the rest of the troops that are to ſupport them. The ene­my will not fail to make use of their mines, if they have any left ; and will likewiſe throw all kinds of combustibles, to make the besiegers pay as dear as poſſible for the ground which the besieged will be obliged to yield in the upper part of the breach ; for yield at length they must, and the superior numbers of the besiegers must ſurmount every obstacle.

As ſoon as they are beaten away, and have abandoned the upper part of the breach, the besiegers must ſet about making a lodgment ; which will consist at first of a kind of arc of a circle, the convexity whereof is turned towards the enemy, if there is a breach in the faces of the two bastions, otherwiſe it will only be made on the upper part of the breach. The breaches are to be all stormed at the same time, by which means the resistance of the enemy will be divided. This whole time the batteries and lodgments are to fire with all the vivacity poſſible against the ſeveral defences of the enemy, and against every place they are in and that can be fired against, without annoying the troops that are storming the breaches.

The lodgment on the breach being made, the saps are carried on to the right and left towards the centre of the bastion, and diſpoſed in the manner as in Plate DXXXV. fig. 5. bastion A. Cannon are brought upon the breach to batter the inner retrenchment, the ditch is parted over here alſo, and a lodgment is made upon the breach in the manner mentioned in regard to the bastions.

If behind this first retrenchment there be a second, the enemy, after being forced to quit the former, retires to the latter to capitulate. There they are to be attacked as in the former retrenchment, and at length they will be forced to sur­render. It is very rare to see a defence carried ſo far as we have here ſupposed ; but it was incumbent upon us to make this ſupposition, in order to give an idea of what is proper to be done, ſhould the enemy reſolve to defend the place to the last extremity.

17. *Attack of a place covered with Fore-ditches, Lunettes, and other Outworks,* &c.

In order to give a more simple idea of the operations of a siege, we have explained and applied them to a place that had no other outworks thin half-moons and a covert way : but a greater number of works will make no altera­tion in the principles here establiſhed : to take and keep possession of thoſe works, the besiegers have only to follow the same rules ; which we ſhall ſhow in a few words.

Let us ſuppofe a place ſurrounded by a fore-ditch, and a second covert way, strengthened with lunettes, and ſuppose the front by which it may be attacked is covered with a horn or crown work, &c.

First of all the trenches are to be opened as uſual, in order to come to the foot of the glacis of the second covert way; the ricochet batteries are to be placed on the produced faces of the works attacked, and of their defences ; the faces of the lunettes of the front attacked ought to be enfiladed by the ricochet batteries.

The second covert way is taken in the same manner as the common covert way ; and then, if the fore-ditch is full of water, a good lodgment is to be secured along this ditch, and batteries are to be erected to make a breach in the lu­nettes, if the enemy do not think proper to quit them. It is very difficult for them to maintain themselves in thoſe works, when their communication is ſeen ; and they can hardly avoid being ſeen, when a lodgment is made all along the fore-ditch. Be that as it may, ſupposing that they are lined with stone-work, or only with turf, that they are fraised and palliſaded, and that the enemy are obstinate in their defence, a breach may be made in them, by placing ſome cannon oppoſite the middle of the faces, and the ditch may be passed over by filling it with faſcines or ſome other ma­terials. As it is a great deal ſmaller than that before the body of the place, it is much easier to paſs.

When the besiegers have made themſelves masters of the lunettes which cover the front attacked, they begin to think of passing the fore-ditch. This is a very difficult talk, be­cauſe it is performed under the grazing fire of the covert way ; but this fire ought to be checked by the ricochet bat­teries, which ſhould plunge into the covert way on every side. This ditch is crossed near the saliant angles of the glacis. It is always to be understood, however, that there is no possibility of crossing any ditch without a good epaulement of faſcines, to cover the partage on the side which is ſeen by the place, or by the works that defend it.

When the lodgment is entirely finiſhed on the covert way, then the other attacks are carried on in the manner before explained.

There are places which, without any fore-ditch, have lu­nettes oppoſite to the ſaliant and re-entering angles of the glacis, which are also enveloped by a second covert way : ſometimes they are vaulted and bomb-proof, as at Luxem­burg; and ſometimes they have only a ditch, a parapet, and a covert way.

Thoſe which are vaulted and bomb-proof are very diffi­cult to take ; becauſe the ricochet firing and the bombs can do them no miſchief. In that case they must either be turned, or be taken by mines.

A work is ſaid to be turned, when the besiegers get be­tween that work and the place, and ſo cut off their commu­nication. Sometimes the lunettes have communications un­der ground, and then there is hardly any other way of dri­ving out the enemy but by mines. This is tedious work ; but there is no remedy for it.

The lunettes and the ditch are always defended by branches of the covert way, with which they have alſo a communication, like thoſe of the lunettes, A, A, Plate DXXXVI. fig. 1.

This plate, which repreſents part of Landau and its at­tacks in 1713, may ſerve to give an idea of the manner in which a work is turned. The advanced lunette B, as well as the work C, called a *tenaille,* are turned ; that is, the trenches cut off the communication betwixt them and the place.

When this communication cannot be cut off, there will be often a necessity for attacking the lunette and covert way at the same time ; and the reaſon is, becauſe though the enemy ſhould be obliged to abandon the lunette, yet ſo long as they are masters of the covert way, they have it in their power to return and retake it. Therefore, the ſure way of keeping possession of it is to drive the besieged out of the covert way, at the same time that they are forced to quit the lunette.

The garriſon may avail themſelves greatly of mines for the defence of theſe small outworks, ſo as to oblige the be­siegers to pay very dear for their acquisition, and be a long while in making it. But they must purſue the same me­thods as the besieged ; they must dig deep into the earth, they must endeavour to destroy the enemy’s mines, to blow up their galleries, and to make themſelves masters of the lower ground. This is an essential point, without which the enemy may blow up and destroy the lodgments ſeveral times. The celebrated Μ. de Valiere, in a Dissertation on Mines, at the end of the third volume of Μ. Folard’s Com­mentary on Polybius, ſhows, that in a ground 25 or 30 feet deep, the enemy may be blown up twenty times. There­fore it is impossible to be too cautious in endeavouring to