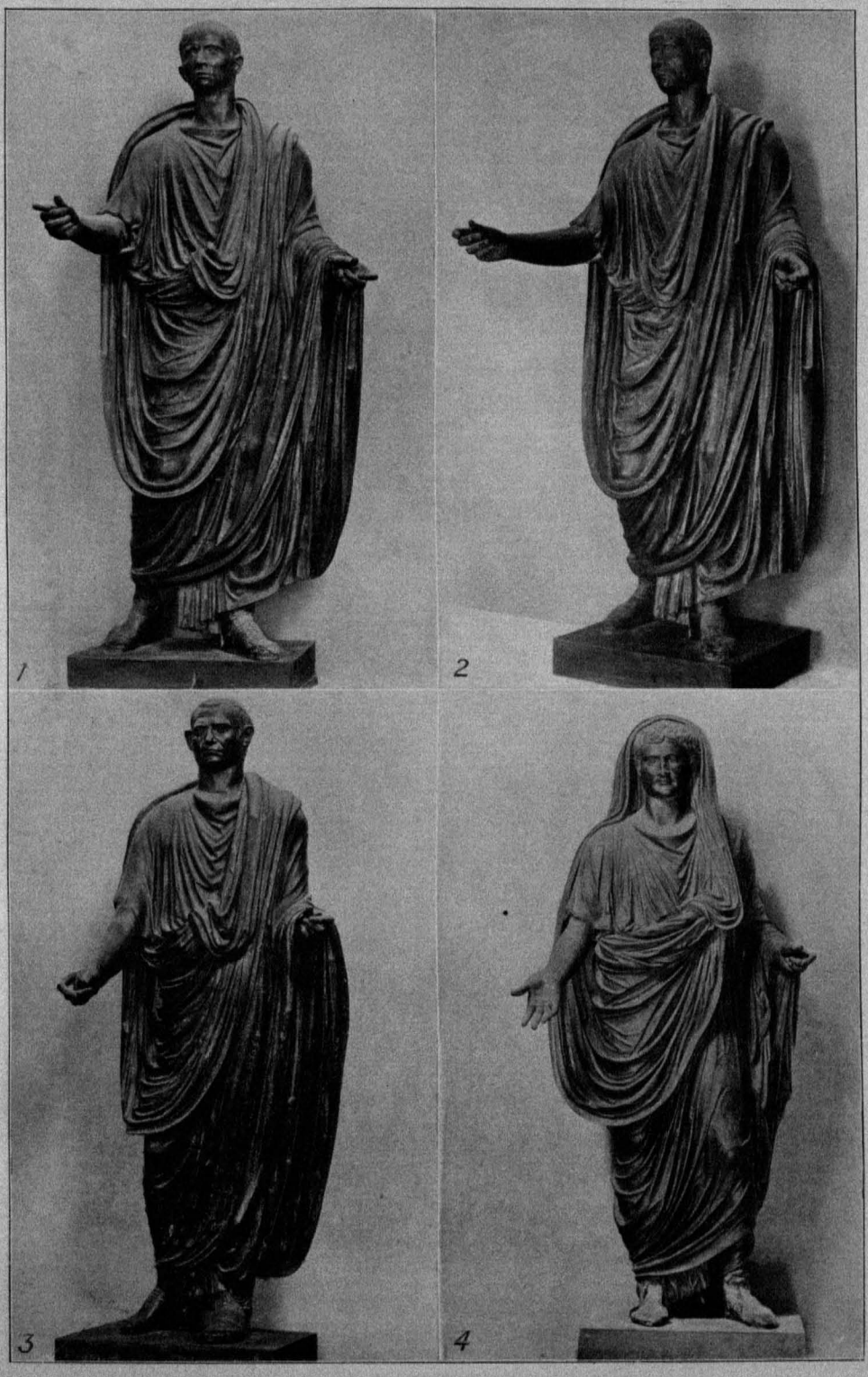
used with the greatest looseness, and there is little to show that any ancient writer realised the care which the investigation of ethnological problems demands. Epigraphical evidence is more trustworthy, but for early Campania it is disappointingly scanty and obscure. We can therefore scarcely avoid the necessity of grouping all the "aboriginal" inhabitants of Campania together, and of confining ourselves to the question of the mutual relations of the aborigines, the Greeks, the Etruscans, and the Samnites. This is much like discussing the races of South Africa under the headings of English, Dutch, Zulus, and Negroes; but there is no help for it. Even so we are faced with great obscurity. Our fullest evidence concerns the Greek settlers, but here we must unravel a tangled web of fiction and fancy before we can reach any sure conclusions. Legend has much to tell us of Teleboans and Chalcidians and Eretrians, and of Greek adventurers who reached Campania in the dim days before Troy fell; but inscriptions know as little of them as does Homer, and they are as shadowy as Brut the Trojan or that Spanish Cantaber[1] who founded the University of Cambridge nineteen years before the birth of Alexander the Great. Beloch,[2] indeed, has attempted to weave these tales into serious history, but the elaborate structure which he gave to the world in 1879 he himself mercilessly shattered in the appendix to his second edition eleven years later. He may even be held to have carried his self-criticism in some points a little too far. Nevertheless it is probably safe to accept his later conclusion[3] that we have no proof of Greek colonisation in Italy earlier than the eighth century before Christ. Tradition strongly supports the antiquity of the Ionian settlement at Cumae; and it is possible that Dicaearchia,[4] Parthenope, and

[1] Cf. Cooper's *Annals of Cambridge*, 1842, vol. i. p. 2; the authorities include Nicholas Cantalupe, John Lydgate, and Dr. Caius.

[2] In *Campanien*, 1st ed. 1879, 2nd ed. 1890.

[3] Beloch, *Campanien*, 1890, p. 436.

[4] Cf. Mommsen, *Roman History*, book i. chap. x.; other traditions are mentioned in Beloch, *Campanien*, 2nd ed. 1890, p. 7.



THREE BRONZE ROMAN PORTRAIT STATUES. PLATE 19.

Life-size. Two views of Lucius Mammius Maximus, priest of Augustus; Marcus Calatorius and Tiberius.

Neapolis were all Cumaean foundations; but on this point no certainty can be attained. The epigraphical evidence, which rests chiefly on grave-stones and coins from Cumae and Neapolis, is said by Beloch[1] to show a typically Chalcidian alphabet with traces of Aeolism.

The question of Etruscan domination in Campania has been hotly debated. It was at one time altogether denied, *e.g.* by Niebuhr, but is accepted to some extent by Mommsen and vigorously maintained by Beloch. Von Duhn[2] in 1879 attacked Beloch's views and reasserted Niebuhr's scepticism. We have no space to enter into the details of this controversy, but Von Duhn seems to have proved the complete absence at that time of adequate archaeological evidence. Beloch was reduced to staking almost his whole case upon certain pots[3] from S. Agata de' Goti, Suessula, Nola, and Cumae, said to be chiefly of the fourth or third century B.C., with incised Etruscan inscriptions. As the supposed Etruscan domination admittedly came to an end, at latest, by the end of the fifth century, and as the objects in question were perfectly portable, Beloch's case was obviously weak, at all events on the archaeological side. However, in 1900 Bücheler[4] published a slab of terracotta, with an Etruscan inscription, discovered in the neighbourhood of Cumae; the inscription was evidently made before the clay was baked, and there was no reason to suppose the slab imported. Von Duhn[5] immediately admitted that this discovery proved the truth of the Etruscan traditions; he dates the slab the latter half of the fifth century B.C., and expresses the opinion that some of the pots already mentioned may be as old as 420 B.C. It must, moreover, be admitted that there is a remarkable quantity of traditional evidence for the Etruscan

[1] Beloch, *Campanien*, 1890, p. 8.

[2] Prof. Von Duhn, "Grundzüge einer Geschichte Campaniens nach Maassgabe der neuesten archäologischen Entdeckungen," *Verhandl. der XXXIV. Versammlung deutscher Philologen in Trier*, 1899, pp. 141-147.

[3] Beloch, *Campanien*, p. 445.

[4] *Rhein. Mus.* 1900, pp. 1-3; it is now in the Berlin Museum.

[5] *Rivista di storia antica e scienze affini*, Messina, 1900, pp. 35 ff.

rule, but Beloch himself confesses that it is mostly of an untrustworthy kind. The Greek use of Τυρρηνοί is notoriously loose, and most Latin writers follow older Greek authorities. Perhaps the strongest witness is the elder Cato,[1] who asserted that the Etruscans founded Capua and Nola, the former about two hundred and sixty years before its capture by Rome. Velleius, who quotes this statement from the *Origines*, supposed Cato to refer to the second capture of Capua in 211 B.C.; but Beloch[2] is probably right in understanding him to mean the first capture, in 338 or 314 B.C., which puts the date back to the opening of the seventh century, the prime of Etruscan power. The question of Etruscan domination is particularly interesting to us, because Strabo[3] specifically asserts it of Herculaneum and Pompeii. The passage is quoted (a little lower down).

The details of the Samnite and Roman conquests, which are definitely historical and known, must now be lightly sketched. But it will be best to preface them by a brief discussion of our scanty evidence for the origin of Herculaneum. Henceforth her history can frequently be traced and generally guessed with tolerable certainty, and it will be most fittingly treated in connection with the general history of Campania.

The origin of Herculaneum is extremely obscure. The literary evidence is slight and unsatisfactory, and the excavations hitherto conducted throw more light upon her condition in the days of the Empire than upon her distant origin and early character; yet we may well hope that with the improved methods of modern science future excavations may throw most valuable light upon these difficult problems. However, we are not confined to the evidence of tradition and the evidence of excavation. Most valuable evidence is afforded by her name. This may well be Greek. Stephanus of Byzantium enumerates twenty-three cities called Heraclea, and in Smith's *Dictionary of*

[1] Cato *apud* Vell. Pat. i. 7.

[2] Beloch, *Campanien*, pp. 8 and 9.

[3] Strabo, p. 247.

Ancient Geography we find two called Heracleopolis and eight called Heracleum; and all thirty-three seem to be either of Greek origin or renamed under Greek influence.[1] Smith does not give Herculaneum under any of these headings, but Heracleum, Ἡράκλειον, was probably its original name, φρούριον, "fortress," being perhaps, as Dall' Osso[2] supposes, understood. Mommsen[3] thus summarises the evidence as to its name in ancient days: "Herculaneum (never Herculanum) to the Latins (so Sisenna, Frag. 54, Peters; Velleius ii. 16; Pliny, *Nat. Hist.* iii. 5. 62; Seneca, *Nat. Quaest.* vi. 26. 5; Florus i. 11. 6); Ἡρκουλάνεον, Cassius Dio lxix. 23, 'herculanacum' (for 'herculaneum'), Mela ii. 4. 70; Herclanium, Tab. Peuting., Ἡράκλανον, Marcus Aurelius iv. 48; 'Herculanense oppidum,' Seneca, *Nat. Quaest.* vi. 1. 2; 'Herculea urbs,' Ovid, *Metam.* xv. 711. To the Greeks it is Ἡράκλειον (Strabo v. 4, 8, p. 246); the adjective is Herculanensis (cf. the inscriptions 1410, 1424, 1426, 1427, 1435, 1436, and Seneca *loc. cit.*; also Cicero, *Epist. ad Fam.* ix. 25, 3, if 'fundus Herculanensis' refers to it); but we also find 'ficus Herculanea' and the like (Cato, *De re Rust.* 8; Pliny, *Nat. Hist.* xv. 18, 70, and 72; xxi. 15, 92; xxx. 4, 29)."

It would seem from this that the Greek forms other than Ἡράκλειον are merely attempts to transliterate Herculaneum. It is very likely that Herculaneum[4] is a translation of Ἡράκλειον. Hercules is probably a Latinisation of Ἡρακλῆς, and with the possible exception of the Samnite town[5] taken by the consul Carvilius in 203 B.C., which some[6] would identify with our Herculaneum, there is no example of any city not almost certainly Greek or Graecised whose name is connected with this hero. For the sake of completeness we would add that

[1] *e.g.*, in the case of Cybistra, which took the name of Heraclea in Byzantine times; see J. G. Frazer, *Adonis, Attis, Osiris*, 1906, p. 47.

[2] *Tribuna*, Jan. 9, 1907.

[3] *Corpus Inscriptionum Latinarum*, x. part i. p. 156 (Preface to "Herculaneum").

[4] Mommsen, however (*Unteritalischen Dialekte*, p. 216), denies the identity of Hercules and Heracles, and derives Herculaneum from an Oscan form of Hercules.

[5] Livy, x. 45. [6] *e.g.*, Dall' Osso, *Tribuna*, March 11, 1907.

Beloch,[1] Dall' Osso,[2] and Sogliano[3] believe that Theophrastus, towards the end of the fourth century B.C., alludes to Herculaneum when he speaks of τοῖς Τυρρηνοῖς τοῖς ἐν Ἡρακλείᾳ.[4] It has also been held that the Heraclea near which Pyrrhus defeated the consul Laevinus in 280 B.C. was our Herculaneum, on the strength of Florus's phrase,[5] "aput Heracleam et Campaniae flumen Lirim"; but Florus is almost certainly confusing the Liris and the Siris, and there is little doubt that the battle was fought in Lucania.[6] We shall deal with the evidence of the excavations as a whole later on, after our sketch of Campanian history. The literary evidence must now be quickly examined.

Dionysius of Halicarnassus[7] gives us the following tale: "When Heracles had settled all his business in Italy as he wished, and when his fleet had arrived safely from Spain, he sacrificed the tithe of his spoils to the gods, and founded a small city after his own name at the place where his fleet lay. This city is now inhabited by Romans, and lies between Naples and Pompeii; it has harbours safe at all seasons. Thereafter, having got glory from all the dwellers in Italy, he sailed away to Sicily." It is obvious that little is to be gleaned from this. The only other passage which speaks of the early character of Herculaneum does not mention the Greeks. Strabo[8] classes Herculaneum and Pompeii together in the following words: "The Oscans used to possess both Herculaneum and her neighbour Pompeii, which lies on the river Sarno; next came the Etruscans and Pelasgians, and thereafter the Samnites; but these also were expelled from the places."

We have already discussed the Etruscan problem so far as our space permits. The Samnite and Roman conquests of Campania, and what is recorded of their effects upon Herculaneum, must now be briefly described. As we have said, we cannot here enter into a discussion of the problem of the

[1] Beloch, *Campanien*, p. 218. [2] Dall' Osso, *Tribuna*, March 11, 1907.
[3] Sogliano, *Studi di Topografia Storica e di Storia Antica, etc.*, Naples, 1901, p. 24.
[4] Theophr. *Hist. Plant.* ix. 16, 6. [5] Flor. i. 13 (18).
[6] Cf. Plutarch, *Pyrrhus*, 16, 17. [7] Dion. Hal. i. 44. [8] Strabo, p. 247.

FIVE BRONZE BUSTS

(Ephebus (Apollo), Heracles, ? Theseus, Heroic Head, Artemis (Berenice)

linguistic and ethnical relationship of the old "Oscan" or "Auruncan" population of Campania,[1] whose last independent strongholds were the marshes of the lower Liris and the ravines of Rocca Monfina, with the Samnites who poured down from the mountains in the latter half of the fifth century before Christ and became the Campani, the Samnites of the plains. However, it is probably safe to conclude, from the rapidity and completeness of their amalgamation with the earlier inhabitants, that they were of kindred stock and speech. There seems also to be positive epigraphical evidence of this relationship.[2] The briefest summary of Campanian history must here suffice. Capua was stormed by the Samnites about 424 B.C., Cumae about 420 B.C., and the whole of Campania was soon in their hands; only Naples held out, and even she was forced, early in the fourth century, to admit Samnites on equal terms as citizens and magistrates.[3] Soon, however, these "Campani" succumbed to the civilising influences of the cities which they had conquered, and began to dread the attacks of their wild kinsmen of the mountains. In 343 B.C. Capua and the neighbouring Campanian towns called in the help of Rome. Two years later Rome was the acknowledged suzerain of Campania. Next year, however, the Campanians joined in the desperate Latin revolt, and shared with the Latins in the defeats of Veseris and Trifanium. The definite annexation of most of Campania followed; Capua, Cumae, and the smaller communities dependent on them were given the *civitas sine suffragio*. Naples was an ally of Rome from 328 B.C., and stood firm against Pyrrhus of Epirus in the critical early years of the third century. Nuceria was captured by Rome in 307 B.C. After this there is little to record until the battle of Cannae in 216 B.C., when Capua and Campania generally joined Hannibal, while Naples, like most of the Italiot cities, remained loyal to Rome and shut her gates upon the Carthaginian. In

[1] Cf. Beloch, *Campanien*, p. 3. [2] *ib.* pp. 4 and 5.
[3] Cf. *ib.* p. 31, and Strabo, p. 246.

211 B.C. Hannibal was finally expelled from Campania, and Capua was recovered. Throughout this period we hear little of Herculaneum. Strabo,[1] as we have said,[2] mentions her conquest by the Samnites, and their subsequent expulsion, but without giving dates of any sort. Livy,[3] in a passage quoted below,[4] mentions the capture of a Herculaneum by the consul Carvilius in 393 B.C.; but this[5] can hardly be our Herculaneum, which probably belonged to the Nucerian league, and shared Nuceria's fortunes.

We next hear of Herculaneum in the "Social War" of the early part of the first century before Christ. She perhaps remained faithful to Rome at the outset,[6] only going over to the Samnites during the invasion of Papius Mutilus; in any case, she was recaptured by Sulla's legate, Titus Didius, in 89 B.C., with the help of Minatius Magnus,[7] the great-great-great-grandfather (as he is careful to inform us) of Tiberius' court-historian, Velleius Paterculus.

Like Pompeii and Surrentum, Herculaneum was henceforth a Roman *municipium*,[8] and was enrolled, with the rest of the Nucerian league, in the *Tribus Menenia*. Of her constitution we know little except that she had a city council, and *duoviri*, *duoviri quinquenales*, and *duoviri iure dicundo*:[9] the inscription on the marble altar mentioned below seems to show that she had a Meddix Tuticus in her pre-Roman days.[10] Of her history from the time of the Social War up to the earthquake of 63 A.D., we know practically nothing.

The literary evidence is now virtually exhausted, except for

[1] Strabo, p. 247. [2] *supra*, p. 90. [3] Livy, x. 45. [4] Appendix II. p. 126.

[5] Cf. Beloch, *Campanien*, p. 219. Dall' Osso takes the opposite view; see *Tribuna*, March 11, 1907.

[6] So Beloch, *Campanien*, p. 216. [7] Vell. Pat. ii. 16.

[8] Cf. Mommsen, *Corpus Inscriptionum Latinarum*, 1883, vol. x. part i. p. 157. That she was a *municipium* is proved by the following inscriptions, 1416, 1447, 1452, 1453, 1455, 1456; the tribe is inferred from inscriptions 1416, 1442, 1446, 1449, 1457, 1470.

[9] See *Corpus Inscript. Lat.* Nos. 1453; 1441, 1453; 1442, 1443, 1444, 1461, and 1457.

[10] Cf. Fabretti, *Gloss. Ital.* 2784.

that referring to the two great disasters, which will be fully discussed in the following chapter. We must now examine in detail the evidence of the excavations, upon which we have already begun to draw.

The belief that Herculaneum was essentially a Greek city cannot be said to have received much confirmation from the excavations. We have already shown grounds[1] for doubting the soundness of Dall' Osso's inferences from her geometrical design. For the rest, the only Greek inscriptions from Herculaneum given in the *Corpus Inscriptionum Graecarum*[2] are the names of Demosthenes,[3] Epicurus,[4] Hermarchus,[5] and Zeno,[6] inscribed upon their several busts in the undoubtedly Roman "Casa dei Papiri"; and one Athenian signature[7] on a bust from the same villa; and a similar Athenian signature, with the names of the characters, on a painted slab of marble.[8] There is also an interesting theatre-ticket with the inscription ΑΙΣΧΤΛΟΥ, though there is some dispute as to its *provenance*. But the editor appears to have overlooked an interesting "graffito" recorded in the second volume of the *Antichità di Ercolano* (*Pitture di Ercolano*, tom. ii. 1760, p. 34) as having been found on a wall which formed the angle of a street leading to the theatre; it was in black and red letters, and is stated to have run as follows: *ὡς ἑνσο φὸν βούλευμα τας πολλὰς χεῖρας νικᾶ*. It is clearly a quotation from the *Antiope* of Euripides, for Stobaeus (*Flor.* 54, 5) quotes the following lines as from that play:—

> *γνωμαῖς γὰρ ἀνδρὸς εὖ μὲν οἰκεῖται πόλις,*
> *εὖ δ' οἶκος, εἴς τ' αὖ πόλεμον ἰσχύει μέγα,*
> *σοφὸν γὰρ ἓν βούλευμα τὰς πολλῶν χέρας*
> *νικᾷ, συν ὄχλῳ δ' ἀμαθία πλεῖστον κακόν.*

(Frag. 200 Nauck, Teubner, 1889.) It is true that the bulk

[1] See Part I. Chapter I.

[2] For all this see *Corpus Inscriptionum Graecarum*, vol. xiv. ed. Kaibel, 1890, under "Herculaneum."

[3] Mus. Naz. 5467; see Plate.

[4] Mus. Naz. 5465; see Plate.

[5] Mus. Naz. 5466; see Plate.

[6] Mus. Naz. 5468; see Plate.

[7] Mus. Naz. 4885; see Plate.

[8] Mus. Naz. 9562; see Plate.

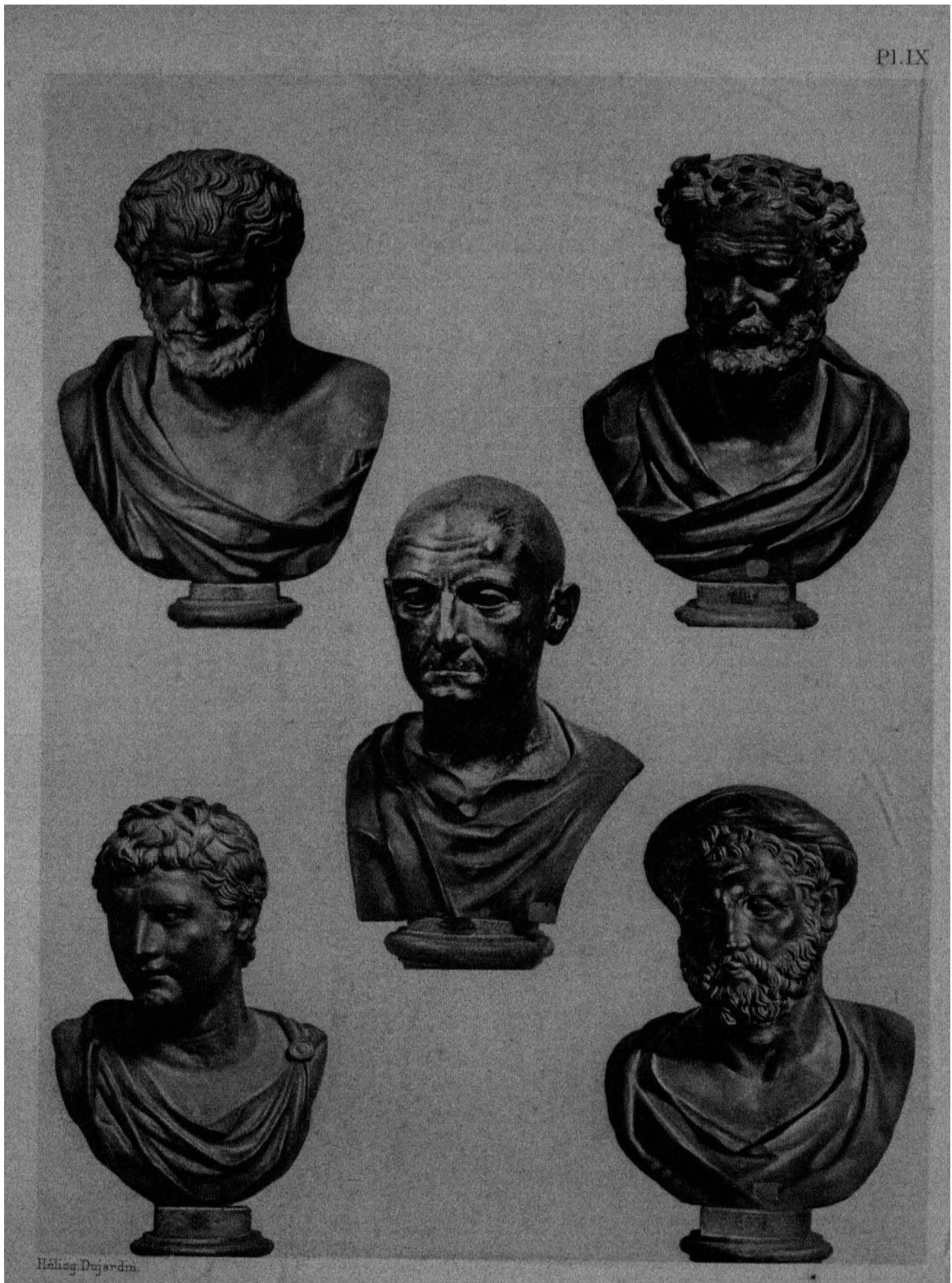
of the papyri are in Greek, but no one doubts that they are part of a Roman library. Oscan inscriptions are also exceedingly rare at Herculaneum; in fact, two only are known to have been found there—one merely of three letters on a lamp, the other a dedication to Venus on a small marble altar, thus transliterated by Huschke :—[1]

Herentateis suum.
L. Slabiis L. Aukil meddiss tuitiks Herentatei Herukinae proffed.

Our chief evidence concerning the character of the inhabitants rests on the rich find in superior works of Greek art and on the treasures of manuscripts discovered in one villa. These, especially when we remember that only a small portion of Herculaneum was excavated, lead us to assign to the inhabitants of Herculaneum a state of culture superior to that of the Pompeians. But it is chiefly in view of the probable find of further villas that our high expectations are justified. All the same we must point out that it would be a mistake to imagine that only in that one villa were works of superior art discovered. Many of the finest works were found in the town itself.

In the first century A.D. Herculaneum was a quiet, genteel, entirely Romanised little town, which owed its prosperity to its attractions as a health-resort for rich great folk wearied with "the smoke and the wealth and the clatter of Rome." Strabo,[2] as we said above, speaks of its reputation for healthiness; and Pliny's phrase "frequens amoenitas orae"[3] seems to refer chiefly to the neighbourhood of Herculaneum. Seneca[4] mentions that Agrippina the elder had a most beautiful villa here, which her son, the mad Emperor Caligula, afterwards destroyed, because she was once confined in it, probably in the course of those quarrels with Tiberius which led to her exile and death. The incident gives Seneca a text for much edifying

[1] Huschke, *Die Oskischen und Sabellischen Sprachdenkmäler*, 1856.
[2] Strabo, p. 246. Cf. Part I. Chapter I. [3] Plin. *Epist.* vi. 16, 9.
[4] Seneca, *Dial.* v. (*De Ira*, iii.) 21. 5.



Five Bronze Busts. ("Philosophers" &c.)

moralisation upon the folly of anger against inanimate things. No details can be gathered from the passage, except that the villa was visible from the sea. Moreover, extant inscriptions give ample proof that Herculaneum had aristocratic patrons. Especially noteworthy are the Nonii of Nuceria,[1] including M. Nonius Balbus,[2] Praetor, Proconsul of Cyrenaica and Crete, and the consul Appius Claudius Pulcher.[3] Comparetti and De Petra have also shown reason for supposing that the "Casa dei Papiri" was a seat of the illustrious Pisones.[4] The splendour of this villa has already been mentioned.[5]

The smooth pavement and admirable drainage of the "Scavi Nuovi" street, so unlike the deep ruts and high stepping-stones common at Pompeii, are in keeping with our theory of the city's character. Beloch[6] asserts that shops were few, but the *data* hardly warrant the generalisation. The only industry which has left much trace is fishery: hooks, cords, floats and nets were found in abundance.[7] No doubt the great houses had the pick of the catch. There are also clear traces of the rearing of shellfish.[8]

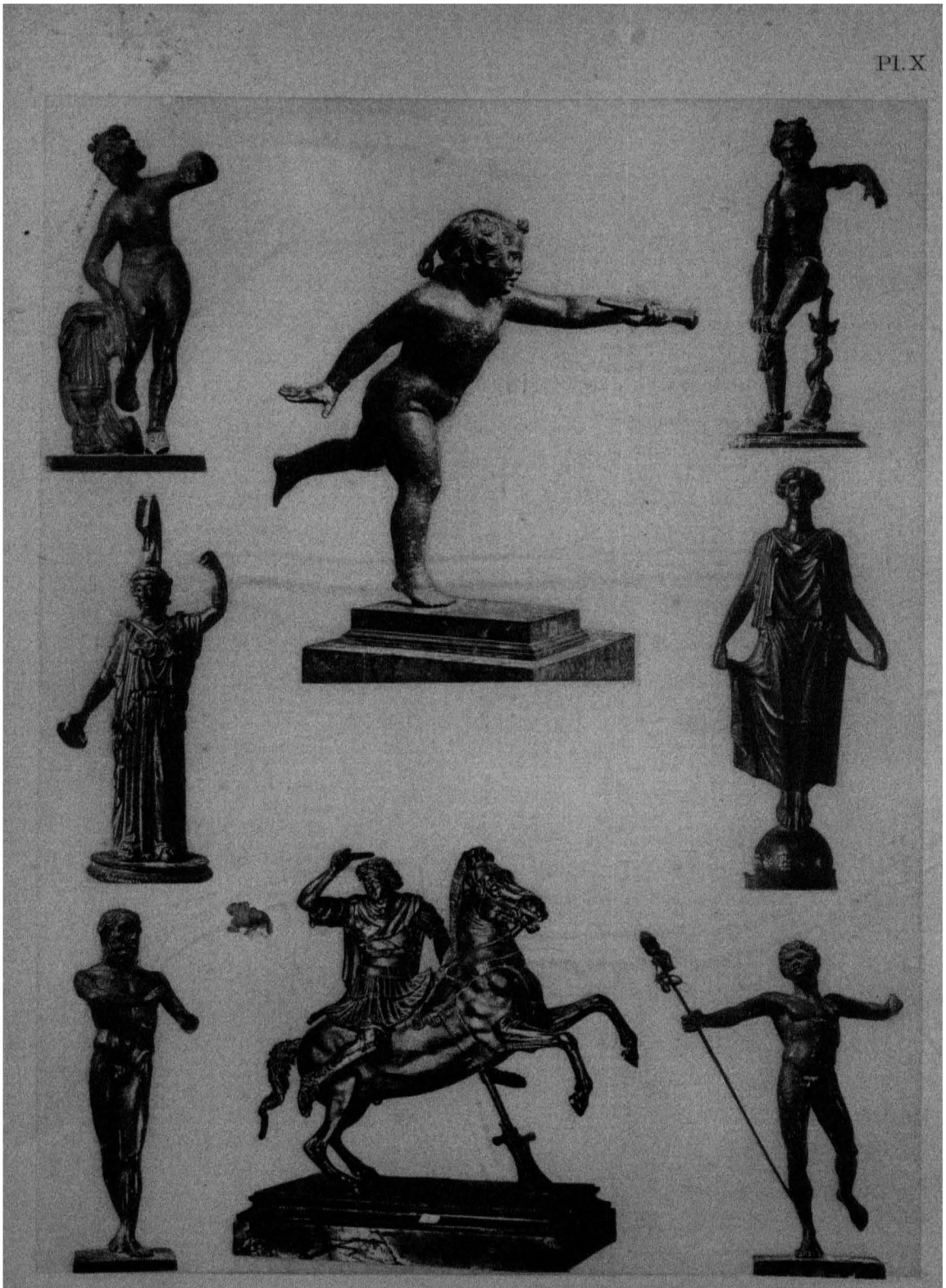
For the worships of Herculaneum our evidence is scanty. Beloch gives two inscriptions[9] as relating to the temple of Jupiter at Herculaneum, but Mommsen[10] seems to show that both come from Pompeii. We have already quoted the inscription about the temple of the Mother of the Gods. There is also a dedication from the base of a bronze statue of Fortune: PHILEMONIS · SECV · MAG · GEN · C.[11] Beloch and Mommsen both restore "Philemonis secundarum magistri genio . . ."; but they differ as to the last word, Beloch supplying "civitatis," Mommsen "collegii." But, except the Oscan dedication to Venus already quoted, the only other religious inscription

[1] Cf. *C.I.L.* x. 1, 1429.
[2] *ib.* x. 1, 1425, 1430, 1431, 1432, etc.
[3] *ib.* x. 1, 1424.
[4] Comparetti and De Petra, *La Villa Ercolanese, etc.*
[5] See Part I. Chapter I.
[6] Beloch, *Campanien*, p. 224.
[7] Cf. Part I. Chapter III.
[8] Cf. Part I. Chapter I.
[9] *C.I.L.* x. 1, 925 and 926; *I.N.* 2385, 2386.
[10] *ibid.*
[11] *C.I.L.* x. 1, 1404.

seems to be this (omitted by Beloch) from a little marble altar found in April 1872 : SALVTI SACRVM.[1]

In conclusion, while we have some evidence for distinguished residents[2] in the neighbourhood of Pompeii, and even for the presence there of the imperial family,[3] we have distinct evidence for maintaining that Herculaneum was a more aristocratic resort than her busy neighbour, whose motley population — Romans and Orientals, Oscans, Greeks and Jews[4]—carried the trade of Nola, Nuceria, and Acerrae. In any case, it is a centre where we have the best of reasons for expecting to find a rich treasure of the best works of art and of literature.

[1] *C.I.L.* x. 1, 8167.
[2] Cf. Mau-Kelsey, *Pompeii*, p. 16.
[3] Cf. *ib.* p. 16.
[4] Cf. *ib.* pp. 16 and 17.



EIGHT BRONZE STATUETTES :

Two Aphrodites, Cupid, Athena, Fortuna, Marsyas, Alexander, Faun.

CHAPTER III

THE EARTHQUAKE OF 63 A.D. AND THE ERUPTION OF 79 A.D.

IT is doubtful whether the memory of Vesuvius' earlier activity survived at all into historical times. Beloch[1] would see in its very name the shadowy figure of Jove's sinister counterpart, the mysterious "Vediovis," "Evil Zeus," and would render "Vesuvius" "Teufelsberg." But although "Vediovis" is shadowy enough,[2] there is nothing, except a dubious etymology, to show that he was sinister; and his connection with Vesuvius is at least debatable. But it is certainly interesting to note that "Jupiter Vesuvius" was worshipped at Capua. (IOVI VESVVIO SAC D D.[3]) Less hazardous, perhaps, are inferences drawn from the name φλεγραῖον applied by Timaeus[4] to the whole Campanian plain; Timaeus states that it was so called after "the hill which aforetime breathed forth 'fire unapproachable,'[5] like Aetna in Sicily"; Diodorus adds "the hill is now called Vesuvius, and bears many marks of having been burnt in ancient times." As Diodorus wrote before the birth of Christ he cannot be accused of prophesying after the event; but Beloch is perhaps right when he surmises that everything may be explained by the inference which Diodorus, and at greater length also Strabo,[6] drew from the appearance of the rocks, except the highly significant name;

[1] Beloch, *Campanien*, pp. 215 ff.
[2] Cf. W. Warde Fowler, *The Roman Festivals*, pp. 121 ff.
[3] *C.I.L.* x. 1, 3806; *I.N.* 3582, Beloch, No. 398. Cf. Beloch, p. 216.
[4] *apud* Diod. Sic. iv. 21. [5] A quotation from Pindar, *Pyth.* i. 40.
[6] Strabo, p. 249.

and it is tempting to follow him when he guesses that to the first Greek settlers Vesuvius was Φλεγραῖον ὄρος, the Mountain of Flame. We may add that Vitruvius[1] likewise speaks of a tradition of Vesuvius' ancient activity. But all this is perilous ground. This much alone is certain: that no more than vaguest traditions still lingered on, when with the great outburst of 79 A.D. Vesuvius suddenly awoke. Between then and now nearly ninety eruptions are known to have taken place. There are only about half a dozen eruptions recorded during the first thousand years, and about fifty in the last two centuries; but of these hardly more than a dozen were of first importance. It can hardly be doubted that the negative evidence as to the small number of eruptions during the first fifteen centuries of our era is misleading, and that there must be many and great outbursts unrecorded, "carent quia vate sacro," and a comparison of the scattered notices of the earlier eruptions with those more fully described during the last three centuries, cannot but impress upon us that in any exploration on the slopes of Vesuvius we must expect to find an enormous quantity of volcanic material that has been spread over the area since the first century A.D. Before we attempt to describe the eruption of 79 A.D., and its effect upon Herculaneum, it may be well to inquire into what is known of the condition of Vesuvius before that date. The evidence is, unfortunately, scanty.

The relative heights[2] of the new cone and Somma have varied greatly in consequence of the various eruptions. Before the eruption of 1906 the new cone was more than 100 metres the higher; before that of 1631 it was so by only 40 metres; and for about a century thereafter Somma was actually the higher. Moreover, the very name of Somma clearly implies that some time in the Middle Ages it was the loftiest peak of the mass. It is therefore impossible without definite evidence to form a clear mental picture of the

[1] Vitr. ii. 6.

[2] Cf. Beloch, pp. 215 ff.

appearance of the whole before 79 A.D. The most detailed description which we possess is that of Strabo[1] (born 61 B.C.). He writes: "Above these regions lies the mountain Vesuvius, covered with most beautiful fields, save for the peak; this is in great part level, but wholly unfruitful, and ash-like in appearance, and it shows cave-like hollows in sooty-coloured rocks, so that one may surmise that this place was once afire, and contained bowls (craters) of fire, but was extinguished by the exhaustion of the fuel. And it may be that this is the reason for the fruitfulness of the neighbourhood, just as at Catana, so they say, the part which the dust borne up by the fire of Aetna has sprinkled with ash has made the earth good for vines." From certain passages[2] in Florus, Frontinus, and Plutarch, describing Spartacus' escape from Vesuvius when Clodius and Glaber had run him to earth there, a good deal may be learnt.

Professor Hughes gives the following interesting discussion of this evidence:—

From the descriptions given we may infer that there was a flat area at the bottom of the crater surrounded by an almost unbroken rim. Dion Cassius remarks it resembled an amphitheatre in which hunting scenes were represented; that is to say, an arena from which the animals could not escape. But at one place the rim was cracked and fissured so that there was a path by which the interior could be reached. This was seized and guarded by the troops of Clodius and Glaber the Praetor when the crater was occupied by Spartacus and his band. The story has been supposed to imply that the crater was precipitous on the outside as well as on the inside, and that Spartacus and his men having somehow got to the top of the rim were let down by ropes made by tying wild vines together. We can hardly suppose that after it had been exposed for ages to the crumbling action of the weather, the exterior of the crater can have been precipitous all round. Perhaps it was only here and there that it was so steep, and a steep place was chosen as being for that reason unguarded. But a much simpler explanation, and one more consistent with what we know to have always been the condition of this and similar craters, is that the descriptions do not imply that Spartacus and his men dropped over the rim of the crater down a precipice on the outside, but rather that by the help of something like rope ladders or chains, constructed out of the long trailing stems and branches of the vine, they made their way out through the deep chasms in the broken wall of the crater (per fauces cavi montis, vitineis

[1] Strabo, p. 249.

[2] See Appendix II., p. 131.

delapsi vinculis, ad imas ejus descendere radices).[1] Clodius guarded the only easily traversed way, but never supposed it possible that Spartacus and his followers could find their way out through the rough and apparently impassable cracks and fissures deep down below the obvious path.

If the fault of which there is some evidence on the north-eastern side of the valley of Somma and St. Sebastiano and along the side of Ottajano had breached the rim, that is the kind of place that would have afforded access to the interior of the crater, and through this gap, may be, the path was found or made, but, among the ruin of shattered rock there would be deep and dangerous chasms into which Spartacus and his band descended and found their way to the outside. All the S.E. side of the crater was blown off in the eruption of A.D. 79, and most of the inner cone was blown out the year before last (1906), while in the intervening ages the cone was sometimes built up by successive accumulation of the ejected ash and lava, and sometimes lowered by collapse or broken down by explosion.

As the inhabitants of Herculaneum saw it the rim of the crater was complete on the south side, and corresponded in height to the Monte Somma, which is part of the ancient rim on the north and west. The great eruption of A.D. 79 broke down the southern rim of the crater which is now represented on this side by the Pedimentina—a small inconspicuous ridge at a much lower level, which just enables us to trace what was the form and extent of the crater, and nearly coincides with the southern base of the new cone. Of course, in restoring the outline of the crater, we must carry the southern side up, not vertically, but with a long slope rising to the north and so far limiting the actual southern extension of the crater. The circumference of what remains of the ancient crater is about seven miles. This great crater of the first century A.D. was approximately in the centre of the conical mountain mass; but the small crater, which has been built up in more recent times within it, has not risen in the centre of the inside of the old crater but at the southern end of it, leaving a great, flat, lunette-shaped plain known as the Atrio del Cavallo between the new cone and the Monte Somma.

The constant height of the Monte Somma and the variations in the height of the newer cone must be taken account of in interpreting numerical estimates of the heights, distances, and relative positions of the highest points of the mountain and its craters.

These variations had their effect in determining to some extent the point of eruption and the direction of the lava flows, seeing that, since the eruption of A.D. 79, Monte Somma has remained a mighty barrier which has restrained all subsequent efforts to break out on the north and west side of the crater and turned the lava flows down on the east and south. If we examine the part of the old crater represented by Monte Somma, we shall find its precipices traversed by dykes, the tongues of lava which got cooled in the cracks and fissures into which they were injected from the seething molten mass that once stood in the great crater at any rate up to the level at which we see the dykes. Some of these reached the exterior of the cone, and were sometimes the source of lava streams which helped to build up the mountain. Since A.D. 79 the lava would flow over the Pedimentina long before it could rise to the level of the higher dykes of Somma.

Cassius Dio, writing in the third century A.D., says that formerly the mountain was all of one height and the fire rose from the centre.

[1] Florus, lib. iii. c. 20.

MARBLE STATUE OF ATHENE. PLATE 20.

Archaic or Archaistic.

An interesting Pompeian wall-painting[1] depicts a nigh-peaked vine-clad mountain, with a figure of Bacchus clothed in bunches of grapes, with a cup and a panther. The mountain is possibly Vesuvius, as seen from Pompeii, but it is too roughly sketched[2] to be of great value as evidence for the ancient appearance of either.

Before dealing with the eruption of 79 A.D., we must say something of the great earthquakes which devastated Campania some sixteen years earlier. Of their violence we have abundant indications[3] in the remains of Pompeii, and that it also affected Herculaneum we know from literary and epigraphical evidence. Seneca[4] opens his discussion of earthquakes in general in the following manner :—

> We have heard, Lucilius, best of mankind, that Pompeii, a populous city of Campania, on which the Surrentine and Stabian coast from the one side and the Herculanean from the other converge, and enclose the sea, drawn back from the open, in a pleasant bay, collapsed in an earthquake which afflicted the whole surrounding neighbourhood, and that in the winter season, which our ancestors used to consider free from such dangers. This earthquake took place[5] upon the Nones of February, in the consulate of Regulus and Virginius, and brought great slaughter and desolation upon Campania, a district that had never been safe from this affliction, but whose previous escape from injury had on each occasion increased its freedom from fear. Not only did a part of the town of Herculaneum fall, while even what remains is in an unsteady condition, but the colony of Nuceria, though it escaped destruction, has much cause for lamentation. Naples indeed was but lightly grazed by this great disaster: individuals lost much, the community nothing.

A little lower down, while noting various theories propounded in explanation of earthquakes, he writes[6]: "On this ground it was held that the soil of islands was firmer than that of mainlands, and that cities were safer in proportion as they approached the sea. Pompeii and Herculaneum have felt the falseness of these conclusions."

[1] *Gaz. Archeol.* 1880, Taf. II.; *Not. degli Scavi*, 1880, Tav. II.; reproduced also in Engelmann's *Pompeii*, 1904, p. 2, and discussed in Overbeck-Mau's *Pompeji*, 1884, p. 359.

[2] Cf. Overbeck-Mau, *Pompeji*, p. 359, "Doch ist die Darstellung so kunstlos, dass unsere Kentniss von dem Aussehen desselben (i.e. *of Vesuvius*) vor dem Ausbruch durch sie nicht wesentlich gefördert wird."

[3] Cf. Mau-Kelsey, p. 19, etc.

[4] Seneca, *Nat. Quaest.* vi. 1.

[5] Feb. 5, 63 A.D.

[6] Seneca, *Nat. Quaest.* vi. 5.

Tacitus,[1] who mentions only Pompeii, assigns the earthquake to the consulship of Publius Marius and Lucius Asinius, *i.e.* 62 A.D., and we know of another in 64 A.D. at Naples.

The direct epigraphical evidence for the earthquakes consists of the following inscription, dated 76 A.D., found at Herculaneum :—

IMP · CAESAR · VESPASIANVS · AVG · PONTIF · MAX
TRIB · POT · VII · IMP · XVII · P · P · COS · VII · DESIGN · VIII
TEMPLVM · MATRIS · DEVM · TERRAE · MOTV · CONLAPSVM · RESTITVIT[2]

We have also shown reason[3] for supposing that the inscription

M · NONIVS · M · F · BALBVS · PROCOS
BASILICAM · PORTAS · MVRVM · PECVNIA · SVA[4]

refers to a similar restoration.

The material evidence for these earthquakes can hardly be discussed apart from that for the eruption. We shall therefore treat of the literary evidence for the later disaster before discussing the actual remains at all.

This evidence is not very extensive. There is little of value beyond two letters of the younger Pliny,[5] both addressed to the historian Tacitus, and the account given by Cassius Dio (born 165 A.D.) as epitomised by the Byzantine writers Xiphilinus and Zonaras, who flourished about the time of our Norman Conquest. Pliny's account, though he never names Herculaneum, is by far the most valuable ; but Dio records much that is of interest, especially about the condition of Vesuvius in his own day.

So many writers have printed the two letters *in extenso* that they may strike the reader as *crambe repetita* ; but they are so important that we offer no apology for the full

[1] Tac. *Ann.* xv. 22.
[2] Beloch, No. 271 ; *I.N.* 2384 ; *C.I.L.* x. 1, 1406 ; Mus. Naz. 1151.
[3] See Part I. Chapter I.
[4] Beloch, No. 305 ; *I.N.* 2410 ; *C.I.L.* x. 1, 1425 ; Mus. Naz. 1180.
[5] Plin. *Ep.* vi. 16 and 20.

TWO GREEK MARBLE BUSTS. PLATE 21.

? Demetrius Polyorcetes and ? Aphrodite. Style of the fourth and fifth centuries B.C.

translation by Sir Richard Jebb[1] which follows. The text, with variant renderings, will be found in the Appendix.

I

You ask me to give you some account of my uncle's last moments in order that you may transmit a more exact narrative to posterity. I thank you; for I know that his death, if celebrated by you, is destined to an undying renown. Although he perished, as peoples and cities perish, in the ruin of the fairest lands, and by a calamity so memorable as apparently to ensure that his name shall live for ever,—although he was himself the author of so many works which will endure,—yet the life of his writings will gain a new pledge of permanence from the immortality of your own. Indeed, I count those men happy to whom it has been given by the gods either to do things worthy of being written, or to write things worthy of being read; but I deem those the happiest who have received both gifts. In the number of the latter my uncle will be placed both by his own work and by yours. The more gladly do I undertake, or rather solicit, the task which you lay upon me.

He was at Misenum, in personal command of the fleet. On the 24th of August, about one in the afternoon, my mother called his attention to a cloud of extraordinary size and appearance. He had taken a turn in the sunshine, and then a cold bath,—had lunched leisurely,[2] and was reading. He calls for his shoes, and goes up to the place from which the marvel could be best observed. A cloud was rising (from what mountain, was doubtful in a distant view; it was afterwards ascertained to be Vesuvius); a pine-tree will perhaps give you the best notion of its character and form. It rose into the air with what may be called a trunk of enormous length, and then parted into several branches: I fancy, because it had been sent up by a momentary breeze, and then, forsaken by the falling wind, or possibly borne down by its own weight, was dissolving laterally: one minute it was white, the next it was dirty and stained, as if it had carried up earth or ashes. Thorough lover of knowledge as he was, he thought that it was important, and ought to be examined at closer quarters. He ordered a cutter to be got ready, and gave me leave to accompany him, if I liked. I answered that I would rather study; in fact, as it happened, he had himself given me something to write. As he was leaving the house, he received a note from Rectina, the wife of Caesius Bassus, terrified by the imminent danger,—his villa was just below us, and there was no way of escape but by sea[3]; she begged him to deliver her from such great danger. He changed his plan, and turned the impulse of a student to the duty of a hero. He had large galleys launched, and went on board one of them himself, with the purpose of helping not only Rectina, but many others too, as the pleasant shore was thickly inhabited. He hastened to the point from which others are flying, and steered a straight course for the place of peril, himself so free from fear that, as he

[1] *Translations*, by R. C. Jebb, H. Jackson, and W. E. Currey, pp. 235-253. Cambridge, 1885.

[2] *iacens*: *i.e.* reclining at table in the ordinary way, not taking a hurried meal standing. The word is added to mark that, thus far, the routine of the day had proceeded as usual. Cf. infra, *lotus accubat, cenat.*

[3] The text is doubtful: I read with Zierig.

observed with his own eyes each movement, each phase of the terrible portent, he caused it to be noted down in detail. By this time ashes were falling on the ship,—hotter and thicker the nearer it came; then pieces of pumice too, with stones blackened and scorched and seamed with fire: then suddenly they were in shallow water, while in front the shore was choked with the discharges from the mountain. After a moment's hesitation as to whether he should retreat, he said to the captain, who was urging him to do so, "Fortune helps those who help themselves—go to Pomponianus."[1] He was at Stabiae, half the breadth of the bay off.[2] You know, the shore sweeps round in a gentle curve and forms a basin for the sea. At Stabiae where the danger, though not yet near, was appalling, and sure to be very near when it spread,—Pomponianus had embarked his effects, resolved to fly as soon as the head wind should have subsided: my uncle, having come in on this wind, which was full in his favour, embraces his agitated friend, comforts and cheers him, and, in order to soothe the other's alarm by his own tranquillity, asks to be shown a bath-room, and after the bath, takes his place at the dinner-table,—in good spirits, too, or, what is not less admirable, with the appearance of being so. Meanwhile sheets of flame and towering masses of fire were blazing from Vesuvius at several places: their glare and brightness were thrown out against the darkness of the night. To allay the alarm, my uncle kept saying that some fires had been left behind by the country people in their panic, and that these were deserted villas which were burning in the forsaken district. Then he retired to rest, and enjoyed, indeed, a most genuine sleep. His breathing, which, owing to his corpulence, was somewhat heavy and audible, was heard by those who were about the door of his room. But now the open court,[3] through which lay the way to the salon, had been choked with a mixture of ash and pumice to such a height that, if he remained longer in his bedroom, exit would be impossible. On being awakened, he comes out, and rejoins Pomponianus and the others, who had sat up all night. They hold a council as to whether they shall stand their ground in the house or grope their way in the open air. The house was tottering with repeated and violent shocks, and, as if wrenched from its foundations, seemed to be swaying backwards and forwards. Out of doors, on the other hand, the fall of pumice stones,—light and hollow though they might be,—was dreaded. A comparison of dangers, however, made this last seem the least. With my uncle, it was a balance of reasons; with the rest, of fears. They put cushions on their heads and tied them on with cloths; this was their protection against the showers. It was now day elsewhere; there, it was the blackest and densest of all nights,—relieved, indeed, by many torches, and by stranger splendours. They resolved to go down to the shore, and to see from close at hand whether the sea now gave them any chance;—no; it was still, as before, wild, and against them. There, lying down on an old sail, he called repeatedly for cold water, and drank it. Presently flames, and the smell of sulphur

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[1] Possibly a son of that Pomponius Secundus whose life the elder Pliny wrote, and whom he seems to have survived.

[2] The course was now steered as if a boat off Torre del Greco should make for Castellamare.

[3] That this (and not simply "floor of the room") is the meaning of "area" is certain, I think, from *Ep.* vi. 20, §§ 5, 6, "resedimus in area domus, *quae mare a tectis modico spatio dividebat* . . . iam *quassatis circumiacentibus tectis*, quanquam in *aperto loco*, *angusto tamen*, magnus et certus ruinae metus."

announcing their approach, turned the others to flight: him they only roused. Leaning on a couple of slaves, he rose to his feet, but immediately fell,—an unusually dense vapour, as I understand, having stopped his respiration and closed the windpipe, an organ in him naturally weak as well as narrow, and frequently inflamed. When day returned (the third from that on which he had last looked) his body was found, undefiled and unhurt, with all the clothes upon it; its look suggested sleep rather than death.

Meanwhile my mother and I were at Misenum. But this has nothing to do with history, and you wished to know merely about his last hours. So I will end. One thing I must add,—that I have related in detail everything of which I was an eye-witness, or which I heard at the time,—when reports are worth most. You will select what is most suitable. It is one thing to write a letter to one's friend, and another to compose a history for the public.

II

You say that the letter describing my uncle's death which I wrote to you at your request has made you anxious for an account of my experiences, as well as fears, when I was left at Misenum,—for that was the point at which I broke off.

> Though my soul shudders at the memory,
> I will begin.

After my uncle's departure, I spent the rest of the day in study,—the purpose for which I had stayed at home. Then came the bath,—dinner,—a short and broken sleep. For several days before, an earthquake had been felt, but had caused the less alarm because it is so frequent in Campania. That night, however, it became so violent as to suggest that all things were being not shaken merely but turned upside down. My mother rushed into my room; I was getting up, intending on my part to rouse her, if she was asleep. We sat down in front of the house in the court which parted it by a short interval from the sea. I hardly know whether to call it intrepidity or inexperience,—I was in my eighteenth year,—but I called for a volume of Livy, and began reading as if nothing were happening,—indeed, I continued the extracts which I had begun to make. Enter a friend of my uncle's, who had just come to him from Spain: when he sees that my mother and I are sitting there, and that I am actually reading, he comments sharply on her patience and my apathy:—I pore over my book as intently as ever. It was now about 5 A.M., —the daylight still uncertain and weak. Shocks having now been given to the walls about us, the danger of their falling became serious and certain, as the court, though open to the sky, was narrow. Then it was that we decided to leave the town. A mob crazy with terror follows us, preferring their neighbours' counsel to their own,—a point in which panic resembles prudence,—and driving us forward by the pressure of the throng at our heels. Once outside the houses, we halt. Many strange and fearful sights meet us there. The carriages which we had ordered out, though on perfectly level ground, were swaying to and fro, and would not remain stationary even when stones were put against the wheels. Then we saw the sea sucked back, and, as it were, repulsed from the quaking land. Unquestionably the shore-line had advanced, and now held many sea-creatures prisoners on the dry sands. On the other side of us, a black and appalling cloud, rent by

forked and quivering flashes of gusty fire, yawned asunder from time to time and disclosed long shapes of flame, like sheet-lightning, but on a vaster scale.

Our visitor from Spain, already mentioned, now spoke more sharply and urgently :—"If your brother—if your uncle—is alive, he wishes you both to be saved : if he has perished, it was his wish that you might survive him : then why do you delay to escape?" We replied that nothing should induce us to take steps for our safety before we were assured of our kinsman's. Without further parley, our guest makes off, and takes himself out of danger as fast as his legs will carry him.

Not long afterwards the cloud already described began to descend upon the earth and veil the sea. Already it had enveloped and hidden Capreae. It had taken the point of Misenum from our sight. My mother then began to entreat, to exhort, to command me to escape as best I could; it was possible for a young man; she, with her weight of years and infirmities, would die in peace if only she had not caused my death. I answered that, if I was to be saved, it should be with her: then I seized her hand and made her quicken her pace. She complies reluctantly, and reproaches herself for delaying me. Now there are ashes, but, as yet, in small quantity. I looked behind me: thick darkness hung upon our rear, and, spreading over the land like a flood, was giving us chase. "Let us turn aside," I said, "while we can see, that we may not be knocked down in the road by the crowd about us, and trodden to death in the dark." Hardly had we sat down when night was upon us,—not the mere gloom of a moonless or overcast night, but such blackness as there is within four walls when the light has been put out. You could hear the shrieks of women, the wailing of children, the shouts of men. Parent, child, husband, wife were being sought, and recognised, by the voice. One was making lamentation for himself, another for his friends. Some were so afraid to die that they prayed for death. Many lifted their hands to the gods: a larger number conceived that there were now no gods anywhere—that this was the world's final and everlasting night.

People were even found who enhanced the real dangers with imaginary and fictitious alarms. Reports came that this building at Misenum had fallen,—that such another was in flames,—and, though false, were believed. By degrees light returned. To us it seemed, not day, but a warning of the approach of fire. Fire, indeed, there was,—but it stopped a good way off: then darkness again, and a thick shower of ashes. Over and over again we rose from our seats to shake off the ashes, else we should have been buried and even crushed under the mass. I might have boasted that not a groan or a timorous word escaped my lips in those grave perils, if the belief that I was perishing with the world, and the world with me, had not seemed to me a great, though a tragic, alleviation of the doom.

At length that darkness thinned into smoke, as it were, or mist, and passed off; presently we had real daylight,—indeed, the sun came out, but luridly, as in an eclipse. Our still affrighted eyes found everything changed, and overlaid with ashes, as with snow. We went back to Misenum, took such refreshment as we could, and passed a night of anxious suspense. Fear was stronger than hope; for the earthquake continued, and numbers of people were burlesquing their own and their neighbours' troubles by terrible predictions. Even then, however, though we had been in danger, and expected worse, we had no thought of going away until news should come of my uncle. These details, which are quite beneath the dignity of history, are for you to read,—not to record; and you must blame yourself,—you know, you asked for them,—if they seem unworthy even of a letter.

We also give a complete rendering of Dio's[1] less familiar account :—

Such were the events in Britain, and in consequence of them Titus was hailed "Imperator" for the fifteenth time. . . . But in Campania certain fearful and marvellous things befell; for about the end of autumn there was suddenly kindled a mighty fire. The mountain Vesuvius stands by the sea near Naples, and it holds inexhaustible wells of fire. Now once it was all of an equal height, and the fire arose from its midst; for in this part only has it been burnt, and the outer parts remain entirely unscorched even to this very day. But from this time forth (*i.e.* "from the time of the eruption"; or perhaps "in consequence of this"), since those parts always continue unburnt, while those in the midst are parched and turned to ash, the surrounding peaks still keep their old height, but all the fiery part, being exhausted in course of time, has become hollow through subsidence, so that the mountain, taken as a whole, to compare small things with great, resembles an amphitheatre. Its peaks carry trees and many vines besides, but the circle (of the crater) is abandoned to the fire, and sends up smoke by day and flame by night, so that much incense of every sort might seem to be burning therein. This much is always happening, sometimes to a greater degree, sometimes to a lesser; but often it throws up ash also, when some large mass has fallen in, and it sends up stones, when it is burst open by vapour; and it resounds and roars, inasmuch as its outlets are not completely closed but narrow and hidden. Such is Vesuvius, and these are the things which happen in it, as a rule, every year. But all that has befallen it in the course of years, tremendous though it may have seemed, in contrast to ordinary experience, to those who beheld it from time to time, would be insignificant beside what then befell, even though all were rolled into one. For it happened thus. Men, many and huge, surpassing all human stature, even such as the Giants are painted, appeared now on the mountain, now in the surrounding country and in the cities, by day and by night, wandering on the earth and going to and fro in the air. And thereafter came suddenly terrible droughts and mighty earthquakes, so that that whole plain seethed, and the peaks also leapt; and there were noises, some beneath the earth like thunders, and some above the earth like bellowings, and the sea roared with them, and the sky sounded with them. And afterwards there was heard suddenly a dreadful crash, as of the mountains falling together, and immediately there leapt up first huge stones, in such wise that they reached even to the very peaks, and next much fire and immeasurable smoke, so that all the air was overshadowed and the sun was altogether hidden, as though in eclipse; so it became night instead of day, and darkness instead of light. And some thought that the giants were rising up (for then also many phantoms of them kept looming through the smoke, and moreover a sound as of trumpets was continually heard), but others thought that the whole universe was consuming into Chaos, or into fire. So some fled from their houses into the streets, and others that were without fled in, and from the sea to the land, and from thence to the sea, inasmuch as they were panic-stricken and thought anything that was far from them safer than that which lay at hand. And while these things happened, at the same time untold store of ash was blown up, and

[1] Cassius Dio, lxvi. 20, 21, 22, 23, 24 (= Xiphilinus, 212-215, ed. Boissevain, Berlin, 1901, vol. iii. pp. 156 ff.).

filled the whole sea and air, and did much harm, as it befell in each case, to men and fields and beasts, and especially killed all fish and birds: and moreover it buried two whole cities, Herculaneum and Pompeii, while their assembly was seated in a theatre; for the whole tale of the dust proved so great that some of it reached even to Africa and to Syria and to Egypt, and some came to Rome, and filled the air over the city and overshadowed the sun. And there also no small fear befell for many days, since men neither knew what had happened nor could guess it, but they too thought that all things were being confused and overturned, and that the sun was vanishing into the earth and the earth rising into the sky. Now the ash at the moment did them no great harm (though afterwards it afflicted them with a pestilential sickness), but another fire, not subterranean, attacked a great part of Rome next year, while Titus was away because of the Campanian disaster. . . . So Titus sent to the Campanians two men of consular rank to settle the homeless persons, and gave them moneys, including the property of those who had died without heirs.

Zonaras gives an almost identical account; the only important difference is that he adds the explicit statement that these events took place in the first year of Titus' reign: a statement implicit in Dio's, that Titus had just been hailed "Imperator" for the fifteenth time.

The remaining passages relative to the eruption are so few and short that it will be best to give a translation of them all.

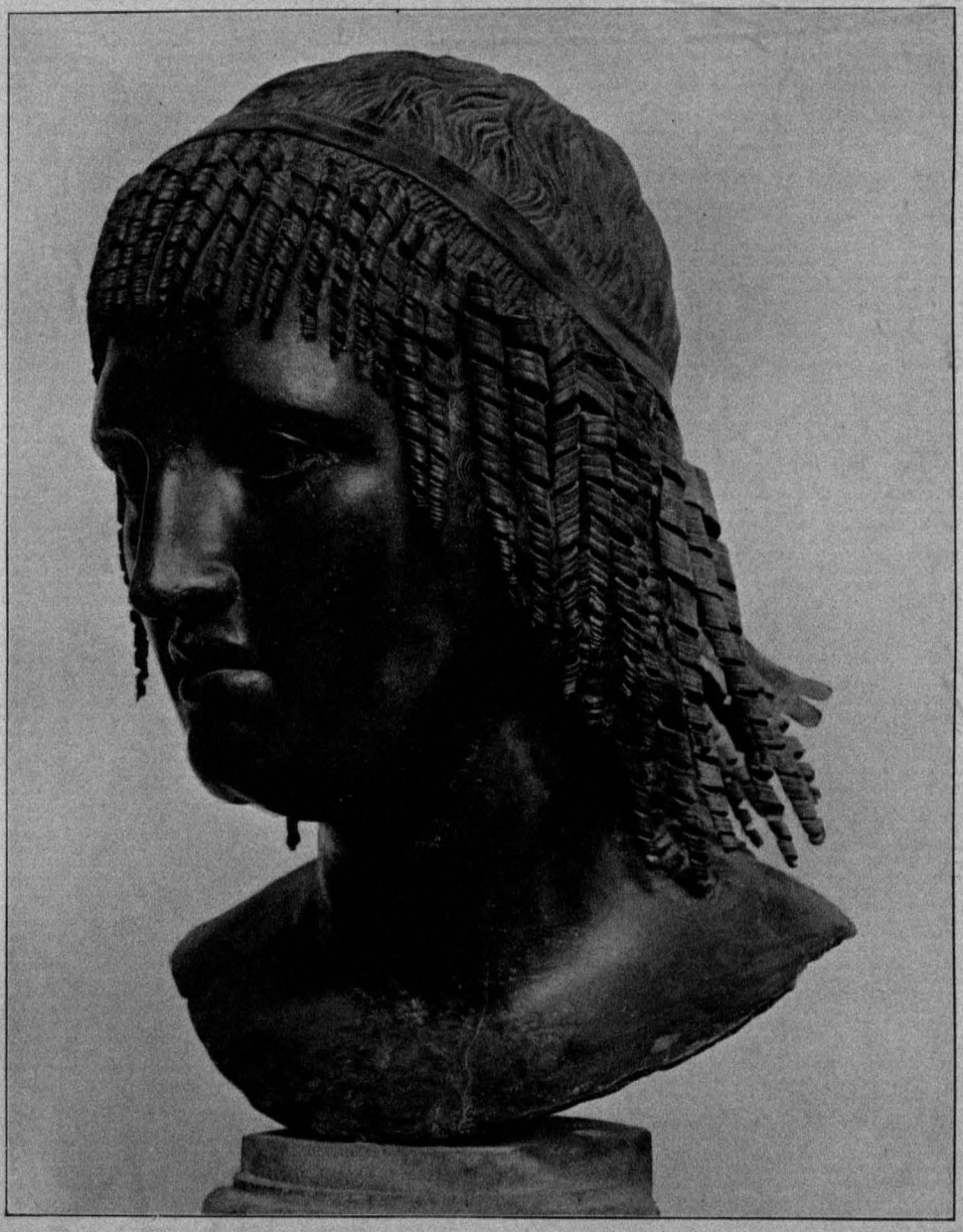
First, Martial, writing in 88 A.D., only nine years after the eruption, has the following epigram:—[1]

This is Vesuvius, lately green with the shade of the vine, here a noble grape weighed down the drenched vats: these ridges Bacchus loved beyond the hills of Nysa; on this mountain but now Satyrs joined in the dance. This was the home of Venus, lovelier to her than Lacedaemon, this place was made famous by the name[2] of Hercules. All lies drowned in flames and distressful ash: even the gods might wish that this had not been in their power.

The allusion to Venus refers to her position as the officially recognised patroness of Pompeii—"Colonia Cornelia Veneria Pompeianorum." The connection of Hercules and Herculaneum[3] has already been discussed.

Martial's contemporary and rival, Statius, seems to have written the following lines seven years later; they occur in the fourth poem of the fourth book of the *Silvae*:—[4]

[1] Martial, iv. 44. [2] *Or* "presence." [3] Part I. Chapter II., p. 89.
[4] Statius, *Silvae*, iv. 4, 78 to 85.



UNKNOWN BRONZE BUST. PLATE 22.

Life-size. ? Male or female. It is doubtful whether the curls are modern restoration.

These strains I struck for thee, Marcellus, on the Chalcidian shores, where Vesuvius roused his slumbering wrath, rolling forth conflagrations to rival the flames of Trinacria. Strange food for faith! Will the race of men to come, when crops shall grow here once more, when these wastes shall already be green, believe that beneath lie crushed cities and peoples, and that with the drying up of the sea vanished the fields of their ancestors? Nor yet does the peak cease from its deadly threatening.

Tacitus has a passing allusion—"The most fertile coast of Campania was swallowed or overwhelmed"—and so has Suetonius,[1] who records details of the measures adopted by the Government.

Lastly, Marcus Aurelius (iv. 48) exclaims: "And how many whole cities, so to say, have died, Helice and Pompeii and Herculaneum, and others also innumerable?"

The reader is now in possession of all, or almost all, the ancient literary evidence for the disasters of 63 and 79 A.D. It is obvious that its value is very unequal. Seneca, who was forced to commit suicide in 65 A.D., only two years after the earthquake, may be supposed to give a fairly accurate statement of its effects. Yet the passages have something of a rhetorical tone—Seneca was certainly no scientist,—and at the best the information which he gives us is somewhat scanty. For the eruption itself the younger Pliny is incomparably the most valuable authority. He was an eye-witness of much of what he describes, and we have[2] his assurance that his account is based upon his personal experiences, supplemented by inquiries made immediately thereafter. Nevertheless Ruggiero[3] and Herrlich[4] have done well to emphasise the shortcomings of his evidence. Ruggiero, for instance, calls attention to an alternative version of the death of the elder Pliny, recorded by Suetonius,[5] according to which he sought and obtained death at the hand of his slave: it is possible, but most unlikely, that the younger Pliny knew and ignored this account; he certainly

[1] Suet. *Titus*, viii. See Chapter IV.

[2] Plin. *Ep.* vi. 16. 21.

[3] Ruggiero, *Della Eruzione, etc.*, pp. 2 ff.

[4] S. Herrlich, "Die Antike Überlieferung über dem Vesuv-Ausbruch im Jahre 79" in *Beiträge zur alten Geschichte*, iv. 1904, pp. 230 ff.

[5] Suet., ed. Roth, Teubner, 1893, p. 300.

does not mention it. There is more force in Ruggiero's contention[1] that the distance of Misenum from Vesuvius makes it impossible that young Pliny can really have seen much of what took place, especially under such atmospheric conditions. Again Herrlich rightly insists upon the following points: that Pliny was not nineteen at the time, and did not write the letters in question till 106 or 107 A.D., twenty-seven or twenty-eight years later; and that he is at some pains to impress his readers with his edifying indifference to the details of these merely physical phenomena. Ruggiero attempts also to discredit Pliny's statement that his uncle tried to account for the burning of the villas round Vesuvius by supposing that they had been deserted, and had been set alight by the fires thus left burning; but we cannot accept his verdict that this statement is "incredible." Again, the faultiness of the extant manuscripts must not be overlooked. Ruggiero points out that in two important passages they are hopelessly corrupt: first,[2] in that which gives the *date* of the eruption; and secondly,[3] in that which contains the disputed word "Rectinae" or "Retinae." Yet, in spite of all reservations, Pliny remains our one important ancient witness. Dio adds little that can be trusted. He names the year of the disaster, which agrees with Eusebius' statement,[4] and he gives an interesting glimpse of the popular superstitions which gathered round the catastrophe — superstitions which find parallels in mediaeval devil-tales like that told by Saint Petrus Damianus,[5] and also in the beliefs of modern peasants.[6] The statement that "the assembly"—he apparently speaks of both cities—was seated in a theatre at the moment of the eruption is more startling than credible. Lord Lytton makes effective use of it in *The*

[1] Ruggiero, *Della Eruzione, etc.*, p. 2.
[2] Plin. *Ep.* vi. 16. 4.
[3] *Ib.* vi. 16. 8. The chief variants of both these passages are given in Appendix II.
[4] Euseb. *Chron.*, ed. A. Schöne, ii. pp. 158-9.
[5] In *Narrativo breve de maravigliosi esempi occorsi nell' incendi del monte Vesuvio circa 1038.* See Schneer and Von Stein-Nordheim, pp. 24 and 67.
[6] Cf. Schneer and Von Stein-Nordheim, p. 25.

Last Days of Pompeii,[1] but Herrlich points out that no human remains were found in the amphitheatre, which he maintains to be the only place where such an assembly could possibly have sat; and, moreover, that it is probable that no games took place in the amphitheatre after 59 A.D.[2]

Professor Hughes has kindly given the following discussion of the phenomena described by the younger Pliny:—

I quote here (he writes) such parts only of the story of the great eruption as bear upon the geological questions under consideration. First we learn that when the attention of Pliny the Elder had been called to the remarkable appearance of Vesuvius, he ordered a fast sailing cutter to take him to see what was going on; but just as he was starting he received despatches, from which he learned that matters were so serious that he changed his plans and ordered the fleet to be got under way, and with it he sailed with the intention of bringing help to the towns and villages on that thickly populated coast. One would like to know how these despatches were conveyed. If they were brought by land round by Naples and Baiae, that must have taken a long time; and if they were brought by sea across the bay it must have been in a rowing boat, as the wind was adverse. One cannot help wondering why the harbour of Herculaneum, which, as we have seen, was reputed to be safe in all weather, was not mentioned. Did Pliny think that Retina, the modern Resina, was in greater danger being nearer the crater, or was Retina more in the district covered by villas among which Pliny must have had many friends? Some authorities accept a reading which makes Retina or Rectina a person, not a place, in which case no towns are mentioned by Pliny.

We learn that there was an upper current of wind blowing from the crater by which the lighter material was carried over Misenum. But down below there was a wind blowing in the other direction which enabled Pliny to sail to the coast near Vesuvius and afterwards on to Stabiae, where Pomponianus could not get out because of the adverse wind, and where Pliny stayed and died.

The light ash dropped at last from the upper current into the lower, and, after Pliny the Elder had left with the fleet, it was seen by Pliny the Younger and his mother, coming along after them with the wind, like a thunderstorm drifting across the country in summer. When it overtook them they were in total darkness. This is all natural enough. Any one who has stood near a large bonfire knows how the lower air rushes in towards it while the sparks are drifting in the upper air in quite different directions.

This wind was favourable for Pliny the Elder, and he sailed away with his fleet to the nearest part of the coast to the source of danger, namely Vesuvius.

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[1] Lord Lytton, *The Last Days of Pompeii*, book v. chapter iv.; like Herrlich, he seems to interpret *θεάτρῳ* to mean "amphitheatre."

[2] Cf. Overbeck-Mau, *Pompeji*, pp. 13 ff. and 192; Nissen, *Pompeji-Studien*, pp. 107 and 127. In 59 A.D., the games were forbidden for ten years (cf. Tac. *Ann.* xii. 17), and it is doubtful whether the amphitheatre was ever put into proper repair after the earthquake of 63 A.D.

After the Elder Pliny and his fleet had sailed away, and when, owing to the threatening appearance of the sky, the Younger Pliny and his mother were escaping together from their house at Misenum, he says that he looked behind him and saw a dense cloud following them and spreading over the country. He suggested to his mother that they had better turn aside off the road while they could still see, for fear that, if they fell on the road when the darkness overtook them, they might be trampled underfoot by the crowds of people who had joined them in their flight. They had only time to get off the track and sit down when darkness overtook them, not such as they were familiar with when there was no moon, or when there were heavy clouds, but such darkness as there is in a closed room when the lights have been put out.

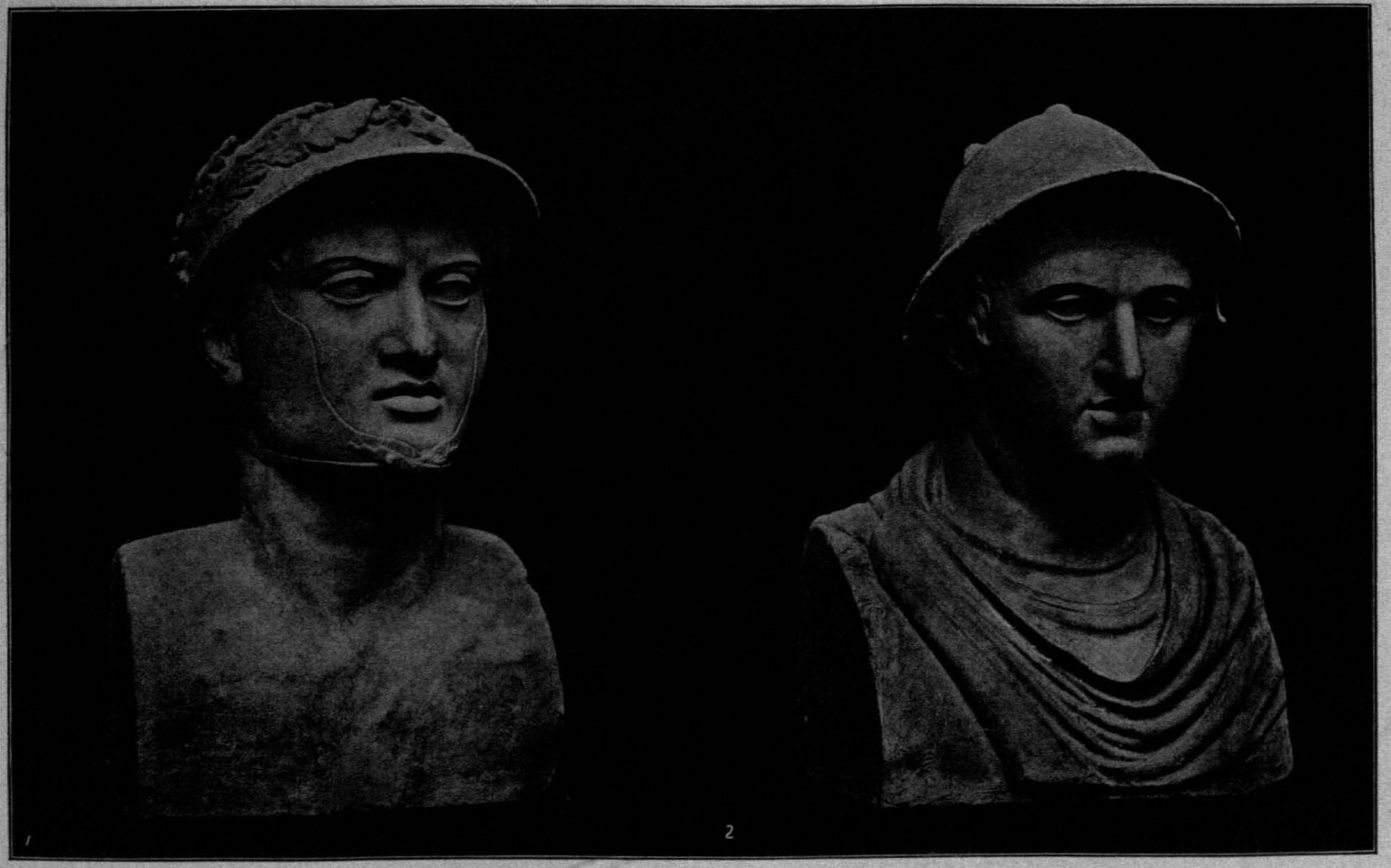
This was due to the cloud of ash which had been carried by the upper strata of air over Misenum and had gradually fallen by gravitation into the lower current which was being drawn in a southerly direction towards the volcano, and the falling ash, as in the case of a thunderstorm the falling hail or rain, only much blacker, was seen travelling towards them. It soon overtook them, and the rest of the account shows that it was falling ash.

As Pliny the Elder approached the coast, he found that the ash fell more thickly and the fragments of lava which dropped on the ships were larger and hotter; of course they were, because the heavier particles which fell nearer the source of eruption had not travelled far enough or through sufficiently cold air to have their temperature so much reduced as the ash that had been transported far through the higher regions of the atmosphere.

When Pliny the Elder got near the shore he perceived another source of danger. He came suddenly upon shallow water and banks of debris, carried down (by torrents) from the mountain, lying in his course—vadum subitum, ruinaque montis littora obstantia. They were not in danger "of being aground by the sudden retreat of the sea, nor from the vast fragments which rolled down from the mountain and obstructed all the shore." If an earthquake wave had caused a retreat of the sea it would have returned in a huge wave which must have destroyed his fleet. Moreover, no vast fragments can have rolled down from the mountain to the sea, and no such fragments are found in the ejectamenta of that eruption.

What really must have happened was that there had been already a tremendous fall of ash, and the steam from the crater had been condensed into torrents of rain which carried the light ash down the hollows into the sea causing shallow water (vadum subitum) all along the coast, and here and there opposite the principal outfalls forming banks (obstantia littora) which soon were raised above the level of the sea and effectually formed new shore-lines, as it were, facing him and preventing all access to the original coast. It was not that the shallow water was suddenly formed by the retreat of the sea or in any other way, but that he came upon it suddenly. This material of small specific gravity so easily transported by the torrents along the valleys and water-courses was in time spread by the action of the wind waves, and still we read on the Admiralty Charts "cinders, cinders" out to thirty fathoms depth all along that coast. The plan of this part of the coast given by di Jorio gives a very good idea of the general appearance of the shore, and of the change produced by the immense volume of ash washed down the ravines and forming a delta where there had been a harbour.

The wind was still favourable for Pliny, who proceeded to Stabiae, where he found Pomponianus anxious to leave, but unable to do so until the wind changed.



TWO MARBLE BUSTS OF WARRIORS.

PLATE 23.

? whether No. 1 represents Pyrrhus.

It is curious that we have no mention of the possibility of propelling these galleys by oars.

Pliny the Younger gives a very circumstantial account of his uncle's death. He retired to rest and fell asleep, for he was heard snoring. They called him not because there seemed to be any deleterious fumes or any increase in the paroxysmal action of the volcano, but simply because they feared that if they left him there longer he could not get out at all, owing to the accumulation of scoriae and pumice outside the door of his room. Then they had a consultation as to what had best be done. Some were for leaving the house, but the reason given was not that the roof might be crushed in by the weight of ash upon it but that the whole house might be thrown down by the rapidly recurring earthquake shocks; and, when some of them climbed on to higher ground inland to get a better view and ascertain whether it would be safe to push out to sea, they saw that the sea continued raging and tempestuous. That seems to point to submarine disturbances, but we do not find any reference to this as he was putting in to shore off Retina. Though it was day he states that they were surrounded with darkness blacker and more dismal than night; we must suppose, therefore, that the landscape was lighted up by flashes from the mountain, and that it was this which enabled them to see as far as the sea.

The fall of ash, which had been so heavy that his friends and servants roused him and made him leave the house for fear the doors should get jammed and the passages blocked by the rapidly accumulating heaps, must have been intermittent both as regards quantity and the size of the fragments, as indeed we see in any section on the volcanic deposits in that area, for when his servants returned to look for him they did not find him buried under ash, but lying quietly as if he had passed away in sleep with his clothes not burnt or torn. The fine ash and the gas might well have choked a young and vigorous man held down by circumstances, but was much more likely to be fatal to an elderly corpulent person who already suffered from difficulty of breathing. The whole story is quite consistent with what is recorded of the eruption and with what is seen during excavations.

Vesicular lava is molten rock full of bubbles of gas by which it has been blown out, as bread "rises" by the development of bubbles within the dough. When fragments of lava are getting broken up or crushed, the gas is given off; and it is probable that in most cases when we read of mephitic vapours and fetid smells accompanying showers of ash, it is the escape of these included gases which has been perceived. We can observe an easy illustration of this on roads repaired with slag. If we break any of the vesicular fragments, or heavy wheels pass over it, we smell the gas held in the slag.

Any one lying down on such fragments, especially where newly ejected material was being showered down upon him, would certainly experience great discomfort if he escaped fatal results.

Now it is most probable that the death of Pliny the Elder was due to suffocation, caused partly by the fine dust which fell thickly like that which in the eruption of A.D. 1906 succeeded the fall of lapilli at Ottajano. It may have been caused partly also by the noxious gases given off by the ashes on which he was lying and which were still falling around.

In conclusion, it may be said that we learn from the evidence of eye-witnesses that the volcanic activity of Vesuvius in the first century A.D. followed the course of a normal eruption. First "tectonic earthquakes," then after a considerable time,

in this case sixteen years from the first shock, the lava reached the surface, came in contact with water, and produced all the phaenomena of an ordinary eruption, namely "Volcanic earthquakes" due to explosions, ejection of ash, etc.; but there is no mention of lava flows on this occasion as the lava was blown out, as volcanic bombs or splutterings which fell on the crater, but did not overflow or run out through side openings.

Of the subsequent history of Vesuvius a brief sketch[1] must here suffice. The next recorded outbreak occurred in 203, and lasted seven days; it was audible at Capua. Among the most noticeable of later eruptions are the following:—First, those of 306 and 471 are both said to have caused alarm as far as Constantinople; and the ashes from the latter eruption (which lasted till 474) are said to have reached that city. The first recorded lava-streams flowed in 513, and more appeared twenty years later. In the great eruption of 1306-1308 lava burst from the sides of the mountain as well as from the crater.

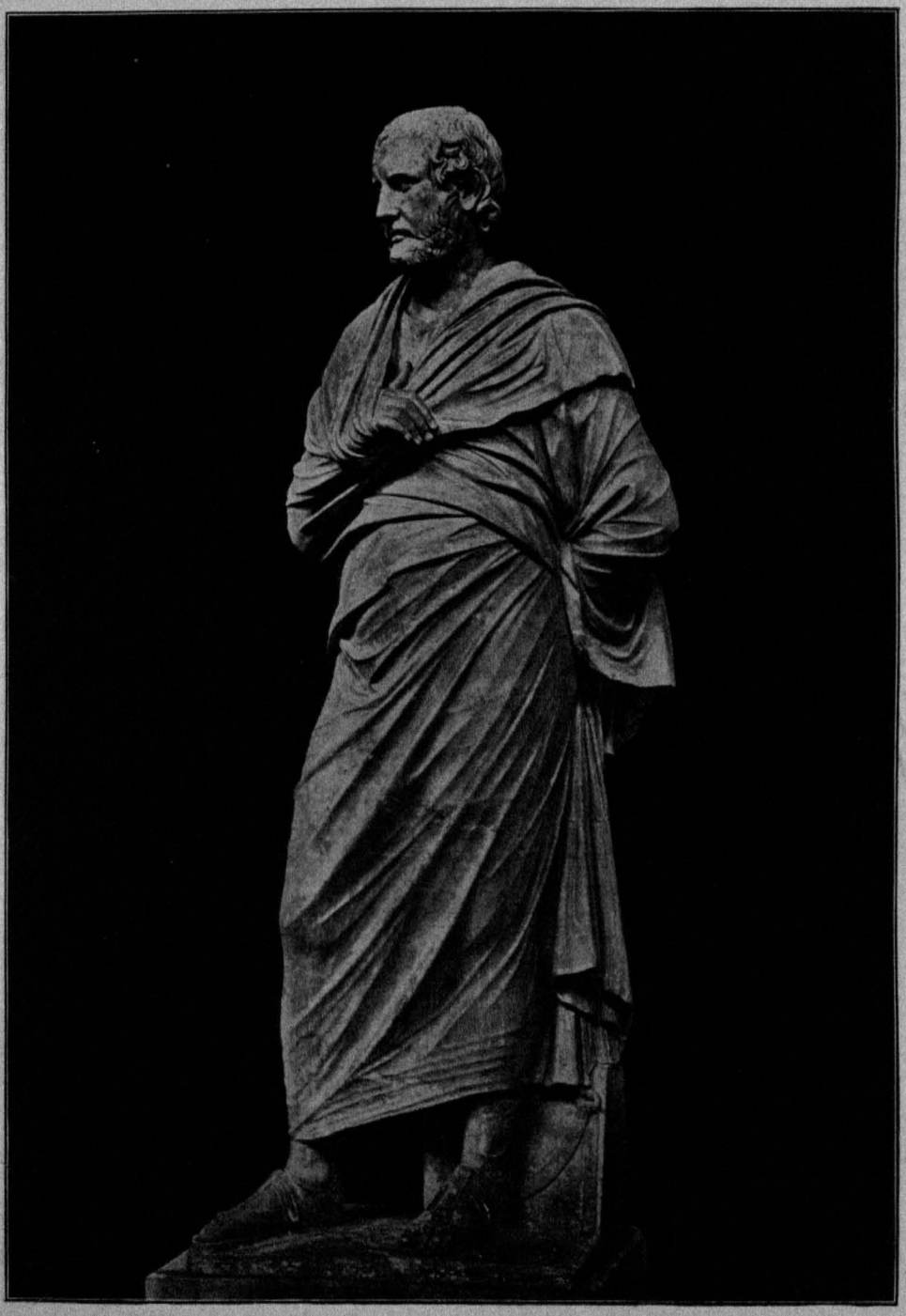
From 1500, or it may be even earlier, nothing is recorded of Vesuvius until the appalling outburst of 1631. From 1631 till the present day it has only twice rested for more than thirty years at a stretch, and there have been as many as twenty-five distinct eruptions, one of which lasted for twenty and one for sixteen years. We have no space to give details of all these; it will be enough for our present purpose to point out that the lava of 1631 seems to have flowed in two streams each side of the site of Herculaneum,[2] at some distance from it, which it barely touched; and that no subsequent eruption of lava has affected it at all.

We must now examine the evidence for the nature of the disaster afforded by an examination of the existing remains. The condition of the volcanic material at Herculaneum differs very remarkably from that of Pompeii. At Pompeii[3] we find in all parts of the city, whatever their level, a uniform stratification of "lapilli" or small fragments of pumice-stone, averaging approximately the size of a walnut, though sometimes a good

[1] We follow throughout Schneer and Stein-Nordheim.

[2] See Beloch, *Campanien*, p. 228.

[3] See Mau-Kelsey, p. 20.



MARBLE STATUE OF AESCHINES. PLATE 24.

deal larger, to the depth of eight or ten feet, and above them sometimes hardened volcanic dust to the depth of six or seven feet. The "lapilli"[1] have sharp edges and points, and the whole circumstances show beyond a shadow of doubt that they must have fallen simultaneously, and that their fall must have been followed by a rain of volcanic dust, afterwards hardened by water. The details of the excavations[2] confirm the view that all the volcanic matter at Pompeii fell from the sky; and Pliny's two letters directly attest it. Lippi's[3] rash assertion that Pompeii was destroyed "by water and not by fire" was exploded as long ago as 1843.[4] But the condition of Herculaneum is utterly different. There we find the whole city covered and penetrated by a mass of matter[5] consisting of earths of various kinds, sand, ashes, fragments of lava, "pozzolane" and whitish pumice-stones, and containing uncalcined grains of lime. And all these are mixed in inextricable confusion and rubbed smooth and round.[6] The tuff has penetrated every nook and cranny of the city. The depth of this deposit is very remarkable. In parts it exceeds sixty-five feet.[7] The preservation of roofs and the like,[8] and the absence of regular stratification in the tuff, seem to show that it cannot have fallen as at Pompeii; and it certainly could not have travelled four and a half miles in a dry state.[9]

Concerning the probable manner of the destruction of Herculaneum, Professor Hughes writes as follows:—

It used to be commonly said that Pompeii was buried under ashes and

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[1] cf. Ruggiero, *Della Eruzione, etc.*, p. 23.

[2] For instance, objects however much broken are always found *in situ* unless they have been carried off by human hands; see Ruggiero, *Scavi, etc.*, p. vi.

[3] See Bibliography. C. Lippi, *Fu il fuoco o l' acqua che sotterrò Pompei e Ercolano? Scoperta geologico-istorica, etc.*, Naples, 1816.

[4] By Professor Scacchi, in *Bullettino archeologico napolitano*, March 1843. See Ruggiero, *Della Eruzione, etc.*, p. 23.

[5] See Ruggiero, *Della Eruzione, etc.*, p. 21. [6] Ruggiero, *Scavi, etc.*, p. vi.

[7] Cf. Mau-Kelsey, p. 21; Ruggiero, *Scavi, etc.*, p. i.

[8] *e.g.*, in the case of the temple excavated between September 1757 and April 1760; see especially day-books for January 19, 1760, and cf. Part I. Chapter I.

[9] Cf. Ruggiero, *Della Eruzione, etc.*, p. 22.

Herculaneum under lava. This was probably suggested by the great masses of lava belonging to the eruptions of A.D. 1631, which ran down the rich slopes north and east of Herculaneum and probably did flow over the ash under which many a splendid villa lay buried deep. This view was strengthened when it was reported as the result of excavations that it was difficult to extract the treasures of Herculaneum because the ground in which they were buried was so hard. But the lava of A.D. 1631 and 1794 (see map) did not touch the villas which had been buried centuries before under a vast accumulation of what probably fell as dry ash, except where caught by the rain. Nor did these later lava flows go near the town—because, when a stream of lava cooled it formed a ridge on which the towns and villages were afterwards built, and subsequent flows did not follow the ridge, but the hollow ground on either side of it.

By and by it was realised that Herculaneum had not been originally overwhelmed by lava but by a volcanic ash which had become consolidated and was in places exceedingly hard. This material is known under various names—Tuff, Volcanic tuff, Tufo, Tufa, Peperino, Piperno, Trass.

Tuff is the word most commonly used when the ash is so far consolidated as to break into lumps. Volcanic tuff was introduced because the word tuff was applied also to calcareous tuff or calc-tuff, as it is abbreviated, which is the same as travertine, so largely used in building. This is the more or less porous rock formed by the precipitation of the carbonate of lime from such waters as those of Tivoli, the ancient Tibur, from which "Lapis tiburtinus," shortened into "travertino," was derived. It owes its porous or vesicular texture to irregularity of deposition or the occurrence of vegetation, moss, grass, etc., over which the saturated water splashed. Although volcanic conditions are favourable for the formation of travertine, there is nothing volcanic about it, for it may be formed under a bridge, in a cave, or anywhere. It was once proposed to apply the Italian word tufa to the volcanic tuff, and tufo to the calcareous tuff, but the suggestion has not found favour. Ordinary volcanic tuff is often very calcareous from fragments of limestone thrown out with the ash or the carbonate of lime interstitially redeposited, and the consolidation of the ash into a hard cement, or even less hard but still solid mass of tuff, depends among other things upon the presence of this lime. Trass is the German word used in exactly the same sense as volcanic tuff. What we have to consider in Herculaneum is *tuff*.

The deposits which cover Pompeii are simpler and more easy to examine, and yet belong to conditions so similar to those which we have to do with in Herculaneum that we must refer to them.

Pompeii was built upon the rising ground formed by a great lava flow, but no lava has ever invaded the city. The dust and ash and pumice show distinct stratification, but there is nothing to give us the date of the several layers. Over one part of the ruins we find traces of ponds with the components of the ash sorted by water.

When we have a layer composed largely of leucite crystals we may explain it by supposing that the material had been resorted by water or that a loosely compacted lava containing leucite crystals had been blown into the air, when of course the solid crystals would fall faster than the ash, and therefore be arranged in separate layers. There is a good example by the house in Pompeii with the amphoras built into the wall.

Here also we see evidence that the ash was consolidated after it had fallen, and

that it is not necessary to suppose that any hardened mass was once a sort of mud river; for there are plenty of sections in which the upper part, as far as the rain water had soaked in, is a fairly solid tuff, while the lower part is a loose dusty ash.

Now if we turn to Herculaneum we find the same thing; some of the tuff is hard and solid, while some can be easily scraped away with a knife. In the wall of rock left around the new excavations on the side nearest the sea the material is a dark red or gingerbread-coloured mass that stands easily in a vertical cliff fifteen or twenty feet high but is easily cut. Of course, where such a deposit has got wet and hardened against mortar or plaster it unites with it, so that large pieces of the wall and adjacent tuff break away together.

The tuff which has buried the theatre is similar, and most of it can be quarried or removed from sculpture or other objects of interest without difficulty and without injury to the marble or bronze. These great masses of ash are of a very uniform degree of coarseness, more so than we should expect in such a material had it been showered down in one or in many eruptions, but we do find that after the first winnowing has taken place in the upper regions of the atmosphere, there is a great uniformity in the finer portions; and when in addition to this we have reason to believe that the falling and fallen ash was caught and carried down the slopes and hollows by the heavy rain, we see that a further sorting must have taken place, and the deposit is just such as would be produced by continuous accumulations of rainwash, in which the water would have picked up and transported to the same place ash of the same size and texture. The loams left by flood water and the ordinary rainwash at the bottom of any slope are generally very uniform in texture, except where lines of coarser material have here and there been washed out and carried along, and such lines of larger fragments are not unknown in the tuffs of Herculaneum.

Herculaneum then is buried not under lava, rarely under natural cement, but generally under locally consolidated tuff; and, seeing that we have reason to believe that at least as much ash has fallen since the first century A.D. as fell in 79 A.D., the first thing to do is to endeavour to distinguish between the successive eruptions. If we could find at the bottom of a layer of ash just enough pottery or other relics to enable us to identify it as belonging to the seventeenth century or earlier, that line should be traced with the greatest care. In this way we might feel our way back into the more remote past, and perhaps somewhere make out upon satisfactory evidence how deep some part of Herculaneum was buried in the eruption of 79 A.D. If we could find anywhere such a base line, and trace it to where we have reason to believe the ground rose, and the original covering was not so deep, we might make out how it was possible that some of the inhabitants returned and lingered about for ages. Tentative research by shafts, by finding and following roads, sea-walls, etc., is obviously one of the methods to be adopted; but we may also suggest that an attempt to disentangle the various strata that now so irregularly cover the city and its surroundings, that are not from the nature of the case likely to differ in mode of origin, depth, and composition, and to trace and record all the observations bearing upon this question, would be a most suggestive piece of work, and one likely to reduce the labour and expense of further exploration.

We must not assume that it is at all a common thing to have large bodies of water discharged from a volcano. The idea has generally arisen from the tremendous rain which is caused by the condensation of the vast columns of steam

which are seen to rise with the ash from the crater. If the water of a crater-lake like those of the Eifel or the Alban Hills or Avernus is emptied out by the heaving of the ground within the crater, or let out through rents in the shattered cone, there will of course be a great flood caused; but, though some ponds are mentioned, we have no evidence of any such lakes within Vesuvius.

Nor can tuff like that seen in Herculaneum be due to a flow of mud from the volcano. The ingredients are not such as occur within the crater except where derived from the small proportion of this finely divided material which falls back into the crater, and when this happens it is generally boiled up again in the seething lava. To reduce it to the state of dust, ash, pumice, cinders, it has to be shot out, made vesicular or even burst by expansion, triturated in rising and falling, and spread far and wide in accordance with its specific gravity and size. Then it can be carried by water and still further sorted and rearranged.

The mud of a mud volcano is a very different thing; it is boiled and stirred by the force of gases and steam, and often with much of its silica carried off in solution is reduced to the finest mud, quite different from the brecciated rock of Herculaneum.

The colonnade behind the theatre was discovered so utterly smashed and wrecked[1] that nothing remained but the gutter and broken fragments of the columns; and the three small shrines and the bronze statues which stood upon the top of the circular outer wall of the same theatre had been carried off, and their broken remains[2] were found partly inside and partly outside the theatre. Moreover,[3] the only exterior arch of the theatre which contained statues still upright at the time of their excavation was that facing the sea, *i.e.* on the side farthest from Vesuvius.

It will perhaps be remembered[4] that the so-called Basilica,[5] and the street running to the sea in the "Scavi Nuovi,"[6] which probably leads down from it, were both found strewn with fragments of statues of all sorts—of bronze and marble in the Basilica, but apparently of bronze only in the case of the street. The comparative lightness of the hollow metal accounts for this difference perfectly; and it is clear that these facts support the theory of torrential rains.

It is satisfactory to note that so distinguished an authority

[1] Ruggiero, *Scavi, etc.*, p. xxi. [2] *ib.* p. xxiv.
[3] *ib.* p. xxii and p. 8; see day-books under December 12, 1738, ff.
[4] See Part I. Chapter I., pp. 72 and 77.
[5] Ruggiero, *Scavi, etc.*, p. xxxvi. [6] *ib.* p. li.

as Professor Flinders Petrie has accepted a form of this theory; nevertheless we cannot avoid calling attention to certain inaccuracies in his presentation of it. In order to do him justice it will be necessary to quote his remarks *in extenso*. They were published in the form of a note to a report of a lecture upon Herculaneum by Professor M'Kenny Hughes, in the *Cambridge Chronicle* for November 23, 1906 :—

NOTE ON HERCULANEUM

In view of systematic excavation I wish to call attention to some points which are perhaps not sufficiently in view.

The great find of bronze figures—the Hermes, Faun, and Satyr—are of most exceptional nature; they are all bronze and no marble was with them; being hollow, they are all lighter than volcanic mud; and they are all unattached to their bases. Now the great majority of figures are of marble, and nearly all are attached to bases by their feet. These three figures are thus a most peculiar class, of which there would probably not be three in a hundred, or even a thousand average figures.

On inquiry of a guardian at Herculaneum, as to where these bronzes were found, he pointed out the cliff at the end of the main street that is open. This accords well with their nature. They were unattached, and lighter than the flow of volcanic mud, and would thus be floated off their pedestals by the wave of mud which spread over the town. They would flow forward with it, and falling over on the mud as it fell over the cliff they would be entangled in the stiff paste and so lie as found, at the end of the wide street down which the mud flowed between the houses.

The conclusion from this fitting of the facts is that these probably came from among a far larger number of fixed figures and marble figures, which would not float with the mud. And that if the street line be followed up it should lead to the agora, or some other large open site, where the far larger number of fixed statues will be found still in position. I have wished to try this chance for ten years past, but as others now have the opening, I give the clue for what it may be worth. At least a tunnel up the street line would be as good an attempt as any other.

It is clear that Professor Flinders Petrie here refers to the three statues numbered 5625, 5628, 5624 respectively, in the Museo Nazionale, which are the only ones ever found at Herculaneum answering to his description. They are, first, the famous Hermes seated upon a rock[1]; secondly, the "Fauno

[1] See Plate I. in this book; and Plate XIII. No. 2 in Comparetti and De Petra, *La Villa Ercolanese, etc.*, 5625 in Mus. Naz.

ebbro"[1]; and thirdly, the "Fauno dormiente."[2] It is perhaps doubtful which of the two last is Professor Flinders Petrie's "Faun," and which his "Satyr"; but the point is quite immaterial.

Now we know beyond a shadow of doubt, from the original journals of the excavation,[3] exactly when and where every one of these statues was found. The parts of these journals relating to these statues were printed in full and carefully discussed by Comparetti and De Petra, in *La Villa Ercolanese, etc.*, as early as 1883, and reprinted, with the rest of the surviving portions of the journals, by Ruggiero, in his *Storia degli Scavi di Ercolano*, in 1885. All three statues were found in the "Viridarium" of the "Villa Suburbana"[4] or "Casa dei Papiri," the country house lying north-west of Herculaneum. Its nearest point is more than 250 metres north-west of the spot which the "guardian" indicated to Professor Flinders Petrie. The Hermes was found on August 3, 1758, the "Fauno ebbro" on June 13, 1754, and the "Fauno dormiente" on March 6, 1756; and all three were figured in 1771 in the second volume of the *Bronzi di Ercolano*.[5] Excluding portrait statues, busts, and statuettes, no other at all perfect bronze statues were found in the whole course of the excavations, except ten more in the same villa; and not one was found in the place named by Professor Flinders Petrie.

It would seem, therefore, that the statement quoted by Professor Flinders Petrie was quite inaccurate; and it is difficult to accept the picture which he draws of three hollow and fragile bronzes dropping uninjured over a steep cliff, after floating at the very least one hundred metres[6] upon a "wave of

[1] See Plate III. in this book; and Plate XIII. No. 1 in Comparetti and De Petra, *La Villa Ercolanese, etc.*, 5628 in Mus. Naz.

[2] See Plate III. in this book; and Plate XV. No. 1 in Comparetti and De Petra, *La Villa Ercolanese, etc.*, 5624 in Mus. Naz.

[3] See Part I. Chapter IV.

[4] See Chapters I. and IV. of Part I., and the plan of the "Casa dei Papiri" (Pl. 48).

[5] See Bibliographical Appendix.

[6] This is the distance from the point named by Professor Flinders Petrie to the point where the street disappears into the earth.

mud," which strewed the whole street of which Professor Flinders Petrie writes with innumerable fragments of bronze statues of every sort.[1] There is, in fact, as we said above,[2] considerable evidence that most unprotected statues were broken to pieces. It may, moreover, be remembered that in the first chapter[3] we showed that there were grounds for believing that the "Basilica" stands at the head of the street in question, beyond the great "Via Porticata"; and that besides the statues found in niches in that building, and in consequence comparatively uninjured, there were found there countless fragments of bronze and marble statues of all sorts.

To expect, therefore, to find marble and bronze statues retained in position uninjured, through their fixed feet, in the full course of the torrent, in "the agora or some other large open site" at the head of this street, seems to argue an imperfect acquaintance with the history of the excavations of Herculaneum.[4]

It is worth noting that both Ruggiero[5] and Herrlich[6] believe that the "subitum vadum" or "sudden shallow" of which Pliny speaks, was caused by "the mud-stream" entering the sea. Wolters,[7] however, contests this, and maintains that the change of level was due to convulsions of the earth's crust. He points out that Pliny[8] records a similar phenomenon at Misenum, where there was certainly no such stream. In this view, indeed, he is merely repeating that of Sogliano,[9] who, writing three years before Herrlich, had already shown reason for supposing that the "vadum subitum" was encountered just opposite Pompeii, and therefore could not have any connection

[1] See p. 77, above. [2] See p. 118, above. [3] See Part I. Chapter I.

[4] We must confess that we are astonished that a scholar and excavator of Professor Flinders Petrie's experience and reputation should have founded his communication on a statement made by an ignorant guide, and should have seen fit to express views on a matter of such importance without studying the extensive literature of which he seems ignorant.

[5] Ruggiero, *Della Eruzione, etc.*, p. 22.

[6] Herrlich, *op. cit.* in *Beiträge zur alten Geschichte*, iv., 1904, pp. 200 ff.

[7] Wolters, in *Beiträge zur alten Geschichte*, v., 1905, pp. 333 ff.

[8] Pliny, *Ep.* vi. 20. 9.

[9] Sogliano, *Studi di Topografia Storica e di Storia Antica, etc.*, Naples, 1901, pp. 15 ff.

with the stream of Herculaneum, and had, like Wolters, brought it into connection with the upheaval at Misenum. Professor Hughes' opinion has already been given.

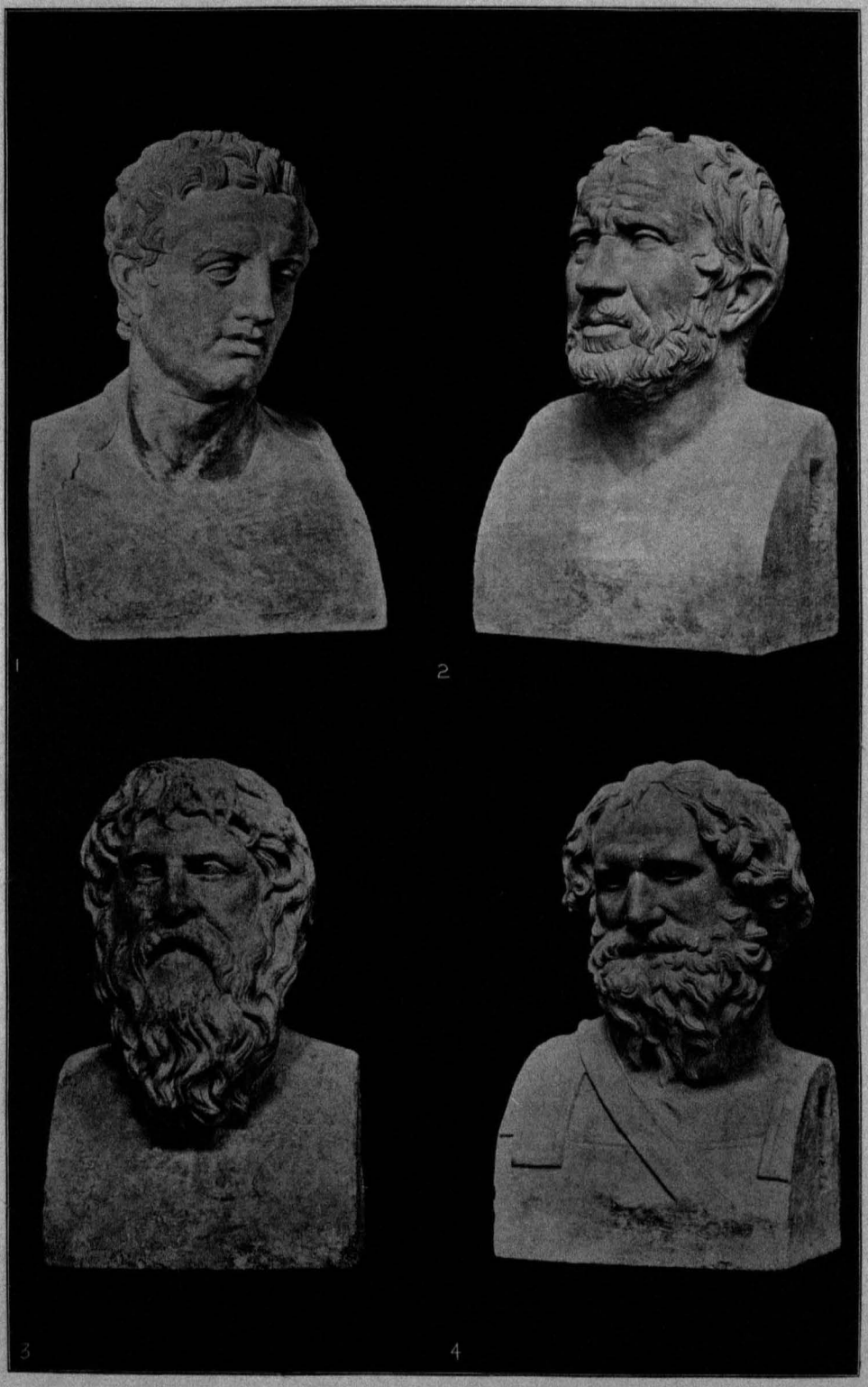
We must now say something of the condition of the objects hitherto discovered at Herculaneum. It will be best to begin with a list of the principal articles preserved, excluding those of an architectural or artistic kind: to enumerate these also at this point would occupy far too much space; moreover, the buildings have already been described, and a list of the principal works of art, as complete as we have been able to make it, is given in Appendix III.

The finds[1] include inkstands, styli, inscribed tablets, papyri; castanets, a *sistrum*; surgical instruments, including what are believed to be probes, chiefly of bronze, but a few of silver, and glass cupping-glasses; a pear-shaped bronze plummet, and a jointed Roman foot-rule; an anvil, a saw, hammers, picks, hatchets, chisels, an iron crowbar, a small grappling-hook, scissors, mattocks, and a rake; weights from a loom, several bone spindles, thimbles, pincers, long needles, a bronze mesh for weaving nets; a butcher's shop, with knives, a pair of scales, and ox-bones; a great number of fish-hooks, sometimes weighted with lead; ropes of broom; endless heaps of cord of every thickness, especially in places near the sea, and in one case with wooden floats, and nets; many strigils, six bone tickets numbered for the spectacles, shoe-soles made with pack-thread, dice, tops, and marbles; four seals, two of which were not read, while the others bore respectively the following legends: Q·MAECI·THEVGAE[2] and C·MES·EVVOM.[3]

The chief eatables and seeds are these (we exclude what Ruggiero calls "le favole sognate dal Bonucci," apples, coagulated oil, and paste made with milk): many snails and sea-shells, bread, grain in abundance, barley, beans, carob-pods, almonds, dates, pears, plums, cones, figs, grapes, pomegranates,

[1] This list is based upon that given by Ruggiero.

[2] *Corpus Inscriptionum Latinarum*, x. pr. 2a. [3] No. 8058, 48 and 51.



FOUR MARBLE PORTRAIT BUSTS. PLATE 25.

Life-size. ? Ptolemy Soter, ? Zeno of Citium, ? Anacreon, ? Archidamas II.

nuts, chestnuts, millets, lentils, poppy-seeds, and other unidentified seeds and vegetables.

Of household furniture was found a shovel to turn grain, three besoms, a portable ladder with five rungs; three cupboards or bureaux, one of which had bronze fittings, a drawer above, and two small doors below; an arm-chair inlaid with bone, and a bench with a carved back.

From De Venuti's *Descrizione della prime scoperte dell' antica città di Ercolano ritrovata vicino a Portici, etc.*, 1748, we add the following objects (we quote from the translation of Wickes Skurrey, London, 1750): "A brass instrument-case, which being opened was found to contain a small thin Roll of Silver, wrote full of Greek Characters; and as in the unrolling, it happened to break; his Majesty thought it advisable to put it up in his Cabinet for the present, lest by anybody's indiscreet Curiosity it might be destroyed": of eatables we find mention of "Eggs miraculously preserved," and of "an Oven stopped, which being opened had a Pye within in a Metal Pan, about one Palm and a half diameter; the Pye being burnt to a Coal (nevertheless one might perceive the Ornaments of the Crust) fell in Pieces in the Dish, which was carried to the King." The box containing the silver roll with a Greek inscription is also mentioned and described by a writer in the *Mercure de France* (December 1752; Naples, September 25): *L'autre est un volume fait d'une lame d'argent mince comme du papier. Le caractère qui paraît en dehors est grec, il est malheureusement un peu maltraité, et l'on craint avec raison de l'effacer encore davantage en le déroulant pour le lire.* Who knows what it may not have contained—perhaps an Ode of Sappho? In any case search ought to be made in the proper quarter for this treasure, as it has now disappeared.

Better fortune awaited another curious little find, which may still be seen[1] in the National Museum at Naples. Venuti

[1] Mus. Naz. 3725: figured in *Bronzi di Ercolano*, tom i. pp. xliii and xlv (1771); in *C.I.L.* x. 1, 1402. It was found March 19, 1746.

quotes the following account of it from an anonymous *Account of the Searches made in the Village of Resina, by Order of the King of the Two Sicilies*, communicated to Professor Gesner of Göttingen by the Bishop of Brescia in 1749: "'Tis not a year since there was a Report in this Metropolis that they had found a Book of Brass, consisting of only four Leaves, with Writing engraved on both sides, containing a Dismission of the Soldiers of the Place, where the search was made, having Clasps, etc. A Thing which is not in the Possession of any other Monarch: It could not be read by the Learned, as the King keeps it under Lock and Key."

To this we must add a series of finds hitherto seemingly almost overlooked—namely, one hundred and sixty-seven gold objects, chiefly rings and bracelets: the silver objects amount to more than a hundred.[1] These facts are a striking indication of the wealth and prosperity of Herculaneum.

[1] For all these see Appendix III.

CHAPTER IV

THE HISTORY OF THE SITE SINCE THE ERUPTION

THE history of the site of Herculaneum from the eruption of 79 A.D. till the beginning of the eighteenth century is difficult to trace. We learn from Suetonius[1] and from Cassius Dio[2] that the Emperor Titus chose by lot two commissioners of consular rank to deal with the situation after the disaster, and that part of the money which he devoted to this purpose was derived from the property of those who had died without heirs. The two statements are almost identical in form, save that Suetonius alone mentions the method of appointment, and Dio alone the number appointed. But it does not appear that any attempt was made to restore any of the buried cities. There is some evidence that the surviving inhabitants of Herculaneum were received by the Neapolitans, and formed the Regio Herculanensis or Herculensis of Naples, for the existence of which we have evidence both literary and epigraphical. The matter is somewhat obscure, but a full discussion of the evidence may be found in the article "De Herculanensi Regione Neapoli," by J. A. Galante, in *Pompei e la Regione Sotterata dal Vesuvio nell' Anno LXXIX*, Naples, 1879. How early the site of Herculaneum was reoccupied is a matter of dispute. In the famous "Tabula Peutingeriana,"[3] whose archetype probably dated at latest from the third century of the Christian era, *Herclanium* and *Portici* are marked more or less on the

[1] Suet. *Titus*, viii. [2] Cass. Dio, lxvi. 24. 3.
[3] Cf. Dr. Sophus Ruge in *Encyclopaedia Britannica*, ed. ix. vol. 15, p. 517.

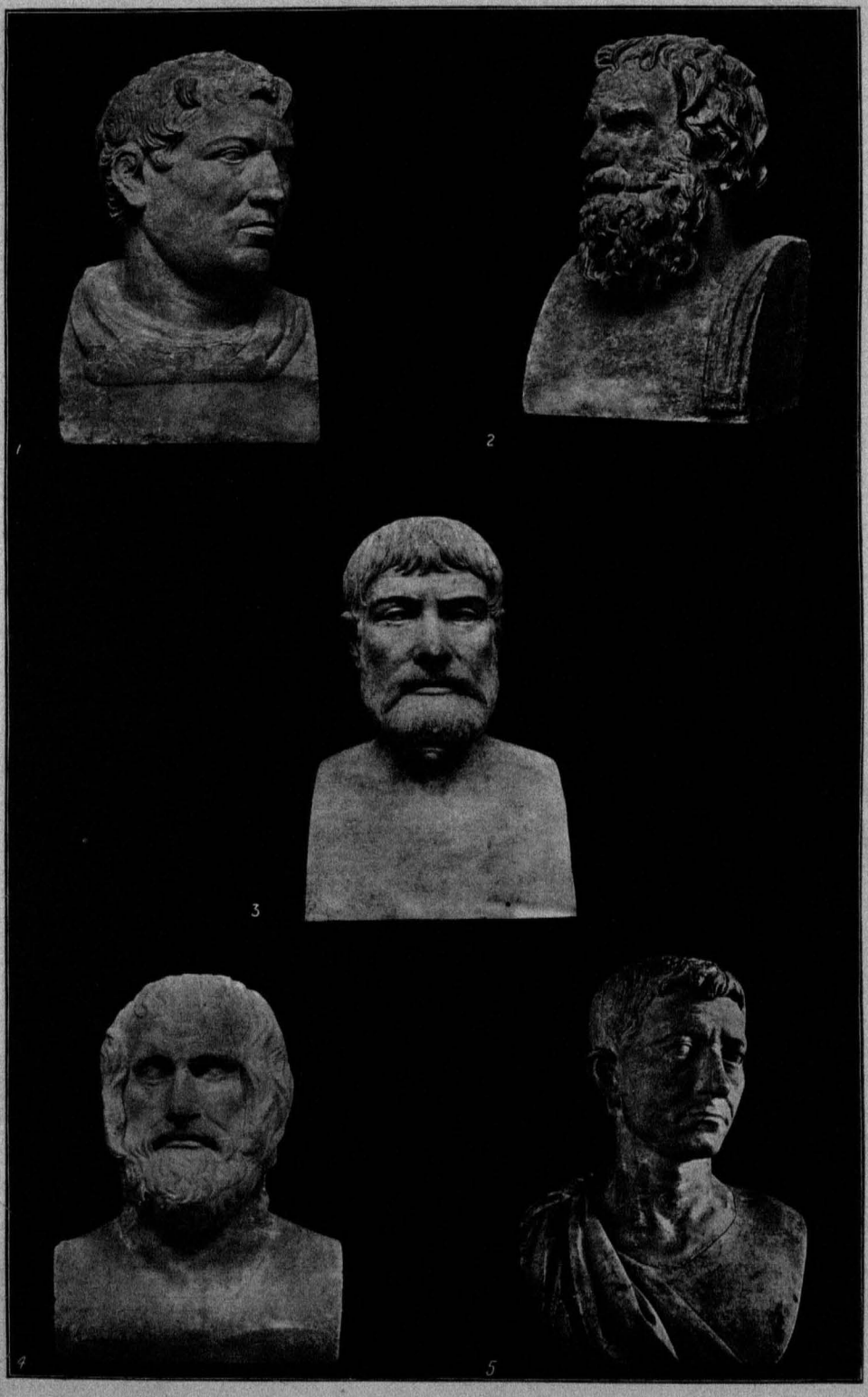
sites of the modern Resina and Portici. It is possible that a village had grown up on the deserted site; if so,[1] it was probably wiped out by the great eruption of 472 A.D. From this date until the fifteenth century all trace of Herculaneum disappears, and it can hardly be doubted that the subsequent references to it are all due—in the first instance—to literary information. De Jorio[2] gives a list of literary mentions of Herculaneum up to the time of Elbœuf's excavations in 1709. Excavations were made there even in the fifteenth century.[3] "Herculaneum Oppidum" is marked on the map of Ambroglio Leone,[4] *De Nola, etc.*, 1513. In the *Historia Napoletana* of Giulio Cesare Capaccio, 1607, lib. i. cap. ix. and xvii., we find a discussion of "Admiranda antiquitatum Herculanensium a claris italis descripta, illustrata, atque ab obtrectationibus vindicata." Again, Baudran, in his *Dictionnaire Géographique*, 1682, distinctly names the buried city. Francesco Balzano, in *L' Antico Ercolano ovvero la Torre del Greco tolta dall' oblio*, 1688, says: "We may learn from the ancient ruins, which are partly visible, that it stood in that part of Torresi called Sora." He goes on to relate several discoveries accidentally made in various places which he names quite distinctly, and states that ancient buildings were uncovered. In 1689 ancient monuments were accidentally found at a great depth (*Mémoires de littérature*, vol. 15). Celani in 1697 speaks of a beautiful plain which up to 1631 was extremely fertile as a pasturage, but was then covered with unfruitful ashes. Here, he says, stood the ancient Herculaneum: in his own days many old brick remains were to be seen there. Bianchini, in *Istoria Universale*, Rome, 1699, clearly records certain finds made in the neighbourhood in 1689. That many of these discoveries were incorrectly associated with the name

[1] Cf. J. A. Galante, *op. cit.* p. 107.

[2] De Jorio, *Notizie su gli Scavi di Ercolano*, Naples, 1827, pp. 13 ff., from which the following statements are borrowed.

[3] Cf. Nicola Perotto in *Cornucopia*, 1488.

[4] Cf. also Leandro Alberti, *Descrizione di tutta l'Italia*, 1561.



FIVE MARBLE BUSTS. PLATE 26.

Life-size. 1 Attilius Regulus, Philosopher, 2 Periander, Euripides, Roman portrait.

of Herculaneum is no doubt very probable. Nevertheless these few instances amply prove the falsity of the often-repeated statement, that all memory of Herculaneum had passed away when in 1709 the Prince d'Elbœuf accidentally struck part of the site of the theatre. He extracted a number of statues, of which a considerable proportion seem ultimately to have found their way to the Royal, now the National Museum of Naples. Some are believed still to stand in the niches of the Royal Palace of Portici,[1] confused with others of different origin. Many were probably sent as presents to various countries. Three of these, draped female marble figures, are now in the Sixth Hall of the Museum of Antiquities at Dresden, Nos. 162, 163, 164. They are reproduced on Plate VII.

The details of their history are somewhat obscure, but it seems to be certain that they were originally sent by Elbœuf as a present to his brother, Prince Eugene of Savoy.

Far more important and systematic were the excavations begun by King Charles III. of Naples in 1738. Our knowledge of these is imperfect: it is based chiefly upon the surviving portions of the very full records which were kept throughout the excavations. These records now lie in the Archives of the National Museum at Naples, partly in copies, partly in the original. Those of 1740 are lost, and for many other periods only scattered notes survive.[2] All that now exist were published by Ruggiero in *Storia degli Scavi di Ercolano*, Naples, 1885. The excavations were conducted throughout by military engineers: the first was Rocco Gioacchino de Alcubierre, who had come with the king from Spain. He was a man of considerable energy and

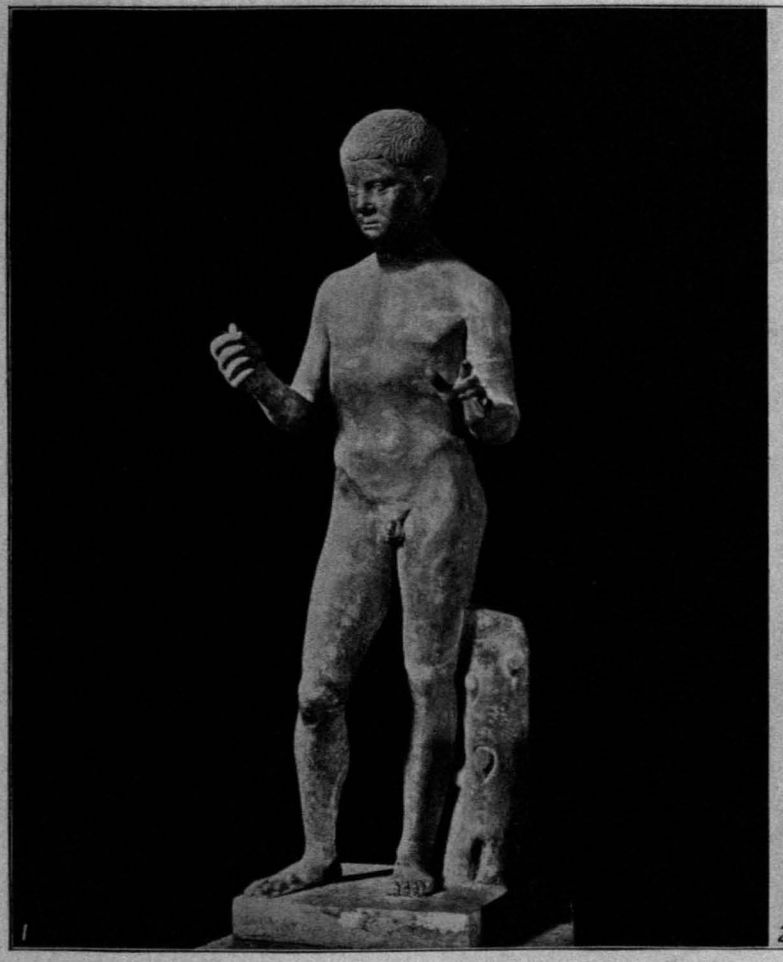
[1] Cf. Ruggiero, *Scavi, etc.*, p. xi, and La Vega's *Statement of the Objects found in the Theatre at Herculaneum*, under December 19, 1738 (published by Minervini in *Bullettino Archeologico Italiano* of Minervini, first year, No. 5, July 1861: reprinted by Ruggiero, *Scavi, etc.*, pp. xxvii ff.).

[2] See the Introduction of this book for further details of the history of the excavations.

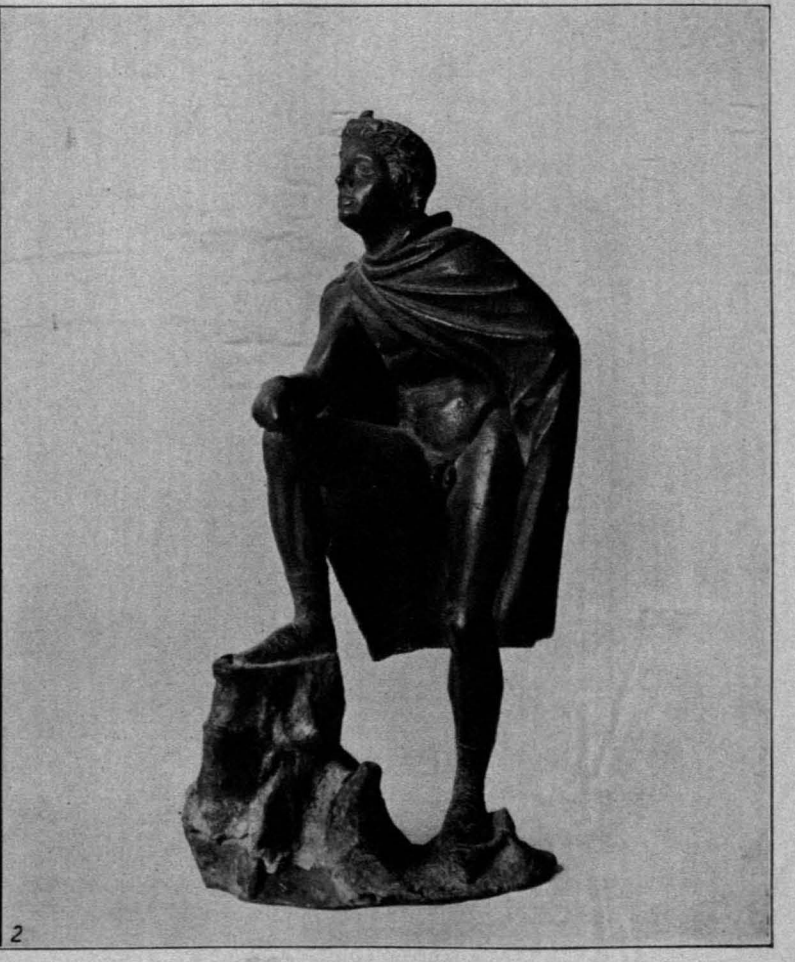
resource, but without any special qualifications for the exceedingly difficult work which he undertook. It is therefore not surprising to find that his methods were far from scientific. He ran tunnels in various directions and removed everything that seemed to be of artistic interest, though he also took some trouble to ascertain the purpose and the character of the buildings which he skirted and pierced. The difficult task of removing statues, pictures, and mosaics was accomplished with fair success under the circumstances. Unfortunately the early excavators supposed that the soil was sufficiently secured by refilling these tunnels with loose earth, and much damage was caused to the houses of Resina and Portici by consequent subsidences of the soil, which necessitated a great deal of underpinning. Alcubierre caught a complaint from the damp air of the tunnels, and retired from 1741 till the end of 1745. His place was taken for a few months by one Francesco Rorro, and later by a Frenchman called Pierre Bardet, who seems to have been far from incompetent. Alcubierre's direct command ceased again in 1750, when military promotion compelled him to reside at Naples. His successor is the most pathetic figure in the history of the excavations—the Swiss, Karl Weber. We have ample proof of his extraordinary diligence and carefulness, although he does not appear to have been a man of great natural power. But the jealous irritability of Alcubierre was a constant hindrance and trouble to him, and an examination of the records of these years makes it easy to believe that his death in 1764 was due in great part, as his successor La Vega hinted to the king twelve months later, to Alcubierre's petty tyranny.[1]

Francesco La Vega, who worked under Alcubierre until the latter's death in 1780, and thereafter independently, was in all respects the best excavator of that century. Nevertheless he did little at Herculaneum, for before twelve months had

[1] See the last sentence of his letter of March 22, 1765, in Ruggiero, *Scavi, etc.*, p. 461.



MARBLE STATUE OF BOY.



BRONZE STATUETTE OF YOUTH WITH CHLAMYS. PLATE 27.

? Alexander the Great. Lysippean type.

passed he was ordered to move to Pompeii. Herculaneum was not indeed finally deserted until 1779, but La Vega's work was almost confined to underpinning the houses of Resina, filling up his predecessors' tunnels, and completing the investigation of the theatre, of which he made three plans, an elevation and three sections, in 1777. Plans and drawings were also prepared by Alcubierre, Bardet, and Weber, but they have mostly disappeared.[1] One of La Vega's most useful works was the general plan of the city, discussed above.[2]

It is sometimes stated[3] that much progress was made under Joseph Napoleon and Joachim Murat between 1806 and 1815, but their activity seems to have been confined to Pompeii. It was not till 1828 that the excavations of Herculaneum were seriously resumed,[4] in consequence of the accidental discovery of an old tunnel under the Bisogno estate in the Vicolo di Mare. They lasted with interruptions until 1855, were resumed with considerable enthusiasm in 1869, and finally ceased in 1875. These nineteenth-century excavations were entirely concerned with the comparatively uninteresting streets near the sea, which are the only portion of the town at present uncovered. Their records are well preserved. Though superior in many respects to earlier operations, they left much to be desired, especially with regard to the preservation of architectural remains. The early excavations were jealously guarded, and all copying in the Museum was strictly forbidden. The official records were not published, but much of interest leaked out; especially important are De Venuti's *Descrizione delle prime scoperte dell' antica città di Ercolano*[5] and Gori's *Symbolae Litterariae*.[6] Much that is of interest in this period, such as the activity of Winckelmann, and the correspondence of Camillo Paderni and others personally connected with the

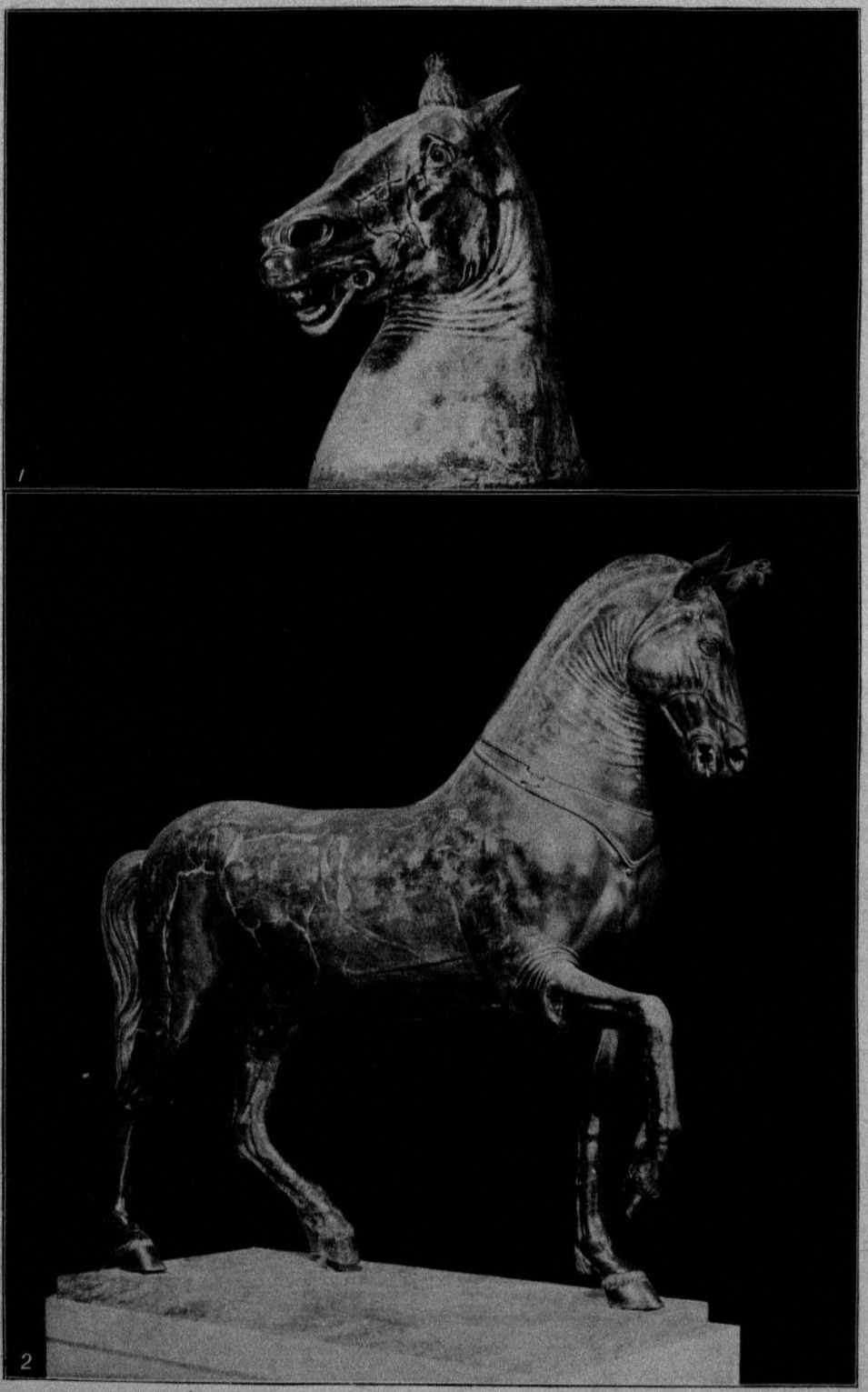
[1] See Ruggiero, *Scavi, etc.*, p. xv. [2] In Part I. Chapter I., p. 61.
[3] *e.g.*, in Baedeker's *Southern Italy*, 14th Revised Edition, 1903, p. 110.
[4] Ruggiero, *Scavi, etc.*, p. 535. [5] Rome, 1748.
[6] Florence, 1748-53; Rome, 1751-54.

excavations and the Museum, are beyond the scope of this summary.

The first step taken towards the publication of the finds[1] was the summoning of Monsignor Bayardi from Rome in 1744. This worthy ecclesiastic is described by Comparetti and De Petra[2] as "il più insulso e ridicolo uomo che abbia mai lasciato memoria di si negli atti della scienza." In 1752 he published a *Prodromo alle antichità di Ercolano* in five volumes, an amazing fardel of pedantry and stupidity, throwing absolutely no light upon the actual excavations. A very incompetent first volume of a *Catalogo degli antichi monumenti dissotterati dalla discoperta città di Ercolano* was his last contribution to Herculanean learning. It appeared in 1754, and in consequence of general dissatisfaction the *Accademia Ercolanese* was formed in the following year; this included Mazzocchi, Castelli, Aula, Carcani, Galiani, the Princes della Torre and Tarugi, Valetta, Pratilli, and several others.[3] Bayardi was not excluded, but in the May of 1756 he expressed a wish to retire to Rome, which was immediately gratified. The Academy lost no time in setting to work; the first volume of the magnificent *Antichità di Ercolano* appeared in 1757, and the following seven in 1760, 1762, 1765, 1767, 1771, 1779, 1792. The pictures, the bronzes, and the lamps were fully published, but the marbles never appeared. Despite much irrelevant pedantry the letterpress of this work is far from being worthless, and the plates are executed with a strength and virility remarkable at that date. It is instructive, for instance, to compare them with Leplat's insipid plates of the statues in the Dresden Augusteum, published in 1733. The statues and lamps are more satisfactorily rendered than the pictures.

The only other Bourbon publication of any importance is that of the *Herculanensia Volumina*, *i.e.* the papyrus rolls.

[1] Cf. Barnabei in *Atti delle R. Accademia dei Lincei*, 1878, p. 760.
[2] *La Villa Ercolanese, etc.*, 1885, p. 59. [3] See Barnabei, *op. cit., ibid.*



BRONZE HORSE AND HEAD OF HORSE. PLATE 28.

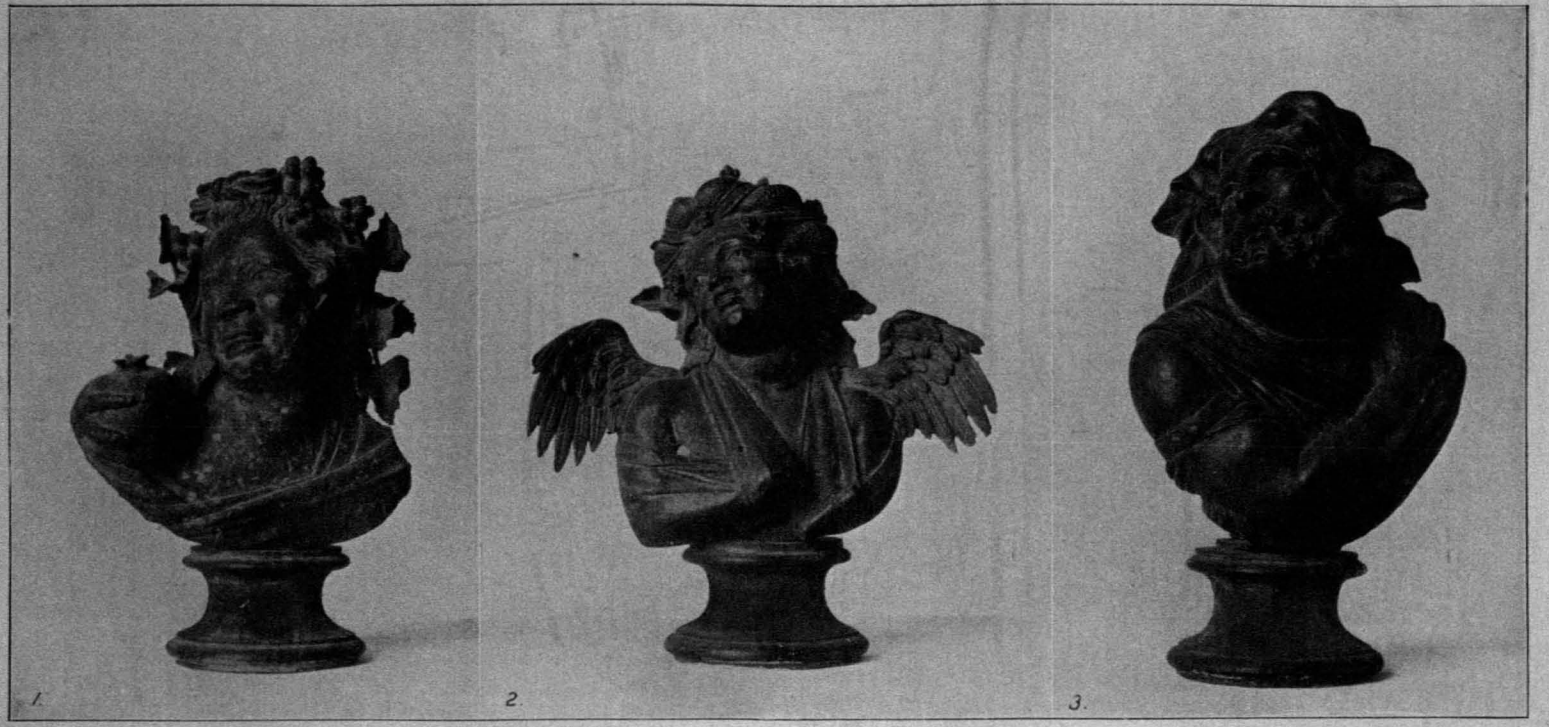
Life-size.

Nearly a century separates the appearance of the eleventh and last volume from that of the first.[1] The value of these volumes varies greatly, and for a full account of them we must refer the reader to W. Scott's *Fragmenta Herculanensia*,[2] and Comparetti and De Petra's *La Villa Ercolanese dei Pisoni*.[3] The nature of the library has already been briefly discussed.[4] Connected with this publication is Carlo Rosini's *Dissertatio Isagogica ad Herculanensium Voluminum Explanationem*, of which only the First Part was ever published;[5] it contributes nothing to our knowledge of the *Volumina*, but, in spite of some diffuseness, it was a valuable contribution to the general knowledge of Herculaneum. This is not the place to deal with the bibliography of Herculaneum;[6] but we may call attention, in conclusion, to two or three works of particular importance: De Jorio's *Notizie sugli Scavi di Ercolano*;[7] Barnabei's *Gli Scavi di Ercolano*;[8] Comparetti and De Petra's *La Villa Ercolanese dei Pisoni*;[9] and finally, Ruggiero's admirable and painstaking publication, *Storia degli Scavi di Ercolano*.[10]

[1] 1763-1855; see Bibliographical Appendix.
[2] Oxford, 1885.
[3] Torino, 1883.
[4] In Part I. Chapter I., p. 83.
[5] In 1797.
[6] See throughout Bibliographical Appendix.
[7] Naples, 1827.
[8] In *Atti della R. Accademia dei Lincei*, 1878, pp. 751 ff.
[9] Torino, 1883.
[10] Naples. 1885.

PART II

THE FUTURE



THREE SMALL BRONZE 'GROTESQUE' HEADS.

PLATE 29.

CHAPTER I

REFORM OF EXCAVATION

I HAVE maintained before (see Introduction, p. 16) that the art of excavation is quite inadequate to the just demands put upon it: that, in fact, it still remains in a stage which, in warfare, we should call the bow-and-arrow phase, and that all the discoveries and inventions made to facilitate and to render scientific investigation in other departments of research more accurate, as well as more fruitful, have been ignored by the archaeologist. At all events he has not been put in a position to apply them.

Now in saying this I must from the outset emphatically guard myself against the charge of meaning thereby that this only, or above all, applies to considerations of facility and celerity, the saving of time or labour in the prosecution of the work, important as such factors will ever be where human energy is expended. It is above all in view of the claims of accuracy and thoroughness of work, in order that the results of our labour should assure all the benefits to science and mankind which the highest scientific achievements undoubtedly produce, that a reform of our practice in excavation is urgently called for. The efforts made and the methods of work adopted ought to be commensurate with the importance of the enterprise. And when the excavation of a great site is undoubtedly of the highest material and moral advantage, not only to the nearer or remoter districts and the country in which the site is situate, but to the whole of civilised mankind, we ought to be prepared to make sacrifices corresponding to those incurred in the

digging of one of the great tunnels which are of such undoubted advantage to commerce and transport; and the thought we expend and the methods of work we adopt ought to be on the same scale in quality and in magnitude.

I must also at once point out that there are some forms of excavation in which the older or antiquated methods must still apply; just as, whatever improvements in the manufacture of certain goods modern inventions may have brought about, some of the old practices of our forefathers in handiwork will always remain the best means of dealing with them. In such cases, mechanical appliances favouring rapidity of production and accuracy of execution can never be applied. There are also stages in manufacture when mechanical improvements may best carry the work to a certain stage; though the finishing touches have always to be put in by the simplest individual labour. This especially applies to all work where beauty and artistic quality are the essential characteristics aimed at, or where human intelligence and judgment in their most varied and subtlest forms are called into action. But when supreme accuracy and completeness in keeping records of what is found and how it is found are perhaps the first, certainly among the essential, requirements of the work, such hesitation in using modern improvements does not apply. It is then found that the more the personal equation, the accidents of individuality and of change in physical conditions can be eliminated, the more thorough and fruitful is the work. Astronomical, physical, chemical, biological, and pathological studies have all applied these purely "objective" helps with which the discoveries of mechanical science have supplied them; and they have found these helps more accurate than the hands of man—even though they brought economy of time and labour in their wake. In some cases it may still be desirable for the researcher to cut his slides with a razor and not to use the most improved form of microtome; but such cases must be exceptional. Thus in the excavation of graves, and in the

thorough searching of a "pocket," or when, let us say, in the great excavation of a buried city we have penetrated a house and have come upon a mass of delicate objects, the earth may have to be carried away in baskets, and the excavator may have to use his penknife while crouching in a narrow space to lift the objects carefully. But preceding this phase of work, even in such cases, he might have applied more mechanical means of actual digging and of transporting the earth.

But in no case can it be desirable that the workmen be left to themselves and that there be not the constant supervision of the expert, who uses every means of recording all the conditions of the find at every stage, and of supervising and tabulating the results discovered immediately after they have emerged from the ground.

I venture to maintain that all excavations are undermanned in respect of this most important condition of all thorough and systematic excavation. In an excavation properly carried on, there ought never at any point to be work done without an expert to direct, observe, and record. Especially ought the mechanical help of photography to be called in here. Periodically, at intervals as short as possible, photographs of the deposits ought to be taken and kept within the context of the record of work, as well as photographs of the objects *in situ* and during the various phases of their disinterment; and all these photographs ought to be so kept, that, long after the excavation is completed, it ought almost to be possible to reproduce the actual excavation on the principle of the cinematograph, to which the written records would be a complete commentary. Furthermore, the arduous task of examining and preserving all the ancient objects found at any point ought to be entrusted to the expert supervising that portion of the work, which, even though he has to deal with a very small and circumscribed space, will require all his intelligence and care.

Take but one class of objects as an illustration. In most excavations, if not in every one, potsherds occur in great numbers.

Fragments of vases are constantly turned up by hundreds. Under present conditions of work, they cannot all be kept. We need but visit the rubbish-heaps of any great excavation in classical lands to find a large number of these fragments every year washed up to the surface by the rains. Many of these are of considerable interest, and now form part of the collections of antiquities legitimately formed by the traveller who visits ancient sites. It was at the time quite impossible for the archaeologist supervising the work of excavation to take account of, and to preserve, all these fragments. Yet each one of these may subsequently have been of great importance in elaborating the results of the excavation. Roughly, the principle followed during excavation is that, unless the fragments are manifestly parts of a complete vase, or come from a clearly prescribed site, such as a grave, the only fragments kept are those that are either decorated with a definite design or, if undecorated, are characteristic as illustrations of definite phases in ceramics. But even the unpainted fragments may (when we have reached the phase of sorting and restoring) be parts of an important vase, the painted portions of which have been preserved, while the absence of the missing portions makes the complete restoration of that vase impossible, and thus for ever prevents undoubted evidence as to its form. It may also be of great value to determine what the proportion of the coarser or less decorated vases is to the finer and more artistic specimens; and the light thrown on ancient life by the coarser and more amorphous specimens of ceramic art may, in its turn, be as important to the scholar and historian as that shed by the artistic perfection of the most beautiful specimen of the potter's craft. Moreover, the relative numbers and quality of such works combined, as they appear at a given point, may determine for us whether the site was that of a domestic settlement or of a religious sanctuary, whether they served daily use or were deposited as votive offerings to the god of the sanctuary or to the dead, or