, then, there are two divisions, of which in the following books it is my purpose to treat; and I shall endeavour to instruct the projecting Architect as briefly and clearly as I can; of whom I do not demand, as Vitruvius does, a knowledge of all sciences, but should

^a Vitruvius calls him officinator or superintendant. Surveyor in English.

wish him to understand mathematics and design. I should be glad if he followed this study from particular inclination. For, as in all pursuits a natural propensity is of great importance, in this it is an indispensable requisite.

I shall therefore presume that I am addressing myself to such a student; and shall so explain to him the language and most approved precepts of Architecture, that he may either rest satisfied with my instructions, or be able by his own application to supply my omissions. I shall divide the work into two parts, each consisting of three books: the first part will treat of Civil Architecture, the second of Military. The first book will contain general rules: the second will speak of public and private edifices: the third of the ornaments of building: the fourth will describe fortifications: the fifth naval Architecture: the sixth instruments of war.

BOOK I. CHAP. I.

OF THE APPARATUS.

THE three chief properties of a good building are these, utility, strength, and beauty. Utility will be consulted if each part of the building be well arranged, of suitable dimensions, and in proper position. Strength will ensue, if the walls stand perpendicularly on well laid foundations, and are thickest at the bottom. All apertures should fall exactly one under the other, so that a void space be over a void space, and walling over walling. Beauty arises from parts handsome and necessary, correspondent to each other, and to the whole.

To provide for these things accurately, let the Architect first make a draught on paper of the intended work: 1. the Ichnography, which describes the ground plot; 2. Orthography, the elevation or front of the mansion; 3. Sciagraphy, or Scenography, which exhibits the front and the sides retiring in a perspective view. To execute this requires a knowledge of design, of which I suppose the Architect already possessed.

By the aid of these schemes he will ascertain the size, proportion of the parts, site, ornaments, and the respective costs, so as to judge of the expence of the building. For he should be aware, that his own credit and the strength of the structure much depends upon his having a sufficiency of materials well seasoned, workmen and money at command, before he begins, that the building may go on and be completed without interruption.

§. 2. The materials for building are timber, stone, sand, lime, and metals.

The properest season for felling timber is from the beginning of Autumn to the latter end of February, when the moon is waning, and the weather temperate. Green or over dried wood requires great labour in working: none is fit for use that has not been laid by some time, and covered over with cow-dung: timber is unfit for making joists, doors, or windows, till it has been cut down three years.

Air hardens stone. Stones which are fresh dug up are easiest worked, and should be immediately put under the tool. Those of a harder nature are employed immediately; those of a softer kind, not till they have been two years exposed to the weather.

Among stones we may reckon bricks (and tiles,)

1. testaceous; ^b unbaked; or those which are at least five years dried by the sun; or, 2. which are baked by fire, but not till they have been made two years. In autumn it is best to dig them, and from a white, chalky, yielding earth. The loom during the winter should be kept steeped, and made into bricks in the spring. The size of the brick, or tile, according to the practice of the Greeks, should be proportioned to the grandeur of the edifice: the greatest, Pentadori, are five spans each way, and are used in public buildings; moderate ones, Tetradori, four spans; the smallest, called by Vitruvius Didori, by Pliny more fitly Lydii, two spans, fit for private houses; which the Romans likewise made use of, and which are in length a foot and an half, or cubit, and a foot broad.

Sand is of three kinds; pit sand, river sand, and sea sand; pit sand is the best; but of this the white is inferior both to the blackish and red sort: the ^cCarbuncle is superior to all. Among these should be mentioned the earth of ^dPozzuoli, which immediately hardens in the water, and becomes stone. Of the river sand, that is the best which is found in torrents. Sea sand is of the least value; but if cleared from the saline particles; by washing, is of use in the plaistering or rough casting of walls.

Lime is made of stone calcined; but that from the pumice stone, shells, and river pebble, does for plaistering walls. The best stone for burning to lime is that

^b Formed of chalky earth burnt.

^c A sort of earth dug out of the mountains in Hetruria, hardened by the subterraneous vapours of those hills: Pliny and Vitruvius call it Carbunculus. Vitruv. ii. 4. Pliny xvii. 4.

^d Pozzuoli, anciently Puteoli, a city near Naples, famous for its Mole made of this earth. See Addison's Travels, Remarks on Italy, &c.

which is white, very hard and dense, and which loses a third of its weight in the kiln. It must remain there sixty hours at least. Cement is composed from one part of lime, with three parts of pit sand, or two parts of river or sea sand.

Metal has various names and uses: 1. iron for nails, hinges, handles, chains, &c. 2. lead for soldering pipes and roofs. The ancients made these things mostly of 3. copper; or 4. brass; 5. of copper, brass, and lead: bronze was made in imitation of Corinthian brass. This composition was usually employed for the bases of pillars, and their capitals; likewise for doors and statues. But of these things enough; seeing the architect, particularly the inventor of the plan, has little concern in these matters.

BOOK I. CHAP. II.

OF THE FOUNDATION, WALLS, AND ROOF.

§. 1. **I**N laying foundations, first examine the soil, partly by external appearances, such as plants, water, trees, stones, &c. partly by making frequent openings in the ground. Avoid a soil sandy, gravelly, soft, marshy, or artificial, or made ground; avoid ruins also, unless they are known to be strong and firm. Buildings require a soil dry, solid, firm, that resists the spade, and does not dissolve when moistened.

For, if the nature of the ground afford it, the hollow for the foundation should be dug down to the solid, and, in the solid, carried down to the sixth part of the height

of the building, and a little more, if cellars or any subterraneous offices are intended.

If the nature of the soil afford not solidity, the ground must be strengthened by a multitude of piles, on which the walls that surround the area, or divide it, may rest. The length of the piles should be an eighth part of the height of the walls: their thickness a twelfth part of their own length. Let them be driven in by repeated strokes, rather than by very forcible ones.

Let the foundation be twice the thickness of the wall, more or less in proportion to the solidity of the ground, and the dimensions of the building. Let the bottom of the trench be exactly level. It was formerly laid with Tiburtine stone: now a course of stones is placed over planks or beams. The stones should be without mortar, lest the wood be destroyed by the lime. The thickness of the foundation, as well as of the wall rising above ground, should gradually diminish, and the diminution on each side should be equal, with this certain rule, that the middle part of the upper order should rest in a perpendicular line upon the middle of the lower. To save expence, the foundation work is not continued solid under the whole building, but interrupted by the means of arches, particularly in marshy ground: and in the walls of larger buildings, columns are carried up: a thrifty and useful invention, if winding stairs are placed in them^e.

PLATE I.

§. 2. There are many kinds of walls: one, which Vitruvius either names *uncertain*, or *inserted*, I know not which; it may be either. Uncertain, or irregular walls,

^e It is not easy to ascertain the meaning of the Author here. Query, whether he has in view those round turriform erections, at equal intervals, so common in the walls of our old castles?

are those (see Palladio on uncertain stones) where the stones are laid with their natural dimensions, and their figure and size of course uncertain. This is explained by scheme the first, A A. Perault properly terms that kind of wall *inserted*, where the stones are of a determinate size, and placed in a regular order; for instance, in brick work. In this kind of work, the *rows of stones* joined together should be alternate, that the middle stones may be rendered firm and close by those above them. This rule should take place in the middle of the wall, if possible; if not, at both the sides.

The Greeks made their walls in the manner of brick ones, with a hard stone or flint of a square form, i. e. of equal depth and breadth. A wall thus constructed, they called *Ἰσόδομος*, such is B B. When the stones were irregular in size, they termed the structure *ψευδισόδομος*. The third kind of edifice was called *ἔμπλεκτον*, or involved, D D, when the stones were even in front, but placed fortuitously. When they filled the middle of the wall internally with broken or pounded cement, they termed it *διὰ μικτῶν*, E E. If the walls are *Ἰσόδομοι*, and fastened together with iron, they are properly called by Perault, *scramped*. See the example F F. *Δικτυόθετον*, or network structure, G G, was much used in ancient Rome, and is beautiful to the sight, but was apt to crack. Wherefore, according to Palladio, no ancient specimen of this kind remains. Vitruvius has given the same account.

PLATE II.

The precepts of Palladio may be explained in the second plate. The net-work, A A, is the first kind of

^f *Coagmentationes alternas*, courses of stones. Corii et Chorii.

^g In the French language *cramponée*.

structure, and which he disapproves. To ensure the strength of which he proposes to erect brick buttresses at the angles B B, and to place transversely, or longways, six courses of bricks at the bottom C C, in the middle three D D, wherever the net-work is raised six feet.

The second is brick work; which, especially in the walls of a city or extraordinary building, is constructed like the Διαμικτόν, for the bricks appear, E E. The rubbish lies concealed in the middle, F F. In the bottom there are six courses of larger bricks; then some less at the height of three feet; then the walls are bound again with three courses of larger bricks; an example of this kind still remains in the Pantheon, and the hot baths built by Dioclesian.

The third kind are walls made of cement, I I, composed of rough pebbles out of a river or from a rock; sometimes of shell, as are the walls of Turin in Piedmont. This kind of wall should be bound by three courses of bricks, at the height of two feet, as K K. The fourth species is the *uncertain*, L L; a specimen of which still remains at ^h Præneste.

The fifth kind is built with square stones, and is called Pseudisodomum, as M M; to be seen now at Rome, in the temple of Augustus. The sixth kind, which may be seen at Sirmion upon the lake of Garda, is a species of wooden walls, N N, and are calledⁱ Formæ, and are stuffed with stone, mortar, &c. at random. The planks being taken away, the wall O O appears; and is called *formaceous*. To this species, namely sixth, the seventh

^h A city of Italy, twenty miles to the east of Rome. The modern name is Palestrina.

ⁱ The Spaniards call these walls mud walls; they are formed of two planks set edgewise at a distance, opposite each other, according to the intended breadth of the wall. See Palladio on the writings of the Ancients.

may be referred, which may be seen in the ancient walls at Naples. There are two walls P P of square stones, four feet thick; their distance six feet. They are bound together by the transverse walls Q Q at the same distance. The cavity R R left between is six feet square, and is filled up with stones and earth.

According to Palladio, great care and art is necessary to connect the stones, and that a proper juncture is essential to the beauty and strength of the work. This effect the ancients produced in such a manner as to escape the eye: they laid their stone first in its natural state, and afterwards polished those parts that were exposed to view. As the wall rises above the ground, its thickness should diminish proportionably in the manner of a graduated pyramid. The inside structure of the wall should be in a perpendicular line. The thickness of the *Podium or foot of the wall is half that of the foundation: in the middle of the wall, or front band, the thickness is diminished half a brick: at the top, or crown of the building, another half brick is taken away. Some sculpture or bass-relief should conceal outwardly the gradual diminution.

Above all, attention should be paid to the angles, which should be rendered as firm as possible with long and hard stone laid with a level and rule. The openings, windows, &c. should be removed from the angles as far at least as the quantum of their breadth.

§. 4. The walls being finished, the roof is to be put on, which anciently used to be flat; and in warm climates is so now. In cold and temperate climates experience has taught men to carry off the droppings from their shelv-

* Called by the Italian writers *il Poggio*.

ing roofs by placing gutters in them to collect the water falling from the eaves, and to convey it by pipes into the part of the court-yard, which they termed *Impluvium*.

Ridged roofs are either shelving two ways like a cockle's shell, or four ways like a tortoise's shell. The top of the roof should be elevated in proportion as the climate is exposed to thick or frequent falls of snow. In Italy Palladio advises two ninths of the breadth of the building to form the height of the roof.

In England three fourths is in general the measure. In Germany they raise them higher.

PLATE III. FIG. I, II.

The timber work of a roof, which Vitruvius mentions b. iv. cap. 2. are these: A G the column or king post; B B collar beams; C C braces; D D principal rafters; E E purlines placed transversely over the principal rafters; FF smaller rafters. We now add to these many other parts, to which there are no Latin names, and we place them in other directions. But the timber work belongs to the surveyor's business; the architect will content himself with the rules of Palladio, which advise with regard to this matter that partition walls should be erected, which will sustain part of the weight, and produce many advantages to the whole of the roof.

Roofs originally were made of reeds and leaves, or leaves and clay; afterwards with reeds and straw, or with clay beaten together with short straw; which custom remains even now in cottages. Pliny relates that Rome was covered with shingles, that is, with small pieces of thin boards, to the time of the war with Pyrrhus. Cynaras invented burnt tiles: who found out lead, brass, and copper, is unknown. Byzas of Naxus introduced

the use of small pieces of marble cut into the form of slates. The ancients, which one wonders at, knew not of our slate stone¹.

The English seldom use any metal except lead, and that in the form of thin plates, and not tile fashion; often slate, but chiefly burnt tiles, and those either flat or crooked.

In placing them both they lay laths across the rafters, to which they connect the tiles in the manner of scales. The crooked and gutter tiles are so disposed as that one of the latter may always be placed between two of the former; the work thus constructed they imagine bears a resemblance to the tails of peacocks, wherefore they call such roofs PAVONACEOUS. Five representations of tiles are shewn in plate 3. A is the ridge tile: B the crooked tile; the rest are plain or flat tiles.



BOOK I. CHAP. III.

WHAT IS AN ORDER? WHAT ARE ITS MEMBERS? WHAT THE GREATER AND LESSER PARTS OF THE MEMBERS?

§. 1. I SHALL now treat of the ornaments of walls; and first of columns.

A column is either attached to a wall, being inserted in some part of it, or stands off from the wall, so that the air surrounds it. The one may therefore be called an inserted column, the other an insulated one. For those houses are called insulated, which stand distinct from others, and are surrounded by the air, as an island is by the salt water.

¹ Peculiarly good at Horsham in Sussex.

PLATE III. FIG. IV.

A column has three parts. The base B C; the shaft C D; the capital D E. The other parts you see in the drawing are adjuncts of the column; at the bottom, below is the pedestal A B, above, the architrave E F, with the frieze F G, and the cornice G H; which three parts are comprehended under the single term entablature E H; the column with the pedestal is termed the columnation A E. By the side of the column in arched work imposts are placed supporting the vault of the intercolumniation, as I I. The figure M shaped like a wedge represents the stone placed in the middle of the arch, and is called the key-stone.

The shaft of a column, properly so called, is round; when the face is plain it is called a pilaster, and differs only in this circumstance from the column; in every other respect it resembles a column, and is subjected to the same rules. It is generally inserted, but often insulated.

An order is the graceful symmetry of a pillar with its adjuncts, restrained by fixed bounds: symmetry is so called, I apprehend, because it constitutes the order of columns; by Vitruvius and others the symmetry is termed proportion or kind.

To determine the exact symmetry, the semidiameter of the column is cut into 30 parts, and is called a module, whose parts are minutes; the mensurations which consist of these are expressed as in an astronomical calculation; for instance, 1 : 20'. signifies 1 mod. 20 min.; 3 : 15'. 3 mod. 15 min.; 4 : 00'. four modules; 0 : 06'. six minutes; and so of the rest. Wherefore the column, and of course the module, may be increased or diminished at the discretion of the architect. The size of the module

being proposed, the whole symmetry of the entire order is likewise ascertained, as will be shewn in its proper place.

PLATE IV.

§. 2. Among the members of an order, or the greater parts, we may reckon the columnation and the entablature. Other writers call those members, which we call parts of members, and of which we have already treated. Among the parts the smaller divisions or particles are worked by the tool of the sculptor.

Some parts are flat, as the plinth A, which is a parallelepiped^m, and has the name and figure of a brick, or rather a tile. When placed on the capital of a pillar it is called an abacus, and sometimes made with hollow sides, as B. 2d, The fillet, or platband C, is a kind of plinth of a more oblong shape. From this the reglet D and the listel E differ only by their being smaller. The reglet when placed on the cornice is called the corona or larmier, which always projects, and its lower part is called its chin. A circular listel is called an annulet; a reglet divided, its parts alternately omitted, is called a dentil F; sometimes the bisection is equal, but generally the parts left remaining are the greater.

Some of these particles have cushion-like appearances, or a swelling curve, as 1. the tore G, which resembles a muscle or fleshy tumor; or, as others conjecture, because the word torus means a rope. The lesser tore H is expressed diminutively by the Latins torulus. That which is still less I is called an astragal, and has berries often cut on it, as K. 2. The echinus L, or quarter round, is

^m Parallelepiped (in geometry) is one of the regular bodies or solids comprehended under six rectangular and parallel surfaces, the opposite ones whereof are equal.

half a large tore. Sculptured, as M, it is termed oviculated, because artists imagine the sculpture to imitate eggs and anchors. This part is called an echinus, because of its resemblance to the prickly coat of chesnut, and to the gaping which that fruit exhibits in its state of maturity.

Other particles of an order are hollow, the common name to which is scotiaⁿ, from a Greek word signifying darkness. The scotia is 1st horizontal in the chin of the larmier, as N: 2d, upright, as O; 3d, inverted, as P; 4th, composite, that is, both inverted and upright, as Q; it resembles the hollow of a pulley, and has the Greek name τρόχιλος. 5th, the Greek word ὀποφυγή R, in English *escape*, signifies a scotia, which is inverted upon the annulet, from whence the shaft of the column arises. 6th, The ἀπόθεις S means a scotia upright under the annulet in which it terminates.

N. B. The apothesis is less than the apophysis, from whence the shaft is gradually diminished: not indeed as some imagine like the frustum of a cone, but in the most approved models it exhibits a small swelling downwards. This is called by the Greeks the entasis of the pillar, and may be most conveniently described by the same instrument with which Nicomedes drew the figure in geometry, called by him a conchoid^p.

ⁿ Scotia is a semicircular channel between the tores in the bases of columns, or between the torus and astragal.

^o The Greek words ὀποφυγή and ἀπόθεις are small hollow rings at the top and bottom of the shaft of a pillar. The top is the ὀποφυγή, the bottom one the ἀπόθεις. The ancients used whole unhewn trees in the infancy of Architecture for their columns; and to prevent their splitting at top or bottom, bound them in those places with these rings; ὀποφυγή means an escape, i. e. from the evil attending their splitting by the weight they sustained; ἀπόθεις the removal of that inconvenience. See Baldo's Vitruvius, article *Apophyge*.

^p A name of a curve, which always approaches nearer to a straight line to which it inclines, but never meets it.

Of this class are those channellings in the shaft of the column, which are called by the several names of ⁹STRIÆ, STRIGES, or, as others name them from their shape, STRIGILES. For the sake of distinction we will call those STRIÆ which meet in an acute hollow, as T, and are twenty in number; STRIGES, which meet in an obtuse one, as V, and are twenty-four. These have also their swelling and diminution in proportion to that of the column. Sometimes they are filled with a small twig, as it were, to the third part of their height, as X, called by Aristotle *ῥάβδωσιν*. Wherefore a shaft of this kind we denominate a virgated one.

Some particles of an order are formed with a waving appearance, i. e. convex and concave, as the *ἐπιτιθίς*, *λύσις*, *κυμάτιον*^r, *sima*, upright and inverted, *unda*, *cyma*, *cymatium*, *Doric*, and *Lesbian*, which words writers variously confound. That we may form a distinct notion, the larger undulated one shall be called *sima*, or *cyma*, from its figure: the less, from its smallness, *cymatium*. The shape of each is fourfold: 1. upright, which is hollow above and outward, as Y; 2. inverse, which is hollow below and inward, as Z; 3. converse, which is hollow below and outward, as T; 4. perverse, which is hollow above and inward, as Δ.

Modillions are to be ranked among the smaller undulated parts of a column, whose front appearances are

• In this and some other instances the translator has been under the necessity of retaining the Latin names, as he finds none in English which will fully come up to their meaning. Columns of this kind are ranked by the English architects under the general name of *fluted columns*. See Baldi's *Lexicon Vitruvianum*, under the articles *Striæ* and *Striges*.

^r *Ἐπιτιθίς*, *λύσις*, are synonymous words, saving the variation proceeding from their situation. See Baldi's *Vitruvius*, under the articles *ἐπιτιθίς* and *λύσις*.

Cyma, *cymatium*, and *sima*, signify a wave of a smaller or greater degree.

generally such as the example Ω represents; but their sides are flat, as Θ : sometimes inverted, as Λ ; and always carved and supported with flowers. Some call them mutules, but we term those mutules which are parallelepipeds properly so called, and are either mutules single in their front, as the Greek Ξ , their side as Φ , or double their front as Π , the side as Ψ . The fixed place of all these mutules and modillions is in the cornice directly under the crown. The spaces between the modillions and mutules are called CAPSÆ; in which roses, or in short any kind of flowers, are carved, as in Σ .

PLATE V.

§. 3. We will now treat of the figures which are carved on these smaller parts of an order; but as the moderns have been too profuse of these ornaments, we will mention only those with which the ancients were most conversant. We shall take the liberty of using new words for these things, as, though the things themselves remain, the names of them are become obsolete; unless perhaps K is the vine of Pliny and Virgil, the garland work of Vitruvius, and L the encarpus of the same author, and what the Italians mean by the word festoon.

Among those that want names, the carving A is called by the French postes, (we will call it in Latin veredaria,) meaning the same thing. B, I, M are enleafed parts; *b b* with jagged leaves; $\beta \beta$ with aquatic; I I with purslain leaves; M M with oaken leaves. The laurel and parsley, and leaves of other plants known at first sight, are frequently carved. The carving C is shield fashion, or orbiculated; D may be termed enchannelled: N enscaled.

E is a smaller astragal, bound with a spiral line, and

may be called a scytale^s; F exhibits the spiral line, the astragal being taken away, and may be called a tendril^t; G and H are beaded astragals; for distinction's sake let G be called a necklace, and H a rosary. The four figures represented by O are properly termed labyrinths, which the ancients have described under various forms: but this rule held universally, that none were executed but with right angles.

§. 4. The greater members (of the orders) are furnished with these minuter parts with all their variations and additions, whether they are plain or carved, or both. For instance, the base which is called attic (see a specimen of it in plate 6.) has a plinth, a trochil, two listels, and a larger and lesser tore, and its height is always one module. It derives its name from the attic column, (of which hereafter,) to which it particularly belongs, though it be adopted very generally by other columns.

The following is the order of the members and parts as they rise. First, the base of the pedestal, the trunk, or die, and the cornice; next, the base of the column, the shaft, and the capital; so far is termed the columnation; then follows the architrave, frieze, and cornice, of which consists the trabeation or entablature.

Intercolumniations are constructed in five ways: the first mode is aræostyle, where the space between the pil-

^s Scytale is in one sense a kind of serpent, which the twisting of the spiral line may seem to represent; and in another, the staff, which a Lacedæmonian general sent to his brother officer, who had one of a similar kind, round which he wound the letter he received. The form of the astragal may be thought like this. The reader by turning to the figure E may form his opinion.

^t Claviculus in the original may be rendered thus perhaps, as *clavicula* signifies a young twig or shoot of a vine, and the figure F seems to countenance the construction.

lars is 8 : 00'. 2. diastyle 5 : 15'. 3. eustyle 4 : 15'. 4. systyle 4 : 00'. 5. pycnostyle 3 : 00'.^u But these proportions must be understood to refer to intercolumniations which are straight; in arched ones the spaces between the columns are much more extensive, nor have they any term to distinguish them.

The same observation holds with respect to the lowest order of columns where they are many. In this case the intercolumniations of the superior orders should be equal to those of the lowest: though elsewhere this circumstance would militate against rule.

BOOK I. CHAP. IV.

OF THE THREE ORDERS.

§. 1. **I**N the familiar language of architects, the terms, kind and order, are synonymous, and the number of the orders is five; the Tuscan, Doric, Ionic, Corinthian, Roman or Composite. But to distinguish the terms, kind and order, we shall only call three of them orders, namely, the Doric, the Ionic, and the Corinthian, being the most ancient, and invented by the Grecians. The rest we shall name kinds.

PLATE VI.

§. 2. The Doric order, invented by the Dorians, is of a robust and manly appearance: wherefore in the works of

^u Aræostyle, diastyle, systyle, pycnostyle. See these proportions of distance in the pillars described in Ware's *Body of Architecture*, London edit. 1756, by T. Osborn and J. Shipton, in Grays' Inn.

antiquity the pillar was without a base, as men were supposed to walk with bare feet. Afterwards the attic base was added, which indeed gives a great beauty to the order.

The height of the pedestal is 4 : 20'. the trunk has a square face ; the column when insulated is high 16 : 00'. when inserted 17 : 10'. The shaft may be fluted. In the capital the great ring is called the hypotrachelium or neck. The intercolumniations are diastyle. The entablature is generally the fourth part of the height of the shaft or nearly.

In the cornice triglyphs are sculptured, an ornament peculiar to this order. They consist of three shanks, E F G, and the like number of channels A, B, C + D; for the two angular demichannels constitute the third. Under the triglyph six drops are sculptured in the architrave, and above, in the chin of the larmier, are eighteen drops in three ranks. It is a rule to place the middle of the triglyph on the middle of the pillar, and to make the space square between the triglyphs, which is called the metop.

In this, and in the other precepts, X marks the figure of the cornice, Y of the capital, Z that of the impost.

PLATE VII, VIII.

§. 3. The Ionic order is sometimes called the female order, since it is more slim and elegant than the Doric, and is thought to exhibit a matron-like appearance. Wherefore many of its ornaments imitate the female habit ; particularly the volutes, by which the capital of the column is, as it were, curled. They are peculiar to this order, and require a minute description, of which hereafter.

The height of the pedestal is 5:08'. of the column 18:00'. The base, in ancient specimens, is generally attic: the shaft fluted: the intercolumniations are eustyle. The height of the entablature is a fifth part, or nearly, of the height of the column. The frieze is pulvinated.

The volutes of the capital were generally by the ancients made elliptic; the exact description of them is unknown, but in appearance they are very beautiful: at present we make them circular, according to the following description. Under the echinus of the capital is the astragal, the height of which, divided into two parts, gives the centre of the circle, which is called the eye of the volute. Then a square is drawn within the eye, and in that square another, each of whose diagonals is cut into six parts, and the segments are marked in the plate by their respective numbers. Lastly, having produced the two straight lines drawn through the eye at right angles, dividing the square into four parts, on the centre 1 with the radius 1 *a* is described the arch *a b*; on the centre 2 with the radius 2 *b* the arch *b c*; on the centre 3 with the radius 3 *c* the arch *c d*, &c.

This is the appearance of the capital as viewed in front; if it is seen sideways, its appearance will be as exhibited in the other figure; where the middle swelling *A* resembles an upright tore with two small ones *a a* on each side, it is called a belt. The swellings on each side, *B B*, are called cushions: *C* is the side of the outmost spiral line in one volute, *K* that in the other.

PLATE IX, X.

§. 4. The Corinthian order is more delicate than the Ionic, resembling the graceful figure of a virgin. Among the ancients it had much resemblance to the Ionic; ac-

According to Vitruvius it imitated the Ionic in every part but in the capital of the pillar. Wherefore in the most admired works the base of the column is attic; the shaft fluted. The entablature is a fifth part of the height of the column.

The height of the pedestal in our figure (which is taken from Palladio) is a fourth part of that of the pillar: the height of the pillar 19 : 00'. The intercolumniations are systyle, the height of the entablature is a fifth part of the column. Under the architrave are modillions, with an echinus and dentil. No objection should be raised against some specimens in the antique, in which the column has often 20 : 00', and its entablature has one fourth or two ninths of the pillar; as each of these proportions claim attention from their singular beauty.

A pretty Greek story is told of the origin of the capital of this column, which I shall omit, as Villalpandus gives a more probable, yet a dubious account. Consult Vitruvius, b. iv. chap. 1. and Villalpandus, vol. ii. b. v. chap. 23. Were I permitted to conjecture, I should not think it improbable, that, as the shaft of a pillar represents the trunk of a tree, so the tree, being lopped and sprouting again, furnished the hint for the design of this capital.

The height of the capital is 2 : 10'. The minutes go to the abacus, whose angles are cut off, and its sides arched in the following manner. On the given line $aa = 3 : 00'$, the square $aa dd$ is described, whose diagonals and diameters are drawn as in the plate; cg is $= 2 : 00'$, and through g is drawn $ef \parallel ad$. Then having made $ch = 1 : 05'$, the periphery fhf is described passing through the points, f, h, f , by 25 : c. 3.

The abacus, with its angles cut off and its sides hollowed, has four parts which are called horns, A A. In the middle of the curvature is some sculpture, B, which

is called a flower or rose, whatever figure it really assumes. C is called the bell, from its shape, and supports the abacus. Its circumference is supposed to be divided into eight parts, in those at the bottom are placed eight leaves D D; their height 0 : 20'. Behind these are placed eight more, E E; their height is double that of the lowest ones, and placed, as may be seen in the plate, alternately: so that if you suppose *a c* the place of the lowest leaf, *b d* will be the place of the one immediately above, &c. The second leaf under the rose of the abacus has on both sides a stalk F from which two tendrils sprout. The greater one G under the horn of the abacus is called the volute: the smaller one H under the flower, the helix. Wherefore there are eight volutes, which meet in pairs under the horns of the abacus; and the eight helices meet in a similar manner under the flowers of the abacus. They are supported by the third row of leaves springing from the eight stalks. The leaves in the Grecian models are those of the acanthus, in the Roman they are oftener those of the olive.



BOOK I. CHAP. V.

PLATE XI.

OF THE TWO KINDS.

§. 1. **THE** Romans have added to the three Grecian orders two, which we call Kinds, taken from the Greeks, (as in most things the Romans were their imitators.)

The first kind is Etruscan, or Tuscan, which also may be called Rustic; it differs from the Doric as much as

the appearance of an inhabitant of the country does from one of a city. There is extant no ancient specimen of it with an entablature. Vitruvius speaks of it as rustic even to deformity; nor are modern artists more favourable to it, except Palladio.

The height of the pedestal is 2:00', the face flat. The pillar is 14:00' high; the shaft plain. The intercolumniations aræostyle. The height of the entablature is a fourth part of the column.

PLATE XII, XIII, XIV.

§. 2. The second kind is Composite, which is threefold: 1. The Italian (which is called Composite by way of eminence) is, I think, never mentioned by Vitruvius. It is composed both of the Ionic and Corinthian; which two exhibit more graces in combination, than either of them would if joined singly with the Doric. The Composite is more slender than the Corinthian, and more ornamented with sculpture; if the latter bears any resemblance to a young maid, the former represents an harlot.

The height of the pedestal is a third part of the column, 6:20'; for the height of the column is 20:00'. The shaft admits of flutings. The intercolumniations are pycnostyle. The height of the entablature is a fifth part of the column; its base is attic, or rather Ionico-Corinthian. The bell of the capital, like that of the Corinthian, is enleaved, with a capital resting on it, like the Ionic; with this difference, that it has a Corinthian abacus, and volutes under the horns of the abacus, rising as it were out of the middle of the bell. By these rules Palladio, with great judgment, restrained the enormous liberties which even the ancients introduced into this kind.

The second species of the Composite is Dorico-Ionic; the only remaining instance of which may be seen at Rome, in the ruins of the Temple of Concord. The base of the column is Attico-Ionic, and without a plinth, except in angular pillars. The capital is Ionico-Doric, with the volutes projecting, as in the Italian; the abacus is Corinthian; the frieze is sculptured, but the larmier is plain. It has a beautiful appearance, and may not improperly, for the sake of distinction, be called Roman.

The third species of the Composite would be Dorico-Corinthian, if any instance occurred; its appearance is elegant enough, and its capital would suit the column which is called Attic, of which hereafter. But we say nothing of this, as it is without example.

The third species of Composite is therefore where the column is of one order and the entablature of another; for instance, when the column is Corinthian and the entablature Doric. This is approved of even by Vitruvius; and, in fact, was introduced in the Temple of Solomon, whose columns were Corinthian supporting a Doric entablature. From the annexed plate the whole plan will be understood, and is not to be exceeded in beauty. This kind may be termed Jewish, and whatever is constructed after that fashion.

PLATE XV, XVI, XVII.

§. 3. Vitruvius relates, b. i. c. 1. that human figures were sometimes put in the place of columns, as symbols of some signal victory. He mentions two instances of this workmanship, which we arrange under the terms a Foreign Kind; for such we call every kind that, though in use, is not comprehended under the rules we have before explained.

The first foreign kind is the Persian; in which Persian men are placed in the room of columns, as in the trophy of Pausanias; on these is always placed a Doric entablature.

The second foreign kind is the Cariatid^{*}; where instead of pillars female figures are substituted, supporting an Ionic entablature; for, in the origin of this kind, women of Caria, who were taken captives, were represented; and the same name was afterwards transferred to all female figures.

The third foreign kind degenerates from the Italian; for instead of straight pillars, we see them twisted, a style unworthy of imitation; for they want strength, and are unequal to bear any burden; and if they are not so in fact, they have the appearance of being weak. I should pronounce them to be inelegant in their form, if I were not overruled by the authority of the divine Raphael. Of this kind, all the parts, except the shaft of the pillar, are Italian.

The fourth foreign kind is what Vitruvius calls *Atticures*, Attic work, and Pliny the Attic column, having four angles, and four equal sides. It differs from a detached pilaster, as it wants the swelling and diminution; and is rather a pier than a column: nevertheless it has a very regular base, which is called Attic, and its capital is Dorico-Corinthian; in which, under a Doric abacus, is an oviculated echinus, resting on an enleaved bell.

^{*} Vitruvius relates the origin of the Cariatides. He observes that the Greeks, having taken the city of Caria, (a country in Asia Minor, between Lycia and Ionia, near the side of the mountain Taurus. See Plin. b. v. c. 27.) led away their women captives; and, to perpetuate the memory of their servitude, represented them in their buildings supporting columns. The Lacedæmonians, in like manner, having conquered the Persians at Plataea, perpetuated their victory by substituting the figures of Persian men for columns. See lib. i. c. 1.

Antes^y resemble somewhat the Attic columns, (*Antæ*^z, of which I shall speak hereafter, are different,) but differ in these two circumstances; first, that they are placed nowhere except in the angles, or in the junction of walls; secondly, because their base and capital retain the proportions of the pillars with which they are associated: wherefore a determinate base and capital are seen in the Attic columns, but not so in the *Antes*. Both the *Antes* and Attic columns have their fixed situation; the former at the extremities of walls, the latter at the sides of gates.

PLATE XVIII.

§. 4. Columns are generally coupled, though sometimes single. When two or more are combined, a pediment or frontispiece is made above the entablature, whose form is either triangular, or, if smaller, round. Its circumference is sculptured in the same manner as the cornice, and is called the cornice of the pediment.

On the angles of a triangular pediment are placed *Acroteria*, or pedestals on which statues are erected. The inside part, inclosed by the cornice of the pediment, is called the *Tympanum*, and is generally adorned with figures in sculpture, expressive of the origin or use of the edifice, and often with the arms of the person at whose expence the building was erected. If there be an inscription, the frieze is the proper place for it; it is seldom seen in the list of the architrave. But in some instances the inscription is seen both in the frieze and architrave; nor in the face of the entablature is there any sculpture except in the cornice.

^y *Antes* were square pilasters placed at the corner of walls.

^z *Antæ*, pilasters attached to the building, and resembled pillars.

BOOK I. CHAP. VI.

A REVIEW OF THE ORDERS AND KINDS.

PLATE XIX, XX.

§. 1. WE are much indebted to Palladio for his beautiful selections from the remains of ancient artists, which he has made with so much taste; and for the rules formed on them, which he has laid down with equal knowledge and judgment; applying them to the five regular orders in such a manner that the just proportion is so ascertained, and so gracefully appropriated to each particular column, that we distinguish with the greatest ease at first sight each individual member. Wherefore, in gratitude to his services, we will pass by other writers, and cheerfully follow his footsteps.

Nor would we restrain the architect by laws so rigid, as never to depart from the strictness of rules. For Architecture, as well as her sister arts, Painting and Poetry, claims some indulgences, and may be permitted to use them, when compatible with taste and elegance. Variety has here an ample range; and so many are the models extant, which though differing from one another, yet are all graceful in themselves, that it becomes a difficult task either to prescribe with accuracy, or to select with judgment. Nevertheless the architect will obtain a sufficient knowledge of each precept and rule, if he pays an earnest attention to the following detail.

§. 2. I. Remote antiquity propped the roofs of their houses with the trunks of trees, their extremities being girded with iron to prevent their splitting; sometimes the iron was doubled; they often put under them a stone, or a tile or two, to keep them dry. They placed regu-

larly upon these trunks beams of greater or smaller size; rafters, beams^a, upright or transverse, joists, &c. parts that were necessary to a roof or floor, (which is a kind of horizontal roof.) The art in its advanced state imitated these parts by sculpture in marble: the pedestal represented the stone; the plinth the tile; the column the trunk of the tree; the sculpture of the base and capital the iron braces; the architrave the beams placed upon the trees; the frieze the extremities of the rafters, with the intermediate spaces; the remaining parts are imitated by the cornice, in which the modillions represent the ends of the principal timbers cut off; the dentils those of the upper rafters.

The origin of each part, greater or less, should be attended to, that its figure, size, and situation may be given to it. This rule was of such importance among the ancient Greeks, that they never suffered any part of an edifice to be sculptured which did not represent some part of the carpentry, in its proper situation. In a later age this rule grew obsolete at Rome, but in general prevails even at this day.

This rule (and Palladio adopts it) forbids frontispieces to be divided at the top, as is customary in these days, because they resemble gutters; so that to divide the pediment is as absurd as to expose to view the roof of the *compluvium*^b.

This rule forbids the cornice to be so large as Serlio has made it in the Composite order, and the mutules to be so large as Alberti has made them in the Corinthian order. This rule forbids likewise the excessive projection of the cornice, which is seen in the Temple of Ju-

^a See Baldi's Vocabulary for a further explanation of the terms. Art. Templa, Asseres, &c.

^b Gutters receiving the rain from various roofs.

pter, commonly called *TORRE DI NERONE*. It forbids the dentils to project so far as is seen in the Corinthian cornice of Cataneo. It forbids the crown to be left out in the cornice, (though Alberti advises it upon the authority of the Temple of Peace, and other edifices of general excellence,) for the reason that roofs are never made without *Templa*^c. This rule likewise forbids many other things; which, as the architect will observe them noted in modern authors, we leave them to his judgment.

§. 3. II. The description of a column is partly taken from the form of a tree, and partly from the human figure: from the one it derives its swelling, from the other its diminution. The flutes and grooves imitate the folding of drapery: the plaits of the men's clokes (for the Greek column is masculine) were mostly made straight: those of the women's robes were sometimes twisted; an imitation of which may be seen in a temple near the river Trebia. That the shaft may be sculptured seems defensible, by its resemblance to the tree with its bark on.

§. 4. III. Buildings should be uniform; i. e. as they should be strong, so they should show their firmness. Those that are elegant should be conspicuously so. On which account the more delicate order of pillars (if there be more than one) should be placed upon the larger order: twisted columns, which are called *Cartouches*^d, and shafts braced with rings, as if they had been broken and repaired, should be avoided by all means. It may

^c *Templa*, purlines; timbers laid transversely over the greater rafters to support the smaller ones.

^d The word in the original is from the Italian term *Cartoccio*, which signifies a scroll of paper.

be asked, if a fluted shaft is not inferior to a plain pillar by this rule; it is certain that perpendicular channels are preferable to those that are twisted.

Too much carved work is destructive of elegance; if it projects too much it seems to burden the building, and threaten its ruin. The sculpture lately to be seen in the Baths of Dioclesian in the Corinthian style, though of exquisite workmanship, was a fault rather than a beauty. Artists in the classical age of Augustus were sparing of sculpture. The style which is called the August, and is really so, consists of a few small parts distinct from one another, of accurate and bold symmetry, with little carving. At Rome in the Basilica^e of Antoninus, or rather in the Temple of Mars, the frieze which is pulvinated, is placed between two reglets or lists; by this means it is conspicuous itself, and does not hide the Cymatium, placed upon it. The science of optics dictated this rule, and others of the same kind, which in the works of the ancients call for our praise and imitation.

§. 5. IV. Variety is agreeable, if not repugnant to the rules already admitted. The helices^f in the Pantheon, in the Temples of Jupiter Stator, and that of Diana at Nismes, are worthy of imitation, though constructed in different uncommon styles: such a variety is agreeable to the caprices of Nature; but those which imitate the horns of rams in the baths of Dioclesian deviate much from propriety and elegance. At Nismes, instead of the uppermost reglet of the cornice is an echinus underneath, the mutules are inverted. In the Temple of Jupiter Tonans, one of the two echines in the cornice is carved

^e A term for any large building, church, palace, &c.

^f Helices, the curling stalks under the flowers in the Corinthian order. From the Greek word *ἑλίσσω*. Volvo.

in an uncommon manner. In the Temples of Peace, Jupiter, and Mars, instead of the *sima recta* of the architrave, an *echinus* is put under the *scotia*. In the Temple of *Fortuna Virilis* the height of the entablature is regular, but half of it is given to the cornice. In the Temple of *Jupiter Stator* the same circumstance occurs, and in both the second fascia only of the architrave is carved. In the Temple of *Vesta* at Rome the horns of the abacus are not shortened. In her Temple at *Tivoli*, the ends of the channels and the cavity of the trochile or casement are not round but square: but all these deviations are faultless. In proper places the fancy of the artist wanders secure from error.

§. 6. V. The idea of fitness should above all things be attended to: for this reason the ancients carefully attended to the suitability of a column to its edifice, and of the ornaments to their columns. The Ionic column had not been found in the Temple of *Diana*, but that the Doric was less adapted to that edifice; and in the Temple of *Venus* even the Ionic had been improperly placed, *Cariatic* columns in any temple would have been ridiculous; as it would have been introducing monuments of vengeance into an asylum of mercy. The carved work of the Doric order in the baths of *Dioclesian* is censured; if it be not admitted to be excessive, it cannot be thought to be manly. The same fault is to be found in *Scamozzi's* rule for the Doric column, particularly with respect to the flutings in the shaft.

But to preserve fitness, a general rule is set aside with success; for instance, in the Ionic capital the faces of the volutes are generally made opposite each other: but with great judgment the artist has made them contiguous, in the angular columns of the Temple of *Fortuna*

Virilis; so that the same column very properly and happily corresponds with both orders. In the Corinthian capital, instead of volutes and helices, figures representing the horse Pegasus were substituted, even in the Augustan age; but they were substituted in the Temple of Mars Ultor: instead of the flower of the abacus was seen an eagle grasping thunder, but it was in the portico of the Emperor Severus. For the same reason, i. e. fitness, there are Composite columns in the Temple of Concord. But inventions of this kind should be attempted seldom and with caution, as in no other department of the art is success so precarious.

§. 7. VI. The rules observed by the ancients carry an authority with them which may not be disputed. In compliance with which we must not mix the Italian kinds of Architecture with the Grecian orders, nor the Composite with the Tuscan; nor should the Tuscan order be introduced in edifices in a city, except in the case of an insulated column. We at present neglect these circumstances, and yet preserve some practices that seem more repugnant to the principles of good sense. Reason would place the small fillet of the architrave upon the greater, as may be seen in the arch at Verona, and the temple at Pola; in most instances the practice is the reverse. The moderns, according to the Roman fashion, put the dentils under the mutules, (i. e. the small rafters under the principal ones;) this practice the ancient Greek artists condemned; nor did Diogenes in the Pantheon, being an Athenian, pursue this plan. In the ancient Grecian pediments, neither mutules nor dentils are seen; but they are found in the Roman: so that the temple near Scisis, a city of Umbra, whose pediment is without these ornaments, is perhaps Grecian. Reason forbids

the corona to be omitted in the cornice; but in the Temple of Peace, and in others, practice warrants it. Reason enjoins ornamented dentils, but they are often left plain. We should not indeed rashly condemn these instances, but suspect our own judgment; and presume there may be a reason, of which we are ignorant, to justify their use.

But every thing which is ancient in this art demands not our imitation; for time which has destroyed more noble, may have left us less beautiful models. Sometimes necessity, and not the good sense of the architect directs the execution; as in the temple at Rome called *DEL BATTESIMO DI CONSTANTINO*; where between the base and apophyge of an Italian column leaves are introduced; in the cornice under the dentil is placed an upright *cima*, and immediately under that another; each case is unsupported by authority, but somehow or other a temple was to be erected from the ancient ruins. The artist deserved praise who so well complied with his task. Necessity only can excuse the instance; where he is left to his own judgment, he will not follow a model defensible only on the plea of necessity.

BOOK I. CHAP. VII.

OF ROOMS AND THEIR PROPORTIONS.

§. 1. **BY** the term *HABITACULUM*, as no better word occurs to me, I mean what the Italians call a *stanza*, and the English a room, which appellation comprehends any space whatever encompassed with walls, a floor, a ceiling,

or a roof. There are various species of rooms distinguished by proper titles; a general name (if I mistake not) is no where found, but the many terms which discriminate the species of rooms are used promiscuously even by the most accurate writers. But, as mathematicians do, we will define the terms we mean to use.

The word CUBICULUM implies a place where there is a couch or bed to lay down on; the word thalamus is used in the same sense, but more strictly is a nuptial chamber. To the cubiculum, or bed room, is annexed the antecubiculum or antechamber, which Pliny the younger names by the Greek word *procætium*. The antithalamus I suppose to have a different meaning; as in the Greek houses it did not join to the thalamus, but answered to it on the other side. See Vitruvius, b. vi. c. 10. On the right and left of the Prostas ε are two rooms, one of which is a thalamus, the other an antithalamus, or a similar one opposite to it. Hermolaus ^b is of the same opinion, and objects properly to amphithalamus; for, how can a room that is placed opposite to another be called amphithalamus? And if the rooms did not stand opposite one another, how could they be on the right and left hand? As we have introduced the word amphithalamus, we may use it to signify a postcubiculum, or room placed behind another; which sense Philander seems to have annexed to it.

The word TRICLINIUM, if we regard its etymology,

ε A portico, or any vacant space, entrance, &c. with square pilasters on each side of it.

^b Hermolao Barbaro published a translation, with notes, of Vitruvius in the year 1384. By birth a Venetian, and descended from ancestors eminent for their political and literary characters, &c. See Dict. Historique, a Caen, 1783.

ⁱ Amphithalamus, composed of the Greek word *ἀμφι*, which signifies generally around, close to, and sometimes opposite. See Constantin. Lexic.

means a room where there are three couches or beds. The Romans, whose principal repast was supper, called this room a *cœnaculum* or *cœnationem*. The Greek words *δίκλινος*, *ἑξάκλινος*, marked the number of the couches in the room. *Triclinium* is a general name in Latin for them all. Plautus makes use of the word *biclinium*, and A. Gellius of *scimpodium*^k, the former meaning a room with two couches, the latter, where only one was to be found. Sometimes *triclinium* was put for the couches themselves, and for the word *cœnaculum* *dieta* or *zeta*, which are synonymous.

OECI in general meant rooms of considerable extent, some of which were set apart for the use of the men to feast, &c. only, and others for the women to spin in, &c. Palladio and Alberti call them saloons, meaning in English great halls.

That the word *EXHEDRA* means a place where there were benches cannot be doubted, and is properly a room for the purposes of conversations of all kinds, and to pass the middle of the day in. But Cicero makes *triclinium*, *cubiculum*, and *exhedra* synonymous.

CONCLAVE means a room of less extent in the retired parts of a house; which, accurately speaking, does not signify one room only, but many which are accessible by one key. Plautus somewhere uses the word *conclavium*, which may assist us in finding the difference; we may call *conclave* a closet, *conclavium* an apartment; which I apprehend Pliny the younger by the figure *synechdoche*^l, expressed by the word *dieta*. Apartments to which men alone had access were called *andrones* and

^k *Σκιμφοδιον* signifies a little bench or stool with one foot only, and held but one table. See Hesychius on the word.

^l A figure in speech, which takes the whole of a thing for a part, and the reverse.

andronitides; those the women only frequented were called gynæcia or gynæconitides; those for strangers, hospitalia; for winter, hibernacula. Among the Romans andrones had another signification, of which hereafter.

The word PINACOTHECA^m implies from its derivation a receptacle for pictures or painted tablets, and in this meaning all writers concur; whether it be synonymous with tablinum is yet undecided. We may use the authority of Pliny the elder, who says the tablinum contained books and vouchers of transactions in public offices. The modern name for these records is archives, and sometimes storehouses; which is a general term, according to Isidorus, for all places where the instruments of any art whatever were deposited. Public archives are sometimes called exchequers. In the roof there are often rooms which we term solars, the roofs which admit them are called by Vitruvius TECTA UBI MAJORA SUNT SPATIA, those which do not admit them TECTA COMMODA. By the words cella familiarica, is meant any room for servants, or the vestiarius, by the French called a garde-robe, by us a wardrobe; for it is likewise used for any recess where there is a close stool or water closet; and sella, thus applied, is spelt with an s.

The terms BIBLIOTHECA and MUSÆUM require no translation. Of vestibules and courts we will speak hereafter.

PLATE XXI.

§. 2. Rooms are in general quadrangular, seldom round. If the length be l , the breadth L , the height a , from the rules of Palladio in the first instance $l = L$, in the second $l = \sqrt{2} L^2$, which is the diagonal of the breadth squared, and sometimes is called the diagonal

^m From the Greek word πίναξ a tablet, πίθημι to place.

breadth; in the third $l = 1\frac{1}{3}L$; fourth $l = 1\frac{1}{2}L$; fifth $l = 1\frac{2}{3}L$; sixth $l = 2L$; and if the ceiling be flat it will be $a = L$ in the first story, but $a = \frac{5}{8}L$ in the second. But in the first story especially, a coved ceiling will be handsomer and more secure, and a greater height must be given to it. Wherefore if the room be square, let a be sesquitertian of L ; if oblong, instead of a let a mean be taken between L and l , either arithmetical $= 2) L + l$, or geometrical $= \sqrt{lL}$, or harmonical $= 2) L + l) lL$. There are other proportions of height, according to Palladio, which are not reducible to rule. These may be used occasionally, and with due discretion.

§. 3. M. Muet has laid down these proportions. The least length of a saloon should be $2L$, the greatest in a palace $3L$. Those of a mean size $2\frac{1}{4}L$ and $2\frac{2}{3}L$. Let the length of the antichamber be either a diagonal of its breadth, or sesquialteral. Let the chamber or bed room be either square, or longer than it is broad by an eighth, seventh, sixth, or fifth part. To constitute the height of these three rooms take $\frac{2}{3}$ or $\frac{5}{7}$ or $\frac{3}{4}$ of their breadth in the first story; and in the second let it be a twelfth part less than the former. If the ceiling be arched, to form the height take the breadth lessened by a sixth, eighth, or twelfth part of itself, in the first story, in the second diminished by a sixth part of the former; if there be a third story, the height of it will be $\frac{3}{4}$ of the second.

The pergulæ, or galleries, should have their breadth 16, 18, or 20 feet; in a palace 24 feet. The length must be a multiple of the breadth; not less than five times, nor greater than eight times. The height in the first story the same as that of the saloon, antichamber, and bedchamber in the same story; but in the second equal to the breadth; or if the ceiling is coved, the

breadth should be increased by a fifth, a fourth, or a third part of itself.

§. 4. Floorings are made in various fashions. 1. The barbaric, which Pliny reckons the most ancient, were probably of the most simple construction. I imagine therefore these floors were made of earth rammed down till it became firm and compact, or with bones (as we see often in the country) or stones driven into it. But these pitched or barbaric floors, from their vague signification, may, I apprehend, include floors of plaster. 2. Plaster floors are made of pounded bricks and coarse sand, with a mixture of lime. 3. Those floors I term *coctilia* which are laid with bricks or tiles. 4. Those *lapidea* made with hewn stone. 5. *Lignea*, those that are made with boards joined together, such as are at present mostly used. 6. Tesselated and Mosaic floors are those which are composed of small pieces of marble, shell, or glass, in the shape of lozenges, &c. stained with different colours, and arranged so as to represent painting or pictures. On account of the variety of their materials, floors were called *lithostrota*, *hyalostrota*, *cerostrota*, *xylostrota*ⁿ, &c. At first these materials were confined to pavements or floors, afterward they were transferred from the ground to vaulted ceilings.

The *subtegulanea*, or floors made of tiles, come under the description of the above, and likewise other obsolete pavements. For an account of these, and floors exposed to the open air, (which are not to be found in England, but are frequent in warmer climates,) see Pliny, Nat. Hist. book xxxvi. chap. 25.

ⁿ *Λθος*, laid with stone; *γλασ*, with glass; *κίρας*, with horn; *ξύλον*, with wood.

§. 5. Ceilings are likewise constructed in various forms; in some that are flat, the timbers of the story placed over them are open to the view; in this case the distance of the timbers from each other should be sesquialteral of their thickness; a greater distance would be injurious to the beauty of the ceiling, a less to the strength of the wall. But for the most part the timbers are concealed by wainscot or stucco; both which may be either left plain, or adorned with paintings, or any other ornaments in relief. In some instances many of these modes are adopted, in others they are all blended together. Hence arises so great a variety, that Palladio asserts that no rule can invariably be laid down with respect to ceilings.

§. 6. Of vaulted ceilings the Latin names are not fully ascertained. *Arcus, fornix, testudo, concha, camera*°, are terms applied without distinction to all vaulted ceilings whatever. The two Greek words, HEMISPHERIUM and HEMICYLINDRUM, are sufficiently understood, and always imply the most perfect kind of arch, that is, the semicircular one.

But vaults are often made not in the form of a semicircle, but with a less degree of inflexion; or, as Vitruvius expresses it, “*ad circinum delumbata.*” See b. vi. chap. 5. This kind of vault is not circular, but by the help of a compass originates from a semicircle in the following manner.

In Fig. 8. *c a b d* is a semicircle equally divided at pleasure, *c d* the radius drawn at right angles: *c e* the apsis or height of the arch you intend to describe, which

° All signifying an arch.

the Italians term *frezza*, we *sagitta*^P. On the centre *c* with the distance *c e* describe the semicircle *c g e g* parallel to the former. Let the radii *c f* and the sines *f g* be drawn; where the radii cut the periphery of the lesser circle, let right lines be drawn to the sines parallel to the diameter; through the points where they intersect them let the equable curve *a e b* be drawn, which is the curve required.

Palladio says that the arches of ceilings, less than semicircular, are most advantageously described when they have the *frezza* or arrow a third part of the breadth of the room. This he shews by seven plans of as many rooms constructed by himself, with arched roofs peculiarly adapted to them.

1. The first he terms *IL VOLTO A CROCIERA*, or crossed vault. It is formed by two arches cutting one another across in the shape of an X, which Philander thinks was meant by the *testudo* of the ancients. 2. *A FASCIA*, or bark fashion; I would rather style it *FORNIX*, cradle-wise, but under that term the hemicylindrical arch is comprehended. 3. and 7. is termed *A REMENATO*, whose curve is a subsegment of a circle, or a segment less than a semicircle. 4. *RITONDO*, in the French language *EN CUL DE FOUR*, which we term oven-wise. This form of a ceiling is adapted to a square room, and is thus constructed. In each of the angles a kind of impost is left for it to rest on; it begins with a semicircle, and gradually contracts, so that in the middle it makes a subsegment of a circle, and widens into a semicircular curve the nearer it approaches to the angles. 5. *A LUNETTE*, which Philander

^P *Frezza*, *sagitta*, an arrow in English. In mathematics the term signifies a versed line of an arch, standing on the chord like an arrow. See Chambers's Dictionary.

calls lunulated, consisting of the four parts of a crossed vault. 6. *A. CONCA*, which may be termed a channelled vault, as it resembles the hollow of a ship or pinnace, and is sometimes called by the Italians *A SCHIFFO*.

Palladio has spoken of the first four arches as in use among the ancients, the two latter as inventions of the moderns: which information may satisfy the architect without paying attention to the pedantry of grammarians, who in this case, as well as in others, interfere impertinently in matters unconnected with their province.

BOOK I. CHAP. VIII.

OF APERTURES.

APERTURES are doors, windows, the tunnels of chimneys, and, according to some writers, staircases. Sir H. Wootton gives the following excellent rules with respect to them: first, that they should be as few and as small as conveniently they may: because every aperture weakens a building: wherefore, in the second place, the apertures should be as distant as possible from the angles of an edifice, as the angles ought to be made very strong.

Philander observes that the gates of cities were arched, but in sacred and private buildings the doors and windows were always quadrangular. This was the practice of the ancients, but neglected by the moderns. The ancient custom, as is likewise the present, was to strengthen the square apertures by concealed arches. Though Vitruvius advises to contract the openings of doors at the top, as may be seen in the Temple of Vesta, near the Tibur, the

moderns have not adopted this plan: for though an aperture of that kind may be more firm, yet it fails in the beauty of its appearance.

PLATE XXII.

§. 2. The void space of the door is called *LUMEN HYPOTHYRI*, or simply *LUMEN*; the sides of which are inclosed by two *ANTÆ*, that is, jaumbs or square posts, on which is placed the *SUPERCILIUM* or upper lintel, the opposite to which is the lower one or threshold, on which we tread. To the *ANTÆ* and *SUPERCILIUM* is affixed what is called from that circumstance the *ANTEPAGMENTUM*, or architrave; the upper part of which, covering the upper lintel, is called the upper architrave; the *Fascia* running round, the *Corsæ*. On the *ANTEPAGMENTUM*, as an architrave, rests the *HYPERTHYRON*, like a frieze, and over that the cornice. The ornament above that may be called the *CORONA LATA*. The *ANCONES*, or *PROTHYRIDES*, are of almost the same form with modillions; they project on each side the door, and have a leaf generally carved at the bottom of them. The wooden contexture that fills the aperture of the door, is called the leaf of the door. The parts of which are A, the upright rail; B, C the transverse ones; C the middle one; D the sunk border of the panel; E the panel.

§. 3. The principal door of a building has no determinate dimension; but varies according to the grandeur of the house and its possessor, or its use. Palladio agrees with Vitruvius, that the height from the floor to the ceiling should be divided into three parts and a half; that two parts should be given to the height of the aperture, and to its breadth one, after deducting from it the twelfth

part of the height. M. Muet proposes the least breadth of the principal door to be seven feet and a half, the largest twelve feet. The height to be one and a half of the breadth, or rather the double of it.

With regard to rooms, Palladio has laid down these rules for the doors: the least breadth of the aperture should be two feet, the greatest three feet, and the height agreeable to the least, five feet; to the greatest, six and a half. M. Muet is of opinion that the least breadth should be two feet and a half, and the height, suitable to it, five and a half. The breadth, from three to four feet, requires the height to be twice as much. In a royal palace the breadth of five or six feet may be allowed to the opening, and the height may be double of it, or sometimes less than double by a fifth or fourth part of the breadth.

§. 4. Vitruvius being silent on the subject of windows and their structure, Palladio lays down these rules. Great care is to be taken (says he) that the openings of windows be not wider or narrower than is proper. Let not their breadth be less than a fifth, or greater than a fourth, part of the breadth of the apartment: and their height be double their breadth, with an additional sixth part of it; and if there be more stories than one, the height of the lower one, diminished by a sixth part of it, will give the height of that next above.

Windows, though belonging to rooms of unequal dimensions, yet, if in the same story, should themselves be equal: to contrive this, and that the architect may adhere without difficulty to the rules of symmetry, let there be in the story a room, the length of which exceeds its breadth by two thirds. Let its breadth be divided into nine parts, two of which will give the breadth of the aperture

of the window; and four with a sixth part added will be a proper height. These dimensions will suit all the windows of that story in which the abovesaid apartment is constructed.

M. Muet has laid down the following proportions: let the opening of a window be four feet and a half or five feet wide: in a royal mansion six: its height at least double of its width. It will be handsomer, if a fourth, a third part, or one half of its width be added. In the second story, the height of the first may be decreased by its 12th part; in the third, a fourth part may be taken from the height of the second.

PLATE XXIII. XXIV.

§. 5. The ornamental parts of doors and windows, according to Palladio, are, the architrave, frieze, and cornice. The breadth of the antepagmentum, or architrave, ought to be not less than a sixth, nor greater than a fifth, part of the breadth of the void: the projecture to be a sixth part of its own breadth. From thence may be taken the dimensions of the frieze and cornice, in the four ways exhibited in the plate. In all, first let the architrave be divided into four parts: let the cornice have for its height five of these parts: the frieze, in the first and second design, three: in the third, a fourth more: in the fourth, one half. The other parts will be sufficiently understood by consulting the plate.

§. 6. The fire-places of the ancient Romans had not chimneys, but only the funnels of them: chimneys such as ours are were, if at all, very rare at Rome: but instead of them, in the subterraneous part of the house, an oblong vault was made, which was heated partly by

lighted wood, partly by being filled with hot water; from this the heat flowed to the saloons, dining rooms, and bed-chambers, through ducts constructed in the inside of the walls, in every direction, and reaching to the top of the building; and in them were vents, made in all those places where they wished to procure heat, covered with lids, which were stopped or unstopped at pleasure. Our own habitations would be rendered (in my opinion) much more convenient if we adopted this plan.

Chimneys at present are made, for the most part, in the thickness of the walls, with their openings visible in the apartment, and their funnel rising outwards above the top of the roof. The apertures are limited by two jaumbs, and the mantle-tree, on which a pyramid is constructed, reaching to the ceiling, and on it a shelving funnel is erected. The floor of the chimney is called the hearth; the part opposite to the opening is called the chimney's back.

Muet proposes these following proportions for chimneys: in kitchens, saloons, and dining rooms of an extraordinary size, the breadth of the apertures should be from 6 to 8 feet. Their height from $4\frac{1}{2}$ to 5. The projection or depth from the forepart of the jaumb measured to the back of the chimney from $2\frac{1}{2}$ to 3 feet. Thence the hollow of the pyramid gradually diminishes till it reaches the bottom of the funnel 4 or 5 feet long; from 10 to 15 inches broad, and not more. In bedchambers the breadth of the opening should be from $5\frac{1}{2}$ to 7 feet; the height 4 feet or $4\frac{1}{2}$; the projection 2 feet or $2\frac{1}{2}$. In common parlours and servants' rooms, the breadth of the opening should be from 4 to 5 feet; the height and projection the same as in bedchambers.

Palladio proposes, in a summary way, that the funnel

in the chimneys of rooms should be from six to nine inches wide, and two feet and a half long, and that the opening of the funnel where it joins to the pyramid may be somewhat contracted. The mantle-tree should be of very elegant workmanship, and by no means of the rustic kind, unless in very large buildings.

PLATE XXV—XXX.

§. 7. Staircases, properly so called, are separated or subdivided by steps. Those gentle ascents sometimes constructed in palaces in the place of stairs do not come under this appellation.

In staircases three properties are required; 1st, that they have a full and steady light; 2d, that they be large in proportion to the size of the building; the steps should be from 12 to 4 feet long; should they be shorter than 4 feet, persons meeting each other would be delayed. 3d, they should be convenient; to the building they will be so, if under them lumber, &c. can be concealed; to those who ascend them, if their ascent is easy. The steps should be unequal in number, (the ancients had some superstition about making them equal,) and a resting place or landing should be contrived after 9, 11, or at the utmost 13 steps. The height of the steps should be six inches, or at least four, where there are many without interruption. The breadth for the most part is a foot, never more than a foot and a half. The steps should be laid or joined, according to the Italian phrase *con un tantino di scarpa* with a little inclination or slope, which will greatly contribute to the ease of the ascent.

Staircases are made either spiral, which are called cockle stairs; or in a right line, which are called straight

ones. The spiral have less space, and are more difficult to climb. Staircases are either circular or elliptical, each of which is made with straight steps, or (which is the better mode) with contorted ones; and are either inserted in the wall only, or in a pillar only, or in both.

If the pillar be in the middle, let the diameter of the space be divided into three parts, one of which must be given to the pillar; or (as in Trajan's pillar) four parts of the diameter, when divided into seven, must be allowed to the steps. In cockle stairs, where there is no pillar, let the diameter of the space be divided into four parts, and two of them be occupied by the steps. The best constructed staircases, particularly spiral ones, are those which are void in the middle, both that they may receive light from above, and likewise that persons ascending and descending may see one another.

Among the straight staircases, which at present are most common, some are oblong, and consist of two ascents, with an oblong landing placed between them, or they are square. In the square ones let the space be divided into four parts, and two given to the steps, two to the void, in which the thickness of the wall will be included, if there be a wall instead of a void.

Sometimes the narrowness of the place obliges the architect to make steps in the angles of the landing places; in this case, making the angle of the landing the centre, and its breadth a radius, describe a quadrantal arch, and divide it into as many parts as the radius has feet.

From these elementary rules for the construction of staircases, an almost infinite variety in them is produced, which it is needless to speak of in the detail. Let the architect pay attention to the best models; and, furnished

with these general principles, make use of his own judgment in his designs; remembering, at the same time, that the due construction and commodious placing of them will call for the utmost exertion of the powers of his art.

THE SECOND PART
OF THE
ELEMENTS
OF
CIVIL ARCHITECTURE.

TREATING OF
PUBLIC AND PRIVATE BUILDINGS.

PLATE XXXI.

§. 1. **I**N the preceding book all those things which constitute strength or beauty in buildings in general have been considered; it remains now to mention what things contribute to the utility of particular buildings: we will begin with a private house in a city.

In choosing the situation, its vicinity to public edifices should be principally attended to; that is, we should build as near as convenient to the place where the business of the owner chiefly calls him. Every one would wish to be near a church, but especially a priest, a nobleman near the prince's court, the lawyer near the hall of justice, the merchant near the exchange, the trader in the principal street; and every other citizen in the same manner would choose his dwelling according to his occupation—not far from the river, if any flows near the city; at a distance from a tallow-chandler, a brewer, a soap-boiler,

a butcher's shop, or any other business attended with an unsavoury smell; far from the noise of the anvil, the hammer, and the saw; and, above all, (as Cato says,) at a distance from bad neighbours. In short, that spot is most eligible in which you can construct a regular house, that is, one with right angles; where room, leisure, and cleanliness may be obtained, and you may procure to your house the advantages of a rural situation. If all the above conveniences cannot be met with, it is prudent however to aim at as many as possible. The same observation may extend to the other precepts.

In general there are three divisions of a city house. The lower, some of whose parts are generally underground; the middle one is consigned to the use of the owner and his friends, and contains one or two stories. The highest consists of smaller rooms placed over the middle ones with solars, if the roof admits of them.

§. 2. In the middle part a more spacious room should be constructed, and if it contains two stories, another room not less should be raised over that; the lower of these is by the Italians called *ENTRATA*, the higher *SALA*, or saloon; we may call them entrance and hall. The halls should be as spacious as may be, wherefore a square is preferable. The oblong is the better the nearer it approaches to the square. Palladio gives to none of them a length greater than double the breadth.

Adjacent to the entrance and hall, the large, small, and middle sized rooms, together with the principal staircases, should be so placed, that an easy and free passage may be had into the entrance, hall, and other apartments of the same story. Moreover rooms of different size should be placed near one another, so as to be of mutual convenience.

In marking the proportions of these the architect should have an eye to the office and dignity of the possessor. Men of ordinary fortune want not houses either large or magnificent. Money lenders and inn holders wish to have them convenient, showy, and well secured from thieves. Lawyers build them with more elegance and space to receive their clients. Merchants require rooms to stow their goods in; well defended, and facing the north. Men in office and noblemen demand houses large, lofty, ornamented, and in short princely.

In a stately mansion the height of the larger room is such, as to equal both the heights of the two lesser, by which means one of them is placed over the other, by the side of the larger room; which circumstance in great houses is of much utility. Rooms thus constructed, the Italians call *AMEZATA*, or halved; we may call them half stories. These are seldom found in houses of moderate size; but in their stead closets are adapted to the larger apartments, each to each, if it may conveniently be done.

The architect will likewise provide that each room has its proper aspect. Summer rooms should face the north, and should be large and spacious for the sake of coolness. Picture rooms with the same aspect for the sake of a regular and continued light. Winter apartments should be less than summer ones, and face the west, or rather the south, as they require warmth. Rooms used in spring and autumn, likewise bedchambers, should face the east, on account of the morning light. For the same reason libraries should be to the east, and because that aspect is most favourable to the preservation of the books. From the latter we ought to look into the pleasure grounds. In a large house the chapel (as churches do) should face the east; so should also, in a smaller edifice, the oratory, which answers to the chapel. The architect

should be informed, that in houses of any splendour an oratory and a museum are as requisite as a dining-room or a bedchamber.

§. 3. So far with respect to the division of a house above ground, which is the most magnificent part of it; but in a house, as in the human body, there are parts which, though of eminent use, are yet of inferior dignity to the rest; such in imitation of nature we should keep private. Some of these should be placed in the highest part of the mansion. Under ground should be cellars, kitchens, woodhouses, bakehouses, store rooms, laundries, and other offices. Such a situation will be most convenient for them, and the body of the house will be more ample, commodious, healthy, and pleasant. The stables with the haylofts placed over them, and the coach houses, should be separated from the mansion, and erected where the dung may be most easily carried into the gardens. If they are built on one side of the house, all the offices on the other side, except the cellars, will exactly correspond with them. Over each of them servants' rooms on either side should be placed suitable to their respective employments.

§. 4. The entrance or door of the house is generally in the middle of the front, sometimes, if the situation requires, in the middle of the side. From the door directly, or with some space intervening, we arrive at the entrance, and from thence proceed to the apartments. These in every house should be so contrived, that they should be of similar figure and dimensions, and opposite each other; so that the windows on one side may correspond with those on the opposite side, and be of the same size and symmetry, and placed in the same horizontal line. The

doors of the apartments should be made directly fronting each other, that when they are all open the view may be continued through the whole suite of rooms. The objection of Wootton, namely, that no room except the last would be private, an able architect may obviate: especially if he contrives with judgment the back stairs, which we call the servants' stairs. The observance of the three last requisites, use, strength, and beauty, alike require, and they should be observed in each particular story: in the combination of them, the fourth precept above mentioned should be attended to; namely, that void should be over void, and walling over walling.

§. 5. The chimney of every apartment, if it be placed in the middle of the side, will be an ornament; but this is not necessary, especially in a bed room: if it be placed in the corner of an apartment, the room will be enlarged by it, and a common shaft with four funnels will accommodate as many chimneys.

Back stairs are useful in all houses; where there are half stories they are necessary. The principal staircase should be placed as we have before described; and it will be disposed to great advantage, if in the way to it the more beautiful parts of the house may be seen.

Much grandeur and elegance would also be added to the house by the erection of a pediment in the front; which, though less usual in England, will be found in the plate.

the windows. It looks towards the north, and into the gardens, and so capacious are its dimensions, that it would contain two triclinia placed opposite each other with their respective circuits. It has folding doors in the middle, and windows made to open like doors to command a view of the gardens.

The EGYPTIAN OECUS, far exceeding the others in beauty, (see plate 34,) contains the height of two stories, so that it has two orders or rows of columns. The lower ones are insulated, with an architrave only placed upon them, according to Vitruvius, but to which Palladio properly adds a frieze and a cornice. On the corona of this rests an entire wall, in which is inserted a second order of columns; which are either half or three-quarter ones. They are placed directly over the insulated columns, and are a fourth part less; and in their intercolumniations are windows. In the part below, the wall stands off from the columns, but is connected by means of the story above; so that round the sides of the hall a walk is formed by the columns, covered with a floor open to the air, and with a balustrade.

§. 3. Of the CAVÆDIUM we can say nothing certain. Varro by CAVÆDIUM and ATRIUM plainly means the same thing: Pliny the younger makes a manifest distinction between them: Palladio and Barbaro, who take Vitruvius for their guide, adopt the opinion of Varro. Mr. Perrault so far agrees with Pliny, that he translates CAVÆDIUM *un cour de maison*, and ATRIUM *un vestibule*; in short, Vitruvius himself does not sufficiently explain his meaning, but makes use of CAVÆDIUM in the plural number, and divides it into five kinds. With respect to my own opinion, in a matter so doubtful every one should be left to his own judgment; but he who admits the following:

exposition will not, I think, be far from the meaning of Vitruvius. In the Roman houses there were generally an ATRIUM and a PERISTYLIUM; two areas open to the air, or at least open to the height of the house, around which the apartments were so arranged that each of the courts exhibited the appearance of a market place; and from the ATRIUM into the PERISTYLIUM the way lay through the TABLINUM, whose entrance fronting, and generally open, afforded an uninterrupted passage; the proportions of these three were adapted to the figure of the ATRIUM. Vitruvius, I apprehend, called each of these a CAVÆDIUM, and divided them into five kinds, according as the figure of the ATRIUM varied.

PLATE XXXV—XXXIX.

§. 4. I call therefore an ATRIUM a quadrangular area oblong in a certain proportion, all whose sides are surrounded by apartments. Its length should be five thirds of its breadth, or one and a half of it, or the diagonal of its square: the height corresponding to all of these should be the same; that is, three fourths of their length.

If the apartments arranged on each side are covered with shelving roofs, which are placed on the walls as not to extend into the area beyond the entablature; this kind of court will be called an ATRIUM DISPLUVIATUM^t.

But if the eaves, as in plate 35, by the addition of beams, should project a little into the area, this is called a TUSCAN ATRIUM.

And if, as in plate 36, by the addition of other beams on each side, the projection should become greater, and the beams be supported by four insulated columns, it will

^t See Vitruv. lib. vi. cap. 3.

be called an *ATRIUM TETRASTYLON*, and will have the two wings *A A* on each side opposite to each other.

N. B. “In every *ATRIUM* that has wings they should be equal and alike: each as wide as the sixth, seventh, eighth, ninth, or tenth part of the length, according as the length may be from 30 to 40, from 40 to 50, from 50 to 60, from 60 to 80, from 80 to 100 feet. The liminary, or, as others call them, the liminary beams, that is, their architraves, should be raised in such a manner on the top of the wall, as that the height of the wall should be equal to the breadth of the atrium.” The lumen or aperture of the impluvium should not be more than a third or less than a fourth part of the breadth of the atrium, in order that the length of it may be made proportionate.

Moreover, if the two wings, as in plate 37, be ornamented with columns, this will be a *CORINTHIAN ATRIUM*; if likewise a colonnade walk be made in the inside lower than the roof of the apartments, and covered with a floor open to the air, and a balustrade, this may be called for the sake of distinction a *CORINTHIAC ATRIUM*. See plate 38.

Lastly, if the whole area be covered, as in plate 39, with a *testudo* roof, it will be called *ATRIUM TESTUDINATUM*, and will receive the light through windows six feet high inserted in the crown of the wall which surrounds the court.

§. 5. What the room called the *TABLINUM*^u signified, we have already explained: with respect to its figure it should be square; and, to be proportionable to the *ATRIUM*, its side should be two thirds, or a half, or two fifths, of the breadth of the *ATRIUM*, according as its

^u See *tablinum*, b. i. c. 7.

breadth may be from 20 to 30, from 30 to 40, from 40 to 60 feet. Let the height under the liminary beam be an eighth added to its breadth, and a third of the same breadth should be added above, in consideration of the ceiling.

PLATE XL.

OF THE PERISTYLIUM.

§. 6. The PERISTYLIUM (or, according to Julius Pol-
lux^s, PERICION, for the Greek word *κίλιον* signifies a co-
lumn) seems analogous to the cloister in a convent or
college, for it is a quadrangular area, longer by a third
part than it is broad; the middle of the area is open to
the air, its sides forming a walk encompassed with co-
lumns, which are often insulated, and often likewise in-
serted, whose height is always equal to the breadth of
the porticos. Sometimes the insulated columns are
ranged over the inserted; sometimes there are three or
more orders, and a wall with windows occupies the in-
tercolumniations, particularly of the upper order. By
the combination of all these modes a great variety is
given to the building. As the dimensions of the area are
not laid down by any writer I have seen, I shall not pre-
tend to define them; but that they had some certain pro-
portion to the ATRIUM I have not the least doubt. With
respect to its situation, it fronts the ATRIUM; at least ac-
cording to Vitruvius, who describes its length as lying
transversely, and its breadth as retiring inward. The
difference between the peristylum and the atrium is
obvious; as the wings only of the latter are adorned
with columns.

By the due proportion and proper disposition of the

* See his Onomasticon, or Dictionarium Rerum et Synonimorum, &c.

ATRIUM, the TABLINUM, and PERISTYLIUM, the CAVÆDIUM of Vitruvius before mentioned is, I apprehend, completed; and if the CAVÆDIUM of Pliny the younger should mean any else, (as it appears to do,) it may perhaps be a name common to all quadrangular areas which are surrounded by apartments, and open within, but are of such figure and proportions as do not properly fall under the description of ATRIA or PERISTYLIA; such as for the most part are the quadrangles of colleges in the Universities.

PLATE XXXV, XXXVI.

§. 7. We will now, with Palladio as our guide, form the proportions of the Tuscan CAVÆDIA. Immediately from the vestibule we proceed to the atrium, whose length is to its breadth as three to two, and whose breadth is to the side of the tablinum as five to two. From the tablinum we enter the peristylum, which is longer across by a third part than its depth, and its porticos should be as wide as the columns are high. The other parts may be made as in plate 35, or varied according to the pleasure of the architect, provided he adheres to the general rules.

The TETRASTYLE CAVÆDIA may be thus constructed, agreeable to the same writer. Through the vestibule we proceed to the atrium, whose length is to its breadth as five to three; the half of its breadth gives the side of the tablinum, the third of it the aperture of the impluvium. The eighth part gives the breadth of the wing; and the sixteenth part forms the diameter of the four columns, which are likewise of the Corinthian order. The peristylum is a third part longer crossways than in depth. It has two orders of columns; those below are Doric 16 feet high; the breadth of the porticos is the same. The columns above are Ionic, a fourth part more slender than

the Doric; they rest on a base or pedestal entire two feet and three quarters high.

Of the TESTUDINATED and CORINTHIAN ATRIOS we shall treat more properly hereafter. Of the DISPLUVIATED, with Palladio, we shall say nothing.

BOOK II. CHAP. III.

OF THE PRIVATE CITY HOUSES OF OTHER NATIONS.

§. 1. MANY nations, as they differ in climate and manners, vary likewise in their modes of building. It will be of singular advantage to the architect to be well acquainted with their particular plans, and diligently to study the ancient models, more especially those of the Greek and Roman artists. We proceed therefore to treat of these; and as the designs of Mons. Perrault generally explain Vitruvius, and Palladio supplies the defects of M. Perrault, we will lay before the reader the plans of both, and mark the places described by each of them with the same letters.

PLATE XLI, XLII.

§. 2. A city house among the Greeks has no vestibule opposite the street Z, and no court in the entrance, but a narrow passage A, called in Greek *δυσωγείον* or gateway, on one side of which are the stables B, and on the other the porter's lodges C.

From thence you enter the peristylum, but improperly so called, as it has porticos only on three sides D, and in that part which faces the south there are two antæ, one on each side, forming an aperture to the space E retiring

inward, which was called *προσᾶς* and *πασᾶς*. These antæ^y are separated by a considerable distance, being one and an half of the side of the building which runs back; on these piers the beams of the adjoining stories rest. On the right hand and left of these are three apartments on each side; two of a moderate size H H called the THALAMUS and ANTITHALAMUS; to each of which was annexed a larger antechamber, as G, and a smaller room behind Γ. Around the porticos in the inside were ranged the common rooms for dining K, bed rooms L, and servants' rooms I. Beyond these antechambers, were larger rooms or halls F set apart for women and their employments, separated by an inner room O, and looking into the open courts Y. This part is called the GYNÆCONITIS.

More inward are the ANDRONITIDES, or men's apartments. In these the rooms are more spacious, the peristylum of greater extent, the porticos in the highest degree ornamented, the vestibules magnificent, and their doors of suitable grandeur. The porticos of this peristylum are four P N; all being either of the same height, or at least three of them, the fourth N which fronts the south may be higher than the rest. A peristylum having a portico of this latter kind is called Rhodian; the reason of its name is merely conjectural. In this court, toward the south, are square halls T of so great an extent, that in each of them four TRICLINIA might be conveniently arranged, and sufficient space left for the attendance of the servants, and for games. In these the men feasted without the company of women. The dining rooms, called

^y The three words antæ, prostas, and pastas, mean the same things, viz. square columns or piers, on each side an entrance or door-way. The reader, by referring to the note on b. iii. ch. 1. of Vitruvius, may inform himself of the various opinions concerning these terms.

CIZICENE, Q and rooms for pictures fronted the north. The EXHEDRÆ^z R fronted the west, and the libraries were placed toward the east.

Apart from these edifices on either side were the lodgings for strangers V, which were separated by passages or alleys X, called by the Greeks *μεσαύλαι*, and by the Latins improperly ANDRONES. The strangers' buildings have their separate gates, dining rooms, and bedchambers; together with storerooms furnished with provisions, that they might after the first day's visit enjoy liberty and retirement. The guests were received the first day at the table of their host, who afterwards sent them eggs chickens, olives, apples, and other productions of the country: hence pictures representing these presents were called XENIA.

PLATE XLIII, XLIV.

§. 3. In the entrance of Roman houses there is a vestibule V, called by Palladio a loggia, by Perrault *αρόθυρον*. In the design of Perrault the CAVÆDIUM B follows contrary to the opinion of Vitruvius, who, b. vi. ch. 8. expressly says that in the city the courts are next to the gates; wherefore Palladio immediately next to the vestibule places the atrium C, which in this example is testudinated; its length is equal to the diagonal of the square of its breadth, its height under the liminary beam equal to its breadth. In the design of Perrault it is Corinthian, with the wings as D.

In each of the designs the tablinum follows next E, then the peristylum F, both constructed according to the general rules. In the porticos of Palladio the apartments G have the same breadth with the porticos, and

^z Rooms for the purposes of conversation or sleeping. See the note on Vitruvius, b. vi. ch. 5.

an equal altitude, with an addition of one third for the arching of the ceilings: H are Corinthian oeci, or halls: I Tetrastyli, halls with four pillars; K Egyptian: L Cyzicene: M Square halls: N Exhedræ: O Libraries: P Stables: Q Baths: X Shrubberies: Y Walks planted with trees.

The names of most of those things we have marked with letters themselves explain their uses. Of the rest their purposes varied according to the pleasure of their possessor. The atria, or courts, were adorned with the statues of the ancestors of the master of the mansion. In them “ likenesses taken in wax were preserved in various “ cabinets, that on any family deaths these representatives “ might accompany the funeral ceremonies, (whence we “ may conjecture why the courts were very near the “ gates,) to which every person, who had ever been con- “ nected with the family, repaired. On the pictures of “ the deceased they drew out his pedigree. The tablinum “ was filled with books and records of acts performed in “ his magistracy. The statues of conquered nations were “ erected without the walls, and round the confines of the “ mansions; the spoils of the enemy were annexed to “ them; nor was it lawful for any purchaser of the place “ to refix these trophies.” *Plin. Nat. Hist. 35. 2.* But these were the manners of ancient times, more particularly whilst the Commonwealth flourished. But after the death of Augustus, Architecture with the other arts so far degenerated, that from that time to the latest period of the empire, in proportion as works of art were modern, they abounded in faults and bad taste. So far with respect to the private remains of ancient cities.

PLATE XLV, XLVI.

We should now treat of modern city houses peculiar to each nation: but since Architecture, restored in Italy,

has not arrived at any perfection out of that country, we will add only three specimens taken from Palladio.

The first is of a monastery at Venice, which is called *IL CONVENTO DELLA CARITA*, or the Convent of Charity: Palladio in the design of it imitated the style of a palace in ancient Rome. He describes it in the second book of his Architecture, chap. 6, as follows.

It is a Corinthian atrium, the length of which is the diagonal of its breadth squared. Each wing is a seventh part of its length wide. The columns are of the Composite order, 35 feet long, and three and a half in diameter. The aperture of the impluvium is a third part of the breadth of the atrium. Not within but on the side of the atrium, instead of a tablinum is a sacristy; opposite to it is the chapter house; the ceiling of each rests on a Doric cornice; and in each, columns support a middle wall, which divides the cells or chambers from the passages. In that part next the church is a staircase of an oval figure, open, and of equal beauty and utility. From the court you go directly into the peristylum, or, as it is commonly called, the cloister, which has three orders of pillars inserted in the wall, as in the plate. Below are Doric pillars projecting three parts in four; above these are Ionic, less by a fifth part; the highest of all are Corinthian, diminishing in the same proportion. The upper intercolumniations are filled up by a wall with windows in it: the lower ones are formed by open arches. In the highest order are the cells of the brothers, a space being left for passages. Lest the ceilings should be too heavy for the walls, they are made of reeds, as we shall shew in its proper place. Beyond the peristylum is the refectory, the length of which is double the breadth; the height, which is sesquialteral of the breadth, is carried to the third story of the peristylum; on each side is a por-

tico; under it a store room or wine cellar, made in the same manner as cisterns are, that no water may enter. Adjacent to the refectory are the kitchen, ovens, the yard for poultry, wood house, laundry, garden, and other necessary offices. In this convent, rooms for strangers included, there are 44 apartments and 46 cells.

PLATE XLVII, XLVIII.

§. 5. The second plan represents a house insulated, standing in the middle of the city of Vicentia near the market place, which therefore in the first order has shops, together with mezati or half stories. The entrance next to which is the vestibule is made projecting, and above the entrance the hall is as much larger as is the breadth of the vestibule. On each side also is an entrance, in which the columns supporting the story above them make the breadth of the portico proportionable to its height. In the middle of the building is a peristylum, (or rather a cavædium, as it is square,) the lower porticos of which are of the Tuscan order, the higher of the Composite. Opposite to the grand entrance is an oecus, which may be called Corinthian: in the angles are four octagon oeci, capable on account of their form of being applied to various uses. The offices are partly in the higher stories. The store rooms, &c. under ground; for as the building is placed on an eminence, no apprehension of inconvenience from water can be entertained.

The next design, which casually offers itself, is taken from the third chapter of the same book. The lower rooms of this edifice are only subterraneous in part, being raised five feet above ground, so that they can receive no inconvenience from the neighbouring river, and the higher stories command a more extensive prospect.

The apartments above ground consist of two stories; the lower order is Doric, the higher Ionic. In the lower a portico is extended through the whole of the front. All the apartments have their ceilings vaulted; in the larger ones, the height from the floor to the sagitta is an arithmetical mean between *l* and *L*. The middle sized rooms are of equal height with the others, with groined vaults. The lesser rooms have entersoles with winding staircases leading to them. In the second order the hall is in the middle of the front, and on each side is a lofty vestibule. The height of these three rooms reaches to the roof. The hall is as much larger than the entrance, as is the breadth of the portico under it; and as it projects beyond the body of the building, the angles of it are supported by double columns.

BOOK II. CHAP. IV.

OF A VILLA OR COUNTRY HOUSE, AND OF A HOUSE BUILT
IN THE SUBURBS OF A TOWN OR CITY.

§. 1. **THE** term *VILLA*, taken in its full sense, means a country house with a farm annexed: but we shall here understand no more by it than a house built for rural retirement; in the size, situation, and structure of which the plan of a farm house is not to be lost sight of. This observation refers in some degree to the rules for the design, but gives no latitude to the meaning of the term.

With respect to the style of a villa, the ancients agreed that it should be such that the estate and the villa might mutually accommodate each other. The situation most convenient to the house is in the middle of the farm, and

near, if possible, to a navigable river; if not, at least near a flowing stream; for a stagnated water should be avoided as a nuisance, especially if it be frequented by swallows. The ancients, before they determined on the spot of ground, examined the entrails of the cattle that fed on the soil, and if they found their livers of a livid colour, they immediately deserted the place. Attention is likewise to be given to the air, that it be pure and wholesome; and we should choose an elevated situation, to have a free current of wind. We should avoid a valley inclosed by hills, for in such a spot both the sun and wind will be detrimental. If you are obliged to build your villa on a hill, let it have a temperate aspect, and let it be placed at a distance from any other higher hill or rock that may be opposite to it, lest it should be overshadowed by the hill, or from the reflection of the sun from the rock it should be scorched as it were with two suns. The nature of the soil should be enquired into, the healthiness of which, as well as of the air and water, may be discovered various ways; but these are to be sought from adepts in natural history.

§. 2. The parts of a villa, according to Columella, are three; first, the mansion, where the master lodges; second, the rustic, in which the bailiff and labourers live, and where the instruments of husbandry are preserved; third, the granaries, or places for storing the grain. The mansion house differs not materially in its design from a private house in a city. Let the granaries and rooms for labourers form one continued range, and be joined in such a manner to the mansion, that the master may walk through the whole premises under cover.

Let the bailiff lodge near the gate, and the labourers in a place where they may guard the villa. You should

remove as far from the villa house as is convenient the oxen, horses, and all beasts of burden, on account of the ill smell occasioned by their dung ; but let them be in a spot warm and open to a current of air. Breeding animals, such as fowls, hogs, doves, sheep, &c. should have situations suitable to their nature and use, which will vary and be determined according to the different manners and customs of the country.

Wine is of that delicate nature that nothing receives hurt sooner. A cellar should be dug where no noise, smell, heat, or moisture can reach ; and, according to some writers, where there are no roots of trees. The cellar should receive its light from the north or east ; the floor should sink in the middle, that if any wine should run out it may not be lost. Under cover near the cellars the vessels should be placed at such a height, as that, when the wine in them shall have fermented, it may easily be conveyed into the barrels through pipes made of wood or leather.

Let the granaries front the north, as that aspect is cold and dry, and the weevil^a will not breed there ; for which reason this situation is very favourable to the preservation of the grain. Let their floors be made with plaster, or, if this cannot be done, with boards, but by no means with lime, which would materially injure the grain. Barns should have the same aspect as granaries, and for the same reasons. Let the hay-lofts be fronting the west, or rather the south ; for the sun will dry the hay, and prevent it from heating and catching fire, which it often does when laid up too moist. The places where the implements of husbandry are deposited should face the south, and be under cover.

^a A small worm or mite that feeds on corn and other grain.

The area constructed for the purpose of threshing should be placed in such a manner that it may be seen from the mansion, but so as that neither the dust may be blown towards the mansion, nor the chaff fly into the garden. It should be spacious, and have the advantage of the sun, and should be either pitched, or laid with flint. Varro moreover advises that it should be round, and swelling in the middle. It should have porticos on all sides, which in the heat will afford a shade, and a shelter against sudden showers.

PLATE XLIX.

The villa of the ancients is described by Vitruvius, b. vi. c. 9. which Palladio has explained by a diagram as follows. At the entrance is a vestibule, whose aspect is towards the south. Near it, a passage only between, is the kitchen, which receives its light from above; it is square, and has a fire-place in the middle, but no chimney in the side of it. On the left of it are stalls for oxen, with mangers, &c. fronting the east and the fire; by this expedient they prevented the oxen from looking rough and unsightly. On the same side the baths, with other adjoining offices, projected towards the south as far as the vestibule. Opposite to these on the right hand the rooms for the wine presses answered the baths, and had the advantage of the south, east, and west aspects. Behind these were the wine cellars, which received their light from the north, were removed at a distance from all noise, and the heat of the sun. Over these were built the granaries, which received their light from the same quarters. On each side of the peristyle or cavædium were placed the stables in the warmest spot, but not fronting the fire-place. The sheep pens, and the places for all other cat-

tle, the hay and straw lofts and bakehouses, were placed securely, and at a distance from the fire. Behind all these is the mansion, whose front has the same aspect as the vestibule of the villa; for in a villa the atrium or court is placed backwards, contrary to its situation in a town house, where the court is next to the gate.

PLATE L.

§. 4. On the Brenta is a magnificent villa of Sieur Mocenico, a Venetian nobleman, erected by Palladio, which will serve as a specimen for a modern villa. Four porticos of a circular form, and spreading out from the opposite angles of the mansion, seem to invite strangers to their embraces: on the sides of which, and in the front, and near the river, are the stables; behind are the kitchens, and over these offices appertaining to them. In the middle of the front of the mansion is a loggia or vestibule of eight columns of the Composite order, and forty feet high, whose intercolumniations in the middle are systyle, on each side pycnostyle. Behind these are pilasters two feet wide, and one and a quarter thick, which support an open gallery to the height of the first story; on the sides are constructed two loggias of six columns each. Behind the vestibule, on each side of the entrance is a dining room or triclinium, 20 feet broad and 40 long; on the side of each is an exhedra twenty feet in the square, whose height is sesquitertian of its side; for a ceiling constructed with a schiffo, requires a third of its side for the height of the coving. Through the entrance you go into the great court, whether you call it peristyle or cavædium; it has two orders of columns all round; the higher are Corinthian, a fifth part smaller than the Ionic placed under them: the porticos

are as wide as their columns are high, their diameter deducted, and the adjoining apartments are the same, in order that the roof may receive as much support as possible from the partition wall. In the inner portico, opposite the entrance, is the grand staircase, with a double ascent, as in plate 27; then is seen a larger saloon, or oecus, 30 feet broad, the length is double and sesquialteral of the breadth. It has wings with columns, by which the symmetry of the other parts is proportioned to the height. The hall above this has none, as its height reaches to the roof; the apartments placed in the same story are as high only as they are broad. The remaining space to the height of the hall is left for entersoles.

§. 4. A house built in the suburbs is of a middle nature, between the town house and the villa. In the construction of it neatness should be attended to, but retirement more; its principal requisites are ease and repose. Its appearance is neater than the country house, and not so splendid as one in the city. It neither boasts of pastures, or sumptuous dining rooms; content with a study, a garden, and extensive walks. It will be conducive to health if it be placed somewhat on an eminence, and to pleasure if it has a view of the city you have left behind you.

PLATE LI, LII.

Palladio supplies us with the two following specimens of houses of this sort. In the former, which every way commands a fine prospect, there are four vestibules, and in the middle of the house a circular hall with four entrances, which rises above the roof, and receives its light from the top. The ground plot is inscribed in a square;

the angular spaces are filled by four staircases for servants. These lead both to the entersoles, which are over the smaller rooms, and to the gallery, which goes round the hall to the height of the second story. The uppermost apartments are eight feet high; the offices are under ground.

The construction of the second edifice is elegant, and may be varied many ways. There are two vestibules, each of which is of the Ionic order, and the podium (the bottom part of the wall) projects at its lower extremity. The rooms above ground have two stories; small turrets are erected at the four angles. Palladio has described a villa as consisting of two areas, that in the front for the use of the master of the house that backward for the purposes of country business. Without these the edifice would be suburban; without the turrets and vestibules it would become a smaller suburban house: and so also, if the rooms above ground have only one story, and the site being changed, the entrance be made where the back door is, and a study be put in the place of the remaining vestibule, instead of a hall you substitute a saloon in the Egyptian style, and erect watch towers in the angles.

PLATE LIII, LIV, LV.

§. 6. In these three plates we have described nine fronts of superb palaces, which at this time may be seen in Rome.

The first is the palace of the King of England, built by Bramante de Urbino in the Borgho Nuovo, A. D. 1504. It was lately in the possession of Cardinal Hieron. Colonna.

The second is the palace of the Duke de Sora, in the

Apparitors' ward, commonly called Rione di Parione, which the same Bramante built for his friend the Cardinal Nicol. de Fieschi, A.D. 1505. But I imagine there was no turret annexed to it.

The third is the palace of SSri Caffarelli in the ward of St. Eustachio, but described only in part. The architect was Rafaele d'Urbino, A.D. 1505.

The fourth is the house once belonging to Rafael himself, in the Borgho Nuovo, and was of his own construction, A. D. 1513. Wherefore we have here exhibited the plan without the absurd and useless ornaments it is now loaded with, which style was so repugnant to the taste of that celebrated artist, that the additions were no doubt made by some other architect. Raphael himself gave the plan of this building. The person at whose expence it was erected was Pope Leo X. The builder was Bramante.

The fifth is the palace Alla Lungara, once belonging to Agost. de Chigi, a particular friend of Raphael. Here is preserved the celebrated picture of Galatea by Raphael, with some others. The architect was Baldasare Peruzzi, A.D. 1518. Here Peruzzi painted a xyst or portico with so much art, that the resemblance deceived even Titian, who had been previously informed of this wonderful work.

The sixth is the palace of SSri Cenci in the aforementioned ward of St. Eustachio, close by the custom-house. Julio Romano gave the design of it for his friend Paoli Staci, A.D. 1535.

The seventh stands without the Flaminian gate, commonly called La Porta del Popolo. The plan of this building was designed by Giacomo Barozzi da Vignola, A. D. 1553, during the pontificate of Julius III. The name of the palace is Vigna di Papa Giulio III. The

plate represents a part of the front as somewhat projecting.

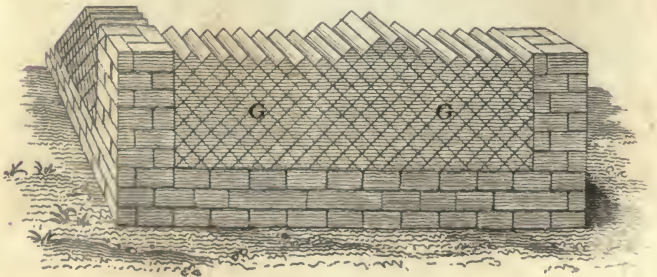
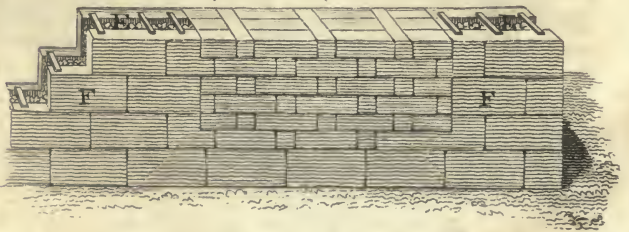
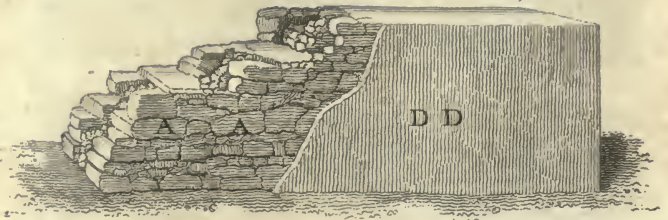
The eighth was erected by P. Dominico Pacanelli da Faenza, the mathematician, for Cardinal Alesander, A. D. 1585. This edifice is in the ward commonly called Rione di Monti, and fronts the Forum or La Piazza de Apostoli.

The ninth is the palace of the Torrian family, commonly called SSri di Torres, built by Pirro Ligorio for a Neapolitan nobleman, A. D. 1560. This edifice stands in the Circus where games were celebrated; it is now called La Piazza Navona. To the merit of Pirro Ligorio every one bears ample testimony, who professes any knowledge of Architecture, and of the arts connected with it, or makes any pretensions to antiquarian researches.

I have exhibited these specimens for the benefit of young students, which they may imitate with equal pleasure and advantage, either by varying them in some particulars, or copying from them in others. Different tastes will of course approve different models: by an Englishman it has been deemed most proper to select those, which he apprehended would suit best the English manners. We here conclude our account of private edifices.

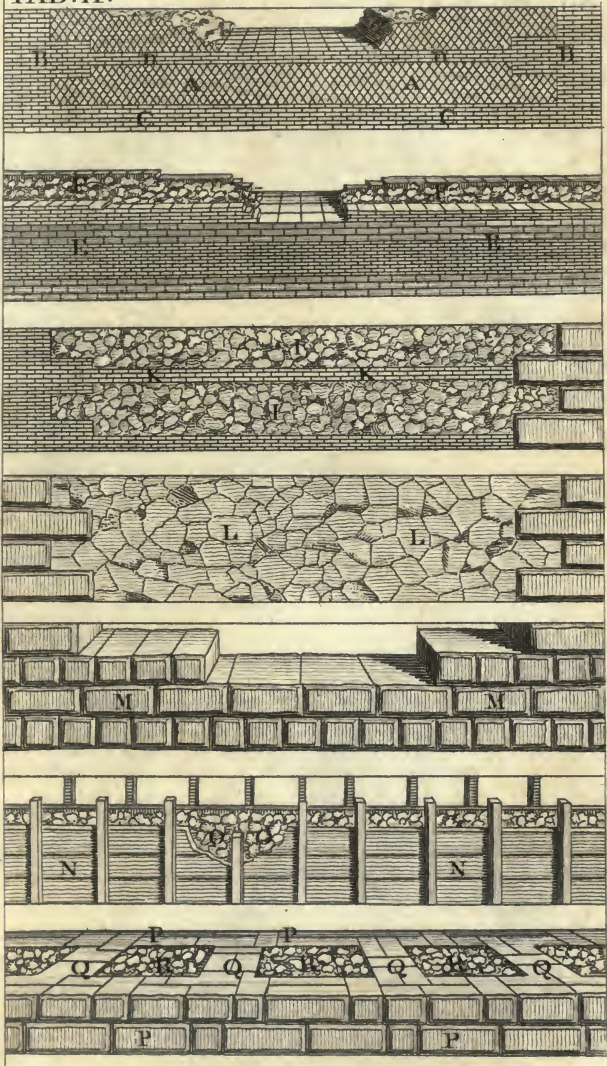
THE END.

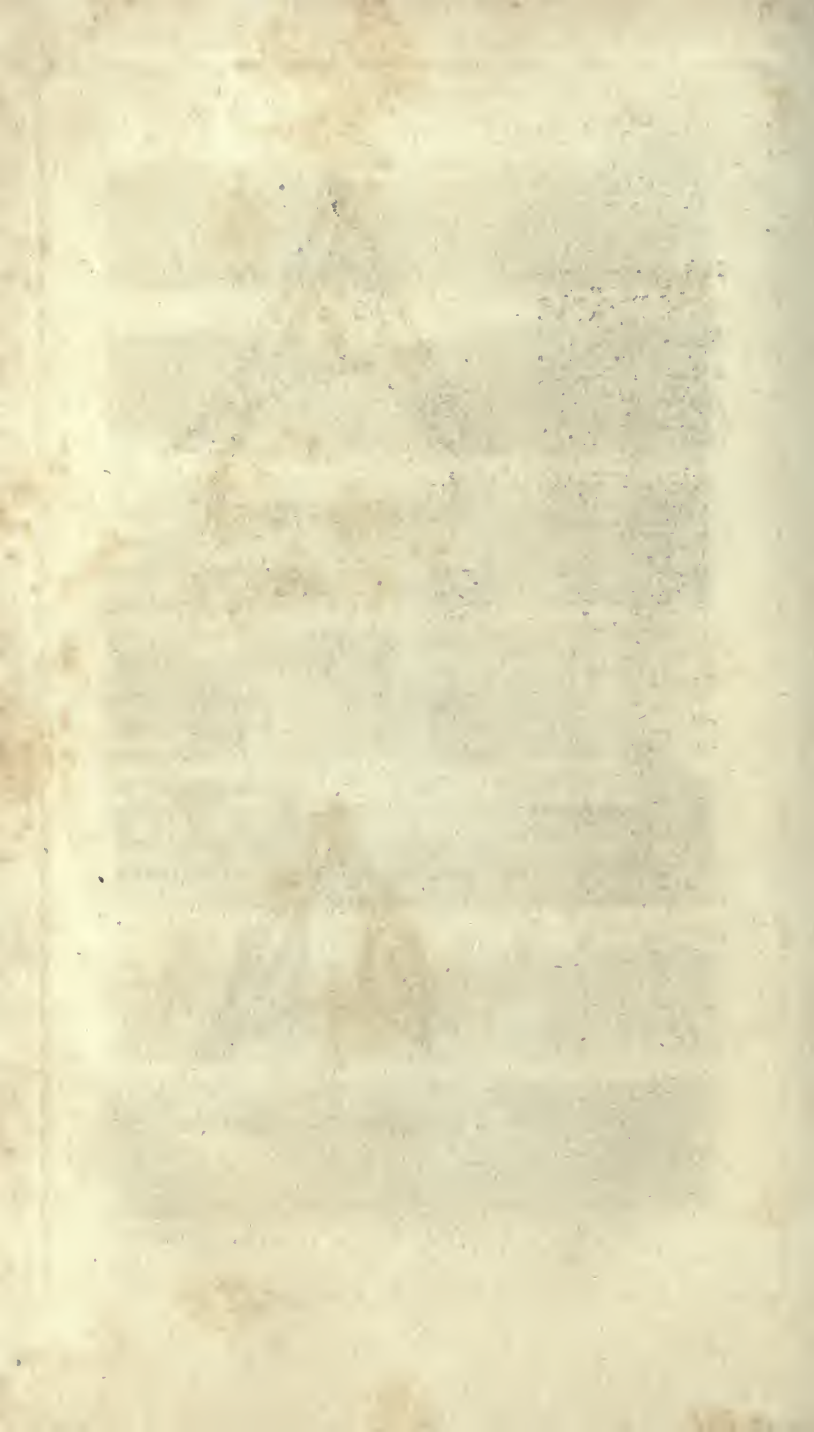
TAB. I.



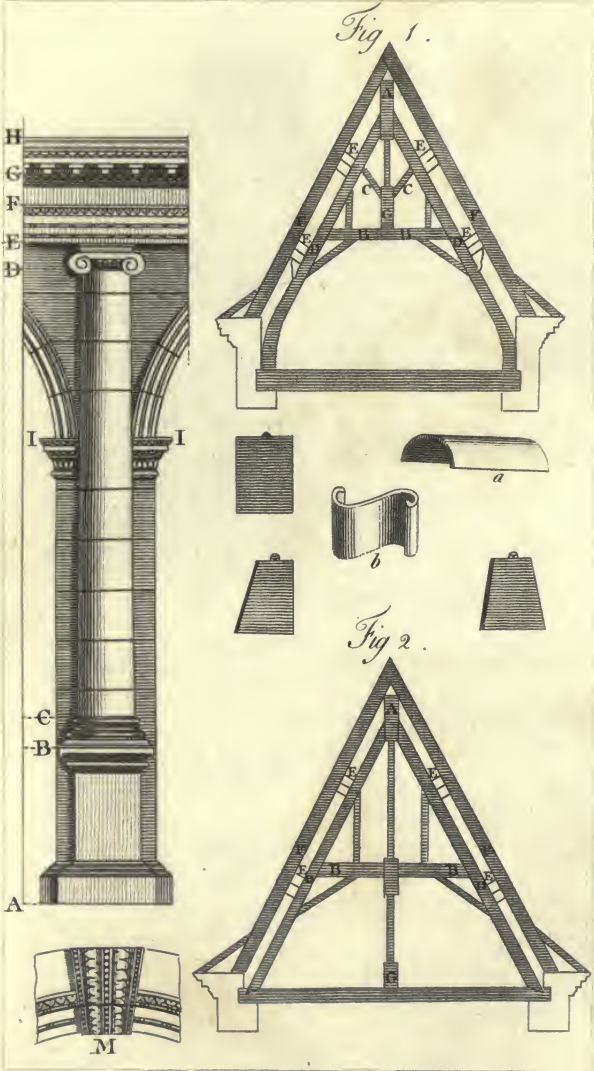


TAB. II.

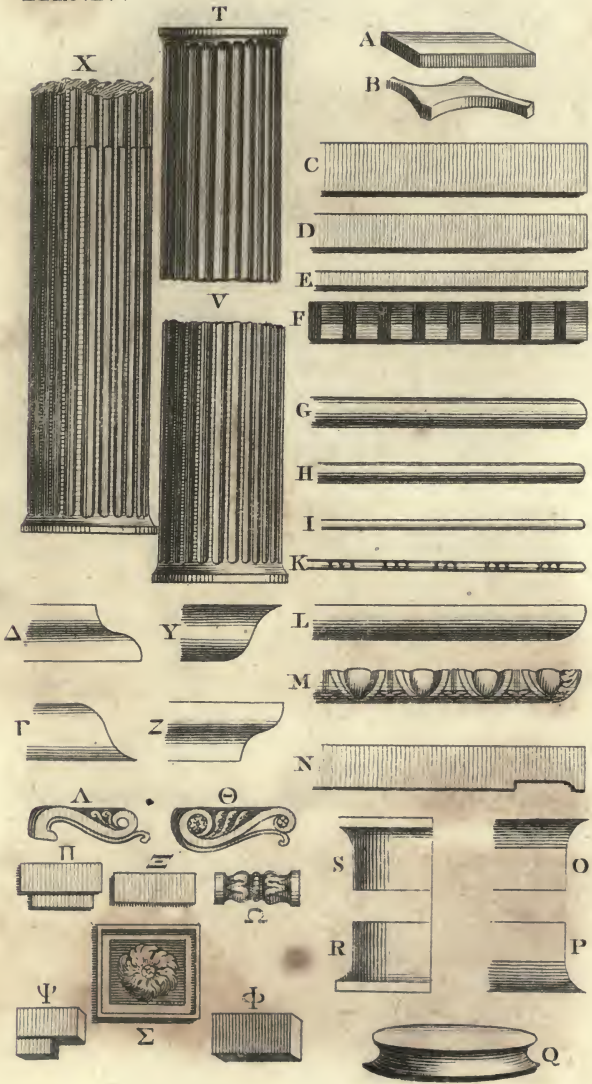


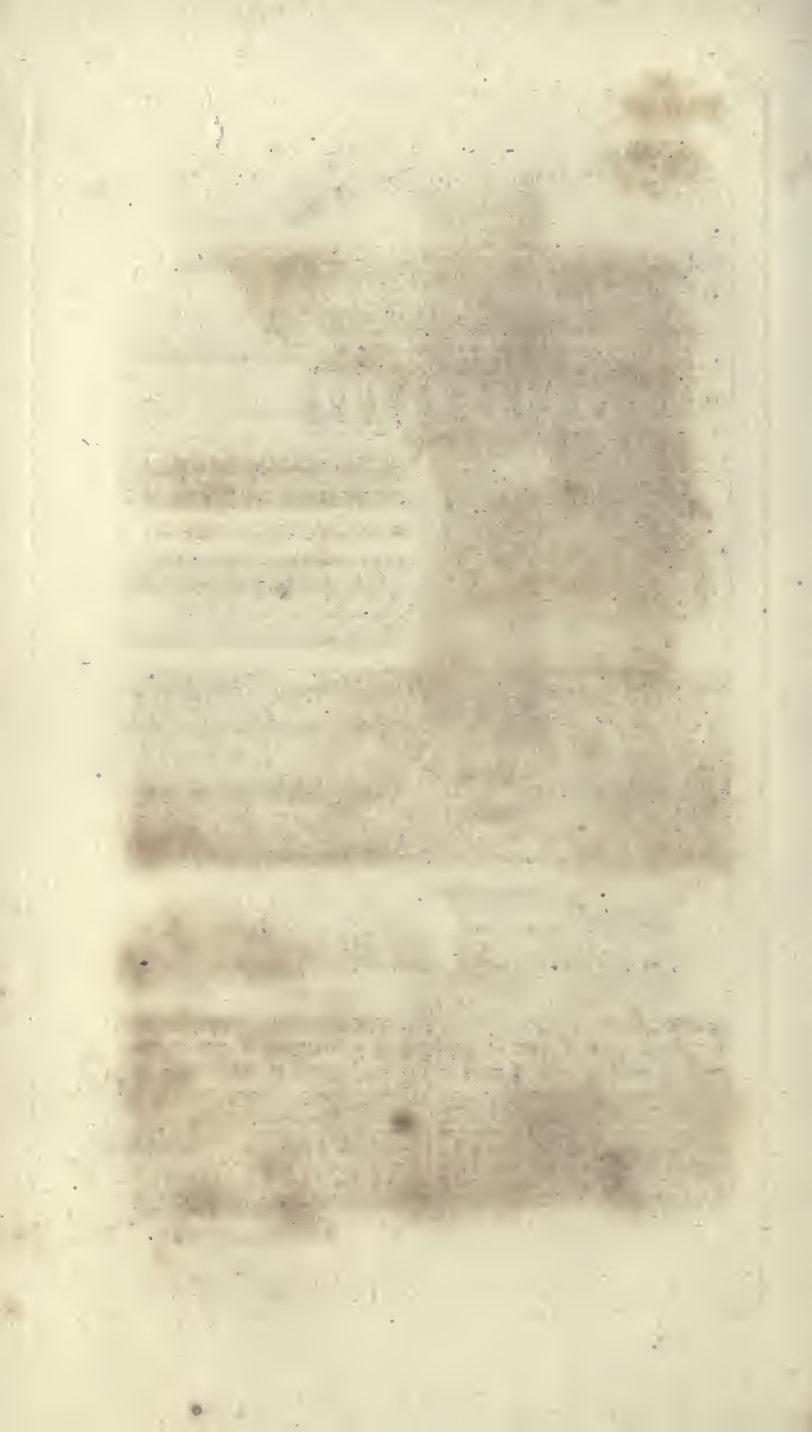


TAB. III.

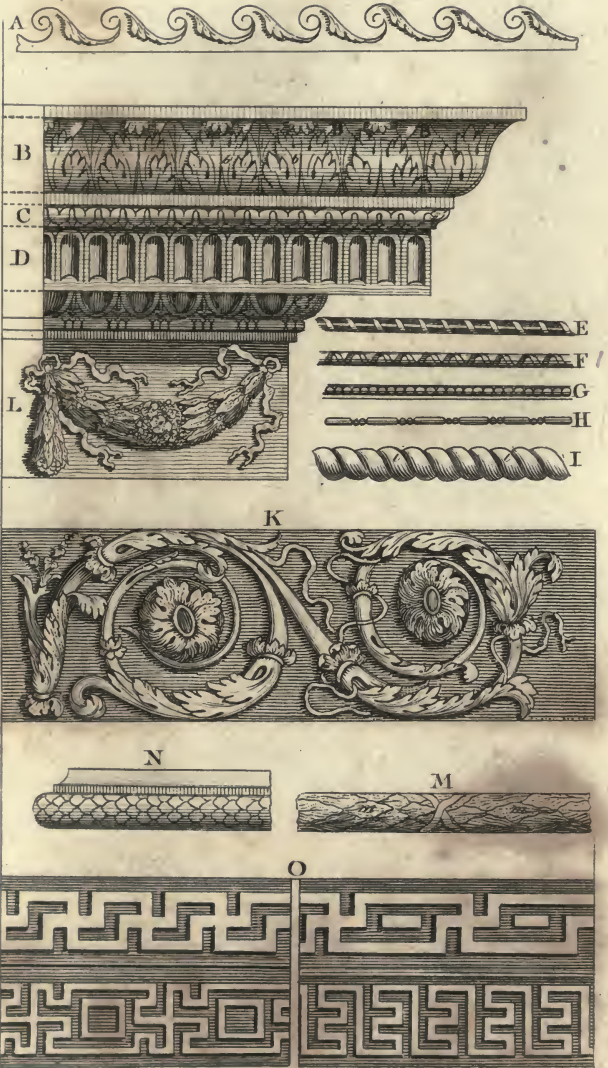


TAB. IV.



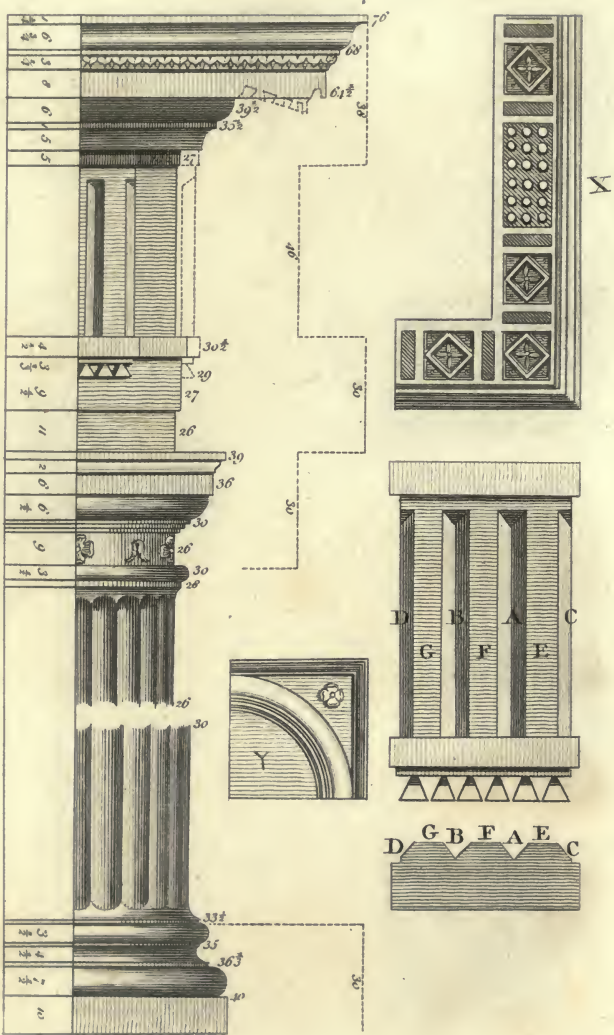


TAB.V.

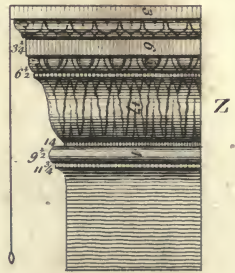
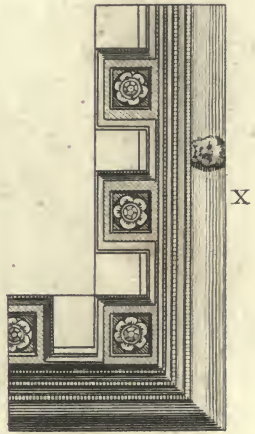
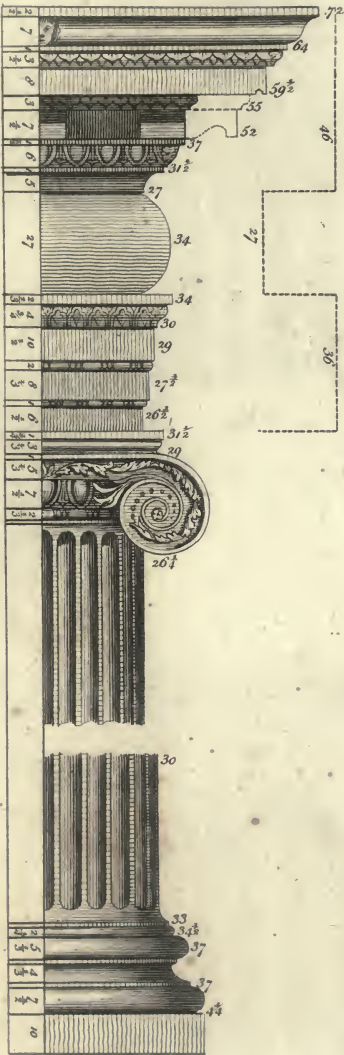




TAB. VI.

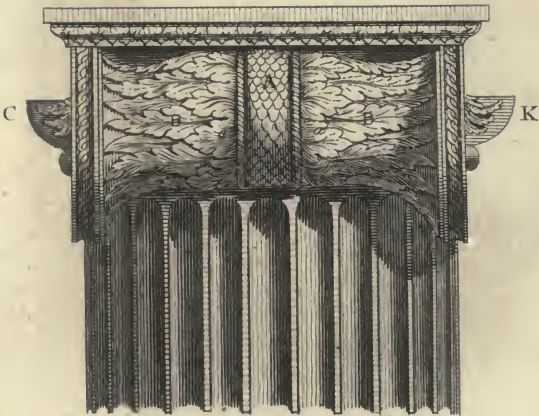
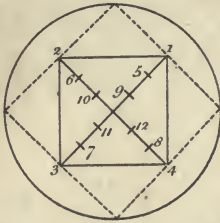
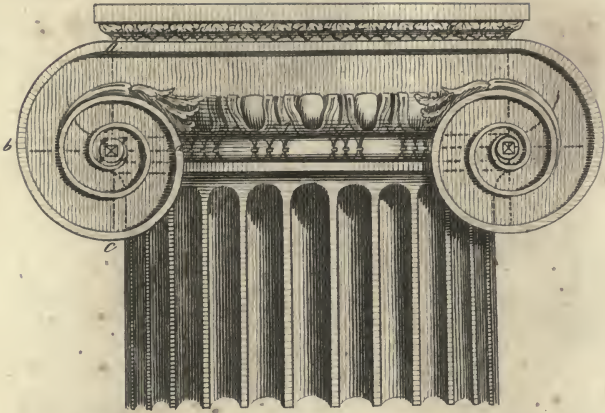


TAB.VII.



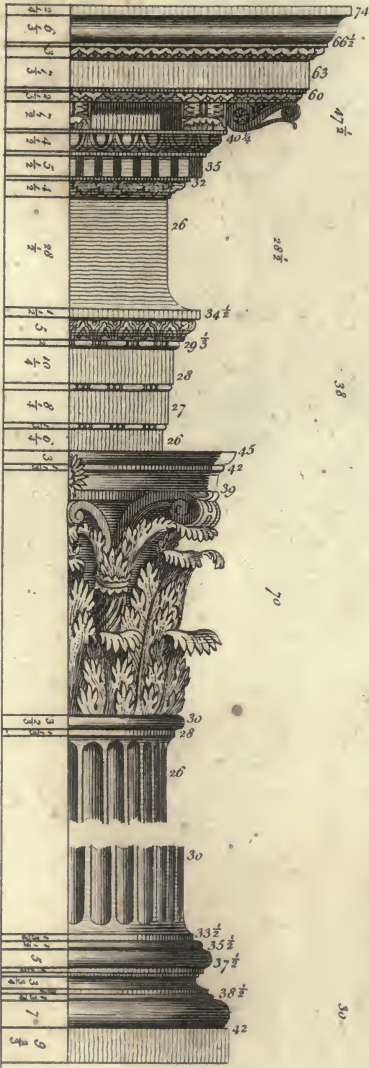


TAB.VIII.





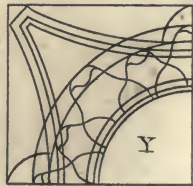
TAB. IX.



X



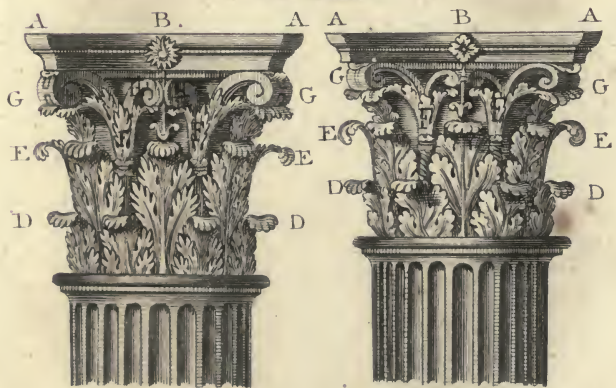
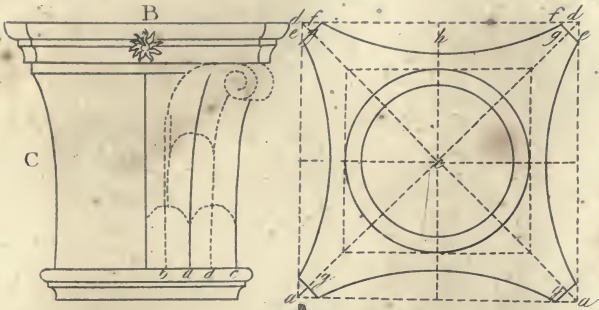
Z



Y

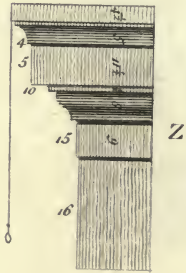
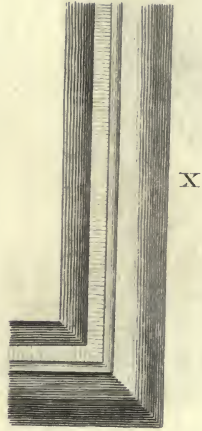
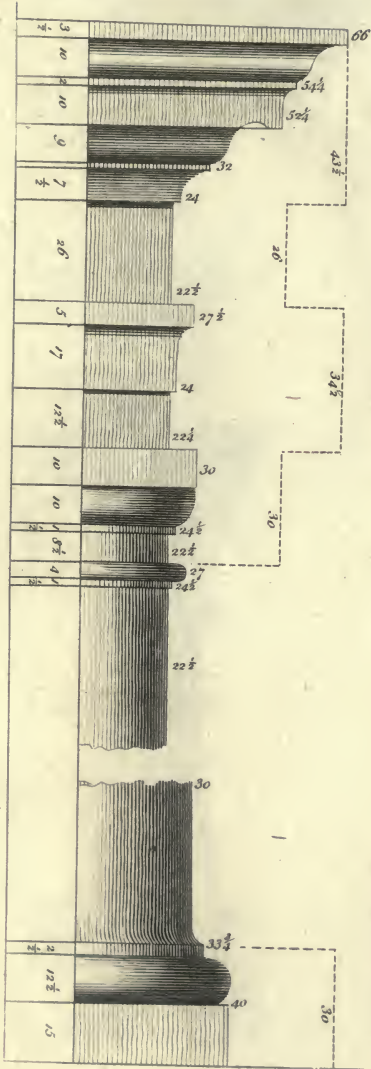


TAB. X.



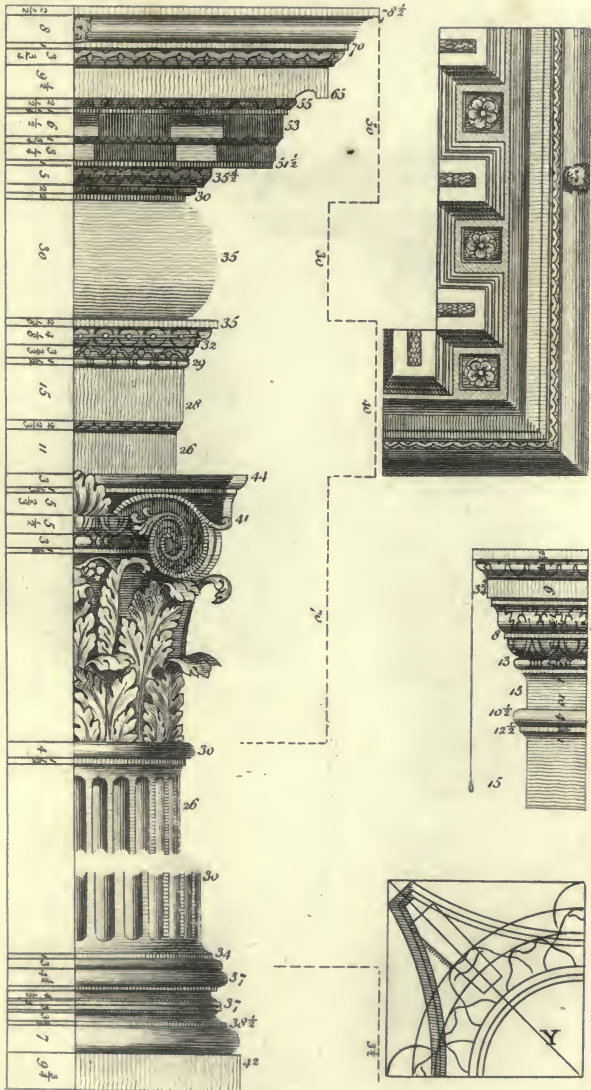


TAB. XI.

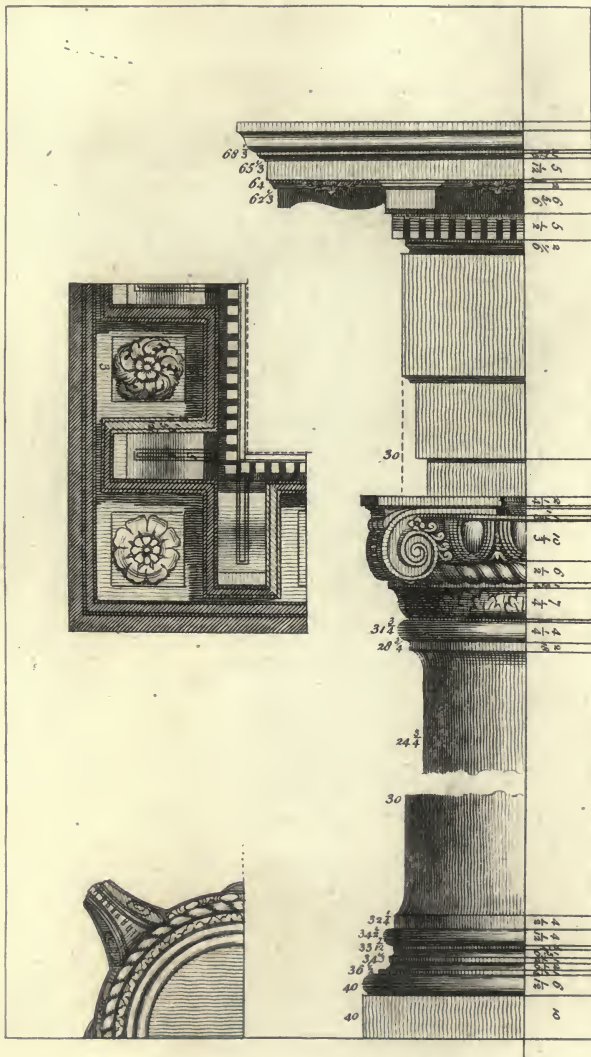




TAB. XII.

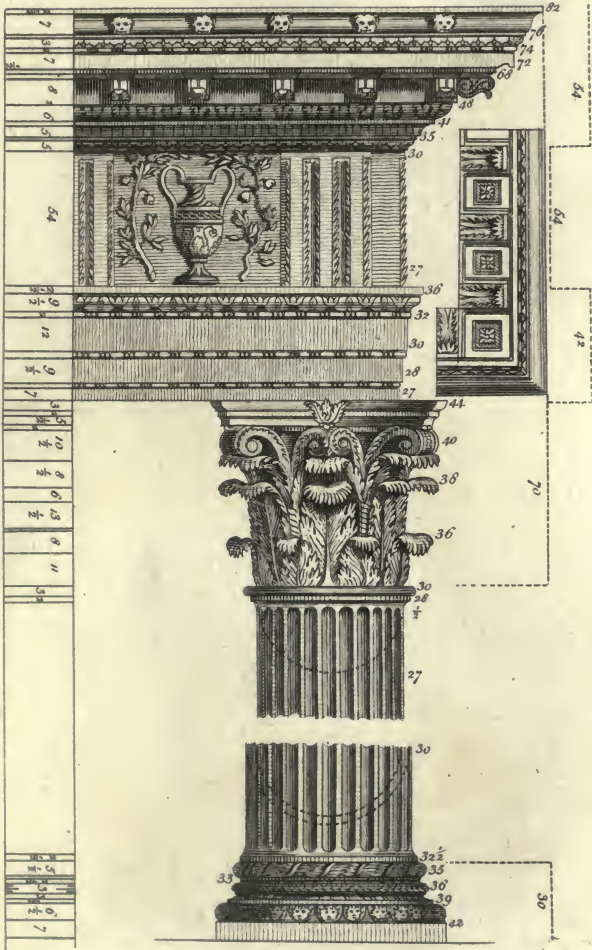


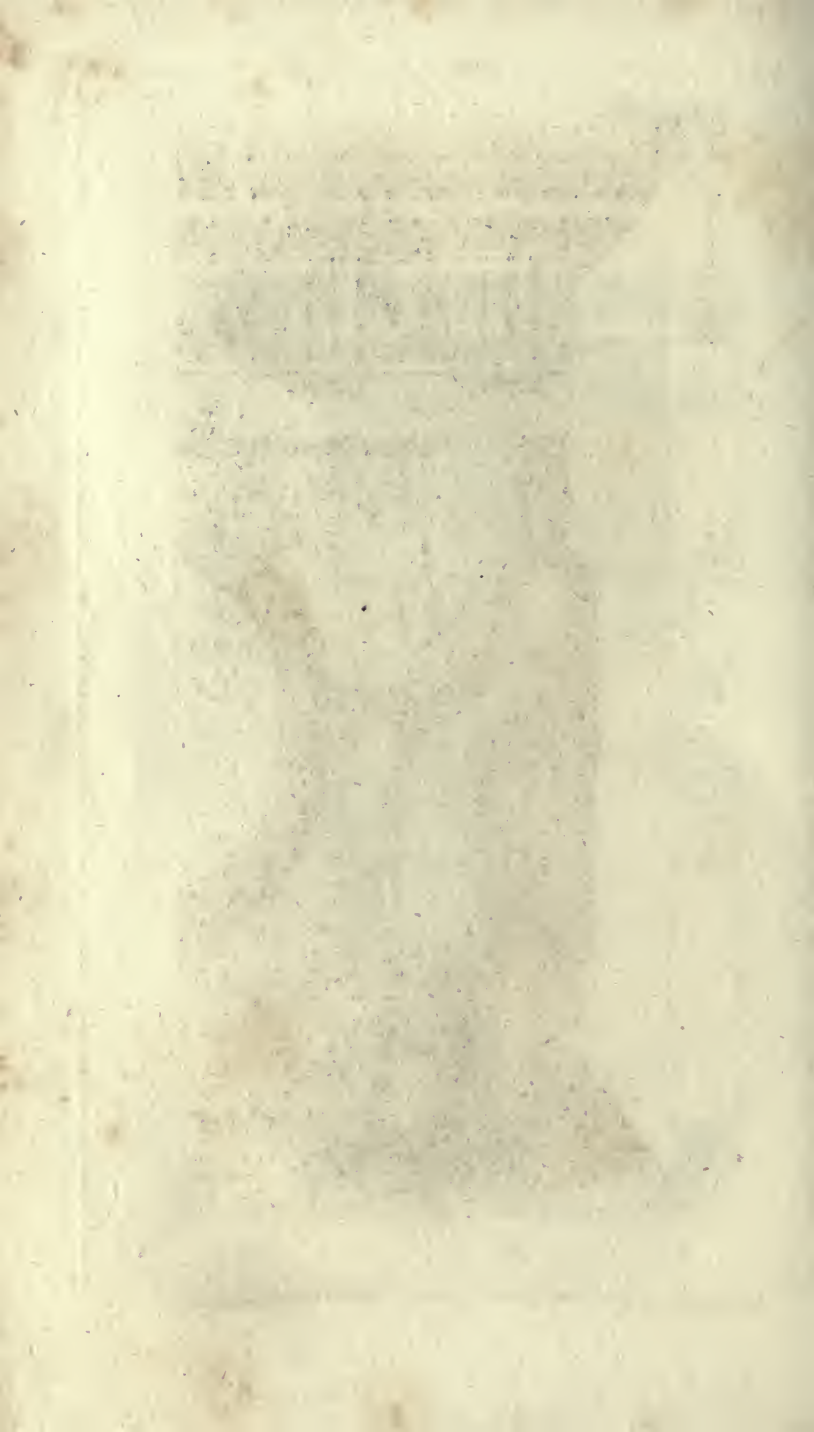
TAB. XIII.





TAB. XIV.





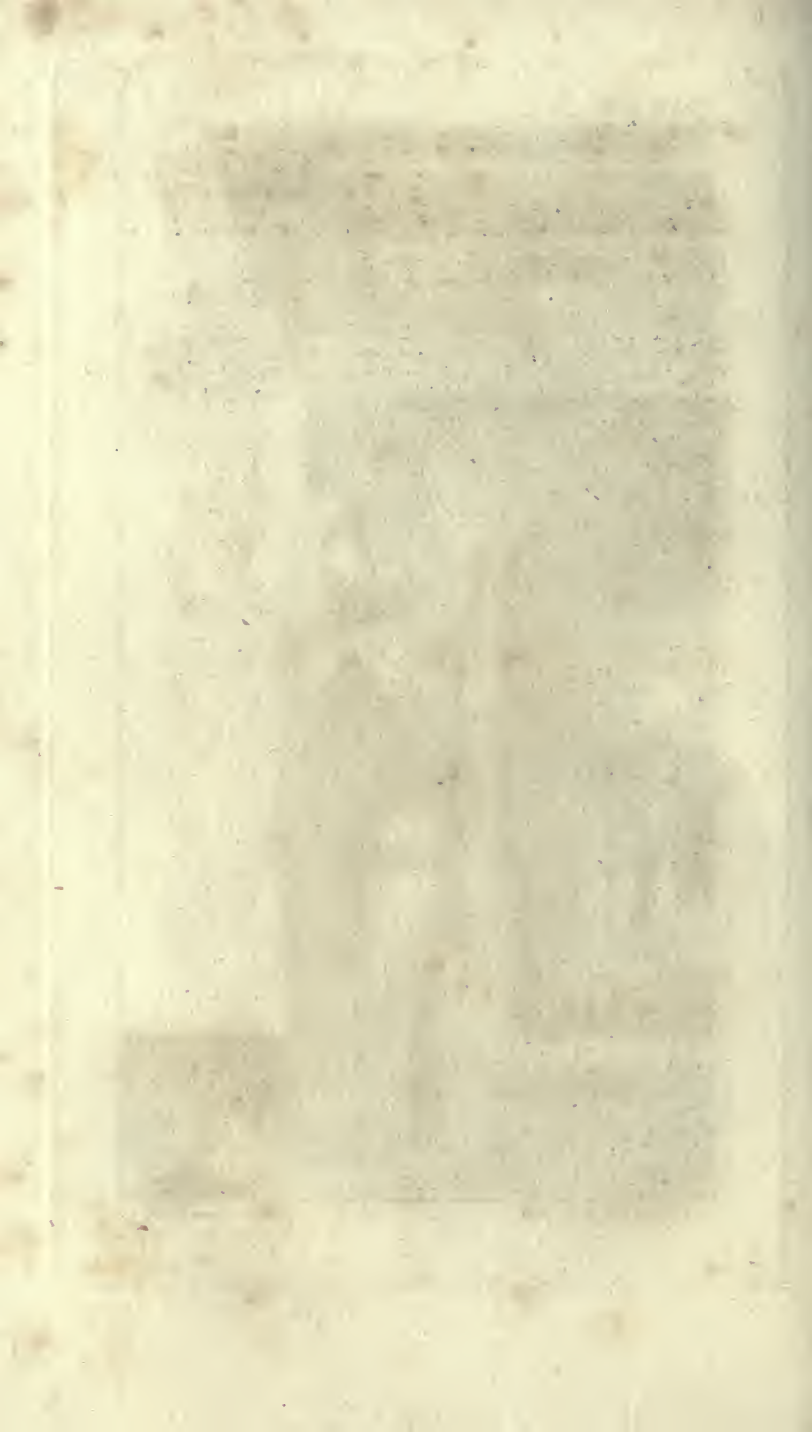


ΑΣ
ΠΡΟ
ΟΥΑ
ΧΑΙΡ
ΑΠ
ΝΥ
Α

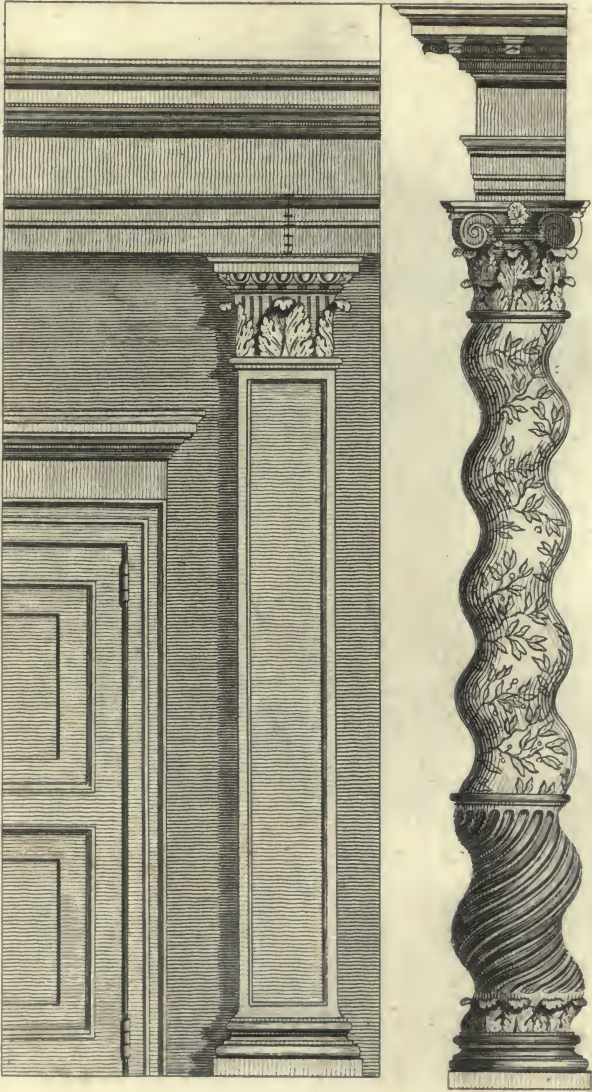


TAB. XVI.





TAB. XVII.





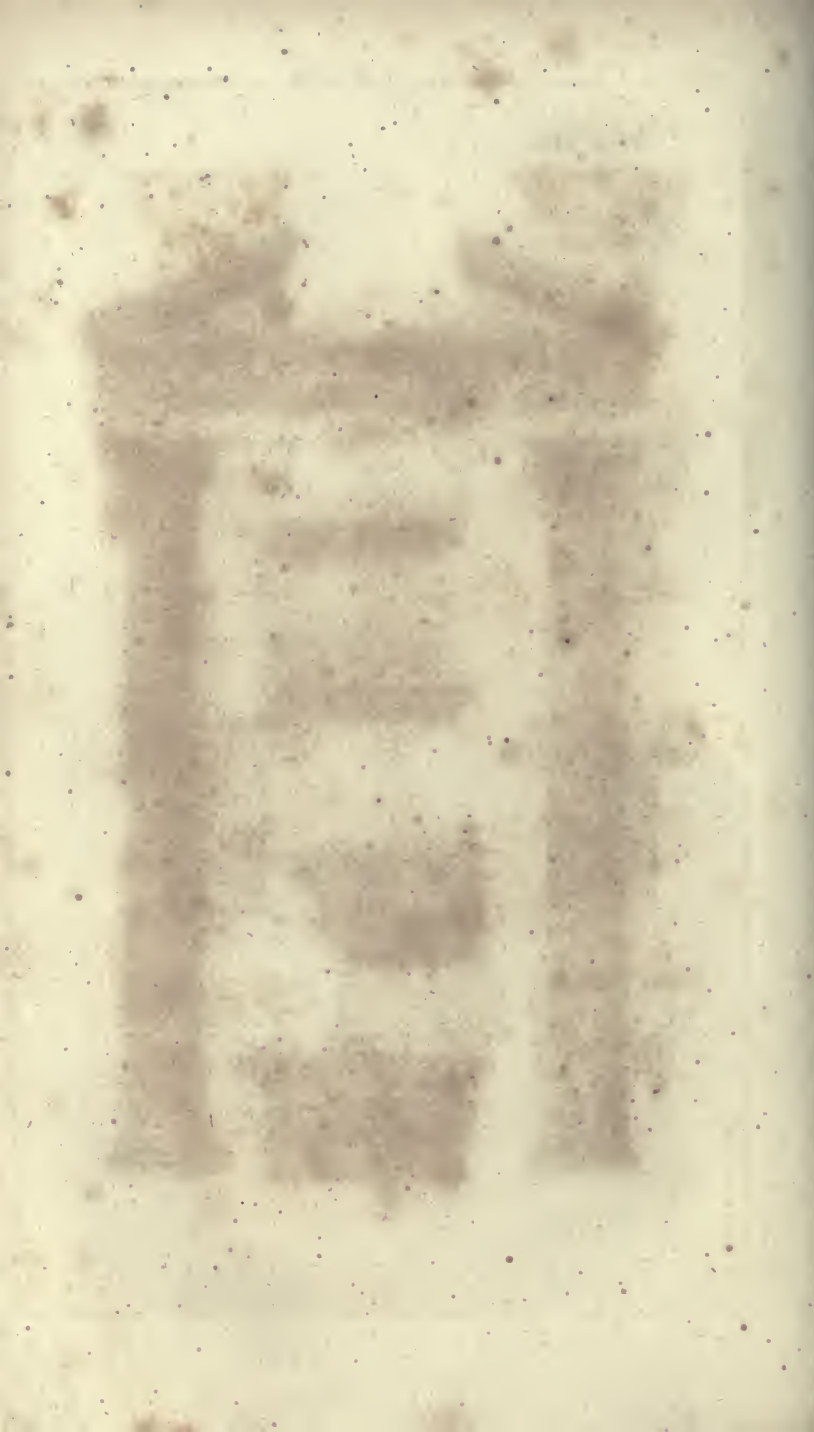
TAB. XVIII.



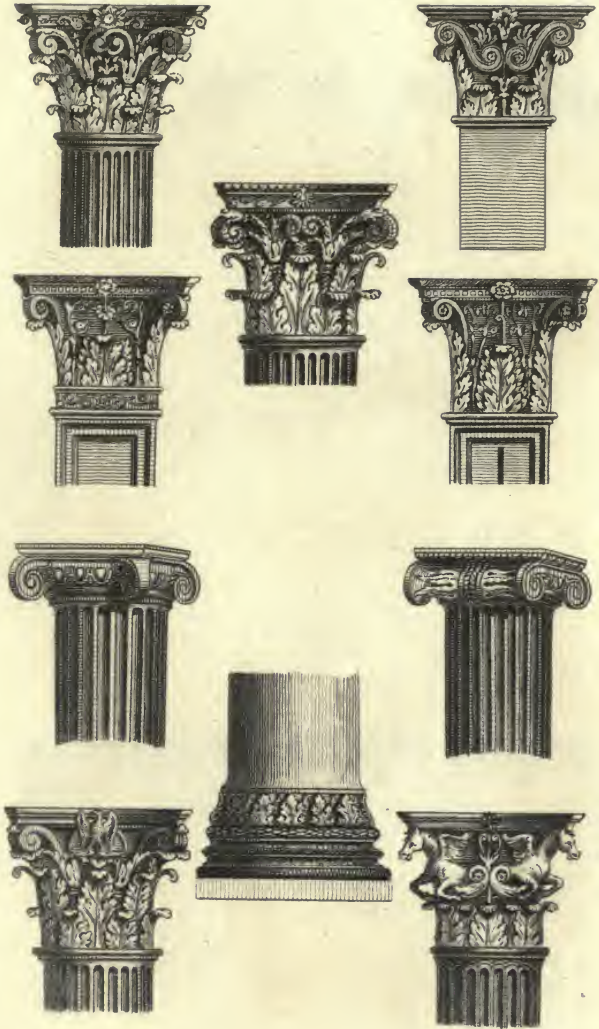


TAB. XIX.



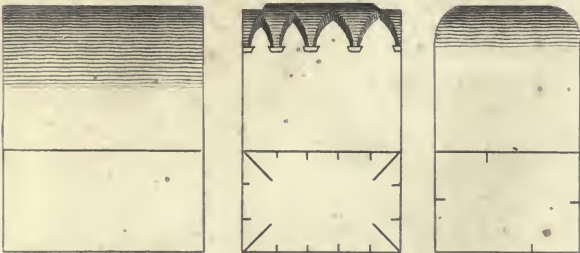
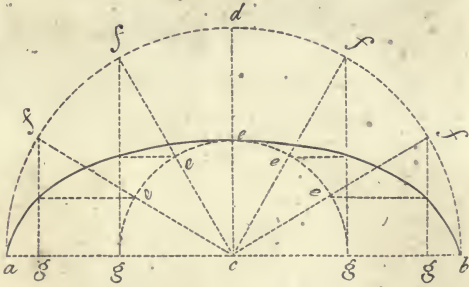
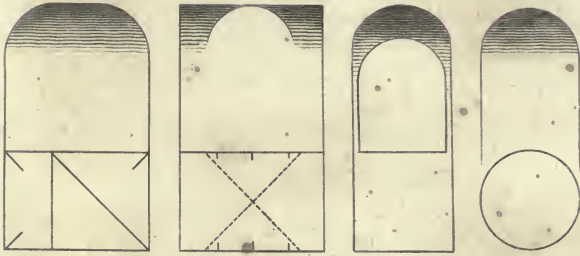


TAB. XX.



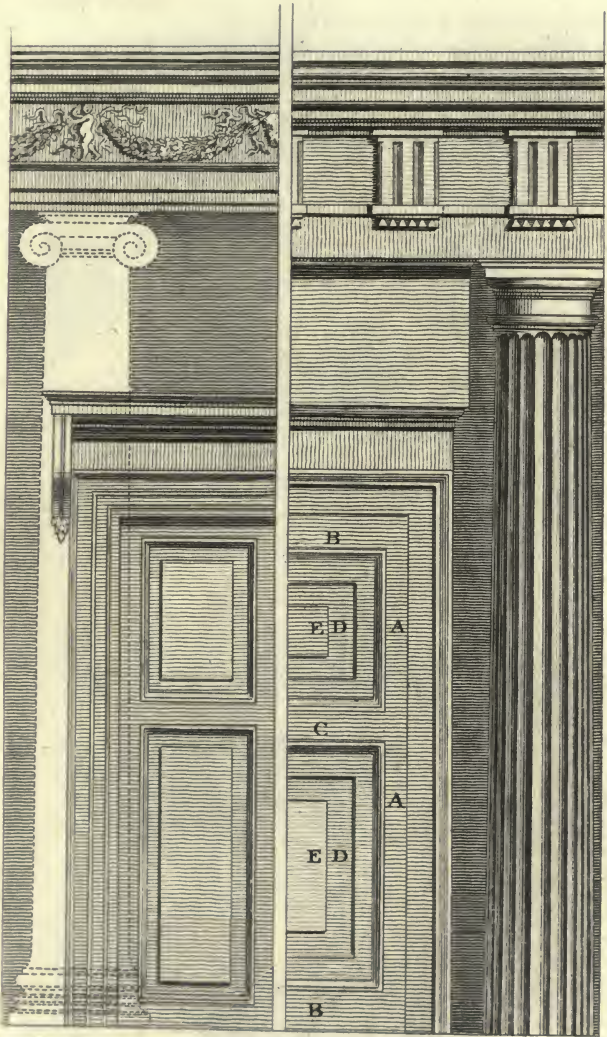


TAB. XXI.



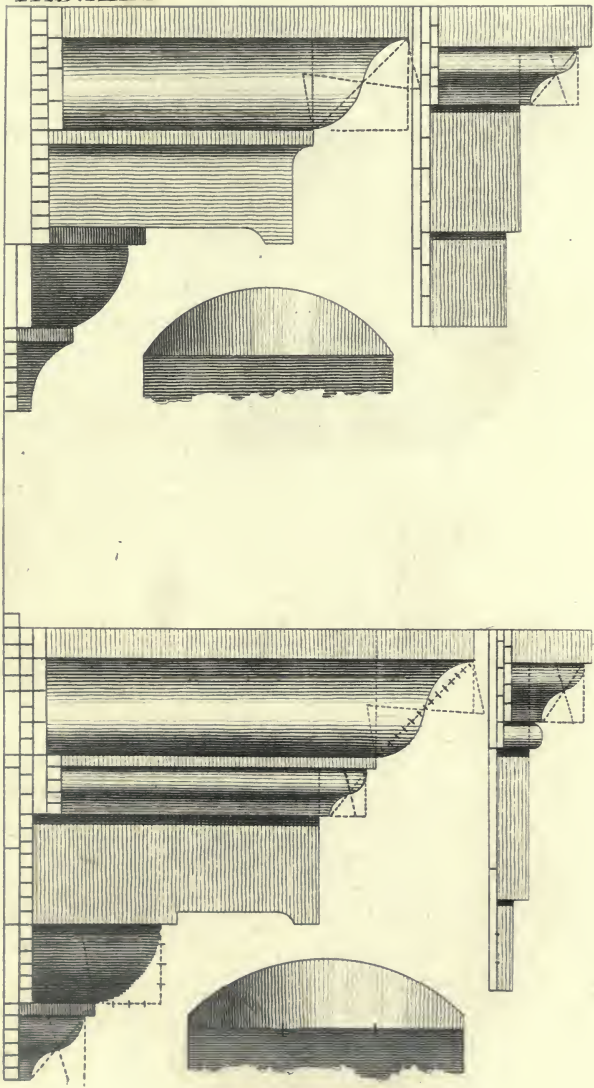


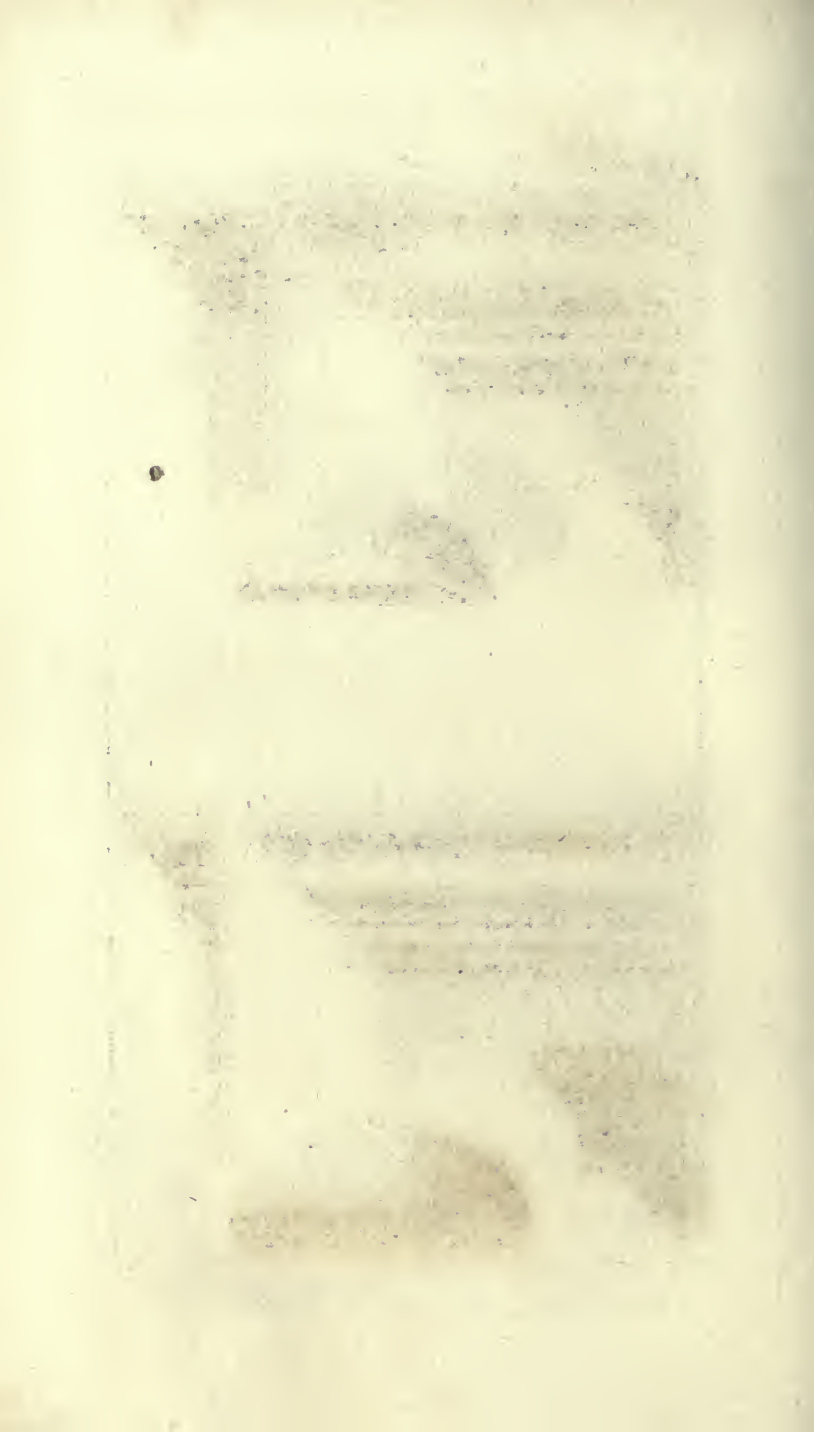
TAB. XXII.



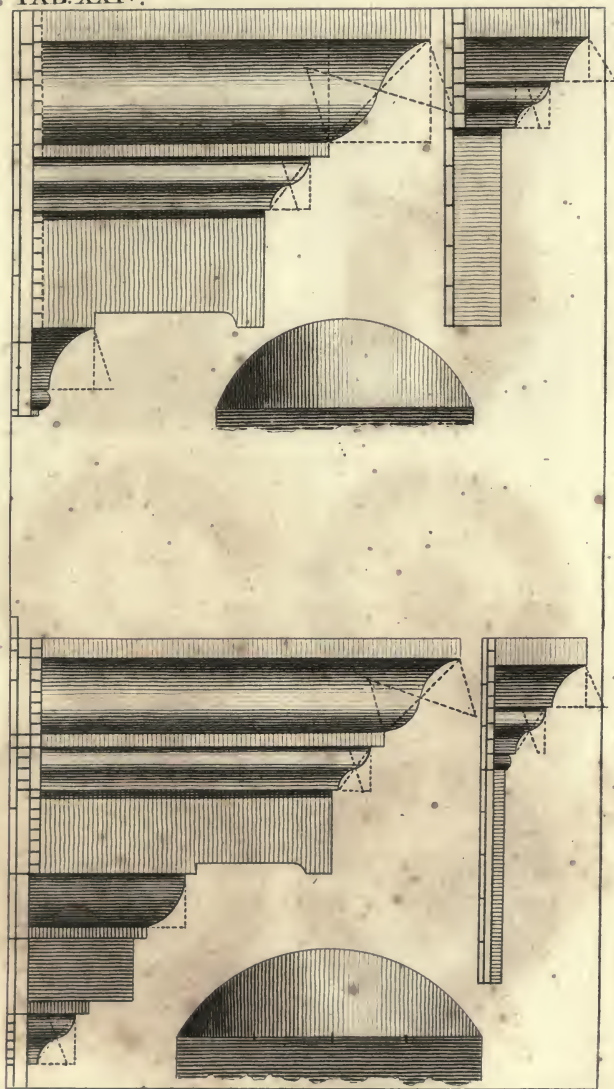


TAB. XXIII



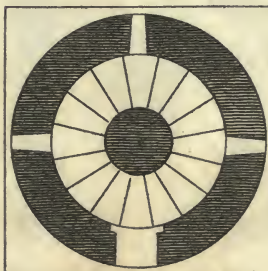
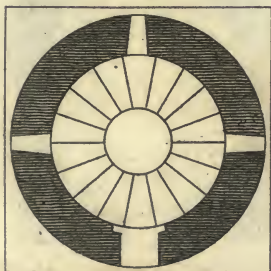
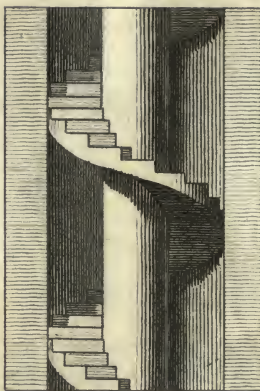
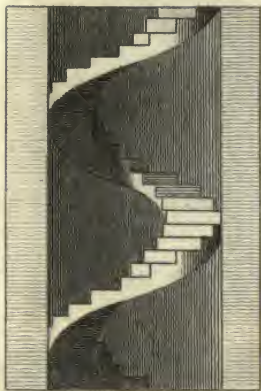


TAB. XXIV.



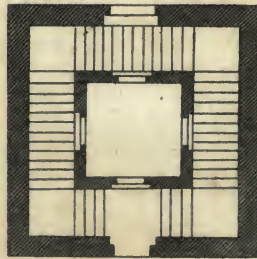
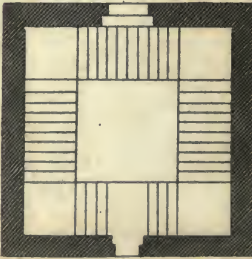
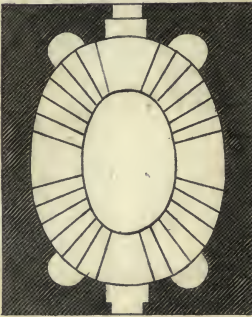
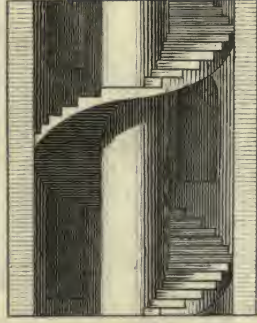


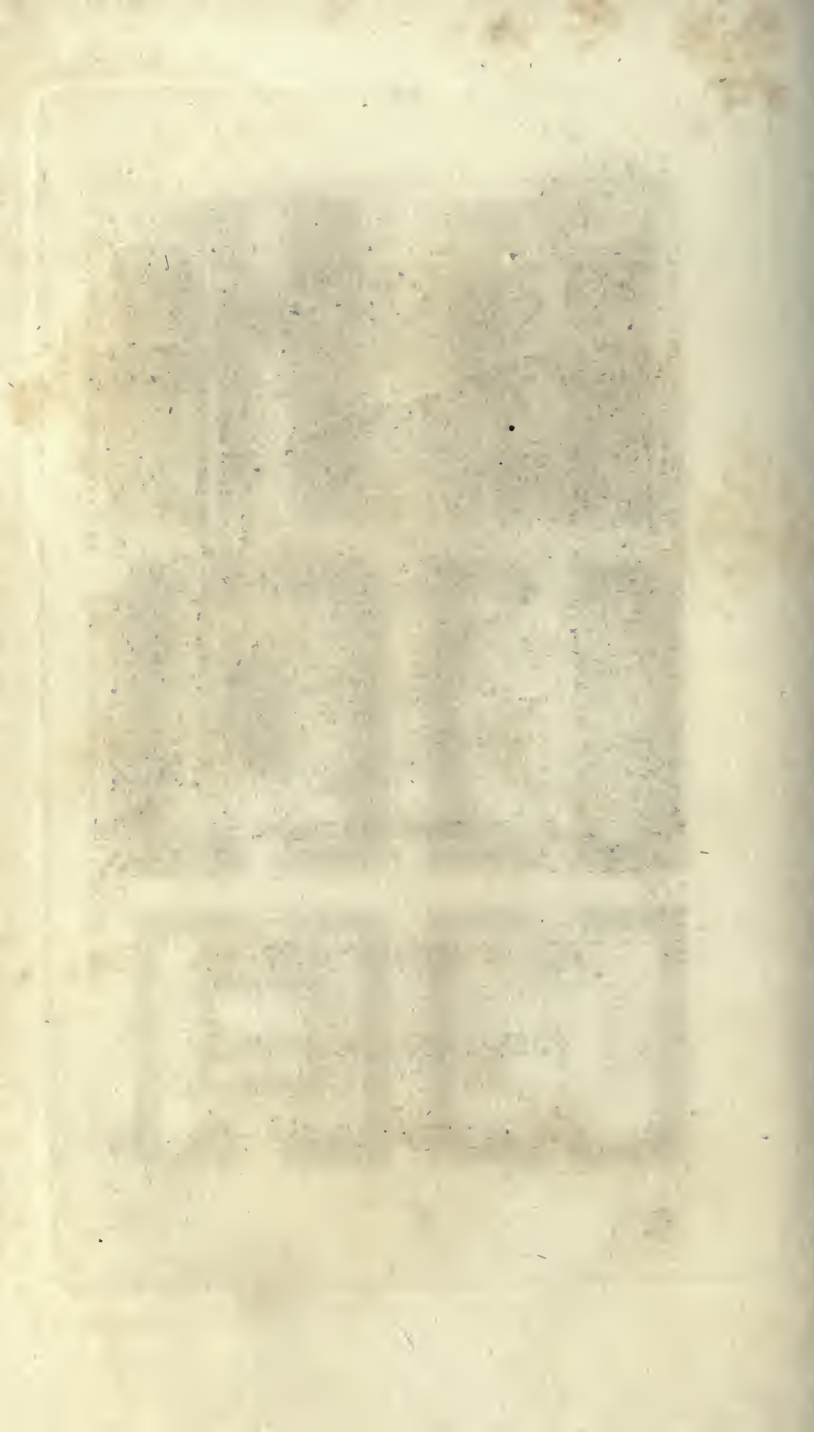
TAB. XXXV.



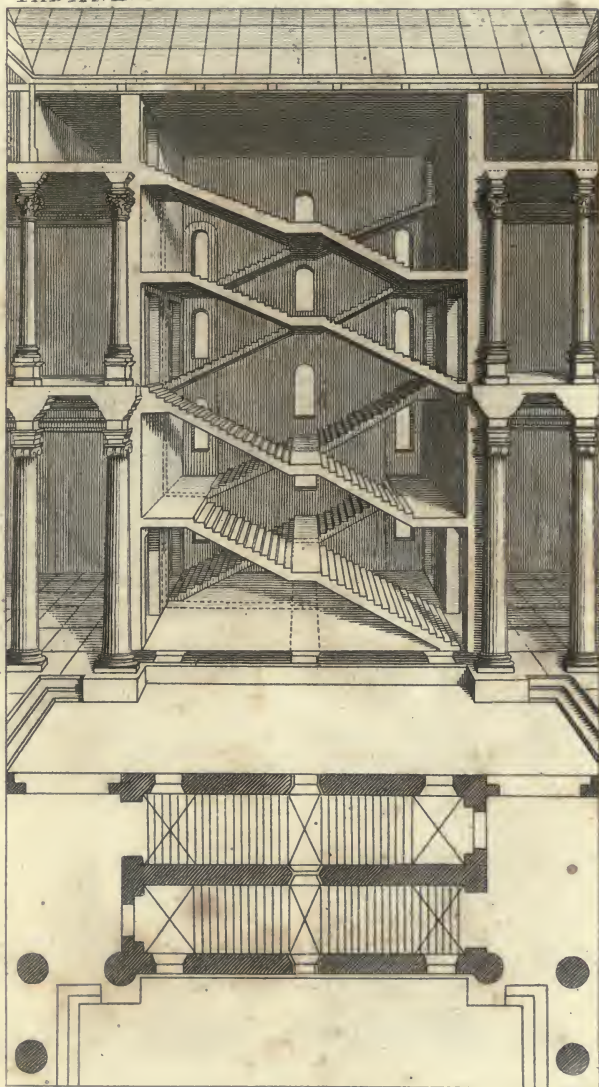


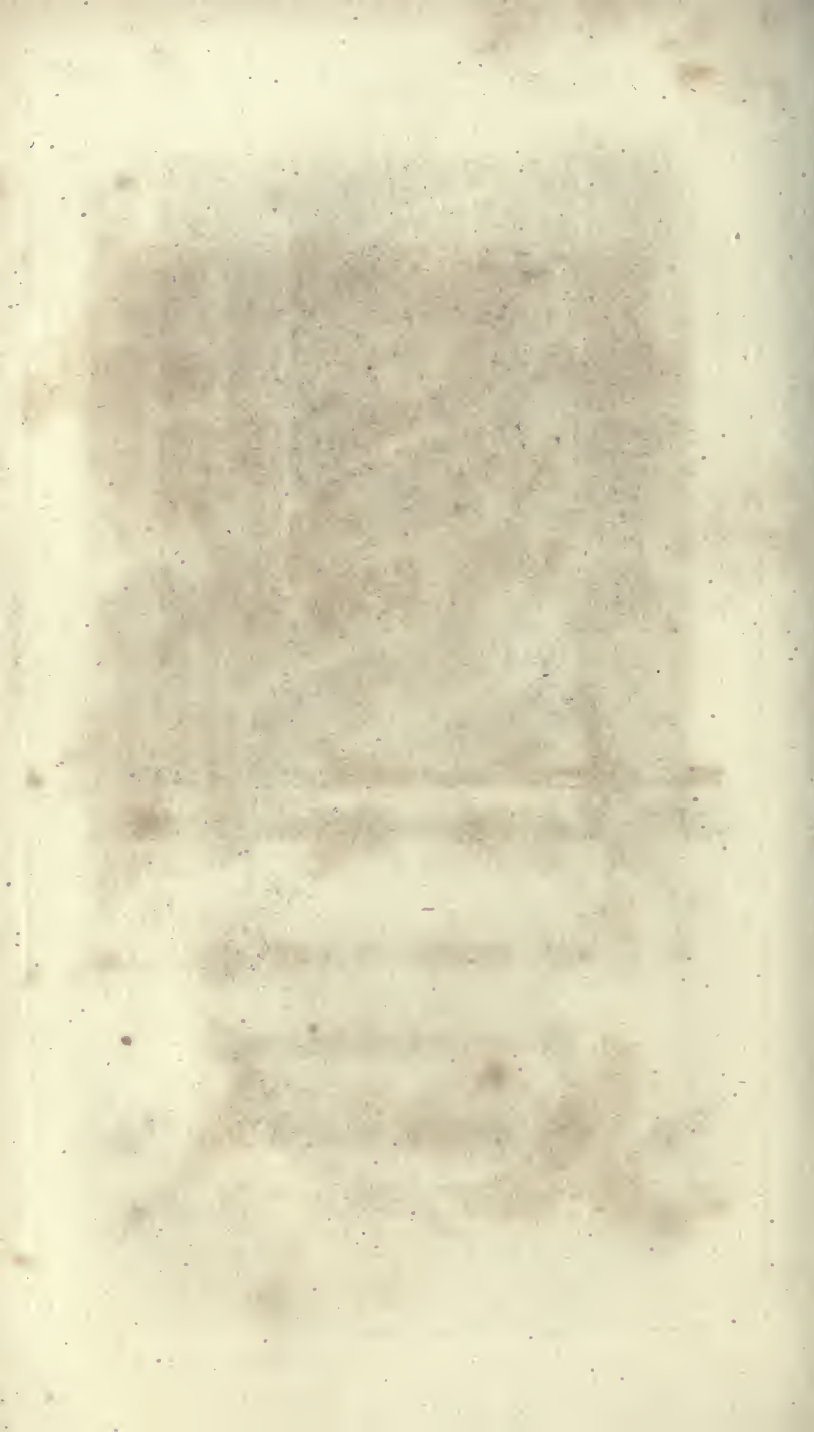
TAB. XXVI.



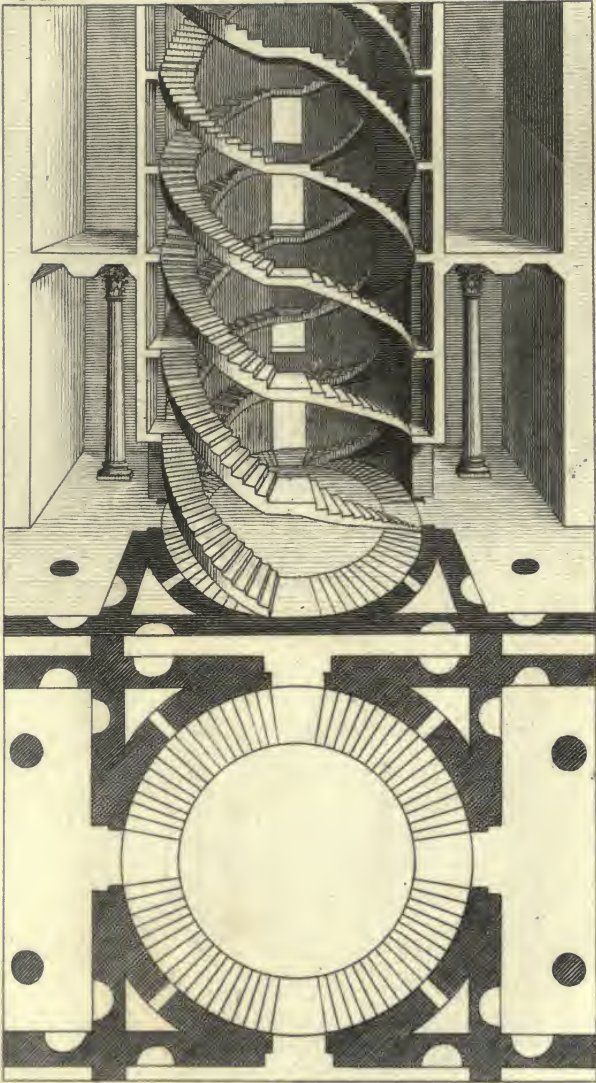


TAB XXVII.



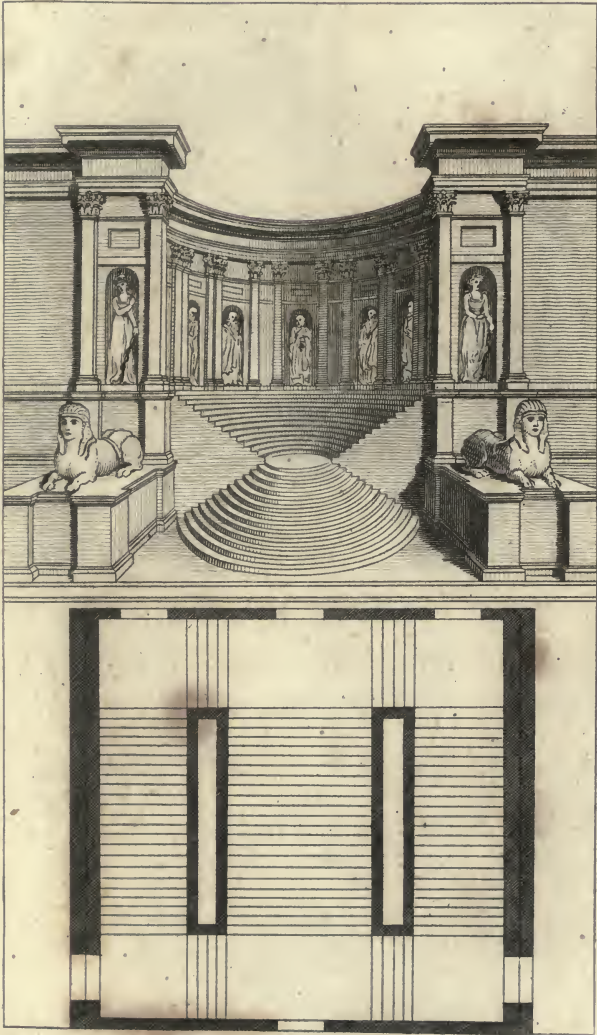


TAB. XXVIII.



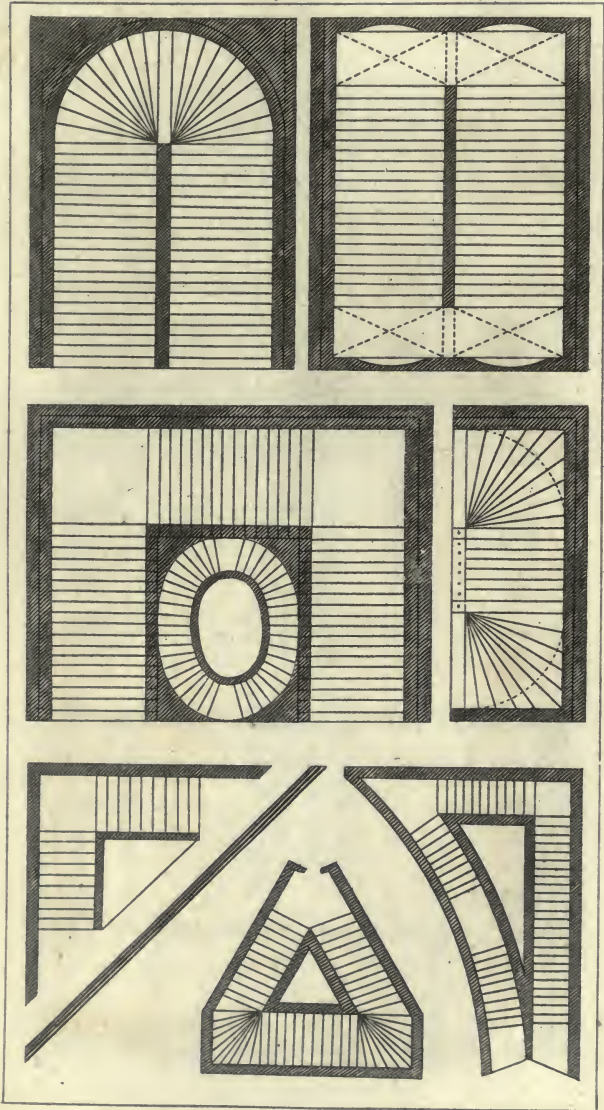


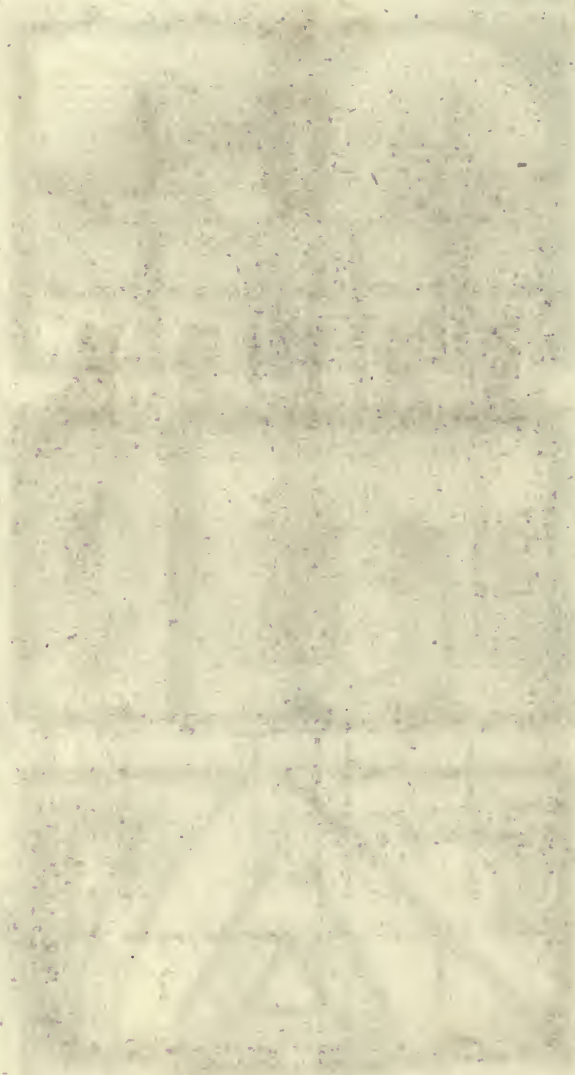
TAB. XXIX.



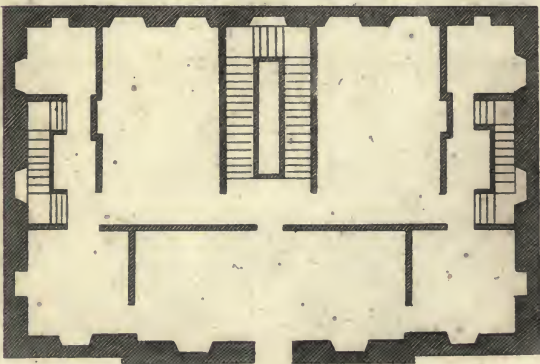
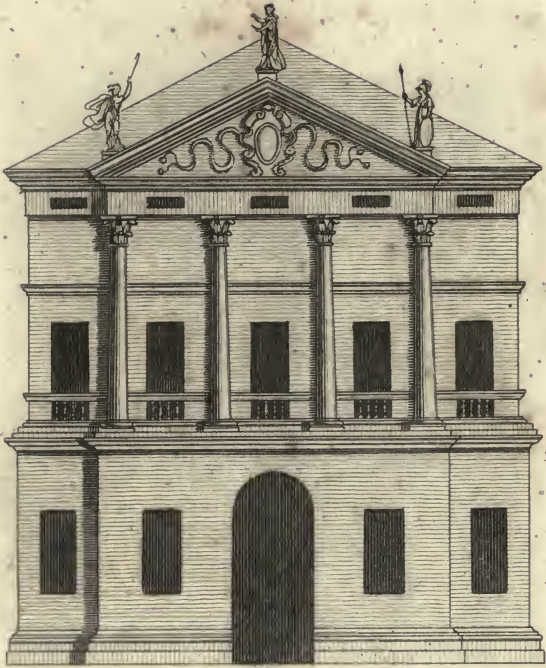


TAB.XXX.



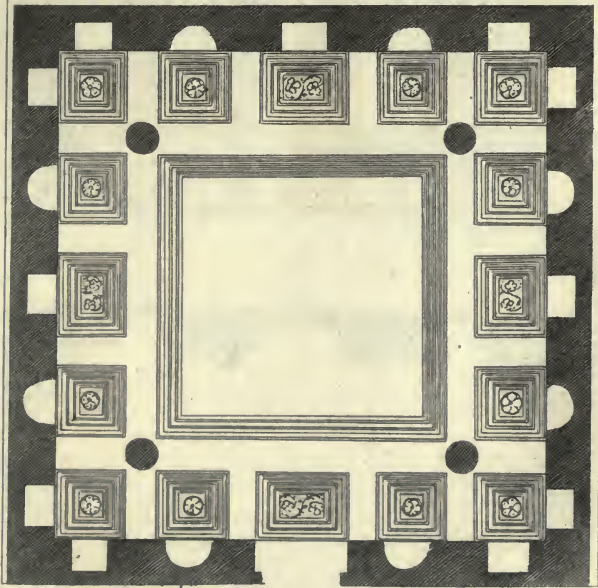


TAB. XXXI.

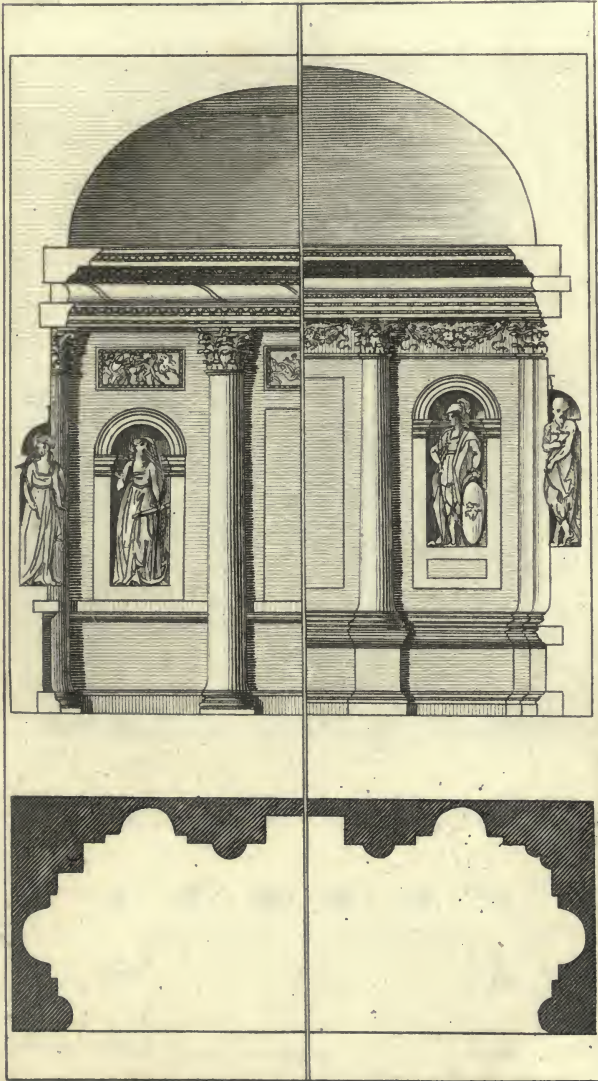


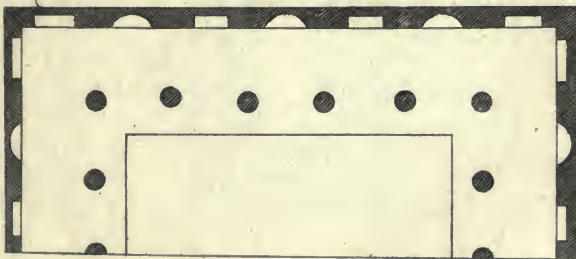
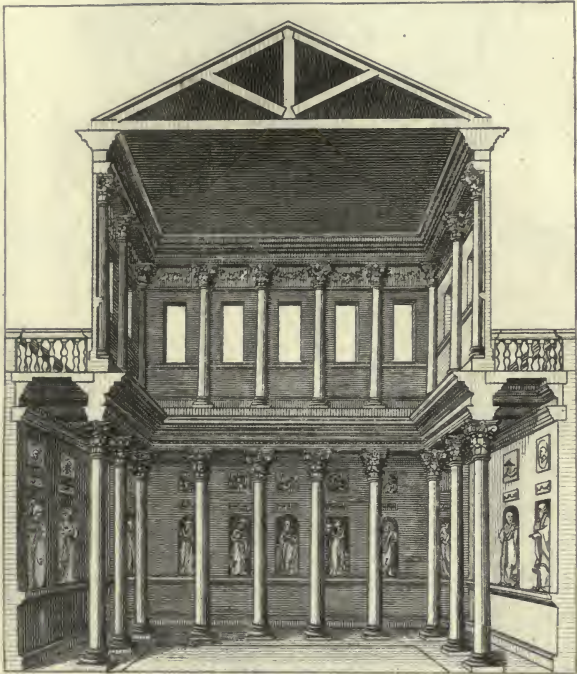


TAB. XXXII.



TAB. XXXIII.

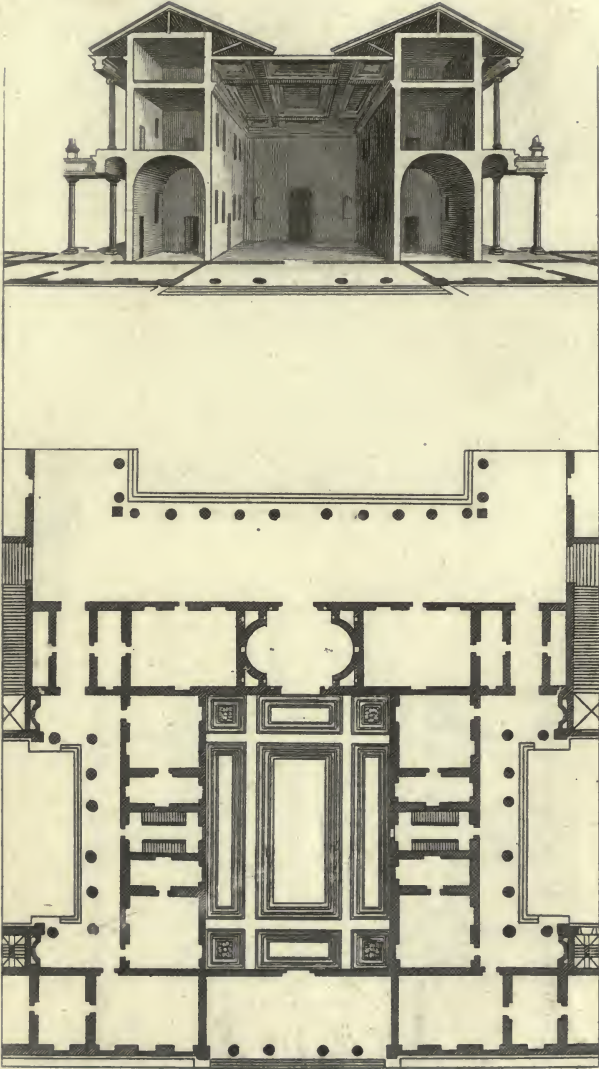




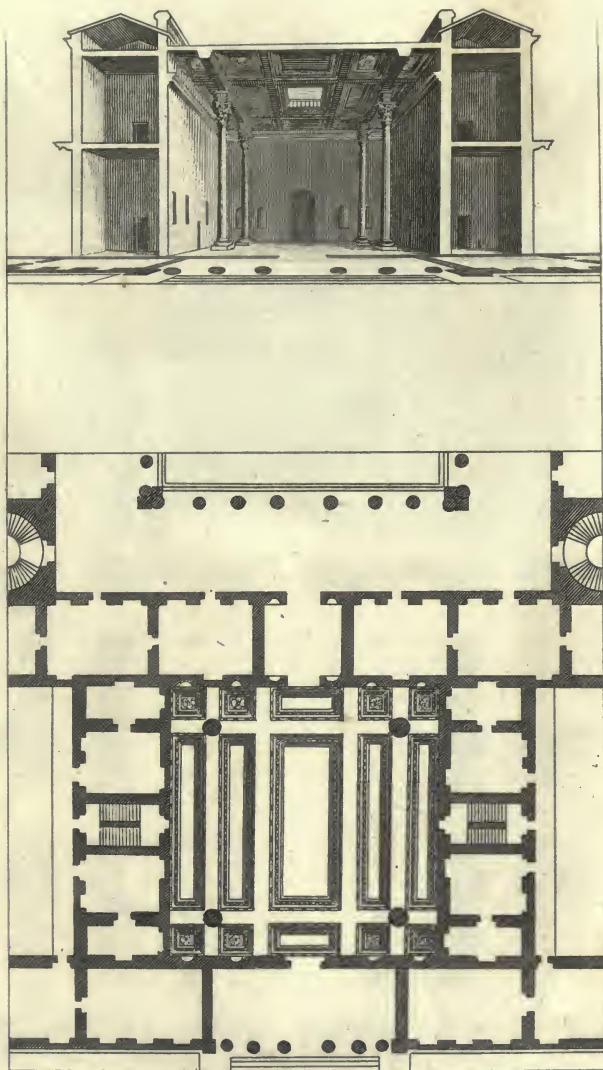
Dear Mother
I received your letter of the 10th and was
glad to hear from you. I am well and
hope these few lines will find you the same.
I have not much news to write at present.

I have been thinking of writing to you
for some time but have been so busy that
I could not find time. I have been
working very hard lately and have
not had much leisure. I have been
thinking of going to see you soon but
do not know when I will be able to do so.
I have been thinking of writing to you
for some time but have been so busy that
I could not find time. I have been
working very hard lately and have
not had much leisure. I have been
thinking of going to see you soon but
do not know when I will be able to do so.

TAB. XXXV.

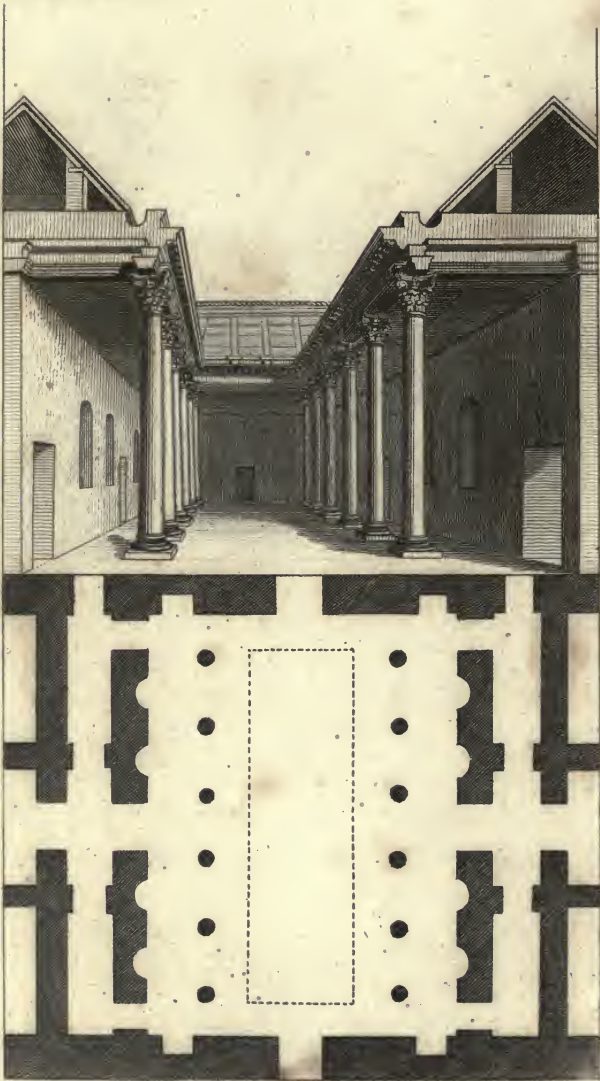


TAB. XXXVI.



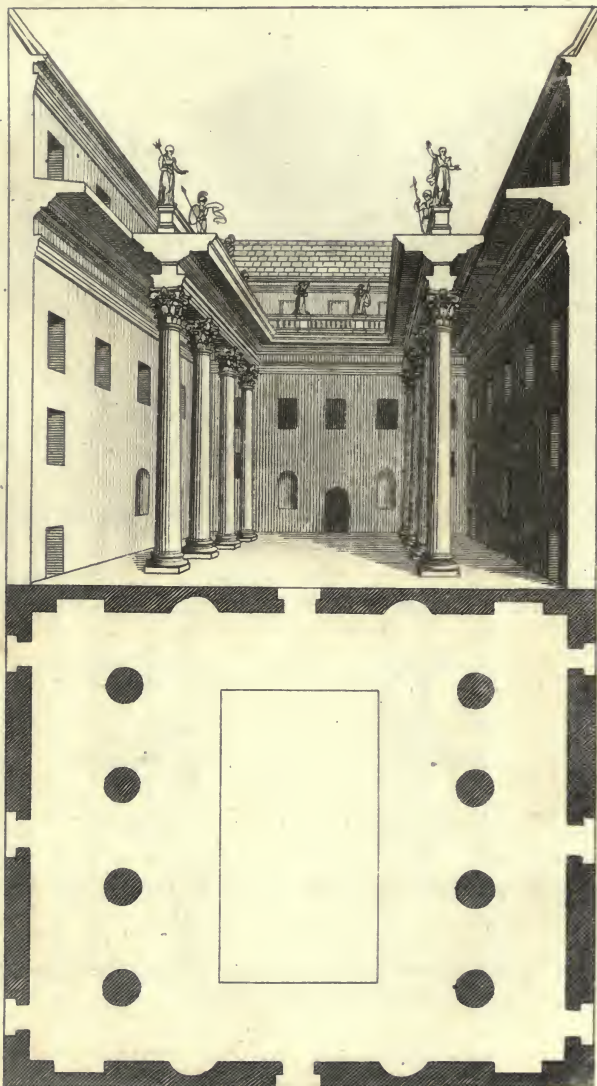


TAB. XXXVII.





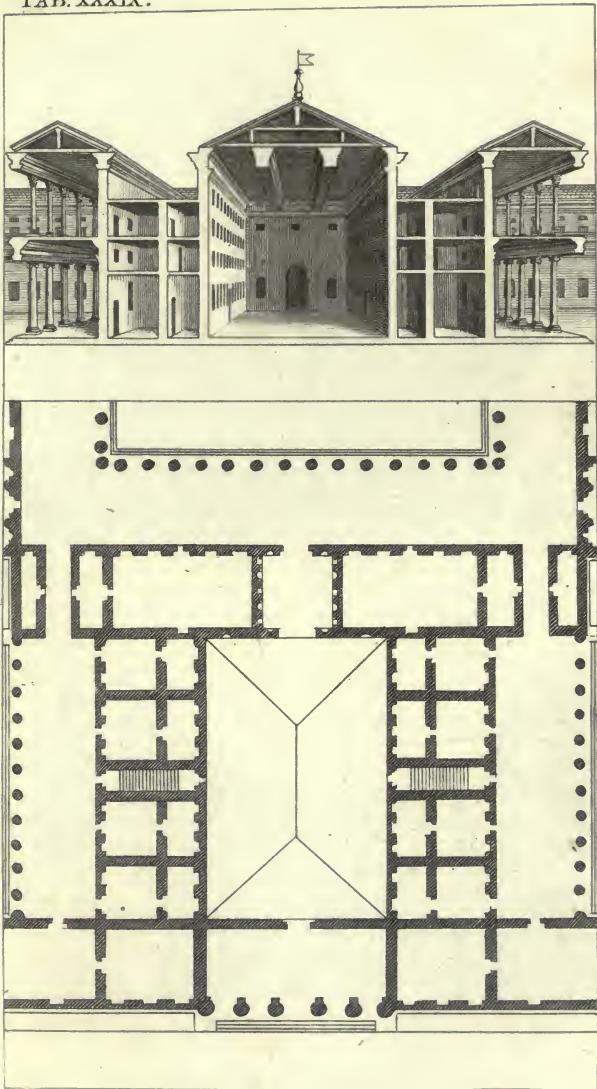
TAB. XXXVIII.



11

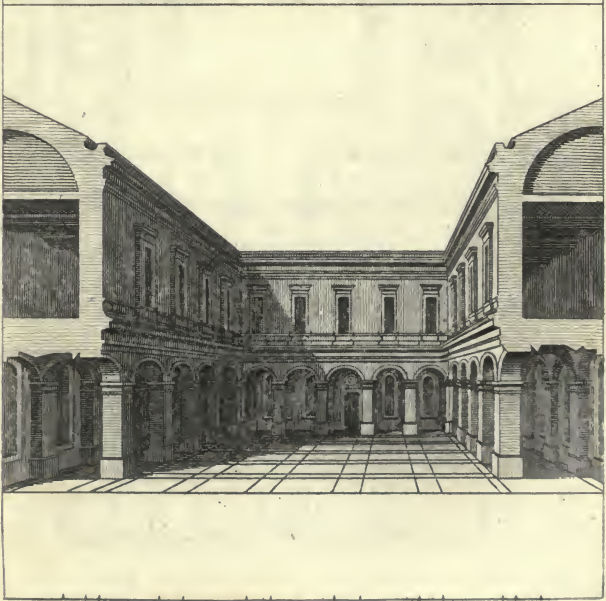
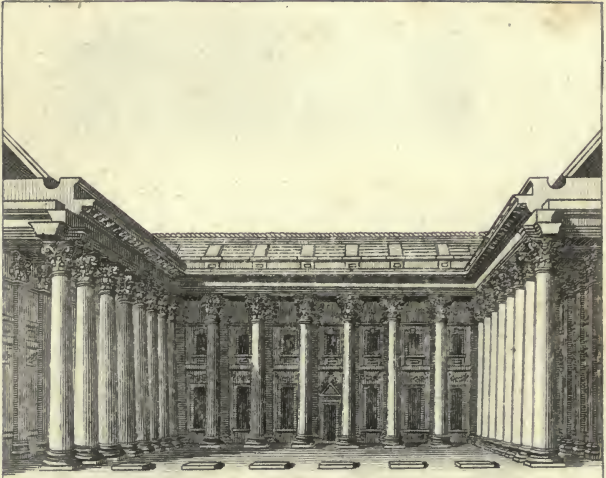
1864	
Month	Days
Jan	31
Feb	28
Mar	31
Apr	30
May	31
Jun	30
Jul	31
Aug	31
Sep	30
Oct	31
Nov	30
Dec	31

TAB. XXXIX.





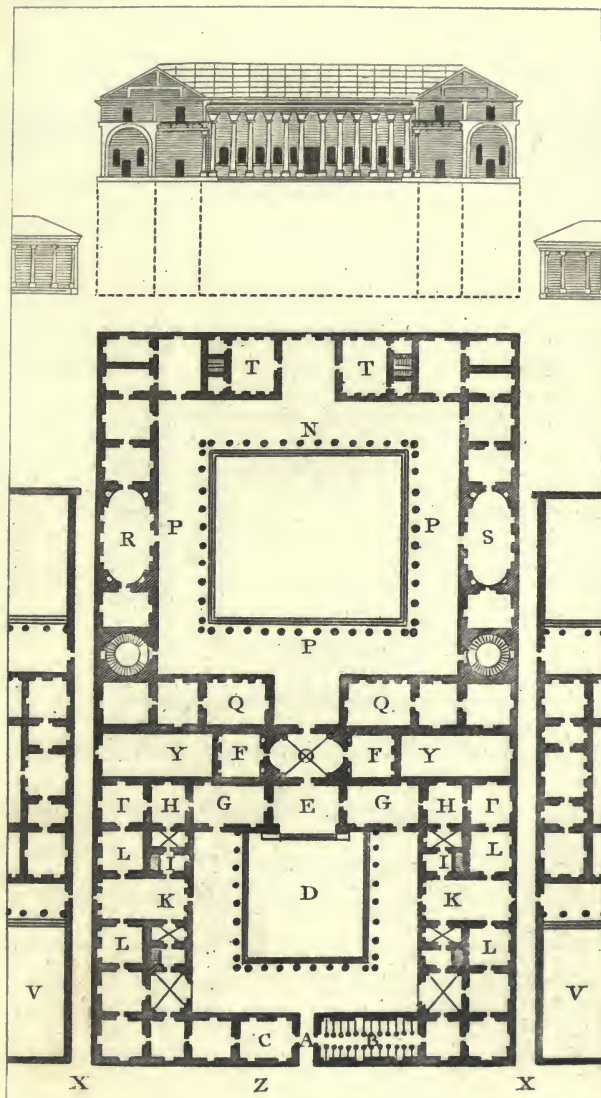
TAB. XL.

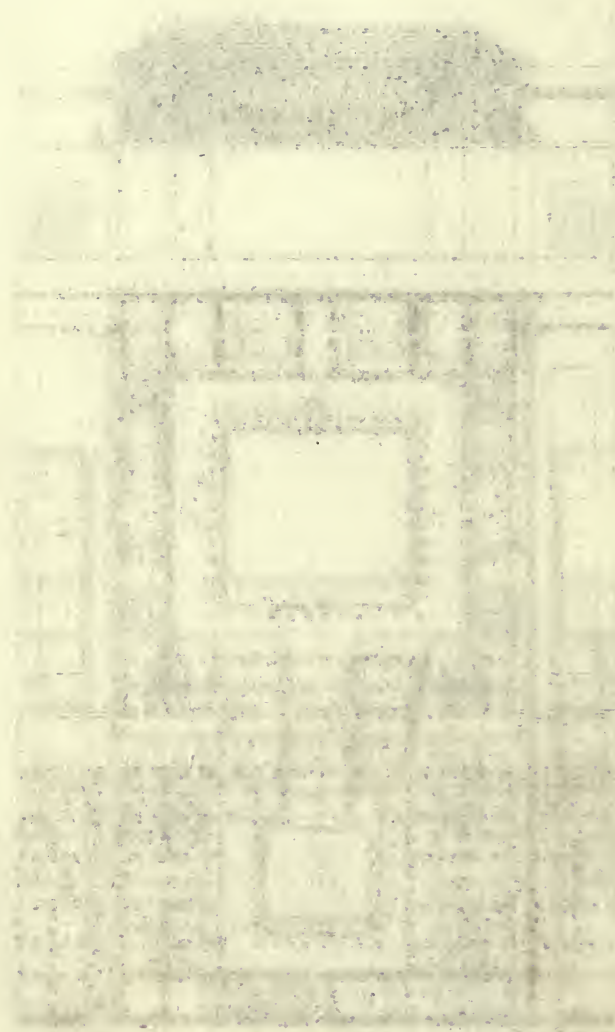


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LIBRARY

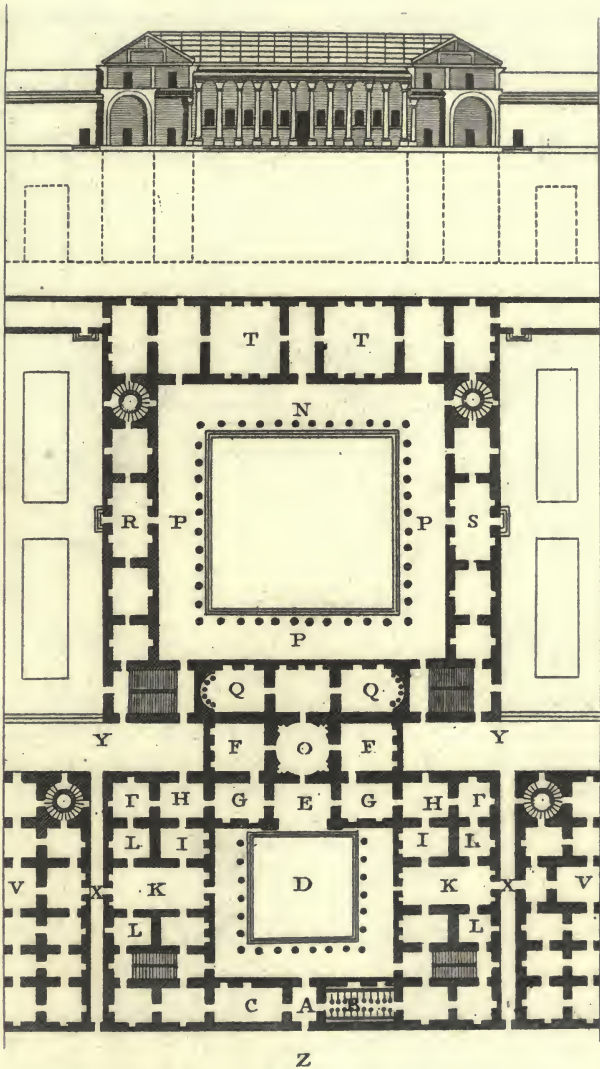
No.	Title	Author
1	The History of the United States	John Jay
2	The Constitution of the United States	James Madison
3	The Federalist Papers	James Madison, Alexander Hamilton, and John Jay
4	The Declaration of Independence	Thomas Jefferson
5	The Bill of Rights	James Madison
6	The Preamble to the Constitution	James Madison
7	The Articles of Confederation	The Continental Congress
8	The Constitution of the State of New York	The New York State Convention

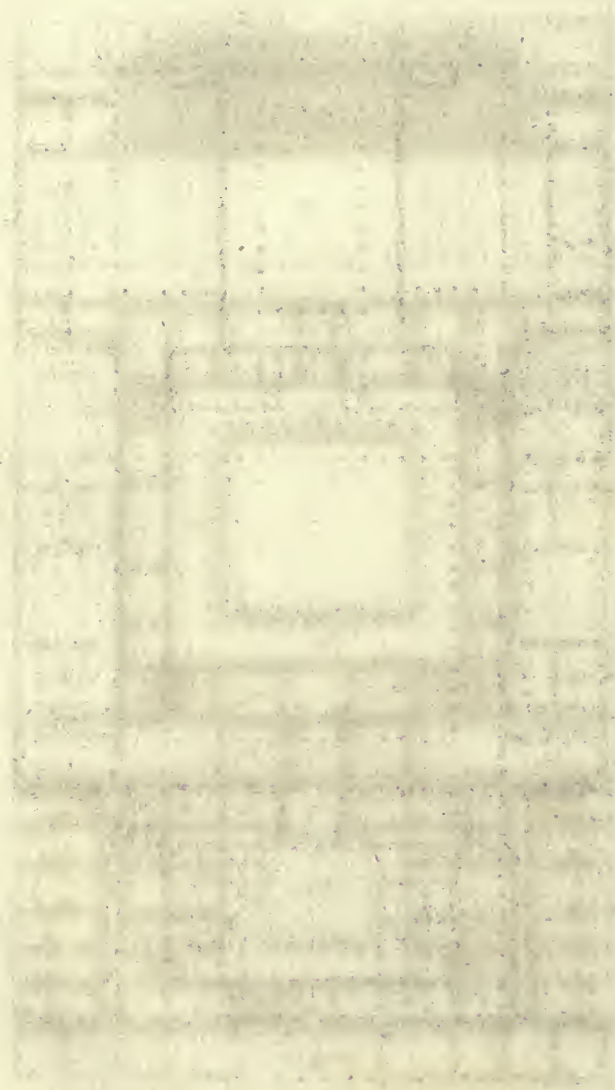
TAB. XLII.



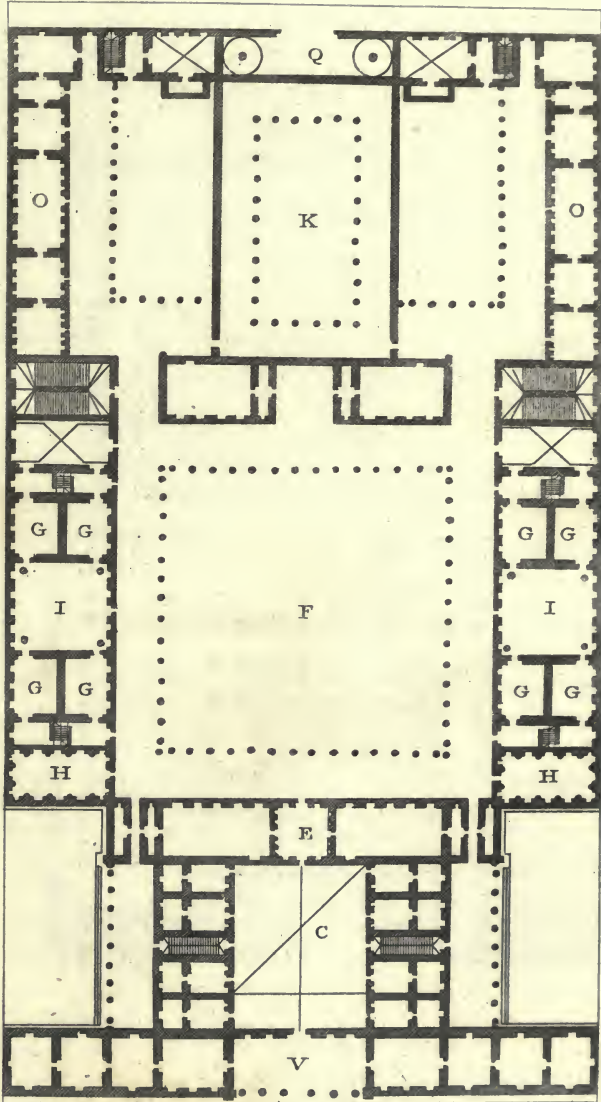


TAB. XLII.





TAB. XLIII.



Date	Description	Debit	Credit
1880			
Jan 1	Balance		100.00
Jan 5	Wages	50.00	
Jan 10	Expenses	20.00	
Jan 15	Income		75.00
Jan 20	Expenses	15.00	
Jan 25	Wages	40.00	
Jan 30	Income		60.00
Feb 1	Expenses	10.00	
Feb 5	Wages	30.00	
Feb 10	Income		50.00
Feb 15	Expenses	8.00	
Feb 20	Wages	25.00	
Feb 25	Income		45.00
Feb 30	Expenses	7.00	
Mar 1	Wages	20.00	
Mar 5	Income		40.00
Mar 10	Expenses	6.00	
Mar 15	Wages	15.00	
Mar 20	Income		35.00
Mar 25	Expenses	5.00	
Mar 30	Wages	10.00	
Mar 31	Income		30.00
Apr 1	Expenses	4.00	
Apr 5	Wages	8.00	
Apr 10	Income		20.00
Apr 15	Expenses	3.00	
Apr 20	Wages	6.00	
Apr 25	Income		15.00
Apr 30	Expenses	2.00	
Apr 31	Wages	4.00	
Apr 31	Income		10.00
Apr 31	Expenses	1.00	
Apr 31	Balance		100.00

TAB. XLIV.

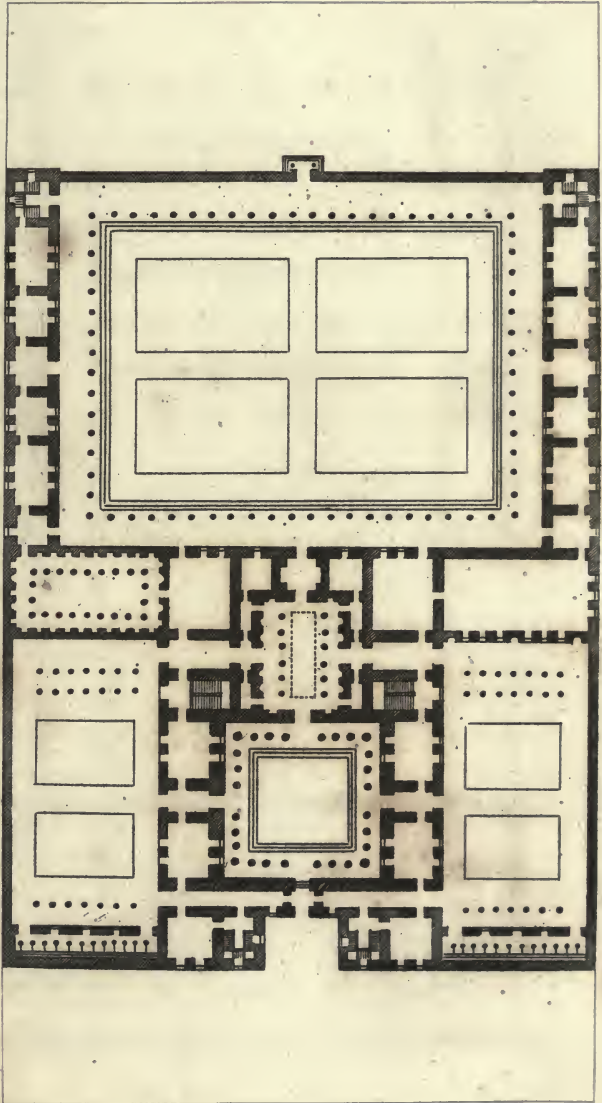
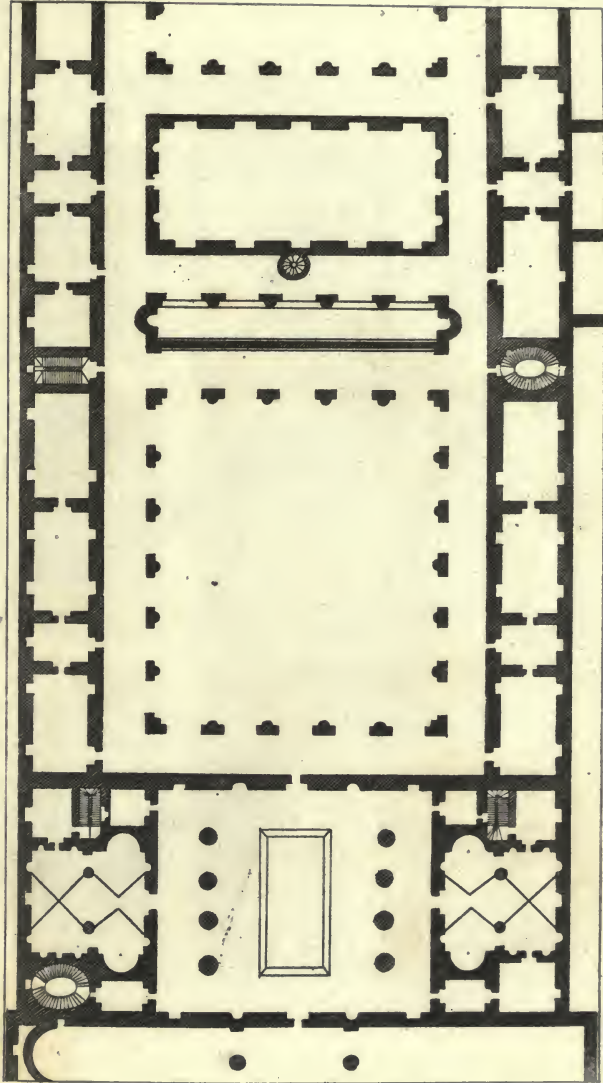


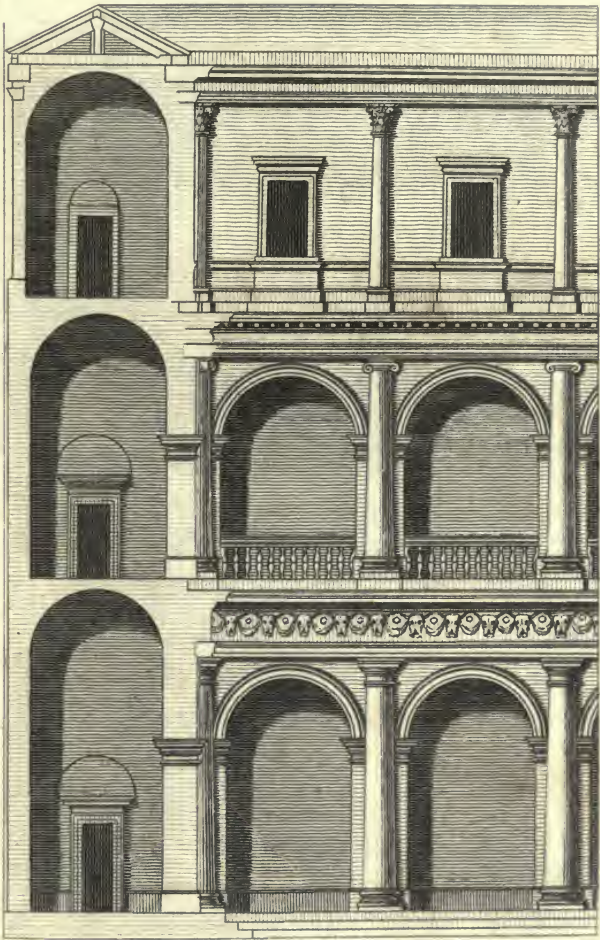
Table with multiple columns and rows, containing faint text and numbers. The table is mostly illegible due to fading and low resolution.

Column 1	Column 2	Column 3	Column 4	Column 5
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80
81	82	83	84	85
86	87	88	89	90
91	92	93	94	95
96	97	98	99	100

TAB. XLV.

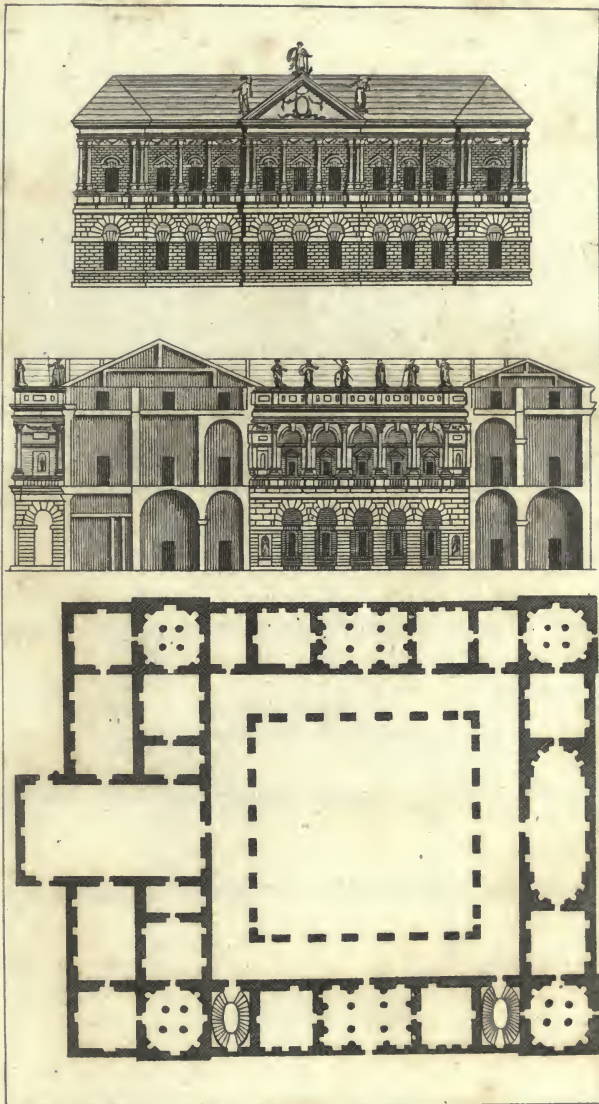


TAB. XLVI.



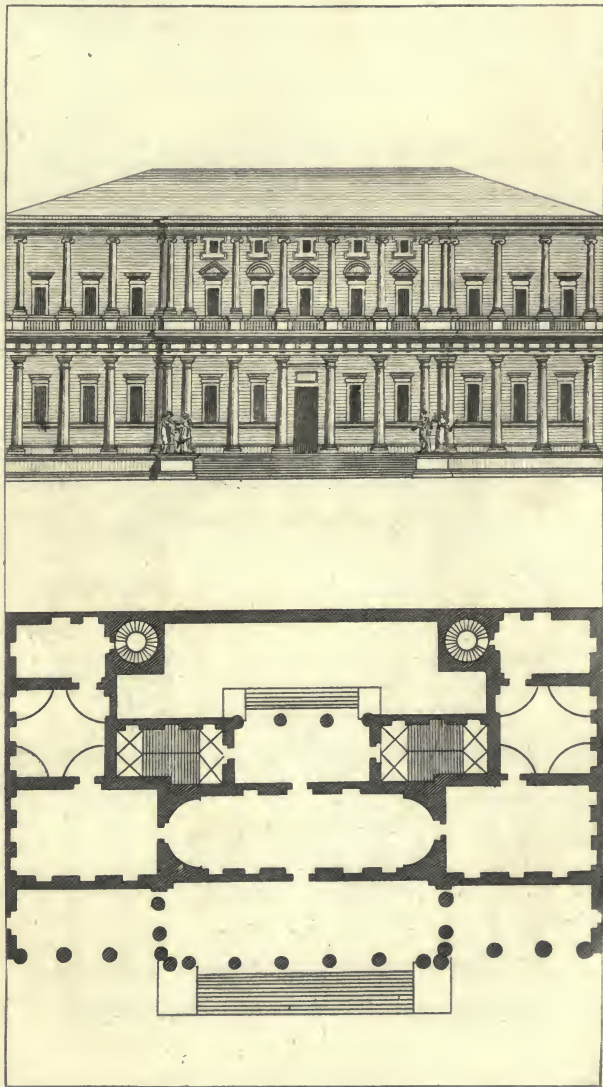


TAB. XLVII.



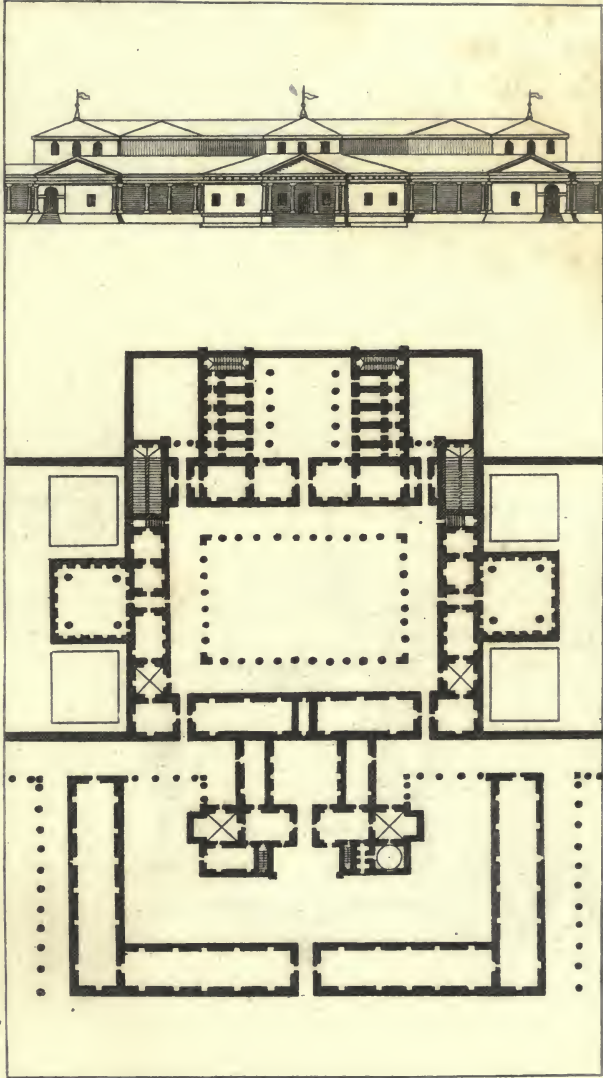
The image shows a very faint, large-scale grid or table structure, possibly a calendar or ledger page. The grid consists of approximately 6 columns and 10 rows. The content within the cells is illegible due to fading. The grid is centered on the page and surrounded by a faint border.

TAB. XLVIII.



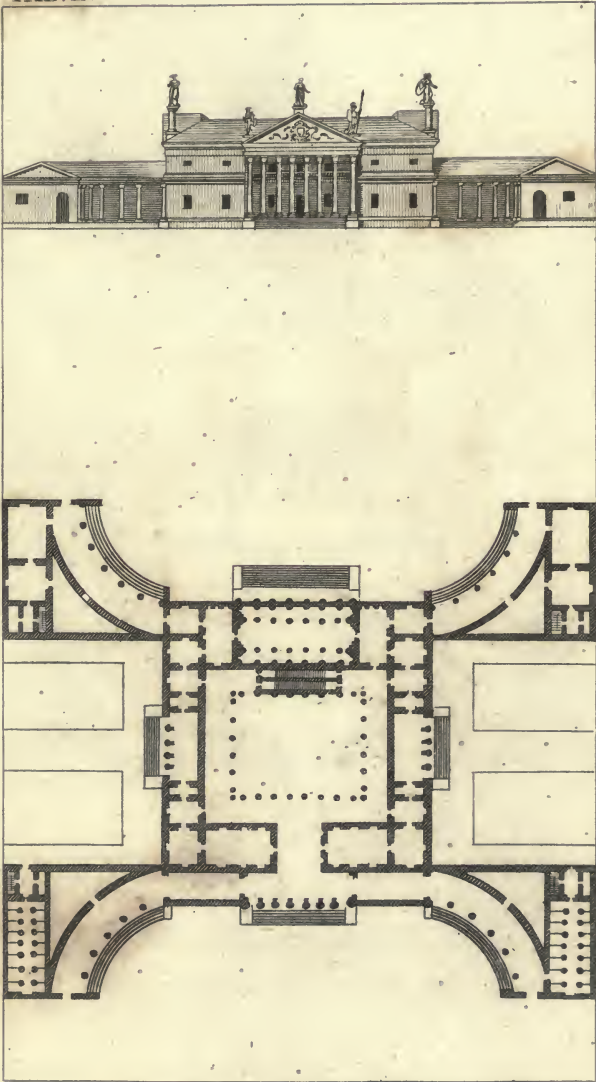
Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is arranged in several lines and appears to be a list or a set of instructions, but the characters are too light to be read accurately.

TABXLIX.



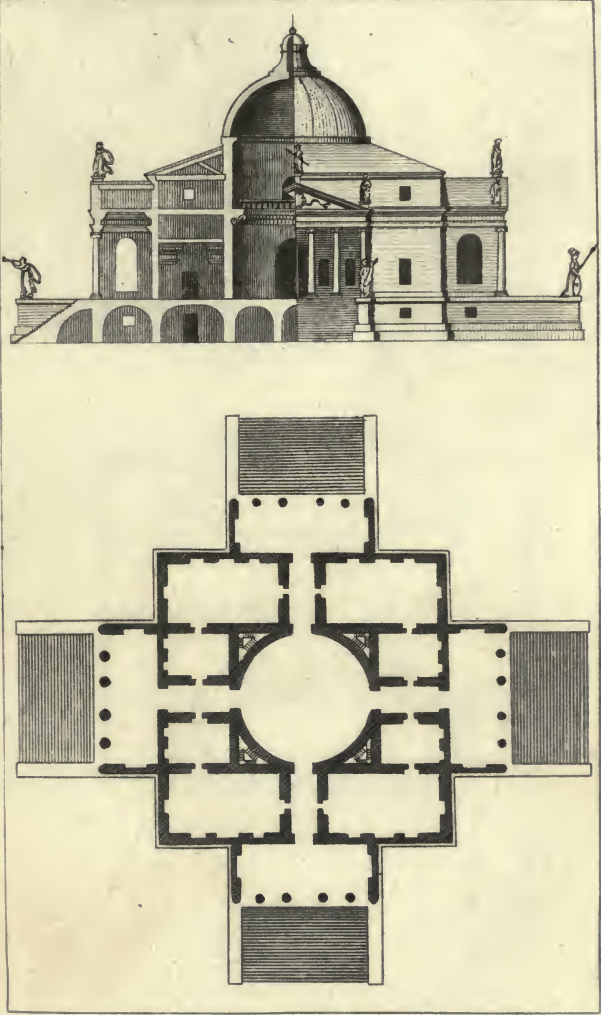


TAB. I.

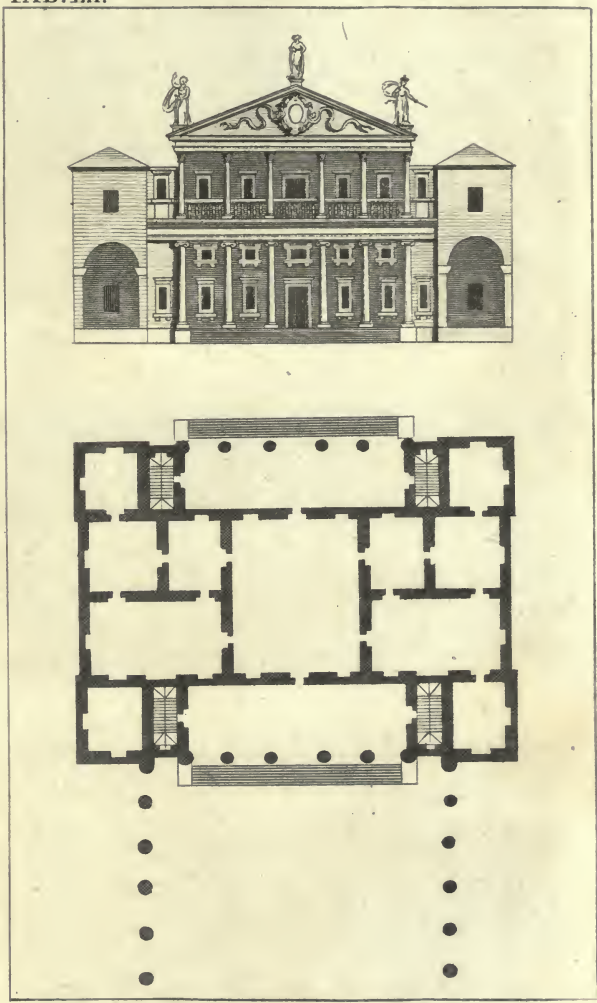


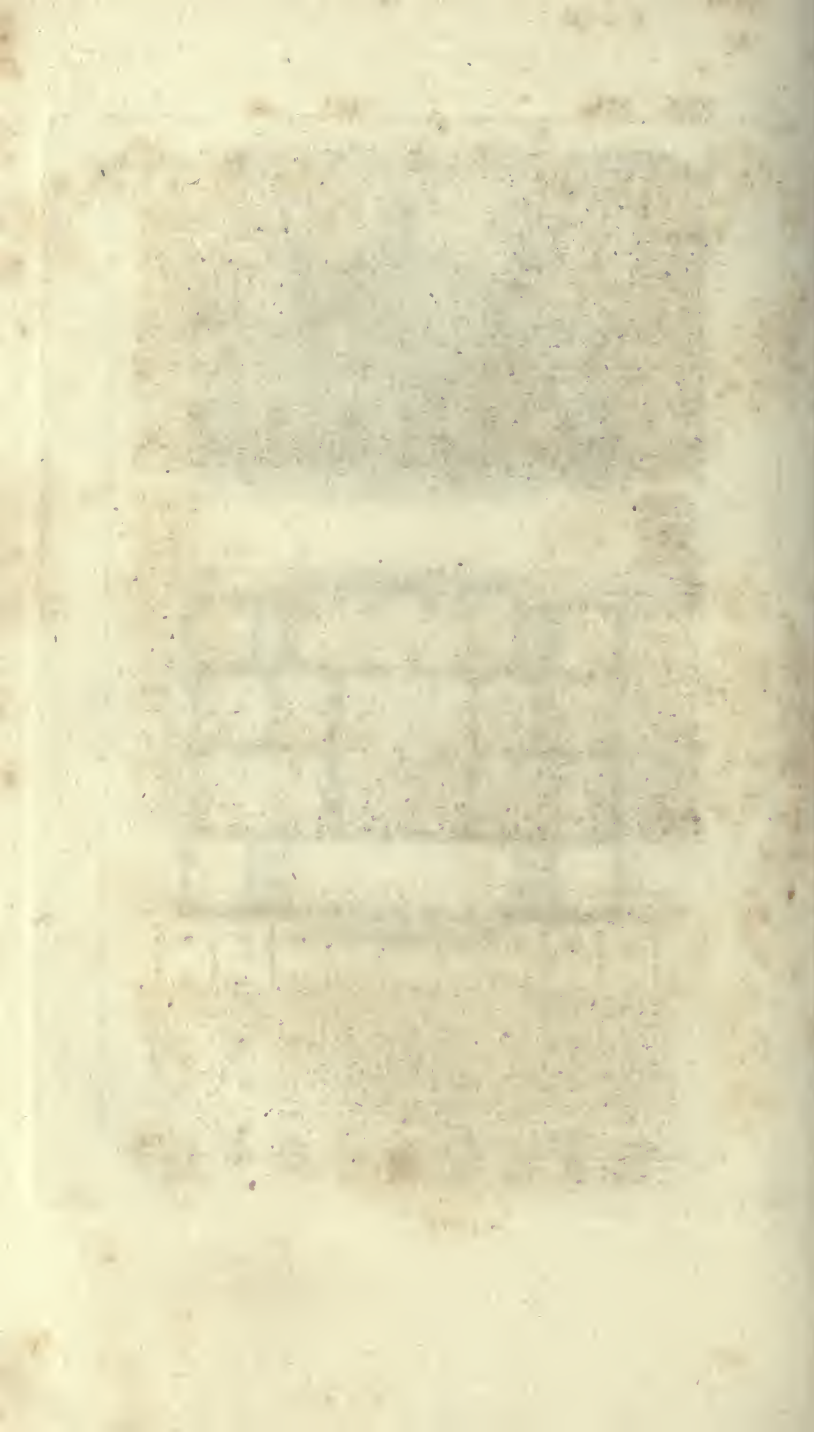


TAB. LI

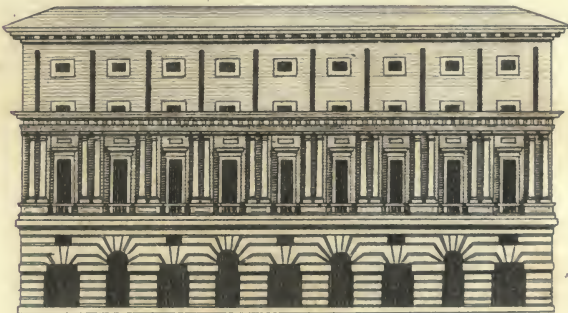
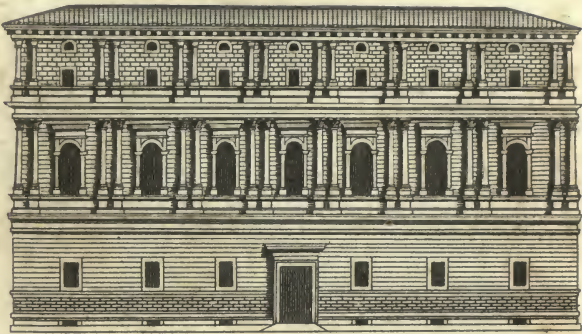


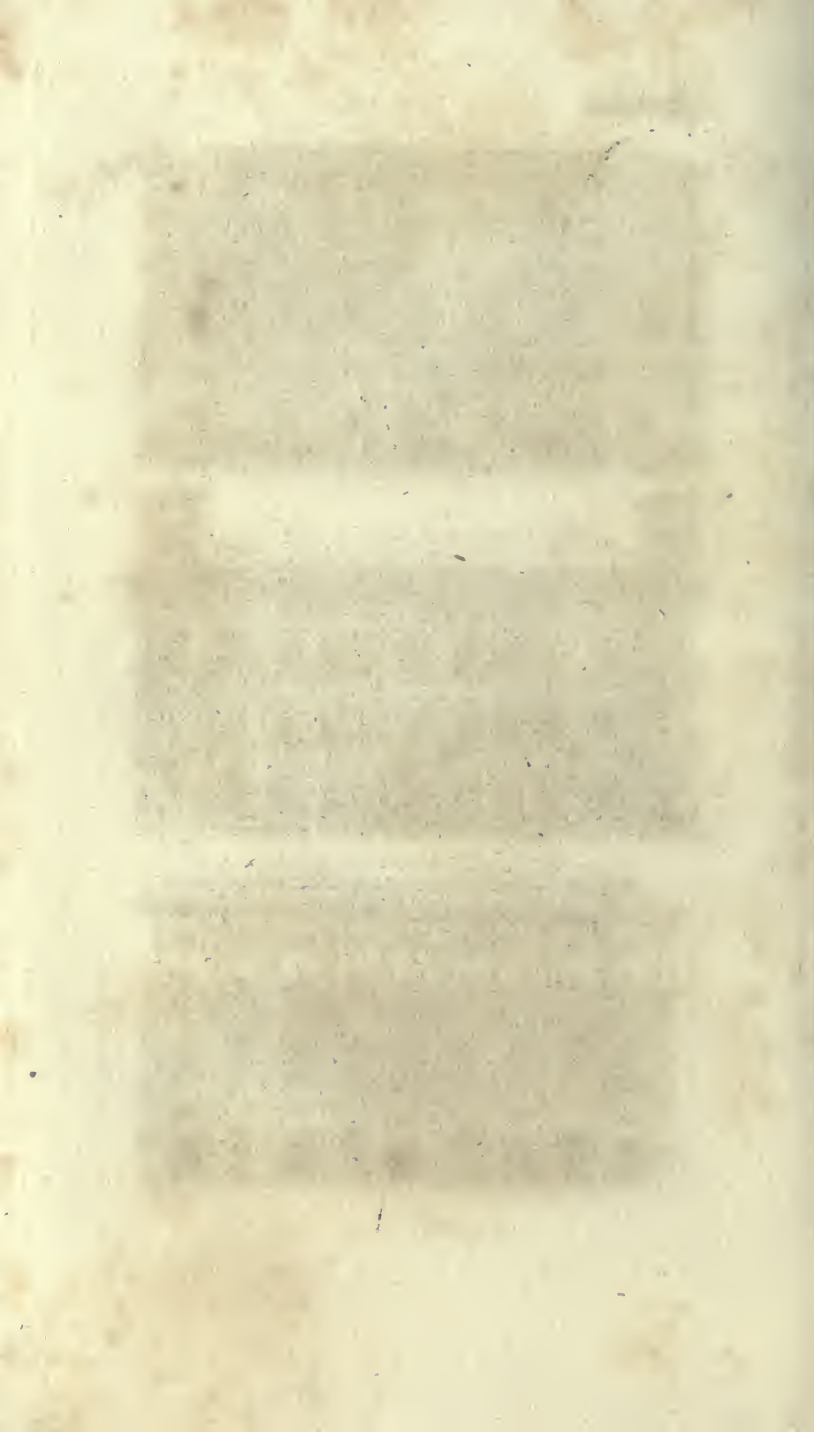
TAB. I.II.



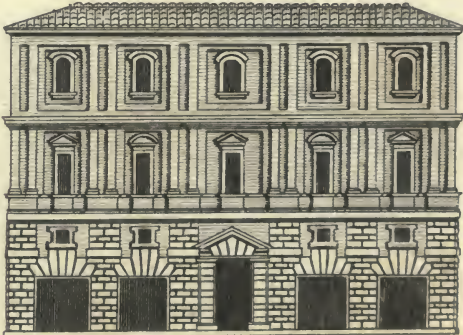
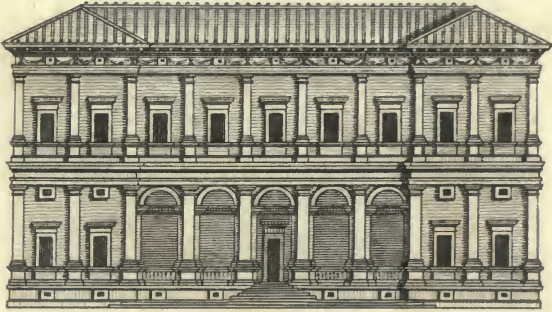
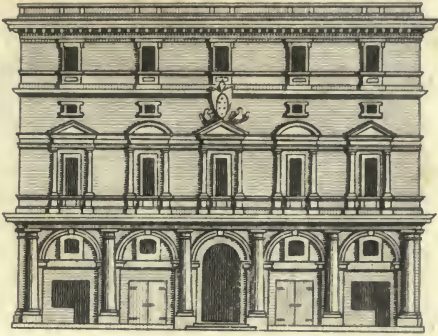


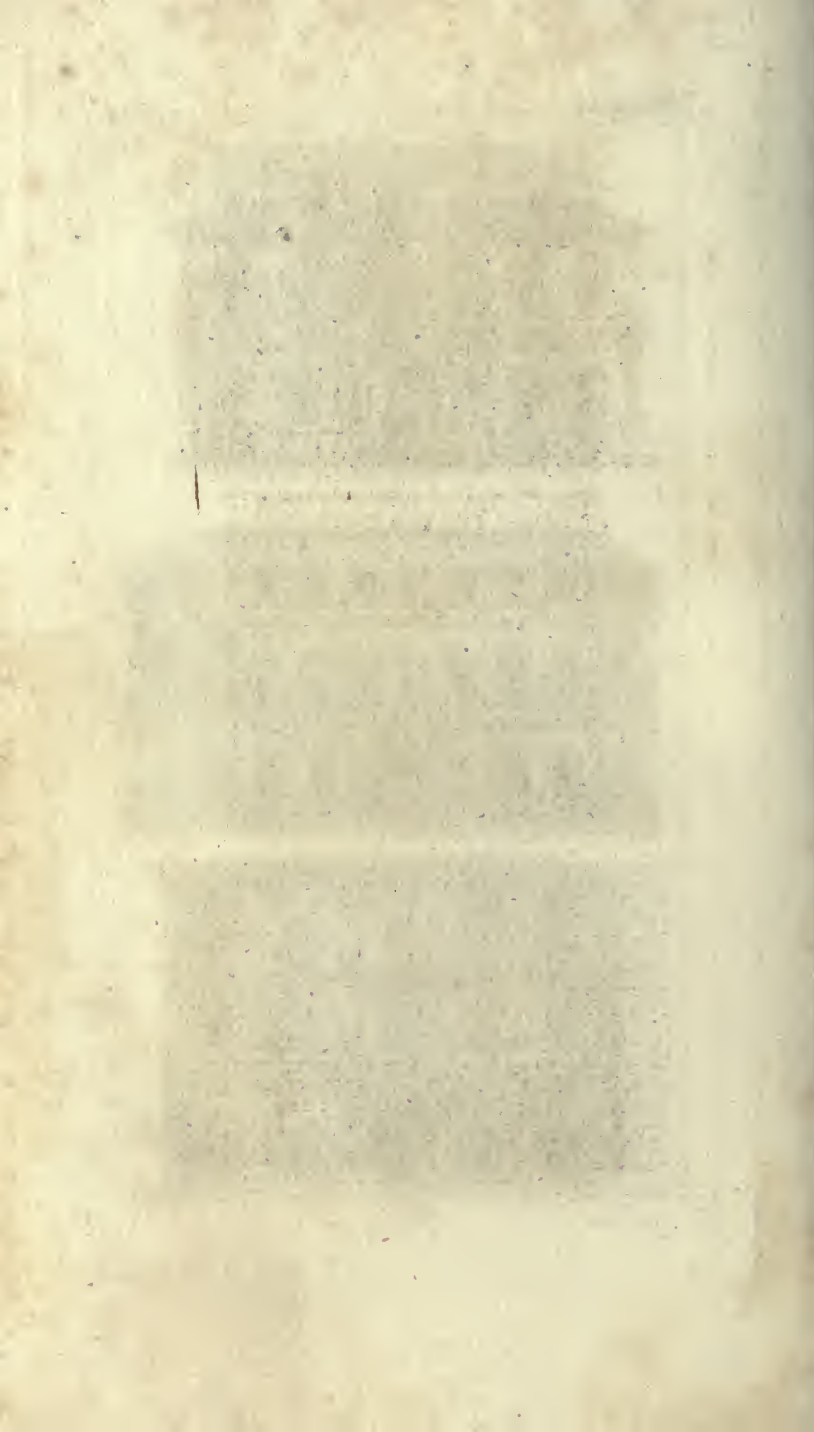
TAB. LIII.



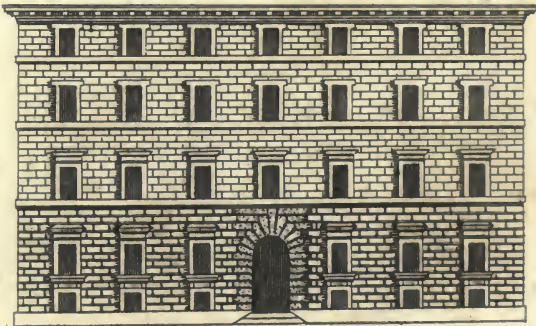
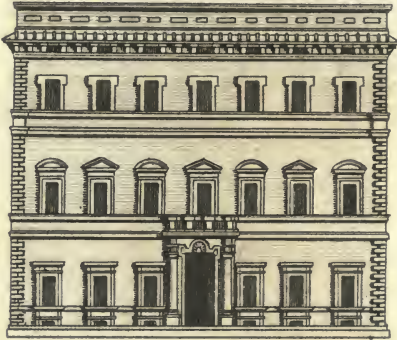
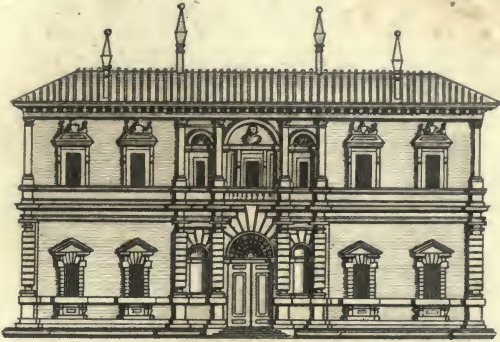


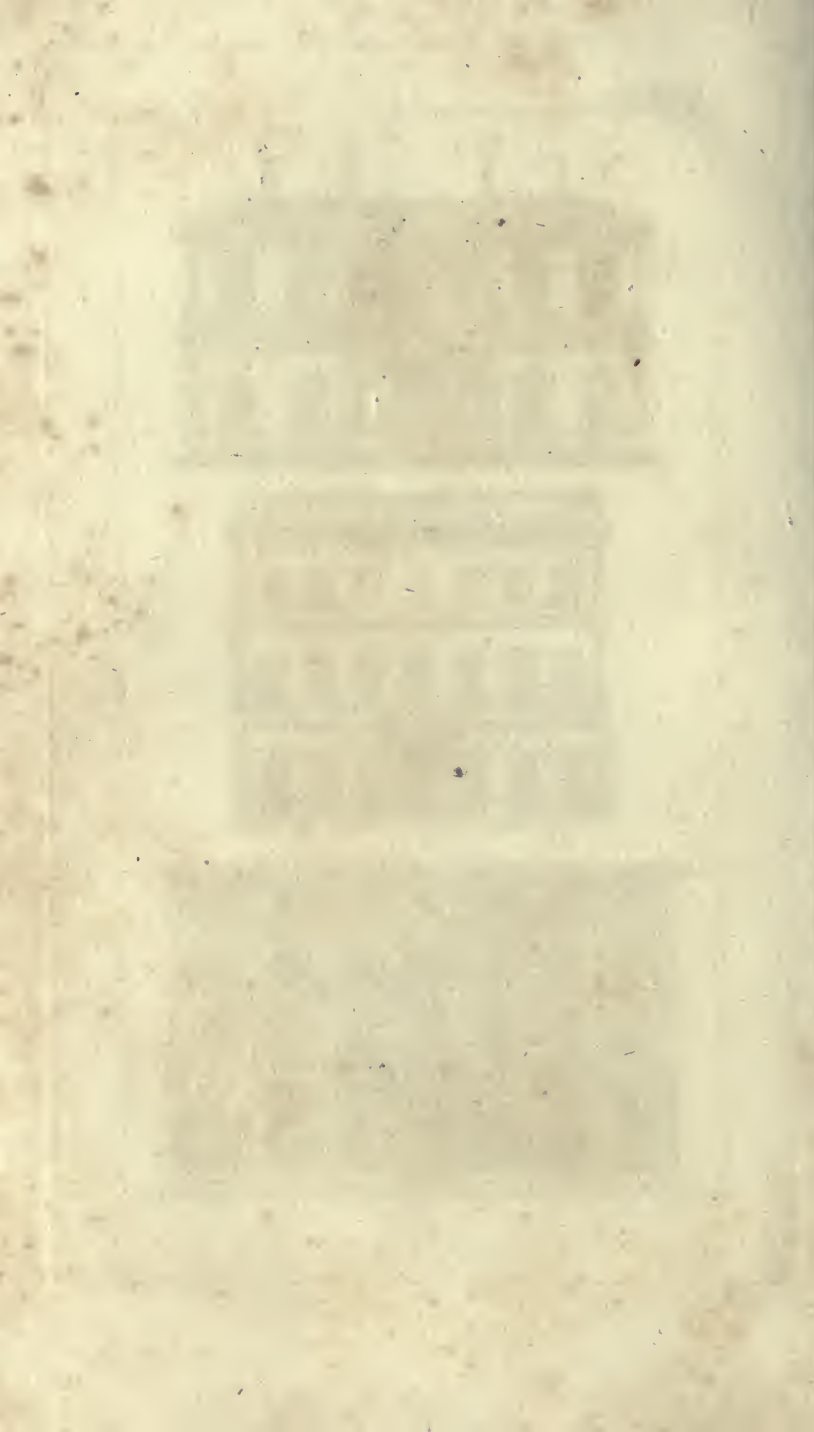
TABLIV.





TAB. LV.











TA 117

14 DAY USE
RETURN TO DESK FROM WHICH BORROWED
LOAN DEPT.

This book is due on the last date stamped below, or
on the date to which renewed.

Renewed books are subject to immediate recall.

REC'D LD	MAY 26 '66 9 RCD
JAN 10 1963	DEAD
	RECEIVED
18 Jun '63 90	FEB 15 '67 - 8 AM
REC'D LD	AUG 19 1967
JUN 13 1963	AUG 16 '67 - 8 PM
17 Mar '64 LB	MAR 13 1970 4 88 PM
REC'D LD	AUG 28 1968
MAR 18 '64 - 5 PM	REC'D LD AUG 20 '68 - 2 PM
	FEB 27 1970 1
REC'D LD	FEB 18 '70 - 2 PM
NOV 12 '64 - 11 AM	
FEB 15 1967 8 8	
REC'D LD	MAR 5 '70 - 12 M
LD 21A-50m-11-02 (D327980-176B)	General Library University of California Berkeley

