glacis. Retrenchments may alſo be made in the re-entering places of arms of the covert-way, by raising a parapet with­in them, and parallel to their faces, with a ſmall ditch be­fore it. Nor ſhould the galleries for the mines be forgot­ten : on the contrary, they ought to be begun betimes, and carried out into the country as far as the ground will per­mit : and chambers ſhould be made under all the angles of the glacis. If there are any houſes within the rampart which may obstruct the defence, the governor ought to see them demolished ; and nothing ſhould be left, either within or without, which can any way be of ſervice to the besiegers. If there are new raiſed troops, care ſhould be taken to diſcipline them well.

The governor ſhould alſo see that the hospitals be in a good condition, that the sick and wounded be taken care of, nor think it beneath his character to viſit them himſelf, and to let the ſoldiers see how greatly he has their preſervation at heart. This is the ſurest. way to gain their con­fidence and affection, and to engage them to do their utmost towards defending the place.

As it is now the custom to throw a great number of ſhells into a town besieged, it is necessary to have vaulted places under ground bomb-proof, where part of the garriſon not on duty may rest in safety. They are not ſo much wanted in large cities, where there are always different quarters ſecure from the enemy’s ſhells : but a ſmall town is in every part expoſed to the bombs ; ſo that ſome places under ground are abſolutely necessary for the garriſon to take their rest, and to prevent the troops from being continually in­commoded. These ſubterraneous caverns are generally made in the gorges of the bastions, and ſometimes under a rampart behind the curtains.

Where there are none of thoſe ſubterraneous places, it will be necessary, as ſoon as the town is invested, to erect defences to ſhelter the men from the bombs ; these are made of strong pieces of timber, laid ſloping against the parts the least expoſed, and they may be covered with thick planks laid in the same manner. The large houſes ſhould alſo be ſhored, that is, all the floors, from top to bottom, ſhould be ſupported with strong upright timbers, and the upper floor covered with large beams laid acroſs one another, and these again with earth, faſcines, dung, &c. When they are thus fitted up, they may ſerve either for the ac­commodation of the troops or for hoſpitals, &c. But what deserves a more ſpecial care, is the powder-magazines. They ought to be bomb-proof ; but as there are very few that can reſist the ſhock of a great number of ſhells, they ſhould therefore be covered with ſeven or eight feet thick of earth, and a layer of faſcines, dung, and strong planks laid over them, ſo as to form a kind of roof. But if it ſhould happen, either from their situation or height, that this cannot be done, then a range of large trees, well fatten­ed together, must be laid over them, ſo as to diminiſh the ſhock of the ſhells. The windows of the powder-maga­zines ſhould have no prospect towards the besiegers ; and to prevent all accidents, nobody ſhould be permitted to go in or out of the doors, but when the fire of the enemy is slackened.

When there are no powder-magazines in a town, it is very difficult to preserve the powder during a siege ; all that can be done, is to distribute it in different places, as in cellars and caves made under the ramparts, or in gardens, *&.c.* and to cover these places well with thick planks, earth, faſcines, &c.

The miſchief done by ſhells consists not only in demoliſhing the buildings on which they fall, but likewiſe in letting fire to most places they fall upon ; and when they are fol­lowed by red hot balls, it is very difficult to hinder the town from being burnt. In order to remedy this evil, timely precautions ſhould be taken, and the inhabitants employed in extinguiſhing the fire.

First of all, a great number of caſks, filled with water, ſhould be placed in the streets ; and the ſoldiers and inha­bitants ought to be divided into companies, to prevent the ſpreading of the flames. It will be proper to divide these into ſmall bodies, and to allot different quarters to each of them, for extinguiſhing any fire that may happen to parti­cular houſes. By these means each corps, or company, will become anſwerable, in ſome measure, for the houſes entrusted to their care, and uſe the utmost endeavours to preſerve them. The pavements must alſo be taken up, and dung laid in the streets, to prevents further miſchief from the bursting of the ſhells.

3. *Of the Defence from the investing to the Attach of the Covert-way.*

When the place is invested, and the besiegers begin to work upon the line of circumvallation, the governor ought not at first to fire upon the enemy’s troops with the largest cannon, but with his ſmall pieces only. For as the enemy ought to pitch their camp as near as poſſible to the place, provided they are out of reach of cannon-shot, they will think themſelves at a ſufficient distance when out of the reach of thoſe ſmall pieces ; but as ſoon as they are encamp­ed, the garriſon are to give them a full volley with their great guns, which will oblige them to decamp once more, and make them loſe time.

While the besiegers are constructing the lines, their en­gineers ſpare no pains to get an exact knowledge of the ad­jacent ground, and to reconnoitre the fortifications, that they may form the plan of attack, which they will be ſure to make on the weakest side. To prevent this, Μ. Goulan propoſes the following ſcheme.

As ſoon as the town is inverted, the governor ſhould send 200 or 300 men every night to that side which he knows to be the weakest, with orders to lie upon their faces, in the form of a ſemicirle, of which the paliſades of the co­vert-way may be considered as the diameter. These men ſhould be divided into ſmall parties, of three or four men each, at the distance of 20 or 30 paces from one another, ſo as to occupy a large tract of ground. All these different parties ought to agree upon a signal, to give notice when any body passes by them, and they ſhould remain there in silence till day, without stirring, unleſs ſomebody happens to paſs by ; in which case, the first that sees them ſhould rise, and give the signal to the rest, who are to do the same; then all drawing cloſe together, and advancing to the pali­ſades, they will take those who parted, as it were in a net, without any possibility of relief from their eſcort, who can­not be numerous enough to reſcue them from the hands of 200 or 300 men, protected by the fire of the covert-way. If the men who advance to reconnoitre the place, instead of passing through the intervals, ſhould fall in with ſome of these parties, and endeavour to get off, they must be fired upon : thus the enemy may be easily hindered from recon­noitering, and thereby acquiring a knowledge of the ground, or the side most proper to be attacked.

From the time the place is invested, the besieged ſhould ſend every night ſmall parties of eight or ten men, com­manded by a serjeant, with orders to lie upon their faces all round the border of the glacis, and to listen carefully to every thing that passes. Whatever care the besiegers may take to open the trenches in silence, still it will be very difficult for this operation to be made, without ſuch a mo­tion as must be heard or perceived from the neighbourhood of the glacis. These ſmall parties may even advance a little