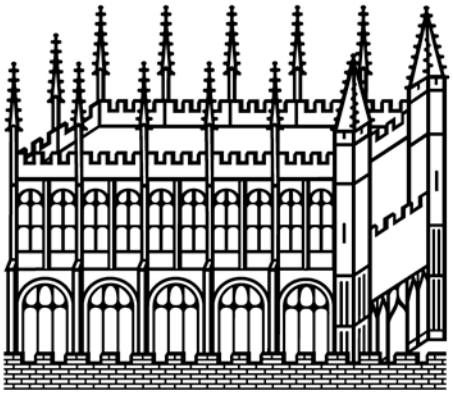

A

FLYING SHOT AT FERGUSSON

AND HIS

"PERIL OF PORTSMOUTH,"

INVASION OF ENGLAND, &c.

BY

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My dear Colonel,

The interest which you and others have expressed in the discussions that have taken place on Mr. Fergusson's System of Fortification, and the fact that no very definite notions on the subject were impressed on the minds of those who attended the Meetings, have induced me to commit to paper what I intended saying, had an opportunity offered.

I have much pleasure in inscribing my "Flying Shot" to you, and the Members of the United Service Institution; and am,

My dear Colonel,

Very sincerely yours,

J. JEBB,

Lieut.-Colonel, Royal Engineers.

Colonel P. J. Yorke, *F.R.S.*,
&c. *&c.*

A FLYING SHOT AT FERGUSSON.

It has been justly remarked of the prolonged discussions which have taken place at the United Service Institution on Mr. Fergusson's System of Fortification, that they were unsatisfactory, as leading to no practical result; and that, inasmuch as they consisted mainly of assertions and assumptions on both sides, the real questions at issue were not disposed of. Many of those who attended, not having sufficient data before them to form any conclusive opinion, and seeing a single man assailed by a multitude, were, therefore, not unnaturally, inclined to give him the benefit of their support.

Mr. Fergusson is, in consequence, supposed to have had the best of it; and his flag still flies triumphant on his so-called Impregnable Fortress.

If the question at issue had been a mere abstract principle, it would not have attracted the same attention, either in Military circles, or in the country generally, that it has done; but when the "Peril of Portsmouth," our great naval depôt, was arrayed on one side, and the means of rendering that place impregnable, on the other, no wonder that a plan, put forward with so much ability as Mr. Fergusson's, should have excited considerable interest. The magnitude and boldness of his conceptions, the gigantic scale of his works, and the claims he urged in their favor, with his sweeping denunciations of all other systems, made his listeners "hold their breath to hear." Thus he has doubtless enlisted a strong force in his favor, and it is on this account desirable that his assumptions should be inquired into, in order, if possible, to ascertain where the truth really lies.

With this view, I will endeavour to offer a few observations on the points which appear principally deserving of consideration, although most of them were adverted to during the discussions which took place on the subject, in a more scientific and decorous style than " A Flying Shot " will permit.

Mr. Fergusson gave the meeting a clear explanation of the construction, as well as of the means of defence, of a modern Fortress, and showed that all experience had proved their entire inadequacy to cope with the powers of attack. This, he proceeded to demonstrate, arose chiefly from the power of the Besiegers to choose their own positions, from which they could bring to bear the irresistible effects of enfilade fire. He made it perfectly evident that, unless aided by natural advantages, the reduction of any place, fortified on the best existing systems, was a matter of certainty, if an adequate force were brought into the field. In order to remedy this inequality, he proposes to revert to the wisdom of our ancestors, by falling back on first principles ; and he thoroughly believes, that in doing so, he has regained the advantage which, in former times, the Defence had over the Attack, thus completely turning the tables.

Before inquiring into the means by which such a revolution is to be attained, I will briefly glance at the progress of the Art of Fortification. The Engineers who built Babylon, and the "fenced cities whose walls reached to heaven," disposed them in the form of circles, squares, or rectangles, trusting to their towering height, and to the walls being strong enough to resist the missiles which could be brought against them. The light of a few generations, however, showed that even against the comparatively powerless means of offence which then existed, there was a defect in the construction of those great places,—there was no flank defence. Any one standing at the foot of the wall was in the safest place he could find within range of bows and arrows. Hence the practice of throwing out projections on the tops of the walls, such as may be seen in the *battlements* and *gateways* of our Baronial Castles, which enabled the defenders to see any intruders below ; added to which was the construction of *square* or *round towers*, flanking

the wall itself—such as may be seen at Dover and Alnwick. Height, however, continued to be one effectual element, for escalading was well understood, and fighting hand to hand was one of the amusements of the day. Sieges were then reckoned by years instead of days. Titus, to be sure, made a quickish thing of it at Jerusalem; but, in those palmy days for the defenders, the patience of an enemy must have been severely tried. It is, therefore, no wonder that the greatest Masters of the Art have ever since endeavoured to restore the balance, and give to the defenders some of the advantages they formerly possessed.

After the invention of Gunpowder, however, experience of the effect of round shot soon put an end to the impregnable Fortresses of the middle ages. Instead of building up walls of enormous height, the Engineers saw the necessity of keeping them, as much as possible, out of sight. The difference in this principle, and the loss of picturesque effect, will be seen by comparing Dover Castle with the Citadel on the western heights opposite. Bearing this distinction and the reason of it in mind, we shall see that Mr. Fergusson has seized, and made the best of, the strong points of both extremes, and has combined in his Model, the views of the Engineers of the most remote antiquity, with the lights which have dawned upon the most distinguished men of modern times.

It will be observed, however, that though he professes very *ancient* principles, he, perhaps insensibly, falls into very *modern* views, and gradually developes the Bastion System; and it would not be difficult to shew that, at the point where he quits the company of those who are admitted to be the best authorities in such matters, he affords facilities to an enemy, without gaining any advantages, as far as *principle of construction* is concerned. It may here be said: But look at the details—the overpowering nature of his direct fire: the security of his Artillery from the destructive effects of Enfilade—the width and depth of his ditches, and the power they afford of concealing the flank fire necessary for the defence. To this, I should be disposed to reply: It may be all very well, but he has shewn that all these are applicable to the present system of Fortification. They cannot, therefore, be reckoned

as *principles of the art.* They may be held to be obstructions or appliances, and their merits, as such, are well deserving of consideration; but we must confine our view to Mr. Fergusson's system, or principle, which I take to be, powerful and accumulated direct fire—Bastionettes or Caponnières, placed below the ground level, for enfilading and protecting the ditch—no outworks, and very wide ditches.

I mention this, not to detract from the powerful combination shown on the Bastion fronts of the Model, but to clear the ground a little, that we may know what we are dealing with.

Curious, however, as it may appear A.D. 1853, the consideration of this plan will bring us to the very A B C of the Science of Fortification. We shall have to admit that a straight, or curved line, being the simplest, is, at the same time, the very strongest form in which to dispose defensive works, a proposition which, viewed through the dim light of early impressions, or the broader glare of later experience, appears somewhat difficult to maintain, and to which might, I think, not unfitly be applied the words found attached to the converse of some mathematical demonstration, "which is absurd."

But if I am to have a "Flying Shot," I must not stop to discuss the point. I merely state it as a question, in behalf of an enlightened public, *versus* Fergusson. I proceed, therefore, to enquire into some of the details of the projected system, from which it is assumed that so many advantages are to be gained.

Before going further, however, it may be convenient to quote a few passages from the Introduction to the "Peril of Portsmouth," and from the Lecture of Colonel Adams, which is inserted in the Appendix to that work; to which I will add such brief observations as may serve to call attention to the points on which a difference of opinion exists.

Mr. Fergusson observes that, "the invention of Vauban and his contemporaries shewed how Fortresses could be quickly and inevitably destroyed, and gave that superiority to the Art of Attack which it has ever since retained—not, however, without protest on the part of many well qualified to judge the question, but,

hitherto, unfortunately, without any one having been found, not only to see the defects, but, also, to suggest the remedy, with, perhaps, one notable exception in Montalembert. He, at the end of the last century, saw clearly where the error lay, and grasped as clearly the idea, that the only mode of applying a remedy was, to give the fort a superiority of fire over the attack. When, however, he came to reduce this to practice, he signally failed. His suggestion was, to build enormous masses of masonry, and pile casemate on casemate, wholly forgetting that exposed masonry is easily destroyed by the Besieger, even without his showing himself; and that casemates, when attackable, are far more destructive to the Besieged than to the Besieger. It was easy, therefore, to shew the fallacy of this remedy, and to put it aside."

He goes on to state:—"I am, however, convinced that it is a mistake to suppose that the art of attack must be superior to the art of defence. The remedy is, I believe, simple and easy, and, consequently, places may be made as impregnable, as before the invention of gunpowder."

Concluding thus, as regards the system he proposes:—"If there be a flaw in it, let any officer, or competent person, shew how he could attack, either one of the theoretical forts given in my book, or this proposed mode of defending Portsmouth, stating the number of guns and men he would require, the mode in which he would approach the edge of the ditch, and how he could pass it. If he can shew this, and I cannot confute him, I am willing to give in, but till this is done, I may be allowed to claim for my system the impregnability which I honestly believe it to possess, and which I must, at least, assume throughout the following pages."

Considering that the minds of the most eminent Engineers have, for some centuries past, been directed to the question of regaining for the Defence the powers it possessed in ancient times,—that numerous places have been fortified, and sieges out of number have been sustained, in which the greatest Soldiers have done their utmost; and further, that the weak points of the modern system have, from the first, been open to the whole world, this claim of *impregnability* is startling.

It may, however, serve to diminish our surprise, to be made aware of the kind of *attack* against which it is impregnable, and this I give in Mr. Fergusson's own words.

"Perhaps an officer, unaccustomed to this mode of defence, will realise it better, if he will fancy himself ensconced with his troops in Kensington Palace, and ordered to march across the Serpentine towards London. Even supposing there are no defenders or guns on the opposite side, it is no easy matter to get troops, with their arms, ammunition, and clothes, across a deep piece of water, 200 or 300 feet wide. He must have boats, pontoons, or be allowed to build a bridge. When it comes to this, he must fancy the bridges at either end converted into batteries of 10 guns each, sweeping the whole with a heavy cross fire, and in front of him, 100 or 200 guns, securely ensconced behind earthen parapets, and ready to open on him at a moment's warning. What would he do then? Let some one explain the next manœuvre, for I cannot."

As to the impregnabibity of Rotton Row, assumed to be the point of attack, I am quite ready to admit that there are times in the balmy afternoons of June when it does look formidable, and thousands of Military men, who will be deemed judges of beauty and horse-flesh,will be ready to declare that it is "not to be beat," and in this sense it is impregnable; but, as regards the young gentleman with his troops on the other side of the Serpentine, I should recommend his "next manœuvre" to be that of returning through Kensington Gardens to the Palace from whence he came. He has not got the means of crossing the water, unless he intends to swim his men over, and he should have known that before he started.

It is by arguing on such data as these that Mr. Fergusson has been led insensibly to shut his eyes to the powers which an enemy can develop against him. Hence, the confidence and security he feels within his Fortress. For, let alone the difficulties incidental to crossing water without a bridge, there is not a street in London that might not, in a few hours, be rendered impregnable, if troops be brought up to it unprepared with the means of subduing the fire, or forcing an entrance.

As regards construction, and the overwhelming means of defence, I will refer to a few passages in the Lecture of Colonel Adams. After explaining the impossibility of keeping up a communication across a wet ditch during the later operations of a siege, and that this objection does not weigh where there are no outworks, he goes on to say that "Mr. Fergusson proposes to dig a ditch about 60 feet deep, and about 200 feet wide, to afford earth sufficient for the erection in its rear of a mound 400 or 500 feet in width at base, and 60 or 80 feet in height; this he proposes to divide into four or five terraces, or terrepleins, from 80 to 100 feet in width, with parapets rising 15 or 18 feet one above the other. In the Model five such terraces are shown; the first, or lowest, being wholly below the level of the plain, he calls it the 'fausse braie,' or 'reserve line,' as it is not seen at all from the country, and need only come into action, should the enemy have been able to reach the outer edge of the ditch. The four upper parapets, as shown in the Model and Woodcut, are profiled, so that each can see the outer edge of the ditch, and the general outline of the fort being circular, they *all* look directly towards the country, and face the point of attack."

* * * * *

"And that a greater number of guns face every point of the ground than can possibly be placed on that point by the Besieger."

* * * * *

"By this arrangement it will be observed, that firing directly on one radius of the circle, four guns, one above the other, can at all times be brought to bear on any point of ground in front; but, if the embrasures open so as to allow a gun to traverse twenty degrees each way, nearly 100 guns may be brought to bear on any point in the first parallel, or, say at 600 yards from the salients of the fort; and traversing only 12 or 15 degrees, 50, at least, can be brought to bear on any point beyond the glacis."

This looks like business; but he then goes on with the attack,

which is poaching on the manor I have taken, and he must beware of steel traps and spring guns.

As regards the Siege Train, which can conveniently be brought into the field, he observes:—"Nevertheless, not to favor Mr. Fergusson's system, but to test its merits strongly, we will suppose that the Besiegers do bring as many as 100 pieces against it, and putting aside mortars, for the present only, we will suppose them to be 100 24-pounders, and heavy howitzers."

To which I might say, this is a very moderate train, considering you have 1000 guns in the Fortress; but, still, I think it will be more than sufficient. If, however, you will permit me, I will take a large proportion of heavy howitzers, &c.

He then continues, with reference to the use of the Siege Equipment:—"Let us suppose the Besiegers to try counter-battering as their best means of using their guns to cripple those of the fort, and, for this purpose, that they have constructed one large battery for 100 guns, at 20 feet apart. This battery would be 2000 feet long; and I have shown, that at the same distance apart, and without using elevated traversing platforms, the fort could bring from 200 to 250 guns to bear on the battery, and not only in superior number, but of superior weight of metal."

* * * * *

"Under these circumstances, there could be no question but that the guns of the fort would soon annihilate the guns of the battery."

On these several questions, I would observe, that the Besieger is not obliged to place his guns in line, to be shot at; and, if elevated traversing platforms were used in the Fortress, the Gunners would soon feel the effects of the Minié Rifle. I am, also, much inclined to doubt the conclusion, that the guns of the besiegers would be silenced. And again:—"The guns of the upper ramparts could not be touched by enfilade *with full charges;* for, as they are elevated from 60 to 80 feet above the ground, the angle of elevation at which the besieger's guns must be fired,

would cause the shot to pass clear over the terrepleins, without damaging guns or men. The same is true firing à ricochet; the great angle of elevation necessary would prevent the shot from rebounding or doing any damage."

"Now, with respect to the lower terrepleins, it is very possible that hereafter the use of large shells, fired horizontally from howitzers, may enable a besieger to cut through the 18-feet parapet of a bastion fort, and so enfilade a whole line of terrepleins through the opening; but in a circular fort of this construction, as he must fire in the direction of a tangent to the curved terreplein, he would have to cut through at least 150 feet of the covering parapet, in order to make the necessary opening."

On this I would observe, that firing with *full charges* is not necessary; but with small charges it would be destructive. As regards cutting through the parapet, and thus exposing the terrepleins, we shall have occasion to try the effects of direct fire from the front, with eight-inch shells, for effecting that object.

He goes on to say:—"Now to enfilade the lower ramparts à ricochet, the battery must (as I explained in my first lecture) be formed within about 600 yards of the guns to be subdued, and, the rampart being curved, the battery must be formed on, and fire in the direction of, a tangent to the curve; a battery, for instance, of 10 guns, placed so as to enfilade any section of the fort, must be placed in such a position as brings it within 300 yards, or short point-blank range, of 25 or 30 guns of superior weight of metal, which can fire down directly into it. It is, therefore, evident from the greater proximity of the fort guns to the battery, added to the superiority of their number and weight of metal, and the further fact of the guns of the fort firing unmolested by any counter-fire, (except of mortars from a great and uncertain distance,) it would be only a matter of a few minutes to silence any such batteries attempting to ricochet the faces of the fort."

I would here remark that, though it might be desirable to place guns for the ricochet of an ordinary Fortress at 600 yards, a greater distance would be preferable in this case, in consequence of the command. The guns opposed to a Battery would not,

however, be unmolested ; and, if proper precautions were adopted, they would not so easily silence the Besiegers.

Of another important arm he observes :—" There is another mode of attack, which it is believed will have considerable influence on sieges to be undertaken hereafter, viz.—the fire of musketry, which, with the improved rifles, would, no doubt, be most important in keeping down the fire of any fort on the *old* construction. *This* fire, however, is the privilege of the party having the *superiority of artillery fire ;* for, as happens in every siege, the breaching batteries could neither be manned nor used, were the guns not protected by mantlets and screens from musketry fire, and these could be knocked to pieces in a few minutes, if the fort had even one gun to bring to bear upon them."

As the privileged party into whose hands the superiority of artillery will most certainly fall, I shall claim to make some use of the improved rifles during the later periods of the siege.

Adverting to dry ditches and their defences, the Carnot Wall, and the Bastionette, he observes :—" Mr. Fergusson recommends a wall built something after the manner of those proposed by Carnot, loopholed for musketry in two tiers, and placed at the bottom of the slope of the escarpe, so that the earth does not press against it, and its destruction does not bring down the parapets, nor at all interfere with the main work of the fort. Owing to the capacious dimensions of the ditch, this can easily be done, without encroaching on any necessary space ; for, from the immense quantity of earth required for the mound of ramparts, the ditch cannot, in any case, well be less than 60 feet deep, 80 or 100 feet broad at bottom, and consequently, 200 or 220 feet broad at the plane of site. Besides forming a most serious obstacle to an attack in any form, this depth of ditch enables Mr. Fergusson to place his masonry so low as most effectually to protect it from injury from the fire of the besieger's batteries ; which is, certainly, not the case with masonry of forts of the usual construction, where the cordon of the wall is level with the crest of the glacis, or of the covering mass."

" The improvements in artillery, as demonstrated by the

Woolwich experiments, have shewn that masonry so placed can be destroyed from the first or second parallel; but when the cordon is 30 feet below the plane of site, it may be considered as perfectly safe from any fire yet invented."

"Now, if it can be shewn that Mr. Fergusson's system cannot be enfiladed by ricochet *at all*, that alone would be an advantage over the bastion system; but if it is found, in addition, that the artillery is not to be subdued by *any* of the methods employed against the bastion system, and that it is much safer from attack by surprise—then it must be admitted, I think, to be a great improvement on the bastion, or any other system at present known, and to possess the most important qualities of a strong fortress."

* * * * *

He goes on to observe:—"Constantly bearing in mind that the *whole* success of the operations of a siege depends on the besiegers' power of crippling the artillery fire of the fortress, it is to the prevention of this, in the first instance at least, that Mr. Fergusson directs his attention."

"To effect his purpose, he abandons at once all the flanking expedients of the bastion systems, all that Engineers have been accustomed to consider excellent, and prepares to meet the enemy face to face."

Colonel Adams then states that—"The best method of defence, in chess or in war, between individuals or between armies, *is to attack;* in vulgar, but expressive phraseology, not to stand baffling or parrying the blows of an aggressor, but to pitch into him at once, and knock him down, or endeavour to do so."

Though my hand is sadly out, I will endeavour in a small way to act upon this suggestion, but would beg permission to follow the good Old English practice of shaking hands with Mr. Fergusson and the gallant Colonel before we "set to."

Now if, in reference to all the claims made on our credulity by Mr. Fergusson, it can be clearly shewn that his terraces can be brought under a most destructive flank and reverse fire—that his Artillery can be subdued by direct fire alone—that he is open to

attacks by surprise—that he cannot cripple the fire of the Besiegers, and that in abandoning all that Engineers have been accustomed to consider excellent, he gains a great loss; it ought to be admitted, that falling back on the principles of the ancients is a retrograde movement in the science of Fortification, and a Military heresy of the gravest description. I must not, however, make this assertion without explaining the grounds on which I have come to such a conclusion.

OVERWHELMING FIRE OF THE FORTRESS.

We will now proceed to consider some of the most prominent features of Fergusson's plan: and first, that, gun for gun, the Besieged will have the advantage of the Besiegers!

This assumption entails the admission that, if men and guns be placed on successive terraces one above another, the increased power of resistance is in direct proportion to the numbers. A very little reflection will shew that it is no such thing. It might be so where a line-of-battle ship could range up alongside a heavy battery, both firing broadsides into each other. In such a case, with an equal number of guns, circumstances and the fortune of war would decide; but it is not so when the distance can be chosen by one of the parties concerned—when measures of security in the construction of the batteries can be adopted, and when the kind of fire, with which to meet that of an enemy, may be selected, &c. As an instance, a single gun, on a Martello Tower, has been known to beat off a 74.

It may be asked, what are the means and measures which can be resorted to against so heavy a direct fire?

First, as regards the construction of the Batteries.

Assuming that great precautions were necessary to guard against the destructive effects of round shot with full charges, I conceive the safest plan would be the, perhaps, novel expedient of dispensing with a parapet altogether, and placing a gun in an excavation, or sunken battery, about seven feet deep. There

would be required a ramp in rear, and a narrow counter-sloping cut in front by way of an Embrasure. To the lovers of security, and consolidated Parapets, a Battery of this kind would present many attractive features. The advantage of dispensing with a loose Parapet, and spreading the earth of the excavation on the surface, is, that there would neither be a definite object to shoot at, nor so much of a trap for shells fired at low angles.

The problem which the Besiegers would have to solve, is something much more difficult than that of practising at a six-feet target, laid flat on the ground, at the distance of 700 yards. Such Batteries might be compared to rifle pits for 8-inch howitzers.

If the necessity for precautionary measures were less urgent than has been assumed, sunken Batteries, five feet below the ground line—a Parapet counter-sloped, and, if necessary, protected by an Epaulement in front, would answer the purpose.

It will be admitted, that at distances of 600 or 700 yards, a command of 40 or 50 feet is worth but little for the defence; hence, the assumption that the Besiegers will neither be able to establish their Batteries, nor maintain an effective fire, is absolutely groundless.

Taking it, therefore, for granted, that the Battery is established, let us inquire into the nature of the contest it would have to keep up with its giant opponent.

It will be explained further on, that the guns of the Besiegers are supposed to be dotted about in small sunken Batteries, exactly opposite the point of attack, on a belt about 100 yards wide, and at distances extending from 600 to 800 yards from the place.

We will now inquire—How many guns could be brought to bear upon them from the four Terraces? In order, however, to enter upon this calculation, we must first of all select the point of attack. For several reasons, we have a penchant for a particular portion of the ramparts, 100 yards in length, adjoining one of the Bastionettes that defend the ditch.

We shall, of course, have, first, all the guns on the 100 yards,

of which there would be mounted about 14 on each Rampart, giving 56. In addition to these, there would be a certain number of the adjoining guns on either side; but, if the Parapets of the place are to be strong, and the guns well protected, (and they will require all that can be obtained in that way,) the line of fire could not safely be diverted more than 10 or 15 degrees to the right or left; and, on these data, according to Colonel Adams, not more than 50 additional guns could be brought into play, making a total of 106.

Now, let us see if we shall want an equal number? The particular delusion under which I labour is, that we should not require anything like the same force, and for the following reasons:—

The effect of round shot, with full charges, against small sunken Batteries, may be almost left out of the calculation; hence, they would be exposed to little else than the chances of war, from shells, and these chances we may calculate on Mr. Fergusson's own data, thus: one howitzer has an area of 30 feet, but it being proposed that each single Battery should stand on an area of 6000 feet,—hence, the odds against injury would be 200 to 1.

As regards the practice against the place: bearing in mind that there would be an ample assortment of men, guns, parapets, and traverses, spread out on the face of the slopes, and that the Besiegers can fire night and day, it would appear clearly that, instead of the Besieged having the advantage, gun for gun, it would be altogether the other way; and this, without the destructive effects of flank fire, which, for 24 hours, should have been previously applied to the 100 yards Parapet selected for attack.

Mr. Fergusson thus illustrates the difference of circumstances between two contending parties, when speaking of the difficulties that would be encountered by ships attempting to pass his Batteries into Portsmouth Harbour. He says,—"A ship presents a target 200 feet long, by 30 feet high, which it is *almost impossible to miss*. In fact, whilst it is a chance if more than one shot in a hundred take effect on the battery, 99 in 100 do fatal execution on the ship.

It was the knowledge of this fact that made Napoleon, in his 'Instruction to the Marine' say,—'Il résulte de l'expérience qu' une batterie de quatre pièces de gros calibres a l'avantage sur un vaissean de cent vingt canons.'"

As a practical illustration, we will suppose eight guns mounted in four tiers, on a mound such as that proposed by Mr. Fergusson, two and two, in successive Terraces; or, as a more familiar example, let us suppose them to be placed on the face of the Butt, at Woolwich. The Besiegers would have a target 50 feet high by 40 feet wide; which would be covered with objects, all and any of which it would be desirable to damage or destroy. Could such a target be missed? The reply of any practised Artillery-man would be—"very seldom." He would, probably, add, that a gun or howitzer might be fired without intermission, night and day, against such a target, and that very few shot and shells would be thrown away. Also, that the firing would be much quicker than from a gun requiring to be accurately laid.

Now, this is a rule-of-three sum deserving of Mr. Fergusson's attention. According to my estimate, taking gun for gun, *the* 24 *hours round*, the Besiegers would have the power of firing three shots for one, and every one of the shots would tell with far greater effect than those of the Besieged.*

It may be difficult to calculate precisely the result of a contest between one howitzer and eight guns, placed as supposed.—Eight to one are fearful odds, where equal speed and bottom have been previously assumed; but, put the odds a shade lower, and I mistake if they would not be freely taken at Woolwich. If I make up a book, I shall back the "little 'un;" and I am encouraged to do so by Sir Charles Pasley's having taken the bull by the horns, at the first discussion of the question, and shewn that direct fire should be adopted, as the means of subduing the front attacked.

Without any desire, however, to overstate the case, I think it

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* We must not forget the state of the odds given by Mr. Fergusson, viz., 100 to 1 in favour of the Battery against the Ship.—*See* p. 18, *ante*.

will appear that there is sufficient ground for asserting that, gun for gun, the Besiegers have a great advantage, even in direct fire; and as "turning tables" is now the fashion, I claim to have given Mr. Fergusson the benefit of that amusement.

The next great assumption is that the Curve of a large Fortress, 800 or 1000 yards in diameter, is not subject to Enfilade.

Let us see what can be said about it;—it is stated to be "out of the question."

ENFILADE.

In considering the question of bringing the irresistible and destructive effects of Enfilade fire to bear on the enceinte of a place fortified according to Mr. Fergusson's system, it will be necessary briefly to touch upon a project of attack, similar in principle to those which were so ably brought before the Meeting by Lieutenant Tyler, and Lieutenant Wrottesley, of the Engineers.

Before breaking ground, however, I would notice one material point. Mr. Fergusson knows better than to make sorties out of a small Garrison, with wide ditches and precarious communication across them. I fancy I can hear an old stager saying—"I only wish we could catch him at it. We would either have his Marauding party or his place, before he could light up his gas to see what we were about." I mention this to shew that, as a Besieger would not be exposed to inconvenient interruptions, he would be permitted on the first night of breaking ground, quietly to execute a parallel round the Fortress, at the distance of 500 yards from the nearest guns. Such a parallel might terminate at the point of intersection of a tangent to that portion of the great curve selected for attack. Bearing in mind the precautions that have been explained in the construction of the Batteries, 10 or 15 8-inch and 10-inch howitzers might be placed in and about each extremity of this parallel, say 30 in all. In order to protect these guns from the otherwise unopposed fire on that side of the Fortress nearest to them, other Batteries would be made in and about that portion of the parallel, intersected by a tangent from the dangerous or suspected spots.

Four groups of Ordnance or Batteries would thus be established, and they would have to devote their exclusive attention to the Terraces, which presented their flank to them. The front selected for destruction would be exposed to a fearful fire on both sides, the other portions on one side only, the distance in each case being about 800 yards.

The Ramparts taken in flank, present as fine a Target as when seen from the front. Four Terraces, sloping gently upwards, full of Guns and Men, Traverses and Parapets! If this be not tempting fate, and inviting "a family-shot," what can be devised to satisfy the destructive propensities of a Besieger?

The advantages of shooting at a family are well known to Mr. Briggs, whose sporting achievements are recorded in *Punch*. If Birds get up singly he never touches a feather, but when he can fire both barrels into the middle of a covey, he fills his bag.

The fact is, there is not a yard of any of the Parapets that is not open to a most awful fire. Neither splinter-proofs between every gun, nor epaulements* at greater distances, would avail in preventing shells or shot dropping over the interior edge of the parapets, 40 or 50 yards short of the tangent, and dealing destruction on every thing that came in their way, for, at least, a distance of 80 or 100 yards.

The shot and shells being fired at angles of about 10 degrees, with small charges, would rise, in their flight, far higher than the Works, and, falling at a greater angle than that with which they were projected, would do their work effectually. All stray shot, not falling exactly over the inner edge of parapets, would pick up something. The target would be 100 yards in width, and the range for mischievous purposes would extend from the nearest point of the work to the most distant, an average of not less than 400 yards. If this were not enough, there would be the reverse of the covered way on the far side of the ditch. Indeed, no gen-

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* It must be remembered, that if traverses are very freely used for protection they occupy the places of guns, and the number that could be monnted would be diminished in proportion.

tleman fond of rifle practice would be at ease in any part of the covered way of the front attacked, for the whole would be seen in reverse. They had better, therefore, go away before the firing begins.

It may appear hard to belabour a small space so unmercifully, but as we have only brought into play 60 out of our 100 pieces of Ordnance, and have not had many injured, we may as well try a few mortars, for, as Sir John Jones observes, they will "search behind and knock down traverses, drive the Garrison out of their retrenchments, carry destruction and disorder through every portion of the interior defensive expedients—will tease and harass the troops—burn the barracks, storehouses, and depôts of provisions—break down dams and sluices—explode expense magazines, and annihilate many other defences not affected by shot."

He, also, goes on to say, that as "weapons of personal annoyance, they are of great use by their vertical fire—for instance, in a confined work, shells from a few mortars will, besides destroying the defences, cause innumerable casualties, if it be kept fully garrisoned; or, if to avoid loss, the enemy keep but a few men in it, the work becomes open to assault."

We will, therefore, have 15 or 20 mortars, distributed in any convenient places, away from the Batteries. A few days and nights of their services, especially towards the close of the operations, in preventing any remounting of heavy guns, or repair of damages, may be useful.

PROGRESS OF THE ATTACK.

Having shewn some of the powers of mischief in the hands of the Besiegers, I proceed to explain how they would be made use of, in furtherance of the reduction of the place.

I assume that the completion of the parallel will occupy the first day.

The four Enfilading Batteries, in and about the rear of the parallel, would be completed and armed during the second and third nights, and, during the same period, the Batteries for direct

fire, opposite the front attacked, will have been commenced. At day-break on the third morning, the four Enfilading Batteries would open a destructive flank and reverse fire, and, if due precaution had been used in their construction, they would not be silenced.

On the fourth morning, the point selected for the attack having been well pounded, right and left, for 24 hours, 30 pieces of Ordnance would be opened for direct fire upon it. By these means, the flank and direct fire of 60 guns and howitzers would be brought to bear on a small portion of the mound, not exceeding 100 to 150 yards in length, and, if that did not suffice, it would not be an unreasonable demand, to ask for as many more, which would by no means be an excessive siege equipment.

Mr. Fergusson appears to be under the impression that he could repair his Parapets, and replace heavy 24 or 32-pound guns in the midst of such a scene of destruction as would be in progress, night and day, under the concentrated fire of even so moderate a number of guns as is arrayed against him; but let any one consider the circumstances, and say whether it would be an easy matter, or whether it would be possible to do so?

There would be no difficulty in the Besiegers doing something in that way; for the fire of the place would be almost suspended during the night, there would be more space to work in, and the position could only be fired at in one direction.

However, let us proceed quietly with the attack. I assume that on the fourth morning, 60 guns and 20 mortars are brought to bear on 150 yards of the mound. On the evening of that day, it might be well to push forward two approaches, and establish a short parallel within 100 or 150 yards of the edge of the ditch. If necessary, it might be abandoned during the day, and re-occupied at night, for the purpose of strengthening it, and constructing in its front a number of rifle pits, and in and about its rear any Batteries that might be wanted for further operations.

This brings us to the sixth morning, and the firing would be vigorously mantained for 24 hours longer, the Riflemen having been actively engaged during the day in subduing any remaining

fire on the front attacked, and the Line, Sappers, and Artillery, in completing and arming Batteries, if such were required.

Let us now look about us a little. We began firing the third morning, and have maintained it till the seventh, in all 96 hours. Before this, I believe, the fair beauty of the Parapets would be effectually destroyed, and the whole front little short of a heap of ruins.* If necessary, we could go on in the usual course for any further number of hours, or, as the fire of the place slackened, draw up into closer quarters; but I suspect they would have had enough of it even at this stage of the proceedings, and people would certainly begin to enquire with some impatience, What would be the next move?

With regard to this point, we must first determine, whether we have a wet or dry ditch before us, for, up to this period, the attack will have been equally applicable to either. Having a choice, I will say, "Dry, if you please."† Here we are brought immediately in face of another assumption; to wit, that there are Bastionettes and a Carnot's wall at the bottom of the ditch, full of loop-holes and guns, which being 30 feet below the ground line, are therefore, supposed to be secure from the Besieger's fire. I am quite ready to admit that, but for these precautions, the place would have been open to assault the very first dark night. With neither scarp nor counterscarp, there would have been absolutely nothing to stop either the descent of troops into the ditch, nor their charging right up the ramparts, bristling though they might be, with cannon and men, and so, into the interior of the Fortress.

Now that we have got a heap of ruins before us, only defended by Bastionettes and Carnot's wall, both partially damaged, I feel assured that many of my younger brother officers would like to

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* Two or three shells exploding in any portion of the Parapet between the guns, would, as Colonel Adams justly admits, go far to lay open the terreplein.

† To shew that I do not take any undue advantage, in making this selection, I quote the words of Colonel Adams:—"In all respects, therefore, the siege of a front of this class, with dry ditches, may be considered as difficult as that of one with wet ditches."

make a dash, and try to earn their laurels at the head of an Escalade. It is very tempting, and an Escalade, properly done, is a glorious enterprise. At the risk, however, of being called "deadly slow," and from a desire to do every thing en règle, I should prefer not to deviate from old Vauban's maxim, that at a siege "nothing is to be attempted by open force which can be secured by art or labour."

We will, therefore, try our hands at Carnot's wall and the Bastionettes, for, as Fergusson observes of Montalembert's system, "exposed masonry is easily destroyed by the Besieger, even without his showing himself."

Carnot's wall, 30 feet high, stands close at the foot of the great mound, and at the bottom of a ditch 60 feet deep. At the place selected for attack, it is protected from a point at the opposite edge of the ditch, distant about 360 feet. The angle at which a shot or shell must fall, so as to strike the wall about 15 or 20 feet from the top, would not, therefore, exceed from 10 to 15 degrees. The question is an Artillery one: would it be possible to throw shot or shells, so that they would fall at such an angle, and breach the Wall?

The well known experiment at Woolwich was tried under the following conditions:—

A Wall, 30 feet in length, corresponding to that proposed by Carnot, was built with bricks in the summer of 1823. It was 21 feet high, 6 feet thick at top, 7 at bottom, and was strengthened by a Buttress 4 feet square at each end, the whole carefully built, and well executed. It was protected by an earthen counter guard, thrown up in front, the top being on a level with the wall at the distance of 60 feet from it, and having the same section as that proposed by Carnot.

On the 5th of August, 1824, a year after the completion of the wall, eight 68-pounder carronades in battery, 500 yards from the crest of the counter-guard, three 8-inch, and three 10-inch iron howitzers, at a distance of 400 yards, in all 14 pieces, fired 100 rounds each, in about six hours, the howitzers firing live shells filled with powder, and the carronades, solid shot. A practicable

breach, 14 feet in width, was made by their fire, and the buttresses were much injured.

The splinters of the shells proving inconvenient to the men in the nearer Battery, the loading of the shells was diminished.

On the 6th of August, the firing was recommenced from eight 68-pounder carronades, at 500 yards. Two 8-inch iron howitzers, and four 10-inch ditto, at 400 yards, 50 rounds per piece, were fired in two hours, when the breach was examined, *and found to be complete in every respect*, and the buttresses to be in a ruinous state.

When the rubbish was cleared away from the breach, it was, however, found that the wall was about five feet in perpendicular height in front, with a rounding of rubbish of about two and a half or three feet on the top, and about eight and a half or nine feet in height towards the rear.

In order to complete its destruction to the very foundation, the Batteries recommenced their fire on the 11th of September, from eight 68-pounder carronades, at 500 yards, and six 10-inch howitzers at 400 yards, when 85 rounds from each howitzer, and 100 from each carronade, were fired in three and a half hours, by which time the wall and buttresses were reduced to one mass of ruin.

The charge of the shells had been so much reduced, to avoid splinters reaching the Batteries, that a considerable number did not burst.

The increased rapidity of the fire is remarkable; that of the third day being nearly double that of the first, although the reduction in the height of the wall, from 21 to five feet, rendered the operation obviously more difficult.

The elevation averaged about 15 degrees.

It will be observed, that in order to strike the foot of the wall, a shell must have fallen 20 feet in a horizontal distance of 60 feet, or at an angle of about 33 degrees.

If these data be applied to Fergusson's section, it will be found, that in order to perform the same good service, they would only

fall 60 feet in a horizontal distance of 360 feet, which is the width of the ditch at the point selected for the breach. Practically, however, the average in both cases would be far less. It would be quite sufficient to take, as an average fall, about two-thirds of the height of the wall; which, for Fergusson, would give 40 feet fall in a horizontal distance of 360 feet, or an angle of 10 degrees.

I would also observe, that the wall of the supposed Fortress is not intended to be a solid wall, such as that which was destroyed at Woolwich, and that a much smaller expenditure of time and ammunition would, therefore, suffice for its demolition.

As a familiar illustration, serving also to give any one a notion of the gigantic scale of Mr. Fergusson's Works, let us invade the aristocratic region of Belgravia. We will establish our Breaching Batteries in the upper rooms on the North side of Belgrave Square. Fergusson's Ditch would be nearly the width of Eaton Square; his Mound and Terraces would be represented by a Slope 50 or 60 feet high, standing on the roofs of the houses on the South side. What we have to do, is to throw shot and shells from our elevated Batteries into the drawing rooms and kitchens of three or four of the distant houses. There would be no difficulty whatever in doing this. The very first shot, after knocking over the policeman, who would be winking at the cook through the area railing, might strike the wall between two windows, and afterwards do an infinity of damage among the pots and pans. The next shell, coming through the cornice of the dining-room, might strike the centre ornament on the table, and there exploding, put an end to all conviviality; and the third would break in the front of the drawing-room, and disperse its fair inmates. The very first salvo might bring down the whole house, and bury its occupants in the ruins. If there be no security for the South side of Eaton Square, protected as it is by the opposite houses, neither would there be any for Carnot's wall, at the bottom of a wide ditch, even though it be 60 feet deep.

These observations will, I think, have disposed of the assumption, that the defences at the bottom of the ditch are in perfect

security against distant fire; and have shewn that it rests on no better foundation than the others.

I will, therefore, proceed with the attack.—It will be remembered, that one of the Bastionettes is supposed to adjoin the extremity of the 100 yards of the enceinte, which has been so unmercifully battered during the last few days. Having been in so disorderly a neighbourhood, it cannot have failed to share with Carnot's wall the benefit of stray shot from the Enfilading and direct Batteries, and both will have received considerable damage. But we want a breach, 100 feet wide, in a comfortable little undefended angle, where the Bastionette joins the wall; and, as there already exists much impatience at the long duration of the siege, we do not propose any great delay.

Mr. Fergusson is quite right in his estimate of the destructive effects of a cannonade on masonry or brickwork; but, as we require a little better shooting now than has hitherto been necessary, we will take 12 hours daylight for firing at one particular spot, about 100 feet wide, with a certain charge of powder, and a fixed elevation, so that the shells and shot shall strike the opposite wall at the point where they will do the greatest damage. I should confidently expect, that in 12 hours, that wall would be a heap of ruins. There would not then exist greater obstacles to the assault than are found in any ordinary Fortress, and for these reasons.—The Enfilade fire could be vigorously maintained upon the front to the last moment, for the whole face of the ruined defences, instead of being like a breach at the bottom of a ditch, as in ordinary cases, would be in a most obtrusive manner exposed to the whole surrounding country. Hence, there would be the greatest facilities in the hands of the Besieger, not only for preventing the construction of any defensive expedients, but for completing the destruction of any which might exist, and for supporting the attack.

I would also observe, that successive intrenchments on an exposed slope are neither so easily made nor defended, as where a single point only has to be attended to.

But we have yet the Bastionettes to deal with. They will be

even more easily disposed of than Carnot's wall; for the line of fire, taken in the direction of the Enfilade Batteries, would be down the wide ditch, and, as they would be covered from a point 400 yards from them, they would be counter-battered from those situations, with the greatest facility. If the distance of the first Batteries were unfavorable, the guns might be moved up nearer. It is not too much to suppose that, if they were once set to work firing, they would be likely enough in the confusion to realize the legend of the "Kilkenny Cats," so far as mutual destruction was concerned. At all events, let us reckon on the chance, and say with Shakspeare:—

> "O prudent discipline! From North to South;
> Austria and France shoot in each other's mouth:
> I'll stir them to it: ————————"
>
> *King John*, Act ii. Scene 2.

In all good fellowship, we now hold out a flag of truce. Fergusson has defended himself like a man; and, with a practicable breach in the body of his place, and the Artillery defending it entirely destroyed, further resistance is hardly fair to the raw troops of his Garrison. Looking, however, to the courageous manner in which he has planted his standard, it may well be doubted whether he will haul it down. A Yorkshire friend thinks he will prove "a bad 'un to beat, and will go till he drops." We must, therefore, be prepared for the worst.

Amidst the frightful havoc of an unremitting fire, we see him gallantly at work, determined not to be taken alive. He is mining the ruins of Carnot, and the whole of the lower Terraces—is endeavouring to construct successive tiers of intrenchments where his Parapets formerly stood—is laying live shells and grenades singly and in heaps—*chevaux de frise* of sword blades, and all sorts of inventions and devilries are in readiness: he is making deep cuts on each side of the breach, for firing on the flanks of a storming party, and preventing their running riot over

his Terraces; and, when the assault is really made, bayonets will gleam, and swords wave, amidst the dust and smoke of a hand-to-hand fight. All, however, will be of no avail. The width of his ditch has been an accessory before the fact; and the very heights, in which he has trusted, will be conducive to his destruction.

So sure as a small column of sub-divisions rushes down the slope of the ditch a little before day-break on the eighth or ninth morning, closely followed by a denser column, and that by another in support, all covered by Riflemen and Horse Artillery, firing on the mound from the edge of the ditch, so surely will a considerable party assemble for breakfast, inside the Fortress, and regale themselves at Mr. Fergusson's expense.

ATTACK ON A STRAIGHT LINE.

Having given a very rough sketch of proceedings in the attack of a curved line, with a dry ditch, I would merely observe, of a straight line, that as it cannot be enfiladed, the guns on the Terraces must be destroyed, in the mode already explained, by the application of direct fire.

It is one characteristic disadvantage of Fergusson's system, whether it be applied in a curve or straight line, that the nearer an enemy approaches, the less is the fire that can be brought to bear on him. A project of attack by direct fire should, therefore, be on a narrow front; and, there being no fear of sorties, all operations should be commenced as near as possible, and be boldly pushed forward. Firing with small charges from deep sunken Batteries, will not mask any of the ground in front; and thus a Besieger will be enabled to occupy and work on the space immediately opposite the point attacked. This will greatly facilitate the proceedings of Riflemen, in controlling the fire of an enemy. It is scarcely too much to assume, that if a sufficient number of rifle-pits were established, in and about a parallel, within 100 or 150 yards of the ditch, the guns on the opposite slopes could hardly be served at all. Mantlets, green baize curtains, and other expedients for security and concealment may be tried, but if four good shots

were told off to every embrasure, could the guns be accurately laid ?

If the ditch were wet, it would be necessary to run out approaches, about tbe fourth or fifth night, and, after establishing a short parallel for support, subsequently to take advantage of the fire being subdued and construct a lodgment, by sap or otherwise. The danger to the Besieged, of making a sortie, has been before adverted to; and there would be nothing to fear on that score. The slopes of the vacant covered way would, therefore, be admirably adapted for the purpose.

Some expedient connected with Blanshard's bridge, would probably afford the most ready means of getting across; and, if there were any flank defences in the ditch, they would have been enfiladed or shelled from a distance, and, at least, partially destroyed. If necessary, they could be counter-battered, by way of a finish, from the lodgment at the edge of the ditch.

PERIL OF PORTSMOUTH, AND THE GOSPORT LINES.

As regards Portsmouth, there is far too much truth in what Mr. Fergusson advances with reference to its weakness as a Fortress, and its inadequacy for the due protection of so important a naval depôt. He, however, undervalues some of the means of defence, concedes powers to an enemy which they would not possess, and places before them facilities, which, if beguiled into an attack, they would not find. Be all this as it may, what we have to inquire into is, whether Mr. Fergusson's proposition would remedy all defects, and place us in an impregnable position.

Having explained my views of the mode in which a Besieger would deal with a great mound, which, I am free to confess, looks very formidable, when unopposed, it will be unnecessary to go into any detail to prove that any portion of the many miles of Ramparts that embrace the surrounding country could be forced. As regards the three-mile stretch, reaching from Stokes Bay to Frater Point, by which Mr. Fergusson says "the merits of his system

may best be tested," I much doubt whether an enemy, somewhat pressed for time, would listen to Vauban's advice against trying the effects of open force. I believe he would be more inclined to make a demonstration of a regular siege at one extremity—harass the Garrison for a few nights by threatening other points, causing them to beat to arms, and rush three miles and back a few times, and finally terminate proceedings some dark night by several feints, and one or more attacks by surprise in rapid succession on different and remote points.

With the aid of Blanshard's light bridge, and the support which might be afforded by Horse Artillery and Riflemen, controlling the fire, and any show of opposition displayed on the face of the opposite slopes, I believe this mode of attack against such an extraordinary extent of work, so insufficiently guarded, would be successful. It must be remembered that any portion of the three miles of line is equally open to assault: all must, therefore, be equally armed and guarded, to be in readiness at a moment's warning. The twelve miles of Ramparts require 3000 guns. How are they to be manned? If only partially armed and manned, some parts will be weaker than others, and those points will, of course, be selected, for no measures for concealing facts will prevent the Besieger's obtaining information, by which to direct his proceedings. If forced at any one point, the whole of our great naval armament, and the 24,000 guns, which are proposed to be brought from Woolwich and placed there for greater security, would be in the hands of the invaders,—for it is intended to raze the present Fortifications, and sell the site they occupy. It is impossible to retrench the proposed Gosport line, and no second line is thought of.

Mr. Fergussson lays some stress on the economy of the plans he advocates. This, however, I hold to be a secondary consideration. If the means of constructing an impregnable Fortress has been discovered it would be cheap at any price; but if, on the contrary, it can be shewn that what has been proposed would be a delusion and a snare to any one but an enemy, money spent upon it would be absolutely thrown away.

I would also state my opinion, that one-fourth part of the amount of work suggested, if judiciously disposed, would make Portsmouth a respectable Fortress.

STRENGTH OF A BESIEGER'S FORCE.

Among other items, we must not omit to consider the number of men that would be required for undertaking the siege of a first class Fortress, on this plan, (say 800 to 1000 yards diameter, equal to an octagon, on Vauban's system.)

Sir John Jones will be admitted to be good authority as regards old-fashioned Fortresses and Sieges; and the following appears to be the result of his experience in the field, regarding the relative strength of the Besieging army, as compared with the Garrison:—"That, as a general principle, the proportion should be five to one, when the Garrison consists of 15,000 men; six to one, when of 10,000 men; seven to one, when of 5000; eight to one, when of 3000; and in a still greater proportion, when it consists of a less number."

The necessity for this excess in a Besieging army arises from the heavy duties required from working parties and guards of the trenches. Men cannot be always on duty, when their night's rest is disturbed. Four reliefs of working parties, and three reliefs of guards of the trenches for any *continued operations*, may, therefore, be regarded as a fair standard for calculation.

We must now inquire into the number of the Garrison, and this we can deduce from Mr. Fergusson's opinion of the force required for the defence of Gosport. He states "that 3000 men could hold the Ramparts against any Army or Artillery that can ever be brought into the field, and, of these, certainly, not one-third would require to be Artillerymen, or even soldiers at all."

The Gosport line, from point to point, is three miles long, and without considering the remainder of the extensive lines, or the covered way, there would be about 12 miles of Rampart, manned with an average of 250 men per mile. The Fortress under consideration would not have more than between seven and eight miles

of Ramparts, which, on the same data, would give a Garrison of something less than 2000 men, of which 700 would be Artillery, and the remainder made up of Dockyard Artificers, Sailors, &c., all good men and true.

Now, since one of these Fortresses is deemed to be impregnable, and, as a necessary consequence of the Besieging party not being able to get in, the Besieged have no desire to get out, we shall not require a strong guard of the trenches. If we hold 1500 in readiness to drive back, and, if there be an opening, to accompany any sortie on their return to the place, it will be ample, and they would do the work at two reliefs. Then again, after the first three nights, the amount of work would be very inconsiderable. Instead of being obliged to develop the attack on an extended front, it would be judicious to confine the principal operations to as narrow a front as possible.

For a short period of work, there would not be required even three reliefs of any great number of men, but, taking the very high average of a working party 1000 strong, at three reliefs during the whole siege, that would give 3000, which, added to 3000 for guards of the trenches, would only amount to 6000 altogether. To meet contingencies, let us take a force of 2000 in addition, and we have an army of 8000, with a siege train of 80 pieces of artillery. These numbers against a Fortress deemed to be impregnable, are not so frightful after all. A little assistance for the investment might, however, be desirable, and, as we have a good margin, we will say, an army of 10,000, or five times the number in Garrison. This, however, is far beyond the proportionate number that would be required for the attack of the Gosport lines, for which, against the 3000 men, I should calculate not more than three or four times the number of the Garrison, provided always that the millions, who would be ready to fall on the invaders, would stand by and see fair play.

DEFECTS OF PORTSMOUTH, AND INVASION OF ENGLAND.

It must not, however, be inferred from what Mr. Fergusson has advanced that the defects of Portsmouth have been overlooked by others, or that the means of remedying them have been hitherto neglected. Long before steam was dreamt of, effective projects were matured on paper, and since its application to naval purposes, which has no doubt diminished our security at all points, renewed efforts have been made. That they have not been completed on a scale commensurate with the vast importance of the objects requiring to be provided for, cannot be charged either to the Engineers, or the high authorities under whom they have acted; the responsibility is elsewhere, and there let it rest! It is on the broad shoulders of John Bull himself.—He is the guardian of his own breeches pocket, and it is only when he has a periodical panic that he begins to fumble about the buttons, and think of the matter.

On these occasions it may be inferred that he has a confused notion he will not stand these panics any longer, but has made up his mind to invest a small portion of his hoard in obtaining security for the rest. If he ever does anything half so sensible, it will not be long before we shall see ourselves in comparative safety. But he has a short memory, and is apt to take his repose again—and this should be guarded against.

Whatever may be the difference of opinion respecting the plans put forward by Mr. Fergusson, it will, however, be very generally admitted that he has rendered good service in having called public attention so ably, and so forcibly, to the very important question of our National Defences.

Though I cannot subscribe to many of the conclusions at which he has arrived, I heartily concur in an observation, in which, after assuming that due preparation for defence shall have been made, he says that we then "need no longer sit cowering before an enemy, weighing his words of peace or war, to guess whether he intended to punish us for our former successes, or would be graciously

pleased to forbear; but we might boldly look the world in the face, and, neither giving nor taking offence, as free men, pursue the path of peaceful industry, which seems our proper and allotted task, in the comity of nations to which we belong."

If all history be searched, it will be found that no great nation but ours has ever trusted its safety or existence to the forbearance of others. But we have done so to a fearful extent; and have thus placed in jeopardy all that we hold most dear. Thanks to the vigorous and timely precautions of our rulers, however, we are now in a better plight than when we first opened our eyes and beheld the danger; and it will not be long before we are in something like security.

So great is our stake, that we ought to be at all times, and under all circumstances, in a position to *command* peace; so far, at least, as our own firesides are concerned. In order to effect this, and retain independence of action, there is only one course open, and that is, to be prepared to resist aggression. Our insular position gives us great advantages, and we ought to profit by them. It is on the sea that resistance would begin, and there, we might hope that in all probability, it would end.

But whatever might be the superiority of our naval resources, it is possible that fleets might be out-manœuvred, and that large bodies of men might be thrown upon our shores. Hence, a fleet cannot be deemed a sufficient protection; we require also a force on shore, and I concur in several of Mr. Fergusson's views. Among them I would mention the importance of perfecting the organization of the Militia, and the advantage of encouraging the formation of Volunteer Rifle Corps. When, however, all the demands *for Insurance* are satisfied, if the amount of our combined forces be compared with that of other countries, it would be found very moderate indeed.

We are represented, and perhaps justly, by our more lively and fire-eating neighbours, as being a nation of shop-keepers. Now we could acquire, in addition to our natural disposition for peaceful occupations, not, perhaps, any very definite *military notions*, but such *habits* as would enable us to turn our hands to a little strife,

in a quiet way, in case of necessity. People learn boxing not with any precise intention of fighting, but for fun. If, however, a proficient with the gloves be drawn into a row, he can hit straight, and get out of it; when a sturdy fellow, fighting like a windmill, would come off second best. Why should we not play at rifles, as well as anything else? Why should not we, as our American friends would say, become "gamesters in regard of gunning?" Supposing such an amusement were general, and that, among the stout of limb and heart, a proficiency in the use of the rifle were attained, what an enormous advantage would be secured. The very life-blood of the country would be called into play. Thousands, whose occupations prevent their entering the Army, or the Militia, would be at hand in case of need. Better raw material could not be found anywhere; and it only requires to be advanced a stage in the manufacturing process of conversion to warlike purposes, to be rendered available; whereas, in its purely natural state, it would not be of much use.

Some admirable remarks, on the formation of Rifle Clubs, will be found in a Letter on National Defences, addressed by Lieut.-Colonel the Hon. Alexander Gordon, to Sir Charles Trevelyan, from which I am tempted to quote the following extracts:—

"In considering the advantages which may be derived from the employment of volunteer corps, as an assistance to the regular army, in the event of this country being invaded, it is desirable to examine the difference which must always exist between the volunteer and the regular soldier."

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"The onset of troops, such as I have supposed the invading army to consist of, must always be met (except under very peculiar circumstances) by regular troops. These place their confidence, not so much in the long range and accuracy of their muskets, or in their own individual skill in using them, as in a feeling of reliance on their *comrades* and *commanders*,—a feeling which discipline and habits of obedience can alone impart, and which new levies can only acquire after much service."

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"It may be thought unnecessary to give to volunteers a better description of musket than that which has been hitherto thought good enough for the regular army; but it must be remembered that a soldier and a volunteer meet their enemies under very different circumstances;—the first is accustomed to fight much closer than the latter; and, although his musket is certainly not of much use beyond 250 or 300 yards, yet he is accustomed to trust that, by the skill of his commander in manœuvring, and the selection of positions, he will not be exposed to an enemy's fire at a greater distance.

"With the volunteer, however, the case is different; he will probably feel far more at his ease, if he can fire at his enemy when at a distance of 600 or 800 yards, being himself out of danger, than if he must approach within 200 or 300 yards of him, and be exposed to his fire; for, although no one can doubt their courage, yet it must be borne in mind, that in this country, volunteers have never yet seen a foreign enemy, at least, not since the Conquest; and, therefore, little know what he looks like, or what he can do."

I might add to this, by saying—nor has a foreign enemy seen an Englishman fighting *pro aris et focis*—I suspect it would astonish him.

This induces me to return for one moment to Mr. Fergusson, in order to notice a statement which might mislead such an enemy. If a hostile force were to land, with the intention of first taking possession of London, and leaving Portsmouth for a season of leisure, how astonished would they be at the inaccuracy of the calculation, as to there not being more than 100,000 men, out of five millions capable of bearing arms, who would "volunteer to strike a blow for their country!" Napoleon I. took a far more accurate measure of the Sleeping Lion.

Having had a "Flying Shot at Fergusson," I now propose to myself the more agreeable task of beating, in his company, the

disputed ground in the matter of invasion; and, if he does not bring down his bird, I am sure he will pardon me if I make the attempt to "wipe his eye."*

He justly observes, that "the true way to look at England, is to consider her as a fortified city or country, the Channel being our fortification, and it has proved an impregnable one for the last 800 years, and, with care, may prove so some time longer. It would be about as wise in the Governor of Paris, or any fortified city, when threatened with an attack, to throw up barricades in the streets, and organise the means of defending them, to the neglect of the real fortifications, as for us to think of National Defences, neglecting those that nature has provided us with."

With reference to the construction of Fortresses, he also observes, that "adding to our fortifications can give offence to no one; while they would add far more to our security than a very considerable increase to our Army or Navy, and would be a permanent instead of an ephemeral defence; and, as such, I feel convinced it would be well if the subject were taken up at once, and in a spirit to carry it out effectually, so as to enable us to repose once more within our sea-girt shores."

In all this I entirely concur; and have little doubt that, in proportion as the subject is seriously thought of and discussed, so will its importance gain ground in the public mind.

Admitting the idea to be correct, there still, however, remains the question as to how all this is to be carried out economically and effectually; and here Mr. Fergusson and myself will begin to beat the ground before us.

He recommends the construction of "one strong place inland, in which the Bank Deposits and Books, the Crown Jewels, and generally, the valuables of the nation might be deposited in the

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* The most literary of my readers may, possibly, not be aware of the precise application of this phrase. It has nothing to do with a towel or handkerchief, but, by a forced construction, it is intended to explain the occurrence of a gentleman's killing a bird after his friend has missed, or only wounded it.

event of an invasion; that it should be in front of London, because it will be as easy to retreat to one in front as to one in rear before the capital has fallen; and that the Artillery and Stores should be located there," &c.—concluding by suggesting that Banstead Downs, in front of Croydon, might be a site fulfilling the necessary conditions.

In this and other suggestions I think he has either missed his shots, or only made a few feathers fly. No place in front of London would be suitable for the Crown Jewels, Bank Books, &c. Such might more safely be confided to the care of the Peace Society, for transmission to some place rendered impregnable on account of its distance and inaccessibility to an enemy; and under any circumstances, Banstead Downs is not far enough from London to fulfil all the important objects which are required for a Fortress interposed between the Capital and the South Coast. I ground this opinion on the following considerations.

Our regular army will always be numerically small, and it is therefore of great importance, not only to secure all our principal ports with a view to maintaining our naval superiority, but to construct some stout work or works, to serve for a point d'appui, on which to base the whole of the *probable defensive operations*, as well as to give confidence to the Militia and other irregular forces, and enable a Commander to fight a general action with advantage.

My idea is, that, assuming the defences on the coast to have been properly attended to, nothing that *is attainable* would give greater security against an attempt from the South or South-West Coast, than a strong base of operations, sufficiently removed from the point of debarkation to expose the flanks and rear of an advancing force, and far enough from London to afford time for an orderly retreat on fresh positions.

The general line that, under all circumstances, appears to be most suitable for these objects, extends from Chatham on the left, along the North escarpment of the Chalk, by Wrotham, to Godstone, and thence to Reigate or Guildford, with the right on the Thames

at Oatlands, or Reading. Such a line might be regarded as the Torres Vedras of London; and, if in its centre, a few miles in advance of Reigate, there existed a respectable work, it would greatly facilitate all defensive measures, and place very formidable difficulties in the way of an advancing foe, supposed to have landed at some point between Dover and Portland.

Now, had any one discovered the art of constructing an impregnable Fortress, especially if the place could be indefinitely extended to the gigantic dimensions of the proposed works at Portsmouth, what a chance there would be at Reigate! A Fortress from which warlike stores and supplies of all kinds might be issued, with the greatest facility, for the requirements of troops engaged on the most exposed of our Frontiers—a place on which all our Militia and irregular forces could retire, and in which they would be securely posted for acting on the rear of an enemy who might be inclined to pass it—a post protecting important lines of Railway, and in which the stores would be so far in advance, as to leave all communications in its rear, whether by road or rail available for troops, instead of being encumbered with them at a moment when everything connected with locomotion would be in requisition! It may also be observed that, so far as regards Stores, a strong Military post at Reigate would fulfil with regard to the South and South-West Coast, the same object that Weedon was designed to effect for the Country North of London. There is little reason to doubt that the construction of a work, in some such situation, would have a most important bearing on all arrangements for the defence of London.

If, in taking a "Flying Shot," I have missed any of the strong points on which Mr. Fergusson has formed his opinions, or have claimed to have "hit him hard" when he was out of distance, (a very common practice with many who go out shooting,) he will, I trust, forgive that, as well as the liberties I have so freely taken.

It may be too much to expect that any one who has devoted so much time and talent to the subject as he has done, should be best pleased with any body who attacks him; but, from all I have seen and heard, he has too much good English feeling about him to desire that his system should stand on anything but its own intrinsic merits.

If, therefore, he should, on further reflection see reason to believe that he is not quite impregnable,—that old-fashioned Bastion fronts possess advantages that can never be given to straight lines,—that any armament on successive Terraces, *one above another*, can be overpowered by Sunken Batteries, *one behind another*,—that deep Scarps and Counterscarps in narrow ditches are greater obstacles than Slopes and Walls in wider ones,—that no accumulation of direct fire *to the front* will compensate for the loss of flanking fire *across the front*,—and that no prolonged Defence can be made without the aid of powerful Outworks, he will be disposed to say so; if not, I may hope to have cleared the ground a little for a more regular field-day with heavier metal.