

Concealed plugs and rotten trunnions: David Tanner and his problems with gunfounding in the American War of Independence

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ABSTRACT: In the early 1770s the British Board of Ordnance decided that all new iron guns must be cast solid and bored out, rather than cast round a core. As a result when war broke out shortly after with the American colonists, the Ordnance had to work with a number of founders with no previous experience of either casting guns or dealing with the Board. One of these new founders was David Tanner of Tintern who had a very poor record of casting. Over a number of years his letters reveal the difficulties an iron founder had in attaining the high standard which the government expected for their cannon, the excuses he made and his attempts to have the guns accepted. However in the wake of the defeat in the War and the financial crisis that followed, the Board was reorganized with the military officers in stronger control of the supply and proof of new guns and Tanner was forced to find an alternative market for his rejected guns.

Introduction

After Britain recognized American independence in the 1780s, she was forced to examine the reasons for her defeat. One result was the reorganization of the Ordnance Office, the government body that supplied the armed services. There had long been tension between its civilian staff and the military personnel, who belonged to the Royal Regiment of Artillery or the Royal Engineers. Following the defeat, the military were on the ascendant and Captain Thomas Blomefield, promoted to Inspector of Artillery in the course of the War, began a review of all aspects of artillery. Part of this new regime was to tighten up what they considered had been the lax ways of the previous civilian regime. A thorough review of all guns in service was undertaken and increasingly severe conditions were imposed on the government contractors providing new weapons. In this atmosphere the gunfounders of the American War were put under a fiercer scrutiny than their predecessors, and consequently their reputations have suffered. One reason for this was the decision by the Board of Ordnance early in the 1770s to accept iron guns only if bored from the solid. Thus, when war broke out shortly afterwards, the

Board had to deal with the problems of a new technology and companies new both to gunfounding and to dealing with the Board, since few of its previous suppliers in the Weald were able to produce such guns. Some of these founders were not entirely honest in their dealings with the Board; John Wilkinson used an elaborate network of colleagues to disguise the fact that he was casting more guns than the Board wanted him to, while George Matthews of Calcutts in Shropshire drew the Office into financial disputes with his unfortunate partners. However these were problems over finance, and it must also be said that the founders were dealing with high stakes; towards the end of the War, the Board and the British government were in the severest of financial straits. They failed to pay the founders, not only the money owed, but even the interest on it, and a number of concerns, including Matthews', went into liquidation as a result. However, there was one major long-running dispute during this period which involved the quality of the guns offered, and it throws some light on the problems which the gunfounders faced, in what they thought were unreasonably high standards demanded by the military. This was the case involving David Tanner.

David Tanner and the Gunfounding business 1781-1797

A problem with standards

David Tanner worked at several iron foundries in South Wales, including Cyfartha, Pontypool and Tintern. However John Byng, future Viscount Torrington, visiting Tintern in the summer of 1781, passed by 'a noble foundry of cannon'. After visiting the abbey ruins he returned to the works where he observed:

'the gradations of the iron working, from the smallest wire to the largest cannon' (Byng 1954, 39-40).

A further description by travellers in 1782 states:

'From Tintern Abbey we proceeded to the Iron-works in the Neighbourhood, & to see the boring of Cannon; this last is well worth notice...' (Tucker and Wakelin 1981).

In view of these statements it is most likely that Tanner's guns were cast at Tintern.

In the years following the outbreak of war with the American colonists, the Ordnance was looking for contractors to supply iron guns using the new technology of boring out of the solid, instead of casting them round a core. In June 1779 the Board of Ordnance received a letter from David Tanner, requesting:

'a Contract for making 200 Tons of Iron Ordnance not exceeding 18 Pdrs. to be delivered before the 24th June 1780 upon the same Terms & Conditions as other Contractors'.

The Board decided to order a trial 100 tons (WO 47/93, 354r). The first guns, six 12-pounders of 7½ feet, were presented for proof in September 1780 when they all failed (WO 47/96, 241v). However in December 1780 nine 18-pounders of 8½ feet all passed proof and were accepted (WO 47/96, 35v). Unfortunately this result turned out untypical: six 12-pounders were rejected on 16th and 17th January 1781 and seven 18-pounders the following month (WO 49/97, 182; 235v). In April, nine 18-pounders were presented; only one was refused and eight were received (WO 47/97, 334v).

Guns were subjected to a number of different proofs, which all took place at Woolwich. First they were proofed on two separate days with double the amount of powder normally used. Then they were internally inspected with 'Desagulier's instrument' which checked the straightness of the internal bore and detected internal flaws. Last was the water test, in which water was forced

down the barrel to see if there were cracks or flaws. This, a recent introduction, was particularly resented by the gunfounders. Guns could be failed at any stage. Two proof books for 1780 to 1781 have survived in the Royal Armouries Library (Brown 1988, 107). Whenever possible, founders preferred to withdraw guns likely to fail, enabling them to sell them unmarked into the merchant market. If a gun failed, the Board marked them with crosses. In these cases it appears that Tanner's guns were all failed and therefore 'crossed' before they were withdrawn. However in June 1781 two 18-pounders were failed, one having a trunnion 'bad and rotten', the second burst on the first proof and the proof of the remaining 38 guns was postponed. The Verbruggens, the Dutch master founders of the Royal Foundry, were asked to 'inspect & assay the metal of Messers. Tanner's guns that burst and report whether the same is of a proper quality & texture & if they can account for the bursting' (WO 47/97, 449r). By 4 July the Board received the report from the Verbruggens, stating:

'that they had examined the metal of Mr Tanner's Gun & find that the part which gave way was full of dirt'.

The Board ordered:

'that Genl. Williamson be desired to cause 5 guns of Mr Tanner's to be tried in the severest manner he thinks proper in order to ascertain whether the remainder of his Guns ought to be condemned' (WO 47/98, 131v).

A few days later General Williamson asked:

'whether he should prove Mr Tanner's Guns as he proved some formerly on actual service from a similar order: Viz 5 Times an hour'.

The Board approved of this course (WO 7/98, 136r).

The matter became increasingly serious. In August 1781 five 18-pounders of 9 feet and thirty 12-pounders of 7½ feet were presented for proof; of the former, two burst at the proof, a trunnion on a third broke off and the remaining two were queried. Of the 12-pounders, two burst and a cascabel broke off a third, while a fourth was refused after an inspection of the interior of bore. The remaining 26 were queried. Moreover one of the burst guns had damaged a Carron carronade (WO 47/98, 184v). Immediately the Ordnance ordered that all these guns be condemned, 'it appearing upon enquiry that they that they were mostly of his first cast' (WO 47/98 173r). David Tanner wrote to the Board 'requesting that all the guns he had cast may not be condemned on account of some of them bursting upon proof'. The Board agreed to take ten guns that had undergone General Williamson's stricter proof, but did 'not think they were

justified in taking the rest unless Mr Tanner will be at the expense of proving them in the same manner' (WO 47/98, 199r).

In September 1781, Tanner agreed to defray the expense and the Board ordered Williamson to proceed with the trial (WO 47/98, 229r). On 22 September, the Board agreed to issue stores to Williamson for the proof of thirty-three 18-pounders (WO 47/98, 240r). However, Tanner soon regretted his decision and sent his brother with new instructions on 27 September:

'Mr. Tanners' Brother having attended the Board on behalf of his Brother desired to withdraw his consent to prove his Guns with the severe Proof on account of the great expence. Ordered that the Guns be not proved in that way and the Commanding Officer of Artillery be acquainted. And Mr. Tanner having requested the Board to order them to be proved again in the usual way & that his Brother will gladly defray the expences if the Board will take such of the Guns as may stand. The Board do not think it proper to grant this second request' (WO 47/98, 251r).

Worse was to follow; on 11 December 1781 the Board received disquieting news about Tanner's guns in service, when the Admiralty wrote with an extract of a letter from Capt McBride 'signifying that in his late action with two Dutch Privateers one of his after guns burst, and desired that all the said guns may be reproved'. The Board immediately ordered 'that the broken pieces of the Gun that burst be sent to Woolwich, that the Guns cast by Mr Tanner No 1, 3, 4, 13, 15, 16, 17, 27, & 28 be exchanged & that all the rest be reproved' (WO 47/98, 329). Of the ten 18-pounders proved in late December, two were rejected outright and none were received (WO 47/99, 114r).

Nothing more is heard of David Tanner until 10 October 1782 when he agreed 'to have a trunnion knocked off such of his guns as do not stand proof, & requested that Orders may be given for proving the guns which he has delivered at Woolwich & which have lain for a considerable time' (WO 47/100, 359). Trunnions were knocked off to prevent guns being re-used. The Board received the reports of the proof on 30 October 1782; seventeen 24-pounders of 9½ feet were proofed of which five were rejected after inspection by Desagulier's Instrument, one was failed by the searchers, which tested the internal bore, and the remaining eleven passed (WO 47/100, 388v). Only two guns were successfully proofed in December (WO 47/101, 194v).

No more guns were proofed until May, June and July

1783, when more failures were reported (WO 47/101, 474; WO 47/102, 194; 253v). Major Blomefield, Inspector of the Royal Artillery, closely examined one of the guns and reported to the Board on 17 July that 'the 24 Pounder Iron Gun of Tanner's has been cut Asunder, by which his suspicions are confirmed, as no less than five Iron Screws have been inserted to conceal Defects & that having no doubt but that some Pieces of that Founder are in the same state he proposes to cause them to be examined' (WO 47/102, 222). Here Tanner had committed the unforgivable sin for the Ordnance Board: to be caught concealing defects in his guns.

The end of the war

By the following year, gun orders were declining as the American war wound down. In February 1784 Major Blomefield proposed a solution to the cheating; he perceived 'that to put a stop to the Fraudulent Practices which the Gunfounders have been guilty of in Concealing Defects in their Guns, the best method will be to receive no more Guns but under the express Condition of carrying that clause of the Contracts into the most rigid Execution, which subjects the whole Number delivered to be condemned if any concealed Defects are discovered and at the same time recommended the defective Guns which had been previously received from Mr Tanner under that Deception should be returned upon the his Hands and replaced from the unproved Guns now at Woolwich. Ordered' (WO 47/103, 326r).

However, the matter was not allowed to rest there; a month later, Blomefield suggested that, as well as not receiving the unproved cannon, the guns previously accepted be re-examined and 'if any concealed Defects be discovered in any of them that they should returned upon his Hands and replaced from those unproved'. The Board again agreed to the procedure (WO 47/103, 404v; 496v).

A year and more passed in this stalemate. All the while the Board were dealing with the financial crisis that came in the wake of the British defeat in the American War. Tanner's guns lay at Woolwich Warren until Richard Crawshay, now Tanner's agent, wrote to the Board and raised the whole matter again in June 1786, asking for the thirty-two guns at Woolwich and another twelve in London to be proofed and received. The Board ordered a report on the 'present State and Condition of them and whether they are any Part of these guns belonging to the said Mr Tanner which were laid down for Proof and condemned in the Year 1781' (WO 47/107,

613). Major Blomefield reported 'that the thirty eight 24 Pdrs belonging to Mr Tanner are part of 44 Guns of that nature landed by him at Woolwich on the 28th January 1783 and 20 February 1784; that the same remained unproved in consequence of the Board's Orders of the 17 July 83 & 22 March 1784 on Account of the discovery of five Screws in the Bore of a 24 Pdr and also for concealed defects of the same nature in Nine 24 Pdrs & 5 18 Pdrs which were cast by the same founder which had previously been received And having signified that the Orders of 22 March 1784 directing such guns as had previously been rec'd and found defective to be returned to Mr Tanner, has never been carried into execution' (WO 47/108, 171). The Board agreed to consider the guns if Tanner accepted the same conditions as Walkers of Rotherham had recently accepted. Tanner agreed (WO 47/240v). The Board were prepared to accept the guns but Major Blomefield was more pessimistic, believing it 'is probable that concealed defects will be found'. However the Board instructed him to find out what length the guns were and whether they were needed (WO 47/108, 326v).

Six months passed before the Board replied, on 13 February 1787. 'Ordered that Mr Tanner be acquainted that notwithstanding he can have no claim on the Board for the Delivery of these Guns the Master General and Board are willing upon the Recommendation of Mr Crawshay and his assurance that these Guns made before he received an Order to stop casting were cast of better metal than those of his Cast which have been found defective to have them proved upon the Terms of Mr Walkers late Contract with the Board and if received to take them at Mr Walkers Price as proposed by Mr Tanner. That to prevent any Possibility of Mistakes or Misunderstanding in this Business a Contract for those 50 Twenty Four Pounder Guns similar to the Contract lately made with Messrs. Walker and the same Price be prepared and sent to Mr Tanner for him to execute' (WO 47/109, 293v).

A month later, Richard Crawshay agreed and, by 3 April 1787, the remaining guns had been landed at Woolwich (WO 47 /109, 390v; 435v). Captain Fage, Blomefield's assistant, reported 'Mr David Tanner's Iron Guns which have been laid a Considerable time in the Warren at Woolwich must be Cleaned previous to their being proved' (WO 47/109, 436). However the proof did not go on favourably; on 27 April, Blomefield wrote 'that the 50 24 Pounder Iron Guns cast by Messrs Tanner had been proved Agreeable to the Board's orders and that upon Examination it appeared that there were Screws and Plugs in the Bores of three of those pieces and that

without Cutting into the Substance of the Metal it was scarcely possible to ascertain the fact positively which he did not think himself authorized to do without Receiving the Orders of the Board'. Blomefield was ordered to attend the next meeting of the Board in person (WO 47/109, 493v). They also ordered an inquiry to be carried out, specifically asking whether the marks on the guns showed that they had belonged to Tanner (WO 47/109, 503v). The officers at Woolwich agreed that Tanner's guns were marked with a 'T' on their trunnion (WO 47/109, 508v).

Details of the proof were given in May 1787. Of the fifty guns, seventeen were condemned and three were queried (WO 47/109, 574). The three guns 'were reported to have Screws inserted in their Bores from their appearance only it being impossible to ascertain it positively without cutting into the suspected Places... a Letter be likewise written to Mr Tanner to acquaint him that screws having been found in three of his Guns the Board have ordered the whole of his Guns to be rejected and that he be directed to cause the same to be taken away' (WO 47/109, 574r). Mr Crawshay tried a direct appeal to Blomefield: 'I waited on you to have had a little Conversation respecting Mr Tanner's Guns. I will esteem it if when in Town next you will favor me with a call at George Yard, if at four to take a dinner the more you oblige this, your Obedient servant...' Major Blomefield clearly suspected more might be on offer than a dinner since he replied frostily 'I am sorry to be under the necessity of declining to enter into discussion which you propose on the subject of Mr. Tanner's guns, as I conceive the situation in which I stand as a public officer, renders a step of that sort improper, without the sanction of those under whose Authority I act; neither, indeed, can it answer any useful purpose' (Royal Armouries Library, Blomefield Letterbook, vol 3, 24 May 1787). On 25 May the Secretary of the Board wrote to Blomefield with the Board's decision: 'Mr Tanner is acquainted that Screws having been found in three of his Guns, the whole of his Guns are rejected, and that the same are to be taken away' (Royal Armouries Library, Blomefield Letterbook, vol 3, 25 May 1787).

And still the rejected guns lay at Woolwich, all through the summer of 1787. In October the Board were still trying to have the guns removed while Crawshay played for time, writing that he 'conceived it to be rather severe to reject the whole because three of them had been found defective and therefore requested that the Board would reconsider the Matter and allow the said Guns to be received'. The reply was: 'Ordered that Mr Crawshay

be acquainted the Master General and Board are very sorry they cannot comply with this request and as the Master General and Boards Reasons for so doing have been before fully stated to him they trust he will think it unnecessary now to report them' (WO 47/110, 358).

Finally, in December 1787, Crawshay began to remove the guns; at the same time he bought some old ships carriages from the Board (WO 47/110, 540r). Tanner asked whether the cannon might be marked with the crowned P, which was used for guns for the East India Company or foreign governments. Major Blomefield returned a cold refusal 'as this would denote the Guns to be such as are received for His Majesty's service he could not perform the same without the Board's authority'. The Board agreed, stating that they never allowed 'the P & crown to be cut upon Guns which have been rejected upon proof' (WO 47/110, 543v-544r).

By a happy chance, we know the fate of these guns; in January 1788, Richard Crawshay shipped iron guns and carriages, recently returned from Woolwich, to Istanbul where they were sold, presumably to the Turkish government (Evans 1990, 1-2, 36).

Tanner's Contemporaries

In some ways Tanner was lucky. When the Carron Company had similar problems with casting in the early 1770s, from then until the onset of the French revolutionary Wars the Ordnance refused to consider letting Carron supply any long guns; only their carronades were accepted and, even then, the Ordnance had tried to get other gunfounders to cast them for the service. Moreover the Ordnance and Admiralty responded by instituting a concerted campaign to remove and destroy all their cannon. Earlier in the American War John Cookson, from County Durham, had a similar experience to Tanner when a mended gun was found. He was told that no further guns would be accepted from him because of the 'dangerous and fraudulent Nature' of the defect. However, after he protested, the Board relented and agreed to take him back (WO 47/91, 222v; 396v). In the end there were not enough good and reliable gunfounders for the Ordnance to act as it would have liked in time of war.

The Proof Books for 1780 and 1781 show that Cookson had a poor record of proof: more than 15% of his guns failed, but this was still superior to Tanner's rate of almost 85%. Other founders mentioned in this article had much more impressive records. In 1780-81 the two largest suppliers were George Matthews and Walkers

of Masborough, both of whom managed a failure rate of less than 5%. Mathews presented 1623 guns of which only 77 were rejected. Walkers supplied the second largest number of guns, 1417 guns of which 70 failed. The next largest supplier was Anthony Bacon of Cyfartha who offered 867 guns, of which 126 failed, one of the poorer results at 14%. Following Bacon's death, his successor gave up gun-casting. A more complicated picture emerges from John Wilkinson's results. It is difficult to know exactly how many guns he was supplying, since he took care to cover his tracks. Through his agents, the Harrisons, he presented 865 guns for proof, of which 83 were initially rejected, although many of these were accepted after a more severe proof, as happened to Tanner. However, acting through George Knott, Wilkinson offered 169 guns of which only one was rejected. In the same period John Cookson presented 553 guns with 85 rejected. In these two years the Carron Company supplied 613 carronades, smaller and lighter guns. To put this into perspective, in 1780 and 1781 Tanner offered 112 guns for proof, of which 95 were rejected (Brown 1988, 107). In the space of a few years, Tanner had only 71 guns accepted by the Board, all either 18 or 24 pounders, less than these other founders supplied in year. Of these six main suppliers during the American Wars, Tanner was the least successful in both numbers and pass rates, having the worst failure rate for any gunfounder in this period, and one might wonder why the Board persisted in trying to work with him. It seems likely that, with the demise of many of the Board's old gunfounders and the introduction of the new technology, there were not enough really good founders for the Board to ignore the poor ones. In times of peace they certainly would not have put up with Tanner's performance, and when peace did come, as we have seen, the Board were cautious about doing business with him. It is against such a background that Major Blomefield began his campaign to tighten standards in gun-casting, which Tanner and Crawshay faced a few years later.

Conclusion

The question remains whether Tanner was merely an incompetent founder or a fraudulent one, or some mixture of the two. The use of plugs suggests that fraud was involved. However ultimately he was not very successful. David Tanner remained in business for several more years, working at several iron foundries in South Wales including Cyfartha, Pontypool and Tintern. As we have seen, and as is confirmed from the existing Proof Books, Tanner's guns were cast with a large T on their trunnions, either for Tintern or Tanner.

Some of his guns with T on the trunnions have survived and can be seen at Fort Amherst in Kent and on Malta. In 1790 Richard Crawshay was still hoping for orders from the Ordnance and encouraging Tanner to cast guns for the merchant market, as he was sure war was coming (Evans 1990, 78). He was declared bankrupt in 1798 when his works, including Tintern, were put up for sale (Riden 1993, 44). The site was excavated in 1979-80 and the report published in this journal (Pickin 1982).

Bibliography

- Brown R R 1988, 'The Woolwich proof registers 1780-1781', *The International Journal of Nautical Archaeology* 17, 105-111.
 Byng J 1954, *The Torrington Diaries* (ed C B Andrews) (London).
 Evans C (ed) 1990, *The Letterbook of Richard Crawshay 1788-1797*

(Cardiff).

Pickin J 1982, 'Excavations at Abbey Tintern Furnace', *Historical Metallurgy* 16, 1-21.

Riden P 1993, *A Gazetteer of Charcoal-fired Blast Furnaces in Great Britain in use since 1660* (Cardiff).

Tucker G and Wakelin P 1981, 'Metallurgy in the Wye Valley and South Wales in the late 18th century', *Historical Metallurgy* 15, 94-100

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