

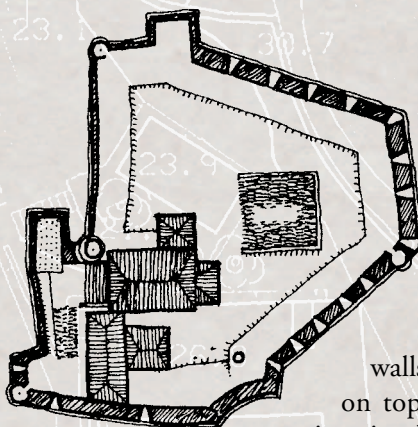
Cannons at the Monte Fort, Macao

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INTRODUCTION

The Fortress of São Paulo do Monte, better known today as the Monte Fort, is the most important fortification in Macao. Construction had been started before 1617 by the Jesuits and was connected to their adjacent facilities comprising a seminary and the Church of Mater Dei.¹ Today only the façade of the cathedral remains as Macao's most famous landmark; the rest of the church and the seminary buildings were destroyed by fire in 1834. The fortress was taken over by the military authorities under the first governor, D. Francisco de Mascarenhas. He achieved this by obtaining an invitation to go in for a banquet, but he took with him a number of disguised soldiers who expelled the priests.² Mascarenhas completed the construction by adding the corner bastions and other buildings inside the fort.

The fort is situated on a hill close to the centre of the town, and its batteries can be brought to bear on both the Inner Harbour and the outer roads. It is built



in the form of an irregular square with bastions at the four corners (Figure 1). Although the Jesuits had built some walls of granite blocks, the walls we see today are made of *chunambo* on top of granite foundations. *Chunambo* is a simple material composed of the local soil (decomposed granite) mixed with rice, straw and lime. It hardens like a mortar but is soft enough so that, when hit by cannon shot, it tends to absorb the blow rather than fracture.³ It tends to flake with time, and patching of the surface presents a mottled appearance. The walls vary in thickness from about twelve feet (3.65m) at the base to about nine feet (2.75m) at the parapet. They are about thirty feet (9.15m) high.

There are some outer walls that allow access ramps to rise to a paved area in front of the southern face where the main entrance is located. This is now the only entrance, although traces of earlier supplementary gates exist.⁴ A view of the south wall is shown in Figure 2. Above the entrance to the fort is a stone plaque, shown in Figure 3, which although difficult to read, includes the date 1626, the year that construction was completed. On its pediment is carved the figure of St. Paul with a halo and with a drawn sword resting on his shoulder. The main panel is carved with the Portuguese coat of arms flanked on each side by angels, one supporting above his head an armillary sphere and the other the Portuguese cross of the Order of Christ.

Construction was timely as the Dutch invaded Macao in 1622. It was a shot fired from the fort that hit

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Estudou no Dulwich College e no Trinity College, Cambridge. Vive em Hong Kong desde 1973. Vocacionado para a pesquisa de assuntos militares e em particular de armas antigas, o que o levou a interessar-se pela a história militar de Macau e, como reconhecimento do trabalho desenvolvido, foi nomeado Investigador Honorário do Centro de Pesquisa de Estudos Asiáticos da Universidade de Hong Kong.

a powder barrel, the explosion of which demoralised the invaders, who then fled when charged by the defenders. The cannon involved is not identified, but it was fired by one of the Jesuit fathers, Jeronimo Rho.

THE CANNON

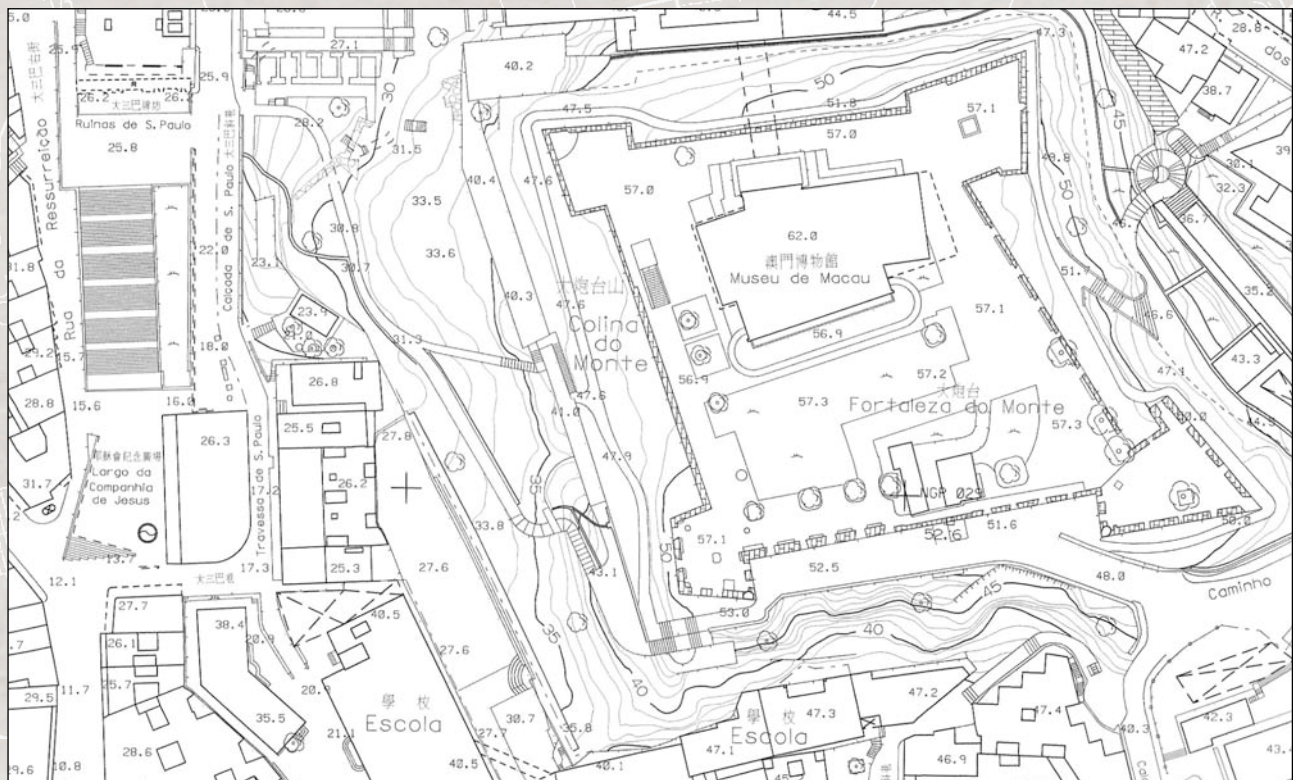
Although we do not know where the Jesuits obtained their cannon from, we do know that Mascarenhas established a foundry, and many of its products were used to arm the Macao forts. Manuel Tavares Bocarro took over the running of the foundry in 1626, and his cannon achieved fame for their excellence. Unfortunately, those in Macao were sold for scrap in the 1870s, although a few examples of Bocarro's work remain in the Royal Armouries, UK and elsewhere. Today the fort contains a number of cannon dating from about 1860. They are all placed along the south wall and its adjoining bastions except for one on the area in front of the main gate.

The period starting in the 1840s saw a renewal of fortification building in Macao. This time it was

not to defend against enemies from the sea but rather to guard against incursion from mainland China. The first Opium War between the British and the Chinese had shown that the Chinese were not as all-powerful as they had been and that they could be defied, albeit with the danger of possible reprisals. A number of new forts were built to cover the border, and no doubt a number of cannon were brought in to arm them. However, the old cannon, cast in Macao in the 17th century, still armed most of the forts, and it was not until about 1870 that they were replaced. The cannon now in the Monte Fort were obviously some of the replacements as they date from about 1860. A list of cannon dating from 1886-1887 includes twenty-nine iron guns at the Monte Fort, so the ones that remain were probably there then.

A total of twenty-two cannon remain at the fort, and all are cast iron, smooth-bore, muzzleloaders. Figure 4 is a drawing of a typical cannon annotated to show the names of the various parts. Apart from those at the Monte Fort, there are similar cannon at the Mong Ha and Guia forts, and a number in store on Coloane.

Figure 1. Plan of the Monte Fort.



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Fig. 2. South face of the Monte Fort.

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Fig. 3. The stone tablet over the entrance gate.

The types of carriage used to mount the cannon are not known, although the present carriages are iron, standing garrison carriages. The other alternative material for carriages is timber. An old picture of the Guia Fort shows that the cannon mounted there were on timber carriages. Indeed a single timber carriage remains in the Guia Fort, and that appears to be the last surviving timber one in Macao. A picture of the battery at the Barra Fort shows cannon mounted on iron carriages, and they may be some of those now at the Monte Fort. Iron carriages were introduced for service in warm climates where wood tends to rot quickly. However, they were not very good for serious service as they broke up if hit and could not be repaired, whereas timber when damaged was often still serviceable and could be easily repaired. Fortunately they did not see service, and they have survived in perfect condition.

There are five different types of cannon as detailed below

TYPE 1

The first type, five in number, are mounted in the southeast bastion. Figure 5 shows one of them. It appears to be a Monk design of 1838.⁵ The muzzle is of the normal form, but there is only a single flat moulding for a muzzle ring and a similar flat moulding at the end of the first reinforce. The second reinforce

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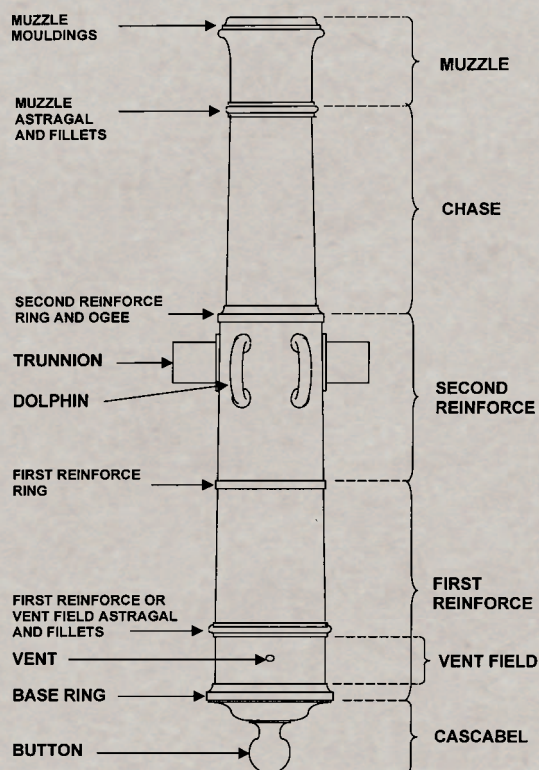


Fig. 4. The parts of a gun.



Fig. 5. Cannon Type 1.

simply merges into the chase by means of a step with a concave curve. There is a breech loop on the cascabel, and a vent patch. They are 24-pounders with a bore of 5.7 inches (145mm), an overall length of approximately 9 feet 7 inches (2.92m) and an outside diameter at the breech of 17.9 inches (455mm). They bear the following markings:

- On the top of the barrel at the trunnion position is embossed a crown over the letters B.P. See Figure 6.
- On top of the barrel at the breech is inscribed B.P& Co over the weight. The weights, which are given in hundredweights, quarters and pounds, are 37-1-4 (1894 kg), 37-2-12 (1910 kg), 37-3-12 (1923 kg), 37-0-16 (1887 kg) and 37-3-5 (1920 kg).
- On the right-hand trunnion 24 Por.
- On the left-hand trunnion the letter F inside a diamond shape over the date 1867 (two in number) or 1865 (three in number).

The marking at the breech shows that they were made by the British firm Bailey, Pegg and Company. They were first established in 1812 at the Gunwharf, Wapping, London, later moving to 81 Bankside, London SE 1. They had a large business supplying guns to merchant ships and trading posts maintained by commercial firms.

The cast iron carriages can be seen in Figure 5. They bear no markings. The breech end of the barrel is supported on a cast iron pillar set on the carriage.

TYPE 2

The second type, nine in number, continue the line from the eastern bastion along the south wall. Figure 7 shows one of them. Again it is of the Monk type design similar to the type 1 guns. The main difference in design is the cascabel, which has a breech



Fig. 6. Markings on cannon Type 1.

loop and a horizontal loop. This latter loop is for an elevating device, possibly a screw mechanism, which is unfortunately missing. They are 32-pounders with a bore of 6.4 inches (162mm), an overall length of approximately 7 feet (2.14m) and an

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outside diameter at the breech of 17.4 inches (442mm). They bear the following markings:

- On top of the barrel at the breech is inscribed a number over a crown over the letter P over the weight. See Figure 8. The number is apparently a serial number, and they are 721, 708, 705, 712, 707, 715, 722, 691 and 698. The weights given in hundredweights, quarters and pounds are 25.0.21 (1279 kg), 25.1.17 (1290 kg), 25.0.21 (1279 kg), 25.0.21 (1279 kg), 25.1.9 (1286 kg), 25.1.17 (1290 kg), 25.0.21 (1279 kg), 25.0.25 (1281 kg) and 25.1.1 (1283 kg).
- On the right-hand trunnion B.P&Co over a number. The number is also repeated on a plug on the top of the breeching ring. The numbers are 219, 205, 191, 200, 202, 212, 198, 188 and 197.
- On the left-hand trunnion 32 Por over the date 1860.

The marking on the trunnion shows that they were also made by Bailey, Pegg and Company.

The cast iron carriages can be seen in Figure 6. They bear a series of markings inscribed into them that are slightly confusing, as there seems to have been some double marking. They are 32 Pr, a broad arrow mark, and B.P&Co 1860 on one side of



Fig. 8. Markings on cannon Type 2.

each sidepiece, and the weight on the top of one sidepiece. The weights again in hundredweights, quarters and pounds are 17.1.6 (879 kg), 17.0.4 (865 kg), 16.3.22 (861 kg), 16.3.18 (859 kg), 16.3.0 (851 kg), 16.3.16 (858 kg), 17.0.4 (865 kg), 17.0.0 (864 kg) and

16.3.10 (855 kg). The support for the end of the barrel varies. In some cases there is a cast iron pillar, but in others there is a form of L-shaped support that rests on the central cross tie as well as the rear axle. The top is horizontal, and one of these is marked 20Cwct. Another variant slopes down from the central cross tie, and a couple are marked 24 Pr, with a broad arrow mark.

TYPE 3

The third type, four in number, complete the line along the south wall and extend into the western bastion. Figure 9 shows one of them. Again it is of the Monk type design similar to the type 1 guns, the main difference being that it is relatively short. In



Fig. 7. Cannon Type 2.



Fig. 9. Cannon Type 3.

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fact it is just short enough to be classed as a howitzer. There is a breech loop on the cascabel. They are 32-pounders with a bore of 6.4 inches (162mm), an overall length of approximately 6 feet 7 inches (2.0 m) and an outside diameter at the breech of 17.9 inches (445mm). They bear the following markings:

- On top of the barrel at the breech and at a position opposite the trunnions is stamped a number. The number is apparently a serial number, and they are 6, 7, 2 and 3.

There are no other markings.

The cast iron carriages can be seen in Figure 8. They bear no markings. The breech end of the barrel is supported on a cast iron pillar set on the carriage.

TYPE 4

The fourth type, three in number, continue the line around the western bastion. Figure 10 shows one of them. It is a Blomefield pattern and includes

both a vent patch and a fore-sight patch.⁶ There is a breech loop on the cascabel. They are 12-pounders with a bore of 4.2 inches (106mm), an overall length of approximately 8 feet 1 inch (2.47m) and an outside diameter at the breech of 15.3 inches (390mm). They bear the following markings:

- On top of the barrel the fore-sight patch is inscribed with the letter M.
- On top of the barrel at the breech is inscribed a quartered diamond above B.P&Co. See Figure 11.
- On the right-hand trunnion is a number. The numbers are 183, 318 and 277.
- On the left-hand trunnion W Co.

The marking on the breech suggests that they were also made by Bailey, Pegg and Company. However the W Co marking on the trunnions is that of another gunfounder, Walker & Co. This company was established in 1820 by Samuel Walker in association with William Yates. They took over the business

Fig. 10. Cannon Type 4.



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Fig. 11. Markings on cannon Type 4.

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of Walker's grandfather at Gospel Oak Ironworks, Tipton, Staffordshire, and continued his use of the W Co marking on the left trunnion. The firm ceased business in about 1860, and it may well be that Bailey, Pegg and Company acquired their stock, hence the dual markings. There are four other identical cannon numbered 244, 250, 261 and 367 mounted at the Mong Ha Fort.

The cast iron carriages can be seen in Figure 9. They bear a clear series of markings inscribed into them. They are 32 Pr B.P&Co 1860 on one side of each sidepiece and on one the weight on the top of one sidepiece. The weight again in hundredweights, quarters and pounds is 16.3.18 (859 kg). The end of the barrel is supported on a cast-iron pillar. Clearly the carriages are the wrong size for the barrel as the trunnions are smaller than the grooves in which they rest.

TYPE 5

The fifth and final type is a single gun placed outside the south wall and is shown in Figure 12. It is of the Monk type design similar to the type 1 guns. The breech loop is formed centrally in the cascabel. It is



Fig. 13. Markings on cannon Type 5.

of the standard British pattern as illustrated in the Treatise on Artillery published in 1853.⁷ It is the largest of the cannon, being a 64-pounder with a bore of 8.1 inches (205mm), an overall length of 10 feet (3.05m) and an outside diameter at the breech of about 20 inches (500mm). It bears the following markings:

- On top of the barrel at the breech is inscribed the number 508 above the letter P above a crown. See Figure 13.
- On the right-hand trunnion is the number 1.
- On the left-hand trunnion W Co. and 1860.

The W Co. marking shows that, like the fourth type, it was made by Walker & Co.

Fig. 12. Cannon Type 5.



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The cast iron carriage can be seen in Figure 11. It bears no markings. The breech end of the barrel is supported on a cast iron pillar set on the carriage. Perhaps associated with this cannon is a pile of stone cannon balls situated just inside the main gate. See Figure 14. They are of the right size, and although at the time cast iron was the usual material for shot, no doubt stone was a cheap alternative.

CONCLUDING REMARKS

This short article records the details of the cannon at the Monte Fort. Although exact details of their purchase have not been traced, it is clear that they were bought in about 1870 to replace the old guns dating from the 17th century. Many of those were unserviceable or so worn as to be hopelessly inaccurate. Obviously there was a British connection, although the guns are not from the British military. It is possible that one of the British trading companies was involved in their purchase and delivery.

It is fortunate that the cannon and their carriages have survived. The carriages allow them to be displayed in much the same way that they would have been during their working life. As mentioned before, it is likely that they have been at the Monte Fort since the 19th century, and it is a fine setting for them. Many cannon of the period would have had timber carriages, but most of these have rotted away by now. The Macao authorities possess a number of other cannon, not all of which are on display. Some, without carriages, are similar to those at the Monte Fort—in particular types one⁸ and two.⁹ There is also a barrel of 7.5-inch (190mm) bore marked B.P&Co. and the weight of 57.0.20 (2904 kg). However, these and others are not usually available for



Fig. 14. Stone cannon balls

inspection. As noted above, other similar cannon are mounted at the Mong Ha and Guia forts.

In some respects it is surprising that so many have survived in Macao as they soon became obsolete. By the beginning of the 20th century, breech loading guns with more powerful charges and more destructive shells were becoming the norm. Macao bought its first modern guns by at least 1904, and so they might have been expected to discard the iron muzzleloaders. Yet they did not, and the forts bristled with them until the army finally left. Fortunately, they never had to fire in anger, and the Macanese have managed to avoid a major conflict since they repelled the Dutch in 1622. Obviously the defences proved their worth as a deterrent, and the guns were no doubt useful for firing salutes. The recent restoration of some of the fortresses in Macao provides the opportunity to display more of the existing cannon, and it is hoped that funds can be found to make carriages for them. In that way, today's generation can be reminded of Macao's past. **RC**

NOTES

- 1 Originally the Jesuits had called the fort Nossa Senhora do Monte.
- 2 See Marco d'Avalos, 1638, in Major C. R. Boxer, *Macao Three Hundred Years Ago*. Imprensa Nacional, Macao, 1942, pp. 84-85.
- 3 When parts of the defensive walls, which were also made of chunambo, were demolished, it was noted that it took 1,800 pounds of gunpowder to level 130 metres of wall. See the article "Fortifications of Macao," by Captain Lima Carmona, in *Ta-Si-Yang-Kuo*, Public Library of Macao.
- 4 The centre of the fort has been excavated in recent years to provide the location for the Macao Museum, and access can also be gained through the museum.
- 5 T. B. Monk was clerk and draughtsman in the Department of Inspector of Artillery, England.
- 6 Major General Sir Thomas Blomefield, Baronet, 1744-1822, was appointed Inspector of Artillery and Inspector of the Royal Brass Foundry at Woolwich in 1780.
- 7 Captain E. M. Boxer, *Treatise on Artillery*, London, 1853.
- 8 There are at least two of this type with weights of 37.2.5 (1907 kg) and 37.3.16 (1925 kg).
- 9 There is one numbered 706 with a weight of 25.1.9 (1287 kg).