

[ 1090 ]

branches, the scattered Salts looked like so many flints, differing from one another in bigness, but being never perfectly round, as *Fig. D.*

P. S. *I have Anatomised another Bitch, which was said to have been lined 3 or 4 times, not 3 days before, and found in the Womb, a great number of living Animals, which are the Seed of the Dog, but will treat hereof more largely in my next.*

---

*An Account of some Experiments for trying the force of great Guns, by the learned Mr. Greaves; communicated by Mr. Stubbs.*

1651. Mar. 18. at Woolwich.

AT 200 yards distance from the platform for great Ordinance, there were raised 3 Butts, one behind another: the space between the first and the 2d butt was 14 yards, between the 2d and the 3d, eight. The thickness of each butt was 19 inches, whereof 13 was of beams of massy Oak fastened into the ground, and set so close that they touched each other: of each side were planks of Oke, 3 inches a piece in thickness, and these were joyned

joyned close, and fastned on both sides with iron bolts, and strong pins of wood, and on the back at the ends, and on the middle there were three braces of Elm, a foot in bredth, and 5 inches in thickness.

The first experiment was with an iron demy *Canon* of 3500 *lb* weight, the bullet 32 *lb* of iron, the powder 10 *lb*, which pierced through the 2 first butts, and stuck in the 3d, so as the ball was almost quite within, but the timber not shivered (small) nor scarce split. The butts being touched by me felt not warm; the like execution was done, when it was charged with 9 *lb*, as also when with 8 *lb* of powder.

This demy *Canon* was with a cylinder bore.

The 2d experiment was with an iron demy *Canon* having a taper bore, and being 3600 *lb* in weight, and 4 inches longer then the former, the iron bullet 32 *lb*, and the powder 7 *lb*, which in 3 trials seemed to have the same force with the first. One of the shots piercing through the 2d butt, and lighting near the edge of the middle butt of elm, tore it, but by the yielding of it, the bullet glanced aside off the 3d Butt, and entred into the earth.

The 3d experiment was with a whole *Culverin* in brass of 5300 *lb* in weight, 11 foot one inch in length, with a taper bore, being intended for a chace piece to the frigate called the *Speaker*; the iron bullet was 18 *lb* in weight, the powder in the first trial 10 *lb*, in the 2d 9 *lb*, in the 3d 8 *lb*: which last proportion did the best execution, and passed through the two first butts, entring gently into the 3d, which the former two did touch, but not enter.

The 4th, experiment was with a whole *Culverin* in brass made at *Amsterdam* for the *French* with this mark 3580 being 10 foot long, and not very thick in the breech, the first shot with 9 *lb* powder 18 *lb* bullet iron, past through the 3 butts, & entered one foot into the ground;

it past by the joynts of the timber, 2 planks having been beat down before. The 2d shot with 8*lb* powder past through 2 butts & grazed between them. The 3d with 8*lb* past 2 butts and 7 inches into the 3d, but the first butt was much battered before, where it entred. The 4th shot passed with 8*lb* powder, two butts, and in both butts through the midst of a maffy strong beam (below) that had not been battered.

The 5th experiment was with an iron Demy *Culverin* having 9*lb* bullet in iron, and 4*lb* powder, this past one butt (which was torn before) and entered the 2d.

This  $\frac{1}{2}$  *Culverin* was shot 8 times, as fast as they could charge it with powder and the iron bullet, and yet was but scarce luke-warm at the breech, a little more in the midst, most at the muzzle, and this last scarce so hot as my hand, and yet the *Gunners* in charging her, wet not at all the scoop, or sponge.

The 6th experiment was with a brass demy *Culverin*; the breech of her was 13 inches  $\frac{5}{8}$  (tried with a calaper compass;) the mouth 9 $\frac{5}{8}$ . The first shot with 4*lb* powder, 9*lb* iron bullet, past 2 butts. The 2d shot with 3*lb* powder, past almost 2 butts: this proved to be the best shot, because the timbers were the strongest.