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AFTER MUKDEN : A RUSSIAN VERDICT ON RUSSIAN FAILURES.

*Translated from the "Russian Gazette" by Captain W. H.
BINGHAM, 69th Punjabis.*

IN the first part of this series (May No. of the JOURNAL) reference has already been made to the impossibility of perfectly free and searching criticism in the Russian Press upon the breakdown of Russia's military might. The Liberal Press are of course ready to be down on everything, and are probably far better aware of the weak spots than the most well-informed of foreign critics, while the purely military Press, being entirely official, are naturally not eager to let the cat out of the bag, even supposing their mind was quite clear on the subject. The fundamental causes, as may be expected, are so deep, so complex, and above all, so intimately bound up with the inherent evils of misgovernment in almost every branch of the State, that their summary disposal would unavoidably strain those relations with the Press Censor, on which the Press wholly depends for its very existence. Even the censorship, however, has, in spite of all efforts, been unable to deny the public demand for a certain amount of bare facts. The chief art of the military critic then lies in sailing as close as possible to the wind, and the original author of the articles here reproduced is believed to get as near it as any, not to mention his command of his subject, in which he probably stands without a rival.

No. 2.

WHO'S TO BLAME?

Précis.—The second article follows up in detail the various units of all arms despatched to the front, laying special stress upon the system of filling up gaps in the effective strength of the forces in the field, caused by loss in action. While the Russian War Office followed a policy of mobilising new territorial corps, and despatching a continual succession of fresh and raw units to the field, who were carried in many cases straight from the point of mobilisation on to the field of battle, the Japanese applied all drafts to fill up depleted units, using the survivors as a nucleus, and preserving the existing organisation, as far as possible, intact. In the case of Japanese units composed entirely of Reservists, it is shown how they underwent a very careful and gradual tempering process, commencing at the base, and culminating, after successive stages on the lines of communication, in the firing line, as for instance in General Kavamura's Vth Army. While the Japanese therefore adopted every measure to prevent waste of available *personnel*, Russian units, though reduced to one-half or one-quarter of their establishment, but with a more or less effective skeleton framework of staff, officers, and non-commissioned officers, were often left out of all calculations, not made use of, and frequently

acted as a serious hamper. The mismanagement and faulty employment of reinforcements is thus shown to be the second main defect of the campaign.

No. 3.

Précis.—In the first article it was pointed out how by better management of the lines of communication and utilisation of Siberian water transport (by river), the total number of combatants delivered at the front by rail during the first 13 months of the war might have been brought up to 820,000, instead of 620,000, although the former figure represents the actual number of passengers carried. Even then, remarks the writer, 620,000 men properly handled would certainly in point of strength have outnumbered the Japanese, which leaves no other conclusion open, except the superiority of the Japanese forces in *quality*.

The remainder of the third article and the fourth, dealing with particulars of equipment, together with the necessary facts and figures,¹ will perhaps repay closer examination, and are accordingly given *in extenso*.

Original.—Side by side with the extreme ill-success of our system of drafts for completing the effective strength of the active Army, the superior equipment of the Japanese Army plays a leading rôle. As in the Crimean campaign, our Army, by the grace and favour of its bureaucratic heads, has turned out far worse equipped in general than its foe. We will commence with the equipment of the infantry, the arm of the Service in which the superiority of the Japanese in *quality* has been most pronounced, and with such fateful consequences. The comparative figures and data for our 3-line rifle,² pattern 1891, and the Japanese Maiji arm, compiled from the *Revue d'Artillerie*, *Scientific American*, *Engineering Journal*, and other sources, are as follows:—

Weapon.	Calibre (inches).	Initial Velocity (Feet per second).	Distance to which sighted (yards).	Height of Trajectory above hor. at distance 650 yards (in feet).	Weight of Rifle without Bayonet (lbs.).	Weight of full complement of ammunition 120 rounds (lbs.).
Russian ...	·300	2,035	1,600	7·2	8·77	7·2
Japanese ...	·255	2,378	2,000	6·6	8·55	6·21

Owing to reduction of the calibre and employment of a more powerful charge (of "Itabaski" smokeless powder), General Arisaki has succeeded in evolving a type of magazine arm far better than our Mosin rifle. The Japanese weapon is lighter than ours; but notwithstanding that, far longer ranging: the distance of aimed fire is 400 yards more than with our arm (or 2,570 paces *versus* 2,060). This extra 500 paces forms an immense advantage in battle, as actually

¹ All dimensions, except where otherwise stated, are given in English measures.

² So called from its calibre; a "line" (= $\frac{1}{16}$ of an inch) is the smallest Russian measure of length.

noted in the correspondence of Mr. Nemiróvitch-Dánchenko¹ from the war. To cover 500 yards in attack, 3 or 4 minutes are required, during which our soldiers have to come under the rifle fire of the enemy, without the possibility of replying to it; a defenceless situation such as this at the very commencement of the attack naturally produces a depressing moral effect upon the soldier advancing to the attack. Then the Japanese weapon, in spite of its greater range, is distinguished by a still greater dangerous zone of fire. Hence Japanese infantry are enabled to open effective fire under conditions when our bullets only whistle overhead. The accuracy of the Japanese rifle is also greater than ours, as the angle of descent of the bullet, in a horizontal plane (transversely), is much more strongly depressed, especially in long-distance fire; this accounts for the fact of Japanese riflemen almost continually succeeding in selecting our officers and signallers for their "*hits*," whereas our riflemen could rarely manage to pick off Japanese observers on the elevations of their position. Finally, the penetration of the Japanese rifle is also considerably greater than ours, as the velocity of the bullet is one-sixth greater. Thus while a 1-foot brick wall gives sufficient cover against our 3-line bullet, the Japanese rifle bullet goes through it at the first impact, and cover against this bullet can only be got behind $1\frac{1}{2}$ to 2 feet of brick. It is no great matter for wonder that with our weapons it was impossible to drive out the Japanese from the Chinese villages in which they sat, and which served as real fortresses for them, while the same villages provided us with scarcely any shelter. Thus the long range, flat trajectory, accuracy of fire, and far greater penetration of the Japanese arm sufficiently explain the success of Japanese infantry attacks, and there remains no necessity to resort to stories of the universally intoxicated state of Japanese soldiers in battle, in order to justify our failures. If it were so, the secret of victory would be extremely simple; all we need have done would be to treble the *vodka* ration; and Marshal Oyama's forces would have been scattered to the winds.

It is worth while clearing up the question as regards observations on the "humane" character of Japanese bullets, producing as a rule slight wounds. These observations, in a measure, are not quite reconcilable with the above referred to greater penetration of Japanese bullets. As a matter of fact, we here meet the illusion, depending on the fact, that in considerations resting on the trivial nature of wounds from Japanese bullets, the percentage of those killed by these "humane" bullets is overlooked. In case of fire from these .255-inch weapons at short distances, the effect of the bullet on living objects is veritably awful. Thus, with those hit in the head by these bullets, the upper part of the skull is wrenched off like the lid of a box, scattering all the brains. A hit in any part of the body rich in blood vessels is always accompanied by such severe hæmorrhage that the wounds are almost all fatal. At the suppression of the Milan riots in 1898, when .255-inch bullets were first tested on living targets, nearly all wounded arms and legs had to be amputated, as the bones were

¹ A prominent Russian war correspondent in the Russo-Turkish War, and now special correspondent of the *Russian Word* (*Russkoe Slovo*). Amongst his well-known works are a history of the above war and his celebrated "Personal Recollections and Impressions of Skobelev," so admirably translated by Mr. Brayley-Hodgetts.

found to be shattered or so far dislocated. Those slight bullet wounds of which numbers have been noted in our hospitals, it must be mentioned, have been received in battle at distant ranges, *i.e.*, under conditions where there remains little difference between the .300-inch and .255-inch weapon, save, of course, actual ranging power; in other words, at a range when our bullets do literally no damage, the Japanese bullets inflict their "humane" wounds. To put it shortly, the "humanness" of the Japanese bullets consists mainly in the fact that instead of severe wounds, they kill on the spot, saving their victims from long agony.

The small percentage of "severely wounded" consequently depends on the large percentage of killed and the large number of "wounded" at long ranges, but not on the feeble effect of the deadly Arisaki rifle. This *a priori* conclusion is confirmed by the fact that the general percentage of our killed is considerably higher than that of the Japanese (except in cases where it came to bayonet fighting). This difference in the nature of our and the Japanese losses was especially vividly marked in the very first great battle at Turen-cheng, decided first and foremost by rifle combat at close range; we on this occasion had one killed to two or three wounded, and the Japanese one to four.

It must in justice be said that the Japanese Army is not equipped throughout with the small-calibre Arisaki rifle. The Territorial Army, as well as the auxiliary portion of the Korean forces, and in part the bands of Hunhuses (*i.e.*, supply trains and guerilla parties) are armed with the rapid-fire Murata rifle, 1887 pattern. Although this rifle is out of date, still it is practically in no respect inferior to our 3-line rifle; the calibre of the Murata rifle is .295-inch, initial velocity 2,000 feet per second. But the troops armed with the Murata rifle number in all only some tens of thousands, and in general it can be admitted that the mass of Japanese infantry are better equipped than in our Army. This comparatively bad armament of our infantry forms one of the most grievous sins of our military bureaucracy, some of the representatives of which, on occasions prior to the war, had the hardihood to aver that our weapon was better than the Japanese; the calibre of our rifle is greater, the bullet heavier, hence proved that ours is the better! Our officialdom may say in self-defence that such first-class Powers, such as Germany and France, still keep to their larger calibred (.615-inch) weapons; but if these Powers have not followed the example of Italy, Japan, and America, and have not adopted the lesser calibred arm, nevertheless cartridges of a new type were introduced into the German and French Armies in the nineties, with more powerful powder, very considerably improving the ballistic qualities of the .615-inch arm. Since 1891 everything with us has gone its old and former course; and the future historian will note that as in the years 1854-55 and 1877, so too at the commencement of the twentieth century: one of the principal causes of our failures has been the comparatively bad equipment of our infantry.

No. 4.

The subject of artillery equipment in the Japanese and our Armies has given rise to spirited arguments in our Press. While silence was preserved for some reason or other as regards our infantry weapon (it was assumed that the 3-line rifle now, as fourteen years back, still fulfils the utmost requirements imposed by modern techni-

cal progress), attacks on our Military Administration on the score of defects in the armament of the artillery have not ceased since last summer. The *Russki Invalid*, in its official notes for last March, attempted to exculpate our military bureaucracy from the "unjustifiable aspersions" by dwelling on the fact that our new quick-firing field guns were better than the Japanese, and that we had no mountain artillery in the first half of the campaign for the reason that the pattern of Q.F. mountain gun in 1904 was only in a stage of evolution. On the other hand, the *Russki Invalid* maintained silence as to the fact that by a long way not the whole of our field artillery in the Far East consisted of Q.F. guns of the 1900 pattern. A considerable portion of the field artillery of our active Army even to the present moment, have the long ago obsolete guns of various patterns, from 1877 to 1895, provided with interrupted-screw breech-blocks, and are quite unfitted to compete against the Japanese Arisaki system Q.F. guns, either in rapidity of fire or ballistic properties. The whole of our horse artillery (68 guns) are equipped with 3.42-inch (87-mm.) guns of 17 calibres in length, with initial velocity not exceeding 1,300 feet per second, and effective range not greater than $3\frac{1}{2}$ versts ($2\frac{1}{4}$ miles). On the other hand, the Arisaki guns fire shells with initial velocity amounting to 1,775 feet per second, capable of effective fire at $4\frac{1}{2}$ to 5 versts (3 to $3\frac{1}{2}$ miles). But in addition to our horse artillery, a certain number of our dismounted batteries are also armed with guns with old pattern breech-blocks. In any case, these particular dismounted batteries should not be less than 12 (partly formed out of Siberian Reserve batteries), which between them would have 96 guns. These guns are of the same calibre (3.42-inch) as the H.A. guns, but a little longer—21 calibres—and hence their ballistic qualities are somewhat higher (initial velocity 1,500 feet per second, effective range $2\frac{3}{4}$ to $2\frac{1}{2}$ miles), but still are considerably inferior to the longer ranging and quicker firing Japanese pieces. In the present stage of the campaign the presence of 164 old pattern B.L. guns plays a minor part, as these out-of-date guns form only one-eighth of the general total of General Linievitch's field guns, and seven-eighths new Q.F. guns of the 1900 pattern. But during the first half of the campaign of the past year, up to the battle of Ta-shi-chao, and even up to the battle of Liao-yang things were quite different. Up to the arrival of fresh army corps from European Russia the old B.L. guns formed two-fifths of the whole of General Kuropatkin's field artillery, and this circumstance for a long time did not allow our artillery to contend successfully as a whole against the Japanese guns.

Now, in the second half of the year, this defect has been finally removed, and our artillery in the Far East on the whole is armed with the newest type of long-range Q.F. guns; but it is open to great doubt whether our new guns are actually very much superior to the Japanese. There can be no dispute that our field gun of the Putiloff factory, 1900 pattern, is considerably superior to the Arisaki gun in ballistic properties; the initial velocity of the Putiloff gun projectiles (2,000 feet) is considerably greater, and our gun has a longer range than the Japanese (its range for effective fire extends to 5 to $5\frac{1}{2}$ versts, or $3\frac{1}{2}$ to $3\frac{1}{2}$ miles), and its rapidity of fire is double as great (16 shots a minute, against the Arisaki's 8). But this high rate of fire plays almost no part, as it is beyond the limits of practical utility. In the opinion of so eminent a judge of artillery science as General von Rohne, of the German Army, the effectiveness of fire gains little

from the increase of rapidity of fire beyond a fixed limit (4 to 5 shots per minute); for effectiveness of fire it is essential to observe the fall of the shots, and correct the aim, otherwise the fire becomes mere child's play. As regards fire on to areas where accurate ranging is not essential, if the fire were kept up at the rate of 16 shots a minute the battery would run through its entire ammunition supply in a quarter of an hour, and then be compelled to keep silent until ammunition were brought up from the artillery parks, and in action this would for the most part entail a whole hour—sometimes, in fact, it would be utterly impossible, when the approaches to the battery are actually under the enemy's fire. Most important of all is the fact that the Putiloff gun of 1900 suffers from three substantial defects of construction, which quite counteract its advantages of long range and the greater power of its projectiles (the shrapnel of our gun weighs 14·4 lbs., and contains 260 bullets, while the Arisaki shrapnel weighs about 12·2 lbs., and contains only 200 bullets). Firstly, the ballistic properties of our new gun, according to the opinion of German authorities (*vide*, for instance, Löbell's *Jahresberichte*, 1903, p. 474), are exaggerated, owing to the fact that during fire the gun does not rest firm, and the carriage jumps somewhat. This slight unsteadiness of the gun cannot help reacting upon the accuracy of the fire. There is nothing, then, extraordinarily surprising if the more conscientious and observant of our newspaper correspondents certify that our shrapnel fire does little damage to the Japanese, amongst whom bayonet and small-arm bullet wounds are far more frequently observable than wounds from shrapnel. For our soldier, on the other hand, Japanese shrapnel and Shimose have generally been the most persistent and unpleasant of guests. The second important defect of the Putiloff gun, also connected with the exaggeration of its ballistic properties, manifests itself in its weight. Our 1900 gun (with gun carriage and full limber) weighs 1 ton 17 cwt., while the Japanese Arisaki gun does not weigh more than 1 ton 6 cwt.; it takes 6 horses to draw our gun and 4 for the Japanese. This extra 11 cwt. of dead weight is precisely the cause of the defective mobility of our artillery, not only in battle but on the march as well. Japanese batteries, being much lighter, were able to frequently change their position, and turn up where no one expected, whereas our guns (besides taking longer to limber up) could not go along roads which Japanese artillery moved freely over. This very excessiveness of weight in our guns was not infrequently the cause, during retreat, of our having to abandon artillery a prey to the enemy, notwithstanding the self-sacrifice of the gunners and infantry assisting them. Who, indeed, does not remember the woeful tales of a whole battery in the retreat from Aisiandzian getting choked in the mud, and all the exertions of the exhausted soldiers dragging the guns by hand being in vain? Were the guns one-third lighter we would in all probability have lost one-third less of them, and even with all the teams shot down, would not have been forced to abandon our guns to the enemy. The third defect in the construction of our gun is the introduction of only one kind of projectile—shrapnel—and the abolition of common shell. It has already been explained that shrapnel is only applicable for fire against living objects, and powerless against cover (earth-works, stone walls, etc.).

Our shrapnel, upon the testimony of eye-witnesses, was unable to demolish hostile entrenchments or to drive the Japanese out of

villages, in which they comfortably sat out our fire. Even clumps of trees, and fringes of woods covered Japanese infantry from our shrapnel. For instance, at the commencement of the battle of Mukden we were quite unable to drive out the Japanese from the woods on the north bank of the river Shaho, close to the railway bridge, and resting on these woods the Japanese captured the bridge from us, which our skirmishers were to have occupied, and thus nipped in the bud General Kuropatkin's attempt to cut off Marshal Oyama's centre on the river Shaho by a counter-attack. In similar cases our officers have frequently been compelled to call up the old-fashioned B.L. gun batteries, but their number was limited, and they could not be everywhere. Although shrapnel fuse has double action (time and percussion), still the percussion adjustment does not enable it to replace common shell, as shown by experience. On impact against any considerable obstacle shrapnel bursts in front of this cover (as for instance stone wall) and not behind it; the scattering shrapnel bullets have such a slight initial velocity (200 feet per second) that they do not even penetrate trees of medium thickness. The introduction of only one kind of projectile in the field artillery was mainly called for owing to the fact that formerly with the employment of projectiles of 3 kinds (shrapnel, case, and common shell) great disorder often existed in the supplying of batteries from magazines and parks. Some batteries got only case, and were obliged to maintain silence, until the enemy got within a few hundred paces; in other batteries nothing was to hand except common shell. But it is hardly practicable to give up so essential a weapon to modern battles as common shell merely on account of the difficulty of supplying batteries with projectiles of the various types required. The Japanese common shell (Shimose) have done them yeoman service, and have generally been a serious menace to our trenches, and the soldiers sitting behind them.

The ineffectiveness otherwise of the 1900 pattern Putiloff gun was soon enough acknowledged by our War Office itself. After endless experiments and trials had made clear the defects of the new gun, their manufacture, only just having commenced, was suspended, and trials of the new 1902 pattern Q.F. gun commenced. It is, however, not evident why the working out of the details of the new gun hung fire, and at the beginning of the war our artillery was left armed almost exclusively with the old B.L. guns which had already had their destiny for the scrap heap pronounced four years earlier; only some brigade divisions were equipped with the 1900 pattern Q.F. guns. From the end of 1903, under the pressure of threatening danger, and having failed to work out the new 1902 type of gun betimes, our War Office started to grapple energetically with the manufacture of guns of the 1900 pattern, although the self-same authorities had already acknowledged them unfit. As a consequence of this shilly-shallying officialdom, our artillery actually had to be re-equipped after the war was already in progress, while some two weeks were given to batteries proceeding to the Far East to familiarise themselves with the new gun, which neither officers nor men had ever set eyes on up to that moment. Can we blame our ill-starred gunners if they had to *learn* how to fire their guns for the first time under fire of the enemy on the battle-field? At length the experiments with the new 1902 pattern gun were completed last year, and a start made with its production on a large scale. No data of the new 1902 gun have eked out into the Press, and it is a moot point to what extent it has been made possible to eliminate the

defects of the 1900 pattern Putiloff gun. All that is known is that the new gun is steadier during fire, and, like the new French and English guns, is furnished with a steel shield nearly $\frac{1}{2}$ -inch (5-mm.) thick protecting the layer and No. at the breech from small arm fire up to within 600 yards range. We have no data at our disposal to make clear whether the excessive weight and cumbersomeness of the 1900 Putiloff gun have been dispensed with and whether common shell has been reintroduced or not. We are hence in no position to assert that our artillery has at last actually got a gun to beat General Arisaki's Japanese field gun on its own merits. At all events, there can hardly be any talk now of re-arming our artillery with new guns of the 1902 type at the Far East. Firstly, if we are to credit German sources (Löbell's *Jahresberichte*, 1904, p. 398), the production of these guns is advancing only very slowly owing to the want of proper plant for their manufacture. Of course it would be possible to order new guns from Krupp or other foreign gun factories, but the Trans-Siberian line could not deliver 1,500 guns with a million shells in less than a year, and the re-armament could hardly be completed earlier than the commencement of 1907, while time and tide, and with them the course of events at the theatre of war. . . . ! It would be aimless to transfer the artillery to the rear for re-armament (for of course it needs time for instruction in firing the new guns) when the Japanese may re-commence their advance any day. It is quite clear that only batteries sent out from Russia in Europe can appear at the scene of operations with new guns of the 1902 pattern. For the present it has been decided (*vide Russian Gazette*, of 9th March, 1905 [old style]) to equip with 1902 pattern guns and despatch to the front only 3 field batteries.

Hence in the near future the equipment of our field artillery in the Far East will be of an extremely motley character: from 1877 to 1895 pattern B.L. guns, Putiloff guns, and the latest 1902 pattern guns with steel shields.

There has seemingly never yet been an instance in history where artillery has been twice re-armed in the course of one year. Naturally, these Putiloff guns, so loudly vaunted in their short day, and copied, it would appear, from the German Erhardt model, which had already been discarded in Germany in 1901, will have to be thrown away after the war, and re-armament with 1902 guns be completed. It goes without saying that this re-armament is not at all likely to work out under some millions sterling. Besides, after more than a hundred millions have already been spent upon the war, is it worth the while of our military bureaucracy to take thought of the three or four millions sterling already cast to the winds in the manufacture of the Putiloff guns? The state of affairs regarding the mountain artillery is even more surprising, and our Army still waits in vain for its supply in sufficient quantity. The justification put forward by the *Russki Invalid*, that there was no mountain artillery because the new model of Q.F. mountain gun had not been finally evolved by 1904, is singular, to put it in the mildest form. Indeed, in the Far East not only was there no Q.F. mountain artillery, but altogether no mountain artillery at all, excepting a total of 2 batteries armed with 1883 pattern mountain guns. Only in August, 1904, did a few batteries of mountain artillery appear on the scene, and then at the time of Mukden the number of mountain batteries of General Kuropatkin's Army rose to 12 and the guns to 96; whereas already in the beginning

of 1903 the Japanese Army possessed 410 Q.F. mountain guns of the same Arisaki system, *i.e.*, four times as large a number of these guns so indispensable in mountain fighting. Our mountain batteries Nos. 13 to 18, formed last year at Samara, still remained in Russia, according to the "Abridged Army List" (*Kratkoé Raspeessanié*), and the batteries Nos. 19 to 26 were still unformed. When General Linievitch gets these mountain batteries he will have 208 mountain guns, that is to say, in any case half as many as Marshal Oyama. While our artillery fought among mountains they got no mountain guns owing to the lack of the new type of guns. This is just the same as if, for instance, infantry, on occasion of the evolution of a new pattern rifle, and up to the conclusion of the re-armament were left entirely without rifles and armed with revolvers only. With the advance of summer, when military operations have almost entirely left the mountains (with the exception of General Linievitch's left), our Army is to receive at last the perfected mountain guns which, however will, of course, do immense service after the recapture of Mukden and Liao-yang during the march of our Army on Corea and Kwang-tung.

The details of construction of our Q.F. mountain guns are not available, while the old 1883 pattern without doubt is far inferior to the Japanese Arisaki mountain gun. The calibre of our gun is $2\frac{1}{2}$ inches, the Japanese 3 inches; the initial velocity of ours, 900 feet per second (that of the Japanese about 1,000), weight of projectile 9 lbs. (that of the Japanese gun over 12 lbs.). Our 1883 mountain gun cannot hold a candle to the Japanese one, either in range, penetration, or rapidity of fire.

The state of affairs with our heavy field artillery, without which the attack of even temporary fortifications is impossible, has fared little better than with our mountain guns. Almost up to the battle of Liao-yang itself we had hardly any heavy field artillery, and then 2 mortar batteries appeared on the scene; towards the end of 1904 the number of mortar batteries in our Army was raised to 10, with 80 mortars. The Japanese, for their part, from the very beginning of warlike operations, furnished every one of their Armies with a regiment of heavy artillery, composed of 4 batteries of Krupp howitzers (24 pieces to a regiment), so that under Mukden already 120 howitzers were in action. At the present moment, according to the reports of our paper correspondents, each division of the Japanese Army has a battery of 6 howitzers with it, so that Marshal Oyama's Army, not counting the newly-formed Sixth and Seventh Armies, has 168 howitzers at its disposal. But besides our heavy field artillery being half as many as the Japanese, the Krupp Q.F. howitzers are far superior to our old 1886 mortars. In spite of the Krupp howitzer of 4.75-inch calibre being more mobile and lighter than our mortar (the former weighs 1 ton 19 cwt., and our mortar a little over 2 tons 1 cwt.), this howitzer ranges much farther than our 1886 mortar. The initial velocity of the Krupp howitzer's projectile (weighing about 44 lbs.) is 902 feet per second, while that of our 1886 mortar's (weight $52\frac{1}{2}$ lbs.) is 738 feet per second, so that our mortar only shoots 2 miles and the Japanese howitzer 3. Still more powerful and longer ranging is the 6-inch Krupp howitzer, also introduced into the heavy field artillery of the Japanese Army, though in what numbers is uncertain. With the same initial velocity (902 feet), the 6-inch projectile weighs 79 lbs. True, the 6-inch howitzer is extremely heavy (its weight is

nearly $2\frac{1}{2}$ tons), but the Japanese have managed to contrive, as at Mukden, to use it even on ordinary wheeled roads. It was precisely this howitzer, with which our mortars could not contend, that decided the fate of the action on our right flank during the battle of Mukden; our redoubts, pushed forward with extreme labour in the period of the long winter occupation on the north bank of the river Hunho to the west of Mukden, were dismantled in a few hours by the 79-lb., 6-inch, fougasse-like shells, and consequently the whole line, from Madiapu to the Imperial Tombs, had to be abandoned. . . . It is only just to say that now Q.F. howitzers are appearing on the scenes on our side too; but, as evident from the Imperial Order on the despatch to the Far East of the 3rd Mortar Regiment, General Linievitch is only to get 4 howitzer batteries and 32 howitzers. The mainstay of our heavy field artillery is still to be the same old mortars as before, from which it is only possible to deliver effective fire under the very nose of the enemy. Finally, as regards the heavy siege ordnance of the opposing Armies, neither its numbers nor its exact composition are known exactly, and hence an accurate comparison is impossible. In our siege artillery, long guns of $4\frac{1}{4}$ -inch calibre (32 calibres long and with 36-lb. projectiles) only are used, while the Japanese bring into employment long 6-inch naval guns (40 calibres long with 99-lb. projectiles). Our heaviest howitzers of 8-inch calibre, fire 180-lb. shells, while the Japanese have 10-inch howitzers, throwing 468-lb. shells. To correspond to the monster Japanese 11-inch mortars, the projectile of which weighs 702 lbs., we have in our siege park 9-inch mortars with 270-lb. shells. In a word, our War Office have expressly put forth their whole energies to ensure our artillery being numerically and in quality inferior to the Japanese in all respects.