Rt. from Steedman,
H. W. Preston
1820

A

MILITARY DICTIONARY,

Explaining and Deſcribing the

Technical Terms, Phraſes, Works, and Machines,

Uſed in

THE SCIENCE OF WAR.

A

MILITARY DICTIONARY,

Explaining and Deſcribing the

Technical Terms, Phraſes, Works, and Machines,

USED IN

THE SCIENCE OF WAR;

Embelliſhed with COPPER-PLATES

OF

All the Common Works uſed

IN

MILITARY ARCHITECTURE:

AS WELL AS

The Utenſils employed in Attacks and Defence;

WITH

References for their Explanation:

AND

AN INTRODUCTION

TO

FORTIFICATION.

LONDON,
Printed for G. Robinſon, and Fielding and Walker, in Paternoſter-Row.
MDCCLXXVIII.

INTRODUCTION.

IT is a fruitleſs enquiry to ſearch into Antiquity, to find out the periods wherein the numerous machines, uſed by the antient warriors, were firſt invented, it being almoſt an impoſſible thing to determine: but we may reaſonably conclude, that the ſword and bow may claim the precedence; for we find in hiſtory, both ſacred and prophane, that they were uſed in the moſt early ages of the world, and by the moſt barbarous nations and remote people. Nay, indeed, hiſtory does not even acquaint us with the name of the firſt inventor of fortification. We may preſume that in the firſt ages of the world prudence and neceſſity induced men to the practice of this art. That at firſt they defended themſelves and their flocks within incloſures made of the trunks and branches of trees mixed with earth. Then, when inſolence and injuſtice came to ſome height, the more peaceable aſſociated together, forſook their habitations in the open fields, and built places of ſafety called towns, which they ſurrounded with walls, to prevent ſurpriſe. And not only ſo, but, to prevent hoſtile at-

tempts, they erected little walls or parapets within the larger walls, behind which they defended themſelves with their arrows, at the ſame time covering themſelves from thoſe of the enemy, and oppoſing their approaches. After this, the better to facilitate the execution with their arrows, they made uſe of port-holes at proper diſtances in theſe parapets. The beſiegers, to defend themſelves from theſe holes, were covered with ſhields and bucklers, whereby they might approach in ſafety the foot of the walls, and then ſcale them: and in order to deſtroy theſe walls, they invented battering rams, and wooden machines armed with iron; which being ſuſpended, and driven by the force of men, beat down the walls, made a breach, and through this the aſſault was facilitated. To obviate the effect of theſe engines, the beſieged made the foot of their walls with a talus or ſlope; but as the beſiegers might, for all this, with pick-axes, hammers, &c. break down the wal's, the beſieged made their parapets jut out in a ſalient angle, under which they had a port-cullis, to throw ſtones and fire upon the head of the beſiegers, that prevented a ſap or breach in the walls. The beſiegers, to favour their approaches and poſt themſelves at the foot of the wall, invented, as a principal engine, wooden galleries that were moveable upon wheels and covered at top, under which they worked their battering-rams, or covered ſuch as

as were employed about the demolition of the wall. To obviate this, the beſieged ſurrounded the place with a ditch, the depth of which prevented the approaches of the enemy's engines. The beſiegers endeavoured to fill up the ditch, notwithſtanding all oppoſition from the holes and port-cullis, for which purpoſe they invented ſeveral machines to throw ſtones into the defences of the place. As till then the walls and ramparts were ſurrounded with circular, or rather ſeveral right lines, that only formed ſaliant angles, and were but a bad defence for the ditch: therefore they made theſe lines into ſaliant and returning angles quite round; but ſtill there was a ſpace at the foot of the returning angle, which the beſieged could not defend on account of its height; and, therefore, they invented towers at each ſaliant angle that defended the returning angle. But, as arrows are ſhot off in a right line, and as the convexity of round towers could not be ſeen nor flanked lengthwiſe, they invented ſquare towers that were only ſaliant angles, an arrow-ſhot diſtant from each other, and theſe they erected quite round the place. Afterwards the foot of theſe towers was ſurrounded with a little foot-track covered with a wall, to hinder a deſcent into the ditch, and this has ſince been called fauſſe braye. The beſiegers, perceiving that theſe towers oppoſed their approaches, likewiſe raiſed towers that were higher upon the outer edge of the ditch which they called

counterſcarps. From theſe poſts they diſcovered the beſieged in their towers, and drove them from thence with ſtones, arrows, javelins, and other engines, till they ſent a detachment to ſcale the walls and make themſelves maſters of them.

The old Greeks and Romans, who borrowed both their offenſive and defenſive arms from the people of the Eaſt, fortified their cities almoſt in the ſame manner with foſſes, curtins, and towers. And we find that the beſt towns of the ancients were ſituated upon eminences. Cæſar, in book vii. of his war with the Gauls, deſcribes the walls of the city of Bourges or Bruges, from which we may form ſome idea of the ancient method of fortification.

The above manner of attacking and defending places continued till about 1378, when Bertold Schwart, a Cordelier friar, found out the ſecret of gun-powder, though ſome are of opinion that the invention is owing to the Chineſe. Immediately men applied themſelves to diſcover the different uſes in which powder might be employed. The muſket was firſt invented, and afterwards the cannon. Then the method of fortification was altered, but at firſt giving the ramparts and towers more thickneſs and more ſtrength. And the beſieged, obſerving that round towers and even ſquare ones had always ſome place that was not ſeen from the body of the fortreſs, and that the miners of the beſiegers might carry on their works

works without any danger from the fire of the place, changed the form of their towers, by making them terminate in a point towards the country, which expoſed the beſiegers; they alſo diminiſhed the height of theſe towers, increaſed their ſolidity, and left open the ground they ſurrounded. In this ſtate they were called baſtions, where they placed part of the garriſon as a guard, and planted their batteries.

There can be no compariſon ſtated between the ancient and modern method of fortification, becauſe their manner of attacking and defending is entirely different.

The moderns have retained all they could after the ancients; the fire-arms have obliged them to uſe other precautions; but have invented nothing that would have been of uſe to the ancients. We have borrowed from them the breadth and depth of the ditches, the thickneſs of the walls, the towers to flank the curtins, the paliſadoes, the intrenchments within the ramparts and towers, the advantage of many flanks, in multiplying of which only modern fortification conſiſts; and this fire-arms make the more eaſy to execute.

Fortification, according to the modern methods, is either regular or irregular.

Regular fortification, is that built in a regular polygon; the ſides and angles of which are all equal, being commonly about a muſket ſhot from each other.

Irregular fortification, on the contrary, is that where the ſides and angles are not uniform,

equidiſtant, or equal; which is owing to the irregularity of the ground, vallies, rivers, hills, and the like.

The principal maxims of fortification are theſe: 1. That every part of the works be ſeen and defended by other parts, ſo that the enemy can lodge no where without being expoſed to the fire of the place. 2. A fortreſs ſhould command all places round it; and therefore all the out-works ought to be lower than the body of the place. 3. The works fartheſt from the centre ought always to be open to thoſe more near. 4. No line of defence ſhould exceed a point-blank muſket-ſhot, which is about an hundred and twenty, or an hundred and twenty-five fathoms. 5. The more acute the angle at the center is, the ſtronger will be the place. 6. In great places, dry trenches are preferable to thoſe filled with water, becauſe ſallies, retreats, and ſuccours, are frequently neceſſary; but in ſmall fortreſſes, water-trenches, that cannot be drained are beſt, as ſtanding in need of no ſallies, &c.

The neceſſity of building fortreſſes, and the manner of chuſing the moſt proper ſituations for ſuch works in all ſtates whatever, appears from the innate principle ſelf-preſervation; for a powerful nation has always powerful enemies; ſo that, by the loſs of a battle, the whole country is in danger, if the remainder of the routed army has no place of ſafety to retire to, where they may rally and receive ſuccours,

ſuccours, either from their allies, or new raiſed troops from that part of the country, which the enemy is not yet maſter of.

It has often happened, that, after an army has been defeated, it has received ſuch ſupplies in a place of ſafety, as not only to be enabled to ſecure their country, but to drive the victorious army out of the field with conſiderable loſs; of which there are many inſtances in both ancient and modern hiſtory. Whereas, if an army is once become victorious in a country deſtitute of fortreſſes, it ſoon is enabled to maſter the whole.

An inſtance of this kind happened here in England; for, had there been ſome good fortified places, when William the Conqueror entered this country, it would not have been loſt by the gaining one battle; and had the city of Genoa been fortified, the Auſtrians could not have taken it at once, and been maſters of the whole ſtate, as they did in 1746; in ſhort, were it not for the many fortified places in Flanders, the Auſtrian dominions in that country would have been loſt long ago.

In ſmall ſtates and republics, they are no leſs neceſſary, than in great kingdoms, in order to reſiſt a powerful enemy, till their allies can come to their aſſiſtance. To this it may be objected, that fortified places in a free ſtate, may be the means of enſlaving it by ſome am-

bitious and powerful man, assisted by a neighbouring prince; but, as no instance of this kind is recorded in history, and the contrary is evident from the states of Holland, who have many fortified places, though they have preserved their liberty, ever since their first separation from the Spaniards, it is evident, that this objection has no foundation.

Maritime powers, as England, Sardinia, Sicily, &c. no less require fortified places; for an enemy may, by surprize, invade them, notwithstanding the militia of the country, or a superiority of naval force, and lay waste a great track of land.

With regard to the situation of a fortress, it must depend chiefly on the reasons for which it is built; if they are intended to promote or protect trade, they must be erected near the sea, lakes, navigable rivers or channels; if they are designed to guard a pass or inlet into a country, they should be placed on hills or high grounds, that from thence they may secure and defend that pass, and not be commanded by any other adjacent hill. If they are intended to secure a country from an invasion, they must be situated in such a manner, that the enemy must attack them, before he can advance any further; and, in case he should pass by, they may cut off his communication with his own country, whereby his convoys may become precarious and difficult, and

and therefore muſt either beſiege them, or not advance any further.

In iſlands, the beſt ſituations are on the coaſts, and in ſuch places where an enemy may eaſily land, and where the garriſon has a ſafe communication with ſome inland town, to receive ſubſiſtance and ſuccours in caſe of an attack; or if there are any large rivers that empty themſelves into the ſea, or harbours deep enough for large ſhips to enter, there ſhould always be one or more fortreſſes built near them, in ſuch places as to prevent ſhips from entering, without ſuffering greatly from their cannon.

In an iſland of no great extent, whoſe coaſt is of an eaſy acceſs in moſt parts, and where it it is impoſſible to fortify every one, the beſt ſituation for a fortreſs is near the middle of the iſland, on a riſing ground; becauſe troops may be ſent from thence to any part, to oppoſe the landing of an enemy; but this fortreſs ſhould be pretty large, that, in time of need, the inhabitants of the iſland may retire into it, with their cattle and moſt valuable effects, and aſſiſt in defending the place, until the enemy is obliged to retire, either for want of proviſion, or having no hopes of making himſelf maſter of the place.

But, if the iſland be conſiderable, it is not ſufficient to build fortreſſes, near the moſt convenient landing places, but there ſhould alſo be ſome built in the paſſes, to prevent an enemy from penetrating farther into the country, in

caſe he ſhould find an opportunity to land, notwithſtanding the forts on the coaſt, or, at leaſt, to ſtop his progreſs long enough for the country to riſe and oppoſe him.

In ſmall ſtates that lie in an open country, which cannot afford the expences of building many fortreſſes, and are not able to provide them, when built, with able garriſons, military ſtores, and proviſions; the beſt way is to fortify their capital, which being made ſpacious, may ſerve as a retreat to the inhabitants in time of danger with their wealth and cattle, until the ſuccours of their allies arrive.

If a fortreſs be built near a river, lake, or the ſea, it muſt be conſidered whether it ſhould ſtand quite cloſe to the water's ſide, or at ſome diſtance, ſo as the works may not be battered by ſhips; whether an enemy may eaſily land thereabouts, and attack it by land; whether it is poſſible for ſhips to come cloſe or not. If there be depth of water ſufficient for ſhips to come cloſe to the walls, the parapets muſt be made high, and thoſe that can be ſeen from the main top, covered above with canvaſs, planks, or any thing elſe in time of a ſiege, to conceal the troops behind them.

When a fort ſtands ſo near the water, that it may be battered from the ſhips, it is in danger of being ſoon deſtroyed by the ſuperiority of their fire. On the contrary, when the water is ſo ſhallow, that the ſhips cannot come near enough to batter in breach, care muſt be taken to

to prevent the enemy's landing in boats, and ſtorming of it by land; in order to this, redoubts and batteries muſt be fortified all round with a good wall and ditch, that they may not be ſurpriſed in the rear.

In a place where there is an harbour, ſome parts or other of the fortreſs ſhould command it, if poſſible; for, though redoubts and batteries may be erected to defend its entrance, yet if the enemy can deſtroy ſome, and paſs by others, ſhips may eaſily enter: and as theſe defences are at ſome diſtance from the fortreſs, they are generally taken either by ſtratagem or ſtorm, as being ſeparated from the garriſon, and not eaſily relieved. But, if part of the fortreſs commands the harbour, the ſhips can never ride ſecure in it, until the place is taken, which is all that can be expected.

The entrance ſhould not, however, by any means, be neglected; but wherever there is a point of land that commands the approach of an enemy, it ſhould be carefully ſecured by ſome work or other; and as it often happens that ſmall rocky iſlands lie in the entrance, which, when properly fortified, are very advantageous in the defence of it, they ſhould not on any conſideration be neglected. For nothing conduces ſo much to the ſafety of a place, ſituated near the ſea, or a navigable river, as thoſe works, which keep the enemy's fleet at a diſtance, ſince by that means their chief ſtrength is of no ſervice

vice to them; and, though they ſhould make a deſcent in ſome part or other, with a few ſmall pieces of artillery, they may be eaſily repulſed by the garriſon. As theſe kinds of ſituations are the moſt uſeful to a trading nation, I have dwelt the longer on the beſt manner of ſecuring them.

When an old fortreſs is to be rebuilt, the engineer ought not to rely too much on the capacity of him who firſt erected it; he ſhould well conſider whether there is not any other ſituation thereabouts, that might be better than the former; whether the old works are properly adapted to the nature of the ground; how much expence will be ſaved by building upon the old foundations; whether it is too big or too little; whether following partly the old plan, and building the reſt in a different manner, would not be better than to follow it in all its parts. In ſhort, he ſhould conſider attentively every minute circumſtance, in order to form a true idea of the ſituation, the figure of the works, and the conſequences reſulting therefrom, before he comes to an ultimate determination.

As the variety of nature is infinite, ſo it is impoſſible to deſcribe all the different ſituations where the fortreſſes may be built: it requires the greateſt ſkill and knowledge to fix upon ſuch as may beſt anſwer all the different expectations, and, as the building and maintaining them,

them, is attended with very great expences, they become heavy burthens to a nation, when they do not anſwer the intention for which they were built.

Fortification is better taught by repreſentation than by diſcourſe, and therefore we have laid down all the parts of it in the two cuts hereto annexed; in the firſt upon a plane, and in the ſecond, by an orthographical ſection, or profile, which are explained according to the references, and more fully under the reſpective articles in the ſubſequent Dictionary.

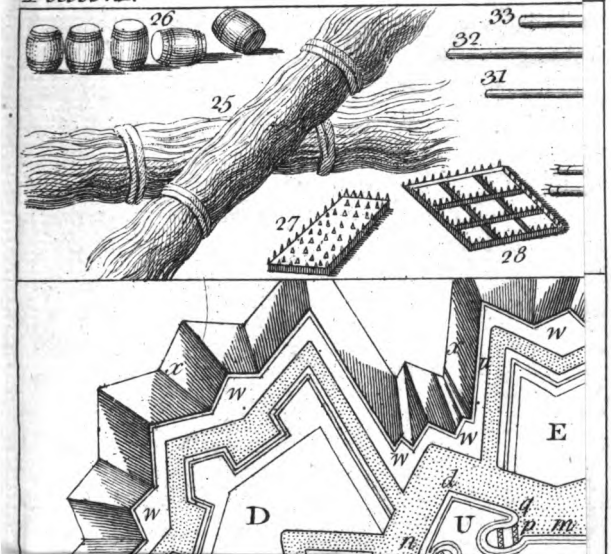
EXPLA-

EXPLANATION *of the* References *in the* Plates *of* FORTIFICATIONS *and* ATTACKS, *and* MILITARY UTENSILS.

PLATE I.

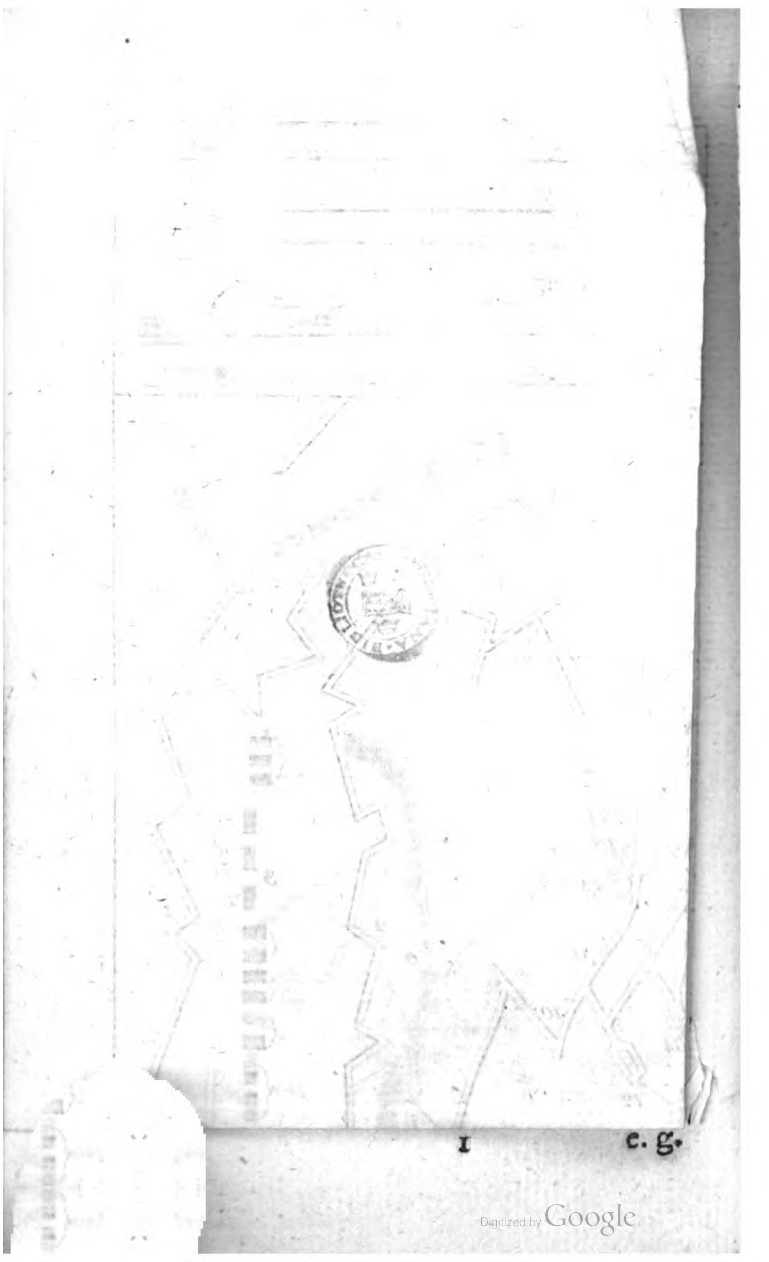
A. *THE Town, an Irregular Fortification.*
B. *The Citadel, a Regular Pentagon.*
C. *A Horn Work.*
D. *A Crown Work.*
E. *A Single Tenaille.*
F. *A Double Tenaille.*
G. *A Prieſt's Bonnet.*
H. *A Swallow's Tail.*
I. *A Counter Guard.*
K. *A Raveline.*
L. *A Half Moon.*
M. *Two Lunettes.*
N. N. *Tenailles in the Foſs.*
O. *A Horſe Shoe.*
P. *A Bonnet.*
Q. *A Regular Baſtion.*
R. *An Irregular Baſtion.*
S. *A Deformed Baſtion.*
T. *A Flat Baſtion.*
U. *A Demi Baſtion.*
W. *A Retrenchment.*
X. *A Retirade.*
Y. *Redans, or Indented Works.*
Z. *An Envelope, or Sillon.*
a. b. *The Interior Poligon.*
c. d. *The Exterior Poligon.*
e. f. *A Curtin.*

Plate. 1.



8. *Epaulement.*

9. *At-*



g. *A Flank.*
g. *A Face,*
p. *The Gorge.*
f. g. *Angle of the Curtin.*
g. c. *Angle of the Shoulder.*
c. i. *The Flanked Angle.*
b. k. *Angle of the Poligon.*
m. d. *Angle of the Tenaille.*
z. *Line of Defence Razant.*
fs. *Line of Defence Fichant.*
z. *The Second Flank.*
c. *The Capital.*
o. *Cazemates.*
q. *Orillons.*
n. *A Shoulder.*
r. *A Cavalier.*
o. *A Platform.*
t. *A Coffre.*
s. *A Capomere.*
u. *A Traverſe.*
v. *The Covert Way, and Counterſcarp.*
w. *Places of Arms.*
x. *The Glacis.*
y. *The Advance Foſs, Ditch or Moat.*
1. *Lines of Circumvallation.*
2. *Lines of Contravallation.*
3. *Part of the Camp.*
4. *Park of Artillery.*
5. *The Head Quarters.*
6. *Riſing Grounds.*
7. *Opening of the Trenches, by the Advantage of the Riſing Grounds.*
8. *Epaulement.* 9. *At-*

9. *Attack on the Right.*
10. *Attack on the Left.*
11. *Parallels, Lines of Communication, or Boyau's.*
12. *Likewiſe Boyau's.*
13. *Places of Arms.*
14. *Batteries for diſmounting the Enemy's Guns.*
15. *Breach Batteries.*
16. *Mortar Batteries.*
17. *Coehorn Mortars.*
18. *A Sapp.*
19. *A Lodgment.*
20. *Mines.*
21. *Traverſee to paſs to foſs.*
22. *Lodgments on the Works.*
23. *A Powder Chamber.*
24. *A Bomb Chamber.*

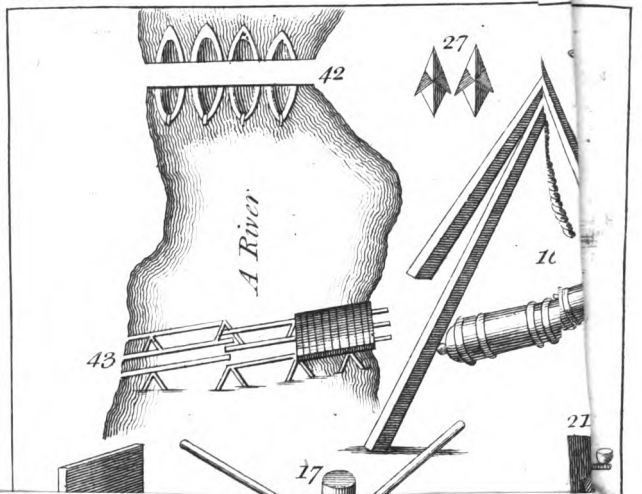
MILITARY UTENSILS.

In PLATE I.

25 *Faſcines, or Faggots.*
26. *Earth Barrels filled.*
27. *A Herſe.*
28. *A Herſillon.*
29. *A Wedge for pointing the Cannon.*
30. *Pincers, for putting red-hot ball into the Cannon.*
31. *A Hairy Drag.*
32. *A Lintſtock, to fire the Cannon.*

33.

Plate 2.



33. *A Worm, to draw the Shot.*
34. *A Gunner's Hammer.*
35. *A Drag for cleaning the Cannon.*
36. *A Shovel to ſtir the Powder with.*
37. *An Iron Crow.*
38. *A Cannon Rammer.*
39. *Inſtrument to put in the Powder.*
40. *Chained Stakes to ſtop up Paſſes.*

MILITARY UTENSILS.

PLATE II.

1. *A Cheval de Frize mounted.*
2. *A Cheval filled with Fireworks.*
3. *A Barrel with Fireworks.*
4. *Engine for lifting heavy Baggage, &c.*
5. *Floating Bridge, to croſs a wet Ditch.*
6. *Madrier for carrying on Approaches.*
7. *An Engineer's Level.*
8. *Croſs-Bar Bullets.*
9. *Croſs-Bar Half-Balls.*
10. *Chained Balls.*
11. *A Miner's Inſtruments to make Holes in Rocks, &c.*
12. *Gate with Orgues.*
13. *Gate with a Herſe, or Portcullis.*
14. *A little Crab, to raiſe Cannon, &c.*
15. *A Chicrette, or Crab.*
16. *Another Crab, to fix Cannon on their Carriages.*

17.

17. *A Capſtane, or Crane.*
18. *A Scaling Ladder.*
19. *Board for taking of Flats.*
20. *A Gabion.*
21. *A Doſſer.*
22. *A Bag of Earth.*
23. *Gallery with a Covering of Gabions.*
24. *Clayes or Hurdles.*
25. *A Petard, with its Madrier.*
26. *A Chandelier.*
27. *Caltrops or Crows Feet.*
28. *A Cannon on its Stocks.*
29. *A Mortar on its Stocks.*
30. *Bombs.*
31. *A Hollow Bullet.*
32. *A Crown Firework, or Crown with a Fire-pot.*
33. *An Aim Frontlet.*
34. *Grenades.*
35. *Sacks of Earth for the Beſieged.*
36. *A Cannon on its Stock and Carriage.*
37. *Cables to ſtop Flying Bridges, or Boats, &c.*
38. *Heriſſons.*
39. *Piece to ſhoot at Rejoicings.*
40. *Carcaſſes.*
41. *A Caiſſon, with its Lid and Saucidge.*
42. *A Bridge of Boats.*
43. *Flying Bridge of Communication.*
44. *Floating Bridge upon Caſks.*

An ORTHOGRAPHICAL SECTION *of all the common* Works, *for the better* Underſtanding *of the* WORKS.

in PLATE II.

1, 10. *Level of the Plan.*
1, 2. *Baſe of the Rampart.*
2, 5. *The Fauſſe Braye.*
2, 4. *Space of the Fauſſe Braye.*
4, 5. *Baſe of the Parapet of the Fauſſe Braye.*
5, 6. *The Berme or Foreland.*
6, 7. *Breadth of the Ditch.*
7, 9. *The Covert-Way.*
29, 10. *The Glacis.*
3, 4. *Breadth of the Banquet of the Fauſſe Braye.*
8, 9. *Breadth of the Banquet of the Covert Way.*
1, 19, 2, 26. *Height of the Rampart.*
19, 20. *Inward Talus of the Rampart.*
26, 30. *Outward Talus of the Rampart.*
22, 30. *Baſe of the Parapet.*
22, 23. *Height of the Parapet.*
22, 25. *Glacis of the Parapet.*
22, 0. *Height of the Banquet.*
24, 0. *Height above the Banquet.*
4, 27. *Height of the Banquet of the Fauſſe Braye.*
27, 28. *Glacis of the Fauſſe Braye.*
6, 11, 7, 16. *Depth of the Ditch.*
11, 12, 15, 16. *Talus of the Ditch.*
6, 12. *The Eſcarpe.*

7.

45. *Corbeilles, or little Baſkets.*
46. *Fire-pot full of Fireworks.*
7, 15. *The Counterſcarp.*
13, 14. *Breadth of the Cuvette.*
17, 18. *Talus of the Cuvette.*
9, 29. *Depth of the Covert Way.*
20, 21. *The Terre Plain, or the Level of the Rampart.*

A

MILITARY DICTIONARY.

A

ACANZII, the name of the Turkiſh light-horſe that form the van-guard of the Grand Signior's army.

Acceſſible. Something that may be come at, or approached to; thus we ſay, ſuch a place is acceſſible on one ſide, &c.

Acclivity, is uſed to denote the aſcent of a hill or riſing ground, as declivity is the deſcent. It is ſometimes uſed for the talus of the rampart. See *Talus*.

Accoutrement, an old term, ſignifying dreſs, ſtill uſed for the furniture of a ſoldier.

Action, is an engagement between two armies, or different bodies of troops belonging to them. Alſo implies ſome memorable act done by an officer or commander of a body of troops.

Adjutant, the ſame as *Aid Major*. The former name is moſt uſed in *England*, the latter abroad. See *Aid Major*.

Advanced, ſignifies ſomething poſted or ſituated before another.

Advanc'd Foſſe. A moat round the *Glacis*, or eſplanade of a place, to prevent a ſurprize. See *Avant Foſſe*.

Advanc'd Guard, or *Vanguard*, denotes the firſt line or diviſion of an army, ranged or marching in order of battle,

or it is that part which is next the enemy, and marches firſt towards them. See *Guard*.

Agger. In the ancient military art, it was the bank or rampart, compoſed of various materials, as earth, boughs of trees, &c. of the ſame nature as that by moderns called *Lines*. It is alſo uſed in other ſenſes, as for a wall, or bulwark; the middle part of a military road; and ſometimes for the heaps of earth raiſed over graves, commonly called *Tumuli*.

Agiades, in the Turkiſh armies, are a kind of pioneers, employed in fortifying camps, and the like offices.

Aid de Camp. An officer always following one of the generals; that is, the field marſhal, general in chief, lieutenant general, or major general, to receive and carry their orders, as occaſion requires. When the king is in the field, he appoints young gentlemen of note to carry his orders, and they are called the king's *Aids de Camp*. A lieutenant general has two *Aids de Camp*, and a major general one. They ought to be alert in comprehending, and punctual and diſtinct in delivering all orders.

Aid Major, or *Adjutant*. An officer who eaſes the major of part of the burthen of his duty, and performs it all in his abſence. He receives the orders every night from the brigade major; which after carrying them to the colonel, he delivers them out to the ſerjeants in the ring. When detachments are to be made, he gives the number to be furniſhed by each company, and aſſigns the hour and place of rendezvous. He alſo places the guards, diſtributes ammunition, &c. Each troop of guards has but one major, who has two *Aids Majors*. Every fortified place has but one major, who has more or fewer *Aids Majors* under him, according to its bigneſs. Every regiment of foot has as many *Aids Majors* as it contains battalions. When a battalion is drawn up, the *Aid Major's* poſt is on the left, beyond all the captains, and behind the lieutenant colonel. Adjutant by the French is ſometimes uſed for Aid de Camp.

Aim Frontlet. An engineer's machine, whereby he levels and directs his cannon.

Air Gun. A machine for exploding balls by means of condenſed air.

Alarm,

Alarm, sometimes falsely writ *Alarum*, is a sudden apprehension upon some report, which makes men run to their arms to stand upon their guard. False alarms are when they are taken upon false reports, occasioned by a fearful or negligent centinel; or they are given by the enemy, only to keep their adversaries from rest, or otherwise to deceive them; or, sometimes by a vigilant officer, to try if the piquet guard are strict upon duty.

Alarm Bell, that rung upon any sudden emergency, as a mutiny, &c.

Alarm Post. The ground appointed by the quarter master general for each regiment to march to, in case of an alarm.

Ambuscade, or *Ambush*. A body of men that lie concealed in a wood, or other convenient place, to surprize or enclose an enemy. *To fall into an ambush*; *To discover an ambush*; *To defeat an ambush*; are phrases used on account of these parties.

Ammunition. It implie all sorts of warlike stores, but more particularly powder and ball.

Ammunition Bread. The bread that is provided for, and distributed to the soldiers. The usual allowance is a loaf of six pounds to every soldier, once in four days. Whoever is desirous of knowing the quantity of ammunition necessary for the siege of a place may consult the Chev. de St. Julien's treatise *de la Forge de Vulcain*; and the quantity requisite for the defence of a place, may consult Surrey de St. Remy's *Memoirs d'Artillerie*.

Angle. As a geometrical term in general, signifies the meeting of two lines, and touching one another in the same plain; yet not lying in the same strait direction, but so, that if prolong'd, they would cut one another, and so form another angle upon the back of the first.

A Right Angle is form'd by a line falling perpendicularly upon another, and the measure of this angle is always 90 degrees.

An Acute Angle. That which is sharp, and less open than the right angle, in measure under 90 degrees.

An Obtuse Angle. That which is blunt, and more open than a right angle; the same as *Ambligon*, which is more than 90 degrees.

An Angle Rectilinear is made by strait lines, to distinguish it from the spherical, or curvilinear.

Angle at the Center. In fortification, is that which is formed in the midſt of the *polygon*, or figure, by two lines proceeding from the center, and terminating at the two neareſt angles of the *polygon*.

Angle of the Curtin, or *Angle of the Flank.* That which is made by, and contain'd between the curtin and the flank.

Angle of the Polygon. That which is made by the meeting of the two ſides of the *polygon*, or figure, in the center of the baſtion.

Angle of the Triangle. Half the angle of the *polygon*.

Angle of the Baſtion, or *Flank'd Angle.* That which is made by the two faces, being the utmoſt part of the baſtion, moſt expoſed to the enemies batteries, and called the point of the baſtion.

Angle of the Elevation. See *Elevation*.

Angle diminiſh'd. Only uſed by the *Dutch* engineers, and compoſed by the face of the baſtion, and the exterior ſide of the *polygon*.

Angle of the Shoulder, or *Epaule.* Form'd by one face and one flank of the baſtion.

Angle of the Flank. Vide *Angle of the Curtin*.

Angle of the Tenaille, or outward *Flanking Angle*, called alſo *Angle-mort*, or *Dead Angle*, *Angle Rentrant*, or *Angle Inwards.* Made by two lines *fichant*, that is, the faces of the two baſtions extended 'till they meet in an angle towards the curtin, and is that which always carries its point towards the work.

Angle forming the Face, is the inward angle, compoſed of one face.

Angle forming the Flank. Made by the flank, and that part of the ſide of the *polygon*, which runs from the ſaid flank to the angle of the *polygon*, and if protracted croſſes the baſtion.

Angle of the Moat, is formed before the center of the curtin, by the outward line of the moat or foſſe.

Flank'd Angle, or point of the baſtion. See *Angle of the Baſtion*.

Angle Saillant, *Sortant*, or *Sallying Angle.* That which thruſts out its point from the work towards the country. Such is the angle of the counterſcarp before the point of a baſtion.

Angle

Angle Rentrant, or *Entering Angle*, An angle pointing inwards, as the *Saillant*, does outwards. Such is the angle of the counterscarp before the curtin.

Inward Flanking Angle. That which is made by the flanking line, and the curtin.

Angle of the Counterscarp. Made by two sides of the counterscarp before the middle of the curtin.

Angles of a Battalion. Made by the last men at the ends of the ranks and files.

Front Angles. The two last men of the front rank.

Rear Angles. The two last men of the rear rank.

Angon. A kind of javelin used by the French, who can dart it a considerable distance. The iron head of it resembles a fleur-de-lis; and it is the opinion of some writers, that the arms of France are not fleurs de-lis, but the iron point of the angon or javelin of the ancient French.

Anspesade. See *Lanspesade*.

Antestature. A small intrenchment, hastily made with pallisadoes, gabions, or bags of earth, wherewith men cover themselves suddenly, to dispute the rest of the ground, when the enemy has gained part. This term is become obsolete. See *Retrenchment*.

Antient. Is used sometimes for the ensign, or colours.

Appointée. A foot soldier, who for his long service and extraordinary bravery, receives pay above the private centinels, and expects to be advanced. This is in *France* only, we having no such in *England*.

Approaches. All the works that are carried on towards a place that is besieged; as the trenches, epaulments without trenches, redoubts, places of arms, sappe, galleries, and lodgments. *See these words in their several places*. Approaches *also signify* attacks. The besieged frequently make counter-approaches. See *Counter Approaches*.

Apron. The piece of lead which covers the touch-hole of a cannon.

Araigné, *Rameau*, *Branch*, *Return*, or *Gallery* of a Mine. See *Gallery*.

Archer. One who fights with a bow and arrow. The English archers were formerly esteemed the best in Europe, to whose superior abilities were imputed their many victories.

Architecture Military. The same as fortification. See *Fortification.*

Area. The superficial content of any rampart, or other work.

Armiger. An esquire, or armour bearer.

Armistice. A temporary truce or cessation of arms, for a short space of time.

Armory. The store house or repository or place wherein the military habiliments are kept, to be ready for use, on the least notice.

Armour. Denotes all such habiliments as serve to defend the body from wounds, especially of darts, a sword, a lance, &c. A complete suit of armour formerly consisted of a helmet, a shield, a cuirasse, a coat of mail, a gantlet, &c. all now laid aside.

Armourer. A person who makes or deals in arms and armour.

Arms. In general all kinds of weapons, whether used for defence or offence. *Arms of Offence* are the sword, pistol, musquet, bayonet, &c. See *Sword*, &c. *Arms of Defence* are shields, helmets, &c.

Arms of Courtesy, or *Parade*, are lances not shod; swords without edge or point, &c.

Army. A large body of soldiers consisting of horse and foot, completely armed and provided with artillery, ammunition, provisions, &c. under the command of one general; having lieutenant-generals, major-generals, brigadiers, and other officers under him. An army is composed of squadrons and battalions, and is usually divided into three corps, and formed into three lines; the first line is called the vanguard, the second the main body, and the third the rear guard, or body of reserve. The middle of each line is possessed by the foot, the cavalry form the right and left wing of each line; and sometimes they place squadrons of horse in the intervals between the battalions. When the army is drawn up in order of battle, the horse are placed at five feet distance from each other, and the foot at three. In each line the battalions are distant from each other one hundred and eighty feet, which is nearly equal to the extent of their front, and the same holds of the squadrons, which are about three hundred feet distant, the extent of their own front.

front. These intervals are left for the squadrons and battalions of the second line to range themselves against the intervals of the first, that both may more readily march through those spaces to the enemy: the first line is usually three hundred feet distant from the second, and the second the same distance from the third, that there may be sufficient room to rally, when the squadrons and battalions are broken.

Flying Army, or *Flying Camp*. See *Camp*.

Arms, place of See *Place*.

Array, or *Battle Array*. The order or disposition of an army, drawn up with a view to engage the enemy.

Arrow. A missive weapon, about three feet long, sharp-pointed and barbed, designed to be shot or thrown out of a bow.

Arsenal, or *Magazine*. A place appointed for making and keeping of all kind of warlike stores.

Artillery. All sorts of large fire arms, with their appurtenances, as cannon, muskets, carabines, bombs, mortars, petards, and the like. The train of artillery is a certain number of pieces of ordnance, mounted on carriages, with all their furniture fit for marching, as mortar-pieces, cannons, bombs, carcasses, &c. There are trains of artillery in most of the king's magazines, as at the Tower, Portsmouth, Plymouth, &c. The writers upon artillery are Casimir, Semionowitz, Brechtelius, Buchnerus, Braunius, Mieth, and S. Remy.—In his memoirs d'Artillerie, which contains an accurate description of all the machines and instruments of war.—There is a comptroller, and very many other officers belonging to the artillery; besides conductors, bombardiers, gunners, matrosses, pioneers, pontoon-men, carpenters, wheelwrights, smiths, coopers, tinmen, and collar-makers. See *Cannon*, *Mortar*, *&c.*

Artillery Park. See *Park*.

Assault, or *Storm*. The effort men make, and the fight they engage in, to become masters of a post, and gain it by main force, driving the defendants from it, and exposing their bodies, for this purpose, to the fire of the besieged, without the defence of any works. An assault is generally made by the regiments that guard the trenches, sustained by detachments from the army. Whilst it lasts, and both par-

ties are mixed, there is no danger of the cannon on either side, becauſe both are afraid of deſtroying their own men among the enemies. The phraſes the word is uſed in are; *To give an Aſſault: To be commanded to the Aſſault: To ſtand to an Aſſault: To ſecond the Aſſault: To repulſe an Aſſault: To carry by Aſſault.*

To Aſſault, or *Storm*. Vide *To Inſult*.

Aſſembly. The ſecond beat of drum before a march, at which they ſtrike and roll up their tents, and ſtand to their arms.

Aſtragal. A round moulding encompaſſing a cannon, about ſix inches from its mouth.

Aſſapes, or *Azapes*. The name of the auxiliary troops in a Turkiſh army, which are raiſed among the chriſtians under their dominion, and expoſed to the firſt ſhock of the enemy.

Attack. The general aſſault, or onſet, that is given to gain a poſt, or upon any body of troops. See *Aſſault*.

Attack of a Siege. The works the beſiegers carry on, either trenches, galleries, ſappes, or breaches, to reduce a place, on any of its ſides. Moſt commonly two attacks are carried on againſt the ſame *tenaille*, or front of a place, with lines of communication between them. Vide *Trenches*.

Falſe Attacks are not carried on with ſuch vigour as true, not being intended to do the ſame effect, but only to give a diverſion to the beſieged, divide the garriſon, and favour the real attack; and yet ſometimes the falſe attack has proved as favourable as the real.

To Attack in Flank, is to attack both ſides of the baſtion.

Regular, or *Droit Attacks*. Thoſe which are carried on in form, according to rules of art.

Avant. A French term contracted by us into Van.

Avant Foſſe, or ditch of the counterſcarp, next the campaign, at the foot of the Glacis. Engineers do not approve of it, where there is a poſſibility of draining it, becauſe then it is a trench ready made for the beſiegers, to defend themſelves againſt the ſallies of the beſieged; and beſides, it obſtructs the throwing of ſuccours into the place.

Avenue. An opening or inlet into a fort or baſtion, &c. See *Baſtion*.

BACULE. A kind of portcullis or gate made like a pitfall, with a counterpoiſe before the advanced guards, near the gate, which is ſupported with ſtakes. It is uſually made before the corps de guard, not far from the gate of a place.

Baggage, implies the clothes, tents, utenſils of divers ſorts, proviſions, and other neceſſaries belonging to an army.

Baggage Waggons. Thoſe in which the officers and regiments baggage is carried. Before a march they are appointed a rendezvous, and are marſhall'd by the waggon-maſter general, according to the rank the regiments have in an army. On a march they ſometimes follow their reſpective columns of the army, ſometimes the artillery, and ſometimes make a column of themſelves. The general's baggage is firſt. If the army march from the right, the baggage of that wing has the van; if from the left, the baggage of the left has the van. Each waggon has a flag, to ſhew to what regiment it belongs.

Bags. Vide *Canvas Bags.*

Bagonet. See *Bayonet.*

Ball. Vide *Bullet* and *Fire Ball.*

Bann. A proclamation made at the head of a body of troops, or in the ſeveral quarters of the army, by ſound of trumpet, or beat of drum, either for obſerving of martial diſcipline, or for declaring a new officer, or puniſhing a ſoldier, or the like.

Bandeliers. Little wooden caſes covered with leather, of which every muſketeer uſed to wear twelve hanging on a ſhoulder belt, or collar: each of them contained the charge of powder for a muſket. But they are not uſed now, the foot ſoldiers wearing a leathern pouch to a broad belt.

Banderet. A general or one of the commanders in chief of the forces. This appellation is given to the principal commanders of the troops of the canton of Bern, in Switzerland, where there are four banderets, who command all the forces of the canton.

Bandroll. A little flag about a yard long and near as broad, pendant to trumpets, &c.

Bands. Bodies of foot properly, as the *French* formerly called all their infantry, *Bands Françoiſe.* In *England* the word is ſtill uſed, the militia being called the trained bands: as alſo for the band of penſioners, a company of gentlemen attending the king's perſon upon ſolemn occaſions.

Banner denotes either a ſquare flag, or the principal ſtandard belonging to a prince. We find a multiplicity of opinions concerning the etymology of the word Banner: ſome deriving it from the Latin *bandum*, a band or flag; others from the word *Bann* to ſummons the vaſſals to appear in arms; others again from the German *ban*, a field or tenement, becauſe landed men alone were allowed a banner; and, finally, there are ſome who think it is a corruption of *panniere*, from *pannus* cloth, becauſe banners were originally made of cloth.

Banquette. Vide *Footbank.*

Barrack. A hut, like a little cottage, for ſoldiers to lie in the camp. Once only thoſe of the horſe were called barracks, and thoſe of the foot huts; but now the name is indifferently given to both. Theſe are made either when the ſoldiers have not tents, or when an army lies long in a place in bad weather; becauſe they keep out cold, heat, or rain, better than tents, and are otherwiſe more commodious. They are generally made by fixing four forked poles in the ground, laying four others a-croſs them, and building the walls with wattles, ſods, or ſuch as the place affords. The top is either thatch'd, or cover'd with planks, or ſometimes with turf. Dr. Pringle obſerves that damp barracks are highly injurious to the health of ſoldiers lodged in them, and therefore muſt be avoided by ſome means or other.

Barbacan, or *Barbican.* An outer defence or fortification to a city or caſtle, uſed eſpecially as a fence to a city or walls; alſo an aperture made in the walls of a fortreſs to fire thro' upon the enemy. It is alſo uſed for a fort at the entrance of a bridge, or the outlet of a city, having a double wall with towers.

Barbe. To fire *en Barbe*, is to fire the cannon over the parapet, inſtead of putting it through *embrazures.* To fire thus, the parapet muſt be but three foot and a half high.

Barm, or *Berm.* Vide *Foreland.*

Barricade,

Barricade. A fence made of palliſadoes, empty barrels, and ſuch like veſſels, bags of earth, ſtones, carts, trees cut down, againſt an enemy's ſhot or aſſault; but generally trees cut with ſix faces, which are croſſed with battoons as long as a half pike, bound about with iron at the feet.

Barrels, filled with earth, ſerve to make parapets to cover the men, like the gabions, and canvas bags.

Thundering Barrels are filled with bombs, grenades, and other fire-works, to be rolled down a breach.

Barrier. A kind of fence made at a poſtage, retrenchment, &c. to ſtop up the entry thereof, and is compoſed of great ſtakes, about four or five feet high, placed at the diſtance of about eight or ten feet from one another, with tranſoms, or over-thwart rafters, to ſtop either horſe or foot, that would enter or ruſh in with violence: in the middle is a moveable bar of wood that opens and ſhuts at pleaſure. A barrier is commonly ſet up in a void ſpace, between the citadel and the town, in half-moons, &c.

Barrier is alſo uſed to expreſs a martial exerciſe of armed men, fighting together with ſhort ſwords, within rails or bars, which incloſe them.

Baſe, or *Baſis.* The level line on which any work ſtands, that is even with the ground, or other work on which it is erected. Thus the baſe of a parapet is the rampart.

A Baſe ſignifies alſo the ſmalleſt piece of cannon, whoſe bore is one inch and quarter, weight two hundred pound, length four feet, load five pound, ſhot one pound and half weight, and diameter one one-eighth inch.

Baſe ring of a cannon. The great ring next to and behind the touch-hole.

Baſiliſk. A large piece of ordnance, being a forty-eight pounder, weighing about ſeven thouſand pounds. The baſiliſks of the French are but ten feet long, thoſe of the Dutch are fifteen feet long.

Baſkets, or *Corbeilles*, are uſed to be filled with earth, and placed one by another upon a parapet, to cover the men from the enemy's ſhot. They are wider at the top than at the bottom, that there may be ſpace between them below for the men to fire thro' upon the enemy. They are generally a foot and a half high, as much broad at top, and eight or ten inches at bottom.

Baſſe Enceinte, or *Baſſe Encloſure*. The ſame as *Fauſſ Braye*.

Baſtion. A great work of earth, ſometimes fac'd or lin'd with ſtone, or brick, and ſometimes with ſods, generally advancing before an angle of the *polygon* towards the campaign, or ſtanding out from a rampart, whereof it is the principal part, and is what, in the antient fortification, was called a bulwark, *propugnaculum*. The lines terminating it are two faces, two flanks, and two demi-gorges. The union of the two faces makes the outmoſt angle, called *the angle of the baſtion*, or *ſaliant angle*. The union of the two faces to the two flanks, makes the ſide angles, called the *ſhoulders* or *Epaules*; and the union of the two other ends of the flanks to the two curtins, forms the angles of the flanks. In regard to the baſtion, the great rule is, that every part of it be ſeen, and defended from ſome other part: whence mere angles are not ſufficient, but flanks and faces are neceſſary. For the proportion of the faces, they are not to be leſs than forty-eight fathoms, nor more than ſixty. The flanks of the baſtion, in caſe they ſtand at the ſame angle under the line of defence, are ſo much the better the longer they be; whence they muſt ſtand at right angles to the line of defence; and the diſpoſition of the flanks makes the principal part of fortification, as it is that on which the defence chiefly depends, and which hath introduced the various forms of fortifying. The angles of the baſtion muſt be more than ſixty degrees, otherwiſe it will be too ſmall to give room for guns, and will render the line of defence too long, or the flanks too ſhort, ſo that it muſt be either a right angle, or ſome intermediate one between that and ſixty degrees; for it is diſputed, whether or no it ſhould exceed a right angle.

A Baſtion Compos'd, is when the two ſides of the interior *polygon* are very unequal, which makes the *gorges* alſo unequal.

A Baſtion cut off with a Tenaille, in *French*, *Baſtion coupé*, or *Baſtion à tenaille*, is that whoſe point is cut off, and makes an angle inwards, and two points outwards, that is *a Tenaille*. This is done when water, or any other accident, hinders carrying on the baſtion to its full extent.

A Baſtion

A Baſtion deform'd. That which wants one of the demi-gorges, becauſe one ſide of the interior *polygon* is ſo very ſhort.

A Demi Baſtion, has but one face and flank, and is uſually before a horn-work, or crown-work. It is alſo called an *Epaulment.*

A Baſtion detach'd, or *cut off.* That which is ſeparated from the body of the work. It differs from a half moon, whoſe rampart and parapet are not ſo high and thick as the body of the place.

A Double Baſtion, is rais'd on the plain of the great baſtion, and has another baſtion built higher, leaving twelve or eighteen feet between the parapet of the lower, and the foot of the higher. It is ſometimes in the nature of a cavalier.

A Hollow, or *Voided Baſtion,* in *French, Baſtion Vuide,* or *Creux,* has only a rampart and parapet about its flanks and faces, leaving an empty ſpace towards the center, and the earth ſo low, that when an enemy is once lodg'd on the rampart, there is no making a retrenchment towards the centre, but what will be under the fire of the beſiegers.

A Plat or Flat Baſtion. If the diſtance between the angles of the interior *polygon* be double the uſual length, then a baſtion is made in the middle before the curtin or ſtrait line; whereas the others are generally before the angles: and this is called a *plat baſtion.* It has generally this diſadvantage attending it. That unleſs there be an extraordinary breadth allow'd to the moat, the returning angle of the counterſcarp runs back too far into the ditch, and hinders the ſight and defence of the two oppoſite flanks.

A Regular Baſtion, is that which has a due proportion of faces, flanks, and gorges.

An Irregular Baſtion, is that wherein that equality of proportion is omitted.

A Solid Baſtion, riſes equally to the ramparts of the place, without any empty ſpace towards the centre. They have this advantage above others, that they afford earth enough to make a retrenchment, in caſe the enemy lodge himſelf on the top of the baſtion, and the beſieged are reſolved to diſpute every foot of ground.

Battalia.

Battalia. An army drawn up in order of battle. See *army* and *battle.*

Battalion. A body of foot, commonly conſiſting from five to eight hundred men, two thirds whereof uſed to be muſketeers, and the other third pikemen, who were poſted in the centre. But the general uſe of bayonets has brought that of pikes into diſuſe. *Battalions* are for the moſt part drawn up ſix deep, that is ſix men in file, or one before another: thoſe in length, or ſide by ſide, being called *ranks.* Some regiments conſiſt of but one battalion; but if more numerous, they are divided into ſeveral battalions, according to their ſtrength; ſo that every one may be about the number aforeſaid. Thus the battalions of *French* guards have commonly but five companies, becauſe each of thoſe companies have one hundred and fifty men; but of other *French* regiments there go ſixteen companies to make up a battalion, becauſe they are but fifty men in a company. Of the Swiſs guards four companies make a battalion, becauſe they are one hundred and eighty in a company. In the *Engliſh* foot guards, the firſt regiment conſiſts of three battalions, and the ſecond and third of two each. When there are companies of ſeveral regiments in a garriſon, and they are to form a battalion, thoſe of the eldeſt regiment poſt themſelves on the right; thoſe of the ſecond on the left; and ſo the others ſucceſſively on the right and left, till the youngeſt fall into the centre. The ſubaltern officers take their poſts before their companies, the captains on the right and left, according to their degree. Battalions are divided into three great diviſions, which are the right and left wings, and the centre. The grenadiers, of whom there are now uſually one company in a battalion, take the right of the other companies. In marching, when there is not room for ſo large a front, they break into ſubdiviſions, according as the ground will allow. The art of drawing up battalions, teaches how to range a body of foot, in ſuch order and form, that it may moſt advantageouſly engage a greater body, either of horſe or foot, or both: but the main deſign is, to prevent the foot being broken by the horſe when attack'd in open field, where there are no ditches, hedges, or other advantages to ſecure them. Formerly they uſed to reduce the battalion to an *octogon*, or figure of eight ſides; and ſince the hollow ſquare has

has been used: but both these methods require too much time upon sudden occasions, and men must be very well disciplin'd, or it will put them into greater confusion. There is usually great uncertainty in computing the number of an army from that of the battalions, which, by the common chance of war, are often liable to be very incompleat.

Battering. The attacking a place, work, or the like, with heavy artillery. To batter in breach, is to play furiously on a work, as the angle of a half moon, in order to demolish and make a gap therein. In this they observe never to fire a piece at the top, but all at the bottom, from three to six feet from the ground. The battery of the camp is usually surrounded with a trench and pallisadoes at the bottom, with two redoubts on the wings, or certain places of arms, capable of covering the troops which are appointed for their defence.

Battering Pieces. See *Cannon.*

Battery, or *Platform.* A place to plant guns on. It is laid with planks and sleepers for them to rest on, that the wheels of the carriages may not sink into the earth. They are allow'd a little stoop, or inclining towards the parapet, that the guns may recoil the less, and be more easily brought back to their place. *Field* or *Camp Batteries* are to have a ditch before them, to be pallisado'd, and have a parapet on them, and two redoubts on the flanks, or places of arms, to cover the troops that are to defend them. The open spaces in the parapet, to put the muzzles of the guns out at, are called *Embrazures,* which are about three feet from the ground, and go sloping lower on the outside, and their width two or three feet on the inside, but six or seven on the outside, and the distances between the embrazures, are called *Merlons,* and are generally masses of earth or stone. The guns are generally about twelve feet distant from one another, that the parapet may be strong, and the gunners have room to work.

Battery of Mortars, differs from that of guns, being sunk into the ground, and without embrazures: The *Dutch* call it a kettle.

Battery Sunk, or *Bury'd.* In *French, Batterie Enterré,* or *Ruinante.* When the platform is sunk into the ground, so that there must be trenches cut in the earth against the muzzles of the guns for them to fire out at, or to serve as em-

brazures. This ſort of battery is generally us'd upon firſt making the approaches, to beat down the parapet of the place.

Croſs Batteries. Two batteries which play athwart one another, upon the ſame body, forming an angle there, and beating with more violence, whence follows greater deſtruction; becauſe what one bullet ſhakes, the other beats down.

Battery de Enfilade. That which ſcours, or ſweeps the whole length of a ſtrait line, or the face or flank of any work.

Battery en Echarpe. That which plays on any work obliquely.

Battery de Reverſe, or *Murdering Battery.* That which plays upon the enemy's back.

Joint or *Camarade-Battery*; in *French*, *Batterie per Camarade.* When ſeveral guns fire at the ſame time upon one body.

'To raiſe a battery,' 'To plant a battery,' 'To ruin a battery,' are the phraſes that reſpect this work. The latter ſignifies to blow it up, or nail the guns. In a ſiege, guns are brought to the battery in the night, by men, having harneſs for that purpoſe.

Batterie de Tambour. The *French* ſo call the beat of drum, which we call the general. *Vide General, To beat the General.*

Batteurs d'Eſtrade. Scouts or diſcoverers, horſemen ſent out before, and on the wings of an army, a mile, two or three, to diſcover, and give the general account of what they ſee.

Battery-Maſter. His province is to raiſe the batteries: the office is now ſuppreſſed in *England*, but not in *Holland.*

Battle. The regular engagement of two armies, in a country ſufficiently open for them to encounter in front, and at the ſame time; or, at leaſt for the greater part of the line to engage; other great actions, though of a longer duration, and even attended with greater ſlaughter, are only termed fights. The loſs of a battle frequently draws with it that of the artillery and baggage, the conſequence of which is, that as the army beaten cannot again look the enemy in the face, till theſe loſſes have been repaired, it is forced

forced to leave the enemy a long time master of the country, and at liberty to execute all their schemes; whereas a great fight lost, is rarely attended with the loss of all the artillery, and scarcely ever all the baggage.

Battle-Array. The order or line of battle; the form of drawing up the army for fight.

Main Battle. In *French, Corps de Bataille.* The main body of the army, which is the second of the three lines, whereof the first is the van, and the third is the rear, or reserve. *Vide* Line.

Line of Battle. Order of Battle. See *Line* and *Army.*

Square Battle. See *Square.*

Battlements, are the indentures in the top of any fortified wall, or building, in the form of embrazures, for the conveniency of looking through.

Battle Axe, A kind of halberd, first introduced in England by the Danes.

Bavins, are brush faggots, with the brush at length.

Bayonet. A short strong dagger without any guard, generally made with a round hollow handle, and a shoulder, to fix to the muzzle of a musket, in which manner it serves instead of a pike, to receive the charge of horse, all the men having first the advantage of their shot, and then, as many as there is occasion for, with their bayonets thus on their muskets, cover the rest of the musketeers. Frequently the whole body fire with their bayonets fixed, which they do clear of them by means of the shoulder above-mentioned, that they may be ready to use them instantly.

Bear. A piece of ordnance is said to come to bear, when it lies right with or directly against the mark.

Beat of Drum, is to give notice by beat of drum of a sudden danger: or, that scattered soldiers may repair to their arms and quarters, is to beat an alarm, or to arms; also to signify by different manners of sounding a drum, that the soldiers are to fall on the enemy; to retreat before, in, or after an attack; to remove, or march, from one place to another; to retreat upon terms, or confer with the enemy; to permit the soldiers to come out of their quarters at break of day; to order to repair to their colours, &c. is to beat a charge, a retreat, &c. See *Drum.*

To

To beat a Parley. Vide *Chamade.* For this, and all other beats, see also *Drum.*

Bed of the Carriage of a great Gun. A thick plank that lies under the piece; being as it were the body of the carriage.

Berme. Vide *Foreland.*

Beetles. Great sledges or hammers to drive down palliſadoes, or for other uſes.

Billeting, is the quartering of ſoldiers in the houſes of a town or village.

Biovac. A guard at night, perform'd by the whole army; which either at a ſiege, or lying before an enemy, every evening draws out from its tents or huts, and continues all night under arms before its lines or camp, to prevent any ſurprize. When troops are much harraſs'd, or there is no great apprehenſion of the enemy, ſometimes it is allow'd in the *biovac,* that the two front ranks, by turns, ſtand under arms, whilſt the rear ranks take ſome reſt on the ground. The word *biovac* is a corruption of the *German* *weinack,* which ſignifies double guard. 'To raiſe the *biovac,*' is to return the army to their tents or huts, ſome time after break of day.

Blindes. Pieces of wood to lay acroſs the trench, to bear the faſcines, or clays, laid on them, loaded with earth, to cover the workmen. This is generally done when the work is about the glacis, and the trench is carry'd on facing the place.

Blindes, are alſo ſometimes only canvas ſtretch'd to take away the ſight of the enemy. Sometimes they are planks ſet up, for which *vide Mantelets*; others of baſkets, for which *vide Gabions*; others of *barrels,* and others of *ſacks* fill'd with earth. But moſt properly blindes are bundles of ozier, or other ſmall wood, bound at both ends, and ſet up between ſtakes or clays. In ſhort, they ſignify any thing that covers from an enemy.

Blinde, is alſo the ſame as *Orillon,* which ſee.

Block Battery, is a wooden battery on four wheels, moveable from place to place, thereby to fire *en barbe,* or over the parapet; ſometimes alſo uſed in galleries and caſemates, where room is wanted.

Block-houſe. A kind of wooden fort or battery, either mounted on rollers or on a veſſel, and ſerving either on the water or in counterſcarps and counter-approaches. The name

name is also sometimes given to a brick or stone building on a bridge, or the brink of a river, serving not only for its defence, but for the command of the river both above and below.

Blockade, or *Blocus*, is in the nature of a siege, when troops are posted on all the avenues that lead to the place, in order to keep any supplies of men or provisions from going into it; so that it is propo'd to starve and waste it out, and not take it by regular attacks. 'To form a blockade.' 'To raise a blockade.' 'To turn a siege into a blockade,' are phrases here used, and all very intelligible.

To Blockade, or block up a place; To shut up all the avenues, so that it can receive no relief.

Blunderbuss. A short fire-arm with a very large bore, to carry a number of musket or pistol bullets, proper to do execution in a crowd, or to make good a narrow passage, as the door of a house, a stair-case, or the like.

Body, is a number of forces, horse and foot, united and marching under one commander.

Main Body of an Army. The troops encamped in the center between the two wings, and generally infantry: the other two bodies are the van-guard and the rear-guard; these being the three into which an army, ranged in form of battle is divided.

Body of Reserve. See *Reserve*.

Bolts, in gunnery, are of several sorts. Those between the cheeks of a gun-carriage to strengthen the transoms, are called the *transom-bolts*. The large iron knobs on the cheeks of a carriage, which keep the hand-spike steady, are called *trise-bolts*. The two short bolts that, when they are inserted in each end of an *English* mortar carriage, serve to traverse her, are call'd *traverse-bolts*. The bolts that pass thro' the cheeks of a mortar, and keep it fix'd at the elevation by the help of quoins, are called *bracket-bolts*. And the four bolts that fasten the brackets or cheeks of a mortar to the bed, are called *bed bolts*.

Bomb. An iron shell, or hollow ball, with a large touch-hole to put in a fusee which is made of wood, and full of a composition that is to burn slowly, that it may last all the time the bomb is flying, and the fire not come to the powder within, till it falls, and so do execution by firing what is about it, or by the pieces of the shell flying about. This bomb

bomb is placed into a mortar-piece, mounted on a carriage, and when the bombardier has ſet fire to the fuſee with one hand, he gives fire to the touch hole of the mortar piece with the other. When the bomb is filled with powder, the fuſee is fix'd into the vent or touch hole, within an inch of the head, and faſtened with a cement made of quick lime, aſhes, brick duſt, and ſteel filings, worked together with a glutinous water: or of four parts of pitch, two of colophony, one of turpentine and one of wax. This tube is filled with a combuſtible matter, made of two ounces of nitre, one of ſulphur, and three of gunpowder-duſt well rammed. To preſerve the fuſee, they pitch it over, but uncaſe it when they put the bomb into the mortar, and ſtrew it over with gunpowder-duſt; which having taken fire by the flaſh of the powder in the chamber of the mortar, burns all the time the bomb is in the air; and, the compoſition in the fuſee being ſpent, it fires the powder in the bomb, which burſts with great force, blowing up whatever is about it. The great height the bomb goes in the air, and the force with which it falls, makes it go deep into the earth. Bombs may be uſed without mortar-pieces, as the *Venetians* did at *Candia*, when the *Turks* had poſſeſſed themſelves of the ditch, rolling down bombs upon them, along a plank ſet ſtooping towards their works, with ledges on the ſides to keep the bomb right forwards. They are alſo buried under ground to blow it up, for which ſee *Caiſſon*.

Bombardiers, are thoſe employ'd about a mortar, who drive the fuſee, fix the ſhells, load and fire the mortar, *&c.*

Bombard. A piece of ordnance antiently in uſe, exceedingly ſhort and thick, and with a very large mouth. There have been bombards which have thrown a ball of 300 lb. weight. They made uſe of cranes to load them. They are by ſome called the baſiliſk, and by the Dutch dandertup. See *Baſiliſk*.

Bomb Cheſt, a kind of cheſt filled uſually with bombs, ſometimes only with gunpowder, placed under ground to tear and blow it up into the air, with thoſe who ſtand on it. It was uſually ſet on fire by means of a ſauciſſe faſtened at one end, but it is now diſuſed.

Bomb Ketch, is a ſmall veſſel made ſtrong with large beams, for the uſe of mortars at ſea.

Bonnet.

Bonnet. A work conſiſting of two faces, which make an angle ſaillant, in the nature of a ſmall ravelin, without any ditch, having only a parapet, three feet high, and palliſado'd, with another paliſado at ten or twelve feet diſtance. The *bonnet* is made beyond the counterſcarp, in the nature of a little advanced *corps de garde.*

Bonnet a Preſtre, or *Prieſt's Cap.* An outwork, which at the head has three angles ſaillant, and two inwards, and differs from the double *tenaille* only in this point, that its ſides inſtead of being parallel, are made like the *queue d'yronde*, or ſwallow's tail; that is narrowing or drawing cloſe at the gorge, and opening at the head.

Bore, denotes the diameter of the barrel of a gun or cannon, or rather its whole cavity.

Boyau, or *Branch of the Trenches.* A line, or particular cut, that runs from the trenches to cover ſome ſpot of ground, and is drawn parallel to the works of the place, that it may not be enfiladed; that is, that the ſhot from the town may not ſcour along it. Sometimes a *boyau* is a line of communication from one trench to another, when two attacks are carry'd on near one another. The parapet of a *boyau* being always next to the place beſieged, it does the ſervice of a line of contravallation, to hinder ſallies, and cover the pioneers.

Brackets, are the cheeks of the carriage of a mortar; they are made of ſtrong planks of wood of almoſt a ſemicircular form, and bound round with thick iron plates; they are fixed to the beds by four bolts, which are called bed-bolts; they riſe up on each ſide of the mortar, and ſerve to keep her at any elevation, by means of ſome ſtrong iron bolts called bracket-bolts, which go thro' theſe cheeks or brackets.

Branch, of the *Trench.* See *Boyau* above.

Branch of a Mine. Vide *Gallery.*

Breach. A gap made in any part of the works of a town, beaten down with cannon, or blown up by mines, preparatory to the giving an aſſault. *To make good the breach*; *To fortify the breach with* chevaux de frize, or ſow it with crows feet; *To make a lodgment on the breach*; *To clear the breach*; that is, to remove the ruins, that it may be the better defended; are the phraſes belonging to this term.

A practical breach is that where the men may mount and make a lodgment, and ought to be fifteen or twenty fathoms wide. The beſiegers make their way to it by covering themſelves with gabions, earth bags, &c.

To break Ground. To begin the works for carrying on the ſiege about a town, or fort, or opening the trenches before a place. It is performed in the night, by the advantage of ſome hollow way, or eminence, or whatever will ſerve to cover and ſhelter the men.

Breaſt Plate. A piece of armour formerly worn to defend the breaſt; originally made of hides, or hemp twiſted into ſmall cords, but afterwards made of braſs, iron or other metals, which were ſometimes ſo excellently hardened as to be proof againſt the greateſt force.

Breaſt Work. See *Parapet.*

The Breech of a Gun, is the very end of it next the touch-hole.

Bridge. The two pieces of timber which go between the two tranſoms of a gun-carriage, on which the bed reſts.

Bridge. The word in general needs no expoſition: but this may be ſaid in relation to it, that of late years copper and tin boats have been much uſed to be carried in armies, for laying bridges over rivers upon occaſion, which is done by joining theſe boats ſide by ſide, till they reach acroſs the river, and laying planks over them to make all plain for the men to march upon. This is called a bridge of boats. See *Pontoon.*

Floating Bridge. A bridge made uſe of in form of a work in fortification, called a redoubt, conſiſting of two boats, covered with planks, which are ſolidly framed ſo as to bear either horſe or cannon.

Flying Bridge, or *Pont volant,* is made of two ſmall bridges, laid one over the other in ſuch manner, that the uppermoſt ſtretches and runs out, by the help of certain cords running through pullies plac'd along the ſides of the under bridge, which puſh it forwards, 'till the end of it joins the place it is deſigned to be fix'd on. When theſe two bridges are ſtretched out at their full length, ſo that the two middle ends meet, they muſt not be above four or five fathom long, becauſe if longer they will break; and there-

fore

fore they are only us'd to ſurprize out-works, or poſts that have but narrow moats.

Bridge of Ruſhes, or *Pont de jonc*. A bridge made of great bundles of ruſhes that grow in marſhy grounds; which being bound together, have planks faſtened on them, and are laid over moraſſes or boggy places, for the horſe and foot to march over. They have alſo been uſed to paſs the moat of a place beſieged, and are not ſo eaſy to be burnt as faſcines, tho' theſe are loaded with earth.

Draw-Bridge. A bridge made faſt only at one end with hinges, ſo that the other end may be lifted up, and then the bridge ſtands upright to hinder the paſſage of the moat. There are others made to draw back to hinder the paſſage, and to thruſt over again to paſs. Again, there have been others which open in the middle, and one half of them turns away to one ſide, and the other to the other ſide, and ſo they are join'd again at pleaſure: but theſe are not ſo proper, becauſe one half of them remains on the enemy's ſide. In the common way they are form'd with plyers, twice the height of the gate, and a foot diameter: the inner part is travers'd with a *St. Andrew*'s croſs, which ſerves for a counterpoiſe; and the chains which hang from the other extremities of the plyers, to raiſe or fall the bridge, are of iron or braſs.

Bridge of Communication, is a bridge thrown over a river, by which two armies or towns, ſeparated by the river, communicate with each other.

Brigade. A party, or body of ſoldiers, whether foot or horſe, commanded by a brigadier. There are two ſorts of brigades, a brigade of foot, and a brigade of horſe. A brigade of an army is either of horſe or foot, and not fixed of what number or force it muſt be; for the brigade of horſe may conſiſt of eight, ten, or twelve ſquadrons, and that of foot of three, four, five, or ſix battalions. The eldeſt brigade has the right of the firſt line; the ſecond the right of the ſecond line; and the reſt in order, the youngeſt poſſeſſing the centre. The battalions, or ſquadrons, which compoſe a brigade, obſerve the ſame order. The brigade of a troop of horſe is the third part of it, when it does not exceed forty or fifty men; but if the troops be a hundred ſtrong,

ſtrong, it is divided into ſix brigades. The troops of horſe-guards in *England* are divided into ſeveral brigades.

Brigade Major. An officer appointed by the brigadier to aſſiſt him in the affairs of his brigade. The moſt able captains are nominated to this poſt. They act in the brigade as major generals in the armies; receiving the orders of their principals.

Brigadier. The general officer that commands a brigade. The eldeſt colonels are generally advanced to this poſt. He that is upon duty is brigadier of that day. Brigadiers of the army are thoſe that command a brigade of ſo many ſquadrons of horſe, or battalions of foot, as was mentioned in ſpeaking of the brigade of an army; they having the fifth degree in the army, being next in command to the major generals, above whom are lieutenant generals, generals, and, of late years, field marſhals. Every brigadier marches at the head of his brigade upon ſervice, and are allowed a ſerjeant and ten men of their own brigade for their guard. The brigadier of foot commands him of horſe in garriſon; and the brigadier of horſe him of foot in the field. Brigadiers of the horſe-guards command as youngeſt captains of horſe. Some troops of horſe in *France* have brigadiers, which they have not generally in *England*, where they are called corporals of horſe: but there are in the *Engliſh* horſe-guards ſub-brigadiers, as well as brigadiers.

Brigandine. A coat of mail, a kind of antient defenſive armour, conſiſting of tin.

Bringers-up. The whole laſt rank of a battalion drawn up, being the hindmoſt men of every file.

Bucklers. A piece of defenſive armour uſed by the antients. It was worn on the left arm, and compoſed of wickers woven together, or wood of the lighteſt ſort, but moſt commonly of hides, fortified with plates of braſs or other metals. The ſhape of it varied conſiderably, being ſometimes round, ſometimes oval, and often nearly ſquare.

Budge Barrels. Are ſmall barrels well hoop'd, with only one head. On the oppoſite end is nailed a piece of leather to draw together with ſtrings like a purſe; their uſe is for carrying powder along with a gun or mortar, as they are leſs dangerous, and more portable than whole barrels. They

are

are alſo uſed on a battery of mortars, to contain meal powder.

Bullet, *Ball*, or *Shot*. The ball of iron, or lead, that is fired out of a cannon, muſket, or piſtol; for it comprehends all ſorts. That of the royal, or whole cannon, weighs forty-eight pound, of the baſtard cannon forty-two, of the ordinary demi cannon thirty-two, of the twenty-four pounder, twenty-four, of the large culverin eighteen, of the twelve pounder twelve, of the large demy culverin ten, of the ſix pounders ſix, of the ſaker five and a quarter, of the minion about four, of the three pounders three, of the drakes, pedreroes, and baſes, gradually leſs. All theſe are of iron. The muſket ball is about an ounce; the carabine and piſtol, and thoſe of lead, leſs. *Red-hot bullets* are ſhot in ſieges to fire houſes, and do the more miſchief in a town. They are heated in a forge made for that purpoſe, cloſe by the battery, whence they are taken out with an iron ladle, and thrown into the pieces, into which before a tompion of ſod or turf is ramm'd down, that the bullet may not touch the powder. It fires not only combuſtible matter but floors and planks.

Hollow Bullets, or ſhells made cylindrical, with an aperture and fuſee at the end, which gives fire to the inſide, when in the ground it burſts and has the ſame effect with a mine.

Chain Bullets, conſiſts of two balls, joined by a chain three or four feet long.

Branch Bullets, are two balls joined together by a bar of iron, five or ſix inches apart.

Two-headed Bullets, called alſo angles, are two halves of a bullet, joined by a bar or a chain.

According to Marſenne, a bullet ſhot out of a great gun, flies ninety-two fathoms in a ſecond of time, being equal to five hundred and eighty-nine Engliſh feet and a half; but according to ſome very accurate experiments of Mr. Derham, it only flies at its firſt diſcharge five hundred and ten yards in five half ſeconds.

Bulwark. The antient name for a baſtion, or rampart, now antiquated. See *Rampart*.

C.

CADET. A young gentleman, who, to learn experience, and wait for preferment, carries arms as a private man in a company of foot. He differs from a volunteer becauſe he receives the pay of a common ſoldier; whereas a volunteer ſerves without pay. In *France* the king allows but two cadets to be received into any one company of foot. The proper ſignification of the word is a younger brother, and thence apply'd to bear this ſenſe, becauſe younger brothers take this upon them to raiſe their fortunes. It alſo is taken for an officer who, in reſpect of another, is younger in the ſervice.

Caiſſon, or *Superficial Fourneau.* A wooden caſe or cheſt, into which they put three or four bombs, and ſometimes to the number of ſix, according to the execution they are to do, or as the ground is firmer or looſer. Sometimes this cheſt is only filled with powder. When the beſieged diſpute every foot of ground, the caiſſon is buried under ſome work the enemy intends to poſſeſs himſelf of, and when he is maſter of it, they ſet fire to it by a train convey'd in a pipe, which blows them up. Thus we may ſay, 'After the mine or *fourneau* had deſtroyed the *bonette*, a *caiſſon* was buried under the ground thrown up, and the enemy advancing to make a lodgment on the ruins of the *bon tte*, the *caiſſon* was fir'd with a ſaucidge, and blew up the poſt the ſecond time.'

Caiſſon, is alſo a covered waggon, to carry bread or ammunition.

Caliber Compaſſes. Uſed by gunners to meaſure the diameter of bullets, and the cylinder of guns; and therefore the legs, inſtead of being ſtrait, are made arching, to find the true diameter of any circle. They have a quadrant faſtened to one leg, and paſſing through the other, mark'd with inches, and parts of an inch, to preſerve exactneſs.

Caltrops. Vide *Crow's Feet.*

Camiſade, is an attack by ſurprize in the night, or at the point of day, when the enemy is ſuppoſed at reſt.

Camp. The ground on which an army pitches its tents, and

and lodges, sometimes intrenching, and sometimes without any other defence than chusing the advantage of the situation. It is mark'd out by the quarter master general, who allots every regiment its ground; in doing which he is to consult the nature of the country, both for defence against the enemy, and supplies for the army. It should have a communication with garrisons, have plenty of water, forage, and fuel, and either rivers, marshes, hills, or woods to cover it. An army always encamps fronting the enemy, and generally in two parallel lines, about five hundred yards distant; the horse and dragoons on the wings, and the foot in the centre. Sometimes three or four brigades encamp between the two lines, and are called the *body of reserve*. The artillery and bread waggons are in the rear of the two lines. A battalion of foot is allow'd eighty or a hundred paces for its camp, and thirty or forty for an interval between one battalion and another. A squadron of horse has thirty paces for its camp, and thirty for an interval, or more, if the ground will allow it. Each battalion posts a small guard, commanded by a subaltern officer, about one hundred yards before the front of the regiment, called the *quarter guard*. And each regiment of horse mounts a small guard on foot, called the *standard guard*. The *grand guard* consists of horse, and is posted a mile and a half distant towards the enemy.

Flying Camp, or *Army*. A strong body of horse and foot, commanded for the most part by a lieutenant general, which is always in motion, both to cover its own garrisons and to keep the army in continual alarm. It is also used for the ground on which such a body of men encamps.

Campaign. The time every year that an army continues in the field, during any war. We say, 'A man has served so many campaigns. 'The campaign will begin at such a time. 'This will be a long campaign.' The word is also used for the open country, before any towns.

Concerning the healthiness of the different seasons of a campaign, the ingenious Dr. Pringle has the following observations: the first fortnight or three weeks is always sickly, after which the sickness decreases, and the men enjoy a tolerable degree of health throughout the summer, unless they get wet cloaths. The most sickly part of the cam-

paign is towards the end of Auguſt, whilſt the days are ſtill hot, but the nights cold and damp with fogs and dews; then, if not ſooner, the dyſentery prevails; and though its violence is over by the beginning of October, yet the remitting fever gaining ground, continues throughout the reſt of the campaign, and never entirely ceaſes even in winter quarters, 'till the froſt begins. He likewiſe obſerves, that the laſt fortnight of a campaign, if protracted till the beginning of November, is attended with more ſickneſs than the two firſt months of the encampment; ſo that it is better to take the field a fortnight ſooner, in order to return into winter quarters ſo much the earlier. As to winter expeditions tho' ſevere in appearance, he tells us, they are attended with little ſickneſs, if the men have ſtrong ſhoes, warm quarters, fuel, and proviſion enough.

Cannon, Ordnance, Great Guns, or *Artillery*. Engines for throwing bails of iron, lead, &c. by the force of gunpowder. They are firſt known to have been uſed in the Engliſh army at the battle of Creſſy in 1346, which were of iron; but the firſt made of Braſs in England are aſcribed to J. Owen in 1535. They were at firſt called bombard from the noiſe they made. They had likewiſe the names of culverine, baſiliſk, &c. from the figure of the beaſt frequently repreſented on them. The Spaniards from devotion gave them the name of ſaints.

The moſt remarkable parts about a cannon are the caſcabel, mouldings, baſering, touch-hole, vent-ring, reinforced-ring, trunions, dolphins, trunion-ring, corniſh-ring, neck, muzzle, face, and chaſe or cylinder; all which ſee under their proper articles.

The metal of which cannons are compoſed, is either iron, or which is more common, a mixture of copper, tin and braſs; the tin being added to the copper to make the metal more denſe and compact; ſo that the better and heavier the copper is, the leſs tin is required. Some to an hundred pounds of copper add ten of tin, five of braſs, and ten of lead.

Braudius deſcribes a method of making cannon of leather, and it is certain the Swedes made uſe of ſuch in the long war in the laſt century; but they were too apt to burſt to be of much ſervice. Iron cannon are not capable of ſo much reſiſtance

fiſtance as thoſe of braſs, but as they are leſs expenſive they are often uſed aboard ſhips, and in ſeveral fortified places.

The parts and proportions of cannon about eleven feet long are, the barrel or cavity nine feet; its fulcrum or ſupport fourteen; and its axis ſeven; the diameter of the bore at the mouth ſix inches two lines; the plug of the ball two lines; the diameter of the ball therefore ſix-inches, and its weight thirty-three pounds and one-third; the thickneſs of the metal about the mouth two inches, and at the breech ſix; the charge of powder from eighteen to twenty pounds. It will carry a point blank ſix hundred paces, and may be loaded ten times in an hour, and often more. Cannon often fired muſt be carefully cooled, or elſe they will burſt.

Cannons are diſtinguiſhed by the diameters of the balls they carry. The rule for their length, &c. is that it be ſuch that the whole charge of powder be on fire before the ball quit the piece. If it be made too long, the quantity of air to be driven out before the ball, will give too much reſiſtance to the impulſe; and that impulſe ceaſing, the friction of the ball againſt the ſurface of the piece will leſſen its velocity.

Formerly cannon were made much longer than they are at preſent; but ſome being by chance made two feet and a half ſhorter than ordinary, it was found that they threw a ball with greater force through a leſs ſpace than the larger. This was confirmed by experience in 1624, by Guſtavus Adolphus of Sweden; an iron ball of forty-eight pounds weight being found to go further from a ſhort cannon, than another ball of ninety ſix pounds out of a longer piece; whereas in other reſpects it is certain the larger the bore and ball the greater the range.

The greateſt range of a cannon is ordinarily fixed at forty-five degrees, but Dr. Halley ſhews it to be at forty-four and a half. M. S. Julien adjuſts the ranges of the ſeveral pieces of cannon, from the weight of the ball they bear, the charge of powder being always ſuppoſed to be in a ſubduplicate ratio to the weight of the ball.

Weight of a Leaden Ball.	Horizontal Range.	Greateſt Range.
lb.	Paces.	Paces.
33	600	6000
24	700	6000
16	800	8000
12	450	5000
8	400	1500
6	150	1500

Experience has ſhewn, that two cannons being of equal bore, but different lengths, the longer requires a greater charge of powder than the ſhorter. The ordinary charge of cannon is to have the charge of its powder half that of its ball.

The names of the ſeveral cannon, their length, weight, and that of their balls, as they obtain among us, are as in the following table:

Names of Cannon.	Wt. of an Iron Ball.		Wt of the Cannon.	Length of the Cannon.	
	lb.	oz	lb.	Feet.	Inch.
Cannon royal	48	0	8000	12	0
Demy cannon large	36	0	6000	12	0
Demi cannon ordinary	32	0	5600	12	0
Demi cannon leaſt	30	0	5400	11	0
Culverin largeſt	20	0	4800	12	0
Culverin ordinary	17	5	4500	12	0
Culverin leaſt	15	0	4000	11	0
Demi culverin ordinary	10	11	2700	11	0
Demi culverin leaſt	9	0	2000	10	0
Saker ordinary	6	0	1500	10	0
Saker leaſt	4	12	1400	8	0
Minion largeſt	3	12	1000	8	0
Minion ordinary	3	4	800	7	0
Falcon	2	8	750	6	0
Falconet	1	5	400	5	6
Rabinet	0	8	300	5	6
Baſe	0	5	200	4	6

Cannons are made cylindrical, that the motion of the ball may not be retarded in its paſſage, and that the powder, when on fire, may not ſlip between the ball and the ſurface of the cannon, which would hinder its effect.

Wolfius would have the cannon always decreaſe as it goes towards the mouth or orifice; becauſe the force of the powder always decreaſes in proportion to the ſpace through which it was expanded.

The new cannon, that are made after the Spaniſh manner, have a cavity or chamber at the bottom of the barrel, which helps their effect.

A cannon is ſaid to recoil two or three paces after the exploſion, which by ſome is accounted for from the air's ruſhing violently into the cavity as ſoon as the ball has been diſcharged; but the real cauſe is, the powder's acting equally upon the breech of the cannon and the ball.

Cannons are likewiſe diſtinguiſhed according to the diameter of their mouth or calibre. This calibre is divided in conſequence of an order from the king of France in thirty-ſix parts, in order to determine by theſe parts the dimenſions of the different moulds for cannon, the follow ing is the dimenſions of five different calibres, as they ar. regulated by that order.

Pieces of Cannon	of 24			of 16			of 12			of 8			of 4		
	feet	inches	lines	feet	inches	lines	feet	inches	lines	feet	inches	lines	feet	inches	lines
Length of the bore	9	6	0	9	2	0	8	8	0	7	10	0	6	6	0
Depth of the chamber	2	6	0	0	1	10	0	0	0	0	0	0	0	0	0
Thick. of met. at breech	0	5	5	0	4	9	0	4	4	0	3	9	0	3	0
Length of the caſcabel	0	10	11	0	9	6	0	8	8	0	7	7	0	6	0
Diam. of the trunions	0	5	5	0	4	9	0	4	4	0	3	10	0	3	0
Projection of the trun.	0	5	5	0	4	9	0	4	4	0	3	10	0	3	0
Calibre of the piece	0	5	8	0	4	11	0	4	6	0	3	11	0	3	2
Diameter of the ball	0	5	6	0	4	9	0	4	4	0	3	9	0	3	0
Len. of the whole piece	11	0	0	10	6	0	10	0	0	8	10	0	7	3	0
Weight of the piece	5400lb.			4200lb.			3200lb.			2100lb.			1150lb.		

See more under the articles *Battery*, *Cavalier*, *Embrazures*, *Guns*, &c.

Cannon Royal, or of eight. A great gun eight inches diameter in the bore, eight thouſand pounds weight, the length and thickneſs in the proportion mention'd in the laſt article. It carries a charge of thirty-two pounds of powder, and a

ball ſeven inches and four eights diameter, and forty-eight pounds weight. Its point-blank ſhot one hundred and eighty five paces.

Cannon Baſkets. Vide *Gabions.*

Cannoneer or *Cannonier*, the ſame as *Gunner.*

Cantoning. Alloting diſtinct and ſeparate quarters to each regiment of an army; the town, where they are quartered being divided into ſo many cantons, or diviſions, as there are regiments.

Canvas Bags, or *Earth Bags*, are bags containing about a cubical foot of earth. They are uſed to raiſe a parapet in haſte, or repair one that is beaten down. Theſe are of uſe when the ground is rocky, and affords not earth to carry on approaches, becauſe they can be eaſily brought from afar off, and removed at will. The French call them *Sacs a-Terre*, that is, *Earth Bags.* The ſame bags, upon occaſion, are uſed for powder, and hold fifty pounds.

Cap of a Gun. A piece of lead which is put over the touch-hole of a gun to keep the priming from being waſted or ſpoiled.

Capariſon. A ſort of horſe-cloth or cover for a horſe, frequently made of a bear's ſkin.

Capital of a Baſtion. A line drawn from the angle of the *polygon*, to the point of the baſtion, or from the point of the baſtion to the middle of the gorge. Theſe capitals are from thirty-five to forty fathoms in length, from the point of the baſtion to the place where the two demigorges meet.

Capitulation. The conditions on which a place that is beſieg'd ſurrenders, being articles agreed on between the beſieg'd and beſiegers. The moſt honourable and ordinary terms of capitulation are, to march out at the breach with arms and baggage, drums beating, colours flying, a match lighted at both ends, and ſome pieces of cannon, waggons, and convoys for their baggage, and for the ſick and wounded.

Caponiere. A work, or lodgment on the glacis of a place ſunk four or five feet into the ground, with a parapet on its ſides made with the earth thrown out of it, riſing about two feet above the ground, on which they lay planks well covered with earth. They are big enough to lodge 15 or 20 muſketeers, who fire upon the beſiegers through embrazures made

made on the ſides. Theſe are generally made on the *glacis*, or in dry moats.

Capſquares are ſtrong plates of iron which come over the trunnions of a gun, and keep it in the carriage. They are faſtened by a hinge to the prize plate, that they may lift up and down, and form a part of an arch in the middle to receive a third part of the thickneſs of the trunnions: for two-thirds are let into the carriage, and the other end is faſtened by two iron wedges called the forelocks and keys.

Captain. The commander in chief of a company of foot, or troop of horſe, or dragoons. He is to march, or fight, at the head of his company. Among the horſe, when captains of ſeveral regiments meet, he that has the eldeſt commiſſion takes place and commands; but among the foot, the captain of the eldeſt regiment commands all that are of younger regiments, tho' they have elder commiſſions. A captain has the power of making ſerjeants and corporals in his own company. He ought to be very vigilant, and acquainted with the diſpoſitions of all his men.

Captain-Lieutenant. The commanding officer of the colonel's troop, or company, in every regiment. He commands as youngeſt captain, tho' in reality he is only lieutenant, the colonel being himſelf captain. In France there are ſeveral captain-lieutenants, as thoſe of the two troops of muſquetaires, of gendarmes, and the independent troops of light horſe, whereof the king, queen, dauphin, or duke of *Orleans*, are captains. Thoſe of the muſquetaires, gendarmes, and light horſe, whereof himſelf is captain, take place as eldeſt colonels of light horſe, and accordingly command all others. The captain-lieutenants of the queen's, dauphin's and Duke of *Orleans's* troops, and the ſub-lieutenants of the king's gendarmes, rank with all colonels of horſe, according to the date of their commiſſions.

Captain en Pied. A captain kept in pay, that is not reform'd. The expreſſion occurs ſometimes.

Captain Reform'd. One, who upon reducing of the forces loſes his company, yet is continued captain, either as ſecond to another, or without poſt. Vide *Reform'd.*

Captain en Second. Vide *Second.*

Captain des Gaurds, & aux Gardes. Tho' this diſtinction be peculiar to *France*, it occurs ſo often, that it requires to

be explained. The *Engliſh* of it is, captain of the guards, or in the guards. *Captain des Gardes*, or captain of the guards, is captain of one of the four troops of horſe guards. *Captain aux Gardes*, or captain in the guards, is the captain of a company in a regiment of the foot guards.

Captain General. He who commands in chief. In the horſe and foot guards, the captains have the rank of colonels.

Carabine. A ſmall fire arm between a piſtol and a muſket, uſed by all the horſe. It carries a ball of 24 in the pound, and hangs by a belt over the left ſhoulder. The barrel is two feet and a half long, and is ſometimes furrowed ſpirally within, which is ſaid to add to the range of the piece.

Carabiniers. Regiments of light horſe, carrying longer carabines than the other horſe, and uſed ſometimes as foot like the dragoons.

Carcaſs. A miſchievous invention in the nature of a bomb, and thrown like it out of a mortar-piece. It is compoſed of fine meal-powder, ſaltpetre, ſulphur, broken glaſs, ſhavings of horn, pitch, tallow, and linſeed oil; ſometimes of two, three, or more granadoes, and ſeveral ſmall piſtol barrels, charged and wrapped up with the granadoes in tow, dipped in oil, and other combuſtible matter. The whole is put into a pitched cloth, made up oval, which is ſet in an iron like a lanthorn, having a hollow top and bottom, and bars running between them to hold them together; theſe long bars, that join the top and bottom, are bound together by one or more iron rings; all which, in ſome meaſure, repreſents the trunk of a dead carcaſs. One of the concave places has a ring to lift, and put it into the mortar-piece; the other has a touch-hole to ſet fire to the carcaſs, which is ſhot like a bomb upon any place intended to be fired: Theſe carcaſſes do not anſwer ſo much as was expected from them. There are other carcaſſes for the ſea-ſervice, which differ from a bomb only in the compoſition, and the five holes from which it burns when fired.

Caripi, a kind of cavalry in the Turkiſh army, which to the number of 1000 are not ſlaves, nor bred up in the ſeraglio, like the reſt, but are generally moors, or renegado chriſtians, who, having followed adventures, and being poor, and

and having their fortune to ſeek by their dexterity and courage, have arrived to the rank of horſe-guards to the Grand Signior.

Carr, a kind of chariot or throne mounted on wheels, and uſed in triumphs and other ſolemn occaſions.

Carriage of a Cannon. The frame or timber-work on which it is mounted, ſerving both to point for firing, and to carry it from place to place. It is made of two planks of wood, commonly one-half the length of the gun, called the cheeks, and joined by three wooden tranſums ſtrengthened with three bolts of iron. It is mounted on two wheels; but on a march, in order to convey it with greater eaſe, it has two fore-wheels with limbers added to it. The principal parts of a carriage are the cheeks, tranſums, bolts, plates, train, bands, bridge, bed, hooks, trunion-holes, and cap-ſquares.

Block Carriage. A cart made on purpoſe for carrying mortars and their beds from place to place.

Truck Carriage. Two ſhort planks of wood ſupported on two axle-trees, having four trucks of ſolid wood for carrying mortars or guns upon batteries, where their own carriages cannot go: they are drawn by men.

To carry on the Trenches. Vide *Trenches.*

Cartel. An agreement between princes at war, for the exchange of priſoners. It is alſo uſed for a letter of defiance, or a challenge, to decide a controverſy either in a tournament, or in a ſingle combat.

Cartouch. A caſe of wood about three inches thick at bottom, girt round with marlin, holding about 400 muſket balls, beſides ſix or eight balls of iron of a pound each. It is fired out of a haubitz, a ſmall ſort of mortar uſed to defend a paſs. Other ſorts, of different inventions, have been made for mortars, and ſome for great guns, to uſe inſtead of partridge ſhot.

Cartridge. A roll of paper, paſteboard, or parchment, like a caſe made to contain the charge of any fire arm. Cartridges for piſtols and muſkets are made of paper, which is ſufficient to contain that charge of powder and ball; but they are of paſteboard or parchment, to hold the ſhot, broken iron, and powder to charge cannon, when it is to fire near at hand. In cannon of cazemattes, or other poſts that defend the paſſage of the ditch, or the like, theſe have a dreadful

effect. Thoſe of cannon or mortars are uſually in caſes of paſteboard or tin, ſometimes of wood half a foot long, adapted to the calibre of the piece.

Cartridge Box. A caſe of wood, or turned iron, holding a dozen muſket charges. It is worn upon a belt, and hangs a little higher than the right pocket hole.

Caſcabel. The very hindmoſt knob of the cannon, or utmoſt part of the breech.

Caſcans. Holes in form of Wells, ſerving as entries to galleries to give vent to the enemies mines.

Caſe-ſhot. Muſket balls, ſtones, old iron, &c. put into caſes, and ſhot out of great guns.

Caſemate. It is uſed for a well with ſeveral ſubterraneous branches dug in the paſſage of the baſtion, till the miner is heard at work, and air given to the mine.

Caſerns. Lodgings built in garriſon towns, generally near the rampart, or in the waſte places of the town, for lodging the ſoldiers of the garriſon. There are uſually two beds in each caſern for ſix ſoldiers to lie, who mount the guard alternately; the third part being always on duty.

Caſtle. A place ſtrong either by art or nature, whether in a city, or in the country, to keep the people in obedience. A ſort of a little citadel. See *Citadel.*

Cavalier, or *Mount.* A great elevation or maſs of earth, ſometimes round, and ſometimes a long ſquare, uſually ſituated in the gorge of a baſtion. On the top of it is a platform, with a parapet to cover the cannon thereon, and embrazures to fire them thro'. The height of it muſt be proportionable to that part of the enemy's ground, or works it is deſigned to overlook or command. Thoſe which are raiſed upon the encloſure of any place, whether in the middle of the curtin or in the gorge of a baſtion, are generally 15 or 18 feet higher than the *terre plain* of the rampart. The breadth of them is to be regulated by the number of cannon deſigned to be planted on them, obſerving that there muſt be 10 or 12 feet diſtance allowed between every two guns, for the conveniency of the gunners. They are a double defence for the faces of the oppoſite baſtion, defend the ditch, break the enemies galleries, command the traverſes in dry moats, ſcour the faillant angle of the counterſcarp, and enfilade the enemies trenches, or

or oblige them to multiply their parallels; they are likewiſe very ſerviceable in defending the breach, and the retrenchments of the beſieged, and can very much incommode the intrenchments which the enemy make, being lodged in the baſtion.

Cavalry. That body of ſoldiers that ſerves and fights on horſeback. Theſe are either regimented, or independent troops, as the troops of guards in England; and in France the gendarmes. and muſquetaires on horſeback. All theſe upon ſervice are drawn up in bodies, called ſquadrons, a number of which form a brigade.

They may properly be called the right arm of the army, and are of very great ſervice in diſturbing the enemy by their frequent excurſions, in intercepting convoys, and deſtroying the country. The cavalry is divided into ſquadrons, and encamped on the wings of the army. Too great a number of cavalry may prove prejudicial to an army: for as they conſume a great deal of forage, they may oblige a general to decamp from an advantageous poſt.

Cavin. A natural hollow, fit to cover troops, and facilitate their approach to a place. If it be within muſket-ſhot, it is a place of arms ready made to hand, and a conveniency for opening the trenches, out of fear from the enemy's ſhot.

Cazematte. A platform in that part of the flank of a baſtion next the curtain, ſomewhat retir'd, or drawn back towards the capital of the baſtion. Sometimes it conſiſts of three platforms, one above another, the *Terre plain* of the baſtion being the higheſt; for which reaſon the French give the others the names of *places baſſes*, or low places. Behind their parapet, which fronts along the line of the flank, there are guns planted, loaded with cartridges of ſmall ſhot, to ſcour along the ditch; and theſe guns are covered from the enemy's batteries by circular, or ſometimes ſquare earth works, faced or lined with wall, and called *orillons*, *ſhoulders*, or *epoulments*. The *cazematte* is the moſt excellent defence a place can have.

It is very ſeldom that cazematts are uſed now, becauſe the enemies batteries are liable to bury the cannon, they contain under the ruin of their vaults; beſides that, the ſmoke with which they are continually filled, renders them inſupportable to the engineers; for which reaſon engineers now make them open at top, contenting themſelves with fortifying them with a parapet.

Cen-

Center. The middle point of any work or body of men. The pikes uſed to be in the center of the battalion; the infantry, and among them, the youngeſt regiments, are in the center of the army. From the center of a place are drawn the firſt lines to lay down the form of a fortification.

Center of a Baſtion. A point in the middle of the gorge of a baſtion whence the capital line commences, and is generally at the angle of the inner polygon. See *Baſtion.*

Centeſimation. A mild kind of military puniſhment, in caſes of deſertion, mutiny, and the like, when only every hundredth man is executed.

Centry-Box. The ſame as Guerritte, only the former is of wood, and the other of ſtone. It is a wooden cell, or lodge, to ſhelter the centinel or centry from the injuries of the weather. In a fortification they are uſually placed on the flanked angles of the baſtions, on thoſe of the ſhoulder, and ſometimes in the middle of the curtain.

Chace of a Gun. The whole length of it.

Chain for Engineers, is nothing but a ſort of wire-chain, divided into links of an equal length, which engineers make uſe of for ſetting out works on the ground, becauſe the line is apt both to ſhrink and give way.

Chain Shot. Vide *Shot.*

Challenge or *Cartel.* An invitation to a duel or combat.

Chamade. A ſignal made by the enemy, either by beat of drum, or ſound of trumpet, when they have any matter to propoſe. Otherwiſe called, *to ſound,* or *beat a parley,* which is the more proper *Engliſh:* but *chamade* begins to grow familiar, as do all other *French* terms in martial affairs. We ſay, *the beſiegers beat the* chamade *or* parley, *to have leave to bury their dead; the beſieged beat the* chamade *or* parley, *when they* capitulated.

Chamber of a Gun. That part of the chace where the powder and ſhot lie.

Chamber of a Mine. Vide *Foucade.*

Chamber of a Mortar. Where the powder lies alſo. It is much narrower than the reſt of the cylinder, and of different forms; but the moſt common form is cylindrical.

Chamber of a Battery. Called powder chamber, or bomb chamber. A place ſunk under ground, for holding the powder

der or the bombs, where they may be out of danger, and preſerved from raine.

Chandeliers. Wooden frames, large and ſtrong, to pile faggots againſt, one upon another, to cover the workmen inſtead of a parapet. Theſe are to remove from place to place, as occaſion requires, upon ſudden emergencies, or whilſt the trenches are digging. Sometimes they are only ſtrong planks, with two pieces of wood perpendicular, for the faſcines to bind between: but they are made in other forms for other occaſions.

Chape. The metalline plate fixed on the end of a ſcabbard, to prevent the point of the ſword from piercing through it.

Charge. The quantity of gunpowder and ball, wherewith a gun is loaded for execution.

The rule for charging large pieces in war are, that the piece be firſt cleanſed or ſcoured within ſide; that the proper quantity of powder be next driven in, and rammed down: care however being taken, that the powder, in ramming, be not bruiſed, becauſe that weakens its effect; that a little quantity of paper, hay, lint, &c. be rammed over it; and that the ball or ſhot be intruded.

If the ball be red-hot, a tampion, or trencher of green wood, is to be driven in before it.

The weight of the powder neceſſary for a charge is commonly in a ſubduple proportion to that of the ball. See the articles *Cannon*, *Gun*, *Shot*, *Caliber*, &c.

Charged Cylinder, or *Chamber.* That part of a cannon which contains the powder and ſhot.

Chauſe Trape, or *Chauſſi-trape*, the ſame as *Caltrop.*

Chauſſe. Res de Chauſſe. The level of the field, the plain ground.

Cheeks of a Mortar. Strong planks of near a ſemicircular form, bound with thick iron plates, and fixed by bolts to the bed. They keep the mortar at any given elevation.

Chemin Couvert. See *Covert Way.*

Chemin des Rondes or *Way of the Rounds.* A ſpace between the rampart, and the low parapet under it, for the rounds to go about. It is the ſame as the *Fauſſe Braye.* Vide *Fauſſe Braye.*

Chy-

Chemiſe. A word almoſt out of date, formerly ſignifying the wall that faced or lined a work of earth, eſpecially when the ſoil was ſandy and looſe, and therefore could not ſupport itſelf, without allowing it too great a *talus*, or ſtoop.

Chevaux de Friſe. The ſame as turnpikes; only ſome will have it, that the chevaux are ſtronger than the turnpikes: but there is no other difference than in the language, one being the French, the other the Engliſh name; yet both indifferently now uſed in England, and the French, rather the moſt. See *Turnpike.*

Chevrette. An engine for raiſing of guns or mortars into carriages. It is made of two pieces of wood, about four feet long, ſtanding upright upon a third ſquare piece; the upright pieces are about a foot aſunder, and pierced with holes exactly oppoſite each other, having an iron bolt, which being put through theſe holes higher or lower, at pleaſure, ſerves with a hand ſpike, which takes its poiſe over this bolt, to raiſe any thing by force.

Cinquain. An antient order of battle, to draw up five battalions ſo that they may make three lines, that is a van, main body, and body of reſerve. Suppoſing the five battalions to be in line, the 2d and 4th advance and form the van, the 3d falls back for the rear guard, or body of reſerve, the 1ſt and 5th form the main body upon the ſame ground. Then every battalion ought to have a ſquadron of horſe on its right, and another on its left. Any number of regiments produced by the multiplication of the number 5, as 10, 15, 20, &c. may be drawn up in the ſame manner.

Circumvallation. A line, or trench, with a parapet, thrown up by the beſiegers, a cannon-ſhot from the place, encompaſſing all their camp, to defend it againſt any army that may attempt to relieve the place: ſo that the army beſieging lies between the two lines of contravallation and circumvallation, the former againſt the beſieged, and the latter againſt thoſe that ſhall pretend to relieve them. The top of the line of circumvallation is generally about ſeven feet deep, and about 12 feet broad. The parapet runs quite round the top of it, and at certain diſtances it is ſtrengthened with redoubts and ſmall forts. The baſe of it is generally about eight feet wide, the height withinſide ſix, and on the outſide five, with a banquet of three feet wide, and one and a half high. The line of cir-

circumvallation must never run along the foot of rising ground, because, if any enemy shall possess himself of the height, he might plant cannon there, and command the line.

Citadel. Is a fort with four, five, or six bastions, raised on the most advantageous ground about a city, the better to command it, and commonly divided from it by an *esplanade*, or open space, the better to hinder the approach of any enemy. So that the citadel defends the inhabitants, if they continue in their duty, and punishes them if they revolt. Besiegers always attack the city first, that, being masters of it, they may cover themselves the better against the fire of the citadel. Its having bastions distinguishes it from a castle. Sometimes the citadel stands half within and half without the ramparts of the place.

The best form for a citadel is a pentagon, a square being too weak, and a hexagon too big.

Clayes. Are the same we commonly call *Hurdles*, or *Wattles*, being made of strong stakes, interwoven with oziers, or other small pliable twigs, and the closer the better. They are generally about five or six feet long, and three, or three and a half broad. The use of them is to cover lodgments over head, with much earth heaped on them to secure the men against the fire works, and stones thrown by the besieged. They are also cast into a ditch that has been drain'd, for the besiegers to pass over on them without sticking in the mud.

To clear the Trenches. To beat out those that are to guard them with a vigorous sally from the place besieged; to throw down the parapet, fill the trench, and nail the cannon.

Clerk of the Ordnance. An officer that registers all orders concerning the king's ordnance in the tower of London.

Close fire. See *Reverberation.*

Clouts. Thin plates of iron nailed on that part of the axletree of a gun's carriage, which comes through the nave, through which the linst-pin goes.

To Cloy Guns. Vide *To Nail.*

Clypeus or *Clypeum.* A shield or buckler. See *Shield.*

Coffre. A depth sunk in the bottom of a dry ditch, of bout six or seven feet wide, and the length of it the whole breadth of the said ditch from side to side. It is covered with joists, hurdles, and earth, rais'd two feet above the bot-

bottom of the ditch; which rising serves instead of a parapet, with loop holes in it: and this work being made at leisure by the besieged, serves to fire from on the besiegers, when they attempt to cross the ditch. Its length distinguishes the *Coffre* from the *Caponniere*, which does not reach the whole breadth of the ditch; and it differs from the *Traverse* and *Gallery*, in that these two are made by the besiegers, and the *Coffre* by the besieged. The besiegers *epaule*, or cover themselves against the *Coffres*, by throwing up the earth on that side on which the musketeers in it fire.

Coffre, is also taken for the same as *Caisson*. Vide *Caisson*.

Colonel. The commander in chief of a regiment, either horse, foot, or dragoons, in *England*; but in *France* and *Spain* they call the Colonels of horse *Maitres de Camp*. Colonels of foot take place, and command one another, according to the antiquity of their regiments, and not of their commissions; but those of horse, on the contrary, according to the date of their commissions, without regard to the antiquity of the regiments. Their posts at the head of the regiments is three paces before the captains. Generals of horse, foot, and dragoons are usually colonels, whose authority extends particularly over each of their respective bodies. A colonel may lay an officer of his regiment in arrest, but must acquaint the general with it. He is not allowed a guard, but only a centinel from the quarter guard.

Colonel Lieutenant. He who commands a regiment of guards, whereof the king, prince, or other person of the first eminence is colonel.

Colours. Include the banners, flags, ensigns, &c. of all kinds, borne in the army or fleet. See *Flag*, *Standard*, &c.

Column. The long file, or row of troops, or of the baggage of an army on its march. So, 'To march in a column,' or in a long file, instead of making a large front. An army marches in one, two, three, or more columns, according as the ground will allow, and the chief general sees expedient, each column being led by a general officer.

Combat, implies an engagement or difference decided by arms.

Com-

Command. Word of command. The terms uſed by officers in exerciſe, or upon ſervice.

Commanding Ground. A riſing ground which overlooks any poſt, or ſtrong place. There are three ſorts of Commanding Grounds.

A Front Commanding Ground. A height oppoſite to the face of the poſt which plays upon its front.

A Reverſe Commanding Ground. An eminence, which plays upon the back of a poſt.

An Enfilade Commanding Ground, or *Curtain Commanding Ground.* A high place which with its ſhot ſcours all the length of a line.

Commiſſary General of the Muſters, or *Muſter Maſter General.* He that takes account of the ſtrength of every regiment, as often as the general pleaſes; reviews them, ſees the horſe be well mounted, and all the men well armed and accoutred. He receives and inſpects the muſter rolls, and knows exactly an army's ſtrength.

Commiſſary General of the Stores. An officer in the artillery, who has the charge of all the ſtores, for which he is accountable to the office of ordnance. He is allowed an aſſiſtant, clerks, and conductors under him.

Commiſſary of the Horſe. An officer likewiſe of the artillery, who has the inſpection of the artillery horſes, having under him a number of conductors of horſes for his aſſiſtants.

Commiſſary General of Proviſions. Has the charge of furniſhing the army with all ſorts of proviſions, and muſt be very vigilant and induſtrious, that they may never ſuffer want.

Commiſſion. The authority by which every officer acts by his poſt, ſigned by the king, or by his general, if he be impowered.

Commiſſion Officers. Vide *Officers.*

Communication. See *Line of Communication.*

Company. A ſmall body of foot, the number never fixed, but generally from 50 to 80, commanded by a captain, who has under him a lieutenant and an enſign, and ſometimes two lieutenants. A company has uſually three ſerjeants, three corporals, and two drums. In the guards the companies conſiſt of 80 men each. Formerly two thirds

thirds of the company were armed with muſkets, and the reſt with pikes.

There are thirteen companies to conſtitute a battalion, one of which is always grenadiers, and poſted on the right: next them ſtand the eldeſt company, and on the left the ſecond: the youngeſt one being always poſted in the centre.

Independent Company, or *Irregular Company*. That which is not incorporated in a regiment.

Complement of the Curtin. Is that part of the interior ſide which forms the demigorge. See *Curtain*.

Complement of the Line of Defence, is the remainder of the line of defence, after the angle of the flank is taken off.

Conductors. Are aſſiſtants given to the comiſſary of the ſtores, to receive or deliver out ſtores to the army, to attend at the magazines by turns, when in garriſon, and to look after the ammunition waggons when in the field. They deliver their accounts to the commiſſary, and are immediately under his command.

Contramure. A wall built before another partition wall to ſtrengthen it, ſo that it may receive no damage from the adjacent buildings. See *Wall*, *Rampart*.

Contravallation. A trench guarded with a parapet, which the beſiegers cover themſelves with, next the place beſieged, to defend them againſt the ſallies of the garriſon: ſo that the army, forming a ſiege, lies between the lines of circumvallation and contravallation. This line is carried on without muſket ſhot of the town, and ſometimes goes quite round it, ſometimes not, according as the general ſees occaſion. It ſhould be made in the ſame manner as the line of circumvallation. Which word ſee.

Contre Queuë d'Yronde, or *Counter Swallow's Tail*. An outwork in the form of a ſingle *Tenaille*, wider next the place, that is, at the gorge, than at the head, or next the campaign; which is the contrary to the *Queuë d'Yronde*, or *Swallow's Tail*, this being the wideſt at the head. The ſides of the *Contre Queuë* are not ſo well flanked from the place as thoſe of the *Queuë d'Yronde*, or *Swallow's Tail*, and therefore it is not ſo good.

Contribution. An impoſition, or tax, paid by all frontier countries, to redeem themſelves from being plundered and deſtroyed by the enemy.

Con-

Converſion. A military motion, which turns the front of a battalion where the flank was, when the flank is attacked.

As this may often be the caſe in action, this motion is accounted a moſt uſeful and neceſſary one. See the article *Quarter-wheeling.*

Convoy. A body of men that is a guard or ſecurity in conveying through a dangerous paſs. A ſupply of men, money, ammunition, and proviſions, conveyed into a town, or to an army. The body of men likewiſe that marches to ſecure any thing from the enemy is called a convoy.

Copper-Boats. Vide *Bridge.*

Corbeilles. Vide *Baſkets.*

Cordeau. A line divided into fathoms, feet, &c. to mark outworks on the ground, uſed by engineers.

Cordon. A row of ſtones made round on the outſide, and ſet between the wall of the fortreſs, which lies aſlope, and the parapet which ſtands perpendicular, after ſuch a manner, that this difference may not be offenſive to the eye: whence the cordons ſerve only as an ornament, ranging round about the place, being only uſed in fortification of ſtone-work. For in thoſe made with earth, the void ſpace is filled up with pointed ſtakes.

Coridor. Vide *Covert-way.*

Cornet. The third commiſſion officer belonging to every troop of horſe, ſubordinate to the captain and lieutenant, equivalent to the enſign among the foot. His principal duty is to carry the ſtandard, near the middle of the firſt rank of the ſquadron.

This is a very honourable poſt: he commands in the abſence of the lieutenant.

Corniſh-ring of a gun. The next ring from the muzzle backwards.

Corporal An inferior officer of foot, under a ſerjeant, who has charge of one of the diviſions of a company, places and relieves centinels, and keeps good order in the *Corps de Garde.* He receives the word of the inferior rounds that paſs by his *Corps de Garde.* Every company, if ſmall, has uſually three corporals; but more, if numerous.

Corps

Corps de Garde. A poſt ſometimes under covert, and ſometimes in the open air, to receive a number of men who are relieved from time to time, to watch in their turns for the ſecurity of ſome more conſiderable poſt. This word *Corps de Garde*, does not only ſignify the poſt, but the men in it.

Corps de Battaille. The main body of an army drawn up for battle, whereof the firſt line is called the *Van*, the ſecond the *Corpes de Battaille* or *Main Battaille*, and the third the *Corps de Reſerve*, *Body of Reſerve*, or *Rear Guard*. Vide *Battle*.

Corps de Reſerve. Vide *Line of Battle*, and *Rear Guard*.

Corſelet. A little cuiraſs; or, according to others, an armour or coat made to cover the whole body, antiently worn by the pikemen, uſually placed in the front and flanks of the battle, for the better reſiſting the enemy's aſſaults, and guarding the ſoldiers placed behind them.

Covert-way. In *French*, *Chemin*, *Covert*, or *Coridor*. A ſpace of ground level with the field, upon the edge of the ditch, three or four fathoms wide, and covered with a parapet, or breaſt-work, running all round the moat, and ſloping gently towards the campaign. It has alſo a foot bank or banquet. One of the greateſt difficulties in a ſiege is to make a lodgment on the *Covert-way*, becauſe generally the beſieged palliſadoe is along the middle, and undermine it on all ſides. This is commonly called the *Counter-ſcrape*, becauſe it is on the edge of it. The ſlope is called the glacis. The parapet of a *Covert-way* is about ſix feet high, and forms a ſaillant angle before the curtain, which ſerves for a place of arms.

Council of war. An aſſembly of the principal officers of the army or fleet, occaſionally called by the general or admiral, to concert meaſures for their conduct with regard to to ſieges, retreats, engagements, &c. &c.

Counter Approaches. Lines or trenches carried on by the beſieged, when they come out to attack the lines of the beſiegers in form, or prevent approaches. See *Counter Trenches.*

Line of Counter Approaches. A trench which the beſieged make from their covered way to the right and left of the attacks, in order to ſcour the enemies works. The line muſt

must be perfectly enfiladed from the covered way and the half moon, that it may be of no service to the enemy, in case he gets possession of it.

Counter Breast-work. See *Fausse Braye.*

Counter Forts. Spurs or buttresses, serving as props to a wall subject to bulge or be thrown down.

Counter Battery. A battery that plays upon another, to dismount the guns.

Counter Guards, in *French Contre Guard*, or *Envelope.* A small rampart, with a parapet and ditch, to cover some part of the body of the place. There are Counter Guards of several shapes, and differently situated. Those raised before the point of a bastion consist of two faces, making an angle saillant, and parallel to the faces of the bastion. Those which cover one of the faces of the bastion, are shaped like a demi-bastion, with a parapet upon the face and capital, but none on the flank, which must be open and exposed to the fire of the place. This name of *Counter Guard* is not so much in use at present among the engineers, who call it usually an *Envelope.*

Counter Line. Vide *Contravallation.*

Counter-march. When the files countermarch, it changes the face, or front, of the battalion; and when ranks countermarch, it is exchanging the wings of the battalion. The files countermarch to bring those that are in the front to the rear, which is proper when a battalion is charged in the rear, and the commander would have the file leaders, who are generally chosen men, and take the place of bringers up. The ranks countermarch, when it is required that one wing of the battalion should exchange its ground with the other. An army countermarches to disappoint or amuse an enemy, when going suddenly to any project. It also signifies returning or maching back again.

Countermine. A well, or hole, sunk in the ground, from which a gallery or branch runs out under ground, to seek out the enemy's mine, and disappoint it. The word is also used when the besiegers have passed the fort, and put the miner to the foot of the rampart. These countermines are either made when the bastion is raised, or afterwards when it is attacked.

Counter-

Countermare. A wall built close to another, that it may not receive any damage from the contiguous buildings.

Counter-Round. A body of officers going to inspect the rounds.

Counterscarpe. Is properly the exterior *talus*, or slope of the ditch, on the farther side from the place, and facing it. But by this name is commonly meant the *Covert-way* and *Glacis*, and in this sense, it is said the enemy, 'attacked the Counterscrape, or lodged themselves on the Counterscarpe.'

Counterscarpe, Ditch of the Counterscarpe. Vide *Avant Fosse.*

Counter Swallow's Tail. See *Contre Queuë d'Yronde.*

Counter Trenches. Trenches cast up against the besiegers, which consequently have their parapet towards them, and are enfiladed from several parts of the place, to hinder the enemy from making use of them, when they are masters of them. But care must be taken that they be not enfiladed, or commanded by any eminence possessed by the enemy. See *Approaches.*

Counter Vallation. A ditch made round a besieged place, to prevent the garrison from making sallies. See *Contravallation.*

Counter-Working. The raising of works to oppose those of the enemy.

Court Martial. A court appointed for the punishing offences in officers, soldiers, &c. the power of which is regulated by the mutiny bill.

Courtain or *Curtin.* See *Curtin.*

Cradle. That part of a cross-bow where the bullet is put.

Crest. The top part of the armour for the head, mounting over the helmet, in manner of a comb, or tuft of a cock, deriving its name from *Crista*, a cock's comb. It is for the most part composed of feathers, or hair of horses tails or mains.

Croats. Properly the people of *Croatia*: but in France there is a regiment of horse so called, because at first they were of that nation, though now they are all *French*, as are those they still call the *Scotch Gendarmes.* These *Croats* are commanded upon desperate services; and therefore in a battle

battle they are poſted on the wings, a little advanced before the other ſquadrons, upon the line with the dragoons. See *Pandours*.

Croſs-bar-ſhot. A bullet with an iron bar paſſing through it, and ſtanding ſix or eight inches out at both ſides: it is uſed at ſea, for deſtroying the enemy's rigging.

Croſs-Battery. See *Battery*.

Crown Work. In *French Ouvrage a Couronne*. An out-work that takes up more ground than any other. It is made up of a large gorge, and two ſides terminating towards the field, in two demi baſtions, each of which is joined by a particular curtain to a whole baſtion, that is at the head of the work. Crown works are made to cover ſome large ſpot of ground, to ſecure ſome eminence, or to defend the head of a camp that is intrenched.

Crowſeet, Caltrops, or *Chauſſe-trapes*. Machines of iron, having four points, each about three or four inches long, ſo made, that whatever way they fall there is ſtill a point up: they are thrown upon breeches or in paſſes, to incommodate the cavalry, that they may not approach without great difficulty; the point that ſticks up running into the horſes feet, and laming them.

Crowned Horn-work. A horn-work with a crown-work before it. See *Crown-work*.

A Cube. A general mathematical term, ſignifying a ſolid body, every way ſquare.

Cubical. The body that is ſo ſolid and ſquare: as a Cubical Foot, that is, a foot ſquare every way of any ſubſtance.

Cuiraſſe. A piece of defenſive armour, made of iron plate, well-hammered, ſerving to cover the body, from the neck to the girdle, both before and behind.

Cuiraſſiers. Horſe that wear armour, as back, breaſt, and head-pieces. Moſt of the German cavalry are Cuiraſſiers, as are alſo ſome of the French; but we have had none in England ſince the revolution.

Culverin of the leaſt ſize. A gun five inches diameter in the bore, 4000lb. weight, takes a charge of ten pounds of powder, and carries a ball four inches and ſix eights diametar, and 16 pounds weight. Its random ſhot is 180 paces.

Culverin Ordinary. Is five inches two eighths diameter in the bore, 4500 pounds weight, takes 11 pounds 6 ounces charge of powder, and carries a ball 5 inches diameter, and 18 pounds weight.

Culverin of the largeſt ſize, is 5 inches 4 eights diameter in the bore, 4800lb. weight, takes a charge of 12 pounds 8 ounces of powder, and carries a ſhot 5 inches and 2 eighths diameter, and 20lb. weight. This and the laſt are good battering cannon, but too heavy for field ſervice.

Cunette or *Cuvette.* See *Cuvette.*

Curfew or *Courfew.* A ſignal given in cities, taken in war, &c. to the inhabitants to go to bed, introduced to prevent the inhabitants being plundered and ill-treated by the ſoldiers in their debaucheries.

Curtin. That part of the wall, or rampart, that lies between the flanks of two baſtions, bordered with a parapet 5 feet high, behind which the ſoldiers ſtand to fire upon the covered way, and into the moat. As it is the beſt defended of any part of the rampart, beſiegers ſeldom carry on their attacks againſt it, becauſe it is the beſt flanked of any part, but on the faces of the baſtions, which are defended but by one flank.

Cutting off. Vide *Retrenchments.*

Cuvette or *Cunette.* A deeper trench cut along the middle of the dry ditch, and generally carried down 'till there be water to fill it. This is a ditch within a ditch, and runs all the length of it, the better to keep off the enemy. The breadth of it ought to be 18 or 20 feet. It is good to prevent the beſiegers mining.

Cylinder. Concave Cylinder of a gun, all the hollow length of a piece, or the bore.

Charged Cylinder. The chamber, or that part which receives the charge of powder and ſhot.

Vacant Cylinder. That part of the hollow which remains empty when the gun is charged.

DECAGON. A polygon figure that has ten ſides and as many angles, capable of being fortified with ten baſtions.

To Decamp. To raiſe the camp, to break up from the place where the army lay encamped, and march away.

Decamping, is the marching of an army from the ground where it before lay encamped. See *Camp.*

Defence. Line of *Defence.* Vide *Line.*

Defence of a Place. All thoſe parts of a fortification that flank other parts, as the *Parapets, Cazemattes,* or *Fauſſe Brayes,* which face and defend thoſe poſts that are oppoſite to them. It is almoſt impoſſible to fix the miner to the face of a baſtion, 'till the defences of the oppoſite baſtion are ruined; that is, 'till the parapet of its flank is beaten down, and the cannon in all parts, that can fire upon that face which is attacked, are diſmounted.

To be in a poſture of Defence, is to be ready and provided to oppoſe an enemy. As 'Our redoubt is in a good poſture of defence;' that is, the work of it is finiſhed, and it can oppoſe an enemy.

Defile. A narrow paſs, or way, where troops cannot march but by making a ſmall front, and therefore are forced to file off, which gives the enemy an opportunity of charging them more advantageouſly, becauſe the rear cannot come up to relieve the front.

To Defile. Is to reduce an army to a ſmall front, to march through ſuch a narrow paſſage.

Degree Though this term properly belongs to geometry, it is ſo often uſed in fortification, that it will not be improper to declare it is a ſmall part of an arch of a circle, whereof every circle contains 360, which ſerve to meaſure the content of the angle. So we ſay an angle is of 20, of 50, or of 70 degrees, or more. Vide *Angle.*

Demi Baſtion. Vide *Baſtion.*

Demi Cannon loweſt. A great gun that carries a ball of 30lb. weight, and 6 inches diameter. Its charge of powder 14lb. It ſhoots point blank 156 paces. The weight of it 5400lb. the length 10 or 11 feet. The diameter of

the bore 6 inches, two 8 parts. Carries point blank 156 paces.

Demi Cannon Ordinary. A great gun 6 inches 4 eights diameter in the bore, 12 or 13 feet long, weighs 5600lb. takes a charge of 17 pounds 8 ounces of powder, carries a ſhot 6 inches 1 ſixth diameter, and 32lb. weight, and carries point-blank 162 paces.

Demi Cannon of the greateſt ſize. A gun 6 feet, 6 eight parts diameter in the bore, from 12 to 14 feet long, 6000lb. weight; takes a charge of 18lb. of powder; carries a ball 6 inches 5 eights diameter, and 36lb. weight. This piece ſhoots point-blank 180 paces.

Demi Culverin of the loweſt ſize. A gun 4 inches 2 eighths diameter in the bore, 8 or 9 feet long, 2000lb. weight; takes a charge of 6 pound 4 ounces in powder, carries a ball 4 inches diameter and 9lb. weight, and ſhoots point-blank 174 paces.

Demi Culverin Ordinary. A gun 4 inches 4 eighths diameter in the bore, 9 feet long, 2700lb weight, charged with 7 pound 4 ounces of powder; carries a ball 4 inches 2 eighths diameter, and 10 pounds 11 ounces weight. It ſhoots point-blank 175 paces.

Demi Culverin elder ſort. A gun 4 inches and 6 eights diameter in the bore, ten feet in length, 3000 pounds weight, charged with 8 pound 8 ounces of powder, and carries a ball 4 inches 4 eighths diameter, and 12 pounds 11 ounces weight. Its point-blank ſhot 178 paces. The Demi Culverins are very good field pieces.

Demi Gorge. Half the gorge, or entrance into the baſtion, not taken directly from angle to angle where the baſtion joins to the curtin, but from the angle of the flank to the centre of the baſtion, or angle the two curtins would make, were they protracted to meet in the baſtion. That part of the polygon which remains after the flank is raiſed, and goes from the curtin to the angle of the polygon. Vide *Gorge.*

Demi line, Half Moon. An out-work conſiſting of two faces and two little flanks, frequently built before the angle of a baſtion, and ſometimes alſo before the curtin, though now much diſuſed.

Depth of a Squadron or Battalion. The number of men there is in a file. That of a ſquadron there is always three, and

and that of a battalion generally ſix. So we ſay, the battalion is drawn up ſix deep, or five deep.

Deſcents. The holes, vaults, and hollow places made by undermining the ground.

Deſcents into the ditch. Trenches or guts made by way of *Sappe*, in the ground of the counterſcarpe, under the *Covert way*, and covered with madriers, that is, planks, or with *Clays*, that is, hurdles cloſe bound together, and well loaded with earth, to ſecure them againſt fire. In ditches that are full of water, the deſcent is made even to the ſuperficies of the water, and then the ditch is filled with faggots faſt bound and covered with earth. In dry ditches the *Sappe* is carried down to the bottom, and they make *Traverſes* in it, either to lodge themſelves, or ſecure the miner.

Deſerter. A ſoldier that runs away to the enemy, or that quits the ſervice without leave, or runs from one regiment to another. A deſerter is, by the articles of war puniſhable by death, and, after conviction is, if in camp, hanged at the head of the regiment he deſerted from, with his crime writ on his breaſt; and ſuffered to hang till the army leave that camp, for a terror to others.

Detached Pieces, are ſuch out-works as are at a diſtance from the body of the place, as demi-lines, rave-lines, baſtions, &c.

Detachment. A number of men drawn out of one or more greater bodies; either to mount guards, make an attack, ſcour the country, or other ſervice. Sometimes a flying army is made up of detachments inſtead of whole regiments. A detachment of 2 or 3000 men is a command for a brigadier; eight hundred for a colonel; 4 or 500 for a lieutenant-colonel. A captain never marches on a detachment with leſs than 50 men; a lieutenant, enſign, and two ſerjeants. A lieutenant is allowed 30, and a ſerjeant 10 or 12 men. Detachments are ſometimes made of entire ſquadrons and battalions.

Diagonal. A right line drawn acroſs a quadrangular figure from one angle to another, by ſome called a diameter, and by others the diameter of the figure.

To Diſmount. The vulgar and general meaning is to unhorſe, as, to diſmount cavalry: but,

To Dismount Cannon, is to throw them off the carriages, break these, and render them unfit for service.

Dispart. To dispart a cannon, is to set a mark on the muzzle ring to be of an equal height, or level with the base ring; so that a line drawn between them shall be parallel to the axis of the concave cylinder, for the gunner to take aim by it at the mark he is to shoot; for the bore and this being parallel, the aim taken by it must be true. This line is called *the dispart of a gun*, and is found by a pair of calliber compasses. The common way of doing this, is to take the two diameters of the base-ring, and of the place where the dispart is to stand, and divide the difference between them into two equal parts, one of which will be the length of the dispart, which is set on the gun with wax or pitch, or fastened there with a piece of twine or marlin. By means of an instrument it may be done with all possible nicety.

Distance of the Bastions, is the site of the exterior polygon. See *Polygon*.

Ditch. Vide *Moat*.

Ditch of the Counterscarp. Vide *Avant Fosse*.

Diversion. Is when an enemy is attacked in one place where they are weak and unprovided, in order to draw off their forces from another place, where they have made, or intended to make, an irruption. Thus the Romans had no other way in their power of driving Hannibal out of Italy, but by making a diversion in attacking Carthage.

Divisions of a Battalion. The several parcels into which a battalion is divided in marching, consisting generally of about six files each, and led by the lieutenants and enfigns, the captains marching in the front and rear. The divisions of an army are the brigades.

Dodecagon. A figure that has twelve sides, and as many angles, capable of being fortified with the same number of bastions.

Donjon, is a place of retreat, to capitulate with more advantage, in case of necessity.

Dosser. A basket of a peculiar form, flat on one side, for the men to carry earth in upon their backs.

Double Bastion. See *Bastion*.

Double Tenaille. Vide *Tenaille*.

To Double. To put two ranks into one, or two files into one, according as the word of command expreſſes it. As *Double your ranks*, is for the ſecond, fourth, and ſixth ranks to march into the firſt, third and fifth; ſo that of ſix ranks they make but three, leaving double the interval there was between them before; which is not ſo when they *Double by half files*, becauſe then three ranks ſtand together, and the three others come up to double them; that is, the firſt, ſecond and third, are doubled by the fourth, fifth and ſixth, or the contrary. *Double your files*, is for every other file to march into that which is next to it on the right or left, as the word of command directs, and then the ſix ranks are turned into twelve, the men ſtanding twelve deep, and the diſtance between the files is double what it was before.

Dragoons. Muſqueteers mounted, who ſerve ſometimes on foot, and ſometimes on horſeback; being always ready upon any thing that requires expedition, as being able to keep pace with the horſe, and do the ſervice of foot. In battle, or upon attacks, they are commonly the *enfans perdus*, or forlorn hope, being the firſt that fall on. In the field they encamp either at the head of the army, or on the wings, to cover the others, and be the firſt at their arms. They are divided into brigades, as the cavalry, and each regiment into troops, each troop having a captain, lieutenant, cornet, quarter maſter, two ſerjeants, three corporals, and two drums. They are very uſeful on any expedition that requires diſpatch, as they can keep pace with the cavalry, and do the duty of infantry: they encamp generally on the wings of the army, or at the paſſes leading to the camp; and ſometimes they are brought to cover the general's quarters: they do duty on the generals of horſe and dragoons, and march in the front and rear of the army. Their martial muſic is drums, and ſometimes baſſoons and hautboys.

Draught-hooks, are large hooks of iron, fixed on the cheeks of a cannon-carriage, two on each ſide, one near the trunnion hole, and the other at the train, diſtinguiſhed by the name of fore and hind draught-hooks. Large guns have draught-hooks near the middle tranſum, to which are fixed the chains that ſerve to keep the ſhafts of the limbers on a march. The fore and hind hooks are uſed for draw-

ing a gun backwards or forwards by men with ſtrong ropes, called draught-ropes, fixed to theſe hooks.

Draw-bridge. A bridge made after the manner of a floor, to draw up or let down, as occaſion ſerves, before the gate of a town or caſtle. It may be made after ſeveral different ways, but the moſt common are made with plyers, twice the length of the gate, and a foot diameter. The inner ſquare is traverſed with a croſs which ſerves for a counter poiſe; and the chains which hang from the extremities of the plyers to lift up or let down the bridge, are of iron or braſs.

Drain. A trench cut to draw the water out of a moat. As ſoon as the moat is drained, they caſt into it a claye, covered with earth, or bundles of ruſhes with planks on them, to make a paſſage over the mud.

Droit Attacks. Vide *Attacks.*

Drum. A military muſical inſtrument in form of a cylinder, hollow within, and covered at the ends with vellum, which is ſtretched or ſlackened at pleaſure by the means of ſmall cords and ſliding knots. It is beat with ſticks, but they are commonly of hard wood. Some drums are of braſs.

Kettle Drums, are compoſed of two large baſons of copper or braſs, rounded in the bottom, and covered with vellum or goat's ſkin, which is kept faſt by a circle of iron, and ſeveral holes, faſtened to the body of the drum, and a like number of ſcrews to ſcrew up and down. They are much uſed among the horſe.

Drum, or *Drummer.* The man that beats the drum, which is done after ſeveral manners, either to give notice to the troops what they are to do, or to demand liberty to make ſome propoſals to an enemy. Every regiment of foot has a drum major, who command all the reſt, and every company has two, three, or four drums, as the men are in number. To *beat the general*, is to give notice to the forces that they are to march. To *beat the aſſembly* or *troop*, is to order the men to repair to their colours. To *beat the march*, is to command them to move. To *beat the tat-too*, is to order all to retire to their quarters. To *beat the reville*, at break of day, is to warn the ſoldiers to riſe, and the centinels to forbear challenging, and to give leave

leave to come out of quarters. To *beat the charge*, is a ſignal to fall upon the enemy. To *beat a retreat*, is a ſignal to draw off from the enemy. To *beat to arms*, is for ſoldiers that are diſperſed to repair to them. To *beat a call*, is to advertiſe the ſoldiers to ſtand to their arms. To *beat an alarm*, is to give notice of ſudden danger, that all may be in readineſs. To *beat a parley*, or *chamade*, is a ſignal to demand ſome conference with the enemy. When a battalion is drawn up, the drums are on the flanks; and when it marches by diviſions, or ſubdiviſions, they march between them.

Dry Moat. See *Moat.*

Duledge. A peg of wood which joins the ends of the fix fellows that form the round of the wheel of a gun-carriage. The plate of iron on the outſide of the wheel, which ſtrengthens the joint, is called the duledge-plate.

Dungeon, or *Donjon.* See *Donjon.*

Duty. The exerciſe of thoſe functions that belong to a ſoldier; yet with this nice diſtiction however, that *duty* is counted the mounting guard, and the like, where there is not an enemy directly to be engaged; for when they march to meet the enemy, it is called *going upon ſervice.*

E

EARTH Bags. Vide *Canvas Bags.*

Echarpe. To batter *en Echarpe*, is to batter obliquely or ſideways Vide *Battery.*

Echaguette. Vide *Guerittte.*

Elder Battalion, or *Officer.* A battalion is counted elder than another by the time ſince it was raiſed. See more of this under the word *Seniority.*

Elevation, angle of. That comprehended between the horizon and the line of direction of a cannon or mortar; or it is that which the chaſe of a piece, or the axis of its hollow cylinder, makes with the plane of the horizon.

Embrazures. The gaps, cuts, or loop-holes, left open in a parapet for the cannon to fire through. The uſual diſtance between the Embrazures is generally 12 feet, for the conveniency of the gunner, and that the parapet may not be too much weakened. Every Embrazure is three feet above the platform next to the cannon, and a foot and a half next the campaign, to ſink the muzzle, and play low. Each of them is about three feet wide within, and about ſix or ſeven without, for the conveniency of traverſing the guns. See *Battery.*

Eminence, or *Height.* A riſing ground that overlooks, and commands the low places about it. Such places within cannon ſhot of a fort, are a great advantage; for if the beſiegers become maſters of them, they can, from thence, fire into the fort.

Empattement. The ſame as *Talus,* which ſee.

Encampment. The pitching of a camp. See *Camp.*

Enceinte. The wall or rampart which ſurrounds a place; ſometimes compoſed of baſtions and curtins, either faced with brick or ſtone, or only made of earth; ſometimes only flanked by round or ſquare towers, which is called a *Roman* wall.

Enfans perdus. Men detached from ſeveral regiments, or otherwiſe appointed to give the firſt onſet in battle, or an attack upon the counterſcarp, or the breach of a place beſieged; ſo called becauſe of the imminent danger they are expoſed to. In England they are commonly called, *the Forlorn Hope.*

Enfilade. The ſituation of a poſt, which can diſcover and ſcour all the length of a ſtrait line, which, by that means is rendered almoſt defenceleſs.

To Enfile, or *Enfilade* the curtin or rampart. To ſweep the whole length of it with the ſhot. In conducting the approaches of a ſiege, care muſt be taken that they be not enfilade from the works of the place; but that they be carried on with windings and turnings up to the glacis, and then ſtrait forwards, being ſunk deep in the ground, and covered over head.

Engineer. An able expert man, who, by a perfect knowledge in mathematicks, delineates upon paper, or marks upon the ground, all ſorts of forts, and other works proper for

for offence and defence. He ſhould thoroughly underſtand the mathematics and fortification, ſo as to diſcover the defects of a place, and to find a remedy proper for them; and alſo how to make an attack upon, as well as to defend the place. Engineers are extremely neceſſary. It is requiſite that they ſhould be brave as well as ingenious. When engaged at a ſiege, it is their duty to ſurvey very narrowly the place, and make their report to the general, what part they judge the weakeſt, and where approaches may be made with the moſt ſucceſs. Their buſineſs is alſo to delineate the lines of circumvallation and contravallation, taking all the advantages of the ground; to mark out the trenches, places of arms, batteries and lodgements; taking care that none of their works be flanked or diſcovered from the place. After making a faithful report to the general of what is doing, it is the Engineers duty to require a ſufficient number of workmen and utenſils, and whatever elſe is neceſſary.

Enneagon. A figure that has nine ſides, and as many angles, capable of being fortified with the ſame number of baſtions.

Enſign. The officer that carries the colours among the foot; and is the loweſt commiſſion officer in the company, being ſubordinate to the captain and lieutenant. It is a very honourable and proper poſt for a young gentleman, at his firſt coming into the army. He has the charge of the Enſign in battle, and is to die rather than loſe his colours. If he be killed, the captain is to take them in his ſtead.

Envelope. A work of earth raiſed ſometimes in the ditch of a place, ſometimes like a plain parapet, and ſometimes like a ſmall rampart with a parapet to it. *Envelopes* are generally made, when weak places are covered only with bare lines, and either they cannot, or will not ſtretch out towards the campaign with half moons, horn-works, tenailles, or the like works which require much ground. The *Envelopes* in a ditch are ſometimes called *Silons, Contre, Gardes, Conſerves,* or *Lunettes.* See *Silon, Contre, Garde, Lunettes.*

Epaule, the ſhoulder of a baſtion. The ſpace contained by the angle, made by the union of the face and flank;

whence that angle is called, *the Angle of the Epaule*, or *Shoulder*.

Epaulment. A work to cover aſide, or ſide-ways, made either of earth thrown up, of bags of earth, of gabions, or of faſcines and earth. The Epaulments of the places of arms for the cavalry, behind the trenches, are generally only of faſcines and earth.

Epaulment, is alſo taken for a *Demi Baſtion*. Vide *Baſtion*.

Epaulment, or *Square Orillon*. A maſs of earth almoſt ſquare, and faced or lined with a wall, to cover the cannon of a *Cazemate*. Vide *Orillon*.

Eptagon. See *Heptagon*.

Equilateral. A figure that has all its ſides equal.

Eſcalade. Vide *Scalade*.

Eſcarp. Vide *Scarp*.

Eſcort. The ſame as *Convoy*.

Eſcouade. Generally is the third part of a company of foot, ſo divided for mounting of guards, and relieving one another; equivalent to a brigade of horſe.

Eſpaule and *Eſpaulement*. The ſame as *Epaule* and *Epaulement*.

Eſplanade. It properly ſignifies the ſloping of the parapet of the covert way towards the campaign, and is therefore the ſame as the glacis of the counterſcarp; but begins to be antiquated in that ſenſe, and is now only taken for the empty ſpace between the glacis of a citadel, and the firſt houſes of a town, commonly called the place of arms.

Eſtoile. Vide *Star Redoubt*.

Etappe. An allowance of proviſions and forage, for ſoldiers in their march through a kingdom, to or from winter quarters.

Etappier. One that contracts with a country, or territory, for furniſhing troops in their march with proviſions, and forage. The *Etappiers* are to deliver the *Etappe* to the majors of horſe, or foot, and in their abſence to the quarter-maſters of each troop of horſe, or ſerjeants of the company of foot. They are forbid giving ſoldiers their *Etappe* in money. Sometimes the *Etappiers* and officers compound for a ſum of money, and oblige the ſoldiers to make

make two days march into one; which is great harraſſing of men and horſes, and a notorious fraud.

Evolutions. The motions made by a body of men in changing their poſture, or form of drawing up, to make good the ground or poſt they are on, or poſſeſs themſelves of another, that they may either attack the enemy, or receive his onſet more advantageouſly. The *Evolutions* are *doubling of ranks* or *files*, *counter marches*, and *wheelings*.—A battalion doubles the ranks when attacked in front and rear, to prevent its being flanked or ſurrounded; for then a battalion fights with a longer front: the files are doubled either to accommodate themſelves to the neceſſity of a narrow ground, or to reſiſt an enemy which attacks them in flank; but if the ground will allow it, converſion is much preferable, becauſe after converſion the battalion is in its firſt form, and oppoſes the file leaders, which are generally the beſt men to the enemy; and likewiſe, becauſe doubling the files in a new, or not well diſciplined regiment, they may happen to fall into diſorder. See *Doubling*.

Execution Military. The pillaging or plundering a country by an enemy's army.

Exagon. See *Hexagon*.

Exerciſe. The practice of all thoſe motions and actions, and the whole management of arms a ſoldier is to be perfect in, to be fit for ſervice, and make him underſtand how to attack and defend. The exerciſe of a ſoldier in camp, conſidered as conducive to health, Dr. Pringle diſtinguiſhes into three heads; the firſt relating to his duty; the ſecond to his living more commodiouſly; and the third to his diverſions. The firſt conſiſting chiefly in the exerciſe of his arms, will be no leſs the means of preſerving health, than of making him expert in his duty, and frequent returns of this, early, and before the ſun grows hot, will be made more advantageous than repeating it ſeldom, and ſtaying out long at a time; for a camp affording little convenience for refreſhment, all unneceſſary fatigue is to be avoided. As to the ſecond article, cutting boughs of trees for ſhading the tents, making trenches round them for carrying off the water, airing the ſtraw, cleaning their clothes and accoutrements, and aſſiſting in the buſineſs of the meſs, ought to be no diſagreable exerciſe to the men for ſome part

part of the day. Lastly, as to diversions, the men must be encouraged to them either by example or small premiums to those who shall excell in any kind of sports, as shall be judged most conducive to health, but in this great caution is necessary, by not allowing them to fatigue themselves too much, especially in hot weather, or sickly times; but above all it is essentially necessary that their cloathes be kept dry, wet cloathes being the most frequent causes of camp diseases.

External Angles, are the angles on the out side of any right-lined figure, when all the sides are severally produced, and they are all, taken together, equal to four right angles.

Explosion. See *Gun powder.*

F

FACE of a Bastion. The two foremost sides, reaching from the flanks to the point of the bastion where they meet, are called the *Faces.* These are commonly the first undermined, because they reach furthest out, and are least flanked, and therefore weakest. But even before this can be done, the opposite flank, which defends the passage of the moat, should be ruined.

Face of a Place, called also the *Tenaille of the Place.* The interval between the points of two neighbouring bastions, containing the curtin, the two flanks, and the two faces of the bastions that look upon one another. In a siege, when the whole *Tenaille* is attacked, the approaches are carried on against both bastions.

Face prolonged, or *extended.* Is that part of the line of defence razant, which is terminated by the curtin, and the angle of the shoulder; that is, it is the line of defence razant, diminished by the face of the bastions.

Face of a Gun, is the superficies of the metal at the extremity of the muzzle of the piece.

Face is a word that respects also the motions of troops. To face, is to look towards such a side or to turn to it; as

Face

Face to the right, or *to the left*, is, to turn the face and whole body one quarter that way, upon the oppoſite heel.

Faggots. The French call them *Paſſevolans*. They are men hired to muſter, by officers whoſe companies are not full, to cheat the ſovereign of ſo many men's pay. The late king of France ordered, that any who ſhould be found ſo to paſs in muſters, if diſcovered, ſhould have a *flower de luce* burnt upon their cheek, and loſe their arms and equipage. *Faggots* are alſo the ſame as *Faſcines*.

Falſe Attack. Vide *Attack*.

Falcon. Vide *Faucon*.

Falconet. Vide *Fauconet*.

Falſe Alarm. Vide *Alarm*.

Fanion. A banner carried by a ſervant belonging to each brigade of horſe and foot, at the head of the baggage of each brigade, to keep good order, and prevent confuſion in the march. It is made of ſtuff of the colour of the brigadiers, or the commanding officers livery. It is a corruption of Gonfannon, which in Italian ſignifies a banner.

Faſcines, are faggots of ſmall wood, which diſtinguiſhes them from the Sauciſſons, made of bigger branches of trees. *Faſcines* are greater or leſs, according to the ſeveral uſes they are put to. Thoſe that are to be pitched, to burn a lodgment, gallery, or other work of the enemies, are but a foot and a half long, and a foot thick; but thoſe that are for making *Epaulments*, or *Chandeliers*, or to raiſe works, or to fill up wet ditches, muſt be between two and three feet in thickneſs, and four feet long; and being to be loaded with much earth to make them more ſolid, and prevent their being fired, they are bound at both ends, as well as in the middle. The enemy has no way to deſtroy them but by fire; to prevent which, they are either loaded with earth, or covered with raw hides.

A Faucon, or *Falcon*. A very ſmall cannon 2 inches and 6 eights diameter in the bore, 7 feet long, weighing 750lb. takes a charge of 2 pounds 4 ounces of powder, and carries a ball 2 inches and 5 eights diameter, and 2 pounds 8 ounces weight. Its point-blank ſhot is 100 paces.

A Fau-

A Fauconet, or *Falconet*. A very ſmall piece of cannon, 2 inches and 2 eights diameter in the bore, 6 feet long, weighing 400 weight, takes a charge of 1 pound 4 ounces of powder, and carries a bullet 2 inches and 1 eighth diameter, and 1 pound 5 ounces weight. Its point-blank ſhot 90 paces. Theſe pieces are now pretty much out of uſe, being found too ſmall to be of conſiderable advantage in an army, where the three pounders, minions, and ſakers, are generally the ſmalleſt now to be met with.

Fauſſe Braye, *Chemin des Rondes*, *Baſſe Enceinte*, or *Lower Encloſure*, or *Counter-breaſt-work*. This is a ſpace about the breadth of two or three fathom round the foot of the rampart, on the outſide, defended by a parapet, with a banquet, which parts it from the *Berme*, or *Foreland*, and the edge of the ditch. The deſign of the *Fauſſe Braye*, is to defend the moat: but they are uſeleſs where ramparts are faced or lined with wall, becauſe of the rubbiſh the cannon beats down into them. Therefore moſt engineers will have none before the faces of the baſtion, where the breach is commonly made, becauſe the ruins falling, the *Fauſſe Braye* makes the aſcent to the breach the eaſier, and what flies from the faces, kills the ſoldiers that are to defend them. Traverſes, fillons, or coffers, are much better works for the ſame purpoſe of defending the dry moat, but in places ſurrounded with a wet ditch, a fauſſe-braye is more uſeful, provided it be made only before the curtain and flanks; for lying low, it cannot be eaſily hurt by the enemy's cannon, and it defends the foſſe better, becauſe of its low ſituation, than the true rampart, which, on account of its height, cannot ſo well diſcover the foſſe.

Fellows, are ſix pieces of wood, each whereof forms a piece of an arch of 60 degrees, and joined all together, by duledges, make an entire circle; which with the addition of a nave, and twelve ſpokes, make the wheel of a gun-carriage. Their thickneſs uſually is the diameter of the ball of the gun they ſerve for, and their breadth ſomething more.

Fichant. Vide *Line of Defence Fichant*.

Ferdwit. A term formerly uſed to denote a freedom from going forth upon any military expedition; or according to ſome,

ſome, the being quit of man-ſlaughter committed in the army.

Field, denotes the place where a battle was fought.

Field-fort. See *Fort*.

Field-works, are thoſe thrown up by an army in beſieging a fortreſs, or by the beſieged to defend a place. Such are the fortifications of camps, highways, &c.

Running Fight, that in which the enemy are continually chaſed.

Figure. The plan of any fortified place, or the interior polygon, which, when the ſides and angles are equal, is called a *regular*, and when unequal, an *irregular Figure*.

Field Officers. See *Officers*.

Field Pieces. Small guns, proper to be carried along with an army into the field; ſuch as 3 pounders, minions, ſakers, 6 pounders, demiculverins, and 12 pounders; which, becauſe of their ſmallneſs, are eaſier drawn, eaſier ſerved, require leſſer quantities of ammunition, and are, upon the whole, of leſs charge.

Field Staff. A weapon carried by the gunners, about the length of a halbert, with a ſpear at the end, having on each ſide ears ſcrewed on, like the cock of a matchlock, where the gunners ſcrew in lighted matches when they are upon command: and then the *Field Staffs* are ſaid to be alarmed.

Field Marſhal. A rank not of long ſtanding in England, but ſuperior to all others in the military way. There never have been above two or three Field Marſhals in England at once; but the marſhals of France are commonly pretty numerous.

File. The ſtrait line ſoldiers make, that ſtand one before another, which is the depth of the battalion, or ſquadron, and thus diſtinguiſhed from the rank where the men ſtand ſide by ſide, and make the length of the battalion or ſquadron. Among the foot, the files are generally ſix deep; among the horſe but three. The files muſt be ſtrait, and parallel to one another. To *double the Files*, is to put two files into one, which makes the depth of the battalion double what it was; not in the ſpace of ground, but in number of men; and alſo doubles the intervals between the files, making the ranks look thin

thin. The men in a file are distinguished by the several names of file leaders, half file leaders, and bringers up. If a battalion be drawn up eight deep, there may be quarter files; but this is not usual.

File Leaders. The men that compose the front, or first rank of a battalion, being the first of every file.

To file off. The same as to *defile*, to fall off from marching in a spacious front, and march by length in files. When a regiment is marching in full front, and comes to a narrow pass, it may march off by divisions, or subdivisions, or file off from the right or left, or as the ground requires.

Fire. To fire: to discharge fire arms.

Fire Arms. Under this name are comprehended all sorts of arms, that are charged with powder and ball, as cannon, muskets, carabines, pistols, blunderbusses, &c.

Running Fire. When men drawn up for that purpose fire one after another, so that it runs the whole length of the line, or round a town, or the like, which is used upon public occasions of rejoicing.

Fire Ball. Is made of ground or meal powder, saltpetre, brimston, camphire and borax, all sprinkled with oil, and moulded into a mass, with mutton suet and pitch, and made as big as an ordinary granade. This is wrapped up in tow, with a sheet of strong paper over it. To fire it, they make a hole into it with a bodkin, into which they put a fusee of a composition that will burn slow. This they cast into any works of an enemy, when they would discover them in the night time. They are also used to fire houses or galleries; but are then armed with iron spikes or hooks, that they may hold fast where they fall.

Fire Master. An officer that makes the fusees for bombs and granadoes, and other fireworks. He also gives the directions, and proportions the ingredients for all compositions in fireworks.

Firelock. The arms carried by a foot soldier, 3 feet 8 inches in the barrel, the stock 4 feet 8 inches. It carries a leaden bullet of an ounce weight.

Fire Pots. Small earthen pots, into which is put a granade filled with powder, and then the pot is filled with fine powder till the granade is covered: the pot is afterwards covered

covered with a piece of parchment, and two matches lighted acroſs. This pot being thrown by a handle of match where it is deſigned, it breaks and fires the powder, and burns all that is near it, and likewiſe fires the powder in the granade, which ought to have no fuſee, to the end its operation may be quicker.

Fire-workers. Officers ſubordinate to the fire-maſter, but who command the bombardiers. They receive their orders from the fire-maſter, and not only ſee them executed, but work themſelves along with the bombardiers. There are twenty-four fire-workers eſtabliſhed in the office of ordnance.

Flag. A ſmall banner of diſtinction ſtuck in the baggage-waggons of the army, to diſtinguiſh the baggage of one brigade, or battalion, from another, that they may be marſhalled by the waggon maſter-general, according to the rank of their brigades, where they are to keep during the march, to avoid confuſion.

Flank of an army, are the troops encamped on the right and left, as the flanks of a battalion are the files on the right and left.

Flank of a Baſtion. That part of the baſtion which reaches from the curtin to the face, comprehended betwixt the angle of the curtin and the angle of the ſhoulder, and is the principal defence of a place: its uſe is to defend the curtin; the flank, and face of the oppoſite baſtion; to defend the paſſage of the moat; batter the ſaillant angles of the counterſcarp and glacis, from whence the beſieged generally ruin the flanks with their artillery; for the flanks are the parts of a fortification, which the beſiegers endeavour moſt to ruin, in order to take away the defence of the face of the oppoſite baſtion.

Engineers differ very much about raiſing the flank, ſome making it perpendicular to the face, ſome to the curtin, and others to the line of defence; ſome again make it an angle of 980 with the curtin, whereas Vauban makes it the chord of a ſegment, whoſe center is the angle of the ſhoulder of the next baſtion.

Flank Oblique, or *Second Flank.* That part of the curtin that can ſee to ſcour the face of the oppoſite baſtion, and is the diſtance between the lines *Razant* and *Fichant.* This ap-

appears in a plan upon paper to be a good defence, but is rejected by moſt engineers, being liable to be ruined at the beginning of a ſiege, eſpecially if it be of a ſandy earth. The ſecond parapet, which may be raiſed behind the former, is of no uſe; for it neither diſcovers nor defends the face of the oppoſite baſtion: beſides, it ſhortens the flank, which is the true defence, and the continual fire of the beſiegers cannon will never ſuffer them to raiſe a ſecond parapet. This ſecond flank defends very obliquely the oppoſite face, and is to be uſed only in a place which is to be attacked by an army without cannon.

Flank retired, low, or *covered flank, flank retire.* The platform of the *cazematte*, which lies hid in the baſtion. This is generally called the *cazemate*, when there is only one platform retired towards the capital of the baſtion, and covered by an orillon. Theſe retired flanks are a great defence to the oppoſite baſtion, and to the paſſage of the moat, becauſe the beſiegers cannot ſee, nor eaſily dismount their guns. This curtin is generally eſteemed the ſtrongeſt part of a fortification, becauſe flanked at both ends; and the face is accounted the weakeſt, as having only one defence from the oppoſite flank.

Flank prolonged, or *extended.* Is the ſtretching out of the flank from the angle of the *epaule* to the exterior ſide, when the angle of the flank is a right angle.

To Flank. To diſcover and fire upon the ſide or flank of an enemy. Any fortification which has no defence but right forwards, is faulty, and to make it compleat, one part ought to flank the other. The curtin is always the ſtrongeſt part of any fortified place, becauſe it is flanked by the two flanks at the ends of it; and the face, having but one defence from the oppoſite flank, is counted the weakeſt.

Flanked Angle. The angle formed by the two faces of the baſtion; the point of the baſtion. See *Angle.*

Flanked Angle, or *Angle of the Tenaille,* that compoſed of the two lines of defence, and pointing towards the curtin. See *Tenaille.*

Flanking Line of Defence. See *Line of Defence.*

Flaſk

Flaſk. A thing generally made of horn, to carry powder in, with the meaſure of the charge of the piece on the top of it.

Flying Army, or *Flying Camp.* See *Camp.*

Flying Bridge. See *Bridge.*

Foot. So abſolutely taken, ſignifies all thoſe bodies of men that ſerve on foot. They are armed with a ſword, bayonet, firelock, or cartridge box, &c. The foot are formed into companies, and according to the articles of war, a ſoldier is not to leave his company, without leave from his officer, or to go about his own buſineſs, without being reputed a deſerter, and tried for his life. Theſe companies are formed into regiments.

Foot. Is a known meaſure divided into 12 inches, being the ſixth part of a fathom, the 5th of a geometrical pace, and uſed in fortification.

'To be on the *ſame Foot* with another,' is to be under the ſame circumſtances in point of ſervice; to have the ſame number of men, and the ſame pay.

'To gain or loſe ground, *foot* by *foot*, it is to do, regularly and reſolutely, defending every thing to the utmoſt, or forcing it by dint of art or labour.

Footbank, *Footſtep*, or *Banquette.* A ſmall ſtep of earth under the parapet, to raiſe the men to fire over it, about a foot and a half high, and three feet wide. They uſually make two or three of them under the parapets of little forts and redoubts. The parapet ſhould be always four feet and a half above the higheſt footbank. Their uſe is for the muſqueteers to get up on, in order to diſcover the counterſcrap, or to fire on the enemy in the mote, or in the covered-way.

Foot Guards. See *Guards.*

Foot Soldiers. See *Infantry.*

Forrage. Hay, ſtraw, and oats, for the ſubſiſtence of horſes. A ration of forage is a day's allowance for a horſe, which is 20lb. of hay, 10lb. of ſtraw, and, for want of ſtraw, 25lb. of hay.

Dry Forrage is the hay, oats, &c. delivered out of the magazines to an army in garriſon, or when they take the field,

field, before the green forrage is ſufficiently grown up to ſupply the troops.

It is the buſineſs of the quarter-maſter-general to appoint the method of forrage, and poſt proper guards for the ſecurity of the forragers. He ought alſo, in encamping an army, to take care that it be in a country abounding with forrage.

Foreland, *Barm*, *Berm*, or *Lizier*; *Relais*, *Retraite*, and *Pas de Souris*. A ſmall ſpace of ground between the rampart of a place, and the moat, which the beſt fortifications have not, becauſe it is advantageous for the enemy to come over the moat, and get footing; and therefore this is only left, where there is not enough to defray the expence of ſtone to face the foot of the rampart, in place whereof this helps to ſupport it, and is generally from 3 to 8, or 10 feet wide. This ſpace is left to receive what the enemy batters down from the parapet, that it may not fill the ditch. For the more ſecurity this *Foreland* is generally palliſadoed, and in Holland they plant it with quick-ſets.

The Forlorn Hope. Vide *Enfans perdus*.

Forge. An engine carried along with the artillery for the ſmiths, and is a travelling ſmith's forge. The *Forge* for hot balls, is the place where the balls are made hot before they are fired off: it is built of brick, and hath a furnace below, over which are bars of iron: it is covered over head, and the balls laid upon the bars till they be hot, and are taken out with long ladles, to be put into the gun. The materials for ſuch forges are carried along with the artillery, when there is any deſign of burning magazines, or the like with hot ball.

Formers, are of ſeveral ſorts; but the chief is for making cartridges for cannon. They are round pieces of wood fitted to the diameter of the bore of a gun, on which the paper, parchment, or cotton, which is to make the cartridge, is rolled before it be ſewed.

Forming of a ſiege. See *Siege*.

Fort, is a work environed on both ſides with a moat, rampart, and parapet: the deſign of it is to ſecure ſome high ground, or the paſſage of a river, to make good an advantageous poſt, to fortify the lines and quarters of a ſiege, &c. They are of different figures, and are made ſmall-

ſmaller and greater, as the ground requires. Some are in the ſhape of baſtions; ſome are fortified with entire baſtions, others with demi baſtions; ſome are raiſed on a ſquare, and others on a pentagon. A fort differs from a citadel, becauſe this laſt is always raiſed by the orders of the ſovereign. Small forts are made in form of a ſtar, having five or ſeven angles, and are raiſed for the ſecurity of the lines of circumvallation.

Royal Fort, one whoſe line of defence is at leaſt 26 fathoms long.

Star Fort. A redoubt formed by a number of re-entering and ſalient angles, the ſides of which flank each other.

Fortification. The art of fortifying a place, ſo that every part may diſcover the enemy in front and flank, and oppoſe the depth of the ditch, and the height and thickneſs of the rampart againſt him; that ſo a ſmall body of men within that encloſure may advantageouſly oppoſe a great army. This ſame word is alſo uſed to ſignify all the works that cover or defend a ſtrong place. It is alſo the art by which an engineer makes plans and deſigns, raiſes different ſorts of works, digs the foſs, faces the ramparts, and conducts the approaches, either in the attack or defence of a place: in ſhort, it requires an engineer to be a good deſigner, architect, miner, and mechanic, and to underſtand gunnery. See *Introduction*.

Fortification is uſually divided into natural, artificial, ancient, modern, regular, irregular, offenſive, and defenſive. Some have made ſeveral orders of fortification, in imitation of architecture; the one they call the French order, the other the Dutch, the third the Italian, &c.

Fortification Offenſive, teaches a general how to take all advantages for his troops; alſo the manner of encamping, and of beſieging and taking of towns.

Fortification Defenſive, ſhews a governor how to make the beſt of the garriſon committed to his care, and to provide all things neceſſary for its defence.

Natural Fortifications, conſiſts in the natural difficulty of acceſs to any place, cauſed by waters, moraſſes, craggy or ſteep aſcents, or the like, and teaches an engineer how to make the moſt of them.

Arti-

Artificial Fortification, is what an engineer thinks fit to add in work, as ramparts, trenches, baſtions, ravelins, half moons, &c. to ſupply the defects of nature, and ſecure a place againſt an enemy.

Ancient Fortification, conſiſts only in places ſurrounded with walls, and towers on them at certain diſtances.

Modern Fortification, is that which is flanked and defended by baſtions and outworks, and whoſe works are ſo ſolid, that they are proof againſt the force of cannon, and cannot be beat down, but by a perpetual fire from ſeveral batteries of cannon.

Fortification Regular, conſiſts in the place's being fortified according to the rules; the ſides of the polygon not exceeding a muſket ſhot, and the angles being equal; in its being defended by baſtions and other works, whoſe relative parts are equal and uniform.

Irregular Fortification is, when a town has ſuch an irregular ſituation, as renders it incapable of being regularly fortified, both becauſe of the difference of its ſides, ſome being too long, others too ſhort; as likewiſe becauſe of its being ſurrounded with precipices, vallies, ditches, rivers, hills, rocks, or mountains, and muſt therefore be fortified with works ſuitable to the ſituation.

To fortify inwards, is to repreſent the baſtion within the polygon propoſed to be fortified; and then that polygon is called the *exterior polygon*, and each of its ſides the *exterior ſide* terminating at the points of the two neareſt baſtions.

To fortify outwards, is to repreſent the baſtion without the polygon propoſed to be fortified; and then that polygon is called the *interior polygon*, and each of its ſides the *interior ſide*, terminating in the centers of the two neareſt baſtions.

Fortified. An appellation given to places defended by ramparts, baſtions, ditches, covert-ways, half moons, ravelines, tenailles, and other out-works.

Fortin. A ſmall fort made like a ſtar, of five or more points, to ſtrengthen a line of circumvallation, or the like.

The flanked angles of a fortin, or field-fort are generally diſtant one from another 120 fathoms. The extent of fortins

fortins are different, according to the ſituation or nature of the ground; ſome of them having whole baſtions, and others demi-baſtions. They are made uſe of only for a time, either to defend the lines of circumvallation, or to guard ſome paſſage or dangerous poſt.

Foſſe. A hollow place, commonly full of water lying between the ſcarp and the counterſcarp, below the rampart; and turning round a fortified place on a poſt that is to be defended. See *Moat.*

Foucade, Fougado, or *Fougaſſe.* A ſmall *Fourneau,* or mine made like a well, eight or ten feet wide, and ten or twelve in depth, charged with barrels or bags of powder, and prepared under a poſt that is like to be loſt. It is covered with wood and earth, and fire put to it by a ſaucifs train conveyed in a pipe to another poſt. Military perſons ſay, 'We could not keep our footing on the half moon we had gained, becauſe the enemy played two *Fougades,* which ruined the lodgment we had made upon the gorge.'

Fourneau. The chamber of a mine, being a hollow made under ſome work that is to be blown up. The top of it is ſometimes made like a prieſt's cap, that is, with four or five hollows, or chimneys in it, that the powder may find the more paſſages, and have the effects different ways. Sometimes this chamber is 5 or 6 feet every way, being exactly ſquare, which is moſt uſual. About 1000 weight of powder, either in bags or barrels, is the common charge of one of theſe chambers: but it is at the diſcretion of the engineer to add or diminiſh this proportion, according to the bulk or nature of the ſoil he is to blow up, whether looſe earth, or rock. For ſometimes they make four or five chambers under one work, each of which has not above 100 weight of powder. A *Fourneau* ought not to be charged till it is ready to ſpring, becauſe the powder lying too long in the humidity of the earth, loſes its force. When the powder is put in barrels, one of the ſtaves muſt be taken out, and a quantity of powder ſcattered round; if it be in ſacks they muſt be ripped, and powder ſtrowed about, that they may fire all at once. The mouth of the *Fourneau* is to be ſtopped with great planks, and pieces of wood, and the vacancy which is

left, after the *Fourneau* is charged, muſt be filled with ſtones and pieces of wood, and all the turnings well ſtopped.

Fourneau ſuperficial. Vide *Caiſſon.*

Fraiſes. Stakes about ſix or ſeven feet long, whereof about one-third part is drove into the wall of a fortified place, a little below the cordon of the wall. In ſuch places as are not faced or lined with wall, they are planted on the outſide of the rampart, about the foot of the parapet. They are always ſtuck in ſloping a little, that is, not quite parallel to the level of the plain, but the points hanging downwards, that men may not ſtand upon them. They ſerve to prevent ſcalades and deſertion.

To Fraiſe a Battalion. Is ſo to line it every way with pikes, or bayonets, that it may ſtand the ſhock of a body of horſe, and ſerve as a barricade.

Front of a Battalion, is the firſt rank, or the file leaders: it is likewiſe called the *face* or *head* of a battalion. *Front* of a ſquadron is the firſt rank of troopers. *Front* of an army is the firſt row of tents in the firſt line, which are the quarter-maſters tents in the horſe, and the ſerjeants in the foot.

Front of a place, is the ſame as the *face of a place,* or the *tenaille,* being all that is contained between the *flanked angles* of two neighbouring *baſtions,* viz. the two *faces,* the two *flanks,* and the *curtin.*

To front every way, is when the men are faced to all ſides.

Furlough. A licence granted by an officer to a ſoldier, to be abſent for a time from his duty. All ſoldiers found half a league from a garriſon, or army, going to an enemy's country, or quarter, without a paſs, are deemed, and treated as deſerters.

Fuſee, or *Firelock.* See *Muſket.*

A Fuze, Fuſee. A pipe full of wildfire put into the touch hole of a bomb, granado, or the like, to fire it. See *Bomb.*

Fuziliers. Foot ſoldiers armed with firelocks, which are generally ſlung. There is a regiment of Welſh Fuziliers, and another of Scotch, in the Engliſh ſervice.

GABI-

G

GABIONS, or *Cannon Baſkets*. Great baſkets 5 or 6 feet high, and about 4 feet diameter, as well at the bottom as the top. They are filled with earth to make a cover or parapet againſt the enemy, and are ſometimes uſed in making batteries. They are commonly uſed on batteries, to ſcreen the engineers, &c. in order to which, one is placed on either ſide of each gun, a vacancy being left for the muzzle to paſs through; but they are never ſo good as a battery raiſed of earth or faſcines, becauſe, if there be a counter battery to play upon them, they are eaſily ruined. Sometimes they are uſed in making lodgments on a poſt, and ſometimes in making the parapet of the approaches, eſpecially when the attack is carrying on through a rocky ground. When the approaches are got near the covert way, the beſieged endeavour to ſet the gabions on fire by ſmall *faſcines*, or bavins pitched over, which they throw upon them.

Gallery, or paſſage made croſs a moat, or ditch of a town, is a walk of ſtrong beams, covered overhead with planks, and loaded with earth. 'Twas formerly uſed for putting the miner to the foot of the rampart. Sometimes the gallery is covered over with raw hides, to defend it from the artificial fire of the beſieged. Its ſides ſhould be muſket proof. It ought to be 8 feet high, and 10 or 12 wide: the beams ought to be half a foot thick, and 2 or 3 feet aſunder; the planks or boards nailed on each ſide, and filled with earth or planks in the middle; the covering to riſe with a ridge, that what is thrown upon it by the beſiegers to burn it, may roll off. They are chiefly uſed to ſecure and facilitate the miners approach to the face of the baſtion over the moat, which is already ſuppoſed to be filled up with faggots and bavins, and the artillery of the oppoſite flank diſmounted.

Gallery of a Mine, is the ſame as *Branch of a Mine*, that is, a paſſage under ground of 3 or 4 feet wide under the works, where a mine or countermine is carried on. The beſieged and beſiegers carry each of theſe branches

under ground, in ſearch of each others mines, which often meet and deſtroy one another, or at leaſt diſappoint the effect of the mine. See *Mine*.

Gantlet, or *Gauntlet*, a large kind of glove, made of iron, and the fingers covered with ſmall plates; formerly worn by cavaliers, when armed at all points.

Garriſon. A body of forces diſpoſed in a fortreſs, to defend it againſt an enemy, or keep the inhabitants in ſubjection; or even to be ſubſiſted during the winter ſeaſon; hence garriſon and winter quarters are ſometimes uſed indifferently for the ſame thing; and ſometimes different things. See *Winter Quarters*.

Garriſon Town, is a ſtrong place, in which troops are quartered, and do duty for the ſecu ity of the town; keeping guards at each port, and a main guard in the market place. The troops that are put into a town, either for their ſecurity or ſubſiſtence, in the winter-time, or are there in the ſummer for the defence of the place, are called the *Garriſon of that town*.

Gate. Made of ſtrong planks with iron bars to oppoſe an enemy. The gate of a ſtrong hold ought to be in the middle of a curtin, that it may be well defended by both flanks. Thoſe which are in the flank, weaken the moſt neceſſary part of the fortification; and when they are in the face, they are ſtill more prejudicial to the baſtion, which ought to be clear, to make retrenchments upon occaſion. At the opening of the gates, a party of horſe is ſent to patrol in the country round the place, to diſcover ambuſcades or lurking parties of the enemy, and to ſee if the country be clear. In ſome garriſons the guard mount at the opening of the gate, ſo that in caſe of a ſurprize, both the old and new guards being under arms, they are in a condition of making a good defence. The word nor orders ought never to be given till after the gates are ſhut, for fear of ſpies lurking in the town, that may carry intelligence to the enemy.

Gazons. Sods of turfs about a foot long, and half a foot broad, cut in form of a wedge, to face the parapet. They are made ſo, that their ſolidity forms a triangle, that being mixed with the reſt of the earth of the rampart,

part, they may eaſily incorporate in a maſs. The firſt bed of gazons is fixed with pegs of wood; the ſecond bed ought to be laid to bind the former, that is over the joints of it, and ſo continued till the ramparts are finiſhed. Betwixt theſe beds they generally ſow all ſorts of binding herbs, to ſtrengthen the rampart. Traverſes made to paſs a ditch are often covered with gazons, laid on planks to ſave them from fire.

Gendarmes, or *Men at Arms*. Horſemen who formerly fought in compleat armour; now a ſelect body of horſe in France, being in all nine independent troops, not regimented. Theſe troops are commanded by captain-lieutenants, the king and princes of the blood being their captains; the king's troop, beſides a captain-lieutenant, has two ſub-lieutenants, three enſigns, and three guidons. The other troops, which are thoſe of the Scotch *Gendarmes*, the queen's, the dauphin's, the *Gendarmes* of Anjou, Burgundy, the Engliſh and Flemiſh *Gendarmes*, and thoſe of the duke of Orleans, are called the *Small Gendarmery*, and have each a captain-lieutenant, ſub-lieutenant, enſign, guidon, and quarter-maſter. They carry a ſtandard longer than the light horſe, and divided into two points a little rounded, generally adorned with ſome little device or cypher in embroidery, and a fringe. Each troop has a pair of kettle drums, and two trumpets. The troops of life guards, thoſe of the muſquetaires, and thoſe of the light horſe of the queen, dauphin, and duke of Orleans, are reckoned as *Gendarmes*, and take place as ſuch.

General of an Army. He that commands it in chief; who, to be fit for ſo great an employ, ought to be a man of great courage and conduct, to have great experience, and to be of good family. His conduct appears in eſtabliſhing his magazines in convenient places; in examining the country, that he may not engage his troops too far, while he is ignorant of the means of bringing them off; in ſubſiſting them; and in knowing how to take the moſt advantageous poſts, either for fighting or ſhunning a battle. His experience inſpires his army with confidence, and an aſſurance of victory; and his

quality, by creating reſpect, augments his authority. By his liberality he gets intelligence of the ſtrength and deſigns of the enemy, and by this means is enabled to take the moſt ſucceſsful meaſures. A general ought likewiſe to be fond of glory, to have an averſion to flattery, to render himſelf beloved, and to keep a ſtrict diſcipline. The office of a general is to regulate the march of the army, and their encampment, to viſit the poſts, to command parties for intelligence, to give out the orders and the word every night to the lieutenant and major generals: in day of battle, he chuſes the moſt advantageous ground, makes the diſpoſition of his army, poſts the artillery, and ſends his orders by his aid de camps, where there is occaſion. At a ſiege, he cauſes the place to be inveſted; he views and obſerves it, orders the making of the lines of circumvallation and contravallation, and making the attacks: he viſits often the works, and makes detachments to ſecure his convoys. There are alſo lieutenant generals, brigadier generals, commiſſary generals, and quarter-maſter generals, of which we ſhall ſpeak under their particular letters.

General of Horſe, and *General of Foot*, are poſts next under the general of the army. They have an abſolute command over all the horſe or foot of an army, upon all occaſions, above the lieutenant generals.

General of the Artillery, or *Maſter General of the Ordnance*, is one of the greateſt employs in the kingdom, being a charge of extenſive truſt. It is generally beſtowed on one of the firſt peers in the kingdom: he has the management of all the ordnance of the ſtate, and ought to know and conſider whatever can be ſerviceable or uſeful in the artillery, and to diſtribute the vacancies to ſuch as are qualified for them. He has for his aſſiſtants in that employ, a lieutenant general, who commands in the abſence of the general; a ſurveyor general, clerk, ſtore keeper, and clerk of deliveries, who are called the principal officers of the ordnance.

General. The beat of drum ſo called, is the firſt which gives notice, commonly in the morning early, for the foot to be in readineſs to march.

Gens-

General Officers. Vide *Officer.*

Gin, or *Crab.* An engine for lifting or raiſing of great guns upon, or off their carriages.

To give ground. To retire, to loſe the poſt a body of men is in.

Glacis. This word in general ſignifies a very eaſy little ſlope, which diſtinguiſhes it from the talus. For in the glacis the height is always leſs than the baſe of the ſlope; but in the talus the height is equal to, or more than the baſe of the ſlope. The name of glacis is particularly applied to the ſlope of the parapet of the covert way, which falls off even with the level of the field. This glacis is alſo called *Eſplanade*; but that word in this ſenſe grows out of date. The ſoldiers corruptly call the top of the glacis the counterſcarp. When the approaches are brought to the foot of the glacis, they are ſo near, that they cannot turn any way, but they muſt be enfiladed; therefore they are carried ſtrait forwards by ſap, unleſs it be reſolved to attempt the covert-way by aſſault.

Gorge. The entrance that leads into the body of a work. In all the out-works, the gorge is the interval betwixt the wings on the ſide of the great ditch, as the gorge of the ravelin, half-moon, &c. All gorges muſt be plain, without any parapet, leſt when the beſiegers have poſſeſſed themſelves of the work, that parapet ſhould cover them from the fire of the place: but the gorges are paliſadoed to prevent ſurprize; and during the ſiege they generally make little mines, coffers, and fourneaux under them, to blow up the enemy before they can lodge themſelves. The ſeveral gorges are diſtinguiſhed as follows:

Gorge of a Baſtion, is that ſpace which is taken equally on each ſide of the angle of the figure on the ſides of the interior *Polygon*, which makes the entry into the baſtion from the town or place, one half of which is called the demi-gorge.

Gorge of a flat Baſtion, is a right line, which terminates the diſtance between two flanks.

Gorge of a Half Moon, is a diſtance between the two flanks, taken on the angle of the counterſcarp.

Gorge of a Ravelin, is the diſtance between the two ſides or faces towards the place.

The Gorges of all other out-works, are the entry into them from the place, the diſtance between their ſides.

Governor of a Garriſon. A conſiderable officer, repreſenting the king's perſon, whoſe authority extends not only over the inhabitants and garriſon, but over all troops that may be there in winter quarters, or quarters of refreſhment. His charge is to order the guards, the rounds, and the patrouilles; to give every night the orders and the word, after the gates are ſhut; to viſit the poſts; to ſee that both officers and ſoldiers do their duties; to ſend frequently parties abroad for intelligence, and to raiſe contributions.

Grenadier. A foot ſoldier, armed with a ſword, firelock, bayonet, and a pouch to hold his grenades. They are cloathed differently from the reſt of the battalion, and wear high caps. Each regiment of late years has a company of grenadiers, which take always the right of the battalion. The grenadiers are generally the talleſt and briſkeſt fellows, and always the firſt upon attacks: when there is any appearance of action, each grenadier carries three hand grenades. Horſe grenadiers, called by the French *Grenadiers volans*, or *Flying Grenadiers*, are ſuch as are mounted on horſeback, and fight on foot; their exerciſe is the ſame with the other grenadiers. We have in England two troops of horſe grenadier guards.

Grenadoes, *Grenades*. Small ſhells, concave globes, or hollow balls, ſome made of iron, ſome of tin, others of wood, and even of paſteboard; but moſt commonly of iron, becauſe the ſplinters of it do moſt execution. This globe is filled with fine powder, and into the touch hole of it is ſtuck a fuſee of powder, beaten and tempered with charcoal duſt, that it may not flaſh, but burn gently 'till it comes to the charge. Theſe are thrown by hand into places where men ſtand thick, and particularly into the trenches and lodgments the enemy makes, and do great miſchief. See *Bomb*.

Thuanus obſerves, that the firſt time grenadoes were uſed, was at the ſiege of Wachtendonck, a town near Guel-

Guelders, in 1388, and that the inventor was an inhabitant of Venlo, who, in making an experiment thereof, occasioned two thirds of that city to be burnt; the fire being kindled by the fall of a grenado.

Guard. The duty performed by a body of men with vigilance, to secure all against the attempts and surprizes of an enemy. 'To be upon guard,' 'to mount the guard,' 'to relieve the guard,' 'the officer of the guard,' 'the serjeant of the guard,' are phrases respecting the guard, and all intelligible. In time of danger, all guards are drawn by lot, to prevent any treacherous officers having the opportunity of betraying a post to the enemy. Troops in garrison, generally mount the guard every third night, and have two nights to rest.

Counter-Guard. See *Counter.*

Guard is properly understood of a soldier detached from a company or corps, to protect, detain, or secure any person, &c.

Main Guard, is that from whence all the other small guards are detached. Those who are to mount the guard, meet at the respective captain's quarters, and are carried from thence to the parade; where, after the whole guard is drawn up, the small guards are detached for the ports and magazines, and the subaltern officers throw lots for their guards, and are subordinate to the captain of the main guard. The guards are mounted in garrisons at different hours, according as the governor pleases; but the most usual time is at the opening of the gates at ten o'clock, or at two in the afternoon.

Advanced Guard, is the party of either horse or foot that march before a body, to give them notice if any danger appears. When the army is upon their march, the grand guards, who should mount that day, serve as an advance guard to the army. If a body of foot be marching, their advance guard are foot. In small parties, 6 or 8 horse are sufficient, and they are not to go above 4 or 500 yards before the party. An advanced guard is likewise the small body of 12 or 16 horse, under a corporal or quarter-master, who are posted before the grand guard of the camp.

Rear Guard, is that part of the army which brings up the rear, which is generally the old grand guards of the camp. The rear guard of a party is 6 or 8 horſe, that march about 4 or 500 paces behind the party. The advanced guard going out upon party, make the rear guard in their return.

Grand Guard, are 3 or four ſquadrons of horſe, commanded by a field officer, poſted before the camp on the right and left wing towards the enemy, for the ſecurity of the camp. This guard mounts every morning about ſeven or eight o'clock. See *Camp*.

Standard Guard, a ſmall guard, under a corporal, out of each regiment of horſe, and placed on foot, in the front of each regiment.

Picket, or *Piquet Guard*. A certain number of horſe and foot, who are to keep themſelves in readineſs, in caſe of an alarm: the horſe keep their horſes ſaddled, and are booted all the time, in order to mount in a minute. The foot draw up at the head of the battalion, at the beating of the tattoo; but return to their tents, where they hold themſelves in a readineſs to march upon any ſudden alarm. This forms a good body, able to make a reſiſtance, till the army can be in readineſs.

Forage Guard. A detachment ſent out to ſecure the foragers, and are poſted at all places, where either the enemy's parties may come to diſturb the foragers, or they may be diſperſed too near the enemy, and be taken. This is likewiſe called the *Covering Party*, and marches the night before the foraging, that they may be poſted in the morning before the foragers come. They conſiſt both of horſe and foot, and muſt ſtay at their poſt, till the foragers are all come off the ground.

Quarter Guard, a ſmall guard commanded by a ſubaltern officer, poſted by each battalion, about 100 yards before the front of the regiment.

Artillery Guard, is a detachment from the army, to ſecure the artillery. Their *Corps de Garde* is in the front, and their centries round the park. This is a 48 hours guard, and upon a march they go in the front and rear of the artillery, and muſt be ſure to leave nothing behind.

hind. If a gun or waggon break down, the captain is to leave a part of his guard to aſſiſt the gunners and matroſſes in raiſing it again.

Corps de Garde, are ſoldiers entruſted with the guard of a poſt, under the command of one or more officers.

Van Guard, that part of the army which marches in the front.

Guards, *Gardes du Corps*. The *Horſe Guards* are gentlemen choſen for their bravery and fidelity, to be entruſted with the guard of the king's perſon, divided, in England, into four troops, called the troops of guards. Each troop hath a colonel, two lieutenant-colonels, a cornet, a guidon, four exons, brigadiers, and ſub-brigadiers, and 160 private men. The *Foot Guards* are regiments of foot appointed for the guards of his Majeſty, and his palace: there are three regiments of them, called the firſt and ſecond regiments of guards, the one having three battalions, and the other two; and the regiment of Scots guards, having likewiſe two battalions.

Gueritte. A centinel's box, being a little tower made either of ſtone, brick, or wood, to preſerve the centinel from the weather. Some call them *Echaugettes*. They are generally placed on the points of baſtions, and angles of the *Epaule*, and ſometimes in the middle of a curtin, and are to hang a little over the wall, that the centinel may look down to the foot of the ramparts, and into the foſs, to prevent ſurprize.

Guides. Captain of the guides is an officer appointed for providing guides for the army, of which he ought to have always a ſufficient number with him, who know the country, to ſend out as occaſion requires. Such as are to guide the army on a march, for convoys, parties, baggage, artillery, and detachments; to provide which he ought to have a party of horſe to go to the adjacent villages, caſtles, or forts, to demand boors, whom he brings to his quarters, and keeps under a guard, leſt they ſhould eſcape, till the army come to another ground, where he can be provided with others: he ought to underſtand ſeveral languages, eſpecially that of the country in which the army is.

Guidon. A French term for him that carries the ſtandard in the guards, or *Gens d' Armes*, and ſignifies likewiſe the ſtandard itſelf. It is now become common in England. He is the ſame in the horſe-guards, that the enſign is in the foot. The guidon of a troop of horſe takes place next below a cornet.

Gun, a fire-arm, or weapon of offence, which forcibly diſcharges a ball, ſhot, or other offenſive matter, through a cylindrical barrel, by means of gunpowder. See the article *Gunpowder*.

Gun is a general name, under which are included divers, or even moſt, ſpecies of fire-arms. They may be divided into great and ſmall.

Great guns, called alſo by the general name cannons, make what we alſo call ordnance, or artillery; under which come the ſeveral ſorts of cannons, as cannon-royal, demi-cannons, &c. culverins, demi-culvers, ſakers, minions, falcons, &c. See *Cannon*, *Culverin*, &c. alſo *Ordnance* and *Artillery*.

Small guns include muſquets, muſquetoons, carabines, blunderbuſſes, fowling-pieces, &c. See the article *Muſquet*, &c.

Piſtols and mortars are almoſt the only ſort of regular weapons, charged with gunpowder, that are excepted from the denomination of guns. See the articles *Piſtol* and *Mortar*.

The advantage of large guns, or cannons, over thoſe of a ſmaller bore, is generally acknowledged. Robins obſerves, that this advantage ariſes from ſeveral circumſtances, particularly in diſtant cannonading. The diſtances to which larger bullets fly with the ſame proportion of powder, exceeds the flight of the ſmaller ones almoſt in proportion to their diameters; ſo that a thirty-two pound ſhot, for inſtance, being ſomewhat more than ſix inches in diameter, and a nine pound ſhot but four inches, the thirty-two pound ſhot will fly near half as far again as that of the nine pound, if both pieces are ſo elevated as to range to the fartheſt diſtance poſſible. Another and more important advantage of heavy bullets is, that with the ſame velocity they break holes in all ſolid

ſolid bodies, in a greater porportion than their weight. Finally, large cannons, by carrying the weight of their bullet in grape or lead-ſhot, may annoy the enemy more effectually than could be done by ten times the greater number of ſmall guns.

Mr. Robins has propoſed to change the fabric of all the pieces employed in the Britiſh navy, from the 24 pounders downwards, ſo that they may have the ſame or leſs weight, but a larger bore. He thinks the 32 pounders in preſent uſe would be proper models for this purpoſe. Theſe being of 52 or 53 hundred weight, have ſomewhat leſs than a hundred and two thirds for each pound of bullet. And that this proportion would anſwer in ſmaller pieces, in point of ſtrength ſeems clear from theſe conſiderations: 1. That the ſtrength of iron, or any other metal, is in proportion to its ſubſtance. 2. That the leſſer quantity of powder fired in a ſpace it fills, has proportionably leſs force than a larger quantity; ſo that if two pieces, a large and a ſmall one, be made in the ſame proportion to their reſpective bullets, and fired with a proportionable quantity of powder, the larger piece will be more ſtrained, will heat more, and recoil more than the ſmaller. On this ſcheme our preſent 24 pounders will be eaſed of 6 or 8 hundred weight of uſeleſs metal; and ſome pieces of a leſs calibre, as 9 and 6 pounders, would be ſometimes eaſed by 14 hundred: hence much larger guns of the ſame weight might be borne. Thus inſtead of 6, 9, 12, and 18 pounders, our ſhips might carry 12, 18, and 24 pounders: guns would be kept cooler and quieter, and would be of more ſervice in many reſpects, if their uſual charges of powder were diminiſhed.

Gunner. An officer oppointed for the ſervice of the cannon; or one ſkilled to fire the guns.

In the tower of London, and other garriſons, as well as in the field, this officer carries a field ſtaff, and a large powder-horn in a ſtring over his left ſhoulder: he marches by the guns, and when there is any danger, his ſtaff is armed with match: his buſineſs is to lay the gun to paſs, and to help to load and traverſe her.

Maſter

Maſter Gunner, a patent officer of the ordnance, who is appointed to teach all ſuch as learn the art of gunnery, and to certify to the maſter-general the abilities of any perſon recommended to be one of the king's gunners. To every ſcholar he adminiſters an oath, not to ſerve, without leave, any other prince or ſtate; or teach any one the art of gunnery, but ſuch as have taken the ſaid oath.

A gunner ſhould know his pieces, their names, which are taken from the height of the bore, the names of the ſeveral parts of a piece of ordnance, how to tertiate and piſpart his gun, &c.

Gunnery, the art of charging, directing, and ſhooting guns and mortars to the beſt advantage.

In gunnery, it is neceſſary to know the force and effect of gunpowder, the dimenſions of pieces, and the proportions of powder and ball they carry, with the methods of managing, charging, pointing, ſponging, &c.

The method of elevating the piece to any given angle, and computing its range; that is, raiſing and directing it ſo as to hit any propoſed object, is brought under mathematical conſiderations. The inſtrument chiefly uſed herein are the callipers, or gunner's compaſſes, quadrant, and level.

The line or path which a bullet deſcribes, whatever direction or elevation the piece be in, is the ſame with that of all projectiles, namely, a parabola.

Maltus, an Engliſh engineer, is mentioned as the firſt who taught any regular uſe of mortars, in 1634; but he knew nothing of the curve the ſhot deſcribes, nor of the difference of range at different elevations; though there are certain rules founded on geometry for theſe things, moſt of which we owe to Galilæo, and his diſciple Torricellius.

A ball or bomb begins to riſe from its line of direction, the moment it is out of the mouth of the piece; for the grains of powder nigheſt the breech, taking fire firſt preſs forward, precipitately, not only the ball, but likewiſe thoſe grains which follow the ball along the bottom of the piece; where ſucceſſively taking fire, they ſtrike the ball underneath, and ſo raiſe it towards the upper edge

edge of the mouth of the piece, where a conſiderable canal is obſervable in pieces much uſed, whoſe metal is ſoft, from the friction thereof.

Gunpowder, a compoſition made of ſaltpetre, ſulphur, and charcoal incorporated and granulated, which readily takes fire and expands with incredible force.

Bartholdus Schwartz, or the Black, was the firſt who taught the uſe of gunpowder to the Venetians in 1380; but what ſhews gunpowder to be of an older æra is, that the Moors, being beſieged in 1343, by Alphonſus, diſcharged a ſort of iron mortars that made a noiſe like thunder. There is mention made of gunpowder in the regiſters of the chambers of accounts in France, as early as 1338. In ſhort, our countryman Roger Bacon knew of gunpowder one hundred and fifty years before Schwartz was born: for that friar expreſly mentions the compoſition in his treatiſe De Nullitate Magiæ.

In order to reduce the nitre to powder, they diſſolve a large quantity of it in as ſmall a proportion of water as poſſible; the keeping it continually ſtirring over the fire, till the water exhales, a white dry powder is left behind.

In order to purify the brimſtone employed, they diſſolve it with a very gentle heat; then ſcum and paſs it through a double ſtrainer. If the brimſtone ſhould happen to take fire in the melting, they have an iron cover that fits on cloſe to the melting veſſel, and damps the flame. The brimſtone is judged to be ſufficiently refined if it melts without yielding any fœtid odour, between two hot iron plates, into a kind of red ſubſtance.

The coal for making of gunpowder is either of the willow or hazel, well charred in the uſual manner, and reduced to powder: and thus the ingredients are prepared for making this commodity; but as theſe ingredients require to be intimately mixed; and as there would be danger of their firing, if beat in a dry form, the method is to keep them continually moiſt either with water, urine, or a ſolutation of ſal ammoniac; and to continue thus ſtamping them together for twenty-four hours; after

after which the mass is fit for corning, and drying in the sun, or otherwise, so as sedulously to prevent its firing.

The explosive force of gunpowder is now a thing commonly known; but the physical reason thereof may not, perhaps, be hitherto sufficiently understood. In order to explain it, let us observe, 1. That salt-petre, of itself, is not inflammable; and though it melts in the fire, and grows red-hot, yet does not explode, unless it comes in immediate contact with the coals. 2. That brimstone easily melts at the fire, and easily catches flame. 3. That powdered charcoal readily takes fire, even from the sparks yielded by a flint and steel. 4. That if nitre be mixed with powdered charcoal, and brought in contact with the fire, it burns and flames. 5. That if sulphur be mixed with powdered charcoal, and applied to the fire, part of the sulphur burns slowly away, but not much of the charcoal. And, 6. That if a lighted coal be applied to a mixture of nitre and sulphur, the sulphur presently takes fire, with some degree of explosion, leaving a part of the nitre behind; as we see in making the sal prunellæ and sal polychrestum.

These experiments, duly considered, may give us the chemical cause of the strange explosive force of gunpowder: for each grain of this powder, consisting of a certain proportion of sulphur, nitre, and coal, the coal presently takes fire, upon contact of the same spark; at which time both the sulphur and the nitre immediately melt, and, by means of the coal interposed between them, burst into flame, which spreading from grain to grain propogates the same effect almost instantaneously; whence the whole mass of powder comes to be fired: and as nitre contains a large proportion both of air and water, which are now violently rarified by the heat, a kind of fiery explosive blast is thus produced; wherein the nitre seems, by its aqueous and aerial parts, to act as bellows to the other inflammable bodies, sulphur and coal, blow them into a flame, and carry off their whole substance in smoke and vapour.

The discovery of this composition was accidental, and perhaps owing to the common operation of fulminating nitre with sulphur, for making of sal-prunellæ:

it appears to have been known long before the time of Schwartz, as being particularly mentioned by friar Bacon, as we have before obſerved.

The three ingredients of gunpowder are mixed in various proportions, according as the powder is intended for muſquets, great guns, or mortars; though thoſe proportions ſeem hitherto not perfectly adjuſted, or ſettled by competent experience.

There are two general methods of examining gunpowder; one with regard to its purity, the other with regard to its ſtrength: its purity is known by laying two or three little heaps near each other upon white paper, and firing one of them; for if this takes fire readily, and the ſmoke riſes upright, without leaving any droſs, or feculent matter behind, and without burning the paper, or firing the other heaps, it is eſteemed a ſign that the ſulphur and nitre were well purified; and the coal was good; and all the three ingredients were thoroughly incorporated together: but, if the other heaps alſo take fire at the ſame time, it is preſumed, that either common ſalt was mixed with the nitre, or that the coal was not well ground, or the whole maſs not well beat and mixed together; and, if the nitre or ſulphur was not well purified, the paper will be black or ſpotted.

In order to try the ſtrength of gunpowder, there are two kinds of inſtruments in uſe; but neither of them appear more exact than the common method of trying to what diſtance a certain weight of powder will throw a ball from a muſquet.

To increaſe the ſtrength of powder, it ſeems proper to make the grains conſiderably large, and to have it well ſifted from the ſmalleſt duſt. We ſee that gunpowder reduced to duſt has but little exploſive force; but, when the grains are large, the flame of one grain has a ready paſſage to another, ſo that the whole parcel may thus take fire near the ſame time; otherwiſe much force may be loſt, or many of the grains go away, as ſhot unfired.

It ſhould alſo ſeem that there are other ways of increaſing the ſtrength of powder, particularly by the mixture

ture of ſalt of tartar: but perhaps it were improper to divulge any thing of this kind, as gunpowder ſeems already ſufficiently deſtructive.

H

HALBARD, or *Halbert*. A well known weapon carried by ſerjeants of foot and dragoons. It is a ſort of ſpear, the ſhaft of which is about 5 feet long, and made of aſh or other wood. Its head is armed with a ſteel point edged on both ſides, not unlike the point of a two edged ſword; but beſides this ſharp point, which is in a line with the ſhaft, there is a croſs piece of ſteel, flat and pointed at both ends; but generally with a cutting edge at one extremity, and a bent ſharp point at the other, ſo that it ſerves equally to cut down, or puſh withal. It is alſo uſeful in determining the ground betwixt the ranks, and in adjuſting the files of a battalion.

Half Files. The three foremoſt men in the field, when a battalion is drawn up, are called the *Front Half Files*, the three hindmoſt men the *Rear Half Files*.

Half moon or *Demi-lune*. A work which is commonly made before the curtin or flanked angle of the baſtion: the former generally conſiſts of two little flanks and two faces, which terminate in a ſaliant angle towards the fields; the gorge of the demi-lune is terminated by two lines, continued from the counterſcarpe of the foſsé, that form an entering angle towards the place, about the middle of the curtin. The demi-lune on the flanked angle of the baſtion, differs only from the former, in that it is formed by a circular line, and hence it takes it name *Demi-lune*.

The moderns make uſe of good counter guards to cover the baſtions inſtead of the demi-lunes.

They call a demi-lune what was formerly denominated a ravelin, only that this laſt work has no flanks, and has two faces terminating in a ſaliant angle towards the fields.

A demi-lune is ſaid to be crowned when it is covered by

by a crowned work: it is in like manner said to be a tenaille, when on the right and left it has two works constructed in a right angle on the flanked angle of the demi-lune, by the prolongation of its two faces between twenty-eight and thirty toises; each of these works having two faces, terminating in a saliant angle towards the field, and a ditch of nine toises that separates them from the demi-lune and counterscarp.

Lastly a demi-lune is called a horn work, when it is counter guarded by two works that advance in the form of a horn towards the country, having before it a little demi-lune or lunette that covers the intermed ate space betwixt them, and consequently the flanked angle of the demi-lune.

To Halt. Is to discontinue the march of troops, to stand still, to stop in order to rest, or on any other account whatsoever; and so the word of command for men to stop when they are marching, is *Halt.*

Hand-barrows. Wheelbarrows, which are in great use in fortification, for carrying earth from one place to another, and in a siege for carrying bombs or cannon balls along the trenches.

Harquebus. A piece of fire arms of the length of a musquet, usually cocked with a wheel. It carries a ball that weighs one ounce three quarters. There are also a larger sort called the great harquebus, used for the defence of strong places, which carries a ball of about three ounces and a half, but they are now little used, except in some old castles, and by the French in some of their garrisons.

Head of the Camp. The ground before the camp, where is the *Bivac*, or on which the army draws out.

Head of a Work. Its front next the enemy, and fartheſt from the place; as the front of a horn work is the distance between the flanked angles of the demi-bastions. The head of a double tenaille is the saliant angle in the middle; and the two other sides, which form the re-entring angle.

Helmet. An ancient defensive armour worn by horsemen both in war and in tournaments. It covered both the head

head and face, only leaving an aperture in the front ſecured by bars, which was called the viſor.

Hendecagon. A figure that has eleven ſides, and as many angles, capable of being fortified by the like number of baſtions.

Heptagon. A figure that has ſeven ſides and as many angles, each capable of a regular baſtion.

Herriſon. A barrier made of one ſtrong beam or plank of wood, full of iron ſpikes. It is ſupported in the middle, and turns upon a pivot or axis. It is uſed in ſtopping a paſſage like a turn-ſtile; for it is equally ballanced upon the pivot, ſtanding upright in the middle of the paſſage, upon which it turns round, as there is occaſion to open or ſhut the paſſage.

Hearſes or *Portcullices.* Strong pieces of wood joined croſs-ways, like a lattice or harrow. They uſed formerly to hang in the middle of a gateway of fortified towns, to be let fall to ſtop the paſſage, in caſe the gate had been broke down, or petarded. It is either a ſtop or a ſeparation, if any of the enemy have already entered; for before it can be broke open, the beſieged have time to rally, and repulſe them. See *Orgues.*

Herſe, is likewiſe an engine like a harrow, full of iron ſpikes; and uſed inſtead of the *cheveaux de friſe,* to throw in the ways where horſe or foot are to paſs, to hinder their march, and upon breaches to ſtop the foot. Common harrows are ſometimes made uſe of in caſe of haſte, and are turned with their points upwards.

Herſillon, is for the ſame uſe as the herſe, and is made of one ſtrong plank of wood, about ten or twelve feet long, ſtuck full of points or ſpikes on both ſides.

Hexagon, is a figure of ſix ſides, capable of being fortified with ſix baſtions.

Hobits. A ſort of ſmall mortars, about eight inches diameter, ſome ſeven, ſome ſix. They differ nothing from a mortar but in their carriage, which is made after the faſhion of a gun-carriage, but much ſhorter. They march with the guns, and are very good for incommoding an enemy at a diſtance, with ſmall bombs, which they throw two or three miles; or in keeping a paſs, being loaded with cartouches.

Hog-

Hogſheads, or *Barrels*. Filled with earth, they ſerve to make parapets to cover the men, inſtead of gabions or earth bags.

Hollow Square. Vide *Square*.

Hollow Tower, is a rounding made of the remainder of two briſures, to join the curtin to the orillon, where the ſmall ſhot are played, that they may not be ſo much expoſed to the view of the enemy.

Honey Comb in Cannon. Flaws in the metal, a fault in caſting, and dangerous in firing.

Horizontal Superficies. The plain field lying upon a level, without any riſing or falling.

Horizontal Range, or *Level Range of a Piece of Ordnance*, is the line a ball deſcribes when directed parallel to the horizon or horizontal line.

The horizontal ranges are the ſhorteſt: ſome pieces of cannon will make them ſix hundred paces, and ſome but one hundred and fifty; and the ball with the range of ſix hundred paces, will go from nine to thirteen feet in the earth. See *Gunnery*.

Horn work. In French, *ouvrage a corne*. Is an outwork which the French engineers prefer before *Tenailles*, *Swallow Tails*, or *Prieſt Bonnets*, becauſe it takes in a great deal of ground, and has a better defence. It is compoſed of two long ſides or faces parallel, the diſtance between them being the length of one curtein; their length meaſuring from the angle of the ſhoulder, is the length of one ſide of the poligon, or of the curtin, and one demi gorge. The head or front of this work is fortified with two demi-baſtions and a curtin. They have ſometimes flanks on their long ſides, and then they are called horn works with double flanks or ſhoulders. They have generally a ravelin in their gorge, and a ſmall ravelin before the curtin. The parapet of the horn work is the ſame with that of the half moon, and its moat is three fourths of the great moat. Its curtin is uſually defended by an half moon, whoſe moat is three fourths of that of the great half moon, before the curtin of the place. According to Vauban none of the outworks is equal in ſtrength to the horn work, if placed before the baſtion, and not as uſual before the curtin.

Horſe. Is taken for that body of men that ſerve on horſeback, whether guards, troopers, or dragoons. So we ſay 'A body of horſe', 'The horſe fought well', 'The horſe march.' It is the ſame as cavalry. The light horſe in an army, are all the regiments of horſe except the guards.

Herſe de Friſe. Vide *Chevaux de Friſe*, and *Turnpikes.*

Horſhoe. A ſmall round or oval work, encloſed with a parapet, and ſometimes raiſed in the moat of a marſhy place, or in low grounds, or elſe to cover a gate, and keep a *Corps de Garde* to prevent ſurprizes, or to ſerve as a lodgement for ſoldiers.

Hoſpital. A place appointed for the ſick and wounded men, who have there a number of phyſicians, ſurgeons, and ſervants to attend them, and cure them.

Hoſtage. A perſon given up to an enemy as a ſecurity for the performance of the articles of the treaty. When two enemies enter into a treaty or capitulation, it is common for them mutually to give hoſtages as a ſecurity for their reciprocally performing the engagement they have entered into. An hoſtage becomes either an acceſſary or principal, according to the ſtate of things. Thus for example, he is an acceſſary, when a prince promiſes fidelity to another prince, and gives either his ſon or ſome great lord, as a ſecurity for his performance without any further capitulation: for then theſe hoſtages are only an additional engagement of the prince; and if he violates his word, they are not in any manner reſponſible for it. An hoſtage becomes a principal, when it is ſtipulated that he ſhall be anſwerable for the event of things. For example, if a city promiſes to ſurrender within a certain time, in caſe it is not ſuccoured, and for the ſecurity of this article gives hoſtages, theſe hoſtages are of the ſame nature as bail given to a creditor to ſecure a debt; ſo that if the ſuccour arrives within the time, the promiſe becoming void, the hoſtages are diſcharged, and cannot be detained, juſt as the bail is diſcharged, if the original debtor pays the creditor; but if the ſuccours do not arrive, and the city is guilty of a breach of faith, by refuſing to ſurrender, then the hoſtages become principal, and may be puniſhed for the breach of faith; juſt as a

baſt becomes the principal debtor, on the other debtor's becoming inſolvent. An hoſtage given for another perſon is free in caſe that other perſon dies. According to the law of nations, hoſtages ought not to be put to death, unleſs they themſelves have been guilty of ſome particular crime.

Hoſtility, implies a ſtate of war or enmity between two nations. During a truce all acts of hoſtility ceaſe on both ſides.

Hurdles. See *Clayes.*

Huſſars. Hungarian horſemen. Their habit is a furr'd bonnet, adorned with a cock's feather, (the officers either an eagle's or a heron's) a doublet with a pair of breeches, to which their ſtockings are faſtened, and boots. Their arms are a ſabre, carbines, and piſtols. Before they begin an attack, they lay themſelves ſo flat on the necks of their horſes, that it is hardly poſſible to diſcover their force; but being come within piſtol ſhot of the enemy, they raiſe themſelves with ſuch ſurpriſing quickneſs, and fall on with ſuch vivacity on every ſide, that, unleſs the enemy is accuſtomed to them, it is very difficult for troops to preſerve their order. When a retreat is neceſſary, their horſes have ſo much fire, and are ſo indefatigable, their equipage ſo light, and themſelves ſuch excellent horſemen, that no other cavalry can pretend to follow them; they leap over ditches, and ſwim over rivers with great facility. They are retained in the ſervice of moſt princes on the continent. They are reſolute partiſans, and are far better in an invaſion or haſty expedition, than in a ſet battle.

I

JACK-WAMBASIUM. An old piece of defenſive armour worn by horſemen in war, not made of ſolid iron, but of many plates faſtened together, which ſome perſons by tenure were bound to find upon any invaſion.

Jan-

Janizaries. An order of the Turkiſh infantry, reputed the Grand Signior's guards, and the main ſtrength of the Ottoman army. Their dreſs which is given them by the Grand Signior every year, on the firſt day of Ramazan, is a long veſt with ſhort ſleeves, which they tye about their waiſts with a linen ſaſh ſtriped with many colours, and adorned at both ends with gold or ſilver fringe, and over this they wear a looſe upper veſt of blue cloth. They wear no turban, but inſtead of it a felt cap, and a large hood of the ſame ſtuff, which hangs over their ſhoulders; and on days of ceremony, they adorn themſelves with long feathers ſtuck in a caſe in the front of their bonnets. The arms of the Janizaries in Europe are, in time of war, a fuſee or muſquet, and a cartouch box, which hangs at their left ſide; but in Aſia, where powder and fire-arms are more ſcarce, they carry a bow and arrows with a poignard.

Ichnography, implies the plan or repreſentation of the length and breadth of the fortreſs, the diſtinct parts of which are marked out, either on the ground itſelf or on paper.

Incamp. To incamp is the pitching of tents, when the army after a march is arrived at a place where it is deſigned to ſtay a night, or longer. The ſerjeants tents in the foot, and quarter-maſters of horſe, are the firſt of the company or troop. The officers incamp in the rear; the ſubalterns in one line next the company, fronting from it; the captains in another line at ſome diſtance, each behind his own company, fronting the ſubalterns; the field officers behind them, the colonel in the centre, the lieutenant colonel on his right, the major on his left, and the ſutlers behind all. Each company makes a line in file, having an allowance of ſeven feet for a tent, and two feet diſtance: the tents of two companies front one another, leaving a ſtreet of 5 or 6 yards between them. The troops of horſe encamp the ſame way, only the diſtance between the tents is about 3 or 4 yards for the forage, and the ſpace between two troops, is 14 or 15 yards for the ſtables: at two yards diſtance from the doors of their tents, is a rope called the piquet rope, ſtretched upon

upon pointed ſtakes, to which their horſes are tied. For the ground allowed by a battalion or ſquadron. See *Camp.*

Indented Line, is a line running out and in, like the teeth of a ſaw, forming ſeveral angles; ſo that one ſide defends another. They are uſed on the banks of rivers, where they enter a town; likewiſe the parapet of the covert way is often indented. This is by the French engineers called *Redans*. Small places are ſometimes fortified with ſuch a line; but the fault of ſuch fortifications is, that the beſiegers from one battery may ruin both ſides of the tenaille or front of a place, and make an aſſault, without fear of being enfiladed, ſince the defences are ruined.

Independent Troop or *Company*, is what is not incorporated into any regiment.

Infantry. The whole body of foot ſoldiers, whether independent companies or regiments. The regiments of foot guards take place of all others, the reſt having precedence according to ſeniority. This precedence is for the eldeſt regiment to march in the front, the next in the rear, and ſo on with the reſt. The eldeſt to encamp on the right, the next on the left, and ſo the reſt in courſe. The officers of foot command thoſe of horſe in garriſon, but are commanded by them in the field. See *Brigade*, and *Soldier*.

Ingineer, or *Engineer*, a perſon well ſkilled in the art of contriving all ſorts of forts, and other works; judicious in finding out faults in all fortifications, and knowing how to attack and defend all ſorts of poſts. See *Engineer*, *Gunner*, &c.

Inſconſed, is when part of an army have fortified themſelves with a ſconce or ſmall fort, in order to defend ſome paſs, &c.

To Inſult, or *To Aſſault*. Is to attack a poſt by open force, coming on without any ſhelter to fall to handy ſtrokes, without making uſe of trenches, ſappe, or other forms of art, to gain ground foot by foot. The counterſcarp is generally inſulted or aſſaulted, to prevent the enemies having time to ſpring the fourneaux, or fougaſſes, they have prepared. In theſe attacks the grenadiers commonly march at the head of the other troops; and there

muſt be pioneers ready to make a lodgment, to ſecure the poſt when gained.

Intrenched. An army is ſaid to be intrenched, when they have raiſed works before them, to fortify themſelves againſt the enemy, that they may not be forced to engage at a diſadvantage.

Intrenchment. Any work that fortifies a poſt againſt the enemies attacks. It is generally taken for a ditch or trench, with a parapet. Intrenchments are alſo made of faſcines, or faggots, with earth thrown over them; of gabions, hogſheads, or bags filled with earth, that cover the men from the enemy's fire. See *Retrenchment.*

Invalid, is a man who has ſpent his time in the wars, and is either through age, or by reaſon of his wounds, rendered incapable of the ſervice. They are diſpoſed of in hoſpitals.

Inveſting a Place, is when a general having an intention to beſiege it, detaches a body of horſe to poſſeſs all the avenues; blocking up the garriſon, and preventing relief from getting into the place, till the army and artillery are got up to form the ſiege.

Irregular Fortification. See *Fortification,* and *Maxims* in *Fortifications.*

K

KETTLE, is a term the Dutch give to the battery of mortars, becauſe it is ſunk under ground. See *Battery.*

Kettle Drums. See *Drums.*

Klinkets, are a ſort of ſmall gates made through paliſadoes for ſallies.

L

LABORATORY. Signifies the place where the fireworkers and bombardiers prepare their ſtores.

Ladle for a Gun. A long ſtaff with a plate at the end of it, bowed half round, to put the charge into the piece.

Lans.

Lane. To make a lane. To draw up men in two ranks facing one another, as on the ſides of a ſtreet, or the like, for any great perſon to paſs through; or ſometimes for a ſoldier to run the gauntlet.

Lanſpeſade. An inferior officer, ſubordinate to the corporal, to aſſiſt him in his duty, and ſupply his place in his abſence. In France he has ſome allowance extraordinary, but not in England. He is generally exempt from duty, except rounds, and centinels *Perdus*. He teaches the new ſoldiers their exerciſe, and has his place at the right of the ſecond rank. The true name is anſpeſade, but the *L* is added from the French article *Le*.

Law of Arms, is a law which gives precepts how to proclaim a war, attack the enemy, and to puniſh offenders in the camp.

Artillery-Foot-Level. An inſtrument in form of a ſquare, having its two legs or branches of an equal length, at a juncture whereof is a little hole, whence hangs a thread and plummet, playing on a perpendicular line in the middle of a quadrant. It is divided into twice 45 degrees from the middle. When the thread plays perpendicularly over the middle diviſion of the quadrant, that plane is aſſuredly level. To uſe it in gunnery, place the two ends on the piece of artillery, which you may raiſe to any propoſed height, by means of the plummet, whoſe thread will give the degree above the level.

Gunner's Level, for levelling cannon and mortars, conſiſts of a triangular braſs-plate, about four inches high, at the bottom of which is a portion of a circle divided into 45 degrees, which number is ſufficient for the higheſt elevation of cannon and mortars, and for giving ſhot the greateſt range; on the center of this ſegment of a circle, is ſcrewed a piece of braſs, by means of which, it may be fixed or ſcrewed at pleaſure; the end of this piece of braſs is made ſo as to ſerve for a plummet and index, in order to ſhew the different degrees of elevation of pieces of artillery. This inſtrument has alſo a braſs foot, to ſet upon cannon or mortars, ſo as when thoſe pieces are horizontal, the inſtrument will be perpendicular. The foot of this inſtrument is to be placed on the piece to be elevated, in ſuch a manner, as that the point of the plummet may fall on the proper degree: this is what they call levelling the piece.

Lieutenant of Horſe, Foot, or *Dragoons.* The ſecond officer in the troop or company, who commands in the abſcence of the captain. When the company is at arms, he takes the left of the captain; but the right if the enſign be there. He marches the company in the abſence of the captain; but when the captain is preſent his poſt is in the rear. When the batalion marches in line of battle, the lieutenants take their poſt at the head of the diviſions, according to their ſeniority. He ought to inſpect the actions of the ſergeants and corporals, to keep them to their duty, and take care of every thing that is neceſſary to the company; to ſee them exerciſe, to cauſe them to keep their arms clean and fit for ſervice, and to ſee that the ſoldiers be provided with powder and ball.

Lieutenant Colonel of Horſe, Foot, or *Dragoons.* The ſecond officer in a regiment, and ſhould be a man of great experience; knowing how to attack or defend a poſt, lead the regiment to battle, and how to make a good retreat. He is to ſee the regiment kept to their exerciſe, and is to know the qualifications of all the officers of the regiment. In the abſence of the colonel he commands the regiment. His poſt is on the colonel's left hand, three paces before the captain's, when there is but one battalion of foot; but if the regiment be of two, the colonel commands the firſt, and he the ſecond. Colonels and lieutenant-colonels are excuſed from mounting guard when the regiment is in garriſon. *Lieutenant Colonel of Horſe* is the ſame; he marches at the head of the ſecond ſquadron. But the French have no ſuch officer.

Lieutenant General A great commander, next in place to the general of an army, who in battle commands one of the lines or wings; a detachment when they march, or a flying camp; a quarter at a ſiege, and one of the attacks, when it is his day of duty. They ought to be daily with the general to know his orders: they are allowed each two aids de camp, and a foot guard, mounted by a ſubaltern, with a ſergeant and thirty men.

Lieutenant General of the Artillery. The next to the general of the artillery, who in his abſence has the whole charge of all that belongs to it.

Lieutenant du Roy. The deputy governor of all ſtrong towns

towns in France, who is a check upon the governor, and commands in his abſence.

Lieutenant Reformed. Vide *Reformed.*

Lieutenant en Second. Vide *Second.*

Life Guards. Vide *Gardes de Corps.*

Light Horſe. This name is given to diſtinguiſh them from the men at arms formerly uſed, who were all in armour, as are now the German cuiraſſiers. In England all are called light horſe, except the troops of life guards. In France they except not only the *Gardes de Corps*, but the two troops of muſquetaires on horſeback, and all the gendarmes. Each regiment conſiſts of ſix troops, and is commanded by a colonel, lieutenant colonel, major, captains, lieutenants, cornets, and quarter maſters. They rank according to ſeniority.

Line. In the geometrical ſenſe ſignifies a length without breadth; in the military art it is taken ſeveral ways.

Line. Is the drawing up of an army for battle, extending its front as far as the ground will permit, that it may not be flanked. The *Turkiſh* armies often draw up in a crooked line, or half moon, that being very numerous, they may encloſe their enemies. Chriſtian armies generally draw up in three lines; the firſt called the *Van*; the ſecond, the *Main Body*; and the third, the *Reſerve*; with a convenient diſtance between them, and intervals, that they may not put one another into confuſion.

Line. In fortification it bears ſeveral ſignifications. In drawing a plan upon paper, it is only a plain line drawn from one point to another. On the ground it is ſometimes taken for a trench with a parapet, and ſometimes for a row of gabions, or bags full of earth, to cover men from the enemy's fire. So we ſay, 'When the trenches were carried on within 30 paces of the glacis, we drew two lines, one on the right, and the other on the left, for a place of arms.' *To line a work*, is to trace it out. *To line a work*, is likewiſe to face it with brick or ſtone. Lines are ſometimes made to cover a country, eſpecially by the *French.*

Line of Defence. A ſuppoſed line that repreſents the flight of a ball; but particularly a muſket ball, from the place where the muſketeer muſt ſtand, to ſcour the face of

the baſtion. There are two ſorts of this line; the *Fichant*, and the *Razant*, or *Flanking*.

Line of Defence fixed, or *fichant* Is a line drawn from the angle of the curtin, to the point of the oppoſite baſtion, which is not to exceed 800 feet; or, as the *French* ſay, 120 toiſes, becauſe that is the length of the port of a muſket; and from the point of the curtin and flank, the face of the oppoſite baſtion is to be defended.

Line Razant, *Stringent*, or *Flanking*, or *Second Flank*. A line drawn from the point of the baſtion along the face, till it comes to the curtin, which ſhews how much of the curtin will clear, or ſcour the face.

Line forming the Flank. A line drawn from the angle, formed by the two demi-gorges of the baſtion, to the angle at the flank. This is only uſed by *Dutch* engineers.

Capital Line. A line drawn from the point of the baſtion to the point where the two demi gorges meet.

Lines of Circumvallation and *Contravallation*. See *Circumvallation* and *Contravallation*.

Lines of Communication. Are trenches that run from one work to another, ſo that men may paſs between them without being expoſed to the enemy: therefore the whole intrenchment round any place is ſometimes called a Line of Communication, becauſe it leads to all the works.

Lines of Approaches. See *Approaches*.

To line Hedges. To plant muſketeers along them under their covert; to fire upon an enemy that comes open, or to defend them from the horſe.

Linſpins. Small pins of iron, which keep the wheel of a cannon, or waggon, on the axletree; for when the end of the axletree is put through the nave, the linſpin is put in, to keep the wheel from falling off.

Linſtock. A wooden ſtaff, about 3 feet long, upon one end of which is a piece of iron, which divides in two, turning from one another, having each a place to receive a match, and a ſcrew to keep it faſt: the other end is pointed, and ſhod with iron, to ſtick in the ground. It is uſed by gunners, to fire the guns.

Liziere. See *Foreland*.

Lodgpit. The ſmall cut or trench, of about a foot wide

wide, made with the ſpade, to mark out the firſt lines of a work that is to be made.

Lodgment. A work raiſed with earth, gabions, faſcines, wool packs, or mantelets, to cover the beſiegers from the enemies fire, and to prevent their loſing a place which they have gained, and are reſolved, if poſſible, to keep. In conducting the approaches, at certain diſtances are made lodgments, or places of arms, to flank the trenches, capable of holding an hundred men, which ſerve as a guard to the trenches. But lodgments made on the glacis, covert way, breach, &c. are much more dangerous, as they are more expoſed to the enemies fire, and having leſs earth. When it is reſolved to inſult the covert way, there muſt be great proviſion made of faſcines, ſand bags, and other materials in the trenches; and during the action the pioneers, with faſcines, wool packs, or ſand bags, ſhould be making the lodgment; covering themſelves as advantageouſly as poſſible from the oppoſite baſtion, or place moſt to be feared.

Lunette. A ſmall work, counter guard, or envelope, made in the ditch before the curtin. It conſiſts of two faces, making an angle inwards. *Lunettes* are generally made in ditches full of water, to ſerve inſtead of a fauſſe braye, and diſpute the paſſage of the ditch. The terre-plain of it is raiſed but a little above the ſurface of the water, and is but twelve feet broad, with a parapet three fathoms thick, ſo that the whole breadth of the *Lunette* is five fathoms. See *Counter Guard* and *Envelope.*

There are other ſorts of *Lunettes*, which are larger, and raiſed to cover the faces of a half moon: they are likewiſe compoſed of two faces, a longer and a ſhorter.

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MADRIERS. Long planks of wood very broad, uſed for ſupporting the earth in mining, in carrying on a ſap, in making coffers, caponiers, galleries, and many other uſes at a ſiege. They are likewiſe uſed to cover the mouth of petards after they are loaded, and are fixed with the petards to the gates, or other places deſigned to

be forced open. When the planks are not ſtrong enough, they are doubled with plates of iron.

Magazine. A place in which ſtores are kept, of arms, ammunition, proviſions, &c. Every fortified town ought to be furniſhed with a large magazine, which ſhould contain ſtores of all kinds, ſufficient to enable the garriſon and inhabitants to hold out a long ſiege, and in which ſmiths, carpenters, wheelwrights, &c. may be employed in making every thing belonging to the artillery, as carriages, waggons, &c.

Mail, or *Coat of Mail.* A piece of defenſive armour for the body, made of ſmall iron rings, interwoven in the manner of a net.

Main Body of the Army, is the body of troops that march between the advance and the rear guard. In a camp, it is that part of the army which is encamped betwixt the ring and left wing.

Main Guard, is a body of horſe poſted before the camp, for the ſafety of the army. In garriſon it is that guard to which all the reſt are ſubordinate. See *Guard.*

Major of a Regiment of Horſe or Foot, is the next officer to the lieutenant colonel, and generally made from the eldeſt captain. He is to take care that the regiment be well exerciſed, that it be drawn up in good order at a review, or upon a parade, or any other occaſion; to ſee it march in good order, and to rally it, in caſe of its being broke. He is the only officer among the foot that is allowed to be on horſeback in time of action, that he may be the readier to execute the colonel's orders, either in advancing or drawing off the regiment. He has an adjutant appointed for his aſſiſtant.

Major General, is the next officer to the lieutenant general. When there are two attacks at a ſiege, he commands that on the left. His chief buſineſs is to receive the orders every night from the general, or, in his abſence, from the lieutenant general of the day, which he is to diſtribute to the brigade majors, with whom he is to regulate the guards, convoys, &c. and appoint the place and hour of their rendezvous. He is to know the ſtrength of each brigade in general, and of each regiment in particular, and to have a liſt of all the field officers. Finally, he

he is in the army, the ſame as the major of a regiment in the regiment. He is allowed an aid de camp, and has a ſerjeant and fifteen men for his guard.

Major of a Brigade. See *Brigade Major.*

Major of a Regiment of Horſe, is the firſt captain, who commands in the abſence of the colonel.

There are alſo *Aids Major, Drums Major*, &c. ſo called from their pre-eminence above others of the ſame denomination.

Town Major, is the third officer in a garriſon, and next to the deputy-governor. His buſineſs is to ſee the guards mounted, the rounds and poſts aſſigned; he regulates the centinels, goes every evening to receive the word from the governor, and gives it out upon the place of arms, to the adjutants and ſerjeants of the garriſon; he goes his round major, viſits the corps de gardes, and ſees that all the ſoldiers arms are fixed, and in good order; he cauſes neceſſary ammunition to be diſtributed among them, orders the gates to be opened and ſhut, and gives the governor an account of all that paſſes in the place.

Mantelets. Blinds of thick planks, muſket proof, and often covered with tin or latten, which the pioneers generally roll before them, they being fixed upon low wheels, or trucks, to cover them from the enemy's fire. There are double mantelets, which make an angle, and ſtand ſquare to form two fronts, and cover the front and flank. Theſe have double planks, with earth rammed in between them. They muſt be five feet high, and three in breadth. They are ſometimes the thickneſs of two or three planks, bound together with iron plates. They are uſed in making approaches and batteries near the place, as the others are in making lodgments on the counterſcarp.

There are other ſorts of mantelets covered on the top, whereof the miners make uſe, to approach the walls of a town or caſtle.

March, in general, is the ſteps made in marching, or the moving of a body of men from one place to another. The beat of the drum, when the ſoldiers are upon march, or beginning to march, is likewiſe called The March. It is likewiſe a word of command when a battalion is to alter

its diſpoſition. The general and aſſembly are beat before the march or party, when an army is to ſet out in a morning.

Mareſchal de Battaile. It was once a diſtinct command; but this duty being only part of the major general's, it is now executed by him.

Mareſchal, or *Marſhal de Camp.* A *French* general officer, next in poſt to the lieutenant general. We find no difference betwixt him and the Engliſh major general.

Marines. Soldiers who ſerve on board of ſhips.

Marque, or *Letters of Marque*, in military affairs, are letters of repriſal, granting the ſubjects of one prince or ſtate, liberty to make repriſals on thoſe of another, by reaſon application has been thrice made to the government to which the aggreſſor belongs, without any effect.

Marſhal, or *Mareſchal* of France, is the higheſt preferment in the army or in the fleet: it is the ſame with captain general. When two or more marſhals are in one army, the eldeſt commands.

Velt Marſhal, in Germany, Holland, and lately field marſhal in England, is likewiſe the ſame with captain general.

Martial Law, is the law of war, which entirely depends on the arbitrary power of the prince, or of thoſe to whom he has delegated it; for though the king can make no law in time of peace, without the conſent of parliament, yet in time of war he uſes an abſolute power over the army.

Maſter, or *Maitre de Camp.* No other than a colonel of horſe, ſo called in France and Spain, where they give the title of colonels only to thoſe that command regiments of foot and dragoons; whereas with us they are all indifferently called colonels.

Maſter de Camp General. The ſecond general officer over all the regiments of light horſe, and next to the colonel general. He has a regiment of horſe belonging to him, which takes the ſecond poſt of honour next to the colonel general's. This too is in France, for there is no ſuch among the Engliſh officers.

Maſter of the Ordnance. See *General of the Artillery.*

Match. A kind of rope ſlightly twiſted, and prepared to retain fire for the uſes of artillery, mines, fire works, &c.

&c. It is made of hempen tow, ſpun on the wheel like cord, but very ſlack; and is compoſed of three twiſts, which are afterwards again covered with tow, ſo that the twiſts do not appear: laſtly, it is boiled in the lees of old wines. This, when once lighted at the end, burns on gradually and regularly, without ever going out as long as any of it is left. It was formerly uſed for firing match-lock muſkets, and now for all ſorts of great guns. It is alſo laid in mines that are to blow up ſo many hours after, and the time is regulated by the length of match there is to burn before the fire comes to the powder; and by the ſame rule, thoſe that are uſed to it, know how the hours paſs.

Matroſſes. A ſort of ſoldiers in the artillery, next in degree under the gunners, who aſſiſt them about the guns, in traverſing, ſponging, firing, loading, &c. They carry firelocks, march along with the ſtore waggons, as a guard, and alſo as aſſiſtants, in caſe a waggon ſhould break down.

Maxims in Fortification, are certain general rules eſtabliſhed by engineers, founded on reaſon and experience, which being exactly obſerved, a place fortified according as they direct, will be in a good poſture of defence. The chief maxims are:

1. *There muſt not be any part of a fortification, but what is diſcovered and flanked by the beſieged.* For if there be any part of a place which is not well flanked, the enemy being there under cover, will with the more eaſe attack it in that place, and carry it.

2. *A Fortreſs ſhould command all the country round it*; that the beſiegers may not cover themſelves, nor find places to favour their approaches and attacks, nor to overlook the place, to batter the works with more advantage.

3. *The works fartheſt diſtant from the centre of the place, muſt be ſtill loweſt, and commanded by thoſe that are nearer*; to the end they may be defended by the higher works, and thoſe nearer the place, that ſo the enemy, by being expoſed, may be obliged to quit them, after they have been poſſeſſed of them, becauſe of the fire of the beſieged; and likewiſe, that the enemy, by being maſters of ſuch works, may not overlook the works of the place.

4. *The flanked angle, or point of the baſtion, ought to be at leaſt* 70 *degrees*; that it may the better reſiſt the force of the enemy's batteries, in caſe they deſigned to beat it down to lodge there.

5. *The acute flanked angle, near to a right angle, is preferable to all others.* It is certain, if the flanked angle be a right angle, it has all the ſtrength that can be given it, having ſolidity enough to withſtand the enemy's batteries: but an angle near to a right, makes the tenaille of the place more compact, by the angle of the ſhoulder's ſhortening and bettering the defence, and by its not expoſing the face ſo much to the enemy. So that it follows of conſequence, that an obtuſe angle is very deficient.

6. *The ſhorteſt faces are the beſt*; becauſe the longer they are, the weaker; for the enemy attacks them with a great front. However, they muſt be at leaſt forty or fifty fathoms long, to be able to defend the outworks.

7. *The flank muſt have ſome part under cover.* Which ſignifies, it muſt be covered by an orillon, otherwiſe the defence is preſently ruined, and the lodgment no ſooner made on the counterſcarp, but the place is obliged to capitulate.

8. *There muſt be a conformity between theſe maxims, to render the fortification perfect.* For if the gorge be large, the face ſuffers. The more the flank is covered, the leſs it is ſubject to be ruined, but then the defence is more oblique. In making a ſecond flank, the flanked angle is made too weak. In diſcovering the face, the defence is more eaſy, but it is more expoſed to the enemy's batteries. In a word, there are advantages and diſadvantages over all; and the ſecret conſiſts in judging whether conforming with one maxim be more advantageous, than diſagreeing with another.

Meaſure Angle. An inſtrument of braſs for meaſuring angles, either ſaliant or rentrant, to know exactly the number of degrees and minutes, to lay them out upon paper.

Merlon. That part of the parapet which is terminated by two embraſures of a battery; ſo that its height and thickneſs is the ſame with that of the parapet; but its breadth is ordinarily nine feet on the inſide, and ſix on

the outside. It serves to cover those on the battery from the enemy: and it is better of earth, well beat and close, than of stone, because this flies about, and wounds those whom the work should defend.

Military Architecture. The same with *Fortification.* See *Fortification.* For *Military Utensils*, see plates I. and II.

Military Execution. The ravaging and destroying a country that refuses to pay contribution.

Militia, in general, denotes the body of soldiers, or those who make profession of arms.

In a more restrained sense, *Militia* denotes the trained bands of a town or country, who arm themselves, upon a short warning for their own defence. So that, in this sense, militia is opposed to regular or stated troops. For the direction and command of the militia, the king constitutes lords lieutenants of each county.

Mine. A subterraneous canal or passage, dug under the wall or rampart of a fortification, intended to be blown up by gunpowder. The alley, or passage of a mine, is commonly about four feet square; at the end of this is the chamber of the mine, which is a cavity about five feet in width and in length, and about six feet in height; and here the gunpowder is stowed. The fauciſſe of the mine is the train, for which there is always a little aperture left. There are various kinds of mines, which acquire various names, as royal mines, according as their passages are strait, oblique, winding, &c. There are also mines made in the field, which are called *Fougades*. See the article *Fougade*.

Mines are either dug within the body of the earth, as those made by the besieged to blow up the works of the besiegers, before they make a lodgment on the covered way; or in eminences and rising grounds, as to make a breach in the ramparts, &c. or to blow up walls, or lastly, to tear up rocks.

Two ounces of powder have been found, by experiment, capable of raising two cubic feet of earth; consequently two hundred ounces joined, that is, twelve pounds eight ounces, will raise two hundred cubic feet, which is only sixteen feet short of a cubic toise; because two hundred ounces joined together, have proportionably a greater

a greater force than two ounces, as being an united force. See the article *Gunpowder*.

All the turnings a miner uſes to carry on his mines, and through which he conducts the fauciſſe, ſhould be well filled with earth and dung; and the maſonry in proportion to the earth to be blown up, as three to two. The entrance of the chamber of the mine ought to be firmly ſhut with thick planks, in the form of a St. Andrew's croſs, ſo that the encloſure be ſecure, and the void ſpaces ſhut up with dung, or tempered earth. If a gallery be made below, or on the ſide of the chamber, it muſt abſolutely be filled up with the ſtrongeſt maſonry, half as long again as the height of the earth; for this gallery will not only burſt, but likewiſe obſtruct the effect of the mine. The powder ſhould always be kept in ſacks, which are opened when the mine is charged, and ſome of the powder ſtrewed about: the greater the quantity of earth to be raiſed is, the greater is the effect of the mine, ſuppoſing it to have the due proportion of powder. Powder has the ſame effect upon maſonry as upon earth, that is, it will proportionably raiſe either with the ſame velocity.

The branches which are carried into the ſolidity of walls, do not exceed three feet in depth, and two feet ſix inches in width nearly; this ſort of mine is moſt excellent to blow up the ſtrongeſt walls.

The weight of a cubit foot of powder ſhould be 80lb. one foot one inch cube will weigh 100lb. and one foot two inches and eleven twelfths 150lb.; and 200lb. of powder will be one foot five inches cube; however, there is a diverſity in this, according to the quantity of ſaltpetre in the gunpowder.

If, when the mines are made, water be found at the bottom of the chamber, planks are laid there, on which the powder is placed either in ſacks or barrels, of 100lb. each. The fauciſſe muſt have a clear paſſage to the powder, and be laid in an auget, or wooden trough, through all the branches. When the powder is placed in the chamber, the planks are laid to cover it, and others again acroſs theſe; then one is placed over the top of the chamber, which is ſhaped for that purpoſe, between that and thoſe which cover the powder, props are placed, which ſhore it up; ſome inclining towards the outſide, others

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to the inſide of the wall; all the void ſpaces being filled with earth, dung, brick, and rough ſtones. Afterwards planks are placed at the entrance of the chamber, with one acroſs the top, whereon they buttreſs three ſtrong props, whoſe other ends are likewiſe propped againſt another plank ſituated on the ſide of the earth in the branch; which props being well fixed between the planks with wedges, the branch ſhould then be filled up to its entrance with the forementioned materials. The ſauciſſes which paſs through the ſide branches muſt be exactly the ſame length with that in the middle, to which they join: the part which reaches beyond the entrance of the mine, is that which conveys the fire to the other three; the ſauciſſes being of equal length will ſpring together.

From a great number of experiments it appears, 1. That the force of a mine is always towards the weakeſt ſide; ſo that the diſpoſition of the chamber of a mine does not at all contribute to determine this effect. 2. That the quantity of powder muſt be greater or leſs, in proportion to the greater or leſs weight of the bodies to be raiſed, and to their greater or leſs coheſion; ſo that you are to allow for each cubic fathom of looſe earth, 9 or 10 lb. firm earth and ſtrong ſand 11 or 12 lb. fat clayey earth, 15 or 16 lb. new maſonry, not ſtrongly bound, 15 or 20 lb. old maſonry well bound, 25 or 30 lb. 3. That the aperture, or entonnoir of a mine, if right charged, is a cone, the diameter of whoſe baſe is double the height taken from the center of the mine. 4. That when the mine has been overcharged, its entonnoir is nearly cylindrical, the diameter of the upper extreme not much exceeding that of the chamber. 5. That beſides the ſhock of the powder againſt the bodies it takes up, it likewiſe cruſhes all the earth that borders upon it both underneath and ſideways.

To charge a mine ſo as to have the moſt advantageous effect, the weight of the matter to be carried muſt be known; that is, the ſolidity of a right cone, whoſe baſe is double the height of the earth over the center of the mine: thus having found the ſolidity of the cone in cubic fathoms, multiply the number of fathoms by the number of pounds of powder neceſſary for raiſing the matter it contains; and if the cone contains matters of different weight, take a mean weight between them all, always having a regard to their degree of coheſion.

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As to the diſpoſition of mines, there is but one general rule, which is, that the ſide towards which one would determine the effect be the weakeſt, but this varies according to occaſions and circumſtances. The calculation of mines is generally built upon this hypotheſis, that the entonnoir of a mine is the fruſtum of an inverted cone, whoſe altitude is equal to the radius of the excavation of the mine, and the diameter of whoſe leſſer baſe is equal to the line of leaſt reſiſtance; and though theſe ſupoſitions are not quite exact, yet the calculation of mines deduced from them have proved ſucceſsful in practice; for which reaſon this calculation ſhould be followed, till a better and more ſimple be found out.

M. de Valliere found that the entonnoir of a mine was a paraboloid, which is a ſolid generated by the rotation of a ſemiparabola about its axis; but as the difference between theſe two is very inſignificant in practice, that of the fruſtum of a cone may be uſed.

Miners. Men appointed to work in the mines, being a particular company, commanded by a captain of the regiment of fuzileers, which regiment is appointed for the ſervice of the artillery. When the miner is at work, he wears a ſort of hood, to keep the earth that falls from his eyes, this hood throwing it over his ſhoulders.

Minion Ordnance. A ſmall gun three inches diameter in the bore, ſeven feet long, weighing about 800lb. takes a charge of two pounds eight ounces of powder, of carries a ball two inches ſeven eights diameter, and three pounds four ounces weight. It is ſhot point-blank 120 paces.

Minion of the longeſt Size. Is three inches two eights in the bore, eight feet long, weighs 1000 lb. Its charge three pounds four ounces of powder, and carries a bullet three inches diameter, weighing three pounds four ounces. Its ſhot point-blank 125 paces.

Moat, Ditch, or Foſſe. A depth or trench cut round a town or fortreſs; which lying under the fire of the ramparts, muſt therefore alſo be flanked. The breadth and depth of it is more or leſs, according to the nature of the earth. In general it ought to be ſo wide, that no tree, or ladder can be laid over it; that is, from 16 to 22 fathoms,

fathoms, and about 15 and 16 feet deep. The brink of the moat next the rampart, is called the ſcarp, and that oppoſite on the other ſide, is called the counterſcarp, which forms a re-entering angle before the center of the curtin. A dry moat round a place that is large, and has a ſtrong garriſon, is preferable to one full of water, becauſe the paſſage may be diſputed inch by inch, and the beſiegers, when lodged in the moat, are continually expoſed to the bombs, grenades and other fire works, which are thrown inceſſantly over the rampart on their works. In the middle of dry moats, is ſometimes made another ſmall moat, called the *cuvette*, which is generally dug ſo deep, till they find water to fill it. The deepeſt and broadeſt foſſes are counted the beſt; but a deep foſſe is preferable to a broad one. To drain a foſſe or moat full of water, is to dig a trench deeper than the level of the water, to let it run out. When it is drained there are hurdles thrown upon the mud and ſlime, and covered with earth, or bundles of ruſhes, to make a ſure and firm paſſage.

Moineau. A French term for a little flat baſtion raiſed upon a re-entering angle, before a curtain which is too long, between two other baſtions: it is commonly joined to the curtin, but ſometimes ſeparated by a foſſe, and is then called a detached baſtion. They are not raiſed ſo high as the works of the place, becauſe they muſt be expoſed to the fire of the beſieged, in caſe the enemy ſhould lodge themſelves there. Their parapet, as well as the parapet of all outworks, ought to be cannon-proof, that is to ſay, 18 feet thick.

Mont Pagnote, or *Poſt of the Invulnerable.* An eminence choſen out of cannon ſhot of the place beſieged, where curious perſons poſt themſelves to ſee an attack, and the manner of the ſiege, out of danger.

Mortar-piece. A very ſhort piece of artillery, with an extraordinary large bore, and a cloſe chamber: this is to hold the charge of powder; the other to contain the bomb, carcaſe, or fire pot, it is to throw. Mortars are ſometimes mounted on low carriages, like thoſe uſed for cannon at ſea, the wheels being each of one piece. They are not fired right forward, like cannon, but mounted into the air, ſo that the bomb aſcending a vaſt height, falls with

with the greater force, and flies the further. Sometimes the mortars are charged with baſkets full of ſtones, which they throw into towns, and do great execution; becauſe falling thick, there is no place of ſafety from them.

Mortars are uſed both at ſea and land, but they differ very much in form. *A ſea Mortar* is generally 13 inches diameter in the bore, is longer and more reinforced than a land mortar, becauſe they are fired with a greater quantity of powder; ſometimes with 20 or 30 pounds. Some of them have their beds or ſtools of metal, caſt into a piece with the mortars; others have them of a thick ſquare piece of oak, which, by the help of hand-ſcrews or jacks, is turned round upon a ſtrong axis of iron, to fire any way. They carry bombs of 200 pounds, and generally weigh about 9 or 10,000 weight.

Land Mortars are of different ſorts; thoſe uſed moſt in England, are 10, 13, 15, and 18 inches diameter; but there are ſmaller mortars of ſix and eight inches. All but the 18 inch mortars are mounted on a very thick plank of oak, on which riſe two cheeks or brackets on the ſides of the mortar. But the 18 inch is mounted on a low Dutch carriage, conſiſting of two ſtrong planks of wood, bound with thick plates of iron, and joined together with tranſums of wood. All land mortars may be elevated to any degree of the quadrant. They have no wheels, therefore on a march they are laid upon a block carriage made on purpoſe. They are never carried along with the army, becauſe of their great weight, except upon an occaſion of a ſiege or bombardment; but a ſort of ſmall mortars, called hobits, mounted in gun carriages, are always a part of the field artillery.

Hand Mortars, are likewiſe of ſeveral ſorts. As *tinkers Mortars*, which are fixed at the end of a ſtaff, of about four feet and a half long, the other end being ſhod with iron to ſtick in the ground, while a ſoldier with one hand keeps it in an elevation, and with the other hand fires. *Firelock Mortars* are fixed in a ſtock, with a lock like a firelock; they ſwing between two arches of iron, with holes anſwering one another, by which the mortar is elevated. Theſe ſtand upon a ſole or plank of wood, and may be carried by one man from one place to another. There

are

are more ſorts of hand mortars, but Coehorn's new invention exceeds them all, ſo far as to deſerve a particular deſcription. They are made of hammered iron, of four inches diameter in the bore, ten inches and a half long, and nine inches in the chace, fixed upon a piece of oak twenty inches long, ten and a half broad, and betwixt three and four thick. They ſtand fixed at 45 degrees of elevation, and throw hand grenades, as all other hand mortars do. They are placed in the bottom of the trenches, at two yards diſtance from one another, having each a ſoldier to ſerve it, and an officer to every forty or fifty, who lays them to whatever elevation he thinks convenient, by raiſing or ſinking the hind part of the bed. Three or four hundred of them are ſometimes in ſervice at once, in different parts of the trenches, 60, 70, or 80 in a place. Thoſe in one place fire all at once, immediately after the batteries have done, and are anſwered from another part of the trench, which brings ſuch a ſhower of hand grenades into the covert way, that thoſe who defend it are thrown into unavoidable confuſion.

Motion of a Bomb, or *Ball*, is the progreſs it makes in the air after it is delivered, and is of three ſorts: the *violent Motion* is the firſt expulſion, when the powder has worked its effect upon the ball, or ſo far as the bomb or ball may be ſuppoſed to go in a right line; the *mixed Motion* is, when the weight of the ball begins to overcome the force which was given by the powder; and the *natural Motion* is, when the ball or bomb is falling.

In ſhooting with mortars, the following general rules ſhould be always obſerved. 1ſt. To meaſure the diſtance of the object aimed at. 2d. That the bombs be of equal weight, otherwiſe the ſhots will vary. 3d. That the carriage be on an exact level, to prevent its leaping. 4th. That the powder with which the piece is charged, be always of the ſame ſtrength and quantity. 5th. That the charge be always equally rammed down. 6th. That the wads be always of wood, tompions or oakum. 7th. That the fuſees be freſh made the days on which they are to be uſed; and that they be of a compoſition proportionable to the range of the ſhot in the air, ſo that the bomb may break at the very moment of, or ſoon after its fall; which compoſi-

compoſition muſt be ſuch as not to be extinguiſhed though it fall in water, but continue burning till the bomb breaks. See the article *Bomb*.

Motion of an Army. The ſeveral marches and countermarches it makes, or the changing of its poſts, either for better ground, to force an enemy to battle, to avoid it, or the like.

Mouldings of a Gun or Mortar. All the eminent parts, as ſquares, or rounds, which ſerve generally for ornament; ſuch as the breech mouldings and muzzle mouldings. The rings of a gun are likewiſe called mouldings.

Moulds for leaden bullets, are little iron pincers, each of whoſe branches terminates in an hemiſpherical concavity, which when ſhut, form an entire ſphere: in the lips or ſides where the branches meet, is a little jet or hole, through which the melted lead is conveyed.

Mound, a term uſed for a bank or rampart, or other fence, particularly that of earth.

Mounting, ſignifies going upon duty; thus, mounting a breach is running up to it; mounting the guard, is going upon guard; and mounting the trenches, is going upon duty in the trenches; but mounting a cannon, mortar, &c. is the ſetting it on its carriage, or the raiſing its mouth.

Munition, the proviſions with which a place is furniſhed, in order for defence; or that which follows a camp for its ſubſiſtence. See *Ammunition*.

Muſket, or *Muſquet*. The moſt commodious and uſeful fire-arm uſed in the army, either in attacking or defending a poſt: it is eaſily managed, and is carried with ſmall trouble, which makes its uſe the more common. Formerly two thirds of every company were muſketeers, and the reſt pikemen; but the pikes being laid aſide in our army of late, and muſkets brought in their ſtead, ſhews that though pikes are uſeful, yet muſkets, with the addition of bayonets, are much more ſo, and can do better ſervice. They carry a ball of 16 in the pound. The length of the line of defence is limited in fortification by the ordinary diſtance of a muſket ſhot, which is about 120 fathom, (720 feet, or 240 yards) and almoſt all the military architecture is regulated by this rule for the length of the defence, as the effect of cannon gives a rule for the thickneſs of the ramparts and parapets.

Muſketeer,

Muſketeer, or *Mouſqueteer*. A foot ſoldier, armed with a muſket or firelock, ſword, bayonet, &c. In France there are two companies, or rather troops, the grey and the black, called *Mouſquetaires du Roy*, or the king's muſketeers, compoſed all of gentlemen excellently well mounted, who ſerve either on foot or on horſeback, and ſignalize themſelves upon all deſperate occaſions, being there only for preferment. An inſtance of their bravery they gave in the late battle of Dettingen. The king himſelf is their captain, and the officer commanding each of them, is called captain-lieutenant; yet each of them commands as colonel both of horſe and foot, and accordingly take place of all younger colonels of either. They are reckoned as gendarms, and march next to the Scotch gendarms.

Muſketoon. A kind of ſhort thick muſket, whoſe bore is the thirty-eighth part of its length: it carries five ounces of iron, or ſeven and a half of lead, with an equal quantity of powder, this is the ſhorteſt ſort of blunderbuſſes. See the article *Blunderbuſs*.

Muſter. A narrow review of troops under arms, to ſee if they be compleat, and in good condition; that their arms and accoutrements be in good order; thereby to know the ſtrength of an army. The general may order either muſter or review, as often as he pleaſes.

Muſter Maſter. For which ſee *Commiſſary General*.

Muſter Rolls. The rolls or liſts of the companies or troops, which are delivered to the commiſſary by the captains.

Muzzle of a Gun or Mortar. The extremity of the cylinder, where the powder and ball is put in.

Muzzle Mouldings. The ornament round the muzzle.

N

TO *Nail Cannon*, or as ſome call it, *To cloy*. To drive a large iron ſpike by main force into the touch-hole of a gun; or, for want of ſpikes, ſmall flints or other ſtones. This renders the cannon uſeleſs, either ſtopping up the touch hole, or if the ſpike be taken out, leaving it ſo large that it cannot be fired, becauſe it takes too much

much vent there. The remedy is, to drill a new touch-hole. The moſt honourable thing the garriſon of a place beſieged can propoſe to itſelf in a ſally, is to nail up the enemy's cannon, becauſe it takes ſome time to repair.

Neck of a Gun. That part betwixt the muzzle mouldings and the corniſh ring.

Neck of the Caſcabel, is the part betwixt the breach mouldings and caſcabel.

O

OBLIQUE DEFENCE. That which is under too great an angle, as is generally the defence of a ſecond flank, which can never be ſo good as a defence in front, nor is it approved by engineers.

Octogon. A figure of eight ſides, or polygons, forming the ſame number of angles, and capable of being fortified with eight baſtions.

Officer in the Army. In general a perſon having a command in the army. Thoſe having commiſſions from the king or general, are called *commiſſioned officers,* which includes all from the general to an enſign. Such as have no commiſſions, but only warrants from their colonels, are called *warrant officers,* as quarter maſters of horſe, and ſurgeons. Thoſe that have neither commiſſions nor warrants, are called *ſtaff officers,* as ſergeants, corporals, lanſpeſades, &c.

General Officers, are ſuch as command a body of troops of ſeveral regiments, as the field marſhal, captain general lieutenant general, major general, brigadier general, quarter maſter general, and adjutant general.

Field Officers, are thoſe who have a command over a whole regiment, as the colonel, lieutenant colonel, and major.

Subaltern Officers, are the lieutenants, cornets, and enſigns.

Open Flank. That part of the flank which is covered by the orillon. See the article *Flank.*

To Open Trenches, is the firſt breaking of ground by the beſiegers, in order to carry on their approaches towards a place.

a place. The difference between opening and carrying on the trenches, is, that the firſt is only the beginning of the trench, which is always turned towards the beſiegers: it is begun by a ſmall foſſe, which the pioneers make in the night time on their knees, generally a muſket ſhot from the place, or half a cannon ſhot, and ſometimes without the reach of cannon ball; eſpecially if there be no hollows or riſing grounds to favour them, or if the garriſon be ſtrong, and their artillery be well ſerved. This ſmall foſſe is afterwards enlarged by the next pioneers which come behind them, who dig it deeper by degrees, till it is about four yards broad, and four or five feet deep, eſpecially if they be near the place; to the end the earth which is taken out of it may be thrown before them to form a parapet, to cover them from the fire of the beſieged: the place where the trenches are opened, is called the end of the trench.

Open. A word of command, as *Open your ranks backwards to ſuch a diſtance*, is when the ranks falls back without changing aſpect, obſerving their right hand man and their leaders. *Open your files from the centre*, is when they face outwards from the centre: if there be an odd file it ſtands, the reſt take the diſtance commanded. *Open your files to the right or left.*

Order. A word of command, as *Order your firelock*, is the planting the but end of the piece againſt the middle of the outſide of the right foot, with the lock outwards.

Order of Battle, is a diſpoſition of the battalions and ſquadrons of an army in one or more lines, according to the nature of the ground, either to engage an army, or to be reviewed by the general.

Orders. Notice given every night by the general to the lieutenant-general of the day, who conveys them to the major-general, and he to the brigade-major, who gives them to the adjutants, and they to the ſergeants, that the army may know when to march; what detachments, &c. are to go abroad the next morning; when they are to forage or graze; when they are to muſter or review, and many other things. The orders are generally given out in the evening at the head quarters, where all generals meet at that time. *Orders in general*, ſignify all that is commanded by a ſuperior officer.

Ordnance.

Ordnance. All ſorts of guns, mortars, firelocks, carabines, piſtols, &c. all ſorts of arms, or ſtores, belonging either to offence or defence.

Maſter of the Ordnance. See *General of Artillery.*

Office of Ordnance. An office kept within the Tower of London, which ſuperintends and diſpoſes of all the arms, inſtruments and utenſils of war, both by ſea and land, in all the magazines, garriſons and forts in Great Britain.

The officers of the ordnance are, 1ſt. the maſter-general, from whom are derived all orders and diſpatches relating to the ſame. 2d. The lieutenant-general, who receives orders from the maſter-general, and ſees them duly executed; orders the firing of guns on days of rejoicing, and ſees the train of artillery fitted out when ordered to the field. 3d. The ſurveyor general who has the inſpection of the ordnance, ſtores, and proviſions of war in the cuſtody of the ſtorekeepers: he allows all bills of debt, keeps a check on labourers, &c. 4th. The treaſurer, through whoſe hands paſſes the money of the whole office, as well for payment of ſalaries as debentures: as alſo a clerk of the ordnance, and a clerk of the deliveries, for which ſee the articles *Clerk of the Ordnance, &c.*

Orgues. Thick long pieces of wood, pointed or ſhod with iron, clear one of another, hanging each by a particular rope or cord over the gateway of a ſtrong place, perpendicular, to be let fall in caſe of an enemy. Their diſpoſition is ſuch, that they ſtop the paſſage of the gate, and are preferable to herſes or portcullices, becauſe theſe may be either broke by a petard, or they may be ſtopped in their falling down by a wooden horſe, or other contrivance. But a petard is uſeleſs againſt an orgue, for if it break one or two of the pieces, others immediately fall down, and fill up the vacancy; or if they ſtop one or two of the pieces from falling, it is no hindrance to the reſt, for being all ſeparate, they have no dependance on one another.

Orillon, or *Blind.* A maſs of earth faced with ſtone, built on the ſhoulder of a cazumatted baſtion, to cover the cannon of the retired flank, and hinder its being diſmounted by the enemy's cannon. They are made ſometimes round, and ſometimes ſquare. Some maintain the round to be beſt, becauſe they are not ſo eaſily beat down by the cannon

cannon of the beſiegers; for the roundneſs hinders the ball very much from its effect. Others like the ſquare orillons better, becauſe they are of leſs charge, and can contain more men to fire directly on the face of the oppoſite baſtion, than the round can do. Orillon is likewiſe called the ſhoulder and the epaulment.

Orteil, the ſame with berme. See the article *Berme*.

Orthographical Section, or *Profile*. Is that draught which ſhews the thickneſs, breadth, depth, and height of any work, as it would appear, if perpendicularly cut off from the higheſt to the loweſt part of it. It does not repreſent the length of the work, which the plan does; but then the plan does not ſhew the height and depth, but repreſents the breadth.

Oval. A plain figure bounded by its own circumference, within which no point can be taken, from which all right lines drawn to the circumference can be equal.

Out-works, which are likewiſe called *Advanced Works*, *Detached Works*, and *Exterior Works*. Works of ſeveral ſorts, which cover the body of the place towards the campaign; as ravelins, half moons, tenailles, horn works, queve d'arondes, envelopes, crown works, counter guards, lunettes, ſwallows tails, and the like. Theſe ſerve not only to cover the place, but likewiſe to keep an enemy at a diſtance, and to hinder his getting any advantage of hollows or riſing grounds that may happen near the counterſcarp of the place: for theſe cavities and eminences may ſerve for lodgments to the beſiegers, and facilitate the carrying on their approaches, and raiſing their batteries againſt the town. It is a general rule, that if there be ſeveral *Out-Works*, one before another, to cover one and the ſame tenaille of a place, thoſe that are neareſt the place muſt gradually, one after another, command thoſe that are fartheſt advanced out into the campaign; that is, muſt have higher ramparts, that they may overlook and fire upon the beſiegers, when they have poſſeſſed themſelves of the fartheſt. The gorges of them muſt be always plain, for fear if they had any parapet, it might ſerve the beſiegers, when they are maſters of it,

to cover themſelves againſt the fire of the beſieged; and therefore the gorges are only paliſadoed, to prevent ſurprize.

P

PALISADES. Long pieces of wood or ſtakes, planted generally before poſts which might be taken by ſurprize, or where the acceſs is very eaſy, to ſecure them both from a ſudden and a regular attack. They are generally eight feet long, and ſix or ſeven inches ſquare; the one end is pointed, and the other is let three feet perpendicularly into the ground: ſometimes they are planted obliquely, pointing towards the enemy, that in caſe the beſiegers ſhould endeavour to pull them out with cords, the cords may ſlip off, having no hold. Paliſades are planted on the berm, or foreland, at the foot of the baſtions of places ſurrounded with a wet foſſe, to prevent an eſcalade or ſurprize. They are likewiſe planted in the bottom of dry moats, eſpecially if there are traverſes made. Sometimes they are ſet in the gorges of half moons, and other out works. But above all, the parapet of the covert way muſt be well paliſaded, either on the parapet, or in the covert way. They are to ſtand ſo cloſe, that the muzzle of a muſket can but juſt get betwixt them. The method of planting them, is by digging a trench of about a foot, or a foot and a half wide, and three feet deep, and after the paliſades are ſet in as cloſe to one another as before ſaid, the trench is then filled with earth, which is beat and ſet very hard about the paliſades with rammers. Paliſades are very uſeful, and a good defence in all ſorts of fortifications, provided they be well planted and cloſe. They are likewiſe uſeful in ſieges, to plant on the outſide of the foſſes of the batteries, to prevent the beſieged from ſurpriſing the batteries in their ſallies, and nailing the cannon. Paliſides are either pulled up by ſhaking them with ropes, cut down by the grenadiers, beaten

beaten down with cannon, or burned down with ſmall faſcines pitched over.

Turning Paliſades. An invention of Coehorne's, to preſerve the paliſades of the parapet of the redans from the beſiegers ſhot. He orders them ſo, that as many of them as ſtand in a rod's length, turn up and down like a trap, with all the facility imaginable. They are a good defence, becauſe they are not in ſight of the beſiegers, but juſt when they bring on their attack, and yet are always ready to do the proper ſervice of paliſades. They are likewiſe frugal, becauſe they may be preſerved in the magazines, and need not be left on the parapet: beſides there may be ſquare paliſades kept ready to ſupply the place of ſuch as may be broke by the beſiegers cannon.

Pans. The ſame as the face of the baſtion, which ſee.

Parade. The place where troops meet together to go upon guard, or any other ſervice. In a garriſon, where there are two or three, or more regiments, each has their parading place appointed, where they are to meet upon all occaſions, eſpecially upon any alarm. In a camp, all parties, convoys, or detachments, that are to go abroad, have a parading place appointed them at the head of ſome regiment.

Pandours, or *Croats.* Infantry. Their habit is firſt a bonnet, the hinder point of which falls down upon the the back like a ſack: a large looſe upper garment, fixed tight to their bodies by a girdle, with great ſleeves; and linen breeches, which are alſo large, and reach down to their ancles; inſtead of ſhoes they have a piece of leather or perhaps a felt, tyed about the foot with a cord. They uſe fire arms well, and are excellent markſmen: they carry a fuſil, and four piſtols: they make uſe of great ſabres, a cuttoe, and another inſtrument of ſteel, made like a rake, which they carry in their bonnet, and which ſerves them for ſeveral uſes, particularly to defend themſelves when they have no other weapon at hand: they wear chains about their necks, which they make uſe of to ſecure their priſoners.

Parallel. Though this be properly a term in geometry, yet being often uſed in fortification, it deſerves to be explained. Parallel lines are thoſe which are of an equal

diſtance from one another in every part of them, and will ſo continue, though ever ſo far extended; ſo that they can never meet or draw nearer. Oppoſite ſides of a ſquare, are parallel to one another. The ranks of a battalion are parallel, and ſo are the files among themſelves. The counterſcarp is drawn parallel to the face of its baſtion; and generally the line of approaches is drawn parallel to the face of the place attacked, to prevent its being enfiladed or ſcoured in length.

Parallels at a ſiege, ſignify the trenches or lines made parallel to the defence of the place beſieged. They are likewiſe called called *Lines of Communication and Boyaus.*

Parapet. An elevation of earth, deſigned for covering the ſoldiers from the enemy's cannon or ſmall ſhot, wherefore its thickneſs is from eighteen to twenty feet. It is ſix feet high on the inſide, and four or five on the ſide next the country. It is raiſed on the rampart, and has a ſlope above called the *ſuperior talus*, and ſometimes the *glacis of the parapet*, on which the ſoldiers lay their muſkets to fire over. This pente or ſlope makes it eaſy for the muſketeers to fire into the ditch, or, at leaſt, on the counterſcarp. To fire razing the glacis of the parapet, is called *firing in barbe.* The exterior talus of the parapet, is the ſlope facing the country. The height of the parapet being ſix feet on the inſide, it has a banquet or two for the ſoldiers which defend it, to mount upon, that they may diſcover the country the better, as likewiſe the foſſe and counterſcarp, to fire as they find occaſion.

Parapet of the Covert Way, or *Coridor*, is what covers that way from the ſight of the enemy, which renders it the moſt dangerous place for the beſiegers, becauſe of the neighbourhood of the faces, flanks and curtins of the place. It is the ſame with glacis, which ſignifies that whole maſs of earth that ſerves to cover the coridor, and goes ſloping towards the country.

The name of *parapet* is given in general to any line that covers men from the enemy's fire; ſo there are parapets of barrels, of gabions, and of bags filled with earth.

Park

Park of the Artillery. A poſt in the camp, appointed by the quarter-maſter-general in the rear of both lines of the army, out of cannon ſhot of the enemy, and fortified to ſecure the magazines and ammunition; where to prevent accidents of fire, only pikemen do duty. Every attack at a ſiege has a park of artillery. The ammunition waggons in a park form the two or three firſt lines, and the pontoons and tombrils the laſt. The whole is ſurrounded with ropes. The gunners and matroſſes encamp on the flank, and the reſt of the train in the rear. Here are kept all the arms and utenſils neceſſary for a ſiege; as bombs, petards, carcaſſes, hand grenades, powder, ball, &c. with all ſorts of inſtruments for removing the earth, as ſpades, ſhovels, pick-axes, bills, hows, and wheel barrows, with many things more.

Park of Proviſions, is the place where the ſutlers pitch their tents, and ſell proviſions to the ſoldiers, which is in the rear of each regiment: but the chief of all is the ground allotted at the head quarters for the ſutlers, where there is ſtill every thing to be had, and it is from thence for the moſt part that the other ſutlers are furniſhed. But in fact the place where the bread waggons are drawn up, and where the ſoldiers receive the ammunition bread, being the ſtore of the army, is properly the park of proviſions.

Parley. A conference with an enemy. Hence to beat or ſound a parley, is to give a ſignal for holding ſuch conferance, by beat of drum, or ſound of trumpet.

Parole. When a priſoner has leave to go any where upon his promiſe of returning at a time appointed, if not exchanged.

Partiſan. A good partizan is an able cunning ſoldier, well ſkilled in commanding a party, who knows the country, and how to avoid ambuſhes, ſurpriſe the enemy, or get intelligence.

Partiſan Party. A ſmall body of infantry given to a partiſan, to make an incurſion upon the enemy, to lurk about their camp, to diſturb their foragers, and to intercept their convoys.

Partuiſan, or *Pertuiſan,* is a weapon ſometimes carried by lieutenants, not unlike a halbert.

Party. A ſmall body of horſe or foot, ſent into the enemy's country to pillage or take priſoners, or to oblige the country to come under contribution, which is to pay a certain ſum of money, to redeem themſelves from plunder. Parties are often ſent out by a general to view the way and roads, and to gain intelligence; to look for forage, or to amuſe the enemy. Upon a march they are frequently ſent upon the flanks of the army, to diſcover if the enemy is near, and to prevent the army's being ſurpriſed. The late king of France, to prevent robberies, ordered that all parties of enemies, under fifteen in number, that did not produce an order under a commanding officer's hand, if taken, ſhould be ſent to the gallies as robbers.

Party Bleu. A company of villains who uſed to infeſt the roads in the Netherlands; they belonged to neither army, but robbed both ſides, without any regard to paſſes.

Paſs, a ſtrait, difficult, and narrow paſſage, which ſhuts up the entrance into a country.

The firſt care of the general of an army is to ſeize the paſſes of the country into which he would carry the war, to fortify them, and take care that they are well guarded.

Paſs Parole. A command given at the head of an army, and thence communicated to the rear by paſſing it from mouth to mouth.

Pas de Sotris. See *Foreland.*

Paſs-Volant, or *Paſſe-Volant*, in a military ſenſe, the ſame with a faggot. See the article *Faggot.*

In France all *Paſs-volants* are marked on the cheek with a fleur de lis.

Patee. A ſmall work, or platform, like that they call a horſe-ſhoe, not always regular, but for the moſt part oval, encompaſs'd with a parapet, without any other defence except only that fore right, and having nothing to flank it. They are commonly erected in marſhy grounds to cover a gate of a town.

Patrouille, or *Patroll.* A round going about in the night, conſiſting generally of five or ſix men, (or of fewer if horſe) commanded by a ſerjeant, that ſets out from the *Corps de Garde*, to ſee what is done in the ſtreets, and keep peace and quietneſs in the town.

Pavilion. An old term for a tent.

Pay. The wages given to a ſoldier for his maintenance in his prince's ſervice, and is greater or leſs, according to the cuſtom of ſeveral countries.

Pay Maſter. He who is entruſted with money, and has the charge of paying the ſoldiers in each regiment. There is a *Pay Maſter General* of the army.

Pedrero, or *Pattarero.* A ſmall ſort of cannon, moſtly uſed on the quarter deck of ſhips, to fire ſtones or broken iron upon boarding. Some of them are made to open at the breech, to take in the charge that way.

Pelaton. Vide *Platoon.*

Pentagon. A figure of five ſides, and as many angles, capable of being fortified with the ſame number of baſtions.

Perpendicular. A right line falling from, or raiſing itſelf upon an another, upright, and making the angles on both ſides equal.

Perdue, denotes the forlorn hope; and to lie perdue, is to lie flat and cloſely in wait.

Petard. An engine of metal, almoſt in the ſhape of a ſugar loaf, about ſeven or eight inches deep, and about five inches over at the mouth, and at the bottom one and a half. It is charged with fine powder well beaten, and made for breaking open gates, draw bridges, barricades, and barriers. The thickneſs of metal at the neck is half an inch, and that of the breech conſiderably more. Its charge of powder 5 lb. or there abouts, and it weighs about 55 or 60. *Pickets* are much larger and ſtronger petards, and there are likewiſe ſmaller: the firſt are employed in breaking open ſtrong reinforced gates, and the laſt ſuch as can make but ſmall reſiſtance. When the petard is loaded with powder, it is put upon a madrier, or ſtrong piece of plank, covered with a plate of iron on the outſide, which covers the overture, being hollowed a little for the purpoſe; the place where they join is done over with wax, pitch, and roſin, to enforce the effect. This being done, it is carried to the place deſigned to be blown up, where joining the plank exactly to the gate, the petard is ſtayed behind, and fired by a ſuſee, that the petardeer may have time to get off. They are ſometimes

uſed in countermines, to break through into the enemy's galleries, to diſappoint their mines.

The invention of perards is aſcribed to the French hugonots, in 1579, who with them took Cahors, as d'Aubigné tells us,

Petardeer. He who loads, fixes, and fires the petard, who ought to be a man of courage, for he is often expoſed.

Pickaxes. Uſed in digging ground when too hard for the ſpade; but too common to require more to be ſaid of them, though a tool very neceſſary in an army.

Picket, or *Piquet Guard.* Vide *Guard.*

Picket. A ſmall pointed ſtaff ſhod with iron, which ſerves to mark out the angles of a fortification, and the principal parts, when the engineer is tracing a plan upon the ground with a line. There are likewiſe ſmall pointed ſtakes, which ſerve to drive through faſcines or gazons, to keep them faſt when the earth is bad, or the work raiſed in haſte.

Pickets, are moreover the ſtake which the troopers drive before their tents, about two yards diſtance. From one to another of theſe pickets is ſtretched a rope, called the *Picket Rope*, to which they tie their horſes.

A Picket, is likewiſe a ſtakes of nine or ten feet high, fixed in the ground, and ſtanding upright: round the ſtoot of it are ſmall ſticks with ſharp points; this is at the head of each regiment of horſe, to puniſh crimes that do not deſerve death, by putting the criminal with his foot on one of theſe ſmall pointed ſticks, and tying up his hand to a ring above his head, ſo that he neither ſtands nor hangs, nor can he ſhift his foot, nor change feet to eaſe himſelf.

Picqueering, *Pickering*, or *Pickerooning.* A flying war or ſkirmiſh made by ſoldiers detached from two armies for pillage, or before a main battle begins.

Piece of Ordnance, includes all ſorts of great guns and mortars. Battering pieces are the large guns uſed at ſieges for making the breaches, ſuch as the 24 pounder and the culverin; the one carrying 24, and the other 18 lb. ball. Field pieces are 12 pounds, demi culverins, 6 pounders, ſakers, minions, and 3 pounders, which march with the army, and encamp always behind the ſecond line, but in day

day of battle are in the front, A ſoldier's firelock is likewiſe called his piece.

Pike. A weapon for a foot ſoldier, made of a long ſtaff, ſmall and round, and armed at the end with a ſharp iron ſpear. Formerly in a company of foot, two thirds were muſketeers, and the others pikemen. The pikes were fourteen or ſixteen feet long. When a battalion was formed to engage the horſe in open field, the pikes were ſo ordered, that they might face and charge every way, to cover not only the muſketeers, but the colours drums and baggage. Bayonets, or ſhort ſwords, made to fix to the muzzle of muſkets, ſerve now inſtead of pikes.

Half Pike. The weapon carried by an officer of foot, and differing from a pike, becauſe it is but eight or nine feet long, and the ſpear is ſmaller and narrower.

Pile, or *Pyramid of Bombs or Balls.* The way of diſpoſing them in magazines, or the piling them up regularly in the courts of the arſenal, as may be ſeen at Woolwich. As ſuppoſe 385 bombs to be made in a pile, the firſt muſt be laid in a ſquare of ten on each ſide, which makes 100 in the firſt bed, and let half a foot in the ground; to the end, the great weight which comes above them may not force them to ſlide out, for then the whole pile falls: the ſecond bed will be eighty one, which is nine of a ſide, and muſt be laid on the vacant ſpace which happens between every four bombs of the firſt bed; and the third bed being eight of a ſide, is ſixty four, laid the ſame way, and ſo to the top of the pile; which will terminate in one bomb making a pyramid, whoſe baſis is a ſquare.

Pintle, among gunners, an iron which ſerves to keep the gun from recoiling.

Pioneers. Such as are commanded in from the country, to march along with an army for mending the ways, for working on intrenchments and fortifications, and for making approaches; but the ſoldiers are moſt generally employed in all theſe things.

Piſtol. The ſmalleſt piece of fire arms, borne at the ſaddle bow, on the girdle, and in the pockets.

Pivot. A piece of iron or braſs rounded at the point, that it may turn eaſily round in a piece, or ſocket of iron, or braſs, hollowed to receive it.

Place. A general name for all kinds of fortreſſes where a party may defend themſelves: thus, 1. A ſtrong or fortified place, is one flanked, and covered with baſtions. 2. A regular place, one whoſe angles, ſides, baſtions, and other parts, are equal; and this is uſually denominated from the number of its angles, as a pentagon, hexagon, &c. 3. Irregular place, is one whoſe ſides and angles are unequal. 4. Place of arms, is a ſtrong city or town, pitched upon as a chief magazine of an army; or, in a city or garriſon, it is a large open ſpot of ground, uſualy near the centre of the place where the grand guard is commonly kept, and the garriſon holds its rendezvous at reviews: and in caſes of alarm, to receive orders from the governor. 5. Place of arms of an attack, in a ſiege, is a ſpacious place covered from the enemy by a parapet or epaulement, where the ſoldiers are poſted ready to ſuſtain thoſe at work in the trenches, againſt the ſoldiers of the garriſon. 6. Place of arms particular, in a garriſon, a place near every baſtion, where the ſoldiers ſent from the grand place to the quarters aſſigned them, relieve thoſe that are either upon the guard or in ſight. 7. Place of arms without, is a place allowed to the covert-way, for the planting of cannon, to oblige thoſe who advance in their approaches to retire. 8. Place of arms in a camp, a large place at the head of the camp, for the army to be ranged in and drawn up in battalia. There is alſo a place for each particular body, troop, or company, to aſſemble in. See the articles *Camp*, *Troop*, &c.

Plan, *Ground Plot*, or *Ichnography* in *Fortification*. The repreſentation of the firſt or fundamental tract of a work, ſhewing the length of its lines, the quantity of its angles, the breadth of the ditches, thickneſs of the rampart and parapets, and the diſtance of one part from another: ſo that a plan repreſents a work, ſuch as it would appear, if it were cut equal with the level of the horizon, or cut off at the foundation. But it marks neither the heights nor depths of the ſeveral parts of the works, which is properly profile, and which expreſſes only the heights, breadths, and depths, without taking notice of the lengths. As architect,

chitects, before they lay the foundation of their edifice, make their design on paper, by which means they find out their faults; so an engineer, before tracing his works on the ground, should make plans of his designs upon paper, to the end he may do nothing without serious consideration. Plans are very useful for generals or governors, in in either attacking or defending a place, in chusing a camp, determining attacks, conducting the approaches, or in examining the strength or weakness of a place; especially such plans as represent a place with the country about it, shewing the rivers, fountains, marshes, ditches, valleys, woods, houses, churches, and other particulars, which happen about a place.

Planks, or *Madriers*. Pieces of oak very thick and broad. See *Madrier*.

Plates. The *Prise Plates*, are two plates of iron on the cheeks of a gun carriage from the cape square to the centre, through which the prise bolts go, and on which the hand spike rests, when it poises up the breech of the piece. *Breast Plates* are the two plates on the face of the carriage, one on each cheek. *Train Plates*, are the two plates on the cheeks, at the train of the carriage. *Dulidge Plates*, are the six plates on the wheel of a gun carriage, when the fellows are joined together, and serve to strengthen the dulidges.

Platform, in general, is an elevation of earth on which cannon is placed, such as the mounts on the middle of the curtins: but it is likewise a sort of bastion constructed on a re-entring angle, when its two faces make a right line. *Platform of a Battery*, is a floor of boards nailed down upon sleepers, sloping a little towards the embrazure, for the guns to run upon, and to keep the wheels from sinking into the ground. The slope serves to diminish the reverse of the piece, and for the more easy running her up to the embrazure. Each gun has generally a platform for herself. She *Battery*.

All practitioners are agreed, that no shot can be depended on, unless the piece can be placed on a solid platform; for if the platform shakes with the first impulse of the powder, the piece must likewise shake, which will alter its direction and render the shot uncertain.

Platoon, or rather *Peloton*. A ſmall ſquare of muſketeers ſuch as is uſed to be drawn out of a battalion of foot, and placed betw en the ſquadrons of horſe to ſuſtain them: or in ambuſcades, ſtraits, and defiles, where there is not room for whole battalions or regiments, platoons are alſo uſed, when they form the hollow ſquare to ſtrengthen the angles. The grenadiers are generally thus poſted. *Peloton* is the French word, only the vulgar corruption has brought it to be pronounced platoon.

Poniard, a ſort of ſhort ſword uſed in Spain and Italy.

Point-blank of a Gun. The diſtance ſhe throws a ball in a ſuppoſed direct line; the gun being laid at no elevation, but levelled parallel to the horizon. I ſay, ſuppoſed direct line, becauſe it is certain, and eaſily proved, that a ball cannot fly any part of its range in a right line; but the ſwifter it flies, the nearer it approaches to a right line; or the leſs crooked its range. The point-blank of any common large cannon is not above 180 paces.

Pointing. The levelling a cannon, or mortar, ſo as to play againſt any certain point.

Polygon. A figure of more than four ſides, and is either regular or irregular, exterior or interior. Alſo the figure or ſpot of ground that is to be, or is fortified.

Polygon regular. A figure whoſe angles and ſides are equal. It has an angle of the centre, and an angle of the polygon. The centre of a regular polygon is the centre of a circle, which circumſcribes the polygon, that is, whoſe circumference paſſes through all the angles of the figure.

Irregular Polygon. Whoſe ſides and angles are unequal.

Exterior Polygon. The lines drawn touching the points of the flank angles, when a place is fortified inwards; or the out lines of all the works, drawn from one outmoſt angle to another quite about.

Interior Polygon. To fortify outwards, which makes the angles of the polygon to be the angles of the gorge, ſo that the whole baſtion is without the polygon. The main body of the work, or town, excluding the outworks.

Pont de Jonc. See *Bridge*.

Ponton. A boat of tattin, or tin, about eight yards long and two broad. The form of it is a long ſquare having a large ring at each corner. It is laid upon a carriage

riage when the army marches, and drawn by five horſes. Each boat has an anchor and cable, and baulks and cheſts belonging to it. The baulks are about five or ſix inches ſquare, and about 7 yards long. The cheſts, or boards joined together by wooden bars, about a yard broad, and four yards long. When there is occaſion for uſing theſe boats, they are ſlipped into the water, and placed about two yards aſunder, each faſtened with an anchor, having beſides a ſtrong rope, which runs through the rings, and is faſtened on each ſide of the river to a tree, or a ſtake made very faſt in the groond. The baulks are laid croſs the boats, at ſome diſtance from one another, and the cheſts upon them joined cloſe; which makes a bridge in a very ſhort time for horſe, foot, or artillery to march over.

Pont Volant. A flying bridge, a kind of bridge uſed in ſieges, made of two bridges laid over one another, and ſo contrived by means of cords and pullies, placed along the ſides of the under bridge, that the uppear may be puſhed forward, till it join the place where it is deſigned to be fixed; the whole length of both not to be above five fathoms. See *Bridge.*

Port Fire. A compoſition of meal powder, ſulphur, and ſaltpetre, rammed into a caſe of paper, but not very hard. It is about nine or ten inches long, and is uſed to fire guns or mortars inſtead of match; but then it is cut into pieces of about an inch long, and put in a lintſtock, or cleft ſtick.

Poſt. Any ſpot of ground, whether fortified or not, which is capable of lodging ſoldiers. So we ſay, 'To gain a poſt with ſword in hand,' 'To relieve the poſts,' that is the guards of the poſts.

Poſt of Honour. The advance guard is a poſt of honour: the right of the two lines is the poſt of honour, and is always given to the eldeſt regiments: the left is the next poſt, and is given to the next eldeſt, and ſo on; the centre of the lines being the poſt the leaſt honourable, and is given to the youngeſt regiments.

Advanced Poſt. A ſpot of ground ſeized by a party to ſecure their front, and cover the poſts behind them.

Priming, or prime of a gun, is the gunpowder put into the

the pan or touch-hole of a piece, to give it fire thereby, and this is the laſt thing done in charging. For pieces of ordnance they have a pointed iron rod, to pierce the cartridge thro' the touch hole, called primer or priming-iron.

Pouch. A grenadiers pouch, is a ſquare caſe or bag of leather, with a flap over it, hanging in a ſtrap of about two inches broad, over the left ſhoulder, in which he carries the grenades.

Powder. A compoſition of ſulphur, ſaltpetre, and charcoal duſt. The ſulphur and charcoal take fire, and the ſaltpetre makes the crack.

Pounder. A 24 pounder is a gun carrying a ball 24 lb. Its diameter is ſix inches, the length is from ten to twelve feet. And ſo of the reſt. See *Cannon* and *Bullet.*

Prieſt's Cap. Vide *Bonnet a Preſtre.*

Provoſt Marſhal, is an officer appointed to ſeize and ſecure deſerters, and all other criminals. He is to hinder ſoldiers from pillaging, to indict offenders, and ſee the ſentence paſſed on them executed. He alſo regulates the weights and meaſures and the price of proviſions, &c. in the army. For the diſcharge of his office he has a lieutenant, a clerk, and a troop of marſhal-men on horſeback, as alſo an executioner.

Pyrotechny, is the doctrine of artificial fireworks and firearms, teaching both the ſtructure and uſe of thoſe uſed in war, gunpowder, cannons, bombs, granadoes, carcaſſes, mines, fuſees, &c. and thoſe for amuſement, as rockets, ſtars, ſerpents, &c.

Proclamation. Vide *Ban.*

Proviſions. Are all ſorts of food for the army.

Profile. Engineers, to repreſent the heights, depths, and thickneſs of a work, with the depth and breadth of the foſſees, &c. do it by profile or orthography, which ſuppoſes the work to be cut perpendicularly from top to bottom. See *Orthographical Section, Plate* II.

Poſtern. A ſmall gate commonly made in the angle of the flank of a baſtion, that of the curtin, or near the orillon, deſcending into the ditch: whereby the garriſon can march in and out unperceived by the enemy, to relieve the works, make ſallies, &c.

QUAD-

Q

QUADRANT, or *Quarter of a Circle.* An inſtrument of wood, uſed by gunners, in pointing guns to an object, and by bombardiers in elevating their mortars: it is made of two pieces of wood, or braſs, joined at eight angles, one of which is longer than the other, that it may enter the muzzle of the piece. They are joined by a quarter of a circle, which is divided into ninety degrees, the centre of which is where the two pieces join, from whence there hangs a thread with a plummet, which marks the different elevations of pieces, and the greatneſs of the angles. The way of uſing it, is by putting the longeſt ſide into the muzzle of the piece; when the plummet falls perpendicularly, and marks the angle on the quadrant. When the gun or mortar is elevated to the degree deſired, it is kept there by coins of wood put under the breech of a gun, or betwixt the bracket-bolts of a mortar.

To Quadrat, or *Square a Piece.* Is to ſee whether it duly placed, and well poiſed, on the carriages and wheels.

Quarter. Signifies the ſparing of mens lives, and giving good treatment to enemies vanquiſhed. So we ſay, 'the conquerors offered good quarters,' 'the enemy aſked quarter,' 'we gave no quarter.'

A Quarter. Signifies not only the ground a body of men incamps on, but the troops themſelves. Therefore we ſay, 'to beat up the enemy's quarters,' 'Such a quarter is well fortified.

Quarter of an Aſſembly, The place where troops meet to march in a body, and is a place of rendezvous.

Quarter of a Siege. The encampment upon one of the principal paſſages round about a place beſieged, to prevent relief and convoys; when it is commanded by the general, it is called the head quarters of the army: when the camp is marked out about a place beſieged, then the quarters are ſaid to be diſpoſed: when great detachments are made

made from a quarter for convoys, &c. ſuch a quarter is ſaid to be weakened.

The Head Quarters, where the general of an army has his quarters, is generally near the centre of the army. The quarters of the generals of horſe, are in the villages that happen between the right and left wings. The generals of foot are often in the ſame village with the general in chief.

Quarter entrenched. A place fortified with a ditch and parapet, to ſecure a body of troops.

Winter Quarters, Sometimes is taken for the interval of time between two campaigns; but more generally for the place or places where troops are lodged during the winter. So we ſay, 'The army is marching into winter quarters,' 'The winter quarters are ſettled,' 'The winter quarters will be but ſhort.'

Quarters of Refreſhment. The place or places where troops that have been much harraſſed are put in to recover themſelves, during ſome time of the ſummer, or ſeaſon for the campaign. This is often done in hot countries during the violent heats.

Quarter Maſter. An officer whoſe principal buſineſs is to look after the quarters of the ſoldiers. There is a quarter maſter general of the army. Every regiment of foot has a quarter maſter, and every troop of horſe one.

Quarter Maſter of Horſe. A warrant officer appointed by the colonel. He takes up the ground for the troop, and divides it, in alloting ſo much for each tent. He receives the orders, keeps a liſt of the troop, viſits the ſtables, and takes care of the arms. He marches in the rear of the troop, but in camp his tent is pitched in the front. In winter quarters he receives and diſtributes the forage of the troop.

Quarter Maſter of Foot. An officer who takes care of encamping the regiment. He attends the quarter maſter general upon a march, to know where the ground is for the regiment, which he divides among the companies.

Quarter Maſter General. A conſiderable officer in an army, who ought to be a man of great judgment and experience, and to underſtand geography; for ſince his province is to mark the marches and encampments of an army,

army, he ſhould know the country perfectly well, all the rivers, plains, marſhes, woods, mountains, paſſages, defiles, &c. even to the ſmalleſt brook. The evening before a march, he receives the orders and route from the general, and appoints a place for the quarter maſters of foot and horſe to meet him next morning, with whom he marches to the next camp, where being come, and having viewed the ground, he marks out to the quarter maſters the ground allowed each regiment for their camp. He chuſes the head quarters, and appoints the villages for the general officers of the army, where they ſhall quarter. He appoints a proper place for the encampment of the train of artillery. He carries the army a foraging, and plants the covering party for their ſecurity, at all the paſſes round them, and aſſiſts in diſtributing the winter quarters to the army.

Quarter Wheeling, or *Quarter of Converſion*, is the motion by which the front of a body of men is turned round to where the flank was, by taking a quarter of a circle. If it be done to the right, the man in the right hand angle keeps his ground and faces about, while the reſt wheel; if to the left, the left hand man keeps his place.

Queuë d'Yronde, or *Swallow's Tail*. A detached, or outwork, whoſe ſides open towards the head, or campaign, and draw cloſer or narrower towards the gorge. There are ſingle and double tenailles, and horn works, called by this name of *Queuës d'Yronde*, or *Swallows Tails*, for this ſole reaſon, becauſe their ſides, inſtead of being parallel, open towards the head, and grow narrow at the gorge. When theſe works are caſt up before the front of a place, they have this fault, that they do not ſufficiently cover the flanks of the oppoſite baſtions; but, beſides that engineers ſometimes muſt work according to the ground and ſituation, they have this advantage, that they are extraordinary well flanked by the place, which diſcovers all the length of their ſides the better. See *Tenaille*.

Quit your Arms. A word of command in the foot, when they lay down their arms, at which they ſtand up, till they are ordered to the right about, when they march clear off their arms and diſperſe: but upon the beat of drum

drum they run to their arms with a huzza, having their ſwords drawn, and the point upward.

R

RABANET. The ſmalleſt piece of cannon but one, between a falconet and a baſe, being one inch and four eighths diameter in the bore, five feet ſix inches long, 300lb. weight, takes a charge of ſix ounces of powder, and carries a ſhot one inch and three eighths diameter, and eight ounces weight. The point blank ſhot of the piece is 70 paces.

To Raiſe a Siege. To give over the attack of a place, and to quit the works thrown up againſt it; and the poſts taken about it. If there be no cauſe to fear a ſally from the place, then the ſiege may be raiſed in the day time, by ſending away firſt the ſick and wounded, the baggage, the ſutlers, broken cannon and mortars, and if poſſible, all the inſtruments which have been uſed in the ſiege. The artillery and ammunition may follow, and a ſtrong rear guard muſt face the beſiegers, in caſe they ſhould offer to charge the rear. But if there be any fear of an enemy in front, this order muſt be altered according to the prudence of the general, and as the nature of the country will allow.

To Raiſe a Plan of a Fortreſs. The meaſuring with cords, and geometrical inſtruments, the length of the lines, and the capacity of the angles, that by knowing the length, breadth, and thickneſs of all the different parts of a fortification, it may be repreſented in ſmall upon paper, ſo as to know the advantages and diſadvantages of it.

Rallying, in war, reaſſembling or calling together troops broken and put to flight.

Rammer. A rod uſed in charging of a gun, to drive home the powder, as alſo the ſhot and the wad, which keeps the ſhot from rolling out. The rammer of a great gun. It has a round piece of wood at the end, and the other

other is usually rolled in a piece of sheep-skin, fitted to the bore of the piece, and is used to clear her after she has been discharged, which is called sponging the piece.

Rampart. Some will have it *Rampire*, but improperly. The great massy bank of earth raised about a place to resist the enemy's great shot, and cover the buildings. On it is raised a parapet towards the campaign. It is not to be above three fathom high, and ten or twelve in thickness, unless more earth be taken out of the ditch than can be otherwise bestowed. The rampart of half moons is the better for being low, that the muskets of the defendants may the better reach the bottom of the ditch; but it must be so high as not to be commanded by the *Covert Way*. A rampart ought to be sloped on both sides; that is, the mass of earth which composes the rampart, ought to be larger at bottom than at top, more or less, according to the nature of the earth: it ought to be broad enough to allow the marching of waggons and cannon, besides the parapet which is raised on it. As the earth which makes the rampart, is taken from the outside of it, because then the rampart and fos are made at the same time, it follows, that their proportions depend on one another; for since the rampart is made of a certain bigness, the fos must be dug deep enough to afford earth for the rampart, the parapet, and the esplanade.

Upon the rampart soldiers continually keep guard, and pieces of artillery are planted there for the defence of the place.

Randezvous. The place where troops are to assemble. See *Rendezvous.*

Random Shot, is a shot made when the muzzle of a gun is raised above the horizontal line, and is not designed to shoot directly, or point blank. The utmost random of any piece is about ten times as far as the bullet will go point blank. The bullet will go fartheſt when the piece is mounted to about 45° above the level range. See *Gunnery.*

Ranforce Ring of a Gun. That which is next before the touch-hole, between it and the trunnions. See *Reinforced.*

Range. The path of a bullet, or the line it describes from the mouth of the piece to the point where it lodges.

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If the piece lie in a line parallel to the horizon, it is called the right or level range: if it be mounted to 45° it is ſaid to have the utmoſt range, all others between oo and 45° are called the intermediate ranges.

Ranging. Diſpoſing the troops in the order proper for an engagement, or for marching.

Rank. The order or ſtrait line made by the ſoldiers of a battalion or ſquadron, drawn up ſide by ſide. This order was eſtabliſhed for the marches, and for regulating the different bodies of troops and officers which compoſe an army or a battalion.

Doubling of the Ranks, is the putting of two ranks into one.

To cloſe the ranks, is to bring the men nearer: and to open them, is to ſet them farther apart.

Rapier, formerly ſignified a long old faſhioned broad ſword, ſuch as thoſe worn by the common ſoldiers: but it now denotes a ſmall ſword, as contradiſtinguiſhed from a back ſword.

Raſant, or *Razant.* Razant flank, or line, is that part of the curtain or flank whence the ſhot exploded raſe or glance along the ſurface of the oppoſite baſtion.

Ration. A portion of ammunition, bread, drink, and forage, diſtributed to each ſoldier in the army for his daily ſubſiſtence, &c. The horſe have rations of hay and oats when they cannot go out to forage. The rations of bread are regulated by weight. The ordinary ration of a foot ſoldier is a pound and a half of bread per day. The officers have ſeveral rations according to their quality, and the number of attendants that they are obliged to keep. When the ration is augmented, on occaſions of rejoicing, it is called a double ration.

Ravelins. Works raiſed on the counterſcarp before the curtin of a place, and which ſerve to cover the gates of a town and the bridges. They conſiſt of two faces forming a ſaliant angle, and are defended by the faces of the neighbouring baſtions. The half moons, which cover the points of the baſtions, have their defences from the Ravelins. They are the moſt in uſe of all outworks, and are by the ſoldiers called half moons. They ought to be lower than the works of the place, that they may be under

der the fire of the beſieged, in caſe the enemy ſhould endeavour to lodge themſelves there. Their parapets, as thoſe of all outworks, ought to be cannon proof; that is to ſay, about 18 foot thick. Their ramparts ought to be the half or third of one of the flanks of the place, and the breadth of their moats half the breadth of the moat of the place.

Razant. Line of defence *Razant.* Vide *Line.*

Rear. In general is the hindmoſt part of a battalion or army, or the ground behind it.

Rear, or *Rear Guard.* The laſt of the three lines of an army drawn up in battalia, whereof the firſt is the van, or van guard, the ſecond the main body, and the laſt the rear guard, or, by another name, the corps de reſerve, or body of reſerve. The old grand guards of the camp, are always the rear guard of the army, and are to ſee that every thing comes ſafe up to the new camp.

Rear Half Files. The three hindmoſt ranks of the battalion, when it is drawn up ſix deep.

Rear Line of an Army encamped, or *ſecond Line*, is always 4 or 500 yards diſtant from the firſt line, which is likewiſe called the front line. Theſe two lines run parallel, and have ſometimes a third, which is called a reſerve.

Rear Rank, is the laſt rank of a battalion, when drawn up.

Re charge. A ſecond time of charging or loading any fire arms. The re-charge ſhould never be ſo deep as the firſt charge, leſt the piece, being over-heated, ſhould burſt.

Re-connoitre, to view and examine the ſtate and ſituation of a place or an army.

Recoil of Cannon. The motion or run it takes backwards when fired, cauſed by the force of the fire, which, when the piece is diſcharged, ſeeking every way to fly out, drives the gun back, and the powder and ball forwards. Guns whoſe vents are a little forwards in the chace, uſually recoil moſt. A cannon generally recoils ten or twelve feet, to leſſen which, the platform of the batteries is commonly made to incline, or ſtoop a little towards the embrazures.

Recruits. New men raiſed to ſupply the places of ſuch as have loſt their lives in the ſervice, or are rendered unſerviceable

ſerviceable by age or wounds. Re-cruit horſe, are the horſes bought up for compleating the regiments of horſe or dragoons every year.

Rectangle. See *Angle.*

Redans, or *Indented Works*, are lines or faces that form ſallying and re-entering angles flanking one another, and are generally uſed on the ſides of a river, which runs through a garriſon town. They were uſed before baſtions were, and are by ſome thought preferable to them. The parapet of the covert way is generally carried on in this manner.

Redoubt. A ſmall ſquare fort, to ſerve for a detached *Corps de Garde.* They are uſed to ſecure the lines of circumvallation and contravallation, and the approaches. They are alſo made ſometimes upon every traverſe of the trencher, to defend the workmen againſt the ſallies of the beſieged. They are often uſed before ſtrong towns, at muſket ſhot diſtance, and cover the ſallies of the garriſon. Theſe *Redoubts* are ſometimes greater, and ſometimes leſs; but their parapet, not being to reſiſt cannon, is only eight or nine feet thick, with two or three footbanks, and the ditch about the ſame breadth and depth. The length of their ſides may be from ten to twenty fathom. They are likewiſe called places of arms.

Reduce a Place. To oblige the governor to ſurrender it to the beſiegers by capitulation.

Reduit, Caſtle, or *Don-jon.* A place more particularly entrenched, and ſeparated from the reſt by a foſs. There is generally in each of them a high tower, from whence the country round the place may be diſcovered.

Reform. To Reform, is to reduce a body of men, by either diſbanding the whole, or only breaking a part, and retaining the reſt; or ſometimes by incorporating them into other regiments.

Reformed Officer. One whoſe troops or company is broke, and he continued in whole or half pay, doing duty in the regiment. He preſerves his right of ſeniority, and continues in the way of preferment.

Regiment. A body of ſeveral troops of horſe, or companies of foot, and commanded by a colonel, lieutenant colonel, and major. Independent companies belong to

no

no regiment. The number of troops, or companies, that are to form a regiment, has never been aſcertained, no more than the number of men that are to form a troop or company. For there are regiments of horſe of 300 men, and ſome in *Germany* of 2000. So there are regiments of foot of 12 or 13 companies, which may make 7 or 800 men, and the regiment of *Picardy* in *France* conſiſts of 120 companies, which at 50 in a company, amount to 6000 men. In *England* our *Regiments* are generally from 10 to 13 companies, one of which is always grenadiers. *Regiments* of horſe are moſt commonly ſix troops, but ſome of them nine. *Dragoon Regiments* are generally in time of war eight troops, and in time of peace but ſix. Each *Regiment* has a chaplain, and a ſurgeon.

Regular Attacks. Such as are made in form, that is, by *Regular Approaches.*

Reinforced Ring of a Gun. That next the *Trunions*, between them and the vent. The reinforced part of a gun, is from the *Baſe Ring* to the *Reinforced Ring*, being much thicker of metal than any other part of the piece, becauſe of the force of the powder.

Reinforcement to an Army. An addition of freſh troops to ſtrengthen an army, and to enable them to go on with an enterprize.

Relais. See *Foreland.*

Relieve. To relieve Guard, is to put freſh men upon the guard. *To relieve the Trenches*, is to relieve the guard of the trenches, by ſending off thoſe who have been there upon duty before.

Remount. To remount the Cavalry, or *Dragoons*, is to furniſh them with horſes in the room of thoſe which have been either killed or diſabled.

Rencounter. An engagement of two little bodies or parties of forces; in which ſenſe it ſtands in oppoſition to a pitched battle. See the article *Battle.*

Reſerve, or *Corps de Reſerve.* A body of troops ſometimes drawn out of the army, and encamped by themſelves in a line behind the other two Lines. See *Camp, Line of Battle, Rear Guard.*

Rendezvous. A place appointed by the general, where all the troops, which compoſe an army, are to aſſemble at a day prefixed.

Repriſals. A right which princes claim of taking from their enemies, any thing equivalent to what they unjuſtly detain from them.

Retirade. A trench with a parapet. But *Retirade*, or *Coupure*, is moſt ordinarily taken for a retrenchment formed by the two faces of a re-entering angle in the body of a place, after the firſt defence is ruined, and the beſieged are obliged to abandon the head of the work, without quitting it entirely: therefore, when ſome are making *head* to the enemy, others ought to be buſy in making the *Retirade*, which is only a ſimple barricade or retrenchment thrown up in haſte, with a ſort of foſs before. It depends upon the knowledge of the engineer to direct, and the honour of the officers and ſoldiers to work at ſuch a time, ſince they do it for the defence of their liberty; and no officer ought to think it below him to carry faſcines, gabions, barrels, or to throw up the earth to cover himſelf. The *Retirade* ought to be raiſed as high as poſſible; and ſome forneaux or fougades made under it, to blow up the enemies lodgments.

Retreat, or *Tat-too.* A beat of the drum in the evening, at the firing of a piece, called the *warning piece*, at which the drum major, with all the drums of the battalion, except ſuch as are upon duty, beat round the regiment: the drums of the quarter guards, of the general's guard, and all other ſmall guards, do likewiſe beat, the trumpets at the ſame time ſounding at the head of their reſpective troops. This is to warn the ſoldiers to forbear firing, and the centries to challenge till break of day, that the reveille is beat. The *Retreat* is likewiſe called *Setting the Watch.*

Retrenchment. Any work raiſed to cover a poſt, and fortify it againſt an enemy, ſuch as faſcines loaded with earth, gabions, barrels of earth, ſand bags, and generally all things that can cover the men, and ſtop the enemy. But it is more particularly applicable to a foſs bordered with a parapet; and a poſt fortified thus, is called a *Poſt retrenched*,

retrenched, or *ſtrong Poſt*. *Retrenchments* are either general or particular.

General Retrenchments, are new fortifications made in a place beſieged, to cover the defendants, when the enemy become maſters of a lodgment on the fortification, that they may be in a condition of diſputing the ground inch by inch, and of putting a ſtop to the enemy's progreſs, in expectation of relief. As, if the beſieged attack a tenaille of the place which they judge the weakeſt, either by its being ill flanked, or being commanded by ſome neighbouring ground; then the beſiegers make a great *Retrenchment*, incloſing all that part which they judge in moſt danger. Theſe ought to be fortified with baſtions and demi baſtions, with a good foſs, and ſhould be higher than the works of the place, that they may command the old works, and give the beſiegers great trouble in covering themſelves; they ought likewiſe to be countermined.

Particular Retrenchments, are ſuch as are made in the baſtions, when the enemy are maſters of the breach. They can never be made but in full baſtions, for in empty or hollow baſtions there can be made only *Retirades*. Theſe *particular Retrenchments* are made ſeveral ways, according to the time they have to cover themſelves: ſometimes they are made before-hand, which is certainly the beſt; and a *Retrenchment* made before-hand requires no more men for its defence, than if it were not made, becauſe they never defend it till the principal work be loſt. The parapets of ſuch *Retrenchments* ought to be 5 or 6 feet thick, and 5 feet high, with a large deep foſs, from whence ought to run out ſmall fougades and countermines.

Returns of a Mine. The turnings and windings of the gallery. See *Gallery* and *Mine*.

Returns of the Trench. The ſeveral bendings and oblique lines of the trenches, drawn in ſome meaſure parallel to the ſides of the place attacked, to prevent being enfiladed, or having the enemy's ſhot ſcour along the length of the line. Theſe returns make a great diſtance between the tail and the head of the trenches, which are but at a ſmall diſtance going the ſtrait way. When the head is attacked by any ſally, the volunteers and braves among the beſiegers leap

over the line, and run out of ſhelter to repulſe the ſally, and cut off the enemy's retreat.

Reveille. A beat of the drum about break of day, to advertiſe the army that it is day-light, and that the centries forbear challenging.

Reverſe, ſignifies on the back, or behind. So we ſay, 'reverſe view,' 'a reverſe commanding ground,' 'a reverſe battery, *&c.*'

Review. The drawing out all, or part of the army in line of battle, to be viewed by the general in chief, or other great officer, that he may know the condition of the troops, ſee that they are compleat, and be a witneſs of the expertneſs with which they perform their evolutions and other exerciſes.

Rhinland Rod. A meaſure of two fathom, or 12 feet, uſed by the Dutch engineers.

Rhomb, or *Lozange.* A ſquare figure that has the four ſides equal, but not the angles, whereof two are obtuſe, and two acute. It is what we vulgarly call *Diamond-cut*, like the glaſs of old windows.

Rhomboide. A four ſided figure, whoſe angles and oppoſite ſides are equal, but all its four ſides are not equal.

Rideau. A ſmall riſing ground or eminence, commanding a plain, which is ſometimes near parallel to the works of a place. It is a great diſadvantage to have *Rideaus* near a fortification, eſpecially when they ſhoot from far, and terminate on the counterſcarp; for they not only command the place, but likewiſe facilitate the enemy's approaches. It is properly ſo called, becauſe *Rideau* in French, is a curtain drawn by nature to hide men from the town.

Rideau, is likewiſe a trench, covered with earth, in form of a parapet to cover the ſoldiers.

Roll, Muſter Roll. A ſcroll of parchment, which each captain gives the muſter maſter, on which are writ the names of the ſoldiers of his company.

To Roll in Duty, is when officers of the ſame rank take their turns upon duty, as captains with captains, and ſubalterns with ſubalterns, and command according to the ſeniority of their commiſſions.

Rollers.

Rollers. Round pieces of wood of about 9 inches diameter, and four feet long, which ſerve in moving mortars from one place to another, when it is near, by raiſing the fore part of the bed ſo high, that one of theſe *Rollers* may be laid under it; then puſhing the bed forwards, and laying another in its way, and another before that, and ſo on: thus the mortar is with little trouble brought to another place.

Round. A night watch commanded by an officer, who goes round the rampart of a garriſon, to liſten if any thing be ſtirring without the works, and to ſee that the centries be diligent upon their duty, and that every thing be in order. In ſtrict garriſons, the *Rounds* go every quarter of an hour, that the rampart may ſtill be furniſhed. The centries ought to challenge at a diſtance, and are to reſt their arms as the *Round* paſſes, letting no man come near them. When the *Round* is near the *Corps de Garde*, the centry calls aloud, *Who comes there?* When it is anſwered, *The Round*; he ſays, *Stand*, and calls for the corporal of the guard, who, drawing his ſword, calls, *Who comes there?* and is anſwered, *The Round.* Then, *Let him who has the word advance.* The corporal receives the word with his ſword drawn, and pointed at the heart of him who gives it. When the major goes the *Round*, the officers of the guard receive him with two muſqueteers, and give him the word only once, which is when he goes his *Round Major.* When the governor goes his *Round*, the officers draw out the guard without arms, and ſend four muſqueteers to receive him at ten paces diſtance, and give him the word as often as he pleaſes to demand it. All other rounds without exception, are obliged to give the word to the corporal of the guard.

Royal Parapet. A bank about three fathoms broad, and ſix feet high, placed upon the brink of the rampart, towards the country, its uſe is to cover thoſe who defend the rampart.

To Run the Gauntlet. A puniſhment for conſiderable offences. When a ſoldier is ſentenced to *Run the Gauntlet*, the regiment is drawn out, and make a lane, each ſoldier having a ſwitch in his hand. The criminal's ſhoulders and back are naked, and as he runs along, every one has

a ſtroke at him. While he runs, the drums beat at each end of the lane. Sometimes he runs three times, ſometimes five, and ſometimes ſeven times, according to the nature of the offence. If it be intended to make the puniſhment rigorous, the officers have a watchful eye to ſee that the men do not favour the criminal, and puniſh any that preſume ſo to do.

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SABRE, a kind of ſword, or ſcimetar, with a very broad and heavy blade, thick at the back, and a little falcated or crooked towards the point.

It is the ordinary weapon uſed by the Turks, who are ſaid to be very expert in the uſe of it.

Sac à Terre. Vide *Canvas Bags. Safe Guard.* A protection which the prince, or his general, gives to ſome of the enemy's country, to ſecure them from being ravaged by his men, or quartered upon. Soldiers left in ſuch places, to ſecure them againſt their own men, are called ſafe guards.

Saker, the loweſt ſort. A cannon three inches and four eighths diameter in the bore, eight feet long, 1400 weight: its charge of powder is three pounds ſix ounces, and it carries a bullet three inches and two eighths diameter, and four pounds twelve ounces weight. The point-blank ſhot of it is 150 paces.

Saker, ordinary. A gun three inches, ſix eighths diameter in the bore, nine feet long, 1500 weight; takes 4lb. for its charge of powder, and carries a bullet three inches and four eighths diameter, and ſix pounds weight. Its point-blank ſhot 160 paces.

Saker, of the largeſt ſize. Four inches diameter in the bore, ten feet long, 1800 weight, its charge 5lb. of powder; the diameter of its ſhot, 3 inches and ſix eighths, the weight of it ſeven pounds five ounces, the point blank ſhot of the piece 163 paces. They are all very good field pieces.

Salet,

Salet. *Sallet* or *Salade*, a light covering or armour for the head, antiently worn by the light horſe, only differing from the caſket in that it had no creſt, and was little more than a bare cap.

Saliant, denotes projection. There are two kinds of angles, the one ſaliant, which are thoſe that preſent their point outwards; the other re-entering, which have their points inwards. Inſtances of both kinds we have in tenailles and ſtar works. See the article *Angle*, &c.

A Sally, in *French*, *Sortie*. The iſſuing out of the beſieged from their works, and falling upon the beſiegers to cut them off, and deſtroy their works; as they often do in ſucceſsful ſallies, killing many men, deſtroying the trenches and batteries, and nailing the cannon. We ſay, 'To make a ſally,' 'To repulſe a ſally,' 'To cut off a ſally,' that is, to get between them that made it and home. When a place beſieged is weak in men, they make few ſallies; but when the garriſon is ſtrong, and the inhabitants numerous, the governor ought to diſturb the enemy by ſallies, which ought to be as frequent as poſſible. Thoſe who make the ſally, are to be armed with ſhort arms, and are to have grenades, firepots, gouderons and pioneers, to deſtroy and level the enemy's works.

To Salute a prince, or perſon of extraordinary quality, at his coming into a garriſon, is the firing of the cannon round the place. On leſs occaſions the ſmall arms of a particular corps only ſalute. Likewiſe in the field, when a regiment is to be viewed by a king or his general, the drums beat a march as he approaches, and the officers ſalute one after another as he paſſes by, ſtepping back with the right foot and hand, and bowing the ſpears of their half pikes to the ground, and afterwards recovering them gently, and bringing up the foot and hand, and planting them. As ſoon as they have ſaluted, they are to pull off their hats without bowing, but ſtanding upright. The enſigns ſalute all together, bringing down their colours near the ground directly before them at one motion, and having taken them up again gently, lift their hats. If it be a review of the army, every battalion

is to salute with musquets and bayonets charged. We call any of these actions *A Salute*.

Sand Bags. Bags containing about a cubical foot of earth, used for raising parapets in haste. See *Canvas Bags*.

Sap, or *Sappe*. A trench dug gradually deep under the earth, to pass under the glacis, and open a way to come under cover to the passage of the moat. After they have overcome all the obstacles which the besieged have opposed to hinder the advancement of their approaches, and that notwithstanding their frequent sallies, they are at last got near the foot of the glacis, the trench is carried directly forwards, the workmen covering themselves the best way they can, with blinds, woolpacks, Sand bags, or mantelets upon wheels. When they are got to the foot of the glacis, they make epaulments or traverses on each side to lodge a good body of men. The sap is made five or six fathom from the saliant angle of the glacis, where the men are only covered sideways; wherefore they lay planks over head, with hurdles and earth above them. Having by this means obliged the enemy to quit the covert way, the pioneers, with mantelets, woolpacks, or sand bags, make immediately a lodgment, covering themselves the most advantageously they can from the fire of the opposite bastion. Formerly this word *Sappe* signified a hole dug under a building, in order to overthrow it. When a covert way is well defended by musketeers, the besiegers must make their way down into it by sappe. Vide *Descent*.

Sarrazine. The same as herse, or portcullice. See *Herse*.

Sauciſſe. A long train of powder rolled up in a pitched cloth, and sewed together in length, so that it may reach from the fourneau, or chamber of the mine, to the place where the engineer stands to spring the mine. It may be about two inches diameter. There are generally two *Sauciſſes* to every mine, that if the one fails, the other may hit. *Sauciſſes* are also used to fire caissons, *which see*.

Sauciſſons, or *Sauciſſes*. Faggots made of the bodies of underwood, or of the large branches of great trees, wherein they differ from fascines, which are of small wood.

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The *Sauciſſon* is bound in the middle, and at both ends, and ſerves to cover the men, and make epaulments, and for other uſes. They are about a foot and a half, or two feet thick, and four feet long. They are good to ſtop paſſages, and being mixed with earth and faſcines, to make traverſes over a wet ditch.

Scalade, or *Eſcalade*. A furious attack upon a wall or rampart, contrary to form, and with no precaution to ſecure the men, carried on with ladders, to inſult the wall by open force.

Scale. A right line, or rule, divided into equal parts, repreſenting miles, fathoms, paces, feet, inches, or any other meaſure; it is uſed in making plans upon paper, in giving each line its true length. Gunners have alſo a peculiar *Scale*.

Scarpe, or *Eſcarpe*. The interior talus or ſlope of the ditch, next the place, at the foot of the rampart or l'ziere.

Scenography, which is likewiſe called *Proſpect* or *View*, is the natural repreſentation of a place, ſuch as it appears to us when we look upon it from without, conſidering its ſituation, the form of its walls, the number and figure of its ſteeples, and the top of its buildings, both public and private.

Sclavonians, or *Waradins*. Infantry. Their cloathing is nothing more than a caſſock, of white coarſe cloth, which comes down to their knees, and which they bind to their bodies with a leather thong: their breeches are very large, made of linen, and come down to their ancles: their ſhoes are a piece of ſkin, or felt, tied to their feet with cords: on their heads they have a bonnet of black felt, which rieſes up like a ſugar loaf, but round, and not with a ſharp point, the brim of which is cut with a peak. Their arms are a fuſil, and piſtols; the butt end of their fuſil ſerves them for a ſpade, when they have occaſion to throw up earth: they carry alſo a great knife; and, when they kill their enemies, they have a ſort of ſatisfaction in putting them out of their pain with this weapon. Beſides theſe weapons, they carry alſo a ſort of mace, which they uſe to great advantage, by reaſon of

their extraordinary ſtrength: they eaſily knock down a horſe, or break open a gate with it, without trouble.

Sconce. A ſmall field fort, built for the defence of ſome paſs. See the article *Fort.*

To ſcour the Length of a Line. To rake it from end to end with the ſhot, ſo that every bullet which comes in at one end, ſweeps all along to the other, and leaves no place of ſecurity.

Second Captain, or *Lieutenant in Second.* One whoſe company has been broke, and he is joined to another, to act, and ſerve under the captain, or lieutenant of it, and receive pay as reformed. There are alſo *Second captains* and *Lieutenants* of the firſt creation, that is, thoſe who were never ſo in the other companies; but particularly *Second Lieutenants* are much uſed among the foot in *France,* and in ſome *Engliſh* regiments.

Seniority. The order of time elapſed ſince the firſt raiſing of two regiments, or of the officers receiving their commiſſions. In the line of battle, the ſquadrons of horſe are poſted on the right or left of the line, according to the *Seniority* of the officers, that is, of their commiſſions; for the colonels of horſe command by the *Seniority* of their commiſſions: but this method is not obſerved among the foot; for their colonels have precedence and command, according to the *Seniority* of their regiments. The captains in the ſame regiment of horſe or foot, roll, and have place among themſelves, according to the *Seniority* of their commiſſions; and their troops or companies have no preference one before the other, but by the date of their captain's commiſſions. The firſt captain failing, his company, lately the firſt, becomes the laſt in the battalion, and the ſecond becomes the firſt. As for ſubalterns, the *Seniority* of their commiſſions does not alter their poſt, but they roll, and aſcend or deſcend with their companies.

Sentinel, or *Centinel.* A private ſoldier taken out of the *Corps de Garde,* and poſted upon any ſpot of ground, to ſtand and watch carefully for the ſecurity of the ſaid guard, of any body of troops, or poſt, and prevent any ſurprize from the enemy.

Sentinel

Sentinel perdu. A centinel poſted near an enemy in ſome very dangerous poſt, where he is in perpetual hazard of being loſt.

Serjeant. An officer without commiſſion, or a ſtaff officer, above a corporal, in a company of foot, or troop of dragoons. Sometimes he commands ſmall detachments, and, among other things, it is his particular duty to ſee the men keep their due diſtances. Generally common companies have two *Serjeants* each. He muſt read and write, and his weapon is a halbert. They are obliged to keep a liſt of the ſoldiers and their lodgings, and to viſit them often. They are to teach the company the exerciſe of their arms, and how they are to preſerve their ranks and files. Their poſt on a march is on the flanks, to cauſe the company to march in good order. A *Serjeant* of each company is to be on the parade at night, to receive the orders and the word from the adjutant, which he is to carry to his captain and ſubalterns. When the adjutant comes, the *Serjeants* place themſelves in a ring with him, according to the precedency of their companies, with their hats on the ſpears of their halberts; and after he has given them the orders, he whiſpers the word to the firſt *Serjeant*; who gives it to the next, and ſo on, till it comes to the youngeſt, who gives it to the adjutant. They acquaint the officers who are to go next upon duty. They viſit the mens arms, and diſtribute ammunition to them.

Serjeant Major. Vide *Major.*

Shot. All ſorts of bullets for whatſoever fire arms, from the cannon to the piſtol. Thoſe for cannon are of iron; thoſe for muſkets, carabines and piſtols, of lead. At ſea they uſe *Chain* and *Bar Shot*, which are two whole, or half bullets joined by an iron bar, or chain, which gives them length to cut all they meet with. They are very uſeful to cut an enemy's ſail and rigging. Vide *Bullet.*

Shovels. Uſed in all works, too well known to need a deſcription.

Shoulder of a Baſtion. Where the face and flank meet. See *Epaule.*

Sides of Horn Works, Crown works, Tenailles, and ſuch like out works, by the French called *Ailles*, or *Wings*, are the ramparts and parapets that encloſe them on the right

and left, from the gorge to the head. Theſe ſides when they are not longer than muſket ſhot, are generally ſtrait lines, becauſe then they are flanked from the place. But if the ſides are above muſket ſhot, they are ſometimes indented, or made with redans; or elſe there are traverſes, or croſs intrenchments, cut in their ditch. So that it is more dangerous attacking the ſides of theſe works than the head.

Siege. The encampment of an army entrenched and fortified round a place, with an intention to take it. When a general deſigns to *beſiege* a place, he muſt firſt order it to be inveſted by a body of horſe, under the command of a lieutenant general, to prevent any ſuccours from entering the place. The method of encamping in a *Siege*, differs from that on a march: for in a *Siege* the army ſurrounds the place, that nothing may enter, and lies without cannon ſhot of the town. If the place be ſituated on a river, part of the army is detached to the other ſide; and bridges of communication are made above and below the town, with redoubts guarded by a body of foot. If the place be encompaſſed with mountains, they poſſeſs all the heights from whence they can gaul the enemy. At a *Siege* the army encamps with their backs to the place; battalions and ſquadrons interlined. The engineers trace the lines of circumvallation and contravallation, with redoubts and angles, at proper diſtances, and every regiment works at the place appointed them. The line of circumvallation is without the camp, to prevent ſuccours. The line of contravallation is that betwixt the army and the place, and it covers the *Beſiegers* from the ſallies of the garriſon. When the general has diſpoſed his camps, placed his guards, and eſtabliſhed the lieutenant generals to command in the particular quarters, with orders for their conduct, he goes with the engineers to view the place, and orders the attack in the quarter he judges the weakeſt: but becauſe it is difficult to find two places ſituated after the ſame manner, ſo it is hard to make two *Sieges* in the ſame way. For there are ſome towns, where, without opening trenches, the *beſiegers* advance immediately, and lodge themſelves on the counterſcarp, by the facilitation of hollow ways, ruins, cavities, or weak

weak Suburbs: and there are others, where the ground is better managed, where, within cannon ſhot of the out-works, there is nothing which can facilitate the enemy's approaches. To ſuch ſort of places, which are the beſt, there muſt be trenches and approaches to gain the ground foot by foot, which renders ſuch *Sieges* dangerous and very long, becauſe of many accidents which happen daily in the attacks, ſallies, mines, and other accidents of war.

To make or form a Siege, there muſt be an army ſufficient to furniſh five or ſix reliefs for the trenches, pioneers, guards, convoys, eſcorts, and what elſe may happen: an artillery, with magazines furniſhed with a ſufficient quantity of ammunition, and proviſions: and an hoſpital with phyſicians, ſurgeons, *&c.* and medicines.

To turn a Siege into a Blockade, is to give over the attacks, and poſſeſs all the avenues leading to the place, to hinder any ſuccours or convoys getting into it, with a deſign to take it by famine.

To raiſe a Siege, is entirely to abandon the deſign, upon the approach of a ſuperior army, or the meeting with inſurmountable difficulties. See *Raiſe*.

Signals. Certain ſigns agreed upon, for ſuddenly conveying intelligence to places to which the voice cannot reach. Thus, in ſome countries, fires are lighted upon the hills, at the approach of danger: and at the beginning of a battle or an attack, ſignals are uſually made with drums and trumpets.

Sillon. A work raiſed in the midſt of a ditch to defend it, when it is too wide. This work has no particular form, but, as it runs, forms little baſtions, half moons, and redans, or indentures, which are lower than the rampart of the place, but higher than the covert way. This name of *Sillon* is going out of uſe, and they now call it enve-lope. Vide *Envelope*, *Counterguard*, and *Lunette*.

Single Tenaille. Vide *Tenaille*.

Sixain. An antient order of battle for ſix battalions; which, ſuppoſing them to be all in a line, is formed thus: the ſecond and fifth battalions advance and conſtitute the van; the firſt and ſixth fall back into the rear, or *Corps de Reſerve*, and the third and fourth remain on the ſame

ground for the main battle. Every battalion ought to have a ſquadron of horſe on its right, and another on its left. Any number of battalions, produced by the multiplication of ſix, may be drawn up in this order; for twelve battalions will make two Sixains, eighteen will make three, and ſo on. Vide *Cinquain.*

Skirmiſh. A ſudden encounter of two ſmall bodies of men, when they fight in confuſion without obſerving order.

A Soldier. He that is liſted, and receives pay, to ſerve his prince or ſtate in the wars, either on foot, or on horſe-back.

To ſound the Trumpet. Vide *Trumpet.*

Spades, for throwing up works, do not need any thing particular to be ſaid of them.

To Spin Hay, is to twiſt it up in ropes very hard, for an expedition in the winter time; each trooper carrying as much as he can behind him.

Spring. The ſpring of the lock of a muſket or piſtol is a piece of ſteel violently bent; which being ſet at liberty, ſtrikes down the cock.

Spunge of a Gun. A long ſtaff put into a roll of wood, which is covered over with a ſheep's ſkin, the wool outwards, to *ſpunge* and clean the gun. As ſoon as the gun has fired, a matroſs is ready with the *Spunge,* while another claps his finger on the vent to ſtop the air, and diſcharge what fire may remain in the chamber. The *Spunge,* hammer, and ladle, after the gun is loaded, are laid under her betwixt the wheels.

Spurs. Are walls that croſs a part of the rampart, and join to the town wall.

Spy. One who is ſent into an enemy's army to watch their actions. When a ſpy is diſcovered, he is hanged directly.

Squadron. A body of horſe, the number not fixed, but from an hundred to two hundred men, ſometimes more, and ſometimes leſs, according as generals ſee fit, the army is in ſtrength, and occaſion requires. It is uſually compoſed of three troops, each 50 troopers. A greater number than 200 can never be advantageouſly poſted, nor have room to act in narrow grounds. The eldeſt troop

takes

takes always the right of the ſquadron; the ſecond the left, and the youngeſt the center. A ſquadron is always drawn up three deep, that is to ſay, in three ranks; having the length of a horſe, or rather more, between rank and rank. The ſtandard is always in the center of the firſt rank. When the army is encamped, a ſquadron of horſe is allowed 30 paces for their front, and 30 paces interval between one ſquadron and another: on a march, the ſquadrons of the ſame column ought to keep a convenient diſtance.

Square. A figure well known to be compoſed of four equal ſides, and four right angles.

Long Square. Has right angles, but two of the ſides are long, and the other two ſhort.

Square Battalion of men. That which is compoſed of an equal number of men in rank and file, or when the number of men in each file is equal to the number of men in each rank.

Square Battalion of Ground, is when the ground of the flanks is of the ſame extent, as the ground of the front and rear. To make a ſquare battalion of men, whoſe number is known, as 50, take the neareſt radix or ſquare root, which is ſeven, for the number of men in rank and file. To make a ſquare battalion of ground, the number being likewiſe determined, as 60, that number muſt be multiplied by 3, which is the number of feet that every man takes in front, and the product 180 divided by 7, which is the number of feet that each man takes up in deepneſs, or the diſtance of the ranks: the quotient is 25; the ſquare root of which is 5, which is the number of men in each file; and if by this radix 5, you divide 60, the quotient is 12 for the number of men in each rank.

Hollow Square. A body of foot drawn up with an empty ſpace in the middle, for the colours, drums, and baggage, facing, and covered by the bayonets every way, to oppoſe the horſe.

Standard, a ſort of banner or flag, borne as a ſignal for the joining together of the ſeveral troops belonging to the ſame body.

The ſtandard is uſually a piece of ſilk or damaſk, about a foot and a half ſquare; on which is embroidered the

arms

arms, device, or cypher of the prince, or of the colonel. It is fixed on a launce about 8 or 9 feet long, and carried in the center of the firſt rank of the ſquadron. In rainy or bad weather, it has a caſe of leather over it.

The ſtandard is uſed for any martial enſign of horſe, but more particularly for that of the general, or the royal ſtandard: thoſe borne by the foot, are rather called colours.

Star Redoubts, are now out of uſe, the ſquare being found more convenient. They were made with ſaillant and re-entering angles, and had from 5 to 8 points; and each of their ſides or faces was from 12 to 25 fathom long.

Stratagem. Any device for the deceiving and ſurpriſing an enemy.

Sub Brigadier. A poſt in the troops of guards, next under a brigadier.

Sub Lieutenant. An officer in regiments of fuſileers, and in companies of grenadiers, where there are no enſigns, having a commiſſion as youngeſt lieutenant, and pay only as enſign: but takes place of all enſigns, except the guards.

Subaltern, a ſubordinate officer, or one who diſcharges his poſt under the command, and ſubject to the direction of another: ſuch are lieutenants, ſub-lieutenants, cornets and enſigns, who ſerve under the captain; but cuſtom has now appropriated the term to thoſe of much lower ranks, as ſerjeants, and the like.

Storm. See *Aſſault*, *Inſult*.

Stratarithmometry, the act of drawing up an army, or any part of it, in any given geometrical figure; and of expreſſing the number of men contained in ſuch a figure, as they ſtand in array, either near at hand, or at any diſtance aſſigned.

Straw. A word of command to diſmiſs the ſoldiers when they have grounded their arms, ſo that they be ready to return to them upon the firſt firing of a muſket, or beat of drum.

Subſiſtence. Is money paid weekly, monthly, or otherwiſe, to ſoldiers, for them to ſubſiſt on till the general pay days, when they receive what more is due to them; for the ſubſiſtence is always leſs than the pay, becauſe their

their cloaths, accoutrements, tents, bread, &c. are to be paid. It is likewiſe the money paid the officers upon account, till their accounts be made up, which is generally once a year, and then they are paid their arrears.

Sub Diviſions. The leſſer parcels into which a regiment is divided in marching, being half the greater diviſions.

Succour. To ſuccour a place, is to raiſe the ſiege, driving the enemy from before it.

Superficial Fourneau. Vide *Caiſſon.*

Surface in Fortification. That part of the exterior ſide, which is terminated by the flank, prolonged or extended, and the angle of the neareſt baſtion. The double of this line, with the curtin, is equal to the exterior ſide.

Surveyor of the Ordnance, is an officer whoſe charge is to ſurvey all the king's ordnance, ſtores, and proviſions of war, in cuſtody of the ſtore-keeper of the Tower of London; to allow all bills of debts; to keep checks on labourers and artificers works, &c.

Suſpenſion of Arms, a ſhort truce agreed on by both armies, in order to bury the dead, wait for freſh inſtructions, or the like.

Sutler. One that follows the camp, and ſells all ſorts of proviſions to the ſoldiers. They pitch their tents in the rear of each regiment, and about the general's quarters. In all garriſons there are alſo ſutlers, who ſerve the ſoldiery.

Swallow's Tail. A kind of out-work, only differing from a ſingle tenaille, in that its ſides are not parallel as thoſe of the tenaille, but narrower towards the fortified place, than towards the country.

T

TACTICS, is the method of diſpoſing forces to the beſt advantage in order of battle, and of performing the ſeveral military motions and evolutions.

Tail of the Trenches. The firſt work the beſiegers make when they open the trenches, as the head of the attack is carried on towards the place. There is always danger at the tail of the trenches, becauſe it is expoſed to the batteries of the place, and the cannon, mounted on the cavaliers, plays upon thoſe that relieve and mount the guard. A guard of horſe is ever kept at the tail of the trenches, to be in a readineſs to come to the relief of workmen at the head, in caſe of ſallies: and this guard is relieved as often as the trenches.

Talus. The ſlope allowed to every rampart work raiſed of earth, that it may ſtand the faſter, and is more or leſs, according as the earth is looſer or more binding. As for inſtance, the rampart is not built upright, becauſe it is of earth; but it goes ſloping, being thicker at the bottom or foot, than at the top, and this ſlope is called the *Talus*.

Exterior, or *Outward Talus.* The ſlope given to a work on the ſide towards the country, and ought to be as ſmall as poſſible, that the enemy may not find it eaſy to be mounted, either by ſcalade or otherwiſe. But if the earth be not good, the *Talus* muſt be large, that it may keep it up the better. In ſuch a caſe it were good to ſupport the earth with a wall, which the French call *Chemiſe*, when it is not thick, and otherwiſe *Revetement*, which ſignifies cloathing or fencing, to make the earth laſt longer, and to ſave the making too large a *Talus*. This wall ought to have a ſmall *Talus* of a fifth or ſixth part of its height, and for a reinforcement it is generally ſupported in the inſide by counter-forts, or a ſort of buttreſſes.

Interior, or *Inward Talus.* The ſlope of the work next the town, which is much larger than that of the outſide; and has at the angles of the gorge, and ſometimes in the middle of the curtin, ramps, or ſloping roads, to mount

upon

upon the terre-plein of the rampart. The interior *Talus* of the parapet ought to be very ſmall, that the men may with more eaſe fire over it. See *Profile*.

Superior or Upper Talus of the Parapet. The ſlope on the top of the parapet. This ſlope allows the ſoldiers to defend the covert way with ſmall ſhot, which they could not do were it level.

Tat too. Sometimes called the retreat, or beat of drum at night for all ſoldiers in garriſon to repair to their quarters, and to their tents in the field: after which, in frontier towns, and where the inhabitants are ſuſpected, they are not permitted to ſtir abroad, or, at leaſt, not without a light. See *Retreat*.

Te Deum. A holy hymn ſung in thankſgiving for any victory obtained, which is often abuſed, being ſung by thoſe that are beaten to conceal their ſhame.

Temoins. A French term for the pieces of earth left ſtanding as marks or witneſſes, in the foſſes of places they are emptying, to the end they may know exactly how many cubical fathoms or feet of earth have been carried away, thereby to pay the workmen.

Tenaille of the place, is that which is comprehended between the points of two neighbouring baſtions; that is to ſay, the curtin, the two flanks that are raiſed on the curtin, and the two ſides of the baſtions which face one another; ſo that it is the ſame with what is otherwiſe called the face of the fortreſs. See the article *Baſtion*.

Tenaille. An outwork longer than broad, whoſe long ſides are parallel; and is either ſingle or double. There are likewiſe *Tenailles* in the foſs.

Single Tenaille. A work whoſe front is advanced towards the country, having two faces, forming a re-entring or rentrant angle; its two long ſides terminate on the counterſcarp, oppoſite to the angle of the ſhoulder.

Double Tenaille. A work whoſe front having four faces, forms two re-entrings, and three ſaliant angles; its long ſides are likewiſe parallel, and terminate on the counterſcarp, oppoſite to the angle of the ſhoulder. Both the ſingle and double *Tenailles* have this fault, that they are not flanked or defended at the re-entring angle, becauſe the height of the parapet hinders the ſoldiers from diſcovering

covering before that angle. Therefore *Tenailles* are only made when there is not time enough to make hornworks. The ramparts, parapets, foſſes, covert way, and glacis of *Tenailles*, are the ſame with other outworks.

Tenaille in the Foſs. A low work raiſed before the curtin in the middle of the foſs, and is of three different ſorts. The firſt is compoſed of a curtin, two flanks, and two faces. The rampart of the curtin, including the parapet and talus, is but five fathom thick, but the rampart of the flanks and faces is ſeven. The ſecond is compoſed only of two faces, made on the lines of defence, whoſe rampart and faces are parallel. The third differs from the laſt, only in having its rampart parallel to the curtin of the place. All theſe ſorts are very good defences for the foſs, and lie ſo low, that they cannot be hurt by the beſiegers cannon till it be on the covert way. See *Queuë d' Yronde.*

Terre Plein of a Rampart. The horizontal ſuperficies of the rampart, between the interior talus and the banquet. 'Tis on the *Terre plein* that the defendants go and come: it is likewiſe the paſſage of the rounds.

To Tertiate a Piece. To examine whether it has the due thickneſs of metal in every place, and whether it be true bored.

Toiſe. A meaſure uſed by the French engineers in all their fortifications, and is a fathom of ſix feet. A ſquare *Toiſe* is 36 ſquare feet, and a cubical *Toiſe* is 216 cubical feet.

Tompion. A ſtopple of wood or cork, which is uſed in loading a mortar; it is exactly fitted for the mouth of the chamber, and is drove hard in after the powder, and the bomb is placed above it: it ſerves, by confining the powder, to make it burſt out with the more violence.

Tompion is likewiſe a ſtopple of wood for the mouth of the mortar or gun, to keep out rain.

Tong. The ſame as *Tenaille.*

Touch-hole. The hole of any piece to give fire to it.

Town Major. Vide *Major.*

Train. A line of gunpowder, laid to give fire to a quantity thereof, in order to do execution by blowing up earth, works, buildings, &c.

Train

Train, or *Traile, of Artillery*, includes the great guns, and other pieces of ordnance belonging to an army in the field. See the article *Cannon*.

Train-bands, or *Trained Bands*. A name given to the militia of England. See the article *Militia*.

Tranſum. A piece of wood which goes acroſs betwixt the cheeks of a gun carriage, or of a gin, to keep them fixed together; each *Tranſum* in a carriage is ſtrengthened by a bolt of iron.

Trapeze. A figure that has only two of its four ſides parallel.

Trapezoide, or *Tablet*. Has all its four ſides and angles unequal, and no ſides parallel.

Traverſe. A trench with a parapet, and ſometimes two, one on the right and another on the left. Sometimes this trench is open over head, and ſometimes covered with planks, loaded with earth. This word is often taken for a gallery, and alſo ſignifies a retrenchment, or line fortified with faſcines, barrels, or bags of earth, or gabions. *Traverſes* are very advantageous in ſtopping an enemy's way, and to prevent being enfiladed. They are likewiſe a good defence in a dry foſs, in making the parapet on the ſide next the oppoſite flank.

Traverſe on a wet Foſs, is made by throwing into the *Foſs*, over againſt the place where the miner is to be put to the foot of the wall, abundance of fauciſſons, joyſts, and other pieces of wood, with faſcines, ſtones, earth, and all other things which can help to fill up the *Foſs*, and be capable of carrying a gallery for ſuch as uſe it.

Traverſe, is likewiſe a wall of earth or ſtone acroſs a work which is commanded, to cover the men.

To traverſe a Gun or Mortar, is to bring her about with hand ſpikes to the right or left, till ſhe is pointed exactly at the object.

Trench. In general it ſignifies any ditch or cut, made in the earth.

Trenches, Approaches, or *Lines of Attack*. Works carried on by the beſiegers, being uſually cut into the ground, with parapets next the place, for their men to gain ground, and draw near the fortifications of the place under covert. They are carried on differently, according to the nature of

of the ground. For if all round the town the ground be rocky, the *Trenches* are raiſed above it with faſcines, or faggots, bags of earth, gabions, woolpacks, epaulments of earth brought from far, and any thing that may cover the men without flying, as ſtones, and the like. But if the earth is fit to dig, the *Trenches* are no other than a ditch, or way ſunk down into the earth, and edged with a parapet next the beſieged: its depth is about ſix or ſeven feet, and its breadth ſeven or eight. Howſoever the *Trenches* be made, they muſt always be ſo contrived, that the beſieged may never enfilade them, that is, ſcour the length of them with their ſhot. For this reaſon they are carried on by coudes, elbows, or traverſes, which are lines returning back from the end of them, and running almoſt parallel with the place. As the *Trenches* are never carried on but in the night time, therefore the ground ought to be exactly viewed in the day. On the angles or ſides of the *Trench*, there ought to be lodgments or epaulments in form of traverſes, to hinder the ſallies of the garriſon, favour the advancement of the *Trenches*, and to ſuſtain the workmen. Theſe lodgments are ſmall *Trenches* fronting the place beſieged, and joining the *Trench* at one end. The platforms for the batteries are made behind the *Trenches*, the firſt at a good diſtance, to be uſed only againſt ſallies of the garriſon. As the approaches advance, the batteries are brought nearer, to ruin the defences of the place, and diſmount the artillery of the beſieged. The batteries for the breaches are made when the *Trenches* are advanced near the covert way. If there be two attacks, there muſt be lines of communication, or *Boyaus*, between the two, with places of arms, at convenient diſtances. The parapet ought to be five feet thick, and have banquets for the ſoldiers to mount upon.

Returns of a Trench. The elbows and turnings, which form the lines of approach, and are made as near as can be parallel to the defences of the place, to prevent their being enfiladed.

To open the Trenches. See *Open.*

To carry on the Trenches. To advance them towards the place.

To mount the Trenches, is to mount guard in the *Trenches*. *To relieve the Trenches*, is to relieve the guards of the *Trenches*. *To dismount the Trenches*, is to come off the guard of the *Trenches*. *To cleanse or scour the Trenches*, is to make a vigorous sally upon the guard of the trenches, forcing them to quit the ground, breaking down the parapet, filling up the *Trench*, and nailing their cannon.

Counter Trenches. Trenches made against the besiegers, which consequently have their parapet turned against the enemy's approaches, and are enfiladed from several parts of the place, on purpose to render them useless to the enemy, if they chance to be masters of them; but they ought not to be enfiladed or commanded by any height in the enemy's trenches.

Triangle, or *Trigon*. A figure consisting of three sides, and as many angles.

Triangle Rectangular. Which has one right angle.

Triangle Ambligone. Which has an obtuse angle.

Triangle Oxigon. Which has a sharp or acute angle.

Triangle Equilateral. Which has all three sides of an equal length.

Triangle Isoscele. Which has only two sides equal.

Triangle Scalene. Which has all three lines unequal.

Troop of Horse or *Dragoons*. A small body of about 50 or 60, sometimes more, sometimes less; commanded by a captain. Each troop has, besides a captain, a lieutenant, cornet, quarter master, and three corporals, who are the lowest officers in a *Troop*. A regiment of light horse, in England, consists of six *Troops*, and sometimes nine.

Independent Troop. That which is not incorporated in any regiment.

Troop. To beat the Troop, or *Assembly*. Is the second beat of drum when the foot are to march; the general being the first to give notice of the march, and the troop the next, for the men to repair to their colours.

Trooper. The vulgar name by which every horse soldier is called. The French call them *Maitres*, or *Cavaliers*.

Trumpet. Signifies either the martial instrument used among the horse, to give notice what they are to do, or the man that sounds it. We say, 'To sound to horse, a march, a charge, a retreat, a levee.' Every troop of horse

horſe has two trumpets. The ſound of the *Trumpet* before a march, is to boot and ſaddle, at which the troopers get themſelves ready to mount. This is ſounded when the drums beat the general. When the aſſembly is beat the trumpet ſounds *To Horſe*, and they all mount; the third is *To March*. They ſound a *Charge* in day of battle, and the *Retreat* at night.

Truncheon. A ſhort ſtaff, or battoon, uſed by kings, generals, and great officers, as a mark of their command.

Trunions of a Gun. The two pieces of metal ſticking out of the ſides of a piece, by which it ſwings in its carriage. They are generally the diameter of the ball of the piece in length, and their diameter is the ſame with the diameter of the ball. The axis of the *Trunions* is equal with the lowermoſt ſide of the chace of the gun.

Trunion Ring, is that ornament or jutting-out a little before the trunions.

Turnpike. A piece of wood, or ſpar, 10, 12, or 14 feet long, 6 or 8 inches, or even a foot diameter, cut in a ſex-angular form, every ſide of it bored full of holes about an inch diameter, and 5 or 6 inches from one another, but not anſwering on the ſides to one another; on the contrary, all differently profited. Through theſe holes, pickets, that is, ſhort pikes, are run, being about 5 or 6 feet long, and an inch diameter, pointed with iron, and faſtened into the holes with nails or wedges. Thus the points ſtand out every way; and theſe *Turnpikes* are of great uſe to ſtop an enemy, being placed on a breach, or at the entrance of a camp, or in any gap. They are likewiſe a good defence againſt the horſe of an army. They are ſometimes mounted on wheels, with artificial fires, and rolled down in an aſſault. *Turnpikes* are likewiſe called *Chevaux de Friſe*.

V

VAN, or *Vanguard*. The firſt line of an army drawn up in battalia, which gives the firſt charge upon the enemy; the ſecond line is the main body, and the

third the rear guard, or body of reserve. The *Van* is the front, or foremost part of any body or bodies of men.

Vedette. A centry on horseback, or a trooper upon a centry post. His horse's head is towards the place from whence any danger is feared, and his carabine is advanced with the butt end against his right thigh; when the army lies encamped, there are *Vedettes* posted at all avenues, and on all rising grounds, to watch for its security.

To View a place in order to besiege it, which the French call reconnoitre, is when the general, accompanied by the engineer, rides round the place, observing the situation of it, with the nature of the country about it; thereby to judge of the most convenient place for opening the trenches, and carrying on the approaches; to find out proper places for encamping the army, for the lines of circumvallation and contravallation, and for the park of artillery.

Veteran. An appellation given to an old soldier, who has served in a number of campaigns.

To View, or *Reconnoitre an Enemy.* To get as near their camp as possible; to see the nature of the ground, and the avenues to it; to find out the strength and weakness of their encampment, where they may best be attacked, or whether it be proper to hazard bringing them to action. Parties of horse are generally sent out to view the enemy's march, to know whither it tends; thereby to guess at their designs, and to regulate the motions of the army accordingly.

To view or reconnoitre, is likewise when the quarter master general, with a strong party of horse, goes to view the ways for the march of an army, and to find the most convenient place for an encampment.

Ulans. Horsemen. The officers at home are dressed in cloth, and the private men in sheep's skins. They wear a mantle made of wool, an inch thick, so that the rain can never enter it: they fasten it about their necks with a leathern thong, or piece of silk, and so turn it which way the wind sits, or the rain falls; their breeches are very large, and come down to their ancles: they wear a bonnet and buskins, the heels of which are shod with small nails: they had formerly white cocks wings at their backs, which were to fright their enemy's horses; and for the same purpose, their standards were adorned with eagles

gles wings. The arms they uſe are a bow and arrows, and ſabre, which they manage with great dexterity. When they ride full ſpeed, they will raiſe themſelves upon their ſtirrups, and, like the old Parthians, diſcharge whole ſhowers of arrows behind them upon their purſuers. They are in general much afraid of fire arms: but thoſe in the ſervice of the king of Pruſſia, are armed with a carabine and piſtols. They always carry a knife and an awl, for the making their whips, which they call *Kantſchou*, the handle of which is compoſed of ſeveral little twigs of brown wood, to which they attribute this ſingular virtue, that by ſtriking thrice on the crupper, a horſe that cannot ſtale is immediatelly cured.

Volunteers. Gentlemen, who, without having any certain poſt, pay, or employment, in the forces under command, put themſelves at their own expence upon warlike expeditions, and run into dangers only to gain honour and employment.

Utenſils. The neceſſaries due to every ſoldier, and to be furniſhed by his hoſt where he is quartered: they are a bed with ſheets, a pot, a glaſs, or cup to drink out of, a diſh, a place at the fire, and a candle. Sometimes the inhabitants compound, and allow ſo much in money to be eaſed of it.

W

WADD. A ſtopper of hay or ſtraw forced into a gun upon the powder, to keep it cloſe in the chamber. When it is cloſe to the powder, the gunner generally gives it three thumps with the rammer head.

Wad Hook, or *Worm.* A ſmall iron turned ſerpentwiſe, like a ſcrew, and put upon the end of a long ſtaff, to draw out the wad of a gun when ſhe is to be unloaded.

Waggon Maſter General. He who has the ordering and marching of the baggage of an army. On a day of march meets the baggage at the place appointed in the or-

ders, and marshals it according to the rank of the brigade or regiment each waggon belongs to, and marches it according to the route given him; which is sometimes in one column, sometimes in two; sometimes after the artillery; and sometimes the baggage of each column follows their respective column.

War. A contest or difference between princes, states, or large bodies of people.

Council of War. See *Council.*

Warning Piece. The gun which fires every night about sun-set, to give notice to the drums and trumpets of the army, to beat and sound the retreat or *Tat-too*, which is likewise called *Setting the Watch.* See the article *Retreat.*

Waradins. See *Sclavonians.*

Wad-Hook. A rod or staff with an iron end turned serpentways or like a screw, to draw the wads or oakam out of a gun, when it is to be unloaded.

Warrant Officer. See *Officer.*

Watch. A number of men posted at any passage, or a company of the guards who go on the patrole. See the articles *Guard* and *Patrole.*

Way of the Rounds, is a space left for the passage of the rounds between the rampart and the wall of a fortified town. This is not now much in use; because the parapet, not being above a foot thick, is soon overthrown by the enemy's cannon. See *Chemin des Rondes*, or *Fausse Braye.*

Well. A depth the miner sinks into the ground, and thence carries on the branches or galleries, to find out and disappoint the enemy's mines, or to prepare his own.

To Wheel. This is a motion that brings a battalion or squadron, to front on that side where the flank was, which is wheeling to the right or left, if an enemy appear ready to attack the flank, or if it be thought fit to fall upon the enemy's flank. In this motion the ranks and files must take care not to blend, but every one to keep his due distance; and there must be very able serjeants at the angles, to see the files do not break and fall into confusion. If the battalion wheels to the right, the left wing moves first, describing the fourth part of a circle about the leader on the right, who is the centre of the motion, and stirs not off his ground. If the wheeling be to the left, the contrary is to be performed. *To wheel by single Ranks,* if

is be to the right, the right hand man of each rank turns on his heel, while the left hand men move round, and the whole are formed into one rank, fronting as their flank was before. To reduce them into ranks again, the left hand men turn on their heels, while the right hand men move round. Squadrons of horſe wheel after the ſame manner.

Wicket. A ſmall door in a gate of a fortified place, at which a man on foot may get in, and which is ſometimes opened when the gate is ordered to be kept ſhut. The height of it is about three feet and a half, and the breadth about two. Sometimes it is only a hole in a door, through which thoſe on the inſide can view what paſſes without.

Windage of a Gun. The difference between the diameter of the bore, and the diameter of the ball: for ſince the balls are rough, if they were not ſomewhat leſs than the bore, they might jam in the piece: ſo that the *Windage* of a demi culverin is a quarter of an inch.

Wind-Gun. See *Air-Gun.*

Windlaſs. A roller of wood ſquare at each end, through which are either croſs holes for hand ſpikes or ſtaves acroſs to turn it round: by this means it draws a rope, one end of which is faſtened to ſome weight, which it raiſes up. They are uſed in gins, and about Dutch mortars, to help to elevate them.

Wing of an Army drawn up for Battle, or *Wing of one of its Lines.* The horſe on the flanks, or at the end of each line on the right and left.

Wing of a Battalion, or *Squadron.* The right and left hand files, that make up each ſide or flank. Formerly when a battalion was drawn up, the pikes were in the centre, and the muſqueteers on the wings, which wings are alſo called great diviſions, or whole diviſions of the battalion. In wheelings, when they wheel to the right, the left wing of the battalion moves firſt, whilſt the right wing takes a ſhort compaſs, turning up the file leader of the firſt file, as upon a centre. The contrary is done if they wheel to the left.

Wings in Fortification, denote the longer ſides of horn works, crown works, tenailles, and the like out-works; including the ramparts and parapets, with which they are bounded on the right and left from their gorge to their front.

Winter Quarters. See *Quarters.*

Witneſſes. See *Temoins.*

The Word. A word that ſerves for a token, and mark of diſtinction, given privately every night in an army by the general, and in garriſon by the governor, or other officer commanding in chief, to prevent ſurpriſe, and hinder an enemy, or any treacherous perſon, to paſs backwards and forwards. When the governor, deputy governor, or town major, goes the rounds in a garriſon, the officer commanding in every *Corps de Garde*, is to receive and give them the *Word*: but inferior rounds are to give the *Word* to the guard. In an army the general gives the word to the lieutenant-general, or major-general of the day, who gives it to the majors of brigades, they to the adjutants, who give it firſt to the field officers, and afterwards to a ſerjeant of each company, who carry it to the ſubalterns. In garriſon it is given by the governor, after the gates are ſhut, to the town major, who gives it to the adjutants, and they to the ſerjeants.

Words of Command, the terms uſed by officers in exerciſing battalions or ſquadrons, or when they are upon real action.

Works. All the fortifications about a place, are called the *Works of the Place*; and more particularly all detached *Works*, are called the *Out-works*. See *Fortification*, *Line*, *Trench*, &c. &c.

Worm. A ſcrew of iron, to be fixed on the end of a rammer, to pull out the wad of a fi elock, carabine, or piſtol, being the ſame with the wad-hook, only the one is more proper for ſmall arms, and the other cannon.

Y

YEOMAN of the Guard, were antiently two hundred and fifty men, of the beſt rank under gentry, and of larger ſtature than ordinary, each being required to be ſix feet high.

At preſent there are but one hundred yeoman in conſtant duty, and ſeventy more not on duty, and as any of the hundred dies, his place is ſupplied out of the ſeventy.

Younger Regiment, or *Officer*. That regiment is youngeſt which was laſt raiſed, and that officer youngeſt, whoſe commiſſion is of the lateſt date, though he be never ſo old a man, or have ſerved never ſo long in other capacities. See more under the word *Seniority*. The

The new Method of FORTIFICATION, by the late Marshal SAXE, explained; with some OBSERVATIONS on the present Method of FORTIFYING Towns, and the Reasons why they are so liable to be reduced.

IT is surprising that the present erroneous method of fortifying towns has not yet been laid aside; but, as this opinion will probably appear extraordinary, it is necessary that I should justify it by reason.

Let us, in the first place, examine the usefulness of fortresses: they cover a country; they subject an enemy to the necessity of attacking them, before he can penetrate further; they afford a safe admission to your own troops on all occasions; they contain magazines, and form a secure receptacle, in the winter time, for artillery, ammunition, &c.

These things being properly considered, we shall find it most prudent and advantageous to have them erected at the junction of two rivers; because, in such situations, the enemy will be obliged to divide his army into three distinct bodies before he can be able to invest them, one of which may be repulsed and discomfited, before it can be succoured by the others: two sides of your fortress will likewise remain always open 'till the blockade is compleated, which cannot possibly be done in a single day; neither can the necessary communication between the divisions of his army be kept up, without the use of three bridges, which will be exposed to the hazard of those sudden storms and inundations which usually happen in the campaigning season —Moreover, in being thus master of the rivers, one thereby obtains a command of the whole country: one may divert their course, if occasion shall require it; may be readily furnished with supplies of provisions; may have magazines formed, and ammunition, or other sorts of military stores, transported to you with ease.

In a country where rivers are wanting, there are, nevertheless, other situations to be found, so strongly fortified

by

by nature, that it is next to an impoſſibility to inveſt them; and which, being acceſſible only in one place, may, at a ſmall expence, be rendered, in a manner, impregnable. For, in general, I look upon the works of nature to be far ſtronger than thoſe of art. What reaſon, therefore, can we plauſibly aſſign for neglecting to make a proper uſe of them? Few cities have been originally founded for the purpoſe of ſuſtaining a regular ſiege, but were indebted to trade for their largeneſs, and to chance for their ſituation. In the courſe of time they increaſed, and the inhabitants ſurrounded them with walls for a defence againſt the incurſions of their common enemies, and a protection from thoſe inteſtine diſturbances in which kingdoms are ſometimes involved. Theſe precautions were ſo far juſt and neceſſary. But what could be the inducement for princes to fortify them? Before Chriſtianity became eſtabliſhed in the world, and when vanquiſhed provinces were laid waſte and depopulated, ſuch a proceeding might wear ſome appearance of reaſon; but now that war is carried on with more moderation and humanity, as being by thoſe meaſures productive of more advantage to the conqueror, who can be ſaid to juſtify it? A town ſurrounded with a ſtrong wall, and being capable of holding three or four hundred men, beſides the inhabitants, together with ſome artillery, will be as ſecure as if the garriſon conſiſted of as many thouſands: and I inſiſt upon it, that the latter, notwithſtanding their ſuperiority in numbers, will neither make a longer defence, nor a more advantageous capitulation for the inhabitants, when they ſurrender: but what uſe, is it probable, the enemy will make of the place after he has taken it? He will ſcarcely fortify it, but, as it appears to me, will rather content himſelf, with a contribution, and march further. Perhaps, indeed, the oppoſition he may expect in taking it, and the difficulty of keeping it afterwards, may deter him altogether from laying ſiege to it; for he will be afraid to truſt the poſſeſſion of it to a ſmall garriſon, and unwilling to expoſe a large one to the hazard of being made priſoners.

There is another more powerful reaſon to perſuade me, that fortified cities are capable of making but a weak defence; which is, that notwithſtanding a garriſon is furniſhed

nished with provisions for a three months siege, yet it is no sooner invested, than they find that there is hardly a sufficient quantity for eight days; because no extraordinary allowance is made in the calculation of numbers, for ten, twenty, or, perhaps, thirty thousand additional persons, who have abandoned the country for the security of themselves and their effects to find refuge there. The riches of a prince are not sufficient to provide magazines for the support of a whole province, in every place that is in danger of being attacked, much less to supply the annual consumption of them: for it would even exceed the boasted virtue of the philosopher's stone to do it, without creating a famine in his dominions. Some may, perhaps, observe, that those who could not furnish their own provisions, ought to be expelled the garrison; but such an inhuman proceeding would be attended with more misery and distress, than even the arrival of the enemy: for what multitudes are there in all cities, whose manner of livelihood would render them obnoxious to that treatment? But suppose it, nevertheless, to be put in execution, is it probable, that when the enemy invests the place, he will suffer these wretches to retire where they please, and the garrison to avail itself of their banishment? So far from it, that he will undoubtedly turn them back again: and surely the governor will not suffer them to perish with hunger at the gates, neither can he be able afterwards to justify such conduct to his sovereign; he will, therefore, be reduced to the necessity of admitting them, and of course become incapable of holding out long. For suppose that his garrison consists of five thousand men; that he has provisions for three months, and that the number of inhabitants, besides, amounts to thirty thousand: such an addition will, consequently, render one day's consumption of provisions equal to what six or seven were before, and the place not remain tenable for above twelve or fourteen days. But, provided it holds out even twenty the enemy has little or no trouble in carrying on the siege, because it must, at length, surrender of its own accord: and thus will all the millions, which have been expended in fortifying it, be thrown away.

What I have been saying appears to me sufficient to demon-

demonſtrate the great defects of fortified cities; and that it is moſt advantageous for a ſovereign to erect fortreſſes in ſuch ſituations as are ſtrong by nature, and properly adapted to cover the country: after having done which, it will become a matter of prudence, if not to demoliſh the fortifications of his towns, as far as to the ramparts, at leaſt to relinquiſh all thoughts of ſtrengthening them for the future, or of laying out ſuch immenſe ſums of money to ſuch uſeleſs and ineffectual purpoſes.

Notwithſtanding what I have here advanced is founded upon ſenſe and reaſon, yet I am conſcious there is hardly a ſingle perſon who will concur with me in opinion, ſo prevailing and ſo abſolute is cuſtom. A place ſituated, according to my plan, may be defended againſt an enemy for ſeveral months, or even years, provided it can be ſupplied with proviſions, becauſe it is free from that detriment and incumbrance which is unavoidably occaſioned by citizens.

The ſieges in Brabant had not been carried on with ſuch rapid ſucceſs, if the governors had not calculated the duration of their defence by that of their proviſions; on which account they were as impatient for the making of a ſufficient breach as the enemy, that they might be thereby furniſhed with a decent opportunity of capitulating: yet, notwithſtanding this mutual diſpoſition of the two contending parties towards the accompliſhment of the ſame end, I have ſeen ſeveral governors obliged to ſurrender, without having had the honour of marching out through the breach.

It has been a remark of mine, at ſieges, that the covert-way is crouded at night with men, and a great fire of ſmall arms conſtantly made from thence, which does but very little execution, and fatigues the troops, even to a degree of abuſe —The ſoldier who has been firing all night, is naturally tired; but, as his firelock muſt be out of order, that part of the enſuing day, which he would be glad to appropriate to reſt and refreſhment, he is obliged to ſpend in cleaning and repairing it, and in making cartridges; a circumſtance of infinite conſequence, and which, unleſs attended to, will be productive of diſeaſes, and a general diſlike to the ſervice.—It is towards

the end of a ſiege, when every thing comes to be diſputed by inches, that vigour and reſolution are moſt wanted; at which time, the greater proofs you give of thoſe, the more the enemy will be diſcouraged; for diſorders will then begin to ſpread among them, forage and proviſions will grow ſcarce, and all things ſeem to concur to their deſtruction. If, moreover, to add to their deſpondency, they perceive that your reſiſtance is ſtill ſtronger, and that it increaſes when they expected it to diminiſh, they will be at a loſs how to act, and give themſelves up totally to deſpair.

It is for theſe reaſons, that the beſt troops ought always to be reſerved for deſperate affairs only, and never ſuffered to expoſe themſelves upon the ramparts, or to do centinels duty in the night time, but to be ſent to their quarters again, immediately after their return from any expedition on which they have been employed.

With regard to the fire which is made by the beſieged from the covert-way and the ramparts upon the workmen during the night, it amounts to little more than ſo much noiſe; for the ſoldiers, to avoid the trouble of ramming down their charge, take the powder by handfuls, pour it looſe into the barrel, and put the ball in after it; and, as by conſtant firing their ſhoulders become painful to them, and the obſcurity of the night, likewiſe, prevents the officers from ſeeing what they do, they only place the muzzles upon the paliſadoes, and fire at random.

It is much better to raiſe, towards the cloſe of the day, ſome * barbet batteries, either in the covert-way, or upon the ramparts, and draw a line with chalk to direct their fire in the night time, towards the proper object, removing them again at break of day. Theſe will do infinitely more execution than the ſmall arms, becauſe they will make way through gabions and faſcines; the balls, being as large as walnuts, will ſcour the whole breadth of the trenches, and, by rolling and bounding a ricochet, will

* Theſe batteries are raiſed about four feet higher than the terre-plein; ſo that the guns may be juſt high enough to fire over the parapet. The French have named them batteries en barbe, or en barbette; becauſe the ball, in its paſſage out of the cannon, ſhaves, as it were, the graſs from the upper talus of the parapet.

go far beyond the port of musquetry: they will make dreadful havoc among the workmen, and those who serve the batteries; neither will the enemy's cannon be able to dismount or silence them. Twelve pieces, planted after this manner, will require no more than thirty-six soldiers and twelve cannoniers to work them, and will do more mischief than a thousand men posted in the covert way; besides, your troops are, during all this time, at rest; and will, the day after, be in condition to be employed on any kind of service.—It may be objected, perhaps, that the consumption of powder will be very much increased by this method of firing; but the soldiers, with their small arms, waste more in the night time than they use; and, if ammunition is scarce, the number of guns upon these batteries may be accordingly less. The advantages resulting from it will be very considerable, in that your troops will be exposed to less fatigue, and, consequently, be more free from disorders; for nothing occasions them so much as night duties.

I shall only make one observation in this place, which is, that all the ancient fortifications are absolutely good for nothing, and the modern ones not much better. Augustus the Second, King of Poland, has formed an admirable plan of fortification; but, as the present construction of places is founded upon a different system, and we are compelled to make use of them as they are, I shall, therefore, only endeavour to remedy their most glaring defects; and, amongst many, that of all the outworks, for instance, being scarped at the gorge, is far from being the least: in order to remedy which, it is necessary to contrive an easy communication with them, so as to have power, when they fall into the hands of the besiegers, to assail them sword in hand from behind: for after they have made a lodgment in them, the number of men which they leave to keep possession is but small, because their covering party and pioneers are obliged to retire: if, therefore, you can command access to them, and attack them afterwards with a superior force, you must undoubtedly dislodge them; and, before they can renew the assault, their lodgement will be destroyed. This you may accomplish with safety, because you will not be exposed to any interruption

tion from the fire of their batteries or trenches; they will thus be obliged to make a freſh attack, in which they muſt loſe an infinite number of men, becauſe it will be neceſſary for them to aſſail it with a large force. When they have again carried the work, and their parties are retired, you are to repeat your ſally, and diſpoſſeſs them as before: nothing can be more deſtructive and diſcouraging to the beſiegers, than this method of proceeding with them; and the advantage, moreover, will be always on your ſide.

All works that are ſcarped at the gorge, are irrecoverable after once they have been carried, from the difficulty of their acceſs, the ſecurity of the enemy, and the impracticableneſs of attacking them; for, as they have only a ſmall paſſage, and frequently a ſtair-caſe, ſo narrow as to admit but one man at a time, the aſſailants from the garriſon will be deſtroyed as faſt as they appear: they muſt of neceſſity, therefore, be totally abandoned, when once the enemy has got poſſeſſion of them; becauſe to attempt to retake them afterwards, is only ſacrificing the lives of your ſoldiers to no manner of purpoſe.

What has been ſaid is ſufficient to make it appear, that the beſieged have no opportunities more favourable to them for diſtreſſing the enemy during the courſe of the ſiege, than thoſe which are furniſhed by their own works, ſo long as they can keep up an eaſy communication with them.

Many people imagine, that, when once a breach is made in a work, it muſt be abandoned, as being no longer tenable. It is certain, indeed, that in ſuch a caſe, one can ſcarcely be able to prevent the enemy's making a lodgment therein; but he may be driven out again, and ſo reduced to the neceſſity of making a freſh aſſault; which he may, in like manner, be repeatedly obliged to do, becauſe the beſieged will always have the advantage in maintaining it, and muſt deſtroy vaſt numbers at every attack. The only effectual expedient the enemy can fall upon, is to blow it up, which will probably not occur to him for ſome time, and until he has miſcarried in every other attempt. But if, when the ditches are dry, the works are countermined in ſuch a manner, as to have the

gallery

gallery quite round them, he will not be able to avail himself of the mine, so long as the besieged remain in possession of them; because if he digs deeper than they have done, he must come to water.—Upon the whole, mines are productive of more dread than real mischief, and are generally discovered and their effects prevented.

Large works are the most serviceable, for small ones are capable of but little use or resistance, because they are so soon ruined and destroyed. There is a very good way in wet ditches, of retarding the construction of the gallery over them, which is by having large boats covered with thick planks, and filling them with armed soldiers: it will be impossible that it can be carried on, so long as the workmen continue exposed to certain destruction from the party posted in these boats, which will always approach quite close to them before they fire. Being made musket proof, the enemy's small arms will have no effect on them, in consequence of which, they will be obliged to raise a battery at the saliant angle of the ditch. But, after a few fires, that will cease to be formidable to them, as they can presently get under cover, and the cannon can do but very little mischief in plunging. There are no practicable means of obstructing the passage of the ditch, but by the use of these boats, unless holes are made through their evetement, and guns planted behind it to scour the surface.

I shall now proceed to describe my own system, founded upon that of the King of Poland's, which appears to me preferable to all others.

In treating upon this subject, I shall first expose the errors and defects of the present practice, before I recommend any change or innovation in it.

Although we excel the ancients in fortifications, yet we are far from having arrived at that perfection, which this branch of the military art will admit. With regard to myself, I am not so vain as to think that I am possessed of any uncommon share of knowledge in it; nevertheless, I am not to be imposed upon by the exalted names of Messieurs de Vauban and Coehorn, who have consumed immense sums in fortifying places, without having made any addition to their strength; at least, any that was material, or proportioned to what might have been expected; as is evident

evident in the circumstance of their having been taken with so much ease and expedition.

We have modern engineers so obscure in themselves as scarcely to be known, who have, notwithstanding, profited by the errors of those two mighty masters, and are infinitely superior to them; but who, at the same time, only hold the medium, as it were, between the deficiency of their practice, and that point of perfection which we should endeavour to arrive at.

Without entering into a miserable detail of all the little works which they have invented, I shall at once discover the capital defect of their system.

They have erected their fortifications in a kind of amphitheatre, in order to be able to fire from every part of them, as if the besieged could make use of a retired work, so long as their own troops occupied another immediately before it: to what purpose therefore are they raised so high? The consequence of which is, that, being thereby so much exposed, the enemy destroys them, as soon as he has finished his second parallel and erected his batteries: a day or two are sufficient to do it. Thus then are all your defences ruined, your cannon dismounted, and this boasted fortification rendered incapable of obstructing the besiegers. For their batteries being low, and firing at an elevation from the horizon, must raze and demolish every thing; as the besieged are therefore discouraged and afraid to shew themselves, the enemy carries on his approaches very fast, and soon arrives upon the glacis. At the covert-way, he, perhaps, meets with some difficulty and obstruction; but as it is only defended by works that have been already much damaged, he soon renders himself master of it, makes lodgements, and raises batteries in it, which totally ruin the defences of the place. If there are any low flanks, batteries are erected upon the saliant angles of the ditch; because that, being parallel with those flanks, and they, moreover, very narrow and confined in front, they are presently destroyed. Where there are casemates, likewise, they are stopped up, and the embrasures are in a short time ruined by the artillery. Thus the besieged are no longer in a capacity to prevent the enemy's passage over the ditch.—With regard to a breach, it is

soon

tion made in a work, let it be ever ſo high or formidable; after which the beſieged have little more to do, than to withdraw their troops, and to give it up: for, as it is ſcarped at the gorge, and has only a ſtair-caſe or narrow paſſage into it, it is impracticable to attack it again, when once taken; and this difficulty of acceſs, at the ſame time that it renders it irrecoverable to them, ſerves to fortify and ſecure the beſiegers in it; the party ſent to poſſeſs themſelves of it is but ſmall, becauſe the enemy knows it muſt be abandoned; and, as the defences behind it are levelled and deſtroyed, they lodge themſelves in it without any oppoſition or loſs: inſtead of which, if the communication between it and the main body of the place was eaſy, he would be obliged to ſend a very large force, to make a conſiderable lodgement, and to ſuſtain a great many aſſaults in the maintaining of it, which would be attended with the deſtruction of great numbers of his troops.

Theſe defects having been in part diſcovered, the grazing fire was introduced, in order to remedy them: but the original imperfection of this plan of conſtruction is ſuch, that the inconvenience muſt always ſubſiſt, for, if from the body of the place you ſee into the country, and upon the glacis, over your advanced works, the enemy muſt conſequently command as good a view of you, if not a better; and, although he does not ruin all your defences there, yet he at leaſt prevents your being able to make uſe of them; which it is moreover impoſſible for you to do, without deſtroying your own troops, ſo long as you have any in the outworks before them. To what purpoſe is it, therefore, to have a proſpect upon the glacis from the body of the place, ſince it can be ſerviceable in no other reſpect, than to defend thoſe works, which are immediately before it? for while you remain in poſſeſſion of the outworks, you are prevented, as I have juſt above obſerved, from firing upon the glacis; during which time the enemy has the advantage of playing his batteries from thence, to level both your detached defences, and thoſe of the main body of the place.—If, on the other hand, its fortifications were lower, the beſiegers, in order to deſtroy them, would be obliged to erect freſh batteries againſt every diſtinct work, which would prove no eaſy taſk in

the execution; eſpecially if the works were leſs ſpacious, in proportion as they were farther advanced towards the country, and conſtructed in ſuch a manner as to have communications by which they might be eaſily attacked again, after they have been carried by the enemy.

When the enemy attacks me, he will, as uſual, carry my covert-way, and deſtroy the defence of my counter-guard and lunettes. Yet as long as I have my caſemates free in the re entering angle of my counter-guards, how will he be able to paſs the ditch, in order to aſſault them? Perhaps, it may be anſwered, that his batteries will deſtroy them. But this is far from being ſo eaſy to accompliſh as might be imagined, for he will not be able to plant above two or three pieces of cannon upon the ſaliant angle of the counterſcarp; and, in carrying on his approaches againſt the batteries of my caſemates, he muſt ſuſtain a continual fire of an hundred from the bottom of the ditch, and the ſaliant angles of my counter-guards and lunettes. Will it be therefore practicable for him, expoſed both night and day to ſo dreadful a fire, which it will moreover be impoſſible for him to put a ſtop to, to erect his gallery over the ditch?

4.

It is a maxim in engineering, that one cannot command any ſituation, without being at the ſame time commanded by it; which principle has been hitherto ſtrictly adhered to, without reflecting, that the buſineſs is to oblige the enemy to expoſe himſelf in places where there is but little ground to occupy; where he can be overlooked by a larger front than he is able to withſtand; and where it is, moreover, impracticable for him to erect any batteries in his defence.

All this I am enabled to accompliſh by means of my open caſemates; for I command the ditch; and there is no poſſibility of his raiſing a battery to play upon, or diſmount either thoſe which are thus planted upon the ſurface of the water, or thoſe of my ravelins, becauſe they are covered by my counter-guard. I can, moreover, repair in the night-time all the damage that may have been done to my caſemates; and if they happen to be blocked up with rubbiſh, my cannon will be ſufficient to open a way through it.

But let us ſuppoſe, that the beſiegers have paſſed the firſt ditch, and made a lodgment upon the counter guard: he will there, all of a ſudden, diſcover a vaſt number of guns, planted en barbette, which will fire upon him on every ſide, in a ſituation where it will be impoſſible for him to erect batteries to defend himſelf; and where he will be expoſed to the defences of my ravelins, which as yet will not have ſuſtained the leaſt damage. In what manner, therefore, can he avail himſelf of the poſſeſſion of this work? For, having only a foot or two of earth above the beams, and being likewiſe overlooked by two large faces, he will never attempt to bring any artillery into it. Will he plant two pieces of cannon upon the ſaliant angle of the counter-guard, to diſmount forty-four that are upon my two faces; together with the 440 large and long pieces, called amuſettes, which command him, and force a paſſage through all gabions, ſand-bags, and blinds, that are oppoſed againſt them? Where then will he be able to raiſe his battery? For the paſſage of the ditch will remain impracticable to him, till he has firſt made himſelf maſter of my caſemates. Perhaps it may be obſerved, that, by ſetting the miner to them, they may be ruined: but it will be found otherwiſe in the execution. The only expedients, therefore, which ſeem to remain, are either to ſet fire to them, or to deſtroy the piles under water; both which are equally impoſſible.

But even grant that he has made himſelf maſter of my caſemates, I ſhall ſoon demoliſh them with my floating batteries; he will then have only a part of the parapet remaining; and, in order to raiſe batteries, he will be reduced to the neceſſity of fetching earth from a great diſtance for their foundation, which is a work that muſt be accompanied with no ſmall difficulty and inconvenience.—Nevertheleſs, let us even ſuppoſe him to have ſurmounted it; for aſſiduity and time, according to the proverb, will accompliſh every thing. Yet, I inſiſt upon it, that he will be obliged to fill up the front of two entire polygons, and the ditch of the counter-guard (for which even the total demolition of it will not furniſh ſufficient materials) before he can be able to erect the batteries: from which one may form a judgment of the difficulty that muſt attend the conſtruction of them; and, after having accom-

liſhed

paſſed all this, how can he paſs the ditch, in order to attack my ravelins: for my guns, which he will never be able to diſmount, ſcour the ſaliant angle?—But ſuppoſe, that he has even ſucceeded ſo far, as to have made a lodgment in one of thoſe ravelins, how will he maintain himſelf in it? He will find himſelf all at once quite open and expoſed to the fire of an entire polygon, in the ditch before which I can likewiſe poſt three or four battalions, ſword in hand, which it will be impracticable for him to oppoſe with an equal number; or even with two battalions, let his lodgment be ever ſo advantageouſly effected: which battalions will moreover be obliged to enter by files through the breach, and muſt be deſtroyed, as faſt as they advance by four or five pieces of cannon, loaded with grape ſhot, that ſcour the paſſage from the adjacent flank. I ſhall be under no apprehenſions concerning the ſucceſs of my ſallies: for, provided they are repulſed, they may retire to the foot of the body of the place, where all my troops will be ſecure under arms, and from whence the enemy will be expoſed to a very ſevere fire.

I have always had in my head that remarkable inſtance of a certain work, that was taken and retaken at the ſiege of Candia, thirty-ſix different times, and which coſt the Turks above twenty-five thouſand men: a circumſtance which has given me a great opinion of ſuch whoſe conſtruction will admit of their being attacked and recovered after they have been loſt. There are no opportunities, during the courſe of a ſiege, more favourable to the beſieged for engaging the enemy, and retarding his approaches, than thoſe which are furniſhed by works of this kind; becauſe the former are expoſed to no danger from without, at the ſame time that the latter is always obliged to enter by the breach, and, if he brings any cannon into them, he is ſure to loſe them.

In ſhort, I am inclined to think, that the attack of a fort, conſtructed upon this principle, would not a little diminiſh that rage for ſieges which lately prevailed.—One ſhould at all times endeavour to have a wet ditch, if poſſible, to prevent the enemy from being able to make his paſſage by the ſap, or in any other manner than by galleries erected over it.

FINIS.