in it were purchased from the collection of Capece-Latro, archbishop of Tarentum. Sestini, Descr. d'alcune med. Greche del. M. di sua A. R Msg. Cristiano Federigo princ. ered. di Danimarca. F. 1821. Bishop Münter has caused some antiques from Egypt and Italy to be let into the walls in the episcopal palace; his collection of coins has been sold. [Musée Thorwaldsen par L. Müller 1847. Scot. i. ii. Egyptian Antiquities, Etruscan, Greek and Roman vases and terracottas, marbles, gold, silver, bronze, etc. iii. Scot. Engraved stones.]

Royal Swedish Museum at Stockholm. E. M. R. Sueciæ antiqu. statuarum series acc. C. F. F. (Fredenheim). 1794. fo. [The nine Muses, Endymoin, of which latter there is a cast at Berlin.]

Russia. The palace of Sarskoselo near St. Petersburg, contains some sculptures of rare excellence; Statues in the hermitage at the winter palace. There are many fine things in the Imperial Russian Cabinet of engraved stones at St. Petersburg, which arose out of the Natter collection, and was augmented in the time of the revolution by the Orleans collection (works by La Chau and Le Blond. 1780. 84), and in 1802 by the Strozzi collection from Florence. Köhler, Bemerkungen über die R. Kais. Sammlung von gesch. Steinen. 1794. 4to. and in different monographies on gems of this collection. An unimportant work by Miliotti, 1803. fol. A Pizatti collection of vases, bronzes, terracottas is now also at St. Petersburg since 1834. Dorpater Jahrb. ii, 1. s. 87. University collection at Dorpat, enriched especially with Egyptian antiquities by Richter's travels in the East, unimportant [Morgenstern Prolusio continens recensionem numorum familiarum Rom. qui in Museo Acad. continentur P. 1. 2. 1817. 18. xxx. numorum Græc. argent. 1820.—numorum imperatoriorum 1820. 1834. fol.]. An Egyptian cabinet in Polerb. As to the shores of the Black Sea, §. 254. R. 2.

3. Hungary and Transylvania. Severini Pannonia vetus monum. illustr. Lips. 1771. 8vo. V. Hohenhausen, Alterthümer Daciens. Wien 1775. 4to. Ruins of Sabaria (Stein am Anger), Caryophilus, De thermis Herculanis nuper in Dacia detectis. Mantua 1739. 4to. Schönwisner, De ruderibus Laconici etc. in solo Budensi. Budæ 1778. fo. Kunstbl. 1824. N. 59. New Excavations in Hermanstadt (Walsh's Journey).—Hungarian national museum at Pesth, founded in 1807. Account in Cattaneo, Equejade. Milano 1819. 4to. Prefaz.; and in the Acta M. Nat. Hungar. T. i. Collection of Count Wiczay at Schloss Hedervar near Raab (gems, bronzes, especially coins). On the Wiczay coll. and Bestini's writings thereon, H. Hase, Zeitgenossen dritte Reihe N. xix. s. 79 ff. M. Hedervarii numos ant. descr. C. Mich. a Wiczay. Vindob. 1814. 2 bde 4to. [The Hungarian Museums have received many things from Ehrenreich a dealer in antiquities, Cattaneo Oss. sopra un framm. ant. di bronzo, Milano 1810. p. 2.]

FIRST MAIN DIVISION.

TECTONICS.

266. Among the arts which represent in space we distinguish (according to §. 22.), in the first place, those that are subservient to purposes of utility, and which fashion and produce vessels, utensils and buildings in conformity to the wants and purposes of external life, but at the same time in accordance with the internal requirements of the human mind. It is by this latter feature that they belong to art, and it therefore must be here especially kept in view.

I. BUILDINGS.

ARCHITECTONICS.

267. The endless diversity of architectural structures can only be comprehended in the idea that by means of materials of an inanimate nature inorganic forms are presented, which, occupying, designating or demarcating in an immediate manner the area of the earth, bear in themselves a character of fixity and solidity. Here we can always distinguish 1. the materials furnished by nature, and the manner of applying them; 2. the forms which the hand of man impresses on them; and 3. the particular purposes and occasions of the construction, which determine the particular kinds of buildings.

1. Is there any other definition that will not exclude tumuli, chromlechs, causeways, aqueducts, syrinxes, and even ships (buildings that are destined to occupy the unstable surface, in such a way as it will admit of)? The notion *habitation*, *monument*, *place of abode*, and the like, certainly must not be included.

2. The summary presented in the sequel can for the most part be nothing more than nomenclature which oral exposition must supply with the illustrations. At the same time are to be made use of the numerous commentators on Vitruvius, especially Schneider, with the plates to Vitr. Bauk. by A. Rhode. B. 1801; C. L. Stieglitz, Baukunst der Alten. Leipz. 1796. 8vo. with 11 copperplate engravings. The same, Archäologie der Baukunst der Griechen und Römer. 2 thle. 1801. 8vo. with plates and vignettes, and Gesch. der Baukunst. Nürnb. 1827; his Beitr. zur Gesch. der Ausbildung der Baukunst. Th. 1. Leipz. 1834, with 25 lithogr. pl. especially A. Hirt's Baukunst nach den Grundsätzen der Alten. B. 1809. fo.; in the latter pt. 3. the election of building, also Wie-

beking bürgerl. Baukunst. 1821. Hübsch über Gr. Archit. 1822. 2 Ed. with defence against Hirt. 1824. Durand, Recueil et parallèles d'édifices de tout genre (text by Le Grand). P. a. viii. Rondelot, L'Art de bâtir. 1802—1817. 4 vols. 4to. Le Brun, Théorie de l'architecture Grecque et Rom. P. 1807. fo. Canina, L'Architettura [antica descritta e dimostr. coi mon. Opera divisa in tre sezioni riguardanti la storia, la teoria e le pratiche dell' archit. Egiz. Greca e Rom. R. 1839—44. 6 vols. fol. K. Bötticher, die Tektonik der Hellenen. Introduction and Dorika, with 21 pl. Potsdam 1844. 4to. and fol.]

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1. BUILDING MATERIALS.

1 268. First: STONES. In Greece there was a great quantity of marble made use of, from the quarries of Hymettus, Penthelicon, Paros, Ephesus, and Proconnesus; but tufa and
2 calc-sinter from different districts were also employed. In Rome there was originally used for the most part volcanic tufa of a blackish colour, lapis Albanus, now called peperino, and afterwards the harder calcareous tufa or sinter of Tibur,
3 lapis Tiburtinus, now travertino, until the taste for marble gained ground; besides the white kind from Greece or Luna (Carara), the green, yellow and variegated sorts were preferred.

1. Λᾶς is a common field-stone, λίθος a better kind of stone. Marble λίθος λευκός, more rarely μαρμάρινος. Πῶρος, πώρινος λίθος *porus lapis* in Pliny is a light but solid calcareous tufa which was employed in the Delphian and Olympian temples. Many speak erroneously of a *marmo-porino*. Κογχίτης λίθος, muschel-kalk or marble (lumachella bianca antica), was common especially at Megara, Paus. i, 44, 9; Xenoph. Anab. iii, 4, 10. seems to call it κογχυλιάτης.

2. Similar to the lapis Albanus was the Gabinus, Fidenas and the harder Volsiniensis. The earthy tufa (lapis ruber in Vitruv.) was of less utility. There are distinguished from each other *structuræ molles* (l. Albanus), *temperatæ* (l. Tiburtinus), *duræ* (silex in which basalt was especially included).

3. Comp. below §. 309. particularly on white marble. On the later appearance of variegated marble (Menander etiam diligentissimus luxuriæ interpres primus et raro attigit) Plin. xxxvi, 5. The favourite colours of marble in Roman architecture were: Numidicum, giallo antico, golden yellow with reddish veins; rosso antico, of bright red colour (the ancient name is unknown); Phrygium s. Synnadicum, white with blood-red stripes, paonazzo (Leake has discovered the quarries of Synnada, Asia Minor, p. 36. 54); Carystium, undulated, with veins of green talc (cipollino); Proconnesium, which is held to be bianco e nero; Luculleum and Alabandicum, nero antico; Chium, spotted different colours, marmo Africano. Λέσβιος λίθος κατηφὴς καὶ μέλας Philost. v. Soph. ii, 8. Isidor. xv, 8, 13. *bases* (perhaps basanites) nomen est petræ fortissimæ Syro sermone. Egyptian basalt is in general a combination similar to the modern Syenite. The Lacedæmonium marmor is (according to

Corsi) a green porphyry which workers in marble call serpentine; the lapis ophites a real serpentine called verde ranocchia. The clear transparent phengites, of which Nero built a temple, does not seem to be yet accurately determined. Besides, breccias, different kinds of porphyry, basalts (lapis basanites, comp. Buttmann, Mus. der Alterthums-W. ii. s. 57 sq.), and granites (from Ilva and Igilium; there was also a great deal quarried near Philæ as late as A. D. 200, Letronne, Recherches, p. 360) were also much employed in architecture at Rome. [Catalogo della Collezione di pietre usate degli ant. per costruire ed. adornare le loro fabbriche dell' Avv. Fr. Belli. R. 1842. 8vo.]

269. The treatment of this material was in general three- 1
fold. 1. The solid rocky ground was, among the Greeks and
Romans, hewn into catacombs, and in some instances into
Panea and Nymphæa. 2. Single detached stones, just as 2
they were found or quarried, were put together and united
(λογάδες λίθοι, cæmenta, opus incertum). 3. The stones were 3
hewn either in irregular and polygonal forms, as in the My-
cenæan and other walls and the Appian Way, or into a regu-
lar and rectangular shape (σύννομοι λίθοι, πλίνθοι), from whence
resulted the isodomum, pseudisodomum and reticulatum opus
(δικτυόθετον, with diagonal lines running throughout). Early 4
architecture preferred great masses and also employed on all
occasions a precious material when it could be commanded;
the later style generally incrusted works of brick or rubble
with slabs of costly marble. The earlier did not join at all 5
by external means, or only by wooden pins and iron clamps
and dovetails; in uniting the later employed mortar in great
abundance. Together with the usual hewing of the stone, 6
the turning of column-cylinders (turbines) on a sort of turn-
ing bench, an operation especially applicable to softer mate-
rials, was practised even in early times; marble was also
sawn with the aid of Naxian (§. 314) or Ethiopian sand.

2. These λίθοι λογάδες, of which Thucyd. makes frequent mention, were collected by the λιθολόγοι (Valken. Opusc. T. ii. p. 288. Ruhnken ad. Tim. p. 175). The opus incertum in its widest sense embraces the primitive Cyclopean architecture, §. 45. Comp. Klenze, Amalthea iii. s. 104 ff.

3. On πλίνθος especially the inscription from the temple of M. Polias, Böckh. C. I. i. p. 273. Isodomum is explained by the signification of δόμος, corium, a horizontal layer of stones. The emplectum is a conjunction of the isodomum in the frontes and diatoni (facing and tye walls) with the incertum as filling up.

4. See above §. 46. 49. 80. 153. The stones of the architrave in the temple of Cybebe at Sardis are $17\frac{2}{3}$ f. to $23\frac{1}{3}$ f. in length, $4\frac{1}{3}$ f. high. Leake, Asia Minor p. 344 sq. In the Propylæa of Athens, stone beams of 17 and 22 feet in length. Topogr. of Athens, p. 180 sq. The lintel of the door of the opisthodomos of the Parthenon 25 ft. 6 in. A ἑμαξιαῖος λίθος §. 105. (λᾶας ἁμαξοπληθής Eur. Phœn. 1175), filled an entire wag-

gon. Also in Roman buildings, bridges and arches, the single stones often appear as powerful and significant members of the body. Of the trilithon at Balbec there are to be seen stones as much as 60 feet in length. Richter, Wallfahrten s. 87.—Mausolus' palace was according to Pliny xxxvi, 6. the first example of a brick building incrusted with a marble facing.

5. See above §. 46. 105, clamps and dovetails were called *τόρμοι* (Expl. of Diod. ii, 7), or *γόμφοι*; and are often still to be met with at Rome. As to the model of a wall, exempla Vitruv. x, 22.

6. On turning, Klenze, Amalth. iii. s. 72. Sawing (Plin. xxxvi, 9) was of great service in the preparation of marble tiles, §. 53, 2; hence this art was invented by a *Naxian*.

1 270. Secondly: WOOD—the material most easily obtained and wrought, and hence of such influence on the form of the earliest temple-architecture. It retreated in public architecture more and more into the ceiling (in the Athenian temples even that was of stone), and from that into the rafter-work of the roof, until it was even expelled thence by the prevalence
2 of the vault. On the other hand, joisting remained at Athens (not so at Alexandria, §. 149) the ordinary mode of construction in private buildings of minor importance.

1. V. §. 52 and comp. the Tuscan temple §. 169. In the temple of Ephesus the roof was of cedar (Plin. xvi, 79), the lacunaria of cypress, Vitruv. ii, 9. Hence the conflagration §. 80. R. i, 1.

Chief members of the rafter-work: tigna, main beams; columen s. culmen, ridge-piece; cantherii, rafters; templa, purlines; asseres, laths (deliciæ, Festus; deliciæ perhaps cantherii angulares). Poll. x, 157. *δοκοί, δοκίδες, ἰκρία, στρωτῆρες, καλυμμάτια — ἰκριωτῆρες.*

On timber for building (*materia*) Vitruv. ii, 9. Pallad. xii, 15. Abies, quercus, esculus, cupressus, larix, alnus, etc.

1 271. Thirdly: as to SOFT MASSES which were treated in a plastic manner, clay formed into bricks and either dried in the air or burnt was used for public buildings especially in Lydia, Egypt and Babylon, but also in Greece and afterwards
2 at Rome. Slacked lime combined with sand, or, in Italy, with volcanic Pozzolana (Puteolanus pulvis), was employed as mortar in joining stones, and also as a preparation for pavement
3 and similar purposes; lime, gypsum, marble dust and the like were used for plaster (tectorium, *κονίασις*)—in preparing which the ancients showed much skill and care,—for stucco-work (albarium opus), &c.

1. The walls of Mantinea were of brick (on a stone plinth, Xen. Hell. v, 2, 5), as were also the old walls of Athens on the south (Hall. ALZ. 1829. N. 126), several buildings at Olympia (brick-ruins), all sorts of small temples in Pausanias, Crœsus' palace at Sardis, that of Attalus at Tralles, and that of Mausolus at Halicarnassus. Tiles $1\frac{1}{2}$ foot long, 1 ft.

broad, were called *Lydion*, certainly because they were in use in Lydia. Baking tiles was called πλίνθους ἐλαύνειν. It came from Babylon to Lydia. The ancient tiles are generally broader, and thinner in proportion than ours. Poll. x, 157. καλυπτῆρες Κορινθιουργεῖς. x, 182. κέραμος στεγαστής.

In Italy old brick walls at Arretium, a metropolis of the plastic art, and Mevania. In ancient Rome buildings were usually composed of brick walls on a plinth of stone, Varro in Non. s. v. *suffundatum*. On account of the limited space, thin stone walls were afterwards introduced in private buildings, when they would be too weak if made of bricks to bear the numerous stories, Vitruv. ii, 8. Country buildings were made of unburnt bricks and clay, Agathius ii, 16. The Romans likewise borrowed from Carthage walls of trodden clay (pisé).

2. Pozzolana (an earthy tuff-wack) was also of great importance in laying foundations, especially in water, and in rubble vaults, as in the baths. But even in Grecian buildings in the water, as the harbour wall of Clazomenæ, the mortar appears very firm as if vitrified. De la Faye, Recherches sur la préparation que les Rom. donnaient à la chaux. P. 1777. Old investigations by Vicat, Rech. expérimentale sur les chaux. Bad mortar also occurs.

3. Rubble walls, but very carefully plastered, are most common in Pompeii, §. 190. R. 4. In the house of the Faun there are sheets of lead between the wall and the plaster. Similar walls in Greece, for instance a temple of Poseidon at Anticyra, λογάσιν ᾠκοδομημένος λίθοις, κεκονίαται δὲ τὰ ἐντός. Paus. x, 36, 4.

272. Fourthly: Metal. In the early Greek times it was employed especially in decorating and facing, but also, as it seems, in the internal construction of buildings; it afterwards disappeared from the essential members of architecture, until it came to be used again in the Roman period more for roofing, especially in vaults of great span. 1 2

1. Above, §. 47—49. Prisci limina etiam ac valvas ex aere in templis factitavere, Plin. xxxvi, 7. Apollon. Rh. iii, 217. θριγκὸς ἐφύπερθε δόμοιο λαΐνεος χαλκέῃσιν ἐπὶ γλυφίδεσσιν (triglyphs) ἀρήρει.

On Corinthian capitals of gold and ivory, §. 153. R. 2. comp. 192. R. 5. Bronze capitals from Syracuse in the Pantheon, and the Corinthian portico of Cn. Octavius. Plin. in loco.

2. See on the Pantheon, the temple of Roma and Trajan's forum, §. 190. R. 1. i. b. 191. A concameratio ferrea in an inscription of Trajan's time, Orelli Inscr. n. 1596. 2518. Bronze εἰς τὸ στρῶμα τοῦ νεὼ τοῦ Ἀπόλλωνος C. I. n. 2266. l. 24. Sawn?

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2. THE SIMPLE GEOMETRIC FUNDAMENTAL FORMS.

273. Principal Forms. First, the right line and plane surface, which are sometimes vertical, sometimes horizontal, and sometimes obliquely inclined; the last either approaches the 1

horizontal surface, as in the roof, or the vertical surface, as in the jambs of pyramidal doors and windows: an oblique surface midway between them is not admitted in fine archi-
2 tecture. Secondly, The curved line and surface, which some-
es includes perpendicular right lines, cylindrically or coni-
3 cally disposed, as in the columns; and sometimes supplies the place of horizontal planes by hemispherical, or elliptical or
4 kindred forms of vaulting (§. 285). The dimensions of these surfaces as well as their proportions to one another are determined by static and æsthetic laws (simple numerical proportions, symmetrical correspondence, predominance of certain main lines), which the Greeks practically observed with the greatest nicety.

1. There are apertures of this kind, for example, in the temple on Ocha, the Erechtheum, the temple at Cora (§. 259); and doors of this description are prescribed by Vitruvius after Greek architects.

2. Cylinders strictly so-called are only to be found in crypts or vaults, as at Eleusis, §. 109. R. 5. and in Roman baths. The ordinary column would have been a frustum of a cone but for the entasis.

1 274. SUBORDINATE, INTERRUPTING, SEPARATING, PREPARATORY FORMS OR MOULDINGS. First, rectilinear: 1. fascia, face; 2. tænia, band; 3. quadra, listel, fillet; 4. supercilium, lintel;
2 5. oblique apophygis, weathering. Secondly, curvilinear: 1. torus, half-round; 2. echinus, ovolo, a. upright, b. reversed; 3. astragal, bead, tondino; 4. striæ, striges, flutings, channellings; 5. cymatium Doricum, cavetto (sguscio), a. upright, b. reversed; 6. trochilus, of two unequal quadrants (scotia); 7. apophygis, apothesis, in a curved line; 8. cymatium Lesbium, a. cyma recta (gola dritta), the lower quadrant outwards, α. ascending (sima), β. descending; b. cyma reversa, ogee (gola
3 rovescia), α. ascending, β. descending. Several of these members admit of an undercutting or quirk which is not visible in elevations of the entire surface, but produces an agreeable separation and shading when looked at from below.

2. The contrast between the Doric and Lesbian cymatium is connected with the circumstance that the Dorians employed the simplest members, for example the simple quadrant; the Lesbians, on the other hand, sought to introduce more variety into the art, hence their *οἰκοδομὴ*, according to Arist. Eth. Nic. v, 10, 7. and Michael Ephes. ad loc., demanded a moveable *κανών*.

The ornaments, which were added to these members, appear to have been for the most part painted in early times, before they were carved in the marble. The torus received flutings or a plaiting of fillets, the astragal the beads (astrag. Lesbius, paternoster), the echinus the eggs and darts (or serpent-tongues), ovi, ovoli, the Lesbian cymatium leaves, (or rather shells, *κάλχαι* in the inscription of the Erechtheum C. I. p. 282), the tænia the mæander-ornament à la Grècque. The so-called

hawk's beak, that is, an echinus reversed, with an undercutting, appears in painted temples as a border of reed-leaves which were placed upon it, and continued under it. The echinus with the astragal is called γογγύλος λίθος in the inscription referred to, as a separate stone fitted in. In Greece the architectonic enrichments were designed more by the eye, among the Romans in a mechanical manner.

3. The Greeks were very partial to those undercuttings in the best times of the art; they are to be found under the corona, and in cornices of entablatures and antæ under the echinus.

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3. THE ARCHITECTURAL MEMBERS.

275. The architectural members are compositions of geo- 1
metric forms which already bear in themselves the destined tendency to architectonic purposes, but do not however in general fulfil these until they are combined into a greater whole. They are divided into *bearing*, *borne*, and *intermediate*. Among the *bearing* the column is the form naturally suggested 2
by which individual points are to be supported in the most safe and durable way possible, and then through the coherence of the mass the intermediate parts are held together and borne by these. The column is a carrying body complete in itself and enclosing a vertical axis;* by its conic form or diminution (contractura), on the one hand, it insures its own solidity, and, on the other, it approaches the form of the entablature by its quadrangular abacus. The particular form 3
of the column depends chiefly on the way in which this supporting block is united and reconciled with the upper end of the shaft. In the Doric column (§. 52), which expresses with greatest clearness and purity the destination of that member, this is produced in the simplest manner by means of a swelling enlargement with which the Ionic (§. 54) unites overhanging ornaments, which press forward as it were in an elastic manner, until the Corinthian places in the room of the simple bulge of the Doric order a slender body striving upwards, gradually enlarging and richly clothed with vegetation. At the same time the Ionic capital absorbs the Doric, and the Corinthian the characteristic forms of the Ionic, in conformity with the universal tendency of Greek art, to sacrifice nothing without cause in a newer development of the earlier form.

2. Marquez Dell' ordine Dorico. R. 1803. 8vo. [Antolini L'ord. Dorico ossia il tempio d'Ercole a Cori. R. 1785. fol.] Normand, Nouv. parallèle des ordres d'architecture, continued by J. M. Mauch. B. 1832. C. A.

* Recent discoveries have shown that the axis is somewhat inclined towards the wall.—*Transl.*

Rosenthal, Von der Entstehung und Bedeutung der archit. Formen der Griechen (from Crelle's Journal für Baukunst. iii.). B. 1830. Ingenious remarks on the two first orders, but those on the Corinthian are, it seems to me, erroneous. J. H. Wolff Beitr. zur Aesthetik der Baukunst oder die Grundsätze der plastischen Formen nachgewiesen an den Haupttheilen der Griech. Archit. with 28 pl. 1834 (Jen. L. Zeit. 1835. N. 39.) Kugler Polychromie s. 36 ff.

1 276. In each columnar ordinance we must distinguish different periods of development and formation. In the Doric: 1. The ancient stout column of the Peloponnesus and Sicily (§. 53. 80. R. ii.); 2. that used at a later period in Sicily, somewhat more slender, and tapering very much (§. 109. R. iv.); 3. the lofty and graceful column of Periclean Athens (§. 109. R. i.); 4. the elongated and weakened column of the Macedonian and Roman era (§. 109. R. 14. 153. R. 3. 190. R. 1, ii. 259.); 5. the attempts to give it a richer
2 character, especially in honorary columns (§. 109. R. 1). In the Ionic: 1. The simple forms cultivated in Ionia, sometimes with rectilinear, sometimes with curved canal (§. 109. R. iii.); 2. the richer and more complex form in the temple of Minerva Polias (§. 109. R. 4), and other collateral forms in different Greek cities; 3. many attempts made in the Roman period to give a greater variety of sculptured ornaments (§.
3 109. R. 4.). In the Corinthian: 1. the still wavering or arbitrarily deviating forms, sometimes closely resembling the Ionic capital, in Phigalia, in the Didymæon, in the monument of Lysicrates and tower of Cyrrhestes, also in Pompeii (§. 108. R. 4. 109. R. 12. 15. 153. R. 4); 2. the established forms of the perfected order (§. 153. 190—192); 3. the overloaded collateral forms of the composite capital (§. 189. R. 4); 4. variations by the addition of figures, for example, victories, trophies, winged horses, dolphins, and eagles—preludes of many rude fantastic forms in the early Gothic architecture.

1. But it must be remarked at the same time that lighter proportions were given to the Doric order in porticoes than in temples, as is shown by Vitruv. v, 9. and the porticoes of Messene and Solus. The measure of the column is the lower diameter, or in large columns the half diameter, modulus.

2. The neck of the Ionic columns ornamented with foliage in the temple of M. Polias (ἀνθέμιον in the inscr.) is found again in a similar form in the theatre at Laodicea. Ion. Ant. ch. 7. pl. 50. The Ionic capitals in tombs at Cyrene with a honeysuckle in the spandrel between the spirals of the volute, beneath a Doric cornice, are a subordinate form. Pacho, pl. 43.

3. The Ruins of Cyrene furnish evidence of the numerous modifications which the Greek architects introduced in the Corinthian capital. Pacho, pl. 27.

277. The three main portions of the column are: i. SPIRA, 1
the BASE. It gives the column, besides a broader foundation,
a sort of girding at the lower end of the shaft; it is therefore
suitable for slender and more developed forms of column,
whereas the Doric columns of the three first kinds ascend
immediately from the pavement. Chief kinds related to 2
which there are sometimes simplifications, sometimes wider
combinations: A. In the ATTIC order; 1. plinth; 2. torus; 3.
scotia or trochilus: 4. a second upper torus. B. The IONIC; 3
1. plinth; 2. trochilus; 3. an upper trochilus; 4. torus; in
which are not included the separating and preparatory fillets.
ii. SCAPUS, the SHAFT. It is generally fluted (ῥαβδωτὸς), and 4
the column gains in apparent height by means of the vertical
stripes, and also in beauty by the more lively play of light
and shade. The external surface of the column is by this
means divided either into mere channels or flutings (striatura
Dorici generis), or into flutings and fillets (striæ et striges).
In the shaft we observe, in the later Doric and other columns, 5
the adjectio, ἔντασις or swell. iii. CAPITULUM, κιόκρανον, ἐπίκρανον,
κεφαλή, CAPITAL. A. The DORIC, divided into: 1. hypotrache- 6
lium, neck, collarino, with the grooves or channels as a sepa-
ration from the shaft. 2. echinus, with the annuli or rings
(originally perhaps hoops of metal around the wooden capi-
tal); 3. plinthus s. abacus (in Vitruvius and in Roman edifices
with a cymatium). B. The IONIC: 1. hypotrachelium (only 7
in the second kind); 2. echinus with an astragalus Lesbius
beneath (a torus above it only in the second kind); 3. canalis,
the canal, and the volutes with the oculi et axes on two sides,
on the two others the pulvini, cushions, with the baltei, straps
(the latter, in the ordinary capital, alternate with the other
two sides, but in the corner capitals join on to one another);
4. abacus et cymatium. C. The CORINTHIAN. Two main parts: 8
1. calathus, the vase of the capital, the ornaments of which rise
in three rows: a. eight acanthus leaves; b. eight acanthus
leaves with stalks (cauliculi) between; c. four volutes and
four scrolls (helices) with acanthus buds and leaves. 2. aba-
cus consisting of cymatium and sima, or otherwise composed,
with projecting angles, and at the curved parts enriched
with flowers.

3. This base actually prevails throughout Ionia; however there is found in the ruins of the Heræon at Samos a simpler form, consisting of a neck laced together as it were with a number of fillets, and a torus.

5. There is a wide distinction to be made between the bellied swell, on which §. 80. R. ii, 1—4, and the graceful, §. 109. R. 2. Accurate measurements on this subject are given by Jenkins, Ant. of Ath. Suppl. pl. 4. 5. 8. ἔλιξ ἡ ἀναγλυφὴ παρὰ τοῖς ἀρχιτέκτοσι. Hesych. Doric capitals in Delos with fillet instead of the ring. Kunstbl. 1836. N. 17.

Engaged columns, which, strictly taken, are opposed to the principle of the column, but may be justified particularly by the necessity for windows, are to be met with at least as early as the 90th Olympiad. V. §. 109. R. 4. comp. 15. 20. Those of Phigalia, §. 109. R. 12. are more than half columns.

1 278. The Pillar, *Pila*, is distinguished from the column by the closer relation in which it stands to the wall, on ac-
2 count of which it is always treated as a piece of wall in severe architecture. On the other hand, however, it at the same time is often destined to support a beam in common line with the column, from which it sometimes borrows ornaments, especially those of the capital, and occasionally the diminution of
3 thickness, even the entasis. The principal kinds are: 1. pillars standing separate, for example, in a wall formed of tapestry, pilæ, σταθμοὶ ὀρθοστάται; 2. pillars which strengthen the termination of a wall, corner-pilasters, antæ, παραστάδες, φλιαί; 3. pillars which bound the wall at the door-way, door-posts, jambs, *postes*, σταθμοὶ παραστάδες; 4. pillars which advance out of a wall, whether it be to prepare for a row of columns connected with it, and to correspond to it as a support, or, in the spirit of later architecture, from the mere striving after interruption, pilasters, παραστάται, ὀρθοστάται; 5. buttresses, anter-
4 ides. Finally, short and truncated pillars also belong to this class, whether they serve as pedestals for columns (stylo-
5 batæ), or for other purposes. The chief members of the pillar are: 1. the base, spira, more in the Ionic than the Doric order; 2. the shaft or die, truncus; 3. the capital, ἐπίκρανον, μέτωπον, which is always lighter than in the columns, and is either composed like a cornice, of simple mouldings (for example a band with annuli, cyma, echinus, cavetto, and plinth) or ornamented after the analogy of the capital of a column.

3. The expressions for pillar and pilaster are very uncertain. Ὀρθοστάται are separate piers Eurip. Ion. 1148., columns Eurip. Her. Fur. 975., buttresses Vitruv. ii, 8; antæ and pilasters in the inscription here often referred to C. I. n. 160. Παραστὰς, keeping out of view the cases in which like προστὰς it stands for an entire portico, is an anta (Schneider ad Vitr. vi, 7, 1.); but is also called the door-wall, the door-pillar, Eurip. Phön. 426. Pollux i, 76. x, 25. comp. Eur. Androm. 1126. and the same inscription, p. 280; in Athen. v. p. 196. it seems to be a disengaged pillar, in Hesych. a half-column. In Vitruvius *parastatæ* are pilasters, also disengaged, as in his basilica Col. Jul. Fanestri. *Parastaticæ* in Plin. and inscr. are pillars. The φλιαὶ τῶν νεῶν, on which the προξενίαι were inscribed (Polyb. xii, 12, 2) become evident especially by a comparison of the passage, where similar decrees stood in the temple in Ceos (Bröndsted, Voy. i. p. 19); παραστὰς is met with in the same connexion in Chandler i, 59, 1. In Plin. xxxvi, 56, a pillar is also called *columna Attica*, comp. Nonius, p. 30.

5. The cornice-like pilaster-capital in the Parthenon is particularly

rich in composition; it has an upper hawk's beak moulding, and an echinus with the egg ornament. In the temple of M. Polias it takes the flower ornaments of the neck (ἀνθέμιον) from the Ionic capital. The enrichments of the Ionic capital, but kept very light and narrow, with arabesque-like sculptures, are to be seen on the capital of the antæ in the Didymæon and in the Propylæa of Priene, §. 109. R. 15. 16. Corinthian pilaster capitals, §. 109. R. 5, b. and elsewhere.

279. Statues occupying the place of separate pillars or pilasters, and which are called Atlantes, Telamones, Caryatides, were employed by Greek architecture in great moderation, and never without an especial reference to the object and significance of the edifice; such supports were much more frequent in tripods, cauldrons, thrones, footstools, and other articles of furniture.

Comp. §. 109. R. 4. 20, on the virgins of Pallas Polias and the giants of the giant-queller Zeus. The outside of Hiero's ship was adorned with Ἄτλαντες, Athen. v, 208 b. comp. Nævius in Priscian vi. p. 679. Atlantes gibbosi, Servius ad Aen. i, 746. Martial Epigr. vi, 77. (Baths of Pompeii, sepulchre at Tarquinii.) The Romans called such figures Telamones, (C. I. ii. p. 76. 79. n. 205 3^{b}. 2056. R. Rochette Atlas p. 62. 78.) and what were in earlier times called κόραι, Caryatides, Vitr. vi. 10. See Hirt, Mus. der Alterthums-W. i. 271. Böttiger, Amalth. iii. 37. Comp. Stuart in the new (German) Ed. i. 488 sqq.—[Preller De causa nomines Caryatidum Annali d. Inst. a. xv. p. 396—406.]—The figures on the upper pillars of the Portico of Thessalonica (§. 192. R. 5), called Incantada, are not Atlantes, but mere reliefs on the pillars of an upper stoa.—In Delos there are also found the fore-parts of cattle fixed on as pillar-capitals and as ornaments of triglyphs (in the same way as at Persepolis). Kinnard, Antiqq. of Athens, Suppl. pl. 5.

280. The Wall (murus, τεῖχος, or paries, τοῖχος) is a continuation of the pillar, but at the same time it forsakes more completely the analogy of the column, inasmuch as in the column the sole object is to support, but in the wall, together with supporting the chief purpose is to enclose. However it often receives in the manner of the pilaster three parts, the base, the trunk, and a sort of capital or cornice, which terms here coincide (ἐπίκρανον, θριγκός). This member appears more as a capital when an entablature lies upon the wall; as a cornice when the wall by itself fulfils its object as an enclosure, in which case it even receives its name, θριγκός, from the covering and protecting cornice. Dwarf walls were first employed independently by themselves as enclosing fences (maceria, αἱμασιά); but afterwards as supports of the main walls, in order to elevate these above the level of the ground, and also to make their base visible. Such under-walls which advanced a little beyond the main wall, with or without steps, are called κρηπῖδες, crepidines, plinths; higher and more elegantly treated basements of columnar structures are called stereobatæ, stylobatæ (in

Vitruvius), podia; they have a base (quadra, spira), die (truncus) and corona. The steps likewise in many cases serve chiefly to raise a building higher above the ground; then stairs and entrances were obtained by inserting intermediate steps. To the dwarf walls belongs also a stone or wooden parapet (pluteus or pluteum) fixed in between pillars and columns; metal railings (clatri, cancelli, reticula) might also occupy its place.

2. These θριγκοὶ as enclosures of temples and palaces with large court-gates (αὐλεῖοι θύραι) in the centre, and the prospect of the main building over them, formed usually the principal portion of the tragic scene.

4. The numerous investigations on the scamilli impares of Vitruvius in the stereobate and the entablature (see among others Meister, N. Commentar. Soc. Gott. vi. p. 171. Guattani, Mem. encicl. 1817. p. 109. Hirt, Baukunst, s. 57. Stieglitz Archäol. Unterh. i. s. 48) seem to lead to the conclusion that they do not designate any observable member of the architecture, but merely a contrivance used in the building in order to give to the stylobate and entablature the pulvinated appearance which (according to Vitruvius) was optically necessary. The lysis above the corona of a short pillar, of which there is mention made twice, was probably a small echinus.

On theatre-steps, §. 289. R. 6. Stieglitz treats of stairs, Arch. Unt. i. s. 121. Græcæ scalæ . . . omni ex parte tabularum compagine clausæ. Serv. ad Æn. iv, 646. Gellius N. A. x, 15, 29.

6. On the plutei especially Vitruv. iv, 5. comp. v, 1. 7. 10. Such parapets or railings, inasmuch as they are fitted in between antæ and columns, and occupy the place of a wall, often form a pronaos, as §. 109. R. 1. 9. In the Palmyrenian temple §. 192. R. 5. the door is placed in the centre of the colonnade on account of the plutei, as in Egypt §. 221. Railings and rail-doors (κιγκλίδες C. I. 481, clatri, clatratæ fores) between the columns of a monopteral and peripteral tholus are to be seen on the relief in Winckelm. W. i. tf. 15. 16. Wooden fences or hoarding δρύφακτοι were usual at Athens for enclosing fore-courts, see especially Schol. Aristoph. Wasps. 405.

281. The wall is modified in its destination to enclose, by the necessity of admission for persons as well as air and light. The forms of the door-frame imitate those of the entablature in the different orders (§. 282). There are distinguished: A. Doric doors; these consist of 1. antepagamenta, jambs, which together with 2. supercilium, the lintel (ζυγὰ), inclose the aperture of the door (lumen ostii) and are framed with cymatia and astragals. To these are added over the lintel 3. hyperthyrum, the cornice, consisting of cymatia, astragals and the projecting and protecting corona. B. Ionic doors; here also 1. antepagamenta (προστομιαῖα?) and 2. supercilium both which are divided into faces, corsæ, by astragals in the manner of the Ionic architrave; 3. the hyperthyrum from

which hang on the right and left 4. the ancones or parotides (called ὦτα at Athens), the trusses or consoles. C. Attic door, 4
similar to the Doric, only that it borrows the fasciæ from the Ionic. The windows, θυρίδες, had similar but simpler frames. 5
In both, but especially the doors, the panels contributed very 6
much to the splendour of the ancient temples, and in attempts at restoration must be taken into account as an essential element for the general effect.

1. However, Vitruvius has not here any part corresponding to the frieze; while the supercilium is similar to the architrave, and the hyperthyrum to the cornice. And yet friezes are also found on doors sometimes running round altogether as on the grand door of the temple of Pallas Polias, sometimes only under the cornice as in Roman edifices. The numerous doors of tombs at Cyrene have always merely the lintel and cornice, together with consoles of simple but very peculiar form. The shade-giving ὀφρύς over a house-door in Liban. Antioch. p. 239. R. is rather a hyperthyrum than supercilium. [Donaldson, A Collection of the most improved examples of Doorways. London 1833. 4to. One belonging to the time of the tombs of Bournabat near Smyrna.]

6. The door-leaves (valvæ, with scapi, stiles, impages, rails and tympana, panels) were often gilded (θυρῶσαι χρυσαῖσι θύραις, Aristoph. Birds 613), often also chryselephantine, like the famous doors in the temple of Pallas at Syracuse (Cic. Verr. iv, 56), where the Gorgon heads from the mythology of Pallas were used in place of the lion heads generally employed. Similar doors are described by Propert. ii, 31, 11. and Virgil G. iii, 26. Regarding the contrivances for shutting, see especially Salmas. Exerc. Plin. p. 649. sq. Böttiger, Kunstmythologie, s. 258. Becker, Gallus ii. s. 253. The circumstance that the hinges, as in the Cyclopean doors §. 46. R. 2, were also at a later period placed in the sill of the door serves to explain Soph. Œd. Tyr. 1261. Eurip. Her. Fur. 1002. Theocr. 24, 15.

The closing of windows was effected sometimes by shutters (comp. the angustæ rimæ in Pers. iii, 2) sometimes by transparent materials, lapis specularis, lapis phengites (especially from the time of Nero; men moved about within tanquam inclusa luce, non transmissa), glass, vitrum (ὕαλος), either candidum (λευκή), or varium, also versicolor (ἀλλάσσουσα). Comp. Hirt, Gesch. der Baukunst iii. s. 66. §. 316.

282. The ENTABLATURE, that portion of the building which 1
reconciles the supporting members properly so-called with those which immediately serve as a covering, is naturally divided into three parts: 1. that which unites the supports into rows, the architrave; 2. that which spans the walls formed thereby, the frieze, which was conceived at least originally in conformity to this destination; and 3. the overhanging and covering portion which belongs to the roof, the cornice. I. 2
ARCHITRAVE, epistylium, main beam. A. Doric, plain, with the tænia above to which are attached, underneath, the triglyphs, and the regula with the guttæ, drops. B. Ionic, consisting

of two or usually of three fasciæ, and above these the cyma-
tium cum astragalo et quadra. The same is also placed above
4 Corinthian columns. II. Frieze, *ζώνη, διάζωμα.* A. Doric: 1.
triglyphs over all the columns and intercolumniations (accord-
ing to Eustratius ad Aristot. Ethic. ad Nicom. x, 4, 2. Zell.
μοῦτλον); in these are to be distinguished the femora (*μηροί*,
fillets), canaliculi, channels, semicanaliculi and a capitulum;
5 2. metopæ, metopes. B. Ionic and Corinthian, called *zophorus*
from the reliefs of metal or marble attached to the plain sur-
face (rows of figures, bucrania with wreaths of flowers or other
6 arabesque-like ornaments) with a cymatium above. The
Doric frieze by its composition recals the original destination
of that member (§. 52); at the same time the triglyphs, by
their upright position and separation, continue the vertical
tendency of the columns, and impart an enlivening contrast
to the entablature, which is only at length completely resolved
into horizontal extension in the cornice. In the Ionic archi-
tecture the frieze is more an ornament of the building, with-
7 out the essential significance of the Doric. III. Cornice. A.
Doric: 1. Cymatium Doric. 2. Corona, *γεῖσον*, projecting oblique-
ly on all sides, but terminating perpendicularly, and beneath
it, over all the triglyphs and metopes, the mutules (mutuli)
from which hang the guttæ; 3. a second cymatium; 4. the
8 sima with the lion-heads above the columns. B. Ionic: 1.
denticuli, dentels with the intersectio, *μετοχή*, the interdentels;
2. a cymatium; 3. corona, with concave under profile; 4.
cymatium; 5. sima. C. Corinthian, similar to the Ionic, only
that under the corona the modillions, ancones or mutuli,
whose form is a composition of volutes and acanthus leaves,
9 act as supports. In each order proportionate height, strength
and simplicity are signs of early antiquity; contraction of the
plain surfaces, a narrower and thinner form, as well as richer
decoration, are indications of a later period.

2. Guttæ in a continued row without triglyphs were not perfectly rare in antiquity—in the pronaos of Rhamnus, the tower of Cyrrhestes, the Cyrenæan tombs (Pacho, pl. 19. 40. 46.).

4. Triglyphs were also employed as ornaments of castle-walls, as on the acropolis of Athens; see §. 52. R. 3. 272. R. 1. and Epicharmus in Athenæus vi. p. 236 b. When they are above columns, the corner triglyphs must be advanced beyond the axis of the column—an irregularity in a great measure compensated by the contraction of the last intercolumniation, which is grounded in static and optical laws; but with many Roman architects it was a reason for rejecting the whole order. In early times the triglyphs were always painted blue (cærulea cera, Vitruv.). Bröndsted, Voy. ii. p. 145.

5. The oldest Ionic architecture had certainly the dentels immediately above the architrave, for instead of the heavy cross-beams of the

Doric roof only light joists were laid upon the slender columns, forming the dentels on the outside. This arrangement is first found in the oriental form of Ionic architecture (comp. §. 54. 244), at Persepolis, at Telmissus and in Phrygia (§. 241.* R. 3), and then in the hall of the Caryatides at Athens. Ἐπιστύλιον καὶ ὁ ἐπ' αὐτοῦ κόσμος specially consecrated C. I. n. 2751. 52. 53.

7. 8. Vitruvius derives the mutules from the projection of the rafters, the dentels from the jutting out of the laths (comp. §. 270); against this just objections have often been made. The mutuli in the Corinthian order appear to have been with him a sort of modillion.? Modillions are very appropriately called πρόμοχθοι C. I. 2297.

283. The simplest CEILING, a stone laid across, is only met 1
with in monuments of the most unpretending kind. Temples
and other sumptuous edifices had sunken panels, lacunaria,
φατνώματα, which were transferred from wood-work, which
was also inlaid with gold and ivory, to stone (§. 53.) The 2
ancients distinguish: 1. the beams lying immediately over the
architrave (δοκοὶ δουροδόκοι); 2. the narrower joists placed above
these and mortised into one another (called στρωτῆρες collectively, singly probably σφηκίσκοι and ἰμάντες); 3. the covers or
caps filling the openings, καλυμμάτια: which parts were also
imitated in stone-building, but then wrought more as a whole.

1. Ὀροφὴ φάτναις διαγεγλυμμένη Diodor. i, 66. Chryselephantine lacunaria are even described by Ennius, Androm. p. 35. Bothe, as a part of the ancient kingly magnificence. In Diod. iii, 47. φιάλαι λιθοκόλλητοι are mentioned as an ornament of the cassoons. Laquearii as a distinct class of artists in the Theodos. Cod. xiii. t. 4, 2.—The space between the lacunaria and the roof often occurs as a place of concealment. Comp. Appian de B. C. iv, 44. Tacit. A. iv, 68. Valer. Max. vi, 7, 2.

2. See especially Pollux x, 173. and the investigations in Böckh C. I. p. 281, comp. p. 341. The more accurate view which the Uned. Ant. of Attica give of the lacunaria of Attic temples must be considered in connexion therewith. In the Eleusinian propylæa the δοκοὶ are placed over the Ionic architrave of the interior, and the stone flags with their depressed panels are mortised directly into these. But in Rhamnus and Sunium these stone flags are so cut out as to leave square holes into which the καλυμμάτια exhibiting the inner panels are fitted. It is precisely the same in the Selinuntine temple, the lacunaria of which with their coloured ornaments are given by Hittorff, pl. 40.

284. In private buildings the ROOF was either laid on flat 1
(that is with slight inclination), or inclined on all sides,
slanting; in public buildings, on the other hand, especially
temples, it was provided with pediments at the ends, which
among the Greeks were generally an eighth of their breadth
in height, but were more elevated among the Romans. To 2
the pediment or fronton, fastigium, ἀετός, ἄέτωμα (comp. §. 53)
belong 1. the tympanum; 2. corona and sima above the tym-

panum; 3. antefixa, ornaments at the corners, and on the summit; 4. acroteria, angularia et medianum, pedestals for
3 statues at the corners and in the middle. The sloping sides of the roof consist of 1. tegulæ, flat tiles, καλυπτῆρες, and 2. imbrices, hollow tiles—of marble, clay or bronze—which were ingeniously fitted into one another. The rows of the latter closed with upright elegantly ornamented eave-tiles, frontati, imbrices extremi, which in Grecian temples were not only placed above the cornice but even ran along the top of the ridge as an elegant ornament.

1. In ἡρῶα (on vase-paintings) the favourite practice was to change the ἀετὸς of the ἱερά (comp. Aristoph. Birds, 1109) into a low arch ornamented with fleurons stuck upon it. Perhaps these are Vitruvius' semifastigia.

2. The sima as well as the obliquely overhanging corona are not, if we look to their destined object, suitable for the side of the pediment, but are applied throughout for the sake of the agreement of forms. In the small temple of Artemis at Eleusis, where the sima has a very fine profile, it stands more upright over the fronton and inclines forward more above the side-walls, which is not less fitting than agreeable. Beautiful aëtoma in a sepulchral monument at Epidauros, with two different kinds of eave-tiles, hewn out in marble.

The antefixa (the author's Etrusker ii. p. 247) we become acquainted with especially from vase-paintings where temples and heroa are seldom without them. For example, Millingen, Vases de div. coll. pl. 12. 19. Millin, Vases ii. pl. 32. 33. Tombeaux de Canosa, pl. 3. 4. 7. 8. 11. 14. Antefixa of steles, resembling eave-tiles with the usual flower ornament. Stackelberg Gräber Tf. 3. 4. Pretty stele of Theron with painted antefixum thereon, in Attica, ibid. Tf. 6. 2. Painted sarcophagus tiles ibid. 5, 2. 6, 1.

The acroteria were for the most part narrower in Greece than in Rome where the pediments of the temples were often ornamented above with numerous statues. See for example the coins of the Tiber with the temple of Concordia, Pedrusi, vi, 4, 1. C. I. n. 2388, 5. καὶ νηοῦ δ' ἐπὶ κρατὶ μετήορ' ἀγάλματα ἔῆκαν τρισσά, δύο Νίκας, μέσσα δὲ Περσεφόνην. The conflict into which the front tiles over the cornice come with the sima was settled by the Attic architects generally in this way, that they merely placed a part of the sima with a lion's head at the corner beside the acroterium, and more rarely by carrying the front tiles further back behind the sima, as in the temple of Artemis at Eleusis, or by leaving them away altogether.

285. Vaults, according to the development which this part of architecture received, especially in the Macedonian and Roman period (comp. §. 48. 49. 107. 109. R. 5. 110. 149. R. 3. 168. 170. R. 3. 190. sqq.), are divided into the leading kinds which lie in the nature of the thing, only that the pointed arch must have always remained foreign to ancient architecture (§. 195), whose character does not affect a tower-like striving upwards and a mutual conflict of buttresses,

arches and vaults, but a predominating horizontal expansion, a secure position on the extended surface.

Vaults are called fornicationes (cuneorum divisionibus), concamerationes (hypogeorum), Vitruv. vi, 11. Among the Greeks ἀψίς, ψαλὶς καμφθεῖσα (comp. Wessel. ad Diodor. ii, 9), Sophocles' Lacaen. στενὴν δ' ἔδυμεν ψαλίδα κοὐκ ἀβορβορον. An oriental kind of vault? καμάρα, οἶκος κεκαμαρωμένος (C.I. n. 1104.) στέγη καμαρωτή, στέγη περιφερής. Demetr. de eloc. 13. The keystone of the vault is called in Ps. Aristot. De mundo 6. ὀμφαλός, also σφήν, tholi conclusura, Lobeck Aglaoph. p. 1103 s. Chief kinds according to Festus: tectum pectinatum (in duas partes devexum), cylindrical vaults; and testudinatum (in quatuor), cross or groined vaults. A cupola οὐρανίσκος §. 150. R. 2, τροῦλλος §. 194. R. 4. A vault of slight curve and wide span was probably called *solea*. Hirt. Mus. der Alterthums-W. i. s. 279. Rectilinear vault, see Philo p. 87. [The vaulted porticoes in the theatre of Sicyon are worthy of notice. They are built through the side buildings up to the third part of the height of the seats, in order to admit a portion of the spectators immediately from without at the height which they wished to reach. They are 4 paces broad, 22 long, and over 4 upright courses of square blocks, 5 others form the arch. Steuart found in a sepulchral monument in Phrygia, near Afghan Khia, a beautiful wide arch built of large stones, which however were not so large as those in this theatre.]

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4. KINDS OF BUILDINGS.

286. In enumerating the different kinds of buildings it is 1
of particular importance to point out the simple fitness and characteristic significance with which the manifold purposes and aspects of life were architectonically satisfied and expressed. The first class of structures is formed of those in 2
which regard is merely had to the external surface; they are divided into two kinds, inasmuch as they sometimes, standing by themselves (often with the aid of inscription and figure) fulfil the purpose of a monument, and are sometimes destined to support another more important work of art, or even provide an elevated platform for some transaction of life. The 3
simplest monuments of the first kind carry us back to the point when architecture and the plastic art grew from one root, as in the hermæ, the Agyieus, the Hades-stone on the tomb (§. 66. R. 1). With these are to be classed conic bar- 4
rows (κολῶναι, tumuli) piled up with earth or stones; grave pillars (στῆλαι, cippi, columellæ) of elegant architectonic forms, with inscriptions and often reliefs (§. 431); and the horizontal gravestones which were called τράπεζαι (mensæ). To the other 5
kind belong the single columns which were even used in the most ancient Grecian temples, on account of the smallness of most of the old carved images, in order to elevate the forms of the gods above the crowd of their worshippers—whence

originated the honorary pillars of later Roman times—together with the pillars or even columns upon which were destined to be placed cauldrons, tripods and other anathemes, as even this word imports: of these there are now more to be found in
6 reliefs and pictures than in architectural remains. We may also reckon as pertaining to it the hearth (ἑστία), the place of the fire, and hence the central point of human habitation, with which the Greeks connected the idea of a thing firmly established and immoveable, whereby an unsettled life re-
7 ceived an abiding hold. The hearth in a religious reference and application becomes an altar, which, where it was not a mere low fire-place (ἐσχάρα), received the natural form of a truncated pillar, or frustum of a column with base and cap-
8 ping; however, it was not unfrequently developed in Greece
9 into large and spacious structures. Other buildings of the kind even served as a pedestal for the living human form, in that they exalted those who were called to the guidance of popular assemblies and armies above the heads of the crowd, such as the bema, the tribunal of the prætor and general, the rostra.

4. A collection of stelés, simple Greek and more ornate Roman, Bouill. iii, 84 sqq. Clarac, pl. 249 sqq. Piranesi, Vasi, Candelabri, Cippi. 1778. 2 vols. fo. The τράπεζαι served for libations and water-sprinkling, hence Cic. de legg. ii, 26, together with the mensa mentions the labellum (laver) on Attic tombs. Inscriptions on them, Plut. x. Or. Isocr. p. 241 H. Somewhat similar were the ἴκρια as signs of the Kenotaphion, Marcellinus v. Thuc. 31. Comp. §. 54. 174. R. 2.

[5. Very ancient examples of pillars supporting images of the gods, Welcker Syll. Epigr. Græc. n. 119. 120. Others Paus. v, 24, 1. 22, 1. (Zeus, Nike) and frequently in reliefs and vase-paintings (Apollo Pythios, Agyieus, Pallas, Artemis), in like manner columns (κίονες), on which were consecrated gifts, eagles, owls, sirens, see L. Ross in the Annali d. I. a. xiii. p. 25. tv. B. comp. Zoega de Obel. p. 228. Portraits also were thus exhibited. According to Plutarch, Æmilius Paulus caused his own likeness to be placed on a large column at Delphi which was intended for a golden statue of king Perseus. The statue of Polybius stood on a column in the Asklepieion at Mantinea, Paus. viii, 9, 1. At Lodi there have been discovered remains of a large honorary column supposed to have been for a statue. Hall. LZ. Int. Bl. 1836. N. 29. The enormously large one at Alexandria §. 193 a. 6. was an honorary column. Cinerary urns on columns, Bull. 1847. p. 78.]

7. Θριγκώματα are the cappings of the altars. Eur. Iph. Taur. 73. We sometimes see on reliefs (Bouill. iii, 33, 1) an elegantly formed round altar standing on a square one of simple shape. Altars placed together in Moses' Collection of Anc. Vases, Altars, &c., pl. 51—63. Clarac, pl. 249 sqq.

8. For instance the great altar of Olympia whose base, πρόθυσις, was 125 feet in circumference; the whole was 22 feet high; the altar of Parion, a stadium square (Hirt, Gesch. ii. s. 59); the one of equal size

at Syracuse (ii. s. 179); the marble one 40 feet high with a battle of the giants in relief at Pergamon, Ampelius c. 8.

9. The Rostra, situated between the forum and comitium, was constructed for walking up and down on, and therefore extended longitudinally. We see it on the coins of the Lollia gens.

287. The contrast to this class is formed by enclosures of 1
all sorts, such as the walls of entire citadels and cities, which
often likewise received architectonic forms and decorations,
with arched gates for the most part; and the fences of sacred 2
precincts (*περίβολαι*), or places of public assembly (septa),
which appear to have been not unimportant architectural
undertakings.

2. Septa of the comitium of Tullus Hostilius, Cic. de R. P. ii, 17. Septa Julia, §. 190. R. 1. i. b. At Athens such fences were generally but slight, of wicker-work (the *γέρρα* of the ecclesia) or extended ropes (*περισχοίνισμα* of the council). Statues were surrounded with reeds, *κάνναι*, to prevent soiling, Arist. Wasps. 405; columns with reticula, Digest. xix, 1, 17. §. 4.

288. By the addition of a roof to this enclosure a HOUSE is 1
the result. The simplest house was the TEMPLE (*ναός*, ædis),
at first nothing more than a place where a religious image
was erected in a secure manner and protected, but which was
however also consecrated by solemn election and foundation
(*ἵδρυσις* in Greece, inauguratio, dedicatio, and consecratio at
Rome). Seclusion and mystery always remained character- 2
istic of the *ναὸς* properly so-called, which therefore never
admitted of windows; there was soon however combined with
it a free and open exterior, which at the same time afforded
shade and shelter, by the temple receiving porticoes and en-
circling colonnades (laxamentum). The interior of the temple 3
likewise received afterwards from the hypæthral construction
a clearer and more spacious appearance; the only light other-
wise admitted was by the door which was very large. Temples 4
are divided into the following kinds: a. as regards the placing
of the columns around, into: 1. ædis in antis, *ναὸς ἐν παρα-
στάσιν*, with corner pilasters under the pediment; 2. prostyle,
with porticoes on the front, and 3. amphiprostyle, at the two
ends; 4. peripteral with colonnades around; 5. pseudo-perip-
teral with engaged columns around; 6. dipteral with a double
circuit of columns; 7. pseudodipteral with a circuit of double
breadth; 8. The temple constructed according to the Tuscan
plan (§. 169); 9. according to a mixed Greco-Tuscan design. b.
as regards the number of columns (on the front) into the
tetrastyle, hexastyle, octastyle, decastyle, dodecastyle. c. as
regards the width of the intercolumniations, into 1. the pyn-
costyle (3 mod.); 2. systyle (4); 3. eustyle ($4\frac{1}{2}$); 4. diastyle

5 (6); 5. aræostyle (more than 6). A subordinate kind, the circular temple, is divided into 1. the monopteral (in which mere parapets or railings fill up the intercolumniations); 2. peripteral; 3. pseudoperipteral; 4. circular temple with a ves-
6 tibule, a prostylum. But as concerns the *parts* of the temple, the following are distinguished in large edifices of this kind: 1. the foundation with the steps, suggestus, κρηπὶς or κρηπίδωμα; 2. the temple strictly so-called, ναὸς, σηκὸς, cella, sometimes
7 double in the same building; to it belong: a. τὸ ἕδος, the place for the statue, which was often enclosed with a parapet or railing (§. 68. R. 1), b. ὕπαιθρον, the central space under the open sky, c. στοαὶ, the surrounding colonnades, also ὑπερῷοι, upper galleries (§. 109. R. 9), d. sometimes an ἄδυτον, the
8 holiest of all; 3. the pronoas; 4. the opisthodomos (§. 109. R. 2); 5. the circuit of columns, πτέρωμα, alæ, including the prostyla; 6. porticoes built on to the temple, προστάσεις, only in
9 particular cases (§. 109. R. 4). The more carefully we study the existing remains, the more must we admire the way in which ancient architecture, in sacred structures, accommodated itself to the different wants of the particular worship, notwithstanding the general regularity.

2. Quatr. de Quincy (Mém. de l'Inst. Roy. T. iii.) [Jup. Olymp. p. 262.] lays down several untenable assertions on the lighting of temples. Vitruvius' expression (iii, 1. comp. i, 2) of the *medium sub divo sine tecto* between the double colonnades describes distinctly enough the hypæthral arrangement. Comp. §. 80. 109. R. i, 5. [The old temple on Mount Ocha was an hyæthron §. 53. R. 2. as well as that at Phigalia, §. 119. R. 3., and at Delphi §. 80. i, 5., where the passage Eurip. Ion must be struck out, in room of which Wieseler will furnish another testimony, comp. Ulrichs Reisen s. 83 f. On the difficult question as to the partial roofing of the hypæthral temples see Stuart Antiq. of Ath. a new ed. ii. p. 33. not. c. K. F. Hermann, die Hypäthraltempel des Alterthums, Göttingen 1844. (comp. Bullet. 1845. p. 98.), refutes the opinion that this kind was exclusively applied to the worship of Zeus, and assumes a strictly hypæthral construction, which left the cella quite uncovered, and that it was not on account of the light, but was connected with an altar in the centre. Contrary opinions entertained by C. W. in the Allgem. Zeit. 1846. Beil. N. 213. and especially L. Ross Hellenika 1846. St. 1. The latter entirely denies this form of building, in reference to which doubts have also been expressed in the Hall. ALZ. 1831. Int. Bl. N. 71. Bötticher Der Hypäthralbau auf Grund des Vitruvischen Zeugnisses gegen Prof. Ross erwiesen, Potsdam 1846. 4to. comp. Archäol. Zeit. 1846. S. 359. This proof is also very minutely gone into by R. Rochette in the Journ. des Sav. 1846. p. 669. 721. Letronne in the Revue Archéol. iv. p. 593—602. Sur deux passages de Pausanias et de Strabon qu'on a cru rélatifs aux temples hypèthres Grecs.] The door of the temple is placed by Vitruvius iv, 5,1, (corrected Min. Pol. p. 27) to the west; but not merely the Athenian, the Ionian and Sicilian temples likewise usually have them in the east.

4. The ancients do not mention any temples with an odd number of

columns on the front; such a number as well as a row dividing the cella lengthwise, gives the idea of a stoa, §. 80. R. ii, 3. 109. R. 8. However the so-called temple of Hercules at Pompeii has also an odd number of columns.

5. Circular temples represented together especially in Piranesi's Raccolta dei Tempi antichi. We get a knowledge of the temple of Vesta from coins. Comp. §. 280. R. 6. Temple of Hera at Platæa ἑκατομπόδος, Thucyd. iii, 68, certainly not square.

6. Temples with *double* cells (ναὸς διπλοῦς) had generally the principal doors at the opposite ends; however there were also cases in which there was a communication from the one to the other. Paus. vi, 20, 2. Hirt, Gesch. iii. s. 35. Pausanias was acquainted with *one* example of two temples as stories above one another, iv, 15. The great temple of Cyzicus, §. 153. R. 3. is divided by Aristides into the κατάγειος, μέσος and ὑπερῷος; galleries, δρόμοι, ran through it in all directions. Roman temples on coins have frequently several tiers of porticoes on the outside. On temples resembling the basilica, such as the temple of Pax, Hirt, Gesch. iii. s. 36.

7. Ἴκρια περὶ τὸ ἕδος on the Inscr. Ægin. p. 160, ἐρύματα around the throne at Olympia, Paus. v, 11, 2; similar perhaps in the Parthenon, §. 109. R. 2. [In the Gött. Anz. there quoted there is an examination of the doubts as to the place where the colossal statue in the Parthenon stood; these fall to the ground in consequence of the observation of Ulrichs a. ibid. S. 84, that an altar stood in the centre of the cella under the hypæthrum. Since the removal of the mosque, which partly fell in of itself, the traces of the quadrangular base of this altar have become still more evident. It is clear that the statue did not stand here, as Cockerell and Dodwell supposed, but at the back wall of the cella, as at Olympia and everywhere, as Stuart also assumed.] The temple of Demeter at Pæstum, §. 80. R. ii, 1., has an inner ædicula for the mystic image. The Pompeian temple of Fortuna a tribunal with a prostyle in a niche, M. Borb. ii. tv. B. Of a similar description was the thalamos in Asiatic temples, §. 153. R. 3. 192. R. 5.

289. Buildings destined for the exhibition of a contest, constructed for musical, gymnic, and other AGONES, form a very extensive class among the ancients. An open space levelled, fenced off, and distributed according to the requirements of the *agon*, forms the first and most essential part. Over it must arise, in order to enable the greatest possible number to see, terraced platforms and steps which however were often obtained in a natural way, especially in stadia and hippodromes, by taking advantage of the surrounding heights. In the THEATRE there was added to the dancing-place, the original choros (§. 64. R. 1), a platform with its wall behind, which was destined to exalt individuals above the crowd and exhibit them in a poetic world. Hence result the following parts: A. orchestra, with the thymele (the altar of Dionysus) in the middle, and the open passages (δρόμος?) at the side (the space of which is by others assigned to the stage). B. The scene, consisting of: 1. the wall (σκηνή) with its fixed decoration, which arose in several stories (episcenia), and was composed

of columns, intermediate walls, and entablature; 2. the advancing side-walls or wings (παραστάδια, versuræ procurrentes); 3. the space before the scene-wall between the wings (προσκήνιον), which was generally raised on a wooden platform
6 (ὀκρίβας, λογεῖον); 4. The front of this platform towards the spectators, and the space covered thereby (ὑποσκήνιον). C. The place for the audience, or the theatron properly so-called (κοῖλον, cavea), the steps for sitting on which ran round in a lengthened semicircle, concentrically divided by broad passages (διαζώματα, præcinctiones), and wedgewise by stairs leading down (into the κερκίδες, cunei). The seats were formerly
7 wooden scaffolds (ἱκρια), afterwards they were generally, in the Greek theatres, placed on the rocky ground. D. The surrounding colonnade, περίπατος, above the seat-rows, which served to widen the theatron and give an imposing termination to the whole, and was also rendered desirable from acoustic advantages (τὸ συνηχεῖν), which, together with perspective (§. 107), were a chief study with architects of theatres. Behind the
8 scene there were also porticoes (porticus pone scenam), an acceptable addition to the public recreation. The Odeion sprang from the theatre, as the music of individual virtuosi from the festal songs of the choruses; here, where no room for movement was necessary, where the main object was to be heard, the whole was concentrated and came under a circular roof.

3. We must however guard against assuming at once that the countless theatres in all parts of the Grecian world were all destined for the drama. Processions with chariots and horses (Athen. iv. p. 139), Bacchian orgies, the proclamations of heralds, musters, for instance that of the orphans of those slain in war when the Athenian state dismissed them in full equipment, were likewise held there; nay, the theatre became more and more the place for popular assemblies, and the stage then certainly took the place of the simpler bema on the pnyx which was in like manner constructed in the theatrical form.

4–7. Ruins of Theatres: in Greece, especially Epidaurus (§. 106. R. 2), Argos (450 feet in diameter, according to Leake), Sicyon (Leake, Morea iii. p. 369., 400 f.) Megalopolis, Sparta, Thoricus (Dodwell, Views, pl. 23), Chæronea, Melos (Forbin. Voy. dans le Levant, pl. 1), Nicopolis, near Rhiniassa in Epirus (Hughes, Trav. [i. p. 486.] ii. p. 338), near Dramyssus in the neighbourhood of Jannina (Donaldson, Antiqq. of Athens, Suppl. p. 46. pl. 3). In Asia Minor, especially Assos, Ephesus (660 feet), Miletus, Lindus, Stratonicea, Jassus, Patara, Telmissus, Cisthene, Antiphellus, Myra, Limyra, Side (best preserved), [that at Aspendos still more perfect according to Texier], Hierapolis, Laodicea (where there is much of the scene preserved, Ion. Antiq. ii. pl. 50), Sagalassus (to which the same remark applies, Arundel, Visit, p. 148), Anemurion, Selinus in Cilicia. Leake, Asia Minor, p. 320 sqq. [That at Aphrodisias, Ion. Antiq. iii. ch. 3. pl. 4 sqq. at Cnidos ch. 1. the upper pl. 3. 24 sq. the lower pl. 22 sq. 32.] In Syria, especially the theatres of Gerasa, one with *open*

scene consisting of columns, one with closed. Buckingham, Trav. in Palest. p. 362. 386. In Sicily, Syracuse (§. 106. R. 2), Tauromenium, Catana, Himera, Egesta (Hittorff, pl. 7—9). That at Egesta Bull. 1833. p. 169. [Theatre and Odeon of Catania, Serradifalco T. V. tv. 1—6., that of Tauromenium ibid. tv. 20—25., of Tyndaris tv. 31.] In Etruria, §. 170. R. 1. The great number of these ruins, and the completeness of many of them, encourage the hope that we shall yet obtain, after the recent labours of Groddeck, Genelli, Kanngiesser, Meineke, Stieglitz, Hirt, Donaldson, Cockerell, and the editors of Vitruvius, a representation of the ancient theatre founded on a complete architectonic availment of the materials. Stieglitz makes a distinction between pulpitum and proscenium, Beitr. S. 174. The difference between the theatres in Asia Minor as well as that of Syracuse, in which the seats end in obtuse angles, and those existing in Greece with seats cut away at right angles, is remarkable. [J. H. Strack Das altgr. Theater, Potsdam 1843. fol. Many indications in F. G. Welcker's Griech. Trag. S. 925. 1295 ff.]

The ROMAN theatre (§. 188. R. 4. 190. R. 1, i. a. b. R. 4. comp. §. 256. 259. R.) is only a modified form of the Greek with a different use of the orchestra. Its construction was afterwards transferred to halls for recitation. Giulio Ferrara, Storia e descr. de' princip. teatri ant. e moderni. Milano 1830. 8. [The Roman theatre at Falerona is in perfect preservation (even the foundation of the periacti). There are models of it at Rome. There was one discovered at Vicenza in 1839 by the architect Mighiranza, which seems from its size and the richness of the marble ornaments and statues to belong to the time of Augustus. That at Parma was found in 1844 more deeply buried, and is likewise well preserved. Remains besides at Brescia, Assisi, Teoni, at Nora in Sardinia (della Marmora Voy. de la Sardaigne T. ii. pl. 37. 2), at Saguntum (Schiassii De tipo ligneo theatri Saguntini, Bononiæ 1836., cf. Bullett. 1837. p. 376.]

6. We can obtain from the ruins a knowledge of the elegant and space-economizing form of the seat-steps. The gentle inclination of the horizontal surfaces to the back, which occurs at Epidaurus, secures seat and footing. [This is found often, for example in the smaller theatre at Melos.] The space for the feet is depressed compared with that destined for sitting; only in the theatre of Tauromenium and so-called Odeum of Catania are there (according to Hittorff) separate steps for the feet and others for the seat. On the lineæ dividing the sittings (which are still to be seen in the amphitheatre of Pola), see Forcellini s. v.

7. On this colonnade especially Appulei. Metam. iii. p. 49. Bip.; he also speaks, Florid. p. 141, of the pavimenti marmoratio, proscenii contabulatio, scenæ columnatio, of the culminum eminentia and the lacunarium refulgentia. Sometimes temples interrupted this gallery, as in the theatre of Pompey, §. 188. R. 4. also in the amphitheatre of Heraclea according to the coin, Buonaroti, Medagl. tb. 4, 7. comp. p. 275 sq. The proscenium at Antioch contained a nymphæum.—Chladni, Cæcilia, H. 22. controverts the old opinion that the sound was strengthened by inserting vessels, and by the form of the masks; Banks, however, is said to have discovered traces of acoustic cells at Scythopolis.

8. The ODEIA were similar to theatres (θεατροειδὲς ᾠδεῖον, Inscr. from Arabia Petræa in Letronne, Analyse du recueil d. Inscr. de Vidua, p. 24), with large circular roof (§. 106. R. 3, comp. the epigr. in Welcker's

Syll. p. 44), which rested on a great number of columns (Diodor. i, 48. Theophr. Char. 3. &c.). The stage must have been in the middle. The theatra tecta on the other hand, such as that of Valerius, Plin. xxxvi, 24, and that of Pompey, had the ordinary stage. Martini on the Odea. [Klausen in the Encycl. of Ersch and Gruber, C. Rose Ueber die Odeen in Athen, Rom u. Karthago, Soest 1831. 4to. Odeum at Laodicea, Ion. Antiq. ii. ch. 6, in Smyrna, Aristid. Rhod. i. p. 630, in Catania, &c.]

1 290. The STADIA received their form chiefly from their destination for the race, to which refer the barriers (βαλβίς and ὕσπληξ) and the goal-pillar (τέρμα, meta), as well as the length of the course; however there was at the same time a space in the neighbourhood of the goal for contests in wrestling and boxing and other exercises:—this part of the stadium (called σφενδόνη) had some resemblance to a theatre, in its rounded
2 form and seat-steps. The HIPPODROME was at first of very simple design; among the Greeks the suitable construction of the barrier (ἄφεσις with the ἔμβολον) was especially a subject of nice calculation (§. 106. R. 4); the Romans made a large and sumptuous edifice of their circus, the principal parts of which are thus distinguished: the front building (oppidum) with the barrier (carceres, ψαλιδωταὶ ἱππαφέσεις) and the gate for the procession, the race-course with the spina bounded by two pointed columns (metæ, νύσσαι καμπτῆρες) and the Euripus around; the encircling wall with the seat-rows (podium et sedilia) and grand stands (suggestus et cubicula); to which was also added a portico with tabernæ on the outside.
3 AMPHITHEATRES, although they originated in Italy, are altogether conceived in the simple and grandiose taste of the Hellenic architects; the problem here was also more easy than in the theatre. The elliptic form which the arena universally received, gave the advantage of a longer line for sustained charges and pursuits; the locality lost thereby the uniformity of the circular surface which everywhere presents equal advan-
4 tages. The parts of the amphitheatre are: 1. the arena with the subterranean passages and the equipments for the particular games; 2. the foundation wall of the seats (podium); 3. the different stories (mæniana) of seat-rows (gradationes) with their stairs; 4. the different circular passages between the mæniana (præcinctiones) with the gates under the seats (vomitoria); 5. the higher and lower vaults and arcades (fornices, concamerationes) over and alongside one another, which occupied the whole space under the seats; 6. the stories of columnar architecture on the outside; 7. the portico around the whole amphitheatre, above the highest mænianum; 8. the uppermost gallery with the beams from which the awning (vela) was spread out by means of an immense apparatus of
5 ropes. As amphitheatres were sometimes filled with water, and the arena converted into a basin, there also originated at

Rome, from the insatiable passion of the people for public amusements, the NAUMACHIÆ as a separate kind of buildings, which furnished larger surfaces for sea-fights in the interior.

1. This sphendone (Malalas, p. 307. ed. Bonn.) is seen very distinctly in the Ephesian stadium, where it is likewise separated from the rest of the race-course by a few projecting seats. The Messenian stadium, which is surrounded by colonnades, has 16 rows of seats in the sphendone. Expéd. de la Morée, p. 27. pl. 24 sqq. In the Pythian stadium (described by Cyriacus Inscr. p. xxvii.) this is called by Heliodorus iv, 1. a θέατρον. Several stadia in Asia Minor (Magnesia, Tralles, Sardis, Pergamon) are rounded off at *both* ends. Leake, Asia Minor, p. 244.

2. [The hippodrome at Aphrodisias Ion. Antiq. iii. ch. 2. pl. 10 sqq. That at Perga is also well preserved. On the *phiale* (of the fountains) of the hippodrome at Constantinople, Texier Revue Archéol. ii. p. 142.] The ornaments of the spina of the Roman Circus, among others the pulvinar, the scaffolds with eggs and dolphins, conic pyramids on a base, are partly derived from decursiones funebres, also from the worship of Poseidon [the pulvinar was for distinguished personages, the mænianum, a stair to the different stories; the Euripus prevented the runners from approaching the podium]. The Euripus as well as the basin (lacus) of the spina (distinctly to be seen in the circus of Caracalla and in mosaics) served to moisten the sand.—The Circus Max. at Rome was 2,100 feet long, 400 broad, and surrounded by galleries in three stories (στοαὶ τριστέγοι, Dion. Hal.) the lowest of which had stone, and the upper wooden seat-rows; in Trajan's time it contained about 300,000 spectators. G. L. Bianconi's work, §. 258. R. 4. Mosaics, §. 424. R. 2.

3. The Greeks sometimes converted stadia into amphitheatres, Hirt, Gesch. ii. s. 345. Lipsius de amphith., Thes. Ant. Rom. ix. p. 1269. Maffei degli Amfiteatri. Carli d. Anfiteatri (the Flavian, that of Italica and of Pola). Mil. 1788. Fontana Anfit. Flavio (§. 190. R. 3). 1725. fo. Ruins of amphitheatres in Italy, §. 258. 260. R. Bibliot. Ital. xli. p. 100. Comp. §. 254. 256. 262.

4. The recent excavations in the Coliseum have shown the subterranean passages of the Arena. See Lor. Re, Atti d. Acc. archeol. ii. p. 125 (for Bianchi, against Fea). [The amphitheatre of Syracuse, Cavallari in Serradifalco iv. tv. 13–15, of Catania v. tv. 7–9; there is a large work on that of Capua prepared.] The sight of the amphitheatrical games in their strange combinations must have been wonderful, surprising and exciting to a degree which we cannot adequately imagine. The splendid decorations, the moveable ivory cylinders and gold nets for the protection of the podium, the gems on the balteus, i. e. the præcinctiones, and the gilding of the porticoes are described especially by Calpurnius, Ecl. vii, 47 sqq.

5. In the Naumachia of Augustus the longer axis amounted to 1,800 (basin) and 100 feet (seats), the shorter 1,200 and 100 f.

291. Another class of buildings consists of PORTICOES des- 1
tined for public social intercourse, which the ancients loved so much, for commerce and all sorts of assemblies, in which a

roof resting on columns and affording a shelter against wind and rain was the main object, whereas in temples it was
2 merely an external appendage. To these belong first, entirely open porticoes of two or more rows of columns (tetrastichoe, pentastichoe), such as sometimes traversed cities in the form of streets, like the great colonnades of the Syrian towns (§. 149. R. 4. 192. R. 5), sometimes surrounded quadrangular market-places and other squares; sometimes also they constituted
3 distinct buildings by themselves. But then walls were also added to the colonnades on one or both sides, and thus were developed the halls which Rome borrowed from Greece under the name of basilicas (*στοαὶ βασιλικαὶ* §. 180. R. 3. 188.
4 R. 3. 191. R. 1. 194.) Here we distinguish: three or five aisles running along parallel to one another, together with the galleries over the side-aisles, which were formed by columns disposed in pairs, the chalcidicum in front, and the tribunal in the posterior part of the building, frequently in a semicircular
5 recess (*κόγχη*).—We shall content ourselves with merely mentioning other public edifices, as we can scarcely say anything general as to their construction, such as the BULEUTERIA or CURIÆ; the PRYTANEIA of the Greeks with the THOLI or circular buildings which were destined for the state-sacrifices of the Prytanes; [the SHIP-HOUSES, *νεώρια* (Böckh Urkunden des Attischen Seewesens s. 64 ff.) and Skeuothecæ, the celebrated one of Philo in the Peiræus Olymp. 112. (Ibid. s. 71.)]; the PRISONS, which were often very strong and resembled donjons; the THESAURI (aeraria), in which subterranean cellar-like vaults seem even in later times to have been the principal thing [?].
6 The numerous groups of Thesauri, which stood on platforms (*κρηπῖδες*) in the temples of Delphi and Olympia, were also probably for the most part circular structures.

2. Thus for example there stood at Athens, according to Paus. i, 2, 4. several temples, a gymnasium and Polytion's house in a stoa, that is to say in a square enclosed by it. Of the same description was the portico of Metellus, §. 180. R. 2. 190. R. 1, i. The portico of Thoricus (§. 109. R. 8.) shows no trace of walls, and was therefore perhaps a mere structure of columns; so also for the most part the portico of Diocletian at Palmyra, Cassas i. pl. 93 sqq.—Comp. Hirt. Gesch. iii. s. 265.

3. The Corcyræan Hall at Elis contained a wall between two rows of columns, Paus. vi, 24, 4. A CRYPTOPORTICUS had walls with windows on both sides, and probably only engaged columns between. On HANGING porticoes §. 149. R. 2. comp. §. 279. R. Forcellini s. v. *mænianum*, solaria, Mæniana, *ἡλιαστήρια*, Salmasius Hist. Aug. i. p. 676. [Portico of the Agora at Aphrodisias, Ion. Ant. iii. ch. 2. pl. 6 sqq.]

4. We obtain a knowledge of the BASILICÆ especially from that of Vitruvius at Fanum (in the description of which however there are still many obscurities,) that at Pompeii (Mazois iii. pl. 15. sqq. Gell, Pomp.

New Ser. ch. 2.), the one at Ocriculum and those of the Christians. On the vestibule, which was called CHALCIDICUM, and was therefore derived from Chalcis, see Hirt ii. s. 266. Sachse's Stadt Rom. ii. s. 7. The Pompeian Chalcidicum however formed a separate peristyle with a cryptoporticus behind it. Becchi, del Calcidico e d. Cripta di Eumachia. N. 1820. Malalas has often the expression *κόγχη*. [*οἰκίαι πολυόροφοι*. Jacobs ad Philostr. Imag. 4, 23.]

5. The THOLUS of Athens was also called SKIAS (Suidas s. v. *Σκιάς*, C. I. p. 326.), and was therefore one and the same sort of building with the skias of Theodorus at Sparta, §. 55. R., only that the latter was large enough to contain assemblies of the people. Was the tholus qui est Delphis (de eo scripsit Theodorus Phocæus, Vitruv. vii. Præf.) the buleuterion of that place or a thesaurus? Travellers frequently speak of a circular building there.—Welcker, Rhein. Mus. ii, 3. s. 469 ff., throws doubt on the idea brought forward §. 48. regarding the ancient thesauri; but, in the first place, native tradition certainly designates distinctly the well known buildings as the treasuries of Minyas and Atreus (the latter of which is even yet a *κατάγαιον οἴκημα*, as Pausanias calls it), and secondly, analogies are too much wanting in Greece to explain such domes contrary to tradition to be sepulchres. See on these Dodwell, Views of Cyclop. Remains, pl. 9. 10. 11. 13.

6. These buildings (on the position of which see Paus. vi. 19, 1.) are called by Polemon Athen. xi. p. 479. *ναοί*, in Eurip. Androm. 1096. *χρυσοῦ γέμοντα γύαλα*. The small buildings also which were designed to support prize-tripods were called *ναοί* (§. 108. R. 4), Plut. Nic. 3. Comp. also §. 232. R. 4.

292. Among the public buildings which were erected for 1
the general care of the body, the GYMNASIA were in Greece, and the THERMÆ in Rome, and probably even in the Macedonian East, the most important. They stand in close connexion with one another, for, as in Greece the warm bath was attached to athletic exercises as a remedy for exhaustion, so in Rome some corporeal exercise was connected with the use of the bath. The Greek GYMNASIA, in their complete- 2
ness, contained the following spaces and apartments: A. as parts of the main portion, the palæstra: 1. the stadion; 2. the ephebeion, the exercise-hall for the youths; 3. sphæristerion, for ball-playing; 4. apodyterion, for undressing; 5. elæothesion, aleipterion, for anointing; 6. konisterion, for rubbing with dust; 7. the swimming-bath (*κολυμβήθρα*) with other bathing accommodations; 8. covered promenades (*ξυστοί*, in Rome, porticus stadiatæ, stadia tecta); 9. open promenades (*περιδρομίδες*, in Rome, hypæthræ, ambulationes or xysti). B. as surrounding portions: all sorts of rooms (œci), open halls 3
(exedræ), porticoes (porticus, also cryptoporticus), by means of which the gymnasium was also fitted to become a place of intellectual gymnastics. Now, in THERMÆ, we distinguish in 4
a similar way: A. The main edifice, in which were, 1. the ephebeum, the large circular hall in the centre of the whole; 2.

the cold bath (balneum frigidarium); 3. the tepid (tepidarium); 4. the hot (caldarium); 5. the sweating-room often connected therewith (Laconicum seu sudatio concamerata, in which were the clypeus and the labrum, and the hypocaustum with the suspensura beneath); 6. the anointing-room (unctuarium); 7. sphæristerium or coryceum; 8. apodyterium; 9. elæothesium; 10. conisterium; 11. the swimming-bath (piscina); 12. xysti; 13. all sorts of apartments for attendants; 14. the vestibulum (all these chambers, except the vestibulum, ephebeum and piscina, are usually found double). B. surrounding and enclosing structures such as otherwise belong especially to museums — porticoes, exedræ, apartments for learned intercourse (scholæ) and libraries, also buildings in the form of theatres.

2. The best preserved ruins of gymnasia are at Ephesus (the most magnificent in Asia, built by Adrian, Philostr. Vit. Soph. 1. Polemo), Alexandria Troas and Hierapolis (drawings of the last by Cockerell). For carrying out into detail the above data from Vitruvius see Hirt. iii. s. 233 ff. Kruse Theagenes S. 131 ff. [Plan of the palæstra, Leake Tour in Asia, Appendix Note 3.]

4. In elder Greece and Rome the baths, *βαλανεῖα*, were insignificant edifices and probably in general private undertakings. (Public *λουτρῶνες* however are mentioned by Xenophon, RP. Ath. 2, 10). In these a round and vaulted form was the usual one at Athens, Athen. xi. p. 501. But this form always continued to be that of the bath-halls; large windows in the dome admitted the light. Comp. Lucian's Hippias 5. Seneca Ep. 86. Statius Silv. i, 5, 45. Plin. Ep. ii, 17. Sueton. de ill. gramm. 9. 11. Comp. §. 194. R. 3. [Baths at Cnidos Ion. Ant. iii. ch. 1. pl. 12 sqq.]

We know the construction of baths and thermæ especially from the picture found in the baths of Titus (Winckelm. W. ii. Tf. 4. Hirt, Tf. 24, 2.), the thermæ of Badenweiler (§. 264. R. 2.) and Pompeii (M. Borb. ii, 49 sqq. Gell, Pomp. New Ser. i. pl. 23 sqq.), which are restricted to the necessary parts, and Palladio's plans of the baths of Agrippa, which however are not altogether to be relied on, the Nerono-Alexandrine, those of Titus (or Trajan?), of Caracalla, Philip (?), Diocletian and Constantine, which in general present very distinctly the lavacra in modum provinciarum extructa (Ammian). Palladio, Terme de' Rom. dis. con giunte di Ott. Barotti Scamozzi. Vic. 1783 fo. [Vicence 1797. 4to.] Ch. Cameron, The Baths of the Romans. L. 1772 fo. comp. §. 192. R. 1. 193. R. 6. Becker Gallus ii. S. 19. Kruse Theagenes S. 138. distinguishes the coryceum from the sphæristerium.—Allied to the baths were the NYMPHÆA, halls with high cupolas and fountains (Dissert. Antioch. i, 22.).

5. The Alexandrine museum (§. 149. R. 3) was a large peristyle with library and other rooms behind, and having a large dining-hall. Strab. xvii. p. 793. Aphthonius, p. 106. ed. Walz. Comp. J. Fr. Gronov and Neocorus, Thes. Ant. Græc. viii. p. 2742 sqq. On the exedræ of the museums combined with stoæ, Gothofred. ad Theod. Cod. xv, 1, 53. But artificial stalactitic grottoes were likewise called museums, Plin. xxxvi, 42. Comp. Malalas, p. 282. ed. Bonn. [Large ruins at Sardes point at public granaries.]

293. The design of PRIVATE HOUSES was of course at all times dependent on the various wants of different ranks and trades, as well as the particular inclinations of the owners, and therefore less regulated by pervading rules than the public buildings; however, there are even here certain easily distinguishable leading forms. I. The primitive Greek house of the *anaktes* (§. 47), to which may have corresponded in general, even in later times, the designs of houses among those tribes of Greece who more faithfully adhered to the ancient customs. II. The design described by Vitruvius, which probably emanated from the Ionians, and which was perfected in the Alexandrine times: A. the front porch for the door-keeper (θυρωρεῖον). B. The division for the men (ἀνδρωνῖτις), a peristyle (with the Rhodian stoa towards the south), surrounded by apartments of all kinds, dining-rooms, rooms for the men's meals (ἀνδρῶνες), exedræ, libraries, cells for slaves, stables. C. Division for the women (γυναικωνῖτις), also in connexion with the front porch, with a small prostyle to itself and adjoining porch (προστὰς or παραστὰς), rooms of all sorts, bed-chambers (the θάλαμος and ἀμφιθάλαμος), cells and so forth. D. Chambers for guests (ξενῶνες, hospitalia), as separate dwellings; intermediate courts (μέσαυλοι) separated them from the main building. III. The Roman house, a combination of the later Greek with the primitive Italian (§. 168. R. 5), which always continued to be pretty generally retained in the habitations of plain citizens; its parts: 1. Vestibulum; 2. atrium or cavædium, either Tuscan (without columns), or tetrastyle, or Corinthian, or vaulted (testudinatum); 3. Side-rooms of atrium (alæ, tablina, fauces); 4. the peristyle; 5. dining-rooms (triclinia, cœnationes, æstivæ, hibernæ); 6. halls (œci, tetrastyli, Corinthii, Ægyptii, Cyziceni); 7. conversation-saloons (exedræ); 8. pinacothecæ and bibliothecæ; 9. the bath with the palæstra; 10. closets, bed-chambers (conclavia, cubicula, dormitoria); 11. store-rooms and work-rooms for the slaves (cellæ familiæ); 12. the upper story called cœnacula; 13. cellars (hypogea concamerata; 14. garden buildings (viridaria, ambulationes). To the character of the ancient house in general belongs external seclusion (hence few and high windows), and the open communication of the apartments of the house with one another, as they were built around inner courts from which they were immediately accessible, often lighted merely through the open doors, and sometimes separated only by moveable wooden partitions (hence the tablinum) or curtains (vela). As to the COUNTRY HOUSES, it is sufficient to remark that they are divided into *villæ rusticæ*, really designed in a way suitable to the life of a country gentleman, and *urbanæ*, which transferred the luxurious

construction of the city into rural environment (of such there are not wanting minute descriptions).

1. A leading circumstance in the explanation of these structures is the little necessity for carrying off smoke; hence the want of chimneys. On the means of compensation comp. Stieglitz Arch. i. s. 124. Remains of ancient chimneys, Fea in Winckelm. W. ii. s. 347. Such were most usual in Gaul. Elsewhere heating by means of pipes in the wall and floor was a favourite method.

2. Comp. Dorians ii. p. 271 sq. At Athens an *αὐλὴ* before the house was usual even in later times; the women lived mostly in the upper story, *ὑπερῷον, διῆρες* (Lysias Ap. for the murder of Eratosth. 9.), the maids in *πύργοι* (Demosth. agt. Euerg. p. 1156.). Hence the *διστεγία* on the stage, Pollux iv, 127, Antigone appears on the balcony over the Parthenon in the *διστεγία*. The data of Vitruvius on the whole are evidently inapplicable here. Comp. Schneider, Epim. ad Xen. M. S. iii, 8. ad Vitruv. vi, 7.

5. These data of Vitruvius agree on the whole extremely well with the more stately houses in Pompeii (§. 190. R. 4.) and in the Capitoline plan of Rome. Mazois, Essai sur les habitations des anc. Romains, Ruines de Pompéi, P. ii. p. 3 sqq. [A monument erected to science. The most accurate and complete work is Descriz. di una casa Pompeiana Nap. 1837. 4to, a 2nd ed. 1840, a third 1843 by Avellino, who says that there is nothing for which he admires Winckelmann more than his accounts of Pompeii, as he anticipated so much that has been confirmed by later discoveries. P. Marquez Delle case di città d. ant. Romani secondo la dottrina di Vitr. R. 1795. 8vo. F. Schiassi Degli edifizi di R. ant. Bologna 1817. 8vo. C. G. Zumpt Ueber die bauliche Einrichtung des Röm. Wohnhauses. B. 1844. 8vo.]

7. Pliny's description of his Laurentinum and Tuscum, Statius Silv. i, 3. are main sources; [Felibien des Avaux Les plans et les descr. de deux maisons de camp. de Pline. L. 1707. 8vo.] among the moderns, Scamozzi, Felibien, Rob. Castell, The Villas of the Ancients illustrated. L. 1728 fo. The plans of Hadrian's villa by Ligorio, Peyre, and Piranesi are in the main imaginary.—As to INNS we know especially the great *καταγώγιον* of Platæa which resembled a caravanserai, Thucyd. iii. 68.

1 294. In SEPULCHRAL STRUCTURES one of two objects commonly predominated,—either to have a chamber for depositing the body or the ashes of the deceased, or to erect to him
2 publicly a monument of commemoration (comp. §. 286). The former was the only object in sepulchral chambers constructed subterraneously or hewn out of the rock, if a frontispiece in the rocky wall did not even here announce the situation of a
3 sepulchral chamber (§. 170, 2. 241,* 3. 256. R. 3). In Greek districts, as the colonies of Lower Italy, the form of coffin-like chambers, or stone-receptacles, recalling the original burying
4 of corpses, prevailed. Labyrinthine chambers and galleries in the rocky ground were also from early times a favourite

form of necropolis (§. 50, R. 2). The other object, on the 5
contrary, was a necessary ingredient in monuments which are raised above the ground, although these also must still have contained a chamber, in which the immediate receptacle of the relics of the dead was deposited. A vaulted chamber, with niches for the different urns, if the monument (as columbarium) was intended for several, satisfied this want in the simplest manner; to this corresponded externally, and in a natural way, the form of a round towerlike building, which frequently occurs at Rome and Pompeii. Other forms arose 6
inasmuch as the ancient tumuli (*χώματα, κολῶναι* §. 50, 2) had sometimes circular foundations (§. 170, 2. 241,* 2), and were sometimes of a quadrangular form, from whence resulted a pyramid; which again placed on a cubic basement gave the wide-spread form of the mausoleum (§. 151. R. 1). The ter- 7
race-form of the tombs of Roman emperors (§. 190. R. 1. 191. R. 1. 192. R. 1) was perhaps indebted for its origin to the analogy of the *rogus*, where it is the most natural. Other 8
forms were produced by the analogy of altars on which libations were made to the dead, as well as of temples, with which sepulchral monuments were so much the more closely connected as they were even regarded as heroa.—Connected 9
herewith are the HONORARY MONUMENTS, which certainly had no reference to concealment of the dead, and furnished a place for honorary statues, sometimes under a roof supported by columns (such as the Tetrakionia §. 158. R. 5), sometimes in niches (such as the monument of Philopappus §. 192). TRIUMPHAL ARCHES combine in an ingenious manner the twofold destination, to commemorate a victorious return from war, and to elevate curule statues high above the ground.

3. In Attica stone-coffins are often found hewn out of the rocks and covered with a stone slab (Leake, Topogr. p. 318); similar ones also on the road to Delphi. Annali d. I. vii. p. 186. On the Attic tombs (*θῆκαι*) Cic. de legg. ii. 26. Tile sarcophagus (*κεράμεος σορός*) Stackelberg Gräber Tf. 7, an earthen sarcoph. ibid. 8. There are stone-coffins found in niches in the rocks near Ephesus, in Melos and elsewhere. [Numerous and peculiar in character are the tombs at Chalcis, which are hewn out in the gently acclivous rocky ground. Sepulchral chambers in Melos Ross Hall. A. L. Z. 1838. No. 40. Tombs of Thera Idem Annali d. I. xiii. p. 13.] At Assos, Thasos and other places there are many large sarcophagi standing free on pedestals [also before the gate of Platæa along the road to Thebes]. On the tombs of Rhenea, Bull. d. Inst. 1830. p. 9. Kunstbl. 1836. N. 17. In Magna Grecia according to Jorio (§. 257. R. 5) tombs composed of large blocks and covered with small stones or earth prevail (see the frontispiece to Tischbein's Vasengemälden), and along with these are found tombs hollowed out of the tufa, or even in the mere earth. The tufa-sepulchres especially are often richly ornamented with painting, stucco-work and reliefs. An elegant tomb discovered at Canosa in 1826, M. I. d. Inst. 43. Lombardi, Ann. iv. p. 285.

Comp. Gerhard, Bull. 1829. p. 181. Burial of the dead, Becker Gallus ii. S. 271. 291.

4. The grottoes near Gortyna are given in Lapie's map of Crete. Irregularly planned catacombs at Rome, Naples, and Paris; more systematic at Syracuse, Wilkins M. Gr. p. 50. Hirt ii, s. 88. Similar to these are the Alexandrine (Minutoli, Abhandl. verm. Inhalts, zw. Cycl. i. s. 1.) and the Cyrenæan (Pacho, pl. 61.). [E. Braun Il laberinto di Porsenna comparato coi sepolcri di Poggio-Gozella nell' agro Clusino. R. 1840 fol.]

5. [In Lycia four kinds of sepulchral architecture; Fellows Lycia, p. 104. 128., one with Gothic arch in the roof, comp. p. 112. 142. 186. Asia Minor (by the same), p. 219, 231. 228; others imitate the timber construction in the rock, especially at Xanthos, Telmessos and Pinara, comp. Asia Minor, p. 228, an idea which betrays itself also in several of the façades of Phrygian tombs. No part of Asia Minor is so rich in sepulchres as Lycia. Tomb at Mylasa with an open chamber above the grave-chamber, resting on 12 Corinthian columns, Fellows Lycia, p. 76. Remarkable tumuli, walled within at Kertsch (Panticapæon). Dubois Voy. in Crimée iv. Sect. pl. 18. Tombs in Phrygia in Steuart Descr. of some anc. mon. with Inscriptions, still existing in Lydia and Phrygia L. 1842. comp. Bull. 1843. p. 64. Tombs on the north peak of the citadel of Smyrna (one of Tantalus, according to the false supposition that this was the site of Sipylos), Hamilton Researches in Asia Minor i. p. 47 sqq. comp. Prokesch Wiener Jahrb. 1834. iv. s. 55. of the Anz., tombs hewn out of the rock, sometimes with column façades, at Cagliari in Sardinia, see Della Marmora Voy. de la Sardaigne.] Comp. the Rom. tombs in Bartoli (§. 210. R. 4.), H. Moses' Collection of ant. vases, pl. 110—118 and others. —[Uhden in Wolf and Buttman's Mus. i. s. 586 ff. on temples to the dead with gardens, arbours, choirs, in which were the portrait statues in the form of deities. One of the finest sepul. mon. is that at Weyden near Cologne, Alterth. Verein zu Bonn iii. Tf. 5—8. s. 134.]—The Palmyrenian monuments are very peculiar,—quadrangular towers with balconies, on which the occupiers of the monument are represented resting.

6. A PYRAMIDAL monument near Argos is mentioned by Pausanias ii, 25, 6., a similar one, of polygonal stones but with mortar, with a sepulchral chamber, is to be seen on the river Pontinus near Argos. Leake, Morea ii. p. 339. With the mausoleum is to be compared the monument of Constantina, in which a pyramid rises over the entablature of a circular building surrounded with columns, §. 256. R. 4. [Comp. §. 48. R. 3.]

7. Hephæstion's pyre (§. 151. R. 2) was perhaps itself an imitation of older Babylonian pyres, such as that of Sardanapalus. [See Gerhard Archäol. Zeit. 1848. s. 73.] The pyre on the Tarsian coins, on which Hercules-Sandon is burnt (§. 238. R. 4.), has the form of a pyramid on a cubic substruction.

8. Βωμοειδὴς τάφος, Paus.; *βωμοί* on tombs, Welcker, Syll. Epigr. p. 45. To this class belong the Pompeian sepulchral monuments, which consist of a low pillar with a capping and Ionic cushion ornaments. The Sicyonian tombs were in the form of temples according to Paus. ii, 7, 3. comp. Leake, Morea iii. p. 358. Restoration of an aëtos of this kind

found at Epidauros. Stackelb. Gräber Tf. 4. Sepul. mon. of Asia Minor C. I. n. 2824 ὁ πλάτας (hypobathrum), thereon a μνημεῖον = βωμός, therein σορός and εἰσῶσται, columbaria, εἰδοφόρος between the βωμός and sarcophagus, with the figure. The vases, especially those of Lucania and Apulia, also the clay-lamps (Passeri iii, 44.) give numerous representations of tomb-temples. Nothing is more common than engaged columns, temple-pediments and antefixa on tombs and cippi. See the examples in Hirt, Tf. 40, 5. 6. 8. 9. and the Mylasenian monument n. 24. Antefixa §. 284. R. 2.

9. *One* of these destinations of the triumphal arch is described by Pliny xxxiv, 12: columnarum ratio erat attolli supra ceteros mortales, quod et arcus significent, novitio invento (however fornices and signa aurata upon them occur in Liv. xxxiii, 27. as early as the year 556 of the city). L. Rossini Gli archi trionfali onorarii e funebri degli ant. Rom. sparsi per tutta l'Italia R. fol. max. Bull. 1837. p. 30. Similar to the triumphal arch were the Tetrapyla at Antioch (§. 149. R. 4), Cæsarea, Palmyra, Constantinople, wherewith especially the crossings of colonnade-streets were arched over. In a gymnasium at Aphrodisias λευκὸλιθοι παραστάδες καὶ τὸ κατ' αὐτῶν εἴλημα μετὰ τῆς γλυφῆς αὐτῶν καὶ κίονες μετὰ τῶν βωμοσπειρῶν (stylobates) καὶ κεφαλῶν. C. I. n. 2782.

295. From these single edifices we now extend our view 1
to such structures as contained several buildings destined for
different purposes, but yet conceived as a whole and calcu-
lated for one architectonic effect. To this class belong the 2
SANCTUARIES (ἱερά) of the Greeks which, with their high-altars,
temples and heroa, prytanea, theatres, stadia and hippodromes,
sacred groves, fountains and grottoes, are to be conceived as
a manifold assemblage of edifices, sometimes calculated to
produce a solemn, and sometimes an agreeable effect (comp. §.
252. R. 3). Further, the MARKET-PLACES (ἀγοραί, fora), whose 3
regular design emanated from Ionia (§. 111, 2), and was after-
wards very much perfected at Rome:—squares surrounded
with open colonnades, and, behind these, temples, basilicæ,
curiæ, triumphal arches and other honorary monuments, also
booths and shops; it was intended that in these above all the
spirit of political life should prevail, and recollections of
a patriotic nature be kept alive; whilst, on the contrary,
other markets (fora olitoria and macella) were destined to
provide for the nourishment and necessities of life. Lastly, 4
the most extensive problem—the laying out of entire CITIES—
which since the time of Hippodamus (§. 111, 1.) was often
assigned in Greece to distinguished architects. Even the
earliest founders of cities and colonies in Greece were com-
mended for choosing the site of the city with reference to
pleasing view, and in reality many Greek cities present,
especially from the theatres, prospects of enchanting beauty;
nor were the later architects so carried away by the striving
after regularity, as not on all occasions to observe and adopt
with nice perception the advantages of a picturesque situa-

tion. The theatre-form in especial was a favourite mode of construction, which in the rock-encircled Delphi must have produced an awfully sublime impression, and a gayer and more brilliant effect in maritime towns such as Rhodes and Halicarnassus. These cities in particular, with their large public edifices and well distributed colossi, must have even in the distance appeared to the traveller as splendidly decorated theatres.

3. The design of a forum is rendered quite clear particularly by the Gabinian discovered in 1792 (Visconti, Mon. Gab. tv. 1.), and that of Pompeii (see the splendid restoration in Gell, Pomp. pl. 48. 51).—A covered forum §. 191. R. 1.

4. On the fine situation of Greek towns, Strabo v. p. 235. Assos in Asia Minor is a striking example, Choiseul Gouffier Voy. Pitt. ii. pl. 10. Together with this a skilful use of, and defence from, wind and sun was from early times a grand aim with founders of cities. Arist. Polit. vii, 10. Vitruv. i, 4, 6. Of all the Grecian cities, with the exception of Athens, perhaps Syracuse is the one of which we possess the most accurate knowledge as regards its plan; here also the more modern portions were more regular than the ancient. Plan in Levesque, Göller, Letronne. The improvements at Ephesus by Damianus, Philostr. v. Soph. ii, 23.

1 296. As architecture does not reject any phase of human life as unsusceptible of artistic forms, any more than it is capable of providing itself with forms elsewhere than from the wants of life, the mention of land and water buildings must not be here omitted, by means of which the people put their place of habitation in a firm and secure manner in con-
nexion with others, procured for themselves the necessary wants of life from a distance, and on the other hand conveyed
2 away what was unprofitable. We here refer in the first place to the ROADS, in the construction of which the Romans were so distinguished (§. 180. R. 1), on account of which rocks were quarried through, and wide valleys and marshes spanned by
3 long arches; then to the vast BRIDGES, CANALS, OUTLETS OF
4 LAKES and CLOACÆ of the same people; further, to the entire magnificent SYSTEM OF WATER-SUPPLY for Rome which Frontinus not without reason ranks above the pyramids of Egypt and other wonders of the world, and to which, besides canals, aqueducts and conduits, belonged reservoirs, wells and fountains, which, ornamented with columns, basins and statues, were very numerous in Rome from the time of Agrippa.
5 Although indeed the lofty arcades of the aqueducts might sometimes be spared by means of cheaper contrivances, their architectonic feeling however, besides other considerations, determined the ancients to prefer to such unostentatious substitutes, those gigantic rows of arches which hasten from the mountains over valley and plain to the well-peopled city,

and already announce it from afar. In like manner, too, the 6
HARBOURS of the ancients, although smaller than ours, nevertheless presented with their moles, pharoses, outer bays and inner basins, arsenals, wharfs and docks, together with enclosing quays and colonnades, temples and statues, a far more complete and significant general effect; and even here architectonic feeling was intimately combined with fulfilment of the external object. SHIPS also, the round and unwieldy one 7
of the merchant as well as the light and menacing one of the fleet, the latter of which might rather be compared to an adroit warrior than a floating bulwark, presented a significant aspect and peculiar physiognomy; and in the Alexandrine period these as well as chariots (§. 150. 152) were magnificent structures of colossal dimensions. Only where mechanics takes possession of a building so entirely that its complicated fitness does not exhibit itself in a connected view, architecture as an art yields to a mere calculating activity of the intellect not warmed and animated by any feeling.

2. The Roman streets were partly silice stratæ (the Appian way best), sometimes glarea; the footpath alongside lapide, with softer stones: mile-stones (comp. §. 67) on all the high roads. Bergier, Hist. des grands chemins de l'emp. Romain (Thes. Ant. Rom. x.). Hirt ii. s. 198. iii. s. 407. In Greece particular care was bestowed on roads for festal processions,—at the Didymæon, at Mylasa. On the σκυρωτὰ ὁδὸς in Cyrene, Böckh. ad Pind. P. v. p. 191.

4. A map of the Roman aqueducts in Piranesi, Antich. Rom. tv. 38. Fabretti in the Thes. Ant. Rom. iv. p. 1677. The splendid monolith vases of porphyry, granite, marble, having even 20—30 feet in diameter, which adorn the museums, are mostly to be regarded as basins of fountains. Hirt. iii. s. 401. The most celebrated fountains (κρῆναι, comp. Leake, Morea ii. p. 373.) of Greece, §. 81. R. 1. comp. 99. R. 3, 13. Cisterns of Byzantium, §. 193. R. 8.

6. A main constituent of the ancient harbours were the arcades on the moles, which had for their object the cleansing of the inside by pouring in a stream of water. They are found in mural paintings (Pitt. di Ercol. ii, 55. Gell, Pomp. New S. pl. 57.) and in ruins. Giuliano di Fazio Intorno il miglior sistema di costruzione dei porti, Nap. 1828 and enlarged Obss. sur les procédés architect. des anciens dans la constr. des ports 1832 (the harbours with arcades in order that the courants litoraux might pass through). Bullett. 1833. p. 28. On the harbour at Cenchreæ, above §. 252. R. 3. That of Carthage also was enclosed with Ionic columns, behind which were the νεώσοικοι. Appian viii, 96. Pharos §. 149. R. 3. 190. R. 2.—Ships, see below Stieglitz Beiträge, s. 205.

II. FURNITURE AND VESSELS.

297. However much the moveable house-furniture might be distinguished from the buildings, by the relation to the soil, it was not the less related to these as regards the union of utility and beauty, which the Greek taste always knew how to attain equally and in the shortest way, and also in respect of the geometric forms which it employed therein as the leading forms. However, furniture and vessels, precisely because they are moveable objects, admit in their supports, feet, handles and decorative portions, not merely of the forms of vegetable, but also of animal, life to a much greater extent than the rigidity of architecture will bear; as we see for example on THRONES and other kinds of seats. These kinds of furniture, which have been often mentioned already (§. 56. R. 2. 85. R. 2. 115. R. 1. 239. R. 5), as well as the coffers (*χηλοὶ*, *λάρναξ*, §. 56. 57), chests and casquets (*κιβωτοὶ κιβώτια*), tables and dining sofas of the ancients, in like manner made of wood, are in general known to us but mediately, on account of the perishableness of their material; however, there are also thrones of marble, which are decorated with great taste, (comp. §. 358. towards the end).

1. Comp. Winck. W. ii. s. 93. Weinbrenner is therefore right in ascribing (Architect. Lehrbuch Th. iii. s. 29.) the ancient forms of vessels to the exercise of architectural taste.

3. The *κιβωτοὶ* are often distinctly to be seen as receptacles for clothes (Pollux x. 137.) on vase-paintings, Millingen, Uned. Mon. 35. V. de Cogh. 30. Div. coll. 18. But similar chests also occur filled with oil-flasks, Div. coll. 17. 58. as well as at sacrifices, 51. We often see on vases very elegant sacrificial tables, *τράπεζαι* (Polyb. iv, 35, Osann, Syll. i, 74. C. I. p. 751), for example Millingen Div. coll. 58. *Τράπεζαι* for the prizes at the games (a chryselephantine one at Olympia, Q. de Quincy, p. 360) are often to be met with on coins. Tables of bronze likewise were numerous; the tables of Rhenea (Athen. xi, 486 e.) are connected with the triclinia aerata of Delos (Plin. xxxiv, 4. xxxiii, 51) and the banquetings of the gluttonous Delians (Athen. ix, 172).

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298. VESSELS FOR FLUIDS are more accurately known, and more important for the knowledge of ancient art. Wood only occurs as a material for country use; the most common were burnt earth and metal (Corinthian brass, enchased silver), which often, according to the measure of wealth, took the place of one another alternately in the same vessel. The forms are conditioned by the particular object of the vessel; we distin-

guish the following leading destinations: 1. Vessels which were to receive considerable quantities for a short time, to be taken out of it in small quantities, and arranged to stand fast in the central point of a banquet; whence resulted the high, capacious form, expanding upwards, of the mixing-vase, κρατὴρ. 2. Small vessels for drawing out of the crater and pouring into the cup, consisting of small goblets with long handles, ladles, called ἀρύστιχος, ἀρύταινα, ἀρυστὴρ, κύαθος, similar to the primitive Italic simpulum, also trulla. 3. Small cans for pouring from with slender neck, broad ear, pointed mouth, πρόχους, προχύτης. 4. Vessels without handles, sometimes longish, sometimes round, but always with slender neck, in order to let oil or other such fluid drop, λήκυθος, ὅλπη, ἀλάβαστρον, ampulla, guttus. 5. Flat shield-like goblets, especially for making libations directly from, φιάλη, (ἀργυρὶς, χρυσίς), patera (to be distinguished from the platter, patina, patella), γαυλός evidently round and flat; capis, capedo, probably a patella with an ansa, cf. Fest. v. patella.

1. Thericles (§. 112. R. 1.) also turned cups of turpentine-wood, Athen. ix, 470. Plin. xvi, 76. Theocr. i, 27. describes a carved cup (κισσύβιον), with two handles, surrounded at the rim with a wreath of ivy and helichrysos, beneath with acanthos, between which were reliefs of elegant composition (comp. Ann. d. Inst. ii. p. 88).—In early times the craters of Colias earth were esteemed (§. 63.), afterwards only silver ones set with precious stones, Athen. v, 199. xi, 482. What Athenæus describes are in general silver and gold vessels. Vasa operis antiqui found at Tegea Sueton. Vespas. 7. [Silver vessels §. 311. R. 5.]

2. No. 1. Argolic craters, Herodotus iv, 152, Lesbian, iv, 61, Laconian and Corinthian, Athen. v, 199. On three feet, Athen. ii, 37., on supporting giants, Her. iv, 152., on hypocreteridia, §. 61. C. I. p. 20. With handles on both sides (λαβαὶ ἀμφίστομοι) Sophocl. Œd. Col. 473. The handles are generally placed on the lower rim of the belly above the foot, rather for pushing than carrying. Numberless craters on reliefs. Very fine ones of marble in Bouill. iii, 77. 78. 80. Moses, Vases, pl. 36. 40. 41. Particularly celebrated are the two from Hadrian's villa, in Warwick castle (Moses, pl. 37) and in Woburn abbey (Wob. Marbles). Sopra il vaso app. Cratere, Diss. dal Conte Floridi, p. 565.

2. Athen. x, 423. Schol. Arist. Vesp. 887. Festus s. v. simp. According to Varro L. L. v. §. 124. the simpulum belongs to sacrifices, and the cyathus to banquets. The figure of the simpulum with upright handles is to be seen on Roman coins, and among the sacrificial utensils of the friese, Bouill. iii, 83. Causeus de insign. pontif. tb. 2. (Thes. Antt. Rom. v). Perhaps the σκάφιον also belongs to this class, C. I. 1570. b. Cic. Verr. iv, 17. The trulla was sometimes of silver with reliefs. Orelli Inscr. 3838.

3. Iris pours the water of Styx from the prochus as a libation, Hesiod. Th. 785., Antigone the χοαί of her brother, Soph. Ant. 426. The holding the prochus up high (ἄρδην) is often observed in those who pour

out for a libation. See the reliefs §. 96. No. 17. 18. and among others the vase-paintings Millingen Un. Mon. i, 34. Cogh. 23. 28. We often see *prochus* and *phiale* together. It is often met with among painted vases, for example Laborde ii, 41. The προχύτης in Heron is the same vessel, Spirit. p. 163. (Vet. Mathem. Paris.); the σπονδεῖον was perhaps similar, p. 175. The προχοΐς or ἐπίχυσις (Bekker, Anecd. p. 294.), also called *guttus* (Varro L. L. v. §. 124.), has not a bill, but a pipe or nozzle (αὐλίσκος) for the mouth, according to the scholia to Clemens, p. 122. ed. Klotz.

4. Ampulla especially conveys the idea of a very much bellied form, see Appul. Flor. ii, 9. These vessels were often of leather, generally of clay or metal; the ἀλάβαστρα for anointing (on the form of which, Plin. ix, 56.) frequently of the stone which is named from them. Sometimes balsam oil is still found in vases of this form (balsamario, unguentario, lagrimale); in order to save the oil the internal cavity is sometimes very short. The λήκυθοι are often seen on vases, united with strigils and spunges as bath-utensils (ξυστρολήκυθιον).

5. Macrob. v. 21. Athen. xi, 501. also on the ὀμφαλοί therein. They are very frequent among vases, for example Moses, pl. 68. 69. (a μεσόμφαλος, according to Panofka's explanation) sqq. The patinæ (πατάναι) were plates especially for fish; there are many of these painted with many kinds of fish among the Koller vases. Patella is merely the diminutive of patina, principally the flesh-plates of the Lares. Likewise patellæ cum sigillis in Cic. Verr. iv, 21. χύτραι with owl, Aristoph. Av. 357, for the explanation of the small χύτραι of Nola and Volci [also very numerous in Sicily].

299. 6. The vessels immediately destined for drinking have the greatest variety of forms. The following in particular are of archæological interest: a. καρχήσιον, a high cup contracted in the middle with handles from the upper to the lower rim; b. κάνθαρος, a large wide cup with a lid and a mouth at the side for drinking; c. κώθων, a cup with narrow neck and an elevation on the bottom; d. σκύφος, a large round Centaurian and Heraclean cup, with small ears or handles; e. κύλιξ, a goblet with one foot and short handles (ὦτα); to this sort belongs the Thericlean cup; f. ψυκτήρ, a cylindrical vessel, with a columnar foot placed on an orbicular base; g. ἀρύβαλλος, purse-formed cups narrowing upwards; h. κοτύλη, a small cup, a pointed glass; similar to it was the top-shaped πλημοχόη; i. ἡμίτομος, probably a small semi-oval cup; k. ῥυτόν, rhytium, a horn-shaped vessel, not intended for standing, except when there was a particular stand for it, with a shutting aperture in the lower pointed end, through which the wine poured in at the top flowed out; of very various, often grotesque, forms; l. κέρας, the real drinking horn. Another class of vessels are: 7. such as were destined for drawing in quantity and carrying away (even on the head), κάλπη, ὑδρία, κρωσσός, urna, large, bellied, narrow above, and provided with a foot and two handles (δίωτος). 8. Similar vessels for carrying

away, and at the same time for preserving, with narrow neck that could be closed, κάδος, ἀμφορεὺς, amphora. 9. In general immoveable vessels, casks, mostly also of clay, πίθος, dolium. 10. Basins for hand-washing, χέρνιψ, χερόνιπτον, polubrum, trulla, trua (Forcellini), aquiminale. Like these were the sprinkling vases, ἀποῤῥαντήριον, περιῤῥαντήριον, (the sprinkling brush was also so-called), ἀρδάνιον, κύμβαλον præfericulum. 11. Cauldrons for cooking, λέβης, pelvis, ahenum, of course only elegantly wrought when not to be used for that purpose. The favourite kind of *lebes* in both cases, especially the latter, was the tripod (λέβης τρίπους, ἐμπυριβήτης or ἄπυρος), the much-boasted masterpiece of ancient workers in metal.

No. 6. a. Athen. xi, 471 e. Macrob. v, 21. Dionysus σπένδων ἐκ χαρχησίου Athen. v, 198 c. The carchesion is often to be seen on vase-paintings, Millingen, Cogh. 23. 26. 31. 44. 45. 51. Millin i, 9. 30. It often appears likewise in connexion with the prochus, Millingen Un. Mon. i, 34. The form on reliefs is less defined, Zoëga, Bassir. 77. Bouill. iii, 70. It is not rare among vases, Cogh. 32.

b. Athen. p. 473. Macr. *in loco.* Schol. to Clem. p. 121. In the hands of the Centaurs, in Athen., of Dionysus, according to Plin. xxxiii, 53. Macr. Gruter, Inscr. p. 67, 2. Comp. §. 163. R. 6. and Lenormant, Ann. d. Inst. iv. p. 311.

c. Athen. p. 483. Plut. Lyc. 9. Pollux x, 66. vi, 96. 97. &c. In Athen. a satyr holds κώθωνα μόνωτον ῥαβδωτόν, κώθων στεψαύχην, cf. Liebel ad Archil. p. 142.

d. See Athen. p. 498 sq., especially Stesichorus *ibid.*, Macr. v, 21. and the well-known passages of the Roman poets. On the Heraclean scyphos, Athen. 469.; it is recognised in the wide vase, with the inscription νικα Ἡρακλης, Maisonneuve, pl. 50, and in the reliefs, Zoëga 67. 68. 70. 72. Ὠοσκύφια are two semi-oval cups with the points to one another. Athen. p. 503.

e. On the Theriel. Kylix, Athen. p. 470. Schol. Clem. p. 121. Larcher, Mém. de l'Ac. d. I. xliii. p. 196. The name Kylix comprehends many things besides.

f. This psykter (see the schol. to Clem. p. 122.) has its name from the cooling vase which is also pointed out in vase-paintings. Letronne, Journ. des Sav. 1833. p. 612.

g. Athen. p. 783. compares the aryballos merely on account of the name with ἀρύστιχος. Was it *vaso a otre?*

h. Athen. p. 478. The cotyliskos was according to Athen. employed especially in the mysteries. On the plemochoe, p. 496. Pollux x, 74.

i. Athen. p. 470.

k. Ῥυτὸν from ῥύσις. Athen. p. 497. rhytium, Martialis ii, 35. The aperture was called χρουνός. Hydraulic ῥυτὰ of Ctesibius, Athen. ibid. and Heron, p. 172. 203. 216. The rhyton has a picturesque appearance

when it is drunk out of. In the hand of a kind of Hebe, Athen. x. p. 425., of satyrs, mænads (Athen. x, 445), revellers, also sacrificial servants. See Ant. Erc. i. 14. iii, 33. Gell, Pomp. pl. 30. Used as a cornucopia, Athen. xi, 497. Among vases it occurs with very different animal-heads, bicchiere a testa di mulografo-cavallo-pantera. Tischb. ii, 3. Millin. i, 32. ii, 1. Of stone, Bouill. iii, 76.

1. Κέρατα especially in earlier times, but later also at Athens, with stands (περισκελὲς, Böckh, Staatsh. ii. s. 320. R. Rochette, Journ. des Sav. 1830. p. 472.), often in the hands of the old Dionysus, Laborde ii, 19. On δίκερας §. 433.

I pass by many names which are in general clear, such as λοπὰς, κυμβίον, γαυλὸς, οἰνοχόη, λάγηνον, ὀξύβαφον, acetabulum, also measure, Panofka Recherches, pl. 6. n. 8. p. 20.; also the older names only preserved in poetry: δέπας, ἄλεισον, κύπελλον (ἀμφικύπελλον); also the strictly Roman ones: *sini*, *capulæ*, which were superseded in Varro's time by Greek forms. L. L. ix. §. 21.

7. We see how near this kind of vessels is allied to that which follows, especially in the Panathenaic prize-vases (§. 62. 99. R. 3. No. 1.), which are mostly called Παναθηναϊκοὶ ἀμφορεῖς (Athen. v, 199.), but also κάλπιδες (Callim.) and ὑδρίαι (Schol. Pind. N. x, 64.). The Corinthian hydriæ had two handles at the top, and two smaller ones in the middle of the belly, Athen. p. 488. like many vases. Langella. [Erinna Epigr. 2. πένθιμος κρωσσός. So also Hegesippus Ep. 6. Moschus iv, 34. ἕνα χρύσειον ἐς ὀστέα κρωσσὸν ἁπάντων λέξαντες. In Attica numerous marble κρωσσοί of the kind with inscriptions and sometimes also figures. Hesychius κρωσσός, λήκυθος, hence Letronne in the Journ. des Sav. 1830. p. 308. takes the two to be one, and explains it as vase funéraire. But λήκυθος is not a water vessel, like κρωσσός, according to poets and grammarians quoted by Letronne; the λήκυθος might be occasionally called κρωσσός, but the urn (κρωσσός) never λήκυθος as the latter only contained perfumes.]

8. The amphoræ were often pointed below, and could then only stand in holes, like those of Herculaneum (Winck. ii. s. 70.) and those of Leptis in the Brit. Mus., some of which still bear the name of the consul. There are also amphoræ of this description with stands in Canino. This was the case also with the κεράμια Χῖα on the coins of Chios. Such are carried by satyrs, Terrac. Brit. M. 13. Millin, Vas. i, 53. The stand for them was the *incitega* (ἐγγυθήκη, ἀγγοθήκη), Festus s. v. Athen. v, 210 c. So ἀλαβαστροθήκη. Sculpture on the ἐγγυθήκαι. Bekker Anecd. i. p. 245, 29. The ἐμβάσεις (Cod. Flor.) of Corinthian vases appear to be the same, Dig. xxxii, 100. The Panathenaic vases on the other hand have bases; their form in early specimens is shorter and more bellied, afterwards more slender (as on the later coins of Athens).

10. See Nonius, p. 544. Phialæ served also as aporrhanteria. C. I. 138. l. 6. 142. l. 5. Festus: Nassiterna est genus vasi aquari ansati et patentis, quale est quo equi perfundi solent; Plautus—Cato.

11. With regard to the tripod, it is proved that the destination of receiving minced flesh lies at the foundation (the author's diss. De Trip. Delph.), even by the use of it for τέμνειν σφάγια at the ὅρκος (Eurip. Ἱκετ. 1202, by which Soph. Œd. Col. 1593 is explained). As to the form, see the

dissertations Amalth. i. s. 120 ff. ii. s. x. iii. s. 21 ff. [Böttiger Archäol. u. K. I. S. 154. Passow S. xxiii. (Böttiger)]. Bröndsted Voy. i. p. 115 sqq. Gött. G. A. 1826. No. 178. As the orbicular form of the holmos is proved, and the so-called cortina has now been recognised as the omphalos (§. 361.), the essentials of the tripod-form are now clear. The ring in which the cauldron hung was called στεφάνη, the cross-bars of the feet ῥάβδοι, see Euseb. c. Marcell. i. p. 15. d. ed. Col. Tripods from Metapontum, Cab. Pourtalès. pl. 13. in Durand from Volci.

300. Among vessels for other uses, the sacrificial utensils are of especial importance to art, particularly the following: 1. Little baskets of wicker-work, but also of clay or metal, wherein knives, salted cake and garlands were concealed, called κανοῦν, canistrum. 2. The van of the Cerealian worship, λίκνον, vannus. 3. Broad dishes with numerous small cups fastened on them (κοτυλίσκοι), and full of different kinds of fruit, κέρνος. 4. Censers (θυμιατήριον, λιβανωτρίς, acerra, turibulum, and pans of different kinds.

No. 1. As the κανοῦν could not well be wanting at a sacrifice (ἐνῆρκται τὰ κανᾶ), it is recognised with tolerable certainty in the flat little baskets with all sorts of θυλήματα on vases, for instance Millin i, 8. 9. Εἴλικτο κανοῦν, Eurip. Her. Fur. 921. 944., is explained by the vase-painting i, 51 a., comp. Annali d. I. a. ix, 2. p. 203 note.

2. A *liknon* for instance at the rural sacrifice. Bouill. iii, 58.

3. Athen. xi, 476. 478. &c. Especially in the Phrygian worship; hence κερνᾶς a sort of *gallus*, in the epigr. on Alcman. Perhaps on vase-paintings, Laborde i, 12. Millin i, 64. In the collections of vases, as at Berlin, such cruets are not rare.

4. Acerræ, for instance on the relief Bouill. iii, 61., among the sacrificial utensils iii, 83. Clarac pl. 220. 252. The small altars of incense on reliefs and vase-paintings are often very elegant.

301. The rich collections of earthen vessels which are found, of the most various and elegant forms, in Greek tombs, must perhaps be more immediately regarded as vessels belonging to the worship of the dead, which were placed along with them as symbols or pledges of continued ablutions and anointings of the tomb-stone, as well as of annual sprinklings and libations upon the grave; in authors there is only mention made of the hydria or urn as a receptacle for the ashes, and of the lekythos, which was specially painted for this purpose. But at the same time, vessels which commemorated important passages in life (victories at games, distinction in the gymnasia, participation in the Bacchian thiasos, reception of the manly himation, marriages, journeys), and were given as presents on such occasions (otherwise the frequently occurring καλὸς, ὁ παῖς καλὸς, καλὲ παῖ, καλὸς εἶ, καλὴ δοκεῖς, and the like, cannot well be explained), might very probably be also

deposited in the grave; as it is undeniable that such vessels were also used in life, and were put up as ornaments of rooms.
4 —Whilst, in the case of hydriæ, the usage of concealing the ashes of the dead, was merely an after application, the sarcophagus (σορὸς, θήκη, λάρναξ, πύελος, solium, loculus) was derived from the custom of complete interment,—practised even in early Greece,—was preserved (diminished in Etruria to cinerary cistæ, §. 174, 3.) through all ages, and became again, in later Rome, more customary along with interment (§. 206, 2). Wrought of wood, burnt earth or stone (λίθος σαρκοφάγος, sarcophagus), it sometimes borrowed the decorative forms from the house, such as the doors and handles, but sometimes also from water-cisterns or press-vats, for instance the lions' heads.

1. On the forms of vases Dubois Maisonneuve, Introduction à l'étude des Vases ant. accompagnée d'une collection des plus belles formes. 1817. 13 livr. Gargiulo, Collez. delle diverse forme de' vasi Italo-Greci. N. 1822. The first plates in Tischbein and Millin, Millingen, Div. pl. A. B. C. Cogh. 32 sqq. Inghirami Mon. Etr. S. v. pl. 47—54., many in Hancarville and Laborde. Panofka's very extended Greek nomenclature (Rech. sur les vérit. noms des vases Grecs. P. 1830) is very much limited by Letronne (Journ. des Savans. 1833. Mai–Dec.). Comp. Gerhard, Neapels Bildw. S. xxviii. and Ann. d. Inst. iii. p. 221 sqq. Berl. Kunstbl. 1828. Dec. [Gerhard Berlins Ant. Bildw. i. S. 342. and Annali viii. p. 147—59., comp. Letronne J. des Sav. 1837. p. 683 cf. 751]. Clay vessels with sculptures Stackelb. Gräber Tf. 49—52. [and in all larger collections of vases.] There is great variety and elegance in the forms especially of the handles (vasi a volute, colonnette etc.). The diversity in the forms of vases, which are often very strange, cannot be exhausted by any terminology. Among them even crepitacula occur, R. Rochette, M. I. p. 197. The size of the vases, in the Koller collection at Berlin, amounts to 3 feet 5 inches in height.—Vases as κτερίσματα on the Archemorus vase.

2. It is worthy of remark, and perhaps not without significance, that the WATER-PITCHER received the ashes left after the fire. The urna feralis is well known, in like manner the hydria, kalpe, krossos are to be met with. Plut. Marcell. 30. Orelli, Inscr. 4546. 47. Moschus iv, 34. In place of these, also amphoræ (even in the Iliad 24, 76.), footless ones likewise in columbaria. Comp. Böttiger, Amalth. iii. s. 178 sqq. But even the *lebes* served as a cinerary jar, Æsch. Choeph. 675. Soph. El. 1393.—Mortuary urns in relief on cippi, Bouill. iii. 84. 85., Stackelb. Gräber Tf. 3, 1., on earthen lamps, Passeri iii, 46., in vase-paintings, Milling. Div. 14. Cogh. 45. Marble vases of the kind, for example Moses, pl. 28 sq. Bouill. iii. 78. 79. 80.; the larger ones must be taken for *vasa disoma, trisoma.*—On the painting of oil-flasks for the dead, Aristoph. Eccl. 996. On the vessels used in the worship of the dead, see among others Virgil, Æn. iii, 66. v, 77. 91.

Very interesting is the group of vases, a crater, two amphoræ, and numerous bowls in different compartments under a table-leaf in the painting in the grotto del f. Querciola (§. 177. R. 2.). Of a kindred nature

is the representation on the lamps, in Bellori t. 16. and especially that in Passeri iii, 51., where are to be seen a repositorium with the urna, amphoræ, ampullæ and gutti around, simpulum, acerra, secespitæ and a so-called aspergillum, also an augural fowl on the upper compartment, symbols of the suovetaurilia beneath, and a lectisternium above. [A sideboard, *κυλικῖον*, of terracotta, from Naples, with different vessels on it, Stackelb. Gräber, s. 42.]

3. Böttiger, Ideen zur Archäol. der Mahlerei s. 173—234. His Vasengemälde, three parts 1797—1800, at different passages. A vase-painting (Brocchi's Bibliot. Ital. Milan. xvii. p. 228.) presents a row of painted vases in a marriage room. On prize-vases, Panofka Vasi di premio. F. 1826.; the same author on an Eleusinian vase, Hall. ALZ. 1833. Intell. 101. [Considering the frequent *καλός* the praise of integrity is a rarity, *Νικάρχων κάρτα δίκαιος*, de Witte Vases de Mr. M*** p. 60 s. [Once also *κάλλιστος*, ΗΙΠΟΚΡΙΤΟΣ ΚΑΛΙΣΤΟΣ, on a kylix from Vulci, Bull. 1847. p. 125].] *Γραμματικὸν ἔκπωμα* in Athen. p. 466. is a metal cup with inscriptions inlaid, with gold for instance. In Plautus Rud. ii, 5, 25. urna literata ab se cantat *cuja sit*. *ποτήρια γραμματικά*, Becker's Gallus i. S. 143.—On vase-painting §. 321.

4. 5. Cedar coffins, Eur. Troad. 1150. Fictilia solia, Plin. xxxv, 46. Stone sarcophagi in Bouillon, Piranesi, Moses. Comp. §. 294, 3. Lions' heads as spouts for water are well known; in press-vats (*ληνοί*) the wine escaped by these. Boissonade Anecd. i. p. 425.

Works on vessels and furniture: Lor. Fil. di Rossi, Raccolta di vasi diversi, 1713. G. B. Piranesi, Vasi candelabri, cippi, sarcofagi, tripodi, lucerne ed ornamenti ant. 1778. 2 vols. fo. H. Moses, Collection of ant. vases, altars, pateræ, tripods, candelabra, sarcophagi from various Museums engr. on 150 pl. L. 1814. [mostly from the Hope collection.] Causeus, Caylus, Barbault and other general collections. PCl. vii, 34 sqq.——Comp. Laz. Baifius, De vasculis, Thes. Ant. Gr. ix, 177. De la Chausse, De vasis etc. Thes. Rom. xii, 949. Caylus, Mém. de l'Ac. des Inscr. xxx. p. 344. Vermiglioli, Del vasellame degli antichi, Lezioni ii, 231., [C. Antonini Manuale di vari ornamenti componenti la serie de' vasi ant. sì di marmo che di bronzo esistenti in Roma e fuori. Vol. i. I vasi esistenti nel M. Pio-Clem. e Chiaramonti. R. 1821 fo. 71 tv.]

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302. Next to vases, utensils destined for lighting were those with which even excellent artists were most occupied in antiquity; partly simple LAMPS (*λύχνοι*, *λύχνια*), which, sometimes of bronze, mostly of terra-cotta, constitute an important branch of ancient monuments of art, with their unpretending elegant form and their ingenious ornaments; partly CANDELABRA (*λυχνεῖα*, *λυχνοῦχοι*), which were made sometimes of burnt earth, very elegantly of bronze in the bloom of art, in later times often of precious metals and gems, but also of marble, of which many works, almost too richly and fantastically ornamented, have been preserved. MIRRORS also, which were usually nothing more than round hand-mirrors with handles,

were fashioned and decorated in an artistic spirit, before the costliness of the material came to be here considered as the grand object.

2. The lamps have a hole for pouring in, ὀμφαλὸς in Heron, one for the wick (στόμα) and a small one for the needle by which it was raised. Heron, p. 187., among other works of art, describes a lamp which raised the wick itself. Often with several wicks, lucerna dimyxos, trimyxos. Lamps furnish of themselves an almost complete artistic mythology, and many representations which refer to human destiny and a future state of existence. Licetus, De lucernis ant. reconditis l. vi. 1652. Bartoli and Bellori's Lucernæ sepulcrales. 1691 (a new edition recently published in Germany by Beger). Lucernæ fictiles M. Passerii. Pisaur. 1739. 3 vols. Montfaucon, Ant. expl. T. v. Ant. di Ercolano, T. viii. Moses. pl. 78 sq. Dissertations by De la Chausse and Ferrarius, Thes. Ant. Rom. T. xii. Becker's Gallus ii. s. 302. [Böttiger's Amalthea iii. s. 168 ff. and Kl. Schr. iii. s. 307 ff.]

3. Names of candelabra, Athen. xv, 699 sq. Tarentine, Æginetan, Tyrrhenian, Plin. xxxiv, 6. §. 173, 1. 2. Candelabrarii in inscriptions. The parts of the candelabrum are the foot, βάσις, the shaft, καυλὸς, and top, κάλαθος. Heron, p. 222. The calathos is supported by an Amor in two bronze candelabra (ceriolaria), Gruter Inscr. p. 175, 4. Many-branched ones in the temple of the Ismenian Apollo, afterwards in Cyme, Plin. xxxiv, 8., in the prytaneum at Tarentum (Athen. 700 d.), comp. Callim. Epigr. 59. Magnificent ones of marble, PCl. iv, 1, 5. vii, 37. sqq. Bouill. iii. pl. 72. 73. (those on pl. 74. have sometimes more of the slender and simple form of Greek candelabra) and Clarac, pl. 142. 257.; bronze and marble ones in Moses, pl. 83—93., comp. §. 301. Λιθοκόλληποι §. 161, 1. [Trapezophora, Becker's Gallus ii. s. 113.] Marble throne seats, the Samothracian with very high relief, those of Themis and Nemesis in the temple at Rhamnus, of Dionysus and Demeter, of Poseidon. &c. That of Boëthus the Attic Prytanis, Stackelb. Gräber s. 33 f. (vign.)

4. Mirrors were of bronze, §. 173, 3., silver, 196, 2., gold, Eurip. Troad. 1114. χρυσοῦν κάτοπτρον κορινθιουργὲς, Ælian V. H. xii, 58.; Nero had them of emerald; favourite gifts for temples (Venereum speculum, Gruter, p. 5. 6. Orelli n. 1279.) and in tombs. On mirror- and dressing-boxes §. 173. 3. Guattani M. I. 1787. p. xxv. A bronze mirror from Athens Stackelb. Gräber Tf. 74.

SECOND MAIN DIVISION.

THE FORMATIVE ART.

(SCULPTURE AND PAINTING.)

303. We unite in this division those arts which, independent of external wants and aims, but, on the other hand, bound to the imitation of nature (§. 24 sqq.), represent life by means of the forms naturally connected therewith. As we must necessarily, in our consideration of the subject, reverse the process which the creation of works of art must itself follow, we begin with the treatment of the material, by means of which certain forms are communicated to, and impressed on it (the doctrine of the TECHNICS of ancient art); then pass on to those forms in so far as they can be considered apart from the subjects (the doctrine of ARTISTIC FORMS); and conclude with the consideration of the internal contemplations and intellectual conceptions, which are properly speaking what is represented in art (the doctrine of SUBJECTS).

FIRST PART.

OF THE TECHNICS OF ANCIENT ART.

304. Technics we regard as twofold: First, the process by which the impression of a form is presented to the human eye, by a certain fashioning of the material furnished to the artist, without regard to the properties and peculiarities of the material by means of which this is effected: this we shall call *optical* technics. Secondly, the process by which the form determined by optical technics, is produced in a particular material, with reference to its peculiarities, by adding to or taking from, by laying upon or altering the surface: this we shall here call *mechanical* technics. In conformity with the general tenor of our treatment of this subject, which begins with what is most sensible and tangible, the latter division is prefixed to the former.

I. MECHANICAL TECHNICS.

A. OF THE PLASTIC ART IN ITS MORE EXTENDED SENSE (§. 25, 1).

1. THE PLASTIC ART STRICTLY SO-CALLED OR MODELLING IN SOFT OR SOFTENED MASSES.

A. WORKING IN CLAY AND OTHER MATERIALS.

305. From the hand of the modeller in clay (§. 63.), who was originally closely allied to the potter, proceeded not merely handles and ornaments of vessels, in which the potter's wheel could not be used, but also reliefs (*τύποι*) and whole figures (§. 72. 171). In these, working freely with the hand was everywhere older than the application of mechanical and manufacturing contrivances, and the plastic genius of the Greeks displayed itself already in all its splendour in numerous terra-cotta figures and reliefs. Besides clay, there was much gypsum (*γύψος*, plâtre) and stucco used; and waxen images were frequent especially as playthings; to all such ruder materials a higher charm was lent by colouring, and the imitation of humble natural objects was carried the length of illusion. However, this species of art was more important as the harbinger of others (mater statuariæ, sculpturæ et cælaturæ according to Pliny), inasmuch as through it the other branches of art received models and forms. Taking casts of limbs also, and casting statues were not unknown to antiquity, comp. §. 129, 5. In large figures the clay was spread over a skeleton-like kernel of wood; the coarser parts were wrought with the modelling stick, and the finer with the finger and nail. The burning of figures as well as of vessels, was practised with great care; a feeble degree of heat sufficed to harden the vessels, which were often very thin; in both sorts there were also unburnt works (cruda opera §. 71. R. 2. 172. R. 2).

1. For general information, Winck. W. v. 92 sqq. Meusel N. artist. Miscell. i. 37. iii. 327. iv. 471. Hirt, Amalth. i. 207. ii. 1 sqq. Clarac Musée de Sculpture, Partie technique.—Fr. di Paolo Arvolio, Sulle antiche fatture d'argilla che si ritrovano in Sicilia. Pal. 1829. (see Bull. d. Inst. 1830. p. 38.)

3. The Italian fastigia templorum of clay mira, cælatura (Plin. xxxv, 46.), and the *ὀστράκινα τορεύματα* of early Corinthian vases (Strab. viii. p. 381.) were, judging from these appellations, wrought freely with the hand; but the terra-cottas of Roman manufactories, as well as the relief-ornaments of the red Roman and Arretine vases (§. 171. R. 2.) were doubtless impressed with moulds. Those terra-cottas are limited to a definite number of mythological and arabesque-like compositions. See Agincourt Recueil de fragm. de sculpture ant. en terre cuite. P. 1814. and T. Combe

§. 263. R. 2. [Opere di plastica della collezione del. cav. G. P. Campana Distrib. 1—12. 1842. 43. A third vol. to follow. Panofka Terracotten des k. Mus. zu Berlin 1842. 43. 64 tf. [Two goddesses Stackelb. Gräber Tf. 57. Urlichs Veientine Terracottas, Jahrb. der Rhein. Alterthumsfreunde viii. Tf. 2. The fine Burgon collection from Athens in the Brit. Mus., collections ai Studi, S. Angelo, Gargiulo (Archäol. Zeit. 1848. s. 297) and others in Naples, several in Sicily, those at Munich, Carlsruhe, &c.] Cic. ad Att. i, 10. wishes for such *typi* from Athens in order to fix them on the plaster of an atrium. Gerhard Intorno i monum. figulini della Sicilia in the Annali d. Inst. vii. p. 26—53. Large statues in clay are rare. Minerva from Capua at Vienna. [However there are in the very rich collection of terra-cottas in the museum at Naples, statues of Jupiter and Juno, larger than life, said to be from a temple of Jupiter at Pompeii, three other statues the size of life, and an actor somewhat less, a good figure. A life-size statue of Hermes and pieces of two draped statues also the natural size in the Mus. Gregorianum at Rome. Statues of deceased persons, of the size of life, lying on Etruscan earthen sarcophagi, are not rare; they are to be found especially in the Mus. Gregorianum, in the Brit. Mus. and in Cav. Campana's collection.]

4. Argilla, marga, creta, see Mém. de l'Inst. Roy. iii. p. 26. Rubrica §. 63. *κάνναβος*, stipa, stipatores. Lindemann in Festus p. 684. Works of *πηλός*, Plato Theæt. p. 147. On *γυψοπλασία* Welcker Akad. Kunstmuseum, s. 7. Statues of gypsum were used especially for temporary purposes. Spartian Sever. 22. comp. Pausan. i, 40, 3. Arnob. vi, 14 sqq. Gypsum heads, Juv. ii, 4. Reliefs in STUCCO were often only sketches for distant view (we have such from Hadrian's villa), often continued with colours on the flat surface. It is still a question whether the *tabula Iliaca* and the apotheosis of Hercules are of stucco. WAXEN IMAGES, §. 129, 5. 181, 3., images of the gods, Plin. Ep. vii, 9., of the Lares, Juv. xii, 88., as children's playthings in Lucian Somnium 2. and elsewhere. Dolls, *χοροκόσμια*, of wax and gypsum, Schol. to Clem. p. 117. Comp. on the ancient *κηροπλάθοι* Böttiger's Sabina, s. 260. 270. VARIEGATED dolls of *πηλὸς*, Lucian Lexiph. 22., *οἱ πλάττοντες τοὺς πηλίνους*, Demosth. Phil. i. p. 47., *χοροπλάθοι*, Isocr. De Antid. §. 2., statues of this kind at Naples. Comp. Sibyllin. iii. p. 449 Gall. On the deceptive fruit-plates of Posis (§. 196. R. 2.), Plin. xxxv, 45. There are also GILDED terra-cottas of delicate Greek workmanship, painted ones from Athens, Cab. Pourtalès pl. 2. comp. pl. 31, [the finest from Athens at Munich, others here and there].

5. *Προπλασμα* as a model in miniature in Cic. ad Att. xii, 41., comp. §. 196, 2. Hippocr. de victus rat. p. 346. Foes.

6. That gypsum was much used in taking casts (*πρὸς ἀπομάγματα*) is stated by Theophrastus, De lapide, §. 67. The Athenian artists also used pitch in casts of Hermes Agoraios (§. 92. R. 3.), comp. Luc. Lexiph. 11. (Mouler à bon creux, à creux perdu; plâtre; coutures des moules à bon creux; parties qui ne sont pas de depouille, of mastic).

7. This, as it were, still fleshless figure of wood was called *κίνναβος*, *κάναβος* (canevas); similar figures likewise served as an anatomical study to plastæ and painters. See Arist. H. an. iii, 5. de gen. an. ii, 6. Pollux vii, 164. x, 189. Suidas and Hesych. s. v. cum. Intpp. Apostol. iii, 82. Bekker's Anecd. p. 416. To these refer the parvi admodum surculi,

quod primum operis instar fuit, Plin. xxxiv, 18.—The MODELLING STICK in the hand of Prometheus, Admir. Rom. 80. Ficoroni, Gem. ii, 4, 5., comp. 5, 1. Imp. Gemm. del Inst. iv, 75? and the relief in Zoëga, Bassir. 23. But according to Polyclete the work was most difficult ὅταν ἐν ὄνυχι ὁ πηλὸς γίγνηται. Winck. v. s. 93 387. Wyttenbach ad Plut. de prof. virt. p. 86. a. Pollice ducere (ceram) Juv. vii, 232. Pers. v, 40., comp. Stat. Achill. i, 332.

8. Schweighäuser the younger has instituted investigations, from excavations in Alsatia, as to the construction of ovens for burning Roman vases; there is a model of them in the museum at Strasburg. Archæologia xxii. pl. 36. p. 413. Remains of a Roman kiln or furnace for pottery. On Greek vases §. 321. Lucian describes the great thinness and lightness of ancient vases (Plin. xxxv, 46) in the Lexiph. 7. by ἀνεμοφόρητα and ὑμενόστρακα.

B. METAL-CASTING (STATUARIA ARS).

306. In the ancient mode of CASTING METAL two things come into consideration: the *mixing* of the bronze, the more refined technics of which flourished at an early period especially in Ægina (§. 82. R.) and Delos (§. 297. R. 3.), then for a long time at Corinth, but afterwards disappeared (§. 197, 5). Not only was the Corinthian brass itself sometimes of a bright and whitish, sometimes of a dark brown colour, and sometimes between the two, but there were also a variety of colours communicated to the metal; it is likewise difficult to deny that they knew how to give different shades of colour to different portions of a statue. In order to promote the fusion at casting, and the hardening of the cooled metal, tin was *almost* universally blended with the ancient bronze, frequently also zinc and lead. Secondly: the process of *casting* in moulds. As is also the case generally in modern times, the statue was embossed with wax on a fire-proof kernel, above which a model of clay was laid on (called λίγδος, also χῶνος), in which were distributed pipes for pouring in the metal. The process was carried by the ancients to astonishing perfection, as well in the thinness of the metal as the purity of the cast, and the facility of the entire operation. However, they were not averse also to the joining of parts by mechanical or chemical means; the insertion of the eyes was usual at all times, as well as the addition of attributes in precious metals.

1. The preparation of the bronze was the business of the χαλκουργός (Aristot. Pol. 1, 3.), or χαλκόπτης (relief in the Louvre 224. b.), at Rome of the flaturarius faber (in inscriptions, flatuarius in the Theodos. codex). Of Corinthian brass there were especially vases (such as were manufactured by the Corinthiarii or *fabri a Corinthiis*), but also, notwithstanding Pliny denies it, *signa Corinthia* (Martial xiv, 172), such as the Ama-

zon of Strongylion (Ol. 103); Alexander also had such, and Delphi was full of them. Plut. de Pyth. or. 2., comp. §. 123. R. 2. But the imago Corinthea Traiani Cæsaris in the Inscr. Gruter 175, 9. is remarkable. Fabretti Col. Trai. p. 251. Argolica statua in Trebell., Trig. tyr. 30. seems nearly the same. There were many fables about the Corinthian brass, for instance that cooling it in the fountain Peirene made it so excellent, Paus. ii, 3, 3. comp. Plut. ibid. Petron. 50.

2. Plin. xxxiv. 3. The Græcanicus or verus color æris was extolled (Plin. Ep. iii, 6.). The ἡπατίζον, and the colour of the athletes were esteemed, Dio Chrysost. Or. 28. in. Sea-blue naval heroes at Delphi, §. 123. R. 3. The preparation of χαλκὸς χρυσοφαὴς is mentioned among other metal preparations in the papyrus from Egypt, Reuvens Lettres à Letr. iii. p. 66. On the patina of the ancient bronze, which merely arises from oxydizing, L. Bossi, Opuscoli scelti, T. xv. p. 217. Mil. 1792. 4to., extracted by Fiorillo in the Kunstblatt 1832. N. 97 sqq.

3. With regard to the variegated bronze statues the statements of Callistratus might be rhetorical phrases (Welcker ad 5. p. 701.); these also mostly refer to *pièces à rapport*, such as the purple *prætextæ* from mixing lead with Cyprian brass, Plin. c. 20. But Silanion's Jocaste with deadly pale countenance, from mixing silver (Plut. de Aud. poët. 3. Qu. Symp. v, 1. comp. de Pyth. or. 2.), and Aristonidas' blushing Athamas, from a mixture of iron (Plin. 40.) are worthy of remark, as iron certainly does not otherwise admit of being blended with copper. Appul. also, Flor. p. 128. describes a tunica picturis variegata on a brass statue [perhaps enamelled painting like the tabula Bembina, §. 430, 4. Quatremère de Qu. Jup. Olymp. p. 55—64. de l'art des alliages dans son rapport avec la méthode de teinter les ouvrages en métal et de l'usage d'introduire des couleurs dans les statues de bronze, Feuerbach, Vatic. Apoll. s. 211, Petersen De Libanio Prol. 2. Havn. 1827. p. 9. and even Figrelius De Statuis 14. p. 126. According to Himerius Or. xxi, 4. Phidias gave a red colour to the cheeks of the Lemnian Athene. The artistic expression βάψις χαλκοῦ καὶ σιδήρου in Pollux vii, 169. from Antiphon, χαλκοῦ βαφαί in Æsch. Agam. 624. (597.), see Nachtr. zur Tril. S. 42 sq. is remarkable, and Klausen observes in his edition that the comparison perhaps received an additional charm from the novelty of the invention. The force of the latent comparison to the adultery and its Æschylian wit cannot be mistaken. G. Hermann contradicted, inasmuch as he with Schütz and others referred χαλκοῦ βαφάς to blood and wounds, and took it as an ambiguous allusion to the intended murder of Clytæmnestra. This was already done by W. Humboldt, and what other course was left, before the literal sense was attended to? But the other enigmatical meaning destroys the character of the speech, and is too inhuman in this place even for Clytæmnestra. Letronne Peint. Murales p. 517 sided with Hermann. Franz translates correctly "colouring of brass."—The Gauls had the art of combining colours with brass in fusion, Philostr. Imag. i, 28. p. 44, 24. cf. Jacobs. The Chinese also give colours to bronzes.]

4. The proportion of tin mixed with the brass (for instance in the nails of the treasury of Atreus, §. 49.) varies between $\frac{5}{8}$ and 24 per cent. There is least tin found in the horses of St. Mark (of later date), see Klaproth, Mag. encycl. 1808. iii. p. 309. Mongez (sur le bronze des an-

ciens, Mém. de l'Inst. Nat. v. p. 187. 496. Inst. Roy. viii. p. 363.) ascribes entirely the hardness of the bronze to this mixture, and to cooling in the air, and, from modern experiments, denies the *trempe* by water, in opposition to Procl. ad Hesiod. W. and D. 142. Eust. ad Il. i, 236, whose testimony was brought forward by Graulhié, Sur les âges d'or et d'argent, d'airain et de fer, Mag. encyc. 1809. Déc. 1810. Janv.—Χαλκὸς χυτὸς, cast, ἐλατός, τυπίας (ductilis), malleable. Pollux vii, 105.

5. The artistic expressions are: τὰ πλασθέντα κήρινα· λίγδος, τὸ πήλινον, κονία, ἀλοιφή· τρυπήματα τῷ Δ παραπλήσια· χῶνος, χωνεύειν. See Pollux x, 189., Photius, λίγδος, Eustath. ad Il. xxi. p. 1229., ad Od. xxii. p. 1926. R. Schneider s. v. λίγδος, χοάνη. Diogenes L. v, 1, 33. ὡς ἐν τῷ κηρῷ ὁ Ἑρμῆς ἐπιτηδειότητα ἔχων ἐπιδέξασθαι τοὺς χαρακτῆρας καὶ ὁ ἐν τῷ χαλκῷ ἀνδριάς; [Soph. Αἰχμαλωτ. ἀσπὶς μὲν ἡμίλιγδος ὡς πύκνʼ ὀμματεῖ cf. F. G. Welcker Griech. Trag. S. 172.] Coins were also sometimes cast in the ligdos. Seiz sur l'art de fonte des anciens, Mag. encycl. 1806. vi. p. 280. Clarac, M. de Sculpt. ii. p. 9 sqq. It is doubtful whether they also made the *moule à bon creux* over the model as is now done, and then furnished the pieces of it inside with wax after which the kernel, *noyau*, was poured in. A statue by Onassimedes was solid, Paus. ix, 12; smaller bronzes are so commonly. An ἀνδριάς cost, in the time of Diogenes the Cynic, 3,000 drachms (½ talent, about 50 guineas), Diog. Laert. vi, 2, 35. [A brass-casting is represented on a remarkable kylix, Gerhard Neuerworbene Denkmäler N. 1608 and Trinkschalen Tf. 12, wherewith G. Braun in the Bullett. 1835. p. 167 compared the vase explained in the Æschyl. Trilogy, in which Feuerbach afterwards in the Kunstbl. 1844. N. 87. pointed out the kernel and coating of a cast-model. Cf. besides an archaistic vase with a brass-foundry, in Campanari, at London; which is to be published. Bull. 1846, p. 67. Bergk gives a different explanation of the vase in the Trilogy Archäol. Zeit. 1847, S. 48. On the low price of bronze statues see Köhler Ehre des Bildnisses S. 127.]

6. On partial casting in the case of colossi, Philo vii. mir. 4; the horses of S. Marco likewise were probably cast each in two moulds. On soldering, §. 61. Ferruminatio per eandem materiam facit confusionem, plumbatura non idem efficit. Digest. vi, 1, 23. See, however, Plin. xxxiii, 29 sq. Locks of hair soldered on, Winck. W. v. 133. On the insertion of the eyes, *ibid.* v. 133. 435 sq. Böttiger's Andeutungen, s. 87., comp. also Gori, M. E. ii. p. 208. To this is referred the faber oculariarius in inscriptions, see Forcellini. The beautiful Nike of Brescia (§. 260. R. 3.) has a silver fillet; according to an inscription in Gruter, p. 67, 2. there was a Bacchus cum redimiculo aurific. et thyrso et cantharo arg.

Preserved bronzes, §. 127. R. 7. 172. R. 3. 204. R. 4. 205. R. 2. 207. R. 6. 261. R. 2. 380. 385. 422. 423. 427. The most of them from Herculanum. Colossal head with a hand in the Capitol. [The fine statue from Volci at Munich, Kunstbl. 1838. St. 86.]

1 307. The mode of executing statues by hammering and embossing, which prevailed before the Samian school (§. 59. 60. 71. comp. 237, 2. 240, 2.), continued to be even in later
2 times the usual one for GOLD and SILVER; but statues of precious metals, large ones especially, were more in conformity

to the Asiatic than the Greek taste. The gilding of entire 3
statues, likewise, did not come into favour until the art of
giving a fine colour to brass by mixing had been forgotten;
in ancient art particular portions, even in the naked body,
were distinguished by gilding with silver or gold. Too many 4
experiments were made with iron to admit of its successful
and permanent application to works of sculpture, as raw iron
adapted for casting was unusual in antiquity. With regard 5
to what may be called works of art in lead, there occur tickets
for public games and distribution of corn, as well as for hang-
ing on vessels, marks on building stones resembling seals,
bulls, amulets and the like; many of which were evidently
cast in moulds.

1. The golden Pallas of Aristodicus was a *σφυρήλατον*, Brunck's Anal. ii. p. 488; the silver figures from Bernay (comp. §. 311. R. 5.) were certainly embossed, the separate parts very finely soldered with lead, or dovetailed into one another.

2. Silver statues of the Pontic kings, Pliny xxxiii, 54; golden ones especially of barbarian deities, Luc. Z. *τραγ.* Instead of the pretended golden statue of Gorgias, Pausanias only saw a gilded one. The *ἀνδριὰς χρυσοῦς στερεὸς*, solidus, is opposed to the plated, *ἐπίχρυσος*, inauratus, or slightly gilded, *κατάχρυσος* in general only, subauratus; however holosphyraton in Pliny xxxiii, 24. denotes a perfectly massive work. *Χρυσὸς ἄπεφθος* the same as aurum obryzum. [Schweigh. ad Herod. i, 50. *ἄπυρος, αὐτόματος, αὐτοφυής*, Lennep ad Phalar. p. 365.]

3. Gold was laid upon brass generally with quicksilver, and in thick sheets, also with the aid of notches (Plin. xxxiii, 20. xxxiv, 19), on marble with the white of eggs. Winck. W. v. s. 135. 432. M. Acilius Glabrio erected at Rome the first statua aurata, Liv. xl, 34. Traces of gilding on the horses at Venice, M. Aurelius, a quadriga from the theatre of Herculanum, and the fine statue from Lillebonne, §. 262. R. 2. [most of all on the famous Hercules in the Capitol]. An antique head of an athlete at Munich, N. 296, has gilded lips, [the Orpheus of Callistratus 7, with his chiton bound by a golden strap,] and the early Greek lampadephorus, §. 421. according to R. Rochette has the lips, nipples and eyebrows silvered, [not silvered, but inlaid with copper, see Letronne in the Annali d. I. vi. p. 230. The tiara of the Orpheus just referred to is *χρυσῶ κατάστικτος*. The silver inlaid work on bronze figurettes in the museum at Naples is very fine, eyes and all sorts of ornaments; a vase from Herculaneum with inlaid silver work is described by Martorelli De theca calam. cf. Fea ad Horat. T. ii. Epist. ad Pis. 435 &c.]

4. Iron statues by Theodorus of Samos (§. 60.), Paus. iii. 12. Hercules' combat with the serpent by Tisagoras, x, 18. Alcon's iron Hercules, Plin. xxxiv, 40. The causes of the rareness of iron-casting in antiquity are investigated by Hausmann, Commentat. Soc. Gott. rec. iv. p. 51. The tempering, *στόμωσις*, of iron (by water, Homer Od. ix, 393.) [Soph. Aj. 650, *ὃς τὰ δεινὰ ἐκαρτέρουν τότε βαφῇ σίδηρος ὡς*, cf. §. 311. R. 2.] for cutting instruments, was a native branch of industry on the Pontus, in Lydia

and Laconica. Eust. ad Il. ii. p. 294, 6. R., comp. Hausmann, p. 45 sqq. Magnetic vault? §. 149. R. 2.

5. Ficoroni Piombi antichi. R. 1740. 4to. Stieglitz Archäol. Unterh. ii. s. 133.

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2. WORKING IN HARD MASSES.

A. WOOD-CARVING.

1 308. Carving in wood is denoted by ξέειν and γλύφειν, the
former of which indicates a more superficial, the latter a
2 deeper working, with pointed instruments; in early times a
main branch of temple statuary (§. 68. 84), it continued
through all ages to be employed in the images of field and
3 garden deities. Whilst the appropriate kinds of wood of the
native soil were used for that purpose, frequently with some
4 reference to the significance of the image, foreign sorts, es-
pecially cedar, which was reputed incorruptible, were still
5 employed in later times even by excellent artists. Turning
was of more importance for vessels and implements of wood.

1. Both expressions occur in reference to wood and stone. Ξέειν is scalpere, whence ξυήλη, ξοΐς (ποιμενική), scalprum, a carving-tool. Γλύφειν, sculpere, approaches nearer to cælare, τορεύειν. Instruments, γλύφανον, τόρος, cælum, chisel, burin. The σμίλη also served for ξέειν, §. 70, 3: comp. §. 56, 2. Quintil. i, 21, 9. Sculptura etiam lignum, ebur, marmor, vitrum, gemmas, præter ea quæ supra dixi, complectitur.

2. In Psyttaleia Πανὸς ὡς ἕκαστον ἔτυχε ξόανα πεποιημένα, Paus. i, 36, 2. A Pan of beech-wood with the rhind, Anth. Pal. vi, 99. Images of Dionysus, Priapi of fig-tree.

3. Cypress, abundant in Crete, and used there by the Dædalidæ (comp. Hermipp. Athen. i. p. 27.), beech (σμίλαξ), oak, pear-tree, maple, vine, olive, &c. Paus. viii, 17, 2. Q. de Quincy, Jup. Ol. p. 25 sq. Clarac, p. 41. Populus utraque et salix et tilia in scalpturis necessariæ, Pallad. de R. R. xii, 15.

4. Of foreign woods ebony (§. 84. R. 2. 147. R. 3.), citron (θύον? Mongez, Hist. de l'Inst. Roy. iii. p. 31. Thyon with cypress in the Olympian Zeus of Phidias, inside or on the throne, Dio Chrys. xii. p. 399. R.), lotus, above all cedar (comp. 52. R. 2. 57. R. 2). The Apollo of Sosius of Seleucia was of cedar, Plin. xiii, 11, also the Esculapius of Eetion, Anth. Pal. vi. 337. Κέδρου ζώδια χρυσῷ διηνθισμένα are described as round figures by Dontas, Paus. vi, 19, 9. More such in Siebelis ad Paus. v, 17, 2. Amalth. ii. s. 259.

5. Comp. §. 298. R. 2. Voss. ad Virg. vol. ii. p. 84. 443. Of turning in wood, τορνεύειν, τορνοῦν, tornare, see Schneider under τορεύω. Tornus, τορνευτήριον, the turning iron, invented by Theodorus, §. 60.

B. SCULPTURE (SCULPTURA.)

309. The solid calcareous stone, susceptible of polish, which 1
was on account of its shining surface called *marmor* (μάρμαρον
from μαρμαίρω), white marble being thereby understood, was
early recognised as the most fitting material for sculpture,
and the Parian was sought above all others throughout Greece,
as that of Luna was afterwards in request at Rome. However, 2
in Greece as well as Italy all sorts of tufa were employed for
works of less careful art: on the other hand coloured mar- 3
ble, as well as other kinds of coloured stone, first came into
favour in the Roman empire, especially for the representation
of Egyptian deities and barbarian kings, and also for the ad-
dition of accoutrements, drapery and the like. Wonderful is 4
the finish of the workmanship on the hard and brittle masses
of porphyry, granite and basalt, in which pointed irons, which
were sharpened ever and anon, must bore away to the requi-
site depth, and afterwards laborious rubbing and polishing
gradually bring the smooth surface to its proper state.

1. Garyophilus de marmoribus antiquis is not of much use; of greater value are Ferber, Lettres minéralogiques sur l'Italie, Mongez, Diction. de l'antiquité de l'Encyclopédie, especially Faustino Corsi, Delle pietre antiche, ed. sec. R. 1833. Comp. Hirt, Amalth. i. s. 225. Clarac, p. 165. Platner, Beschr. Roms s. 335. The marble is either grained, to which belongs the Parian (λίθος Πάριος, λύγδινος), which was mostly quarried in small blocks, sometimes in galleries, (λυχνίτης), of a large shining grain [resembling salt], called *marmo Greco duro*, also *salino*, as well as that of Carrara, *marmor Lunense* (§. 174. R. 1. on its age the author's Etrusker), resembling fine sugar, often with bluish spots: or slaty with veins of talc, such as the Penthelic with greenish streaks (Dolomieu in Millin M. I. ii. p. 44) and the less precious Hymettian, marmo cipolla [or cipollino]. There were other well known kinds of statuary marble, the Thasian, of a pale white (the local situation of which was discovered by Cousinery), [as well as the verde antico in Macedonia], the Lesbian, of a more yellowish colour, the coralitic resembling ivory, from Asia Minor, *marmo Palombino*. De marmore viridi, Tafel in the Münchner Abh. philol. Cl. ii. s. 131. The Megarian also (§. 268. R. 1.) was used for statues, Cic. ad Att. 1, 8. The lapis onyx or alabastrites of the ancients, called after the vases §. 298. is a fibrous calc-sinter (albâtre calcaire oriental) which came from Arabia and Upper Egypt, Salmas. Exerc. Plin. p. 293. On the Volaterranian, §. 174. R. 3. Rumohr has given accounts of marble in Calabria.

2. A Silenus of *poros* (§. 268. R. 1) at Athens. Many municipal honorary statues in peperino; five statuæ togatæ of the kind at Dresden. There were many works executed in calcareous stone in the provinces and in Germany. Etruscan sarcophagi of calcareous tufa §. 174. R. 3.

3. In black marble, *nero antico*, there are many statues of Isis, the

African fisherman, the two centaurs of the Capitol, the Nile, cf. Pausan. viii, 24, 6. In red marble, *rosso antico*, which was rare in architecture, there are numerous good sculptures, especially heads of Bacchus, satyrs in imitation of carved images painted red (§. 69); besides basins and baths. There also occur statues of particoloured marble, Caylus, Hist. de l'Ac. des Inscr. xxxiv. p. 39. Statues of porphyry are found at Rome from the time of Claudius, comp. Visconti PCl. vi. p. 73, porphyry statues with bronze extremities Racc. 53. Basalt was used for busts of Serapis, likewise granite and syenite (but which the moderns do not consider to be syenite) for sculptures in the Egyptian style. Comp. §. 228. 268. R. 3.

4. The auger guided by two bridles, Eurip. Cycl. 461.

310. Marble, on the other hand, bears the assault of instruments of very different kinds, saws, drills, files, rasps, which, together with the chisel driven by the mallet, must do the most and best. When the artist,—which was by no means always the case,—worked after an exact model, he made use, like the moderns, of points which mark the dimensions in all directions, and must be constantly renewed in the progress of the work. For smoothing statues by rubbing, the dust of the Naxian whetstone, pumice and other means were employed; however the shining polish so injurious to the effect was not introduced till later; and in some excellent statues we can still see perfectly the traces of the iron. On the other hand, the soft and fatty appearance, which the surface of marble often has in itself, was enhanced by rubbing with melted wax, especially the Carthaginian (*καῦσις*), with which an appropriate tone of colour (circumlitio) was easily combined. The painting of marble, in the antique and archaizing style, with glaring, and afterwards with softer colours, as well as the addition of metal attributes and gilding of particular parts, was maintained throughout all antiquity; in the Roman period however there was a tendency to substitute the natural variety of colour in the stone for paint (comp. §. 309). The joining together of different blocks was managed with so much nicety, that the wish for monolith colossal statues was often satisfied, at least in appearance.

1. Ancient sculptures which represent workers in stone: the reliefs in Winck. W. i. tf. 11. M. Borb. i. 83, 3. with the grave-stone of Eutropus in Fabretti, Inscr. v, 102., and the engraved stones, Ficoroni Gemmæ ii, 5, 6. and Lippert. Suppl. ii. 388. Ancient instruments on various monuments (in Muratori, p. 1335, 1., different compasses and others); also found in Pompeii; those now in use in Clarac, pl. 1. On the saw, §. 269, 6., the auger, §. 123, 1. [Wagner discovered that on the statues of Ægina were employed quite the same instruments as those now in use, auger, pointed, toothed and flat irons and file.]

2. Of Pasiteles it is something remarkable that he *nihil unquam fecit ante quam finxit*, and many irregularities are explained by the free and bold procedure of the ancients. On the points see Clarac, p. 144; hence

the mammiform elevations on many ancient statues, see Weber on the colossi of Monte Cavallo in the Kunstbl. 1824. s. 374, and the discobolus in Guattani, M. I. 1784. p. 9. [Bullett. 1841. p. 128.]

3. On the *Naxiæ cotes* Dissen ad Pindar, I. 5, 70., comp. Hoeck, Creta i. s. 417., where Naxos in Crete is rightly represented as an invention. The stones were called Naxian from whatever place they came, whether from Crete, Cyprus or elsewhere. Σμήχειν, στιλβοῦν ἀνδριάντας. Ἐπιλεαίνειν καὶ γανοῦν τὰ πληγέντα καὶ περικοπέντα τῶν ἀγαλμάτων. Plut. de adul. 52.

4. Q. de Quincy, Jup. Ol. p. 44. Hirt, s. 236. Völkel Archäol. Nachlass i. s. 79. The epidermis of the ancient statues is formed of the smearing with wax, which *signa marmorea nuda* received, according to Vitruv. vii, 9. [Hirt in Böttiger's Amalthea i. s. 237, remarks that it is only because this coating was so thin, that no traces of it are to be found. Fea found many, Miscell. filol. T. i. p. cc. But circumlitio is not tone of colour or "a rubbing of marble with wax, which communicated to the surface a greater apparent softness, and perhaps also a gentle gloss of colour," as the present author asserts in the Wiener Jahrbücher 1827, "a varnish" (of Nicias), according to Hirt, also ibid., "on which he not seldom relied too much." Neither is circumlitio a painting of the ground of statues in different tints, light and shade, &c., as is supposed not only by Völkel, after Visconti PioCl. ii, 38. iii, 5 and Quatremère, but by Letronne Peint. Mur. p. 28. 491. R. Rochette Peint. Ant. p. 286. and Clarac Mus. du Louvre i. p. 156—60. Neither general probability, nor anything in the accounts, or in the remains, of genuine art, favours these opinions, and the name itself is opposed to them. For it expresses a painting round (περίχρισις), a framing of the borders of drapery, the hair, and perhaps also the body with a quiver-band and the like, and these border ornaments might be executed very elegantly and variously; the beautiful small archaistic Diana in the museum at Naples is a valuable instance. So in painting, circumlitio is a painting of the ground around the figures, in order to separate and make them stand out, as Quintilian viii, 5, 26 shows,—a circumductio colorum in extremitatibus figurarum qua ipsæ figuræ aptius finiuntur et eminentius extant, *contorno*, *profilo* (Forcellini), hence the same author xii, 9, 8, says of the substance of speeches: extrinsecus adductis ea rebus circumlinere (to border), and i, 11, 6 simplicem vocis naturam pleniore quodam sono circumlinere. *Prætexere* lies in the idea of *circumlitio*. Seneca Epist. 86: nisi Alexandrina marmora illis (Numidicis crustis) undique operosa et in picturæ modum variata circumlitio prætexitur. Rubbing with wax is γάνωσις ἀγαλμάτων, Plut. Quæst. Rom. 98, wherefore in Vitruv. vii, 9, 4. instead of *gnosis* we should read *ganosis*, not *κονίασις*, which is something quite different, nor ἔγχανσις. Vitruv. says: ita signa marmorea moda curantur, that is to say, white wax melted with oil was laid on with a thick brush, and then rubbed dry. Plin. xxxiii, 40. sicut et marmora nitescunt, Juvenal xii, 88. fragili simulacra nitentia cera, comp. the notes of Heinrich. Arrian Diss. Epictet. ii, 825. τότε δείξω ὑμῖν τὸ ἄγαλμα ὅταν τελειωθῇ, ὅταν στιλπνωθῇ. Canova, after the example of the ancients, attempted to make marble softer and milder in tone, by rubbing in a composition of wax and soap; but the unguent decomposed, and, as Thiersch informs us in his Reisen in Italien i, 142, changed the colour.]

5. On painted statues and reliefs, §. 69. 90. R. 118. R. 2. b. 119. R. 2. 4. 203. R. 3. In Virgil's Catal., Æneid. dedic., a marble Amor is described, with variegated wings and quiver. Nicias the great encaustes gave those tints to the finest statues of Praxiteles. Plin. xxxv, 40, 28. But the Cnidian Venus was colourless. Lucian de imag. Feuerbach Vatic. Apoll. s. 212. Ἀγαλμάτων ἐγκαυσταὶ καὶ χρυσωταὶ καὶ βαφεῖς, Plut. de glor. Ath. 6. Hair of a statue, coloured with wax, is distinctly mentioned by Chæremon in Athen. xiii. p. 608. Painted reliefs are γραπτοὶ τύποι, such as are mentioned in Fronto's Eurip. Hypsip. fragm. 11. ed. Matth.; comp. Welcker, Syll. Epigr. p. 161. [R. Rochette Peint. Ant. p. 289., Letronne Lettres d'un antiq. p. 339, Böckh C. I. ii. p. 662.] but also §. 323. R. According to modern investigations the figures on Trajan's column also were raised in gold on an azure background. G. Semper. ueber vielfarbige Archit. u. Sculptur. s. 37. [has not been confirmed.] On adjuncts of metal, and gilding (that of the hair in particular was very common) §. 84. 90. R. 117. 118. R. 2. b. 127. R. 3. 158. R. 3. 203. R. 3. In imitation of the ancient acroliths §. 84. there were made statues of black marble with the extremities of white, such as are certainly to be met with of later times, for example those of the priests of Isis.

6. See above, §. 156. 157. and the Inscr. C. I. 10. ταὐτοῦ λίθου εἶμὶ ἀνδριὰς καὶ τὸ σφέλας. Pieces of marble left standing as props (puntelli), are to be found for the most part in copies of brazen statues.

C. WORKING IN METAL (τορευτικὴ, CÆLATURA) AND IVORY.

1 311. The working of metals with sharp instruments, sculpture in metal, is what the ancients called the toreutic art, with which was also combined according to the requirement of the task, a partial casting in moulds, but particularly the beating
2 out or embossing with punches. In this manner was silver more especially wrought, in the fairest times of Greek art, but
3 gold and bronze also, and even iron in many districts. This branch of art was employed on armour, especially shields; besides the embossed work a sort of golden design served as an ornament to these, which was probably similar to the modern damask work (*tausia, lavoro all agemina*); moreover, chariots in particular were ornamented with embossed silver.
4 Vessels were sometimes provided only with ornaments of a vegetable form, for instance the large silver platters; sometimes adorned with mythic representations in relief (anaglypta) which were in later times often moveable, and might be employed in ornamenting different goblets which were sometimes
5 of gold (emblemata, crustæ). The fame of the masters in this department, and the passionate desire of the Romans for the possession of such articles are conceivable to us from particular remains. The art of the toreutes was likewise put in requisition for ornamental furniture; and that of the worker in