the enemy from removing them, they must be fastened with chains, or with great cords. It is adviſable to be provided with crows-feet, and to ſpread them about ; as alſo with chevaux-de-frize, and with herissons, that ſhall extend the whole width of the breach (see Herisson). Shells alſo fastened to the ends of chains, in order to confine them to that part where they may do most damage to the enemy, are an excellent contrivance. Their fuſees are made ſhorter than uſual, to the end that they may produce their effect more readily. Faſcines ſmeared over with tar, and, in short, every stratagem ought to be tried to hinder the enemy from lodging themſelves in the breach.

When the besiegers have surmounted all theſe obstacles, and at laſt have got posſession of the breach, the mines are sprung in order to blow them up, and chevaux-de-frize are placed along the whole breadth of the breach. The troops post themſelves behind, and continue to make a vigorous fire upon the besiegers while they are using their utmost en­deavours to penetrate into the half-moon ; and when they begin to force their way, the first rank of men that defend it, being armed with partiſans or halberts, and ſupported by the other troops, ought to fall upon the enemy, and cut them in pieces. But if the besiegers at length by dint of numbers ſhould drive the garriſon from the breach, the latter ought to retire into the retrenchment, and from thence make a very briſk firing; and when they find that this is also upon the point of being forced, then they are to withdraw their cannon, and whatever ammunition they may have, into the place ; and laſt of all, if they have any mines under that spot, they must ſpring them as they retire, in order to do all the mischief and to create all the confuſion they can to the besiegers.

Sometimes it ſhall happen that the enemy, after having made themſelves masters of the half-moon, omit to leave a ſufficient number of troops to guard the lodgment, upon a preſumption that the besieged will not attempt to retake it. Whenever they show a confidence of this kind, a strong body of the garriſon ſhould return in the night and ſtorm this work, either by the gorge, or by ſome other part. There are great odds, but ſuch a vigorous and ſudden ſurpriſe will be productive of a very good effect; at least there is no great risk in trying, if the ſtrength of the garriſon will permit; and ſhould they ſucceed, the taking of the town will be retarded ſeveral days.

Here we have ſupposed that the enemy are reſolved to storm the half-moon; but if they ſhould attempt to get possession of it by means of saps, in that case the workmen must be continually harassed by blowing up mines, and kept as long as poſſible from the breach by means of fire-works of all kinds. When they begin to make a lodgment in the breach, then the besieged ſhould fall upon them briskly, and deſtroy the lodgment ; in ſhort, every artifice imaginable ſhould be used to retard their progreſs.

This last method is leſs bloody than the other ; but on the other hand, it may be very tedious, when the besieged ſpare no pains to disturb the enemy’s ſappers and miners.

One thing that greatly deserves attention, and may render it very difficult for the besiegers to mount to the aſſault, or **to** lodge themſelves in the breach by means of laps, is to clear away the rubbiſh in the breach. In a dry ditch this may be easily done ; but in a wet one, the thing is more difficult : on the other hand, in the latter case the breach is more eaſy to defend than in the former ; becauſe as the enemy cannot come to the foot of it but by the bridge of fascines, which is made in the ditch, and is ſeldom above 10 or 12 feet wide, they cannot of courſe preſent themſelves with ſo large a front before the breach as in a dry ditch ; conſequently the garriſon must find it much easier to repel them.

8. *Of the Defence of the Paſſage over the Ditch before the Bastion.*

At the same time that the enemy are carrying on the attacks of the half-moon, they work at the paſſage over the ditch before the bastion. What has been laid in regard to the defence of the ditch before the half-moon, may be ap­plied on this occasion; we have only to add, that when this ditch is dry, the caponier will be of great uſe to fire upon, the enemy in their paſſage over the ditch, and to ſally from thence in order to destroy their works. If the ditch be wet, it must be defended in the same manner as that before the half-moon: here only we ſhall add, that if there is a tenaille oppoſite to the curtain of the front attacked, the fire from thence will greatly annoy thoſe who are employed in filling up the ditch. Besides, the boats by which we obſerved that the enemy might be incommoded in the passage over the ditch, the besieged may likewiſe have recourſe to a kind of floats, made with double joiſts, at the end of which are fastened empty barrels, to prevent their sinking too deep in the water ; and theſe floats ſhould be loaded with ſhells, barrels of gunpowder, faſcines, pitch and tar; and in short,with all sorts of combuſtibles proper for ſetting fire to the bridge, and to the enemy’s epaulement : theſe are brought forward and fastened to the epaulement, and afterwards they are ſet on fire with a match, or with tow laid amidſt the combustibles.

When there are dikes or sluices, by means of which the ditch may be filled with water at any time, every art must be tried to defend it while it is dry ; and when all the de­fences are exhauſted, then the water is let in, and the enemy will be obliged to begin their work again.

9. *Of the Defence of the Bastions in the Front attacked.*

Here the reader must recollect what has been ſaid in, regard to the defence of the breach in the half-moon. The defence of the bastions is more eaſy, becauſe it is not ſo difficult to retreat from thence, by means of the retrench­ment ; and this retrenchment ſhould be larger and more spacious than that of the half-moon, and more difficult to force.

Besides all the precautions we have been mentioning, as mines under the breaches, within the bastions, &c. the be­sieged ſhould alſo mount ſeveral pieces of cannon on the breach, charged with cartridge-ſhot, and pointed down­wards, ſo as to be able to ſweep the whole ſurface of the ground on which the enemy must form in order to march to the aſſault. Care must alſo be taken, lest the enemy, discouraged with the difficulty of storming the breach, at­tempt to ſcale the bastion, as hath been practiſed ſeveral times, and particularly by the duke de Noailles, marſhal of France, at the siege of Gironne, in 1712. The way to- guard againſt this attempt, is to place along the parapet of the works that may be inſulted, large pieces of timber, which are to be tumbled upon the ladders as soon as the enemy offer to mount. They ſhould alſo have loaded ſhells all along the rampart, fastened to chains, and to let down towards the middle of the ladders, where they will burſt and kill thoſe who are mounted. They ſhould likewiſe be, provided with combustibles of different kinds, to throw upon the besiegers, and to keep them off from the foot of the revetement. When the garriſon are well prepared againſt this attempt, it will be very difficult for the enemy to succeed.

The entrance of the bastion may likewiſe be defended,