Prussian Field Gun Models 1756-1762 in Relation to General Tactics.1

Introduction.

The publications of Malinowsky-Bonin2 and Schöning3 on the history and development of Prussian artillery also provide a wealth of information and notes, which however, omit the evaluation of the tactical employment of the weapons. By use of other sources, the author has sought to identify those weapons which were actually used in the 7 Years’ War, by clarifying the most vital tactical technicalities, the periods and extent to which each model was used on the battlefield.

Despite the use of a wide array of production records, establishment tables, mobilization plans, campaign accounts and other such documentation, some gaps remain, but they do not invalidate the results: the role of the artillery as an expression of technical-tactical material and as an instrument of development is clear. Much of the old technical artillery terminology is obsolete and must first be explained.

Cannon were classified by the weight of the iron shot which they fired, howitzers by the weight of the stone balls which they used. Considerable importance is attached to the construction of the bore of the gun barrel; one with a uniform diameter from the muzzle to the breech is called a common barrel. Guns with a cylindrical or conical narrowing to the rear of the breech are called chambered pieces. We shall return to the special ballistic characteristics of the latter barrel later.


3 Schöning (1844-45) Historisch-biographische Nachrichten zur brandenburgisch-preussischen Artillerie, E.S. Mittler, Berlin.
Barrels were named after their designers and some also had witty nicknames such as Brummer ['Growler']. Some carry two dates, the first is the year in which it was cast, the second is the year in which the model went into serial production. The most obvious visual characteristic of a gun barrel is its length, which is expressed in multiples of the diameter of the shot (D) fired by the weapon, from the rear of the breech to the face of the muzzle.

The weight of the barrel is a major feature, both in absolute terms and in relation to its length. The latter figure allows a qualitative assessment of the barrel to other barrels of the same calibre, as to the thickness of the barrel walls, and thus their maximum permissible charge, range and destructive effects.

The strengths of professionally qualified gun crews were generally set at four per light gun and six per heavy piece. As all light guns – and some of the heavier pieces – were always moved on the battlefield exclusively by manpower, a further four to eight men per gun were needed, but their contribution was more their muscle power than their technical expertise.

The occasional, temporary use of fortress guns and captured artillery pieces is not considered here. It has been shown that even ‘museum pieces’ were used in the later years of the war, but we must be careful of accepting modern generalizations; the 7 Years’ War proves itself to have been a classic ‘Cabinet War’ in this point as well, in which the annual retreat into winter quarters divided it into a series of individual campaigns.

For tactical purposes artillery pieces were divided into three categories:

- Battalion guns: Two per battalion, light calibre, light carriages, deployed along the line of infantry and advancing with it.
- Position guns: Heavy field artillery, employed as the tactical situation demands in batteries of varying strength since 1759, in brigades of up to ten pieces.
- Horse artillery: Raised in 1759, twice captured on the battlefield and of no quantitative significance.

\[\text{D in centimetres for} \begin{align*}
3\text{-pdr} &\quad 7.2 \text{ cm}; \\
6\text{-pdr} &\quad 9.1\text{ cm}; \\
12\text{-pdr} &\quad 11.4 \text{ cm}; \\
24\text{-pdr} &\quad 14.4 \text{ cm}. 
\end{align*}\]

\[\text{Old-pdrussian or Berlin Pfund} = 466.67\text{ g}\]
Prussian Battalion Guns

1-pdr

1-pdr ‘Amusette’.

In 1756, captured Saxon 1-pdrs were issued to the four newly-raised Frei-Battalions.6 At the end of 1757 they were also issued to Frei-Battalions 5 and 6. Frei-Battalions 7 – 9 received 3-pdrs in the spring of 1758, the others had theirs in 1759. The new formations of 1761 were issued with captured Austrian guns. Since 1758-9 Amusttes were to be found with the Pomeranian Frei-Grenadier-Corps. No further details of the model are known to the author. The description of a similar Prussian model are to be found in Malinowsky-Bonin (1845: II, 173). A plate of a Hessian model of a slightly later date will be found in Has, Geschichte des Feldartillerie-Regts Nr 10, p288. The carriage is a ‘wheelbarrow’ type, in which a horse can be harnessed between the shafts. Each Prussian Frei-Battalion was given two horses and a driver for the 1-pdr, but the crews came from the battalions.

3-pdr:

In 1756, 3-pdr guns were used by three-quarters of the battalions. By the spring of 1759, about 40% of these guns were 6-pdrs.

M1740 Holtzmann Conical 3-pdr (16 D).

In 1756 these pieces represented 3/8 of all regimental guns; these were later replaced by the common M1754/1758 Dieskau 3-pdr and the 6-pdr. The Mobilization Plan of 1753 records that there were guns for 13 battalions stored in Breslau, in Königsberg / Stettin there were guns for 18 battalions and in Magdeburg there were guns for 17 battalions. The barrel weight of this gun was 480 Pfund [224kg], which represented 30 Pfund of metal per D in the length.

M1746 Common Beauvryé 3-pdr (22 D).

These were cast in Berlin in 1747 and 18 were issued to the army. There is no record of any more having been issued, but they were mentioned in the field inventory (Scheelen’s diary) in 1754 and 1755. In 1756, almost all field battalions supplied with 3-pdrs out of Berlin were equipped with this weapon. We do not know which models were issued to the very few remaining battalions, which were equipped after the Mobilization Plan of 1753. Barrel weight was 590 Pfund [275kg] (27 Pfund per D in length).

The M1746 Beauvryé was the only common-barreled gun to have been introduced between 1740 and 1757, against at least 12 chambered models, most of which had been withdrawn again by 1756. The barrel metal-weight ratio was particularly low.

M1746 Linger Conical 3-pdr, 20 D. In 1747 some sixty, chambered 3-pdrs were missing from the field establishment; they had been procured by 1749. According to Jany (II: 256), these were the M1746 Linger model weapons. The author [Bleckwenn] cannot establish the casting date from the incomplete records, but Scharnhorst mentions in his Handbook further castings of these guns in 1757.7

The mobilization plan of 1753 mentions that guns for 32 battalions were held in Breslau, guns for 16 battalions were held in Königsberg / Stettin and weapons for 12 battalions were held in Magdeburg. Barrel weight was 440 Pfund [205kg] (21 Pfund per D length)

M1754/1758 Dieskau Common-Barreled 3-pdr (18 D).

There is no evidence of serial production, but from 1758-1759, losses of battalion guns were replaced with this 3-pdr weapon, of the M1758 principle of light-weight barrel construction, as has been proven in at least one case. Barrel weight was 430 Pfund [201kg] (24 Pfund per D length).

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7 It is assumed that Bleckwenn is referring to Scharnhorst (1787) Handbuch für Officiere, in den anwendbaren Theilen der Kriegs-Wissenschaften, Vol. 1, Hanover but it does not contain the information that is stated. [Christian Rogge]
6-pdrs
By 1755 the 6-pdr had vanished from the field artillery. In this year, the M1754 Dieskau conical 6-pdr was adopted in the Berlin army group and was issued to those regiments of the first line of the order of battle in 1756. In 1757, losses of 6-pdrs were replaced by 3-pdrs and by spring 1758, only 32 of these battalions still had 6-pdrs. In the following years, more 6-pdrs were introduced and by 1759 they represented over half the battalion gun total, but there were still 3-pdrs to be found in the regimental artillery. Generally, the battalions of the first line were to have 6-pdrs, those of the second line were to have been equipped with 3-pdrs. The horse artillery used 6-pdr guns.

M1754 Dieskau Conical 6-pdr (16 D).
62 of these were cast in Berlin in 1756. For their distribution in 1756 see above and Anlage 1. No evidence of any casting in 1757 or 1758 has been found and it is unlikely that these barrels were replenished, for in the spring of 1758, only 32 were still deployed with the army in the field. The Saxon corps had some captured Austrian 6-pdrs, the Pomeranian corps had some from fortress stocks.8

M1759 Linger Common 6-pdr (16 D).
The casting of large numbers from 1759 can be proven, but the ratio of these pieces in the mobilization plans, against captured Austrian items cannot be proven. This model is, indeed, often described as being 'of Austrian style'. The supply of ammunition wagons – as opposed to ammunition limbers – is no sure indicator of the gun barrel type, as this manner of increasing the field first-line ammunition stocks of all battalion guns was general in the latter years of the war. These wagons were often captured Austrian material, or built to that design. From the spring of 1759, this weapon replaced the above-mentioned Dieskau conical-chambered 6-pdr. Barrel weight was 690 Pfund [322kg] (43 Pfund per D length).

The M1760/66 Dieskau ‘heavy’ 6-pdrs (26 D) and the M1762 (22 D), which came into service in the later years of the war belong in the category of Position Artillery, as does the 7-pdr howitzer.

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8 Schöning (II: 92); Jany (II: 479).
Position Artillery.

6-pdr.

M1717 Common Heavy 6-pdr (26 D). In 1759 the Artillery Reserve of Prinz Heinrich's corps had four of these heavy 6-pdr field guns, complete with ammunition wagons; in 1761 there were 18. For 1762, 14 were proposed, of which four were to be re-cast and belong to the next category. Barrel weight 1950 Pfund [910kg] (75 Pfund per D).

M1762 Dieskau Common Heavy 6-pdr (22 D). According to Scharnhorst's Handbook, these were cast in 1762, but only a few came into service. Barrel weight 1540 Pfund [719kg] (70 Pfund per D).

12-pdr.

These weapons were the mainstay of the Position Artillery. In 1756-1757 only light, chambered 12-pdr went on campaign and we can calculate how many were attached to each army group. From the spring of 1758, they begin to be replaced by the common light models. From December 1757, heavy models appear in the field inventory and from spring 1758 medium-weight 12-pdr guns also appear. All had common barrels. The light 12-pdr were by now a small minority of the guns employed.

M1717 Common Heavy 12-pdr 'Brummer' (Growler) (24D and 26 D). These were fortress guns, dating from the reign of King Friedrich Wilhelm I, which were taken from the walls of Glogau in November 1757, to be used in the battle of Leuthen [5 December 1757 (DGS)] and which proved to be so good as field artillery pieces, that they were retained in service. Until the spring of 1759, they were regarded as a temporary expedient. They were pulled by peasants' horses and the ammunition was transported in farm carts. This event marked the start of the move away from light, chambered, field guns. Replacements were not cast for these weapons, the stocks in the fortresses were used for re-supply. There were always 50 of these guns in the field. Barrel weight 3800 Pfund [1773kg] (146 Pfund per D).

M1740 Holtzmann Cylindrical Light 12-pdr (16D). Ten of these guns were issued from Magdeburg to the main body of the army. In 1760, Dohna's Corps still had five (Jany (II: 521 Footnote 23). Barrel weight 1260 Pfund [588kg] (79 Pfund per D).

M1744 [Holtzmann and Linger] Conical Light 12-pdr (16 D). In 1755, the 30 of these barrels in the Berlin arsenal were re-cast into Dieskau 1754's, but the ten old barrels in Breslau were issued to the Silesian army group. The author has been unable to find later references to this weapon. Barrel weight 1040 Pfund [485kg] (65 Pfund per D).

M1754 Dieskau Conical Light 12-pdr (14 D). In 1754, it was decided that this should become the standard weapon, but only the Berlin stocks of the M1744 Linger 12-pdr were re-cast into this model. The stocks of other 12-pdrs in Breslau, Königsberg and Magdeburg were not re-cast. It is likely that future stocks of replacement light 12-pdr of 1756-1758 were of this model, which remained the dominant 12-pdr until the spring of 1759 and they were proven to be still in field use in 1760. They may be recognized in all mobilization plans as being the only 12-pdr with limber chests for part of their ammunition supply. Barrel weight 770 Pfund [359kg] (55 Pfund per D).

M1754/59 Dieskau Common Light 12-pdr (14 D). This model was built in 1754, but was cast – in large quantities and as light pieces- only from the spring of 1759, during the transition from chambered pieces to common barrels. Barrel weight (after Malinowsky-Bonin) 850 Pfund [397kg] (61 Pfund per D). According to Scharnhorst's Handbook, the barrel weight was 1100 Pfund [513kg] (78 Pfund per D).

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9 Bleckwenn is probably mistaken that this gun was cast in 1760. These are probably fortress ordinance, just as the 12-pdr Brummers and put on a field carriage. There is no mention of their casting in 1760 in Schöning or Malinovsky&Bonin (M&B) of any new design. Bleckwenn has this from the tables provided in Gohlke and M&B, only. These were also cast during the 1730’s according to M&B. [Christian Rogge]

10 The 26 D are the casts of the 1730’s. M&B also show many 24D barrels were cast and in use.

11 General Graf Christoph von Dohna-Schlodien, Chef of IR16 [DGS]
M1758 Austrian-Style Light Common Medium 12-pdr (16 D)\textsuperscript{12}
M1759 Austrian-Style Common Medium 12-pdr (18 D).
Both of these ‘Austrian’ models were made up partly of captured weapons, partly from pieces cast in the Austrian style. In 1759 Dieskau produced these barrels with extensions of two calibers and the records rarely differentiate between the two versions. All pieces cast from the spring of 1759 seem to have been of the 18-calibre length; the 30-40 shorter barrels, which were in service in 1758, gradually disappear. M1758 Austrian-Style Light Common Medium 12-pdr: weight 1700 Pfund \([793\text{kg}]\) (100 Pfund per D); M1759 Austrian-Style Common Medium 12-pdr: weight 2040 Pfund \([952\text{kg}]\) (113 pound per D).

M1761 Common Heavy 12-pdr ‘Brummer’ (22D).
This was a lighter model than the previous weapon, 20 were cast in the spring of 1761 and six more in 1762. They never replaced the older, heavier guns. Barrel weight 3190 Pfund \([1488\text{kg}]\) (145 Pfund per D).

24-pdr
M1744 Holtzmann Cylindrical 24-pdr Steinstück (Stone Piece)\textsuperscript{13} (12 D).
28 of these were cast in 1744-1745. As the field inventory of 1756 shows only 26 of them in use, older models were not used. In 1758 eighteen of them were still in the field inventory, in 1759 there was just one with the Pomeranian Corps and in 1760 they had vanished from the records. Barrel weight 1470 Pfund \([686\text{kg}]\) (122 Pfund per D).

\textsuperscript{12} In 1758, the M1758 “Austrian Style” 12-pdr was also entitled “Heavy” to distinguish it from the light chambered pieces. The distinction of Light, Medium and Heavy guns was only made from 1759 onwards when the 12-pdr Brummers became a regular part of the field artillery. [Christian Rogge]
\textsuperscript{13} Bleckwenn believed that this name derives from the external similarity of the decoration of these barrels with the Holtzmann 11-pdr (8 D) howitzer, which was known as a “stone carthum.” However, he is mistaken. This is a one of the earliest shell guns (gun-howitzers) and was probably the inspiration to the Russian Unicorns that were introduced in the 1750s. [Editor] The first reinforce has less diameter than the second. [Christian Rogge]
Howitzers

These were relatively short, large-calibre barrels, which fired shells in high trajectories or grape in level trajectories. In 1756 they formed just a sixth of the artillery inventory, in 1762 (with three models) they formed just a quarter of the Position artillery’s weapons.

7-pdr Howitzers
M1758 7-pdr Howitzer (6.5 D).
45 copies of Austrian weapons were cast for the 1758 campaign; they arrived in small deliveries during the fighting. Classed as ‘light’ weapons, they appear in the same quantities in subsequent campaigns and were frequently deployed with the infantry battalions, mainly with the advanced guard and the grenadier battalions. Individual 7-pound howitzers were also to be found with the small detachments of the horse artillery. Barrel weight 700 Pfund [327kg], (107 Pfund per D). Dieskau produced a modified weapon in 1762, but it played no significant role in the war.

10-pdr and 11-pdr Howitzers
M1743 Holtzmann Long 10-pdr Howitzer (8-D)
M1746 Long 11-pdr Howitzer Stone Kartaune (8-D).
From the start of the production run, there were many variations to the design of both weapons, but it is difficult to identify them all clearly. Fourteen of these field howitzers were the only high-trajectory weapons in the Mobilization Plan of 1756. This weapon was known as the ‘heavy’ howitzer since the introduction of the 7-pdr. By the time of the last campaign of 1762 there were 30 of these in service. The technical details of both groups cover the several variants:
- 10-pdr barrel weight 910 - 1210 Pfund (114 – 151 Pfund per D).

M1753.1756 Linger 10-pdr Howitzer
The various models of the M1753/1756 Linger 10-pdr howitzer (with a barrel length of only 7D) was known as the ‘Short Linger Stone Kartaune.’ These weapons were designed for use within fortresses, but the Silesian army group would seem to have taken six of them into the field from Neisse in 1757. Oddly enough, this weapon design also contained several variants of the 10- and 11-pdr versions. A weapon designed in 1762 and called the ‘common’ model, played no significant role in the war in the field.

16-pdr Howitzers
[M1713] 16-pdr “Swedish Style” Howitzers
In 1757 the East Prussian Corps had some 16-pdr howitzers in Pomerania; these pieces dated from 1713 and soon vanished from the field inventory.

18-pdr Howitzers
These weapons had vanished from use in the field by the time of the 2nd Silesian War [1744-1745 DGS], but two of them appear to have been used in the Pomeranian Corps in 1759; from the spring of 1760, six appear in the records of the corps in Saxony and Silesia. Barrel weight 990 – 1080 Pfund [462-504kg] (180 Pfund per D of length).

30-pdr Howitzers
M1762 30-pdr Howitzer
The super-heavy, 30-pdr howitzer of 1762 played no part in the 7 Years’ War.

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15 D in cm: 7-pdr howitzer 14.3 cm; 10-/11-pdr howitzer 16.5 cm; 18-pdr howitzer 19.1 cm.
16 In 1758 the barrel was later lengthened; barrel length seems to have varied within the individual categories.
17 A Kartaune, as the calibre was that of a 36-pdr cannon.
18 Designed by Christian Ludwig von Linger, who was the son of General von Linger (1669-1755). He was a Major (1750) and later Oberst-Lt.
19 Source: a letter of the Graf Schwerin of 4 April 1757.
20 The 16-pdr Howitzer seems to have been referred to as the Swedish model then the “Swedish style” piece.
It has, unfortunately, not been possible to establish the ranges of the various weapons. The data is scarce and of no consequence, since the conditions under which they were gathered is not recorded. The range will vary according to the elevation of the barrel and the strength of the charges used.

The types of tactical firing used were:

**Horizontal**: using a flat trajectory, the first strike of the ball gives the range.

**High-trajectory shot**: the elevations are rarely given. Some of the surviving firing tables are completely impossible to believe and the methods of calculation ridiculous. This proves that the science of ballistics was still in the realms of primitive speculation.

**Rolling shot or ricochet shot**: the ball projectile strikes the ground and makes a series of skips along the ground. This was a popular technique and advantageous in the age of linear tactics. It was difficult to achieve, because the property of the terrain affected its effectiveness as well as elevation and charge.

The value of the few remaining records is further reduced, as the charge used (a quarter to a half of the weight of the shot) would vary according to the strength of the gun barrel, the purpose of the shot and personal opinion. The half ball-weight charge was considered to be dangerous to the crew, if the cannon were old.

**Table 1**: The Holtzmann 1740 chambered 3-pdr (with the enlarged chamber of 1747) achieved the following ranges using this maximum charge.23

<table>
<thead>
<tr>
<th>Range (Prussian paces)</th>
<th>Range (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal solid shot</td>
<td>300 paces</td>
</tr>
<tr>
<td></td>
<td>219.2m</td>
</tr>
<tr>
<td>At 45 degrees elevation</td>
<td>1,500 paces</td>
</tr>
<tr>
<td></td>
<td>1095.8m</td>
</tr>
<tr>
<td>Canister</td>
<td>400 paces</td>
</tr>
<tr>
<td></td>
<td>292.2m</td>
</tr>
</tbody>
</table>

**Table 2**: The Dieskau 1754 chambered 6-pdr achieved the following ranges with charges of between ¼ - ½ of the weight of the ball:

<table>
<thead>
<tr>
<th>Range (Prussian paces)</th>
<th>Range (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>horizontal solid shot</td>
<td>1,000 paces</td>
</tr>
<tr>
<td></td>
<td>730.5m</td>
</tr>
<tr>
<td>high angle shot (elevation not given)</td>
<td>1,500 paces</td>
</tr>
<tr>
<td></td>
<td>1095.8m</td>
</tr>
<tr>
<td>ricochet shot</td>
<td>2,000 paces</td>
</tr>
<tr>
<td></td>
<td>1461.0m</td>
</tr>
<tr>
<td>canister</td>
<td>600 paces</td>
</tr>
<tr>
<td></td>
<td>438.3m</td>
</tr>
</tbody>
</table>

This data, when compared with that of the 3-pdr, diverges widely in both directions.

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22 Malinowsky-Bonin (1845) II: 626 etc. The discussions prove to be half-baked theories, in which an infantry musket is credited with being effective at ranges from 400-800 paces [292.2-584.4m]; almost three times the real figure.
24 1 Fuss=31.3853 cm, so the length of the Prussian pace=73.05 cm.
The careful Jany gives only very general figures for the 12-pdr: ‘the Dieskau 1754 chambered 12-pdr had a range of over 2,000 paces [1461.0m].’ the ‘Austrian’ 12-pdr of 1759 was ‘effective’ at a range of over 3,000 paces [2190.5m].’ The latter gun was a relatively strongly built, ‘common’ barrel. The ‘Brummer’, with a very long barrel and designed with strong walls to take heavier charges, would well have been effective at ranges in excess of 4-5,000 paces [2922-3652.5m], which have been demonstrated in examples in military history.

We see that ranges, which were effective on the battlefields of those times, were only to be achieved by sacrificing the mobility of the field guns.

Conclusions.

From the above data, we see that the Prussian army entered the 7 Years War using almost exclusively chambered cannon, but abandoned these weapons from the end of 1757. From 1759 – and probably even in 1758 – no more chambered cannon were cast and they gradually vanished from the field inventory.

The chambered cannon had a smaller diameter rear end to the barrel, into which the charge fitted, giving that part of the barrel stronger walls than the front part. The chamber might be cylindrical, conical, or have a more complex shape. This construction principle was widely accepted in the Prussian artillery of 1738/9, due to a false logical conclusion on the part of gun designers. They looked at the muzzle velocity of the projectile and the size of the charge involved and believed that by reducing the size of the chamber, whilst using the same powder charge, they could achieve higher gas pressure, or achieve the same pressure with a smaller charge. They generally chose the latter option and weakened the barrel in relation to the metal surrounding the chamber.

The advantage of this system was that the weight of the battalion guns accompanying the infantry could be considerably reduced, thus increasing their mobility when compared with that of the heavier field artillery pieces. This advantage was so close to the tactical (and strategic) ideals in the hearts of the Prussian commanders, that they gladly accepted the disadvantages that went with it: the difficult loading procedure – especially with a cylindrical charge chamber - and the complexity of the ammunition manufacturing process.

It very soon became apparent, that the imagined principle of reduced chamber size equals the same gas pressure with reduced powder charge, was invalid. Thus, even before the start of the 7 Years’ War, experimental cannon barrels were being produced, which achieved the desired weapon mobility by reduction of metal weight alone, without resorting to the complex engineering needed to produce chambered weapons.

These ‘weakened common cannon barrels’ consciously aimed not to achieve that which the chambered weapons had failed to deliver: the same (ballistic) effects with a reduced charge. They abandoned range and power in favour of achieving the mobility of the chambered guns. They also used simpler (and cheaper) cartridges (and loading procedures).

These (experimental) gun barrels were:

**3-pdr:**
- M1746 Beauvryé (22D), which was at once introduced into service.
- M1754/58 Dieskau (18D).

**6-pdr:**
- M1759 Linger (16D).

**12-pdr:**
- M1754/59 Dieskau (14D).

These ‘weakened common cannon barrels’ thus fully met the military challenges, presented to them at the start of that world conflict, but became increasingly inadequate as the character of the war changed. The aspects of the strategy and high tactics changed far more quickly than the tactics on the battlefield. The

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25 In a letter, Frederick to Prince Ferdinand (1759), “It carried 5,000 paces.” Published in *Westphalen, Fedlzüger des Prinzen Ferdinand.*

26 It was really a siege gun, so the distance between the breaching battery and the target had to be within the high-angle range of the gun.
‘Blitzkrieg’ died at the battle of Kolin [18 June 1757 DGS] and plans and practical possibilities were influenced by the change of the military balance against Prussia.

Real tactics – that is, the technical development of closing with the enemy – had to be adapted after the experiences of Kunersdorf [12 Aug 1759; a disastrous Prussian defeat DGS] and Torgau [3 Nov 1760; a pyrrhic Prussian victory DGS].

After the creative pause of 1761, instead of the rapid attack - ‘forwards at any cost’ - the wider development of the operations of outposts and detachments, the attack with various roles defined (as first seen at Torgau), began to appear and reached fruition in 1762 at Burkersdorf [21 July 1762, a Prussian victory DGS] and Freiberg [29 Oct 1762, another Prussian victory over the Austrians and the last major European action of the Seven Years’ War DGS].

This development was made possible in that the artillery adopted the new systems earlier than the infantry. The old tactical style of the flanking attack, the powerful steam-rolling of the enemy line by musketry and the threat of a bayonet charge *pars pro toto* was obsolete, the artillery had already assumed the decisive role, that the infantry, decimated in the fighting of 1756-7, could no longer exercise.

The supply of trained ‘Urlauber’27 in the cantonements was exhausted. The drilling of the replacements in the ever-shorter, ever-more-unsettled periods in the winter quarters could not produce the same standard of soldiers. And, despite the increased proportion of Prussian recruits [as opposed to foreigner DGS], which was forced on the army by strategic developments, there was increasingly a spirit to be found in the Prussian army, as personified by a voice from a battalion led forward by the king in one hard-fought battle: ‘We thought that that was enough for today for 1½pence!’

All this demanded that every infantry attack had to be prepared at as long a distance away from the enemy as possible. For better or worse, the ‘weakened common-barreled’ weapons were restricted to the lighter-calibre guns i.e. the battalion guns and the light 12-pdr. For the majority of the position guns, the need was now for longer-barreled weapons with wall-thickness that could withstand stronger charges, allowing the enemy line to be effectively engaged from a greater range. The first practical realization of this aim was pregnant and not lacking in drama.

When the victors of Rossbach hurried into Silesia, they were confronted with an almost-hopeless situation. Breslau and Schweidnitz had fallen [to the Austrians DGS] and the [Prussian DGS]. Army of Silesia had not only been defeated, it was completely demoralized; large parts of it had dissolved and the ‘main body’ was reduced to a small corps, which was facing a victorious foe nearly twice its strength.28

Frederick the Great faced up to this challenge by reinforcing his field artillery with heavy 12-pdr cannon from the walls of Glogau fortress and offering battle to his victorious enemy.29

Each of these heavy guns was drawn by 16 horses; they were put to such good effect on the field of Leuthen, that the *Brummer* ['Growlers'] were retained in the Prussian field artillery inventory, as the heaviest pieces, for almost the next 40 years.

This event led to the change of the Prussian field gun philosophy, which can be most clearly seen in the changes to the length and the wall-strengths per D of that length on the 6-, and 12-pdr.

initially the howitzers played only a minor role, particularly as mortars were also include in the field artillery for high-trajectory work. The latter, never used in field operations, were taken into the field in small numbers in 1758 and had vanished from field use by 1761. In their place, the numbers of howitzers increased continually, particularly as the Austrian high command now relied ever more on selecting very strong natural and artificial defensive positions for engagements with the Prussians, following their bitter defeat at Leuthen.

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27 Trained soldiers sent on long leave, to be recalled to their regiments on mobilization DGS.
28 This was the result of the battle of Breslau on 22 November 1757, in which the Austrians heavily defeated the smaller Prussian Army of Silesia under August Wilhelm, Herzog von Braunschweig-Bevern. A high proportion of the newly-conscripted Prussian soldiers deserted after this defeat and the fall of Breslau itself DGS
29 The battle of Leuthen, on 5 December 1757 (only 13 days after the defeat of Bevern’s army), was a crushing defeat for the Austrian / Imperial army of 80,000 men with 210 guns by the Prussians under Frederick the Great, with 38,000 men and 167 guns. The Austrians evacuated Silesia and fell back south into Bohemia DGS
The howitzers, with their capacity for high-trajectory work, using explosive shells, were the most effective field pieces to use under these circumstances.

But it was not only the original models (the relatively M1744 light 10- and 11-pdr pieces) which were employed in increasing numbers; in 1758 the M1758 7-pdr light howitzer was introduced to the position artillery inventory, but, under favourable conditions, was also often deployed into the infantry line. Apart from this, the old M1717/44 18-pdr howitzer was taken into use by the corps in Pomerania in 1758. It was a good example of the fiasco which can result when one tries to combine effectiveness with mobility in a single model. The result of this Polish experience was the further development of two separate models.

Failed experimentation with various materials (bronze, cast iron etc), forced technical speculation to bow to the traditional limitations of field gun barrel construction. For a long time, development in this field stagnated, or wandered about in experimental cul-de-sacs, such as the ‘carronade’, until the developments of steel, breech-loading systems, rifled barrels, recoil systems and high-explosive projectiles stamped the field artillery with the completely new character of the 19th Century.
The mobilization and deployment of the Prussian artillery in 1756 was according to the plan drawn up in 1755. That the changes of the political situation, brought about by the Convention of Westminster, of 16 January 1756, affected these plans, is neither proven nor likely in the short time which elapsed before the mobilization. Frederick the Great hoped with this new alliance, to prevent Russia (long a British ally) from entering the lists against him and supporting Austria’s plans to recover Silesia from Prussia. He also hoped to secure peace for western Germany, as France and Britain had been at war since 1745.

Frederick’s hopes for this new alliance were both wrong; Russia’s hostile intentions were clear in 1756, but the need to defend Prussian lands in western Germany did not yet seem to be acute. Frederick thus mobilized his army for action to the south and to the east. The corps of the west (cover against a threat from Hanover) was not required, but instead, an ‘Observation Corps’ was set up in the Mark (Brandenburg) and Pomerania, to support East Prussia.

**Battalion Guns**

Against expectations, it has been possible to establish the distribution of the individual gun types in the arsenals, according to the plans of 1753.

### Table 3: Distribution of Guns according to plans of 1753.

Only the figures in brackets are calculations, all others have been established from records.33

<table>
<thead>
<tr>
<th>Gun Type</th>
<th>Berlin</th>
<th>Breslau</th>
<th>Königsberg/Stettin</th>
<th>Magdeburg</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-pdr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holtzmann</td>
<td>(26)</td>
<td></td>
<td>36</td>
<td>34</td>
<td>(96)</td>
</tr>
<tr>
<td>Beauvryé</td>
<td>18</td>
<td></td>
<td>(16)</td>
<td>(12)</td>
<td>30</td>
</tr>
<tr>
<td>Linger</td>
<td>(32)</td>
<td></td>
<td></td>
<td></td>
<td>(60)</td>
</tr>
<tr>
<td>6-pdr</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Dieskau</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>80</td>
<td>(58)</td>
<td>(28 / 24)</td>
<td>(46)</td>
<td>(236)</td>
</tr>
</tbody>
</table>

The final totals are taken from Jany, Vol II, p 257; the totals of the gun types have been calculated, using the mobilization plans of 1747, 1749 and 1753, as in Malinowsky-Bonin and Schöning, by carefully examining the horse teams required and the ammunition vehicle types, as well as the transportation documentation and the foundry casting registers.

It should be noted, that the Dieskau 6-pdr s were cast from the cylindrically-chambered 3-pdr s only from 1755. The casting of the 60 3-pdr s, which appeared in the plans were planned for 1749, continued into

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31 This was the break with the traditional alignment of Britain with Austria against other continental powers, to Britain agreeing to support Prussia against Austria, who also changed partners by joining up with France – and later Russia – against the new allies. DGS.
32 King George II was also Elector of Hanover and the war with France might well – and did – spill over into western Germany, where Prussia (and her ally Brunswick) had extensive territories DGS.
33 As the inclusion of calculated quantities will affect the ‘character’ of any resulting sum, I have extended the use of brackets in this table DGS.
1750. It is not directly stated that they were Linger models, but that may be deduced, as there is a note in the documentation of the introduction of a modification to the carriages for the 'Linger 3-pdrs', which was then extended to other gun carriages.34

Apart from this, according to the Scharnhorst’s Handbook, the 3-pdrs, newly-cast in 1756/7 for the ex-Saxon regiments (40, of which over 20 were to replace losses), were definitely Lingers according to the technical data in that work. This model was thus the current gun of 1749-57.

We know that 62 Dieskau 6-pdrs were in the Berlin arsenal from the casting records and the Mobilization Overview of the Generalstab’s work35 and that, apart from these, some 18 M1746 Beavryé 3-pdrs were also there; this is confirmed by Scheelen’s diary, thus the totals are confirmed.

We only have the totals for the Breslau arsenal, but the figures for the Holtzmann 3-pdr from the other three arsenals, for the 1753 initial distribution of these guns to the peripheral arsenals, may be found in Malinowsky-Bonin, II: 78. The authors have, however, misinterpreted these decentralisation-exercise figures (as in other places) as being issues for re-casting, or for use in fortresses. This section contains other errors, which, however, are mostly easy to correct. The cylindrical 3-pdr figures are falsely included in the casting totals for the conically-chambered weapons, which were then apparently sent to Königsberg, Stettin and Magdeburg.