GERMAN GUNS VERSUS FORTS

Heavy Artillery Can Reduce the Strongest of Defenses.

NOT HARD TO TRANSPORT

Flanged Wheels and Caterpillar Traction Engines Make It Easy Matter for Invaders to Haul Huge Destroyers.

(Correspondence of the Associated Press.)

ROTTERDAM, September 19.—"In view of the great results achieved by the new German guns a description of the modern fort may be of interest," says the military critic of the Nieuwe Rotterdamsche Courant. He writes:

"When it becomes necessary to fortify a terrain permanently forts are built at intervals of from three to six kilometers apart. These forts are combinations of earthworks and such buildings and other structures as are needed. They are surrounded by deep moats with steep sides, on the far side of which barbed wire entanglements are laid out. In modern forts all structural walls are made of concrete, this applying to the turrets and barracks alike. The number of guns in a fort depends upon the system of defense of which the fort is a unit.

"In case a fort is not supported by flank works and is, therefore, a unit in itself, the effort is made to place as many guns as possible, selecting both large and small caliber pieces. In this manner a fort may be made very strong. Another method is not to place so many pieces in the fort itself, but to depend upon the support of artillery stationed in case of war on neighboring points of vantage.

Central Defense System.

"The first system becomes the central point of the defensive force which may operate with the fort as support. According to the Belgian General Brailmont (well known military engineer), this method has the advantage of having all pieces constantly in readiness for action and surprises are guarded against. But it has the drawback of becoming easily the target of a concentrated fire of the enemy's heavy artillery. In case of bombardment the enemy can make the turrets his goal or he can make the entire fort his target—which usually becomes the practice. If one fails to hit one thing, one hits the other. For theoretical reasons (proven correct by the lessons of this war), there has long been held a prejudice against this system of fortification.

"The second method seems decidedly better. Instead of having a few separate forts of great strength which the enemy can make the objective of the operations, one offers him a large number of small forts which in the first place are hard to locate and upon which a large amount of ammunition must be expended. In this case the forts are supporting points of the infantry position lying between them. Artillery of small caliber is used in this instance for the protection of the front and flanks.

"The new German fortifications near Metz and Strassburg are of this latter type, consisting of small works surrounded by the usual obstacles (such as redoubts, trenches, moats and barbed wire entanglements.) These forts are grouped and form units, each of which has its armored batteries (long range guns) and also sunken batteries of high-trajectory mortars. The intervening infantry positions are supported by small caliber field pieces.

Few Hundred Meters Apart.

"These forts lie merely a few hundred meters apart and are connected with subterranean passages which lead also to the barracks beyond the range of artillery fire (making it possible to move troops into the positions without exposing them to the hostile artillery fire. In this case the arrangement is such that the enemy would have to take one small work after another, an operation which would cost many lives.

"The speedy reduction of the fortresses Liege and Namur does not of necessity demonstrate that forts of the order first named have entirely lost their value, but it is certain that the forty-two centimetre pieces are just the thing for them. But against small forts with permanent tusschenlinien (intervening military works), the fire from these guns; while terrible in effect, would not so quickly accomplish the results wanted. An additional factor in this is that the transportation of these heavy pieces is a difficult undertaking, which is also true of the necessary ammunition supply. To move these along an extended line of small forts is a heavy task.

Overlooked One Possibility.

"From other sources it has been learned that all fortifications of the type favored by General Brialmont would have served their purpose well had the Germans failed to provide themselves with the forty-two centimetre pieces. It has been shown at Givet that the Austrian thirty-five centimeter mortar batteries, though smaller in caliber and of lesser force of penetration, suffice amply to reduce a unit fort in little time. General Brialmont and the French military engineers, it is said, made the mistake of taking it for granted that the twenty-one centimetre guns of the Germans, and their own armies, were the last word of armament, having accepted that the steel they were familiar with could not stand a greater chamber-pressure. That a heavier piece would give more penetration than they calculated in their plans, they are said to have known, but they accepted that it would be impossible to transport such giants. In view of the fact that even thirty-six horses have difficulty moving one of the German forty-two's, this conclusion was reasonable enough, explained a Dutch artillery officer, but neither General Brialmont nor the French engineers could foresee that motor traction would make such tremendous progress since the forts they built were planned.

Move Giants with Horses.

That the Germans and Austrians have moved their forty-two's and thirty-five's, respectively, by horses is a fact. But this seems to have been done in terrain where the roads permitted of no other course. Invariably they are moved by powerful traction engines, which in addition to the piece itself, pull from three to four caissons. Recently a type of traction engine, known as "caterpillar" has been observed, for use on bad roads and across plowed fields. In addition both the German and Austrian heavy pieces are mounted on a carriage, the wheels of which are fitted with flanges for use on the railroads. Whether or not this latter device has been suggested by the war cannot be said, but a few days ago several heavy German batteries were taken in this manner over the Belgian railroads, the road tractor running on the rails also. Ordinary railroad cars trailing behind the caissons carried the personnel of the batteries.

What sort of explosive the Germans use in the forty-two-centimeter shells is still a mystery. French officers of forts bombarded by the Germans maintain that the charge of the projectile is melinite, but others have expressed the opinion that the explosive is something entirely new and that the gases formed by it have even greater expansion than those of nitroglycerin, the strongest high explosive known. There is no doubt that the vapors of the explosive have a violent toxic effect and nothing but a strong application of oxygen will revive those succumbing to them.

Present Interesting Phenomena.

The German forty-two is made with two barrels—a long one for flat range fire, and a short one for high-angle fire. In the former the ballistic charge is necessarily much stronger, and with a projectile weighing from 1,600 to 1,800 pounds the pressure exerted by the explosion upon the chamber walls cannot be less than 180 tons to the square inch, it is said. The high-angle mortar forty-two requires a slightly smaller propelling charge. The long-barrelled gun is used against the faces offered by fortifications, while the mortar drops its shells from a high elevation into the fort or redoubt. Their sight ranges are said to be, respectively, eight and five kilometers, while according to the Koelnische Zetung the flight of the shell exceeds twelve and ten kilometers. The flight of both shells is attended by a number of interesting aerial phenomena, which so far have been merely hinted at by German experts. One of them, however, is that the gases of the chamber explosion travel ahead of the projectile for a long distance, but that in the end they are left behind by the shell, first the one and then the other having the greater speed, an indication, it is seriously maintained, that the vacuum created by the gases tend to not only support the flight of the huge mass of steel charge, but that they actually accelerate it. At about 2,000 meters the shell leaves the company of the gases. Odd as it must seem the photographic experiments demonstrating this were made by a German ordnance expert during the bombardment of Namur. Such at least if the claim of the German press, which treats the results obtained very guardedly.

Coaxing Boehling.

A Richmond, Va., dispatch says: "Jack O'Connor, serving in the role of agent for the St. Louis Federals, will be here shortly, it is said, to see Joe Boehling, the young Washington southpaw, and to make an offer to the pitcher for 1915."

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