

We pray that it may be long 'ere Britain is called upon to use the guns in bloody-strife with those of her own language and race, or with any other race of civilized humanity; but come when it may, if it does come, we do not fear that she will be found in this respect behind her rivals.

Since writing the above, we notice that a 15 in. Rodman American gun, with shot and everything complete, has been ordered by the British Government; so that a trial between it and the British gun will no doubt soon be made. We notice also the following interesting description of the Shoeburyness experiments in the *Scientific American* :—

"As the facts come to hand, it is apparent that the power of the nine-inch gun at Shoeburyness, on 20th Sept., was due mainly to the character of the projectile, and not to the gun nor the charge of powder. The Palliser shot and shell are made of chilled iron, which has been pretty satisfactorily proved to be superior in penetrating qualities to either wrought iron, ordinary cast iron, or steel. Both steel and chilled shots were used in these experiments, but while the hardened-steel shots failed to penetrate through the target, and either broke in pieces, or were compressed and bulged out of shape, every one of the chilled-iron shots did effective service, never in one instance changing in form.

The target used was about forty feet long by eight feet high, built of a single thickness of rolled wrought iron, eight inches through, bolted by the Palliser screws to a backing of eighteen inches of teak timber and an inner plate of three-quarters of an inch iron. The whole was sustained by heavy timber backs. The face of the target was not in one plane, but half of its length was inclined at an angle of thirty degrees to the other half, the line of fire being the same in both cases; so that a shot against the inclined face would make, with the target, an angle of sixty degrees. The gun was a nine-inch muzzle-loading rifle, with increasing twist of thread, throwing shot of 250 pounds with charges of forty-three pounds of powder. The distance fired was 200 yards.

The steel shot were cylinders having either pointed heads, struck on a circle the diameter of the shot, flat heads, or the Belgian or oggee head. All of them were hardened in prussiate of potash and oil, or water. Some of them were solid, others, shells with the head screwed into the body, or the base secured in the same manner. Out of twenty-four shots twelve were of this character. Not one of them passed through the target, and every one was either broken into fragments or bulged out of shape.

The Palliser chilled shots in every case penetrated the iron plate, and in one instance, on the square face of the target, went entirely through plate, backing, and lining, and lodged in a pile of iron plating, brick, and stone masonry, twelve feet in the rear of the target. In no instance was the form of the shot changed. The Palliser shots and shells have heads formed on a radius of one and a half diameters of the cylindrical portion. Whenever the Palliser shots struck the inclined face of

the target they penetrated, while the cast-steel shots sometimes glanced off.

One circumstance in this trial is remarkable. The steel shots were so hot after striking the target that they could not be handled, while the chilled shots were barely warm. This, with the fact of the change of form in the steel projectiles, proves that much of the energy of the shot had been expended in this direction instead of in penetration.

While the velocity of the shots fired in our Fortress Monroe experiments exceeded in no instance 1,155 feet per second, that of those in this Shoeburyness trial ranged from 1,260 to 1,340 per second."

CITY ABATTOIRS.

We commend to the earnest consideration of our Municipal representatives and Health Officers, the following description of a new Abattoir for the city of New York, as given in the *Scientific American*. The storage and slaughtering of animals in the City of Toronto, and our other Canadian cities and towns, is a great evil, not only as affecting the comfort of their inhabitants, but in the positive danger to public health. In this city these slaughter-houses exist in the midst of dense populations, in unsuitable premises, without sufficient yard-room, drainage, or other proper safeguards. Provision should be made for their entire exclusion from the city limits, or at least the populated portions of the city, before another summer :—

The weekly supply of live stock that finds its way from the States of Indiana, Ohio, and other States of the West, to the New York markets, exceeds 6,000 cattle. The slaughter houses for preparing this supply for market, by order of the Board of Health, have been removed during the past season to the environs of the city, yet here they have been a constant source of annoyance, and the community must welcome any plan by which this seemingly necessary evil can be dispensed with.

On Wednesday, the 17th inst., we were present at the formal opening of the Abattoir of the New Jersey Stock Yard and Market Co., located in the village of Communipaw, on New York Bay.

Although a new project in this country, such establishments have long been known in Europe. Paris, of all cities, is best provided with these sanitary institutions, yet the pioneer enterprise of this country equals in capacity the six abattoirs of that city combined.

The systematic division of labor, the use of mechanical appliances to supersede manual labor, and the utilization of what has hitherto been considered refuse matter, are advantages which are attained in this immense establishment, and which must exert an influence that will be appreciated by the public, in lowering the present high rates for all animal food.

The buildings of this company are in direct railroad communication with the whole country, and stock can be immediately transferred from the