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Correction of Napoleon's Calculations

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Translated by FEB Laws (1897)

The following explanations are from the pen of Captain de Reviers de Mauny, a recognised authority on the history of artillery. Further clarifications have been made by the editor.

On the arithmetic of the penultimate paragraph.

The Emperor calculated mentally with extreme rapidity, but often rounded off his numbers. Besides, he dictated very quickly, and the writer, in making his fair copy, had to verify the figures, which he had often had great difficulty in catching.

Table 14: The Emperor seems to have taken the following data:

	caisson	gun limber	mule	TOTAL
AnXI 6-pdr	130 rounds	15 rounds	24 rounds	169 rounds
AnXI Howitzer	75 rounds	15 rounds	24-pdrs	114 rounds

That being granted, the figures of the penultimate paragraph should, it would appear, be read as follows[328]:—

> A battery of six 6-pdrs. and two 5½-in. howitzers (with ordinary supply) would have 23 carriages (without the *proloug*[329]), 115 horses, 1544 rounds., and 16 mules.

We must now put a caisson and a half per 6-pdr (total 9 caissons) which would make 26 carriages, 130 horses and 1,590 rounds. There are therefore 3 carriages, 15 horses and 102 6-pdr rounds more, but 16 mules and 56 howitzer rounds less.

Table 15: Calculation of double ammunition provision.

	First hypothesis	Second hypothesis
Ordinary Supply		
6-pdr	1178÷6 = 196 rounds	1275 ÷ 6 = 212 rounds
Howitzer	371 ÷ 2 = 185 rounds	315 ÷ 2 = 157 rounds
Double Supply		
6-pdr	196+130 = 326 rounds	212 + (130 ÷ 2) = 407 rounds
Howitzer	185+ (3 × 75 ÷ 2) = 307 rounds	157 + × 75 ÷ 2) = 307 rounds

[328] Guns had normally 6 horses, other carriages, some 6, some 4. To facilitate his calculations Napoleon counted 5 horses per carriage (see *Correspondence Militaire*, Vol. X., p. 319).

[329] 2 Captain Rollin, the Commandant's deputy in the service of the *Revue d'Artillerie*, informs me that the name "prolong" in Napoleon's time was occasionally given to the divisional ammunition caisson. The word does not belong to the existing nomenclature of artillery material, but is often used colloquially to designate certain old fashioned caissons now only used for fatigue duties. These caissons are like the service forage caissons except that they have closed instead of open sides. Neither of these meanings of "prolonge" is given in Littré—F. E. B. L.

To have a double supply of ammunition.

- First Hypothesis needs 6 carriages more for the 6-pdrs and 3 for the howitzers giving a total of 9. This brings the total number of carriages to 32.
- Under the Second Hypothesis a double supply would demand 9 gun and 4 howitzer caissons more, 13 in all, bringing the total of carriages to 39.
- The total number of battery caissons would be 26 under the 2nd hypothesis, and 19 under the 1st—a difference of 7 caissons.
- The Second Hypothesis has therefore an increased total of (407 - 326) x 6 = 486 rounds, but employs 7 carriages and 35 horses additional. Now, if these horses were replaced by pack-mules, the latter would carry 35 × 24 = 840 rounds, or a further increase of 840 — 407 = 433 rounds. But the proportions obtained under the First Hypothesis of 326 for 6-pdr and 307 for howitzer are sufficient and form exactly a double supply.

The calculations in the last paragraph.

At first sight many of them appear to be erroneous, and it would seem in dictating them the Emperor was following in his mind the development of a hypothesis which he never enunciated, so that it is no easy task to unravel them. However that may be, the basis of the imperial arithmetic was probably the following:-

Small arms ammunition caissons, about 15,400 rounds, or rather more than 21 per man in a battalion with 720 rank and file. Mule, 3,000 rounds, say 4 rounds per man of the battalion.
With these data the paragraph should apparently be read as follows from the 3rd line:—

The three battalion mules will carry 9000 rounds - say 12 per man. In putting with the army division a half caisson per battalion, we have 10 rounds per man and adding half a mule per battalion, i.e. 2 rounds per man, we get 12. The division will then have 24 rounds a man. If it be composed of 12 battalions, that implies, in addition to the 36 battalion mules, 6 caissons and 6 mules which will be placed: 1 caisson and 1 mule in each of the 3 battery reserves, and 3 caissons and three mules in the park of the division.

At the park of the army corps there will be per battalion a half caisson and a half mule, or 6 caissons and 6 mules carrying 13 rounds a man. The same at the park of the army. A half caisson per battalion, or 11 rounds a man, horsed, on requisitioned carriages.

Thus every battalion will have a caisson and a half, horsed, and 41 mules, present with it . . . . that will make 36,000 rounds horsed or on pack-mules, and 15,000 at the reserve depot. The 36,000 rounds horsed give 50 rounds a man, and the 15,000 give 20, total 70. There will be besides, at depots in the second line and at less than 5 marches in rear, 25 rounds a man.

A battalion will thus have 41 mules, of which 3 with it and 3 halves with the artillery, and 2 caissons of which 1½ horsed. Similarly a division of 12 battalions will have 36 mules with and belonging to the battalions, 6 caissons and 6 mules at the divisional park, the same at the army corps park and the same at the general park. Total, 18 caissons and 18 mules in addition to the 36 battalion mules, or (18 × 15,000) + (18 × 3000) + (36 × 3000) = 432,000 rounds, which gives 50 rounds a man to 8640 rank and file. There would also be at the rear of the army at less than 5 days march the value of 14 caissons, or about 25 rounds a man.

We see we should have to put on wheels the contents of 2 caissons per battalion (of which one and a half horsed). So an army of 100 battalions would require 200 small arms ammunition caissons, of which 150 would be horsed, only requiring therefore 750 horses (without counting lame ones) and 250 pack-mules in addition to the 300 battalion mules. That makes from 1300 to 1400 horses and mules to carry the cartridges, which appears to be the mean.