

HOPEWELL FURNACE PRODUCTS IN 1784

That Hopewell had been smelting iron prior to the beginning of Journal SM41MR is proven of sales of castings during January 1784. How Mark Bird and Wm Dewees had arranged the turnover of Hopewell Furnace and the Birdsboro Forges in 1782, 1783 and 1784 has not been discovered to date. But Dewees of Valley Forge and Bird were long-time partners in iron operations. From 1772 to 1778 at least, they owned and operated Glasgow Forge, ^{just} west of today's Pottstown ^{ON THE MAIN NATAWNEY} along with copartner Joseph Potts. Their 1772 ^{SIX YEAR} operating agreement for this forge survives in new Bining as Appendix F, p 179. Without doubt, similar agreements covered the 1782 turnovers of Hopewell Furnace and the Birdsboro Forges to Dewees. ^{BUT (NOT FOUND TO DATE)}

Mark Bird was absent from Berks County ^{IN 1782-84 (HIS SILVER PLATE WAS ASSESSED IN BERKS COUNTY)} then, spending nearly all of this time at Falls of Delaware building the \$200,000 ironworks there, the biggest in the U.S. Dewees had been burned out at Valley Forge by the British after the 1777 Battle of Brandywine. In addition, he had married into the Potts family, automatically making him better "acquainted" with all iron operations.

Hopewell's blast, begun DURING Dewees operation in 1783, ended before March 29th. (The furnace lining burned through and HAD to be replaced.) Then, Moulders John and George Moats (Mountz) received credit for their casting production. This end-of-blast termination of pay was REGULAR bookkeeping practice of ALL furnaces- the CALENDAR had NO meaning; the blast period dictated the bookkeeping method. Moulders' credits were paid on the amount of work involved in producing any given casting- INCENTIVE PAY!! Naturally, the most time-consuming process earned the highest pay rate.

The Moats' credits were:

Slitting Mill parts	4 L a ton	abt \$10.66
Hardware (unknown item)	1 S each	abt .13
Teakettles	2 S 6 penceea.	abt .32
Half-priced teakettle- defective in looks	1 S 3 pence	abt .16
Potware	5 L ton	abt \$13.30
(Duty) Bake Ovens	3 S ea.	abt .39

Because the moulders did NOT cast any stoves, it is necessary to include the pay of Founder Steese to reflect actual production:

Forge Castings	12 S a ton	abt \$1.56
Forge Hammers and Anvils	1 L a ton	abt \$2.66
Ladle castings (stoves)	30 S a ton	abt \$3.99
Pots and Slitting		
Mill castings	15 S a ton	abt 1.95
Pig Iron	5 S a ton	abt .65.

The Founder's pay for all castings varied because he actually lost iron production time during the extended time that castings were poured; the blast HAD TO BE TURNED OFF to prevent blast-propelled flames from searing the founder and moulder as they dipped their ladles into MOLTEN IRON in the furnace hearth.

NOTE- (New Bining, p 107). Normally, NO sign of fire was ^{at the cast arch} VISIBLE/ during furnace operations. (The money spent to secure heat-resistant glass at Hopewell RIGHT NOW IS INCORRECT!!!) And since ^E neither moulder is credited with ANY stove production, the designation "ladle casting" has to include ^{ALL} stove production. Further, this designation strongly suggests that iron was ladled into flasks in 178⁴.

Bird and or his bookkeeper listed casting productions and sales on a distinct account, "CASTINGS". (p 4, 122).

TOTAL TONNAGES

Out of a total tonnage of 1091.14.7.0 smelted in this 178⁴ Journal, ONLY 192.8.7.0 tons, ~~was~~ were 0% just over 17%, ~~was~~ poured as castings, and this included 129.13.3.0 of ^{per ton} stoves. Naturally, pig iron produced the least income/for the founder, while castings sold at a higher price.

Hopewell stoves from the Bird period survive, usually with his name and a date cast into their plates. A 1772 six-plate heating stove is a feature in Hopewell's Museum today. Metallurgists tell that the slight copper content of the magnetite ore produced a natural rust-resting iron. Hence, ^{is} unused Bird stoves survived. A Franklin with Bird's name cast into it survives at the Birdsboro YMCA, the 1761 William and Mark Bird home. Another Bird Franklin is a furnishing in Hopewell's Office Store.

SALES INCOME

Stove sales during Jan-Sept 1784 were very slow, only six large ten-plate stoves entered the record, priced from 5L to 5.5.0. abt \$13.30 to \$13.95 each. Wholesale prices were probably a Pound less per stove. Since no weights are given, costs per pound are impossible to calculate. Worse is the entry, "credit for 1 Ton sold cash 27.14.10" (p 122). ONE TON OF WHAT? All that can be deducted from such an entry is that the product sold was NOT pig iron, generally worth 5 L a ton then. Individual forge hammers and anvils reflect products requiring little casting skill, except for controlled cooling to prevent warping. Forge hammers of about 500 pounds sold for 4L and, later in the year, for 5L, about \$10.66 to \$13.92. ~~There~~ An 854 pound forge anvil, ~~xxx~~ receiving the blow from the 500 pound hammer, cost the buyer 5.12.0, about \$14.86.

With the approach of winter, stove sales (seemingly) picked up dramatically, although a bookkeeping time delay might account for this sales boost. The 5L stove, about \$13.30, had a half-price counterpart, selling at 3.10.0, about \$9.30. Again, this name and sales price show ^s that the term developed from payment to moulders of HALF the price of the normal ^{perfect} good-looking casting. Both potware and wagonboxes (wheelbearings) sold at 28.10.0 a ton, about \$76.81, down a half Pound from earlier sales. All these prices have more meaning when beef price is known, 4 and 5 pence per pound.

Hardware, an unknown casting for which the moulders earned a Shilling to ~~xxx~~ flask and pour, about .13, sold at the SAME price; 126 pieces for 126 Shillings (p 124a at p 122.) This charge most likely is a bookkeeping error since the moulder received a Shilling for each piece ^{of hardware.} he cast.

Five SIX-PLATE HEATING STOVES- like that displayed in Mopewell's museum- were sold. The large size sold mostly at 5L, about \$13.30, perhaps a true retail price, but at least one sold for 3.10.0, about \$9.31. A smaller version sold for 2.12.6, about \$8. It and one sold for 2.15.0, about \$7.27, were wholesaled. Again, no weights went into the Journal.

at least Hopewell also cast/six FRANKLINS, one going into Bird's home at Birdshore. A Franklin stove survives in this building, the YMCA, today. The Franklin in Hopewell's Big House was "there at purchase in 1935" and had NO identification

as to maker whatsoever. But Brooke and Buckley cast Franklin Stoves as late as 1843. BIRD PAID FOR BOUGHT A FRANKLIN PATTERNS COSTING 16.10.0, abt \$3.89 on NOV. 31, 1784

As invented by Franklin in 1742, this stove had a box extension out into the room on a very deep hearth plate; even by Mark Bird's time, the Franklin had shrunken back INTO the fireplace. Three sold wholesale here in 1784 FOR 16.10.0, 5.6.0 each, about \$14.

the "SQUARE" at this Site BIRD sold NO BACKS AND JAMES in 1784, despite/survival of a set/with his name cast into them. He did cast and sell one OPEN STOVE (p 150) selling for 6L. All that is known about this heating device is that name and selling price, about \$16.

Ninety-four CAMBOOSES- heavy-expensive ships cooking stoves, were cast in three sizes and sold wholesale at: ~~XXXXXXXXXXXXXXXXXXXX~~

- No. 1 at 12 1/2 L, about \$21.28 ~~12 1/2 L~~ (p 150)
- No. 2 at 10 L, about 26. 66
- No. 3 at 8 L, about 13.30 (p 122c, 150)

Naturally, no one in the Berks County bought a Camboose ~~xx~~ at retail price. All Cambooses went to Greenfield and Humphries, Hopewell stove dealwrs in Philadelphia. Six No. 3 Cambooses sold wholesale for 44L, or 7.4.0, about \$19 each. Again, weights are NOT part of the Journal entries. The three tons sold on Jan. 26, 1785 with NO TOTAL cost to the buyer has already been cited as an example of the difficulty in interpreting this Record.

CAMBOOSE stoves had costs not present in the more common stoves. Hopewell paid Greenfield and Humphries "for gitting up four cambooses" in 1785. Whether these ship's stoves went into the ship that Mark Bird SENT on a trading trip TO CHINA is unknown, These costs were:

for fitting 4 Cambooses with rods, rings and screws	5.0.0	OR per 1/2 each.
for drilling 4 Cambooses	5.0	
for rods and screws	19.8 1/2	6.4.8 1/2 abt \$16.50.

TEN PLATE STOVE

The stove bought and sold by all ^{three} Hopewell dealers was the ten-plate cooking stove, invented in Pennsylvania at Revolutionary times. Bird had a pattern, which enabled ^{his moulders} him to cast either the side for a six-plate heating stoves, or, with the oven door space taken out of the pattern, to cast a ten-plate side. A PHOTO - copy of this pattern is displayed in the Village Museum.

The feature of the ten-plate stove which made grandma's grandma exceedingly happy was its OVEN, simply the addition of four fire-heat deflecting plates inside the older six-plate heating stove. Eventually, Brooke and Buckley cast about 40,000 nine-platers, the next development in kitchen stoves.

SEVENTY NINE ten-plate oven stoves are certain 1784 production, plus three TONS more listed on p 117a of the Journal. Exact numbers produced are impossible to calculate. Recall the ton of undesignated castings selling for 27.10.0? The three tons listed above and without a price entry is ^{almost} equally confusing. There are no total Pounds to divide by 5 or 6L, the normal price for this stove. Hence, numbers are not attainable. The usual ten-plate price was 6 L, about \$16, and several half-priced ten platers sold for 3.10.0, about \$8. The wholesale price was usually 5.10.0 about \$15.25. But there were exceptions; a pair sold at 5.15.0 each, about \$15.25. Finally, thirteen unspecified type stoves sold for 95L, 7.6.2 each, about \$19. This was too-high priced to even be the large ten-plater. Naturally, the type these thirteen stoves were is UNKNOWN.

PLANS FOR FUTURE STOVE PRODUCTION, OR SUBCONTRACTING

As mentioned earlier in the pig production discussion, the fact that Mark Bird accepted deposits ^{FOR PIG IRON, AND} for 35½ TONS of stoves and for 5½ TONS of potware on Jan. 26, 1785, @ (J1, p 117a) actually over \$400L, about \$1064, strongly suggests that he planned to continue ^(or DID) operations at Hopewell Furnace into 1785. He also did have the furnace waterwheel repaired at this same time. These stove deposits ~~were~~ WERE based on two different rates per ton, 5.12.6, about \$15, and 6.2.6, about \$16. This rate differential suggests the casting of two different weight stoves in

the future. GR, Mark Bird may have planned to subcontract these stoves.

CASTINGS PROFITABLE ?

Though lacking final credit figures for entries several times, Mark Bird seemingly earned considerable profits from the Hopewell casting production, about ^{However,} 1177.11.5, or \$3120. ~~Maxx~~, the advance received on stoves and potware **MUST** be deducted from these "profits" to present an honest situation?

1177.11.5 ~
398.11.10 advances

781.19. 7½ Without deducting the advance payments, Bird's average income from castings was less than a 100 L a month. With the deduction, the average ^{DRAP PED} ~~fall~~ to about 65 Pounds a month, about \$172.90 a month. No matter the average, ^{INCLUDING STOVES} castings were but 17% of ~~Maxx~~ Hopewell's output. But ~~sixth~~ his interest requirements on the \$200,000 borrowed for the Falls of Delaware iron ^{EXPANSION} IF 6%, were a THOUSAND DOLLARS A MONTH!!

NO LARGE CASH WITHDRAWALS

Mark Bird kept only financial records ^{FOR} of the Hopewell Furnace in this Journal. How he fared moneywise at his Birdsboro and Spring Forges- he had sold the Glasgow Forge purchased in 1772 by this time- and at the Falls of Delaware, WHERE he spent the \$200,000, is completely unknown. He was definitely sheriffed at the Falls by Sept. 1786. The furnace CASH ACCOUNT presents only one possible cash payment of consequence to Mark Bird, but its meaning is questionable: "Credit from Hopewell Furnace for cash paid as OF NEW BOOKS 669.01, (p149) ^{||} about \$2021.60 ^{||} about \$1,779. Actually, Bird SPENT 760L/more cash than he received in this "CASH account.

STOVE DISTRIBUTION

Stoves and potware (country castings) sold mainly in Philadelphia, a conclusion reinforced by transportation cost entries along with the stove sales in the Journal.

Moore and Dundass (Reading) Two ton potware and 3 TON large ten platers;

Baker, Potts and Douglass (Phila-Douglassville?) ~~mixed lots stoves~~, ton of
 potware, sixty-four 10-plates, 3 Franklins and one six-plate stove.

Greenfield and Humphries, Philadelphia bought a mixed lot of stoves, Ninety-four
 Cambooses and thirteen stoves.

Two cash sales (one to Richard Hopkins and withOUT a Jl page) and another, simply
 "Ton for cash" with out any name of Sept. 30, 1784, and a "ton of pots at 29L each"
 not be traced to any sales location.

Baker, Potts and Douglass also furnished Hopewell, ^{to a Phila pattern maker,} probably by an order, a
 wooden Franklin Stove Pattern to Mark Bird at a cost of 16.10.0, abt \$43.89,
 costly when one recalls 4 and 5 pence a pound for beef! They also bought bar iron
 iron THROUGH Mark Bird, but not FROM Mark Bird, at 40L a ton, about \$106.40.
 The source of this bar iron were forges which bought PIG IRON from Mark Bird.
 However, Bird did credit himself with the sale of another ton of bar at 35L on
 May 19, 1785, about \$93.

Dowlas, a coarse linen, came to the Hopewell store from this Philadelphia stove
 buyer, 42 yards at 2 Sh. Pork, sugar, molasses and mackerel by the barrel, ^{plus coffee}
 came from them. They also purchased a ton of Hopewell Cart boxes (wheel bearing)
 at 28L a ton, abt \$74.48, and 2.3.6.22 of potware at the same price. Their ~~oth~~
 other castings purchase were 64 ten-plate ~~stoves~~ ^{each,} at 5.10.0 ^{each,} about \$14.63,
 three Franklin ^freplaces at 5.6.0 each, about \$14, and one six-plate heating
 stove. At the end of their account, Bird owed them 160.17.0¹, about \$425.60.

Greenfield and Humphries, definitely in Philadelphia, bought and sold every
 Camboose made, NINETY FOUR; ^{8L each (#3's?).} plus twenty-two purchased through John Gray for
 176 L. Being located in a seaport, naturally shipowners ^Would buy or replace
 their necessary cooking devices in Philadelphia. These dealers also furnished
 Hopewell with barrelled meat, 12 of pork within two months in early 1784.
 Beef by the barrel also came from to Hopewell regularly. Twice they paid
 Mark Bird 168 L in cash and earned COMMISSIONS at the rate of 5% on sales of

1544.18.11, about \$4136, ⁸ *LIKELY* ~~Mostly~~ for the sale of Camboose stoves. The amount of commission paid by Mark Bird was 77.14.11 $\frac{1}{2}$, about \$206.82. At the end of their account these Philadelphia dealers and supply source for Hopewell OWED Mark Bird 41.9.8, about \$110.

MOORE AND DUNDASS, of Reading, sold Mark Bird iron products locally, only thirteen miles ~~from~~ ^{to} the furnace. ^A Birdsboro bar iron credit to Dewees cost them 35 L a ton, about \$93.10. They also bought for resale 56-pound scale weights, a ton and a half of pots, a ton of cart boxes and 156 pieces of hardware. In turn, Hopewell's store secured limited amounts of cloth from them; 20 yards of duffel at 7/6 a yard and 20 yards of OZNAERIGS at 1 S. They were also the ^{worker's} ~~source~~ source for ^{cloth and other items} materials not stocked at Hopewell; at least twenty workers secured tailoring materials from them. An order to Moore and ^{provided} Dundass ~~told~~ that Hopewell would pay for whatever was ordered. Naturally the other side of this bookkeeping transaction charged this purchase to the worker. Their biggest purchase from Hopewell without weight or price was three TONS of 10 plater stoves. At the account's end, Moore and Dundass owed Mark Bird 121L, about \$32.