within the rampart of the half-moon, and to cut off the ſaucisson. If they cannot find them, they must advance with great circumſpection, and take care not to keep all together, that the mine may have leſs effect. Oftentimes the enemy will ſuffer the besiegers to carry on their lodgment without making any great opposition, becauſe it cannot be effected without a considerable loss of men ; but when the lodge­ment is advanced, the enemy spring their mines, and return afterwards to the half moon, in order to take it amidst the confusion which thoſe ſubterraneous fires must unavoidably occasion among the troops in the lodgment ; in that case, it will be requisite to renew the charge most vigorously with fresh troops, which ſhould be at hand to ſupport thoſe of the half moon, to place themſelves in the excavations made by the mines, to render the lodgment ſufficiently strong, and to ſecure it with a proper number of ſoldiers, so as to be able to withstand any further attempt of the enemy.

This work can hardly be diſputed in this manner, ex­cept when the half-moon has a reduit @@(d), as it affords a shelter or retreat to the garriſon, and enables them more easily to fall upon the half-moon. For if there ſhould be no reduit, and the enemy are driven out of the half-moon, they can scarce attempt to return, eſpecially if the commu­nication between the place and the half-moon is diſcovered by the batteries and lodgments of the covert way : becauſe, if the ditch is filled with water, this communication can hardly be made but with boats, which may be easily ſeen from the lodgments of the covert way, and may be overſet by the cannon of the batteries ; and if the ditch be dry, and there happens to be a caponnier, the communication, though more ſafe, is not without danger, by reaſon of the fire that may plunge into it from the lodgments of the covert-way ; ſo that it will be extremely difficult for the enemy to ad­vance quick enough to repossess themſelves of the half-moon; besides, they want room to assemble in a large body, and fall all at once upon the lodgments of that work.

There is only one case in which they may do it ; that is, when in the angle of the gorge of the half-moon they have made a ſpace, nearly as large as the places of arms in the co­vert way. This ſpace cannot be ſeen from the covert way, nor from its lodgments ; and as there are generally steps to ascend from the bottom of the ditch to the half-moon, the enemy might take advantage thereof to try to enter it ; but if the besiegers are upon their guard, they will find it easy to repulſe them, even with loſs.

The best time for attacking the half-moon ſword in hand, is by night, for the enemy’s fire is not ſo sure then as by day.

16. *The attack of the Bastions.*

Whilst the besiegers endeavour to posseſs themſelves of the half-moon, they work the same time at the deſcents into the ditch, which are made nearly towards the third part of the faces, reckoning from the flanked angle of the bastion. A deſcent may be effected at each face of the two bastions in the front of the attack, as in *n, n,* Plate DXXXIII. fig. 6. or, according to the more general cuftom, only op­poſite the faces in the front attacked. The manner of pro­ceeding is much the same as in the deſcent and passage over the ditch of the half-moon, whether it be dry or wet ; that is, if it be dry, a sap is carried into the ditch, from the opening of the deſcent to the foot of the breach, and strongly covered towards the oppoſite flank. If the ditch be full of water, it is passed over on a bridge of faſcines, constructed in the same manner as in the passage over the ditch of the half moon.

The batteries erected on the ridge of the glacis for ma­king a breach in the face of the bastions, must fire against that part of the faces where the breach is to be effected, and fire all together, as was mentioned in the article of the at­tack of the half-moon ; and when they have made a breach ſufficient to attempt the attack in front, ſome of the guns must be kept to batter the upper part of the breach, and ſome must be removed to the back of the platform, and diſpoſed in ſuch a manner as to be able to annoy the enemy, whenever they preſent themſelves towards the upper part of the breach. All this is done during the deſcent and passage over the ditch. Mines are alſo made uſe of to widen, and ſometimes even to make the breach.

To fix the miner to the wall when the ditch is dry, a lodgment is made near the opening of the deſcent, to protest him from thence against the ſallies of the besieged. Then the wall is broke with cannon, as near as poſſible to the bottom of the ditch, in order to get under the galleries which the besieged may have built withinside the bastion. An opening of five or six feet may be made with the can­non, to lodge the miner that removes the rubbish, and makes room for one or two of his comrades, who are to assist him to get rid of the earth in the gallery. When the ditch is dry, and the ground will admit of it, the miner ſometimes gets under it by a ſubterraneous gallery, which leads him to the foot of the wall ; but if the ditch be filled with wa­ter, it is not always the custom to wait for the completing of the passage over the ditch, before the miner is fixed to the face of the bastion. The wall is pierced with cannon, in the manner before mentioned, but a little above the surface of the water, to the end that the miner may not be in­commoded in this gallery ; and he is ſent over in a little boat, to place himſelf in the hole. The miners relieve one another every two hours, to carry on their work with more ſpeed ; that is, to complete and finiſh their mine. At the same time, the enemy will uſe various artifices to obstruct them.

When the miner has pierced the wall, he makes behind it, on both sides of him, two ſmall galleries, from 12 to 14 feet, at the end of which he places, on both sides the galle­ries, two mines, namely, one within the breadth of the wall, and the other sunk 15 feet under the rampart. A common train is given to theſe four chambers, which taking fire at one and the same time, will produce a very large and ſpacious breach.

When there are countermines under the rampart, and along its revetement, care must be taken to ſeize them, and to drive the miners from thence. For this purpoſe Μ. Goulon propoſes to ſpring four fougasses@@\* near them, in order to burst them ; when this is done, he is for entering it with 10 or 12 grenadiers, and as many ſoldiers, commanded by two ſerjeants ; part of theſe grenadiers ſhould have each four grenades, and the rest ſhould carry four or five bombs, of which three only ſhould be charged, the other two with fuſees only. The two ſerjeants ſhould begin with attacking the countermine ſword and pistol in hand, and the grena­diers ſhould follow them. If the besieged do not appear to defend their countermine, a lodgment is quickly made with land-bags. This lodgment consists of no more than a good

@@@[m]\* See

@@@(D) The reduit is a small half-moon constructed within the other. It usually consists of a single wall with loop-holes; but in Landau, Neufbrisac, and some other places, the reduit is constructed with a rampart and parapet like the external half-moon.