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Big culverines <del>are</del> for battery <add>&amp; piercing</add> are forty <ms>quintals</ms> &amp; eighteen <ms><fr>pans</fr></ms> long. Their ball, of the <ms><pro><pn>King</pn></pro>'s caliber</ms> &amp; of battery, is 30 <ms>lb</ms> and thus lighter than that of the cannon. And by thus, it does not carry so much munition for fifteen <ms>lb</ms> are enough for its load. The cannon has a bigger mouth due to the size of its ball, but the culverine is more vigorous &amp; is faster, having greater power due to its length. At its breech it is <ms>two balls &amp; <del><fr>es</fr></del> one <del>three</del> <add>third</add> <del><fr>s</fr></del> thick</ms>, the front is <ms>one ball &amp; two third<del>s</del> thick</ms>. Culverines are used for battering defenses from afar when one cannot easily make an approach. And cannons can come closer. They are used also to support the battery. Fifteen or sixteen <al>horses</al> are needed to bring it. They are <del><fr>tout</fr></del> of the same alloy as the cannon, as are all pieces <del>that excede</del> <add>smaller than</add> the moyen, for to these, we add a little bit more <m>metal</m> in order to make the melting run better. And for two <ms>quintals</ms> of <m>rosette</m>, you add six unit of metal per pound for smaller pieces. They range from 8 or 9 hundred <ms>pace</ms>s &amp; to a thousand <ms>pace</ms>s if the <m>powder</m> is strong &amp; in the air half a <ms>league</ms>.</ab>

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Some invented loading cannons with cartouches.</ab>

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Some don't fill the canon with <m>powder</m> at once but twice &amp; each time ramming the <m>powder</m> in, saying that each time you ram it, you raise it and give an <ms>inch</ms> more. But this is not sure for big pieces for they are loaded with a lot of <m>powder</m>.</ab>

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The <fr>bastarde</fr> is a middle-sized piece <sup>of artillery</sup> which weighs thirty <ms>quintal</ms>s and its cannonballs weight 15 <ms>pound</ms>s and is loaded with 10 or 12 <ms>pound</ms>s of <m>powder</m>. Its proportions are two cannonballs &amp; a third part of a third one thick at the breech and one cannonballs &amp; three parts of two at the front. They are used for fighting against less important defences such as gabions or sentries, topped with a tower &amp; similar thing. It is thirteen to fourteen <fr><ms>pan</ms></fr>s long like the great cannon. Ten <al>horse</al>s are necessary to carry it. It goes with the culverine for shooting because it carries small munitions. </ab>

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Some make the breech three cannonballs thick &amp; the front two cannonballs.</ab>

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The <fr>bastarde coleverine</fr> weights 35 <ms>quintal</ms>s &amp; is 25 <fr><ms>pan</ms></fr>s long. The breech is three cannonballs thick &amp; the front two cannonballs. Its cannonball is like the bastard one, weighing 15 <ms>pound</ms>s. These are fixed pieces which cannot be carried on a carriage. They are for city defences. Some make cannons like these which are 27 or 28 <fr><ms>pan</ms></fr>s long, like <pl>La Rochelle</pl>'s <fr>vache</fr>, but such pieces are strengthened at the breech with a width of three cannonballs. Their range is one <ms>league</ms> &amp; a half. Its load is like the <fr>bastarde</fr>'s one, and if one wants to hit <pro>horsemen</pro> very far way, more <m>powder</m> is added. After the cannonball there is a trace of smoke which drives your <corr>trajectory</corr> to where the cannonball is going. This is understood for cannons and the <fr>culverine</fr>, but not for small pieces.</ab>

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