

pilum, the most formidable of the Roman weapons, was entirely laid aside, and a variety of weapons introduced, which are described by that author, but which were quite unknown during the perfection of the art of war among the Romans.

One most material part of the military science among the Romans was their art of intrenchment. It was to the perfection to which Cæsar carried this art, that he owed many of his greatest advantages in war. It seems to have been a maxim of his, that it was possible to make up for any inferiority in the number of his troops, by the additional strength of his intrenchments. Thus with 60,000 men he defended himself in his intrenchments before *Alexia*, while the lines of circumvallation were attacked by 240,000 Gauls, and the lines of countervallation by 80,000, without any effect.

These intrenchments were thrown up with amazing despatch. Every soldier upon his march carried along with him his palisade, which was a strong branch of a tree, having at one end three or four smaller branches sharpened to a point and hardened in the fire. When the square of the camp was traced out, each soldier, throwing aside his buckler, began to dig a ditch, ordinarily nine feet, but sometimes fourteen or fifteen feet in depth, and as much in width. The earth was thrown up upon the inside in the form of a rampart four or five feet in height, which was faced on the outside with those palisades or *stipites*, strongly fixed in the earth, and set so near each other that the branches, crossing obliquely, presented their points outwards, and thus formed a strong hedge of irregular points, which it was extremely difficult to pierce. On each side of the square of the camp was a gate or issue, where a strong guard was always posted, which no soldier could pass without leave, under pain of death.

When a city was besieged, it was customary for the Romans to divide their forces into several camps, encircling the place, and joined to each other by strong lines of circumvallation and countervallation. As the science of attack and defence of fortified towns was carried to a great degree of perfection, both by the Romans and the Greeks, I shall endeavour to give some idea of this branch of the military art among the ancients, concerning which several of the modern writers are very much at variance.

The Chevalier Folard, in his Commentary on Polybius, makes the military art of the ancients by far too complicated, and much more so than a plain construction of the words of his author, or, indeed, of any other of the ancient writers, will warrant.

In his treatise on the attack and defence of fortified places, he endeavours to prove, that, excepting the use of gunpowder and artillery, every operation used by modern engineers was known and practised by the ancients; and that, in particular, the mode of approach by parallels and trenches was in continual use. Yet it is very certain, as M. Guichard has abundantly shown, that

those authors who have written most minutely of the most important sieges, as Polybius, Cæsar, Arrian, and Josephus, and who express themselves in their details with very great perspicuity, give not the smallest countenance to such a notion.

The Romans observed two methods of proceeding in their sieges; the one was by means of the *agger*, a sort of terrace or mound of earth, on which they advanced their machines; and the other was by bringing up their machines to the foot of the walls without the help of such a terrace. The first was necessary only where the place was very strong, and the walls skilfully guarded and fortified. The method of proceeding against such fortified places was this:—The army, as I before observed, was divided into different quarters, separately intrenched around the city, which intrenchments communicated with each other by a line of countervallation drawn on the side next the town, and a line of circumvallation on the outside, to defend against attacks from the quarter of the country. Then the ground was chosen for the construction of the *agger*, or terrace, which was a lengthened mound of earth, beginning by a gentle slope, from one of the camps, and proceeding forward, gradually increasing in elevation as it approached the town. As this terrace was to be the stage from which all the engines of attack were to be played against the city, it was the object of the besieged to endeavor, by every possible means, to prevent the carrying on of this work. Stones, darts, and combustible matters were continually launched against the operators; and sometimes a mine was dug from the city, to pass under the front of the terrace, and scoop away its foundation.

The besiegers, on the other hand, guarded against these annoyances by protecting themselves, while at work, under covered sheds, termed *vineæ*, which were composed of hurdles, or wickerwork, covered with hides, and supported on stakes, which they moved along as the work advanced. The front of the terrace, where the workmen were chiefly employed, was protected either by a *testudo*, or covered pent-house, or simply by a curtain of skins, supported upon a large tree, laid transversely upon two others.

When the besiegers, under these covers, had brought the *agger*, or terrace, sufficiently near to the wall, they then advanced the engines of attack. The *catapultæ* and *balistæ* were ranged upon the terrace, at distances proportioned to their several projectile powers, and advanced or drawn back till they were made to bear upon the very spot which the besiegers intend to assail. The powers of these engines of attack almost exceed credibility. The *catapulta centenaria*, which was the smallest size of these machines, threw a weight of 100 pounds to the distance of 500 paces. The largest *catapultæ* threw stones of 1200 pounds' weight. The *balistæ* were constructed for throwing great and heavy darts. As to the particular construction of these machines

we can only form conjectures. The commentators on Vegetius have given several different forms of *catapultæ* and *balistæ*, but they are by far too complicated, and have a great deal of needless machinery of wheels, pulleys, axles, and levers. Much simpler contrivances might answer the same end, and be more easily managed. The form of the *catapulta*, given by M. Folard, is sufficiently simple, and corresponds well enough with the description in Vegetius.

A large lever is fixed at the lower end between two cables, very strongly twisted; the lever has, at the upper end, a hollow in the form of a dish, for receiving the stone or ball which is to be thrown. It is brought down to a horizontal position by means of this rope and hand-lever, which straightens the cable spring; and when let off by means of a catch, it returns to its position with prodigious force, and striking against the crossbar at the top, the stone or ball is projected to a very great distance.

The *balista*, for throwing arrows, was, according to the idea of M. Folard, of a construction considerably different, though depending on the same mechanical principles with the *catapulta*; yet, from the promiscuous use of the two terms, which we often find made by the ancient authors, I think it is not at all improbable that the same machine might have been so contrived as to serve both for stones and arrows: for instance, nothing more was necessary than to fix a sort of long trough or groove, horizontally projecting from the cross-beam at the top, in which the arrows should be placed, with their ends a little advanced beyond the line of the cross-beam. It is evident, that when the spring-lever struck against the beam, so as to throw out a stone from the dish, the arrows in the groove, receiving the whole force of the stroke, would be discharged with great violence at the same time.

But these engines, the *catapultæ* and *balistæ*, though most formidable in their effects, were incapable of making a breach in the walls of a strongly fortified city. The only engine capable of producing this effect was the *battering ram*; and the whole contrivances of the *aggeres*, or terraces, towers, *testudines*, *vineæ*, or covered galleries, had no other object than to facilitate the approach of the ram, which, if it was once effected, and the engine had free space to play, all ancient authors are agreed that it was decisive of the fate of the town. No wall, however strong, was capable of resisting its force. The object, therefore, of the besiegers was, by means of the *catapultæ* and *balistæ*, and by the command which the elevation of the terrace gave them, to clear the walls of their defenders, and to obstruct the play of those engines which the besieged were continually working to prevent the approach of the ram, or to weaken its force; so that, as soon as the besiegers from the terrace were able to silence the batteries from the walls, the ram, coming up in security under the cover of a *testudo*, began to play without intermission till the breach was effected. It consisted

of an enormous beam of wood, armed at the one end with a head of iron, and suspended so as to hang in *equilibrio*, from a cross-beam of the *testudo*, or pent-house.

The besiegers, besides employing the contrivances of *aggeres*, *testudines*, *vineæ*, and *battering ram*, constructed frequently movable towers of such a height as to overtop the walls of the city; and these towers answered a variety of purposes. The under part of the tower served for a *testudo* to a *battering ram*, which played under its cover, while on the top were planted archers and slingers to clear the ramparts of those who endeavored to counteract the operation of the ram by letting down great beams, chains, and hoops to destroy its equilibrium, and impede its motion. These movable towers were frequently so constructed as to let down, from the side next to the city, a platform to serve as a bridge from the tower to the top of the walls, by means of which an access was gained for the besiegers into the city.

For the defence of the city, the besieged employed the same engines used by the besiegers for the discharge of stones and darts, the *catapultæ* and *balistæ*. The walls were carefully manned on every quarter where an attack was meditated, and every device employed for annoying the besiegers, retarding their operations, and preventing the approach of the ram to the walls. The gates, which the besiegers generally attempted to burn down, were defended from fire by covering them with iron plates or with raw skins. The wall above the gates was likewise bored with perpendicular openings through which the besieged could pour water to extinguish them if set on fire. In the inside was a *portcullis*, suspended by iron chains, which, when a small body of the enemy had forced the way through the gates, the besieged could suddenly let down, and thus despatch them when they were separated from the rest of the assailants.

Such were the most ordinary methods employed by the ancients in the attack and defence of fortified towns. I speak not of the Romans alone; for they borrowed the greater part of their knowledge, in this branch of the military art, from the Greeks, among whom it was early reduced to a system. If we compare the description which Josephus has given of the siege of Jotapat by the Romans in the reign of Vespasian, with the detail given us by Thucydides of the siege of Platea, which happened about 600 years before that period, we shall find the same method both of attack and defence. They continued to be in general use down to modern times; till the invention of gunpowder made a great change in almost every part of the art military.

It was not till the latter ages of the commonwealth, that naval warfare was at all practised by the Romans. Till the first Punic war, the Romans never had any equipment of ships for the purposes of war. A Carthaginian galley which was stranded on the coast of Italy, served them, as formerly observed, for a model;

and it is said, with a very moderate regard to probability, that, in the space of two months, this resolute and active people equipped a fleet of one hundred galleys of five banks of oars, and twenty of three banks. The construction of these vessels, and particularly the disposition of the different ranges, or banks of oars, has given occasion to much speculation among the moderns. The difficulty of supposing five different lines or orders of rowers disposed one above another, has occasioned the conjectures of some authors, that the expression of *triremes* and *quinqueremes* meant no more than that there were in some galleys three men to an oar, and in others five. But the expressions of the ancient writers clearly show that there were different ranks which sat above each other. Nothing can be more ridiculous than the importance which men of learning assume to themselves from that parade of erudition, which they sometimes choose to display on the most insignificant topics. Meibomius has written a treatise upon the structure of the ancient *triremis*, in which, from a variety of quotations from ancient authors, and critical disquisitions upon the meaning of some of their technical phrases, he shows that Scaliger, Salmasius, and the ablest of the modern critics, were totally in the dark as to the true sense of those authors; and so highly does he value himself upon his discoveries, that he dedicates his book, *Regibus, Principibus, Rebus-publicisque Maris Interni accolis*; "To all the kings, princes, and states, whose territories lie upon the Mediterranean." His treatise again has been answered by Opelius, and thus the dispute goes on to the length of folio volumes to settle this important point, whether the *thranites*, one order of rowers, sat uppermost, and the *thalamites* undermost, or whether these last were above, and the former below.\*

\* The late Lieutenant-General Melville, who united a taste for antiquities to great professional knowledge, has some curious ideas upon this subject of the structure of the ancient galleys. He conjectures that the waist part of the vessels rose obliquely above the water's edge, with an angle of forty-five degrees or near it; that upon the inner sides of this waist part, the seats of the rowers, each about two feet in length, were fixed horizontally in rows, with no more space between each seat and those on all sides of it, than should be found necessary for the free movements of men when rowing together. The *quincunx*, or chequer order, would afford this advantage in the highest degree possible; and in consequence of the combination of two obliquities, those inconveniences, which, according to the common idea of the regulation of such galleys, must have attended the disposition of so great a number of rowers, are entirely removed. In 1773, the General caused the fifth part of the waist of a *quinqueremis* to be erected in the back yard of his house, in Great Pulteney Street. This model contained with sufficient ease, in a very small place, thirty rowers in five tiers of six men in each lengthways, making one-fifth part of the rowers on each side of a *quinqueremis*, according to Polybius, who assigns three hundred for the whole complement, besides one hundred and twenty fighting men. This construction, the advantages of which appeared evident to those who examined it, serves to explain many difficult passages of the Greek and Roman writers concerning naval matters. The General's discovery is confirmed by ancient monuments. The collection at Portici contains ancient paintings of several galleys, one or two of which, by representing the stern

Besides the *longæ naves*, or ships of war, such as those we have mentioned, the Romans made use of small vessels called *liburnica*, which were serviceable during a naval engagement in carrying the general's or admiral's orders from one part of the squadron to the other. They were so called from the Liburni, a people of Illyria, who followed a piratical way of life, and used small, quick-sailing vessels. In a naval engagement the general himself, in one of these *liburnica*, was wont to sail through the fleet, and give his orders for the dispositions and motions of the squadron.

In their naval engagements the ancients had no means of assailing each other at a distance but with the javelin; nor had they any contrivance for disabling the vessels of the enemy, unless in some of their largest ships, which were constructed with towers on their stern, from which they could use the balista or catapulta. The *corvus*, or grappling machine, used by the Romans, served to fasten the ships to each other during action, while the men were engaged with the sword and buckler or with spears. Under the emperors the Romans maintained their distant conquests not only by their arms but by their fleets, which were disposed in all the quarters of the empire, and preserved a fixed station, as did the legions.\*

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## CHAPTER VI.

Reflections arising from a view of the Roman History during the Commonwealth.

IN the view which I have endeavored to give of the rise and the progress of the Roman republic, and of the states of Greece previously, I have been less attentive through the whole to a minute and scrupulous detail of events, than studious to mark

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part, show both the obliquity of the sides, and the rows of oars reaching to the water; and many ancient basso relievos show the oars issuing chequer-wise from the sides. See Gillies' History of Greece, cap. 5.

\* Augustus stationed two permanent fleets at Ravenna, on the Adriatic, and at Misenum, in the Bay of Naples, to command the two seas, each squadron containing several thousand marines. They consisted chiefly of the lighter vessels called *Liburnica*. A very considerable armament was likewise stationed at Frejus, on the coast of Provence, and another was appointed to guard the Euxine. To these may be added the fleet which preserved the communication between Gaul and Britain, and a number of vessels constantly maintained on the Rhine and Danube.