But the less time the defender has been allowed in which to improve his position, the more rapidly will a given number of guns achieve the required result; and though we must admit the many difficulties of execution which prevent complete reali­zation of the ideal in practice, yet it is clear that the more closely one can approximate to this ideal, the less the demands which will be made upon the infantry when its turn comes to go for­ward. This matter is of such importance to the whole subject that we will put it forward in another form. Let us assume that the shells on bursting create only smoke and disturb the dust, delivering no man-killing fragments at all. Still it is clear that, say, 1200 shells a minute bursting over a front of some 600 yards would shroud that front so completely with smoke and dust that its occupants would be quite unable to direct their aim upon the approaching assailants, and under cover of this smoke and dust cloud the latter would be free to carry out what dis­positions they might please with the minimum of loss. When finally the shell fire had to be stopped and the smoke lifted, the two infantries would be in presence of one another under conditions which have always been held to offer the maximum guarantee possible to the assailant, viz. an assured numerical superiority disposed in relatively the best positions for the use of their weapons, *i.e.* their fire converging on the point of attack.

From the consequent assault only entrenchments and physi­cally insuperable obstacles (a deep ditch for example) or wire entanglements which require machinery to tear away, can save the defenders. But such obstacles require time for their creation, hence the supreme importance of the utmost possible mobility. Now though in practice every great commander has utilized to the utmost such mobility as he might find in his troops (and by its use he has often, in countries well supplied with roads, succeeded in rendering the erection of entrenchments practically impossible, or in forcing an entrenched enemy to come out and fight in an unprepared position), yet no scientific attempt has hitherto been made to study the whole question of mobility, notwithstanding the fact that the Boer War of 1900-02 proved its importance up to the very hilt. The Boers were wanting in every quality which renders an enemy really formidable except mobility, but because of that supreme qualifi­cation and the fact that the enormous area of their country and their exact knowledge of its topography gave them every facility to employ it to the utmost, about nine times their numbers were required to subdue them; and the method ultimately adopted, though freely criticized, was in fact the only one feasible under the circumstances to bring them to a final surrender.

Actually, all systems, the Napoleonic as well as the others, can be defeated finally by an excess of mobility, the exact proportion depending on the topographical nature of the country fought over, the roads available and its extent. So great is its influence that it overrides all changes in armamcnt or in tactics, as was shown in Manchuria in 1904-05, where in spite of both armies, or perhaps better *because* both armies were trained on western European lines, the actual form which the war assumed was that of Marlborough’s times. It is sufficient to imagine the Japanese supplied with sufficient pioneer battalions, of the type employed on the Indian frontier, and a first-rate transport corps (which would have doubled their average rate of daily progress), to see how’ completely the situation would have been altered. They could have reached Mukden in half the time actually required, and would then have possessed a numerical superiority sufficient to ensure for them a second Metz or even a Sedan. It is in this direction that all great progress is to be looked for, but it involves experiment and organization beyond the capacity of any single student. We may, however, indicate the general outline such a development would require. Primarily time is chiefly lost in the hesitation of leaders and in the preparation and circulation of orders. A clear apprehension of the powers which modern weapons confer on the attack will lead to the elimination of the first, and a higher intellectual training of the whole army will materially reduce the second, for the limit to the brevity of orders is fixed by the trained intelligence of the recipients. Napoleon’s marshals could move effectively in response to an order of a couple of sentences; Mack’s generals needed fourteen sheets of foolscap.

Next comes the rapidity of movement of the troops themselves when on the road. They cannot march for longer hours than already at times they are called upon to do; but by a better distribution of the weights carried between the men and their transport, they might well cover much more ground in the same time. Here again determination to take the offensive, and to keep it, largely governs the situation. An army determined to attack needs no entrenching gear, certainly not on its men. Its fire is its best protection, and when as in recent campaigns in Bulgaria and the Far East the need for entrenchments has arisen, that has only occurred because the whole weapon of attack, viz. that combination of the three arms which we call an army, was not properly balanced in its parts at those particular moments so as to enable it to maintain its forward impulse. Either, as in Bulgaria, the staff was not up to its duties, or, as in the case of the Japanese, the artillery arm was too slow, or was locally outclassed by the artillery power of its adversary. But in all countries, roadless ones in particular, the progress of the front is conditioned by the efficiency of the transport services in rear, and only because this branch of the army has never received all the attention it deserves has it been necessary to overload the men and horses at the front in the preposterous manner which custom has everywhere sanctioned, which for the most part has been inherited from the time of Marlborough. Over and over again in the past two centuries men have shown that literally only muskets and ammunition are required to win battles, and that a great victory won by rapid marching is by far the most economical use that can be made of human powers. But again and again the pendulum has swung back, and the soldier, in order to be prepared for emergencies which only defeat can bring about, has been burdened down by a weight which has brought him on the field too late and too weary to win it, but in ample time to incur all the penalties of disaster.

In the future in western Europe that army whose transport service, based on motor vehicles and a good road maintenance corps of real working men, will relieve the soldier and his horse (where he has one) of every ounce of superfluous weight, includ­ing even in that expression greatcoats and all rounds of ammuni­tion in excess of 120 apiece, and whose men arc uniformly trained to the Bersaglieri march (7 m. in one hour or 15 m. in three consecutive hours), will possess a superiority over its adversary which he will require twofold odds to counteract. The suggestion that the ammunition supply should be limited may create sur­prise, but it is a logical consequence, and precisely one of those points on which the strategist of the future will require a firm conviction. The fundamental fact on which all tactical practice is based is this, that a relatively small loss suddenly inflicted exercises a far greater demoralizing effect upon its recipient than a much heavier punishment extended over a longer period. First-rate troops have often broken back in disorder under a sudden hail of bullets which has swept away not more than 2 to 3% of their strength, whilst exactly similar battalions in the same action have held out all day and remained an efficient fighting body after even 30% had fallen. But, armament being equal, this sudden loss can only be inflicted by placing the troops on the field in the best position possible, relatively to their enemy to derive the full benefit of their fire-power; and mobility is the chief factor in attaining this end. The point is most clearly seen in the case of the action of a well-mounted force against a slow-moving convoy; the convoy forms a target which men can hardly miss; the assailants are a number of dots it is scarcely possible to hit. Two thousand rounds per man of the escort would scarcely suffice to obtain the same results as twenty rounds a man on the side of the assailants. This is a clear illustration of the principle involved, which should always be kept in mind.

Lastly the student should master the elementary principles of railway transportation. The progress since railways were last used in warfare in western Europe has been so enormous that the data supplied therefrom are entirely antiquated, and