evening they all begin to advance, every ſoldier being obli­ged to carry a faſcine, together with his arms, in order to reach the place designed for opening the trenches. The guard of horſe march at the same time to their assigned pofts, **to** the right and left of the attacks, ready to ſupport the troops for the guard of the trenches in case of any sally from the enemy. All this is to be done with the greatest silence poſſible, and nothing ſhould be neglected to conceal the design from the enemy.

The pioneers are, according to marſhal Vauban, divided into brigades of 50 men each, commanded by a captain, a lieutenant, and two ſerjeants. They advance four or six abreast, near the place where the trenches are to be open­ed ; after which the rest of the troops that are to ſupport them, being come up, the engineers charged with the tra­cing or the trenches, and who are to place the pioneers, make them come forward where the opening is to com­mence, while the battalions that ſupport them are drawn up to the right and left in the places assiged them, where they unload their faſcines, and silently wait for further orders. In the meanwhile the engineers trace the branches of the trenches, and the first parallel in the manner already described, and the work is advanced as fast as poſſible.

As much work is undertaken as the pioneers can be expected to perform this first night ; and in proportion as the tracing goes on, the engineers place the pioneers, making them file off one by one, each carrying his faſcine under the right arm in the place is on the right, or under the left if it is on the left, to the end that by the position of their fascines, which they lay on the ground along the tracing, and on the same side as they carry them, they may be enabled to distinguish the side of the place, that is, the side towards which they ought to throw up the ground in order to cover the trench from the fire of the town. As fast as they are placed, they are ordered silence, and made to lie down with their face on the faſcines, and not to begin to work till commanded. The whole operation begins at the same time, that they may advance equally. When every thing is ready, and the pioneers are all placed along the tracing which is purpoſed to be made this first night, orders are again given for them to work ; and then they all ſet about it with all the diligence poſſible till day-light, that they may be covered against the fire of the place, which is still very dangerous in the morning, considering that the trench has not had time as yet to be rendered ſo perfect as it ought. The troops that are to ſupport the pioneers are put under cover on the back of that part of the trench which is finished ; that is, on the border of the trench oppoſite to that on which its parapet is raiſed ; they are made to lie on their faces ; after which the pioneers, who have been upon duty in the night, begin to file off, and others fill up their places. It is very difficult this first day to render the trench as com­plete as it ſhould be ; but no pains are ſpared to make it as complete as possible.

As the design cannot be now concealed from the enemy, the guard mounts the next day with drums beating about noon ; and care is taken to continue the work of the trenches the second night, in the same manner as the first, that is, by placing the pioneers uncovered, becauſe they are at ſuch a distance from the town, that the fire is not yet dangerous enough to require their being placed otherwiſe : the work goes on quicker in this manner ; but it must necessarily be altered as ſoon as the workmen come within musket-ſhot of the place.

The first night is the best adapted for advancing the works of the trenches, becauſe of the distance from the place, which is too great to apprehend any danger from **the** enemy’s fire. Sometimes it happens so, that the

enemy is not appriſed of theſe works ; especially when all the necessary precautions have been taken to conceal them, and in that case the buſineſs is done in a manner without loſs or danger. It is of importance to advance them with ſuch ex­pedition, that they may be fit to receive the troops, who are to ſupport the pioneers, in order to cover them against the fire of the place ; and as the first parallel is designed for this purpose, therefore it cannot be perfected too ſoon.

According to marshal Vauban, the first place of arms, though begun the first night, has need of a second and **a** third, before it can be completely finiſhed and in condition to hold the troops that are to guard the trenches ; but the works for perfecting this line will not hinder the besiegers from advancing to the second parallel, which ought not to be begun till the fourth night. It is to be obſerved, that the guard who mount the trenches are changed every day ; they mount about noon, and they are to be as strong as ſhall be requisite for opposing the ſallies which the garrison of the place may make against the workmen. They are generally equal to two-thirds of the garrison, becauſe the enemy may fall upon the trenches with that number, referring the other third to guard the town. But as it is poſſible that the besieged may think proper to sally forth with their whole force, and fall upon the workmen, together with the troops that ſupport them; therefore, in order to guard against every accident of that sort, the troops in the trenches ought to be nearly equal to thole of the place, eſpecially in small towns, where a few are ſufficient to guard the posts, or where the burghers are ſo well attached to the prince, that the com­mandant may depend upon their fidelity in guarding the town; becauſe in that case he may make a general effort with his whole garrison against the troops in the trenches.

We have obſerved, that the second night the pioneers may still be placed uncovered ; but the third it would be very dangerous to do it, becuse of the enemy’s fire being too near. When the engineers are of this opinion, they take care not to expoſe the men any longer uncovered, and then the works are carried on by lap.

8. *Of the Sap.*

Let ABC be the part of the trenches advanced to A, ſo near the town as to render it impossible, without evident danger, to work any longer at the approaches, unless the men have ſome cover against the fire of the place : and let the branch AD be traced by the engineer, not with a cord, as at the opening of the trenches, but with ſome picquets, which he has taken care to place in the direction this branch ought to have, to serve as a guide to the workmen. A cut is made in the parapet BA of the trenches ; and then the men designed to work by sap, who are therefore called sappers, will move forward through the opening A, ſuccessively eight in number. The first is to roll before him a mantlet to cover him against muſket ſhot. He advances as far as is necessary to place a gabion on the line AD ; and this ga­bion being ſet on its baſe, in the proper ſituation, with the picquets uppermost, the ſapper makes a little trench behind, about six inches distant from the gabion, of a foot and a half in depth, and as many in breadth, and he empties the earth of this ditch into the gabion. This done, he places a second gabion near the first, in the same manner, and al­ways under the cover of his mantlet ; in like manner he makes a ditch behind, the earth of which ſerves to fill his gabion, thus he places a certain number, till he grows tired of the operation.

The second ſapper, who immediately follows him, widens the ditch made by the former by six inches, on the oppoſite side to where the gabions are placed, and makes it half a foot deeper. The earth he digs up ſerves to fill the gabions