

in its extreme elevation, the measure of its positional energy would be the same as its energy of motion. In other words, the ability to do work if it were released in its fall would be as great as that which it possessed in its upward flight. If it could pierce a 16-inch armor-plate 100 feet above the muzzle of the gun, it would have the same ability to pierce the same plate at the same elevation in its descent.

We do not mean to say that it could pierce the plate in both the ascent and descent, but that it could pierce once, and it would make no difference whether this was done in its upward or downward flight. This statement does not take into account the resistance offered by the air, but simply the push of the force of the explosion and the pull of the force of gravity. The moving energy of the ball might be totally spent in the passing through the plate on its upward flight and fall immediately to the ground from that position, or it might be fired to its full height and strike the armor-plate on its descent.

And now the question may properly be asked, What has become of the energy that the cannon-ball possessed before it struck the armor-plate on its upward flight? As we have seen, the velocity of the ball was totally arrested when it struck the plate at an elevation of 100 feet, and from this point it falls back