

riding in front, apparently out of sight of him, receiving a notice to surrender in two minutes. A few colonial cavalry accompanying them to feel for the presence of an enemy in their front, and on their flanks might possibly have averted so terrible a catastrophe as the destruction of a force in a few minutes without a moment's warning. Artillery, under such circumstances and in such a country would manifestly be of no avail, and would only have increased the long line of wagons.

No fixed rules can be laid down, much has to depend on circumstances, the character of the country, and that of the enemy, and the number of troops available. In European warfare a division of two brigades, i.e., 6,000 to 8,000 infantry, is the smallest infantry unit in which it is possible for the three arms can be advantageously employed, or a little army dispersed over an enormous Empire, smaller bodies have often to be considered as a marching and fighting unit.

The far-famed *Angamos's* gun is no more. After being the terror of the Peruvians and the admiration of all the neutral beholders of its performances for about the space of one year, it has disappeared from the scene of its triumphs, in a cloud of its own smoke. 305 rounds had been fired from it, at a longer range and with a greater degree of accuracy than any other gun has ever achieved in actual warfare. Even in its untimely end it has proved itself remarkable, for if the conclusions arrived at by those who have made a careful and minute examination of the remains are correct, it is still in a sound condition though at the bottom of the Bay of Callao. The *Angamos*, already described in our columns, is an armed merchant steamer carrying an 8-inch 11½-ton, B. L. Armstrong gun, 18 feet 4 inches long, with the "improved French" breech arrangement. It was placed between the fore-castle and a large deck-house, extending from side to side, connected to the fore-castle by a fore-and-aft bridge amidships. The gun was mounted in an ordinary carriage, on a central, pivoted slide, in the centre of the ship, so that it could be fired through large openings in the bulwarks, about 25° before and about each beam. On December 9, after a long silence, the *Angamos* renewed her attempts to sink the *Union* Peruvian corvette, inside the docks at Callao. With this object in view, she fired 12 rounds of 180-lb. common shell, with a 90-lb. charge of P-powder, at a distance of 8,002 yards, the elevation on the sights being 12½°. The practice was wonderfully accurate. In spite of the dock-walls and rampart of sand-bags, the *Union* was struck once, and the rest of the projectiles fell so close that crowds of people assembled in perfect safety on each side of the corvette only 300 yards off, giving groans for each successful shot, and cheers of "Viva Peru," for those that harmlessly struck the water. On December 10 the same scene was enacted; but still the *Union* remained afloat. December 11, the fatal day, the *Angamos* steamed in to continue her efforts. Five rounds were fired without any defects being noticed in her gun, except that it recoiled rather violently. The gun was run out, loaded again, and this time laid for the *Athualpa*, which monitor had just appeared at the entrance of the docks, evidently coming out. More compression was given, to check the gun's recoil. Lieutenant Tomas Perez, of the *Huascar*, took aim along the right sights, and the captain of the gun stood in rear of the left sights, holding the tube lanyard. The gun was fired. Before those around could realize what happened, the gun shot to the rear out of its trunnion-ring, and striking the rear part of the compressor-bars, cleared 8 feet of deck and disappeared

through the ship's side in rear into 25 fathoms of water. When the gun's crew recovered themselves, the mangled and mangled bodies of Lieutenant Perez and the captain of the gun were found in rear of the gun, 65 lbs right and left respectively, but with the exception of being very slightly scorched, the remainder of the gun's crew were quite uninjured. The first impression was that the gun had burst, but that soon gave way to the opinion that it had broken into two parts but it will be seen that even this is probably erroneous. Those looking out for the effect of the shell heard only the usual report, and were quite unconscious that an accident had occurred, and only discovered it on looking round to say that the shell had fallen short. Captain Lynch, however, had seen a splash, under the smoke of the discharge. The slide was quite uninjured, but the compressor-bars had received a crushing blow in rear of the carriage. The carriage was also in perfect condition, though the cap-squares showed signs of severe strain. Of the gun nothing remained but the trunnions and trunnion-ring, and these were in their places in the carriage, quite perfect, showing no crack, indent or abrasion of any sort; indeed the tool-marks of the interior were sharp and well defined. The ship's side showed a large, irregular aperture, 8 feet in diameter, just about the opposite port, but, with the exception of the light bulkheads of the deck-house and fore-castle being slightly injured, no other damage was done, either by fire or fragments. Some more details might be mentioned, but as an official investigation will be held, it will be unnecessary to say more than that the general opinion arrived at was this: That the gun had shot back out of its trunnion-ring without bursting or being fractured, and that after striking the compressor-bars had gone clean overboard, with the exception of a small inter-jacket, shrunk on before and butting against the trunnion-ring, and that this, it is probable, fell overboard the same side the gun was fired. It is thought too that the breech-closing arrangement must have stood the explosion, and would be found, if the gun could be raised, quite uninjured. The question is this,—Was the accident due to the inner tubes not being secured to the trunnion-ring by reciprocally-recessed joints? and repeated discharges having loosened the coils, was the final catastrophe hastened by a too powerful compressor? The accident will not have been without its value, if these points are cleared up. The *Angamos*, now a harmless transport, beat a hasty retreat, the action being continued by the *Athualpa* and some gun vessels, on the Peruvian side, against the *Huascar*, *Chacabuco* corvette, and *Pilcomayo* gun-vessel, on the part of the part of the Chileans. After a large expenditure of gunpowder, both parties withdrew, without any result.—*Army and Navy Gazette*, Feb. 5.

[It would appear that the breech-closing apparatus showed no defect in this instance, it is called the French system, but was offered to the British War Office by Sir William Palliser years before its adoption in France. Our illustration of this week shows the Palliser plan of breech-closing. The gun shooting itself to the rear out of its trunnion-ring is a strong protest against the building up by bits—Armstrong's system—as opposed to the simple Palliser plan of a wrought iron coiled barrel to bear tangential strain in the direction of the fibre, and an outside jacket of cast iron to take the longitudinal strain. The trunnions form part of the jacket, and there is no loose trunnion ring for the gun to jump itself out of. Let us hope the new Ordnance Committee will look at this important question with absolute impartiality, and treat the gun question *ab ovo*.—Ed. C. M. R.]