

THE HISTORY

OF THE

DECLINE AND FALL OF THE ROMAN EMPIRE

CHAPTER LII

The two Sieges of Constantinople by the Arabs—Their Invasion of France, and Defeat by Charles Martel—Civil War of the Omniades and Abbassides—Learning of the Arabs—Luxury of the Caliphs-Naval Enterprises on Crete, Sicily, and Rome-Decay and Division of the Empire of the Caliphs—Defeats and Victories of the Greek Emperors

When the Arabs first issued from the desert, they must have The limits of been surprised at the ease and rapidity of their own success. conquest But, when they advanced in the career of victory to the banks of the Indus and the summit of the Pyrenees, when they had repeatedly tried the edge of their scymetars and the energy of their faith, they might be equally astonished that any nation could resist their invincible arms, that any boundary should confine the dominion of the successor of the prophet. The confidence of soldiers and fanatics may indeed be excused, since the calm historian of the present hour, who strives to follow the rapid course of the Saracens, must study to explain by what means the church and state were saved from this impending and, as it should seem, from this inevitable danger. The deserts of Scythia and Sarmatia might be guarded by their extent, their climate, their poverty, and the courage of the northern shepherds; China was remote and inaccessible; but the greatest part of the temperate zone was subject to the Mahometan conquerors, the Greeks were exhausted by the calamities of war and the loss of their fairest provinces, and the barbarians of Europe might justly tremble at the precipitate fall of the Gothic monarchy. In this inquiry I shall unfold the events that rescued our ancestors of Britain, and our neighbours of Gaul, from the civil and VOL. VI.



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religious yoke of the Koran; that protected the majesty of Rome, and delayed the servitude of Constantinople; that invigorated the defence of the Christians, and scattered among their enemies the seeds of division and decay.

First siege of Constantino-ple by the Arabs. A.D. 668-675

Forty-six years after the flight of Mahomet from Mecca, his disciples appeared in arms under the walls of Constantinople.1 They were animated by a genuine or fictitious saying of the prophet, that, to the first army which besieged the city of the Cæsars, their sins were forgiven; the long series of Roman triumphs would be meritoriously transferred to the conquerors of New Rome; and the wealth of nations was deposited in this well-chosen seat of royalty and commerce. No sooner had the caliph Moawiyah suppressed his rivals and established his throne than he aspired to expiate the guilt of civil blood by the success and glory of his holy expedition; his preparations by sea and land were adequate to the importance of the object; his standard was entrusted to Sophian,3 a veteran warrior, but the troops were encouraged by the example and presence of Yezid, the son and presumptive heir of the commander of the faithful. The Greeks had little to hope, nor had their enemies any reasons of fear, [Constantine from the courage and vigilance of the reigning emperor, who disgraced the name of Constantine, and imitated only the in-

¹ Theophanes places the seven years of the siege of Constantinople in the year of our Christian æra 673 (of the Alexandrian 665, September 1), and the peace of the Saracens, four years afterwards: a glaring inconsistency! which Petavius, Goar, and Pagi (Critica, tom. iv. p. 63, 64) have struggled to remove. Of the Arabians, the Hegira 52 (A.D. 672, January 8) is assigned by Elmacin, the year 48 (A.D. 668, February 20) by Abulfeda, whose testimony I esteem the most convenient and creditable. [Theophanes gives 672-3 as the year of Moāwiya's preparation of the expedition, 673-4 as that of his investment of Constantinople. It seems safest to follow Theophanes here; the Arabic authors say little or nothing of an event which was disgraceful in Mohammadan history. But we cannot accept his statement that the sieze lasted seven years; in fact he contradicts it himself, since he places the peace was disgraceful in Mohammadan history. But we cannot accept his statement that the siege lasted seven years; in fact he contradicts it himself, since he places the peace in the fifth year after the beginning of the siege. We have no means of determining with certainty the true duration. Nicephorus (p. 32, ed. de Boor) states that the war lasted seven years, and, though he evidently identifies the war with the siege, we may perhaps find here the clue to the solution. The war seems to have begun soon after the accession of Constantine $(\epsilon v \theta v v_i, \text{Niceph. } i b.)$; and perhaps its beginning was dated from the occupation of Cyzicus by Phadalas in 670-1 (Theoph. A.M. 6162), and peace was made in 677-8. Thus we get seven years for the duration of the war (671-7), and perhaps three for the siege (674-6).]

² For this first siege of Constantinople, see Nicephorus (Breviar. p. 21, 22 [p. 32, ed. de Boor]), Theophanes (Chronograph, p. 294 [A.M. 6165]), Cedrenus (Compend. p. 437 [i. 764, ed. Bonn]), Zonaras (Hist. tom. ii. l. xiv. p. 89 [c. 20]), Elmacin (Hist. Saracen. p. 56, 57), Abulfeda (Annal. Moslem. p. 107, 108, vers. Reiske), d'Herbelot (Bibliot. Orient. Constantin.), Ockley's Hist. of the Saracens, vol. ii. p.

³[The expedition was first entrusted to Abd ar-Rahmān, but he was killed, and was succeeded by Sofyan.]



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glorious years of his grandfather Heraclius. Without delay or opposition, the naval forces of the Saracens passed through the unguarded channel of the Hellespont, which even now, under the feeble and disorderly government of the Turks, is maintained as the natural bulwark of the capital.4 The Arabian fleet cast anchor, and the troops were disembarked near the palace of Hebdomon, seven miles from the city. During many days, from the dawn of light to the evening, the line of assault was extended from the golden gate to the eastern promontory, and the foremost warriors were impelled by the weight and effort of the succeeding columns. But the besiegers had formed an insufficient estimate of the strength and resources of Constantinople. solid and lofty walls were guarded by numbers and discipline; the spirit of the Romans was rekindled by the last danger of their religion and empire; the fugitives from the conquered provinces more successfully renewed the defence of Damascus and Alexandria; and the Saracens were dismayed by the strange and prodigious effects of artificial fire. This firm and effectual resistance diverted their arms to the more easy attempts of plundering the European and Asiatic coasts of the Propontis; and, after keeping the sea from the month of April to that of September, on the approach of winter they retreated fourscore miles from the capital, to the isle of Cyzicus, in which they had established their magazine of spoil and provisions. So patient was their perseverance, or so languid were their operations, that they repeated in the six following summers the same attack and retreat, with a gradual abatement of hope and vigour, till the mischances of shipwreck and disease, of the sword and of fire, compelled them to relinquish the fruitless enterprise. They might bewail the loss or commemorate the martyrdom of thirty thousand Moslems, who fell in the siege of Constantinople; and the solemn funeral of Abu Ayub, or Job, excited the curiosity of the Christians themselves. That venerable Arab, one of the last of the companions of Mahomet, was numbered among the ansars, or auxiliaries, of Medina, who sheltered the head of the flying prophet. In his youth he fought, at Bedar and Ohud, under the holy standard; in his mature age he was

⁴The state and defence of the Dardanelles is exposed in the Mémoires of the Baron de Tott (tom. iii. p. 39-97), who was sent to fortify them against the Russians. From a principal actor, I should have expected more accurate details; but he seems to write for the amusement, rather than the instruction, of his reader. Perhaps, on the approach of the enemy, the minister of Constantine was occupied, like that of Mustapha, in finding two Canary birds who should sing precisely the same note.



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the friend and follower of Ali; and the last remnant of his strength and life was consumed in a distant and dangerous war against the enemies of the Koran. His memory was revered; but the place of his burial was neglected and unknown, during a period of seven hundred and eighty years, till the conquest of Constantinople by Mahomet the Second. A seasonable vision (for such are the manufacture of every religion) revealed the holy spot at the foot of the walls and the bottom of the harbour; and the mosque of Ayub has been deservedly chosen for the simple and martial inauguration of the Turkish sultans.5

The event of the siege revived, both in the East and West, The event of the siege revivou, soon in the reputation of the Roman arms, and cast a momentary shade over the glories of the Saracens. The Greek ambassador was favourably received at Damascus, in a general council of the emirs or Koreish; a peace, or truce, of thirty years was ratified between the two empires; and the stipulation of an annual tribute, fifty horses of a noble breed, fifty slaves, and three thousand pieces of gold, degraded the majesty of the commander The aged caliph was desirous of possessing his of the faithful.6 dominions, and ending his days, in tranquillity and repose; while the Moors and Indians trembled at his name, his palace and city of Damascus was insulted by the Mardaites, or Maronites, of mount Libanus, the firmest barrier of the empire, till they were disarmed and transplanted by the suspicious policy of the Greeks.⁷ After the revolt of Arabia and Persia, the house of Ommiyah 8 was reduced to the kingdoms of Syria and Egypt; their distress and fear enforced their compliance with the pressing demands of the Christians; and the tribute was increased to a slave, an horse, and a thousand pieces of gold, for each of the three hundred and sixty-five days of the solar year. But as soon as the

> ⁵ Demetrius Cantemir's Hist. of the Othman Empire, p. 105, 106. Rycaut's

⁵ Demetrius Cantemir's Hist. of the Othman Empire, p. 105, 106. Rycau's State of the Ottoman Empire, p. 10, 11. Voyages de Thévenot, part i. 189. The Christians, who suppose that the martyr Abu Ayub is vulgarly confounded with the patriarch Job, betray their own ignorance rather than that of the Turks.

⁶ Theophanes, though a Greek, deserved credit for these tributes (Chronograph, p. 295, 296, 300, 301 [A.M. 6169, 6176]), which are confirmed, with some variation, by the Arabic history of Abulpharagius (Dynast. p. 128, vers. Pocock).

⁷ The censure of Theophanes is just and pointed, τὴν Ῥωμαικὴν δυναστείαν ἀκρωτηριάσας . . . πάνδεινα κακὰ πέπουθεν ἡ Ῥωμαικὰ τὸν τὸν Αράνν μέχρι τοῦ νῦν (Chronograph. p. 302, 303 [A.M. 6178]). The series of these events may be traced in the Annals of Theophanes, and in the Abridgment of the Patriarch Nicephorus, p. 22, 24.

p. 22, 24.

§ These domestic revolutions are related in a clear and natural style, in the second volume of Ockley's history of the Saracens, p. 253-370. Besides our printed authors, he draws his materials from the Arabic Mss. of Oxford, which he would have more deeply searched, had he been confined to the Bodleian library instead of the [Cambridge] city jail: a fate how unworthy of the man and of his country!



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empire was again united by the arms and policy of Abdalmalek, he disclaimed a badge of servitude not less injurious to his [Abd all left] conscience than to his pride; he discontinued the payment of 685.705] the tribute; and the resentment of the Greeks was disabled from action by the mad tyranny of the second Justinian, the just rebellion of his subjects, and the frequent change of his antagonists and successors. Till the reign of Abdalmalek, the Saracens had been content with the free possession of the Persian and Roman treasures, in the coin of Chosroes and Cæsar. By the command of that caliph, a national mint was established, both of silver and gold, and the inscription of the Dinar, though it might be censured by some timorous casuists, proclaimed the unity of the God of Mahomet.9 Under the reign of the caliph Waled, the Greek language and characters were excluded from [Walld I. D. 705-715] the accounts of the public revenue.10 If this change was productive of the invention or familiar use of our present numerals, the Arabic or Indian cyphers, as they are commonly styled, a regulation of office has promoted the most important discoveries of arithmetic, algebra, and the mathematical sciences.11

Whilst the caliph Waled sat idle on the throne of Damascus, while his lieutenants achieved the conquest of Transoxiana and Second siege of Constants. Spain, a third army of Saracens overspread the provinces of Asia nople. A.D. 716-718 Minor, and approached the borders of the Byzantine capital. But the attempt and disgrace of the second siege was reserved for his brother Soliman, whose ambition appears to have been [Sulaiman, A.D. 715-7]

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⁹ Elmacin, who dates the first coinage A.H. 76, A.D. 695, five or six years later than the Greek historians, has compared the weight of the best or common gold dinar, to the drachm or dirhem of Egypt (p. 77), which may be equal to two pennies (48 grains) of our Troy weight (Hooper's Enquiry into Ancient Measures, p. 24-36) and equivalent to eight shillings of our sterling money. From the same Elmacin and the Arabian physicians, some dinars as high as two dirhems, as low as half a dirhem, may be deduced. The piece of silver was the dirhem, both in value and weight; but an old though fair coin, struck at Waset, A.H. 88, and preserved in the Bodleian library, wants four grains of the Cairo standard (see the Modern Universal History, tom i. p. 548 of the French translation). [But see Appendix 2.]

Appendix 2.]

10 Καὶ ἐκώλυσε γράφεσθαι ἐλληνιστὶ τοὺς δημοσίους τῶν λογοθοτίων κώδικες ἀλλ [ἐν]

Αραβίοις αὐτὰ παρασημαίνεσθαι χωρίς τῶν ψήφων, ἐπειδη ἀδύναστον τῆ ἐκείνων γλώσση
μονάδα, ἢ διάδα, ἢ τριάδα, ἢ ὀκτὼ ἡμισυ ἢ τρία γράφεσθαι. Theophan. Chronograph. p.
314 [A.M. 6199]. This defect, if it really existed, must have stimulated the ingenuity

of the Arabs to invent or borrow.

11 According to a new though probable notion, maintained by M. de Villoison (Anecdota Græca, tom. ii. p. 152-157), our cyphers are not of Indian or Arabic invention. They were used by the Greek and Latin arithmeticians long before the age of Boethius. After the extinction of science in the West, they were adopted by the Arabic versions from the original Mss. and restored to the Latins about the selevant content. eleventh century. [There is no doubt that our numerals are of Indian origin (5th or 6th cent.?); adopted by the Arabians about 9th cent. The circumstances of their first introduction to the West are uncertain, but we find them used in Italy [There is no doubt that our numerals are of Indian origin (5th lopted by the Arabians about 9th cent. The circumstances of in 13th cent.]



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quickened by a more active and martial spirit. In the revolutions of the Greek empire, after the tyrant Justinian had been punished and avenged, an humble secretary, Anastasius or Artemius, was prompted by chance or merit to the vacant purple. He was alarmed by the sound of war; and his ambassador returned from Damascus with the tremendous news that the Saracens were preparing an armament by sea and land, such as would transcend the experience of the past, or the belief of the present, age. The precautions of Anastasius were not unworthy of his station or of the impending danger. He issued a peremptory mandate that all persons who were not provided with the means of subsistence for a three years' siege should evacuate the city; the public granaries and arsenals were abundantly replenished; the walls were restored and strengthened; and the engines for casting stones, or darts, or fire, were stationed along the ram-parts, or in the brigantines of war, of which an additional number was hastily constructed. To prevent is safer, as well as more honourable, than to repel an attack; and a design was meditated, above the usual spirit of the Greeks, of burning the naval stores of the enemy, the cypress timber that had been hewn in mount Libanus, and was piled along the sea-shore of Phœnicia, for the service of the Egyptian fleet. This generous enterprise was defeated by the cowardice or treachery of the troops who, in the new language of the empire, were styled of the Obsequian Theme. 12 They murdered their chief, deserted their standard in the isle of Rhodes, dispersed themselves over the adjacent continent, and deserved pardon or reward by investing with the purple a simple officer of the revenue. The name of Theodosius might recommend him to the senate and people; but, after some months, he sunk into a cloister, and resigned, to the firmer hand of Leo the Isaurian, the urgent defence of the capital and empire. The most formidable of the Saracens, Moslemah the brother of the caliph, was advancing at the head of one hundred and twenty thousand Arabs and Persians, the greater part mounted on horses

[Maslama]

12 In the division of the *Themes*, or provinces described by Constantine Porphyrogenitus (de Thematibus, I. i. p. 9, 10 [p. 24-26, ed. Bonn]), the *Obsequium*, a Latin appellation of the army and palace, was the fourth in the public order. Nice was the metropolis, and its jurisdiction extended from the Hellespont over the adjacent parts of Bithynia and Phrygia (see the two maps prefixed by Delisle to the Imperium Orientale of Banduri). [Gibbon omits to mention the most remarkable incident in this episode. The Opsician troops proceeded to Constantinople and besieged Anastasius. The fleet and the engines, which had been prepared by the Emperor to defend the city against the Saracens, had to be used against the rebels. When Theodosius ultimately effected his entry, the Opsicians pillaged the city. For the Themes see Appendix 3.]



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or camels; and the successful sieges of Tyana, Amorium, and Pergamus were of sufficient duration to exercise their skill and to elevate their hopes. At the well-known passage of Abydus, on the Hellespont, the Mahometan arms were transported, for the first time, 13 from Asia to Europe. From thence, wheeling round the Thracian cities of the Propontis, Moslemah invested Constantinople on the land side, surrounded his camp with a ditch and rampart, prepared and planted his engines of assault, and declared, by words and actions, a patient resolution of expecting the return of seed-time and harvest, should the obstinacy of the besieged prove equal to his own. The Greeks would gladly have ransomed their religion and empire, by a fine or assessment of a piece of gold on the head of each inhabitant of the city; but the liberal offer was rejected with disdain, and the presumption of Moslemah was exalted by the speedy approach and invincible force of the navies of Egypt and Syria. They are said to have amounted to eighteen hundred ships; the number betrays their inconsiderable size; and of the twenty stout and capacious vessels, whose magnitude impeded their progress, each was manned with no more than one hundred heavy armed soldiers. This huge armada proceeded on a smooth sea and with a gentle gale, towards the mouth of the Bosphorus; the surface of the strait was overshadowed, in the language of the Greeks, with a moving forest, and the same fatal night had been fixed by the Saracen chief for a general assault by sea and land. To allure the confidence of the enemy, the emperor had thrown aside the chain that usually guarded the entrance of the harbour; but, while they hesitated whether they should seize the opportunity or apprehend the snare, the ministers of destruction The fireships of the Greeks were launched were at hand. against them; the Arabs, their arms, and vessels, were involved in the same flames, the disorderly fugitives were dashed against each other or overwhelmed in the waves; and I no longer find a vestige of the fleet that had threatened to extirpate the Roman name. A still more fatal and irreparable loss was that of the caliph Soliman, who died of an indigestion 14 in his camp

¹³ [At the previous siege, Saracens had also landed on European soil; see above, p. 2.]

¹⁴ The caliph had emptied two baskets of eggs and of figs, which he swallowed alternately, and the repast was concluded with marrow and sugar. In one of his pilgrimages to Mecca, Soliman ate, at a single meal, seventy pomegranates, a kid, six fowls, and a huge quantity of the grapes of Tayef. If the bill of fare be correct, we must admire the appetite rather than the luxury of the sovereign of Asia (Abul-



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near Kinnisrin, or Chalcis in Syria, as he was preparing to lead against Constantinople the remaining forces of the East. brother of Moslemah was succeeded by a kinsman and an enemy; and the throne of an active and able prince was degraded by the useless and pernicious virtues of a bigot. While he started and satisfied the scruples of a blind conscience, the siege was continued through the winter by the neglect rather than by the resolution of the caliph Omar.15 The winter proved uncommonly rigorous; above an hundred days the ground was covered with deep snow, and the natives of the sultry climes of Egypt and Arabia lay torpid and almost lifeless in their frozen camp. They revived on the return of spring; a second effort had been made in their favour; and their distress was relieved by the arrival of two numerous fleets, laden with corn, and arms, and soldiers; the first from Alexandria, of four hundred transports and galleys; the second of three hundred and sixty vessels from the ports of Africa. But the Greek fires were again kindled, and, if the destruction was less complete, it was owing to the experience which had taught the Moslems to remain at a safe distance, or to the perfidy of the Egyptian mariners, who deserted with their ships to the emperor of the Christians. trade and navigation of the capital were restored; and the produce of the fisheries supplied the wants, and even the luxury, of the inhabitants. But the calamities of famine and disease were soon felt by the troops of Moslemah, and, as the former was miserably assuaged, so the latter was dreadfully propagated, by the pernicious nutriment which hunger compelled them to extract from the most unclean or unnatural food. The spirit of conquest, and even of enthusiasm, was extinct: the Saracens could no longer straggle beyond their lines, either single or in small parties, without exposing themselves to the merciless

feda, Annal. Moslem. p. 126). [Though the manner of Sulaiman's death is uncertain, it is agreed that he was a voluptuary. Tabari says that cooking and gallantry were the only subjects of conversation at his court.]

¹⁵ See the article of Omar Ben Abdalaziz [ibn Abd al Azīz], in the Bibliothèque Orientale (p. 689, 690), præferens, says Elmacin (p. 91), religionem suam rebus suis mundanis. He was so desirous of being with God that he would not have anointed his ear (his own saying) to obtain a perfect cure of his last malady. The caliph had only one shirt, and in an age of luxury his annual expense was no more than two drachms (Abulpharagius, p. 131). Haud diu gavisus eo principe fuit orbis Moslemus (Abulfeda, p. 127). [Weil takes another view of the virtues of the bigot, and writes: "The pious Omar was greater than all his predecessors, not excepting Omar I., in one respect; he sought less to increase or enrich Islam at the cost of the unbeliever than to augment the number of Musulmans without making forced conversions." Gesch. der Chalifen, i. p. 582.]

[Omar II. A.D, 717-20]



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retaliation of the Thracian peasants. An army of Bulgarians was attracted from the Danube by the gifts and promises of Leo; and these savage auxiliaries made some atonement for the evils which they had inflicted on the empire, by the defeat and slaughter of twenty-two thousand Asiatics. A report was dexterously scattered that the Franks, the unknown nations of the Latin world, were arming by sea and land in the defence of the Christian cause, and their formidable aid was expected with far different sensations in the camp and city. At length, after a siege of thirteen months, 16 the hopeless Moslemah received ratiure and from the calinh the welcome permission to retreat. The march Saracons of the Arabian cavalry over the Hellespont and through the provinces of Asia was executed without delay or molestation; but an army of their brethren had been cut to pieces on the side of Bithynia, and the remains of the fleet was so repeatedly damaged by tempest and fire that only five galleys entered the port of Alexandria to relate the tale of their various and almost incredible disasters.17

In the two sieges, the deliverance of Constantinople may be invention and use of the deliverance of the deliverance and the real efficacy the dreek chiefly ascribed to the novelty, the terrors, and the real efficacy to of the Greek fire. 18 The important secret of compounding and fire directing this artificial flame was imparted by Callinicus, a native of Heliopolis in Syria, who deserted from the service of the caliph to that of the emperor. 19 The skill of a chymist and engineer was equivalent to the succour of fleets and armies; and this discovery or improvement of the military art was fortunately

¹⁶ Both Nicephorus and Theophanes agree that the siege of Constantinople was Taised the 15th of August (A.D. 718); but, as the former, our best witness, affirms that it continued thirteen months, the latter must be mistaken in supposing that it began on the same day of the preceding year. I do not find that Pagi has remarked this inconsistency. [Tabari places the beginning of the siege in A.H. 98 = A.D. 716-17, but does not mention the month; and he makes Omar II. recall Maslama in A.H. 99 (Aug. 25, 717-Aug. 2, 718). See Tabari, ed. de Goeje, ii. 1342.]

17 In the second siege of Constantinople, I have followed Nicephorus (Brev. p. 33-36 [pp. 53-4, ed. de Boor]), Theophanes (Chronograph. p. 324-334 [A.M. 6209, 6210]), Cedrenus (Compend. p. 449-452 [i. 787, ed. Bonn]), Zonaras (tom. ii. p. 98-102 [xv. c. l.]), Elmacin (Hist. Saracen. p. 88), Abulfeda (Annal. Moslem. p. 126), and Abulpharagius (Dynast. p. 130), the most satisfactory of the Arabs.

¹⁸Our sure and indefatigable guide in the middle ages and Byzantine history Charles du Fresne du Cange, has treated in several places of the Greek fire, and his collections leave few gleanings behind. See particularly Glossar, Med. et Infim. Greekt p. 1965. Græciat. p. 1275, sub voce Πῦρ θαλάστιον ὑγρόν. Glossar. Med. et Infim. Latinitat. Ignis Græcus. Observations sur Villehardouin, p. 305, 306. Observations sur Observations sur Joinville, p. 71, 72. [See below, note 22.]

¹⁹ Theophanes styles him ἀρχιτέκτων (p. 295 [A.M. 6165]). Cedrenus (p. 437 [i. p. 765]) brings this artist from (the ruins of) Heliopolis in Egypt; and chemistry was indeed the peculiar science of the Egyptians.



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reserved for the distressful period, when the degenerate Romans of the East were incapable of contending with the warlike enthusiasm and youthful vigour of the Saracens. The historian who presumes to analyse this extraordinary composition should suspect his own ignorance and that of his Byzantine guides, so prone to the marvellous, so careless, and in this instance so jealous, of the truth. From their obscure and perhaps fallacious hints, it should seem that the principal ingredient of the Greek fire was the naptha,20 or liquid bitumen, a light, tenacious, and inflammable oil,21 which springs from the earth and catches fire as soon as it comes in contact with the air. The naptha was mingled, I know not by what methods or in what proportions, with sulphur and with the pitch that is extracted from evergreen firs.²² From this mixture, which produced a thick smoke and a loud explosion, proceeded a fierce and obstinate flame, which not only rose in perpendicular ascent, but likewise burnt with equal vehemence in descent or lateral progress; instead of being extinguished, it was nourished and quickened, by the element of water; and sand, urine, or vinegar were the only remedies that could damp the fury of this powerful agent, which was justly denominated by the Greeks the liquid or the maritime

²⁰ The naptha, the oleum incendiarium of the history of Jerusalem (Gest. Dei per Francos, p. 1167), the Oriental fountain of James de Vitry (I. iii. c. 84), is introduced on slight evidence and strong probability. Cinnamus (I. vi. p. 165 [c. 10]) calls the Greek fire $\pi \hat{v}_{\rho} M_{\eta} \delta v \hat{\kappa}_{\theta} v$; and the naptha is known to abound between the Tigris and the Caspian Sea. According to Pliny (Hist. Natur. ii. 109) it was subservient to the revenge of Medea, and in either etymology the $\hat{\kappa}_{\Lambda\alpha\alpha\nu} M_{\eta}\delta \hat{\iota}_{\alpha s}$ or $M_{\eta}\delta \hat{\iota}_{\alpha s}$ (Procop. de Bell. Gothic. l. iv. c. 11) may fairly signify this liquid bitumen.

²¹ On the different sorts of oils and bitumens, see Dr. Watson's (the present bishop of Llandaff's) Chemical Essays, vol. iii. essay i., a classic book, the best adapted to infuse the taste and knowledge of chemistry. The less perfect ideas of the ancients may be found in Strabo (Geograph. l. xvi. p. 1078 [1315]), and Pliny (Hist. Natur. ii. 108, 109): Huic (Napthae) magna cognatio est ignium, transiliuntque protinus in eam undecunque visam. Of our travellers I am best pleased with Otter (tom. i. p. 153, 158).

i. p. 153, 158).

22 Anna Commena has partly drawn aside the curtain. 'Απὸ τῆς πεύκης καὶ ἄλλων τινῶν τοιούτων δένδρων ἀειθαλῶν συνάγεται δάκρυου εὐκαυστου. Τοὐτο μετὰ θείσυ τριβόμενου ἐμβάλλεται εἰς αὐλίσκους καλάμων καὶ ἐμφυσᾶται παρὰ τοῦ παίζοντος λάβρω καὶ συνεχεῖ πνεύματι (Alexiad. l. xiii. p. 383 [c. 3]). Elsewhere (l. xi. p. 336 [c. 4]) she mentions the property of burning, κατὰ τὸ πρανές καὶ εφ' ἐκάτερα. Leo, in the nineteenth chapter [§ 51, p. 1008, ed. Migne] of his Tactics (Opera Meursii, tom. vi. p. 843, edit. Lami, Florent. 1745), speaks of the new invention of πῦρ μετὰ βροντῆς καὶ καπνοῦ. These are genuine and Imperial testimonies. [It is certain that one kind of "Greek" or "marine" fire was gunpowder. The receipt is preserved in a treatise of the ninth century, entitled Liber ignium ad comburendos hostes, by Marcus Graecus, preserved only in a Latin translation (edited by F. Höfer in Histoire de la chimie, vol. 1, 1842). But other inflammable compounds, containing pitch, naphtha, &c., must be distinguished, See further Appendix 5.]