

carefully one by one. This examination is most quickly done and yet no cap can escape scrutiny, for sharp eyes, nimble fingers and constant practice have everything to do with this inspection. From time to time during manufacture the foreman tests the dimensions of the caps as they come from the last machine, and as the finished cap must go through a guage .173 inch in diameter and not pass a guage .172 inch in diameter, it shows that only less than *one-thousandth* of an inch is permitted as a variation in diameter in manufacture. The length may vary from .200 to .205 of an inch.

The anvils are punched from sheet brass .062 inch in thickness, and 360,000 can be made in one day. They are all carefully examined.

The pellet is made out of brown paper, which is cut in strips $17\frac{3}{4}$ inches in length and $\frac{5}{16}$ inch in width, by revolving cutters, each strip weighing 12 grains. These strips are pasted at one end, and then spun into pellets on a revolving spindle, which leaves a hole in the centre. From this machine they are passed into a machine where they are submitted to a very heavy pressure to give them a proper shape.

To be continued.

COMMON SENSE ON PARADE OR DRILL WITHOUT STAYS.

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The latest edition of the "Field Exercise" is a telling illustration of this "far too often." Lord Wolseley during the last two or three years, has been too much occupied in the actual work of war to superintend and control the *daemon* that prescribes his drill to the infantry soldier. Accordingly the "Field Exercise" issued in 1884, is a flat contradiction to that general's sentiments quoted above, and by the irony of fate his name is signed to the usual terrible letters of denunciation of those who depart in the smallest particular from its prescriptions. This new edition of the "Field Exercise and Evolutions of Infantry" is new only in the sense of being printed on newer paper and bound in newer leather than its predecessor. The book contains all the old complicated ways of doing simple things, the old obsolete manœuvres which are never seen except in barrack yards or at official inspections, but of which Romping Down and the Long Valley know nothing. As regards close drill, from its first to its two hundredth page it is an exact reproduction of previous ones, except that in page 66 there is a most serious alteration, stating that when officers require to signal with their swords they are to draw them (!) and that a very important direction as to the "graceful" manner in which officers are to sweep their swords in the salute, in marching past, is added on page 79!!!

There are still many instances of several ways being laid down for doing what is practically the same thing, and of complicated modes being taken for doing what can be simply and easily done. But it is necessary to go farther, and to say that the whole system of barrack-yard drill contained in the book is unsuited, in its character, for training the soldier to efficiency in the work to be done in the actual carrying out of war operations. Its whole tendency is to crush out all intelligent action, and to obtain by constant practice a mechanical adherence to rigid close formations, the very opposite of those which it is imperative to adopt the moment men are to be exercised in sham action or led into real action.

Thus the system occupies much valuable time with things redundant and things useless, and with things done in an unnecessarily complicated and confusing fashion. It has also the radical fault of being in many particulars ill adapted to train men for the real business to which all training should tend. That our infantry drill is in this condition is mainly due to the fact that our national tendency is to dislike radical changes, preferring to patch rather than discard the old for the absolutely new. The British subject sees a hundred reasons why "this new-fangled" thing will not work, and will only cause a "lot of worry." He turns a listless ear to all statements of the advantages which change promises. He does not like to be disturbed, and will rather endure some continuous disadvantage, than submit to be put out of his way, and be compelled to take up a new thing. He sees a hundred difficulties in the way of altering his course, however good the alteration proposed may be in itself.

Thus the following appeal, even of the thorough-going practical soldier—"As the field exercise has been taken in hand for revision, is it too much to ask that many of the movements which embarrass and distract the minds of officers and men may be removed from the book, and the whole course of drill shortened and simplified?"—(*Colonel C. B. Brackenbury*)—falls on deaf ears, and a new Field Exercise is a disappointment to every man who has really studied the necessities of

modern fighting. The sound view that "It is important that any details that can be suppressed should be done away with, in order that troops may be able to devote as much time as possible to perfectly mastering those which continue to be practical," (*Maurice's Wellington Prize Essay*)—has been absolutely ignored, and the sound principle laid down long ago by one of the most philosophical and practical writers on such matters, that "Theory should prevent by lucid and rational criticism peculiar methods from outliving themselves," (*Von Clausewitz*)—has been set aside by those who have the executive power refusing absolutely to listen to theory, and thereby becoming essentially unpractical.

It must not be supposed that it is intended to suggest that there should be no conservatism in such matters. Far from it. When reasonably exercised, it prevents crude ideas, however good, from being adopted in an immature form, and saves the service from the pitfalls that lie in the path of those who are constantly craving after "some new thing." But it has its disadvantages. And if there is any region in which it is injurious when it runs to excess it is in that of war science. It was said in praise of Roman military genius, that "Les romains ont toujours renoncés à leurs usages, si tôt qu'ils en ont trouvés de meilleurs."—(*Maréchal Saxe.*)

It is in war, of all the sciences, that the danger of being behind the time is greatest. It is the science in which the inventors and adaptors of the machinery have to take into consideration the operation of moral as well as physical forces. It is the science in which those who have not the best machinery, working in the best and most economical way, not only risk defeat, but must be held morally responsible for undue loss even where success is attained. It is the science in which the best material may be used up in vain, because the instrument made of it is, it may be, badly put together, or, it may be, unmanageable, or, it may be, ill-proportioned in its parts, so that one does not duly support the other, or that those in charge are unable to exercise proper control over it. And if the machine has from such causes a tendency to fail, it is unlike other machines in this, that while their failure is due to the operation of fixed mechanical laws, and therefore may be matter of direct calculation, the military machine cannot be freed from the operation of moral forces, which though they may sometimes overcome defects in the mechanical construction and arrangement and produce a successful result in spite of them, may also often aggravate the evils due to such defects. Further, war being a science, the application of which consists in the endeavour of those in possession of one instrument of action to destroy or make unserviceable the instrument of others, being "Nothing but a duel on an extensive scale . . . as to which we shall do our best by supposing to ourselves two wrestlers;" (*Von Clausewitz*)—or, as Napoleon tersely puts it, war being most like a pugilistic fight in which, as it were, two gigantic boxers are pitted against each other, the "call of time" being as inexorable as in the P. R., it is manifest that not only the most perfect material and the most perfect training are required, but that the best forms and rules of action must be discovered and applied and thoroughly practised, *before the fight begins*. Given two human combatants absolutely equal in all other respects, but one trained so as to make his power tell most effectually in weakening the other, while saving it from unnecessary loss in doing so, and there can be no doubt which will prevail. Given two unequally matched in other respects, the stronger of them may prevail with bad system, but this he will only do by being able to take more punishment without being knocked out of time, than the conditions should have demanded. In such a case in war more human life and limb has to be sacrificed than is necessary, just as the pugilist purchases his victory dear, where his science is not on a par with his bodily strength. In the case of the pugilist no moral questions arise, for the fight is a mere brutal pastime. But in war, a nation whose military authorities have failed to study deeply the war science problems of the time, and to adapt its drill detail to them, has a moral responsibility for much unnecessary bloodshed, even if it be successful, and for national loss as well if it be defeated. Just in proportion as it is impossible to find opportunity during hostilities to improve the constructively defective war machine, is it imperative that no considerations of saving trouble, or of economy, should be made ground for omitting to take note of every change in the conditions of wars which inventions in the physical departments of war science may bring about, or for neglecting to apply inventive thought to adapt the manœuvres of the Army, so as to take the fullest advantage of these inventions on our own side, and to minimise the evil results to ourselves from the possession of them by the enemy.

Now, if these principles be sound, they are important for all departments of war service. But, most of all, they are paramount in reference to the infantry branch. This is the arm with which practically the final decision rests. It has the least mobility, while it