

## THE ENGINEER.

It was a grave and quiet youth—  
A chain-man true was he  
Until he linked his fate with those  
Who engineers would be.

For, as he was an honest man,  
It gave him bitter pain  
That, like a convict, he should be  
Compelled to drag a chain.

He ne'er aspired to wealth or fame,  
And I have heard him say  
No monarch would he wish to be  
Of all he did survey.

A cunning engineer was he,  
Yet naught with him went right,  
Nor could he his ill luck foresee  
In spite of his "foresight."

'Twas all in vain this engineer  
Would work with mind and might;  
His work was incorrect, because  
His angles were all right.

All day his level he would run,  
But all he gained by that  
Was just to know that he him-self,  
And not the ground, was "flat."

To make a map he never tried  
But what he cursed his lot—  
Not his the dark and wily arts,  
And so he could not "plot."

As he laid out the land one day,  
Like any other elf,  
The fever came and very soon  
He was "laid out" himself.

Twelve men upon his body sat,  
And this verdict did make;  
"We find he died, just as he lived,  
A martyr to the stake."

And so at twenty years of age  
He quit this mortal strife,  
And ended here for ever more  
His transitory life.

The moral of this mournful tale  
To blockheads all is clear—  
Don't let your heads get engine turned  
To be an engineer.

—Harper's Magazine.

## ARMY ORGANIZATION.

(By General George B. McClellan.)

(Continued from page 315.)

## THE COMPOSITION OF ARMIES.

Armies are made up—

I. Of the *combatants*, who do the fighting.

II. Of the *non-combatants*, whose duty it is to provide the fighting portion with weapons, ammunition, food, clothing, equipments, medical attendance, transportation, forage, etc., at the proper time and place, so that the combatants may never lack the supplies necessary to enable them to do the work expected of them.

The chief purpose of a good army organization is to make the combatants as numerous and efficient as possible, and to reduce the non-combatants, with their indispensable but embarrassing impediments, to a strict minimum. Any organization which does not accomplish these purposes must be regarded as radically defective.

## I. THE COMBATANTS.

These consist of the *infantry*, who march and fight on foot; the *cavalry*, who move and fight on horseback; the *artillery*; and the *engineers*.

Each of these natural and general subdivisions of the combatants forms "an arm of service"—e. g., the infantry arm, the artillery arm, etc. To these are added in some armies certain special organizations, such as mounted infantry, who are provided with horses in order to secure celerity of movement, but who fight on foot, and *dragons* (properly so called), who move on horseback, but who fight either on foot or mounted, as circumstances may require. So also

some companies of engineer troops, who habitually march and act on foot, are in some armies mounted, in order to enable them to accompany the cavalry in their movements. But these are exceptional cases only, and do not necessitate an extension of the subdivision given above.

## THE INFANTRY.

This arm of service constitutes, both in respect of numbers and importance, the main body of an army, so that the others are, in fact, accessories to it, although often indispensable in covering its movements, facilitating its attack or defence, and following up the results it has gained. A somewhat detailed explanation of the organization of the infantry arm will enable us to pass more rapidly over that of the other arms of service, to which the same principles apply, modified, of course, by the peculiar circumstances of each case. A good organization must provide for the inculcation and maintenance of discipline under all circumstances; thorough instruction in all points of the drill—that the soldier may be able to use his weapons to the best advantage, and take his part understandingly in all tactical movements—also in the various phases of guard, outpost, and patrol duties; it must make due provision for the interior administration, that is to say, for the proper accountability for and care of all weapons, ammunition, equipments, clothing, and food issued directly to the men, or in the hands of the regimental and company officers, ready for supplying current needs, so as to prevent waste and secure a proper supply at all times; it must provide for the very necessary supervision over the comfort and health of the men in the way of proper cooking, hygienic precautions in regard to their dress, habits, etc. lastly, and not least in importance, there must be such a supply of officers and non-commissioned officers, and such a distribution of the force into large and small bodies or units, that the march of large numbers of troops may be conducted with celerity and good order and that the movements in battle may be made with rapidity, decision, and unity, and be under the entire control of the commanders.

To secure these results the first condition is that the different fractions of the army should be commanded and directed by officers whose rank, character, and experience, as well as theoretical and practical knowledge of their duties, are commensurate with the importance and extent of their spheres of action. Between the officers and the private soldiers come the non-commissioned officers selected from among the latter for their good character, good soldierly qualities, education, and intelligence. Another principle of first importance is that the number of fractions composing each unit of force (i. e., the battalion, the regiment, the brigade, etc.) should not exceed two or six, since experience has shown that no commander of a unit can safely undertake to communicate orders efficiently to more than that number of subordinates. It will be necessary to recur to this principle when explaining the organization of the different units.

The lowest or smallest unit of organization for tactical and administrative purposes is the *company*, commanded by a captain, who is assisted in the performance of his duties by lieutenants (commissioned officers), and by sergeants and corporals (non-commissioned officers). As will hereafter be explained, the strength of the company varies much in different services, both on

the war and peace footing; for war the company varies from about 100 to 270 officers and men in different armies.

The *battalion* is the next higher tactical unit, and consists of from four to ten companies, depending upon the strength of the company; it is commanded by a major, provided with a proper staff.

The *regiment* is the next tactical and administrative unit; it consists of from one to five, and sometimes of even six battalions, including the reserve and depot battalions, and is commanded by a colonel, who also is furnished with a suitable staff.

The next tactical unit is the *brigade*, composed of two or more regiments, and commanded by a general of brigade.

The next higher tactical and administrative unit is the *division*, made up of two or more brigades, and commanded by a general of division.

Usually the division is the lowest unit composed of two or more arms of service. To the infantry division a certain amount of cavalry, artillery, engineer troops, and of the train detachments, are usually permanently assigned, and form a part of the command of its general, so that the division may be said to be the lowest unit capable of independent action. To a cavalry division it is usual to attach permanently a suitable proportion of mounted engineer troops, but no infantry. In some services the division does not exist, but the brigade is organized on a similar independent footing. In others, although the division is retained, the brigade is made an administrative unit.

In large armies the next administrative and tactical unit is the *army corps*, which is made up of two or more divisions of infantry, with a brigade or division of cavalry, and a reserve of artillery, and is, in fact, a small and complete army within itself. It is commanded by a lieutenant general, a general, or a marshal. Two or more army corps form an *army*. In the large masses brought to bear in modern times it is usual to divide the entire forces acting toward a common point, with a common object, into two or three separate armies, each with its independent commander, but all acting under the direct orders of the sovereign or a generalissimo.

Whenever the occasion arises in the course of these articles to designate the different grades of the military hierarchy, the names used in our own or the French service will be habitually employed, but, to avoid repetition and explanation hereafter, it may be well at this point to mention the titles made use of in some of the principal armies of Europe. In our own, as well as in the French, Italian, and English services, the commanders of companies of all arms of service are entitled captains; their assistants are first lieutenants and second or sub lieutenants. All of these are called "company officers," because their duties are confined solely to the particular companies to which they are attached. In Germany the captain of cavalry is entitled "Rittmeister," while the designation of a captain in any other arm of service is "Hauptmann," i. e., chief or leader. In the four armies first named the commander of a regiment is known as a colonel, while his assistants in the command of the battalions, etc., are known as lieutenant colonels and majors, except in the French army, where the majors of cavalry and artillery are designated "chiefs of squadrons" and the majors commanding infantry battalions are known as "chiefs of battalions." In Germany the commander of a regiment is designated