

Anthony Fricker—A Pennsylvania Gunsmith in the Context of the Early 19th Century

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An understanding of a gunsmith's or any historic individual's life cannot be developed in isolation, but must be considered within the economic and social environment in which the individual lived and worked. Anthony Fricker, a Kentucky rifle maker, is examined here in the context of the social-economic order of the period. Entries in his gunsmith's ledger, in conjunction with other documents are used to develop a detailed picture of Fricker's business, his customers and the influence of factors beyond his immediate surroundings. Evidence from his ledger demonstrates the link between the Nation's economy and the end of what Joe Kindig called, "The Golden Age of Kentucky Rifles."

About 15 years ago a ledger was found that belonged to a previously unknown gunsmith named Anthony Fricker of Womelsdorf, Berks County, Pennsylvania. This man had completely escaped the notice of previous researchers looking for records of gunsmiths. Since discovery of the ledger, a fine relief-carved rifle signed A. Fricker in script on the barrel has also come to light.

The ledger and rifle are very important finds because they provide a rare factual view into the everyday life of a small town craftsman living in rural Pennsylvania in the first quarter of the 19th century. Anthony Fricker used this ledger to record his business credit transactions starting in 1814 and continuing until his death in 1821. The ledger is written in English rather than the typical mixture of English and German that is found in many of the surviving documents from this period of Pennsylvania history. Fricker's handwriting, while typical of the period, is quite legible and leaves little doubt as to the meaning of each ledger entry. The ledger entries by Anthony Fricker provide details of his business activities that involved the granting of or the use of credit. The period definition for rifles, smooth rifles and guns can be synthesized from the detailed entries for work performed by him. The ledger entries also provide circumstantial evidence for the normal use of these various types of longarms in the first quarter of the 19th century. This paper provides a breakdown of the different kinds of work he performed in addition to his gunsmithing as well as the proportion of



income derived from these activities. The ledger entries, combined with other documents, are used to develop a detailed picture of Fricker's business, his customers and the influence of factors beyond his immediate surroundings on his business.

The documents show that the new rifle and gun purchasers were middle- and upper-class individuals who principally used the plainer smooth bore guns for hunting and the rifles for target shooting. In both cases the arms represented a status symbol for the period in rural areas of the country settled by Germans and their descendents. The ledger provides detail for arms purchases of Womelsdorf residents and by inference the rest of the German speaking rifle-making regions of Pennsylvania, Maryland and Virginia within this seven-year period.

HISTORY OF BERKS COUNTY AND THE WOMELSDORF REGION OF PENNSYLVANIA

Berks County is located just to the north of Lancaster County between Lehigh and Lebanon Counties. The town of Womelsdorf is located on the main road midway between the towns of Reading and Lebanon. It is about 15 miles to either town and only 20 miles to the town of Lancaster. These locations are shown on Figure 1.

LOCATION OF BERKS COUNTY

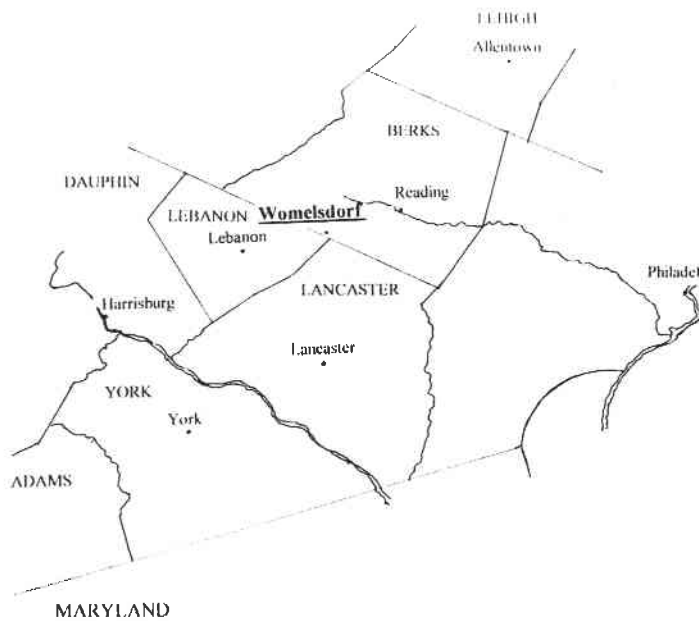


Figure 1. Location of Womelsdorf and Berks County.

The first settlers in the Womelsdorf region were from Schoharie, New York and traveled to the Tulpehocken region via the Susquehanna River in 1723. They were part of an original group of Germans who entered America through New York. The new immigrants were not welcomed by the New York Dutch and most subsequent German immigration was via Philadelphia. They settled on land that was not theirs. When the original owners claimed the land, they became discouraged and moved down the Susquehanna River. They landed at the mouth of Swatara Creek and traveled overland to the Tulpehocken region. The Tulpehocken Creek flows into the Schuylkill River, which in turn joins the Delaware River at Philadelphia. Conrad Weiser, the famous Indian trader, politician and church leader, was one of the first settlers here from New York. He was a direct ancestor of Anthony Fricker, Conrad Weiser's daughter being Anthony Fricker's grandmother. In addition to the Germans from New York, other Germans, Scotch-Irish, and English moved up the Schuylkill from Philadelphia to settle the Tulpehocken area.¹ The broad valley of Tulpehocken with its limestone soil was ideally suited for farming, which is what attracted and held the German farmers. The descendents of these first settlers still farm the same soil. The land also held iron ore for furnaces and forges. Farming and iron working became the dominant occupations of the region.

When the area's population grew large enough, the people petitioned the Council and in 1752, Berks County

was formed from the northern part of Philadelphia County and the northeast part of Lancaster County. Reading, which had been founded in 1748, became the seat of Berks County. In 1813, Lebanon County was created from parts of Berks, Lancaster and Dauphin Counties.

The majority of the German immigrants to Pennsylvania in the 18th century were landed farmers, tradesmen and craftsmen. These people immigrated to improve their lot and to flee the economic conditions of the German states which were in transition from a feudal to a modern society. While landless farmers and day laborers made up a significant portion of the immigrants, many were from the middle class of farmers and tradesmen.² It has been estimated that the population of Reading and Berks County was 80 to 90 percent German. Thus Berks County and what is now called the Pennsylvania Dutch country had a fairly homogenous and prosperous Germanic culture.

John Womelsdorf laid out the town of Womelsdorf in 1762.³ The original lots were 66 feet by 264 feet and the ground rent was 10 shillings. By 1794, when George Washington visited Womelsdorf, the village consisted of about 50 houses. Washington stayed at Stouch's Tavern, which is still in business.⁴ The population of Womelsdorf had reached 370 by 1800 and 750 by 1833 when the town was incorporated.⁵

It is very difficult today to visualize how sparsely populated the countryside was in the early 19th century. The population of the United States in 1810 was 7.2 million of which 6.7 million were classified with rural residences and 0.5 million as urban. The population had increased to 9.6 million in 1820 with a rural population of 8.9 million. Approximately 18 to 19 percent of this population consisted of Blacks who were primarily slaves in the South. This was a youthful population with the median age for all races at 16.7 years in 1820. In contrast to this, the median age in 1998 was 35 years.⁶ The period between the end of the Revolutionary War and the second quarter of the 19th century was one of population expansion with a high birthrate and large families rather than growth from immigration. The waves of immigration from Europe did not start until the second quarter of the 19th century. Immigration to the United States in 1820 was only 8,000 in contrast to 1851, when immigration peaked at 380,000.

In 1800, the population of Pennsylvania was 602,000, which increased to 1,050,000 by 1820. The 1820 Berks County population was 46,300 or 54 persons per square mile in contrast to 1997 when it was 354,000 persons or 412 persons per square mile. Today, Berks County is still considered a rural county in Pennsylvania.

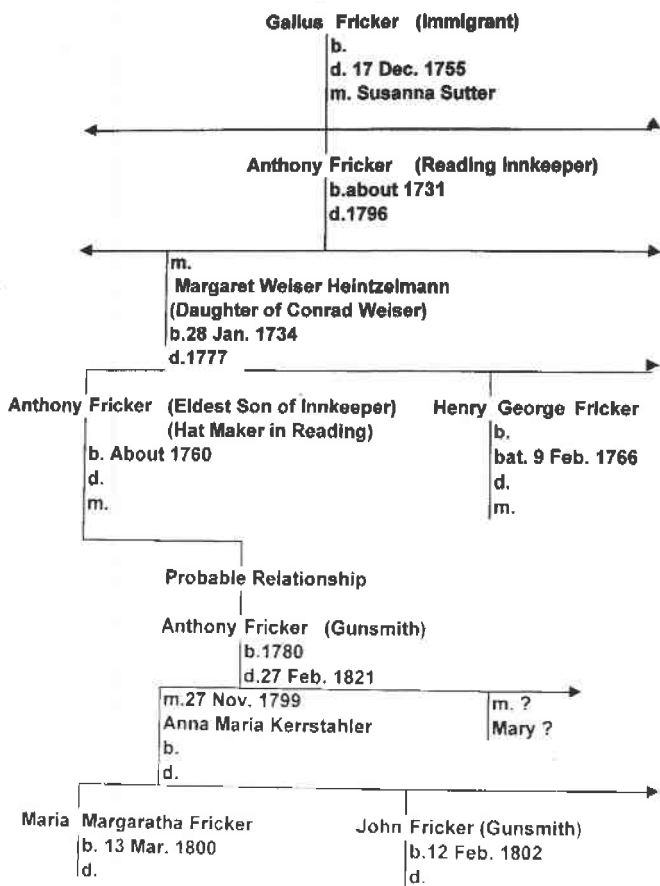


Figure 2. Family tree showing the probably relationship of Anthony Fricker, gunsmith to Gallus (Charles) the immigrant.

ANTHONY FRICKER GUNSMITH IN WOMELSDORF

There is no entry for Anthony Fricker in any of the many books on Kentucky rifles and their makers. This is probably due to the manner in which Kentucky rifle research has been conducted in the past. Typically, the discovery of a rifle with a signature on the barrel would pique the interest of researchers and a search of existing records would be conducted until the name identified as a gunsmith was located. The majority of Berks County-made rifles are not signed and thus did not provide the necessary name for research. Without a name on the gun, it is impossible to attribute a particular rifle to a recorded gunsmith.

Genealogists working on the related families of Weiser, Brownwell and Shomo had already published some information on the Fricker family. This information was summarized and included by Gary Hawbaker when he published Anthony Fricker's ledger as a genealogical document. The portions of the Fricker genealogy that pertain to Anthony Fricker, gunsmith, are shown in Figure 2.

Gallus (Charles) Fricker, the great grandfather of the gunsmith Anthony Fricker, arrived in Philadelphia in 1750 aboard the ship St. Andrew. With him were his wife and four children: two sons Johannes (John) and Anthoni

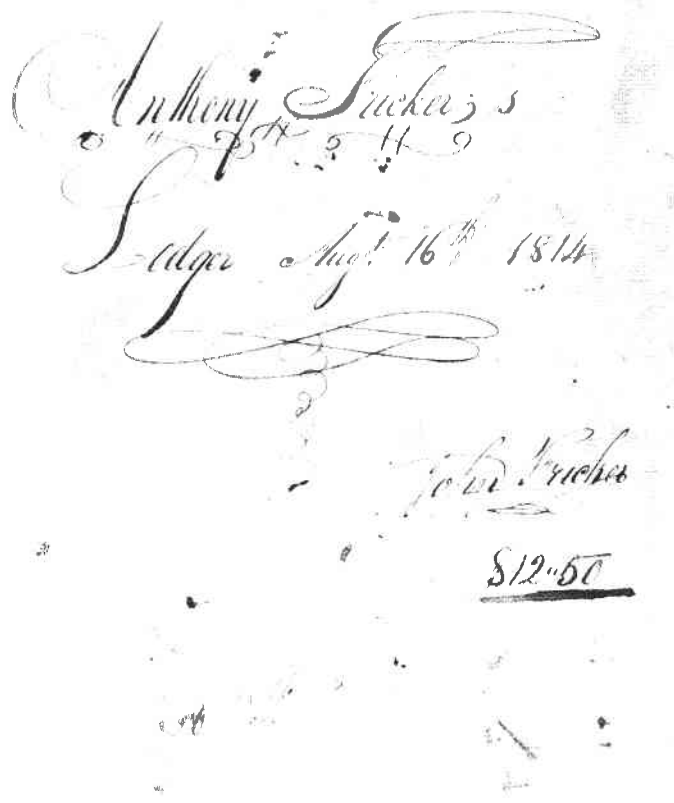


Figure 3. Title page of Anthony Fricker's ledger.

(Anthony), and two daughters Francisca and Anna-Maria. Gallus who was Swiss and a Catholic probably settled in Berks County, Pennsylvania because there was already a Catholic community in the county. Gallus died in Berks County in 1755. When Gallus Fricker's real estate was sold in 1759 to settle his estate, his son John Fricker was a shopkeeper in Easton. The other son Anthony, was a shopkeeper in Reading. John apparently died soon after because his will was proved Dec. 10, 1761 with his brother Anthony Fricker of Reading as one of the executors.

Anthony Fricker married Margaret Weiser Heintzelmann sometime after 1756 because Margaret Weiser's first husband, the prominent Lutheran Minister Rev. John Diedrich Matthias Heintzelmann, died February 9, 1756. Margaret Weiser and Rev. John Heintzelmann had one child who was born February 10, 1756, one day after his father's death.

Margaret's sister Maria was married to Rev. Henry Melchior Muhlenberg, the Patriarch of the Lutheran Church in Pennsylvania. The Rev. Henry Melchior Muhlenberg was the father of Major General Peter Muhlenberg, the fighting parson of Revolutionary War fame. Religion was a far more dominant force in the 18th century than now and the marriage of a prominent Lutheran minister's widow to a Catholic was very upsetting to Margaret's Lutheran relatives. This marriage was so

		413			
		D ^r	L	S	D.
1818	<u>Jacob Sorey</u>				
April 25	to a Smooth Rifle		6	"	"
1818	<u>Jac. Sorey</u>				
Nov. 9	to a sm th Rifle		5	12	6
1820	<u>Jacob Sorey</u>				
Oct 21	to a Ramrod & wiper		"	4	8
1818	<u>Daniel Kemp</u>				
May 9	to a Gun		5	5	"
July 18	to making a Ramrod & 2 Sights & a Wiper		"	9	10 ^{1/2}
Oct 26	to a Gun for Paul		5	8	9
1819	to making a Chain Spring & repairing the tumbler & lock		5	7	6
April 2	to a Gun		5	8	9
			\$16	19	4 ^{1/2}
1818	<u>Ch^r Onspack</u> (at. Wiscamp, Pa)				
June 7	to mending a lock		"	1	10 ^{1/2}
1817			"		
1818	<u>Martin Smith</u>				
July 30	to 14 ears Stove Stent		1	10	"
1818	<u>Adam Onspack</u>				
June 6	to Straitering a Gun Barrel & altering the Sights		"	4	8
Sept 30	to Drawlocking a Rifle & Straitering it & a tamper hole		"	15	"
1819	making a Ramrod & a Wiper & Bussing		"	8	9
May 4	to a Gun		5	8	9

Figure 4. Typical ledger entries listing two smooth rifles and a gun.

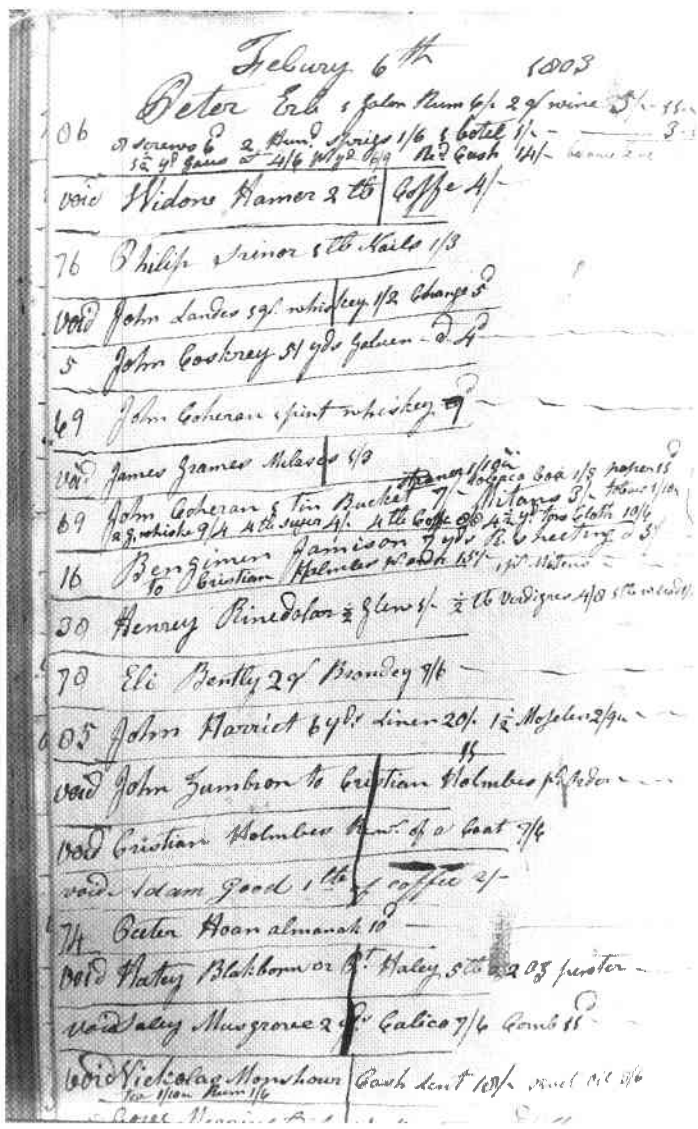


Figure 5. A page in a day book showing the record of sales on credit for that day.

upsetting that the guardian of Margaret's son petitioned the court to raise the son as a Lutheran. This petition was granted and Henry Keppelee raised Israel, Margaret's son by the late Rev. John Heintzelmann, as a Lutheran according to his father's will. Anthony did not protest; according to his wife, he was away and too busy to attend the hearing. Conrad Weiser stated in his will that if Margaret raised her children Catholic, her share would be put on interest for her children.

Anthony and Margaret had at least 8 children before she died due to a fall in 1777 at the age of 43. Anthony then married Eva Mary Becker Zwycer and produced at least 4 more children.⁷

Anthony was a very successful innkeeper in Reading as evidenced upon his death in 1796, his estate was appraised at 993 pounds, 13 shilling and 4 pence. The appraisal, dated July 21, 1797, states that Anthony Fricker was an innkeeper in the borough of Reading and the inven-

tory is that of a prosperous innkeeper. Listed on the three-page inventory are items such as two powder horns and pouch @ 3/9, two old guns and a sword @ 60/0. The inventory lists 22 Windsor chairs, numerous tables and other things such as a silk gown @ 22/6. In his will he leaves to his eldest son Anthony one shilling, the same as he leaves to sons Peter and Thomas. Other sons are bequeathed sums of 25 pounds or more. The bequest of one shilling probably indicates that he had provided significant sums to these children before writing his will.

Anthony Fricker, gunsmith of Womelsdorf, died February 27, 1821 according to a newspaper notice in the March 10, 1821, *The Berks and Schuylkill Journal*. The death notice states that he died in his 41st year, which means that he was probably born sometime in 1780. His estate inventory was taken on April 10, 1821. Anthony Fricker, innkeeper of Reading, refers in his will to Anthony as his eldest son which does not fit with his age of 41 in 1821. One of his sons, Henry George was baptized on February 9th 1766 and Anthony as the eldest son has to have been born before Henry George. Also the gunsmith would have to be the son of his second wife Eva Mary, which is probably not possible as her first child, a daughter Eva Mary, was born December 31, 1780.

This puzzle is solved by the reference in *The Journals of Henry Melchior Mublenberg* to Anthony Fricker from Reading as a hatmaker by trade and the son of his wife's sister Margaret Weiser. Anthony Fricker gunsmith is probably the son of Anthony Fricker, hatmaker of Reading and the grandson of Anthony Fricker, innkeeper of Reading. The signed Anthony Fricker rifle provides additional weight to this argument. It exhibits some Reading features leading to the possible conclusion that Anthony was apprenticed to a gunsmith in Reading and is therefore, probably the son of Anthony Fricker, the hatmaker.

Part of the problem is that no record of birth or baptism has been found to date for Anthony Fricker hatmaker or Anthony Fricker gunsmith. To add further confusion, there is only one Anthony Fricker listed in the census for 1810 and 1820. Anthony Fricker gunsmith is the correct age to be the one counted in the census.

The paper trail of Anthony Fricker in the historical records of the Berks County Courthouse includes his estate inventory, which identifies Anthony Fricker as a gunsmith who lived in Womelsdorf, Heidelberg Township, Berks County in the first quarter of the 19th century. His ledger also gives his location in Womelsdorf as early as 1814 and by reference to an earlier ledger that would date before 1814. This further supports the thesis that he is the Anthony Fricker in the 1810 and 1820 census for Heidelberg Township.

The following family events and details seem to apply to the gunsmith Anthony Fricker due to their dates. Anthony Fricker married Anna Maria Kerrstahler in the Lutheran Church at Stouchsburg, Tulpehocken Township on November 27, 1799. Their first child Maria Margaretha was born March 13, 1800. She was baptized in the Althala Lutheran Church on May 25, 1800. Note these religious events all take place in protestant churches implying that this Anthony Fricker is no longer a member of the Catholic faith. Children of Anthony Fricker innkeeper and both his wives are recorded in the Catholic registers. Anthony and Anna-Maria had three more children as follows: John born February 12, 1802; William, born September 16, 1806; and Henrietta, born February 28, 1808.

Anthony Fricker died intestate and with insufficient money to pay his debts. His wife at this time was Mary who was illiterate. As a result, she declined to be the administrator of her husband's estate on April 7, 1821. On April 9, 1821, George Braunewell, a brother-in-law was appointed to administer the estate. An inventory of Fricker's household goods was taken on April 10, 1821 and the total appraised value was \$43.68. George Braunewell petitioned the Orphans Court of Berks County to sell Fricker's property in Womelsdorf at public sale to satisfy Anthony Fricker's outstanding debts of \$437.33½. The court agreed and the property was offered on October 13, 1821. The sale was not completed on the 13th for want

of bidders and the property was again offered on November 10th. Mathias Ludwig of Reading purchased the house and lot for \$172. The Court refused to ratify the sale and ordered the Administrator to again offer the property on November 10, 1822. Mathias Ludwig again was the buyer for \$172. Ludwig was one of the debtors and was owed \$100 by the estate. The low price may reflect either the condition of the property or that people were unwilling to bid against the family.

Fricker's real estate listing describes the property as being 33 feet wide and 264 feet long bounded by the lots of Daniel Womelsdorf and Nicholas Clement. An 1861 map of Womelsdorf shows this half lot next to the half lot belonging to the estate of Daniel Womelsdorf in the second block of North Second Street. It is the only lot divided into half lots in the block. Fricker's house and lot was the south half of lot 51 from the original plot of Womelsdorf. Unfortunately, the area was rebuilt with a three-unit row house after 1861 and nothing remains from Fricker's occupancy.

Inventories were generally taken in the same order by individuals charged by the courts to inventory and appraise the deceased's property. From this it is possible to deduce the approximate size and layout of Fricker's house. Fricker's inventory is given below with modern spelling.

The estate inventory is apparently not complete, because there are no listings for such things as children's

Article	Value	Probable Location
One bed, bedding & bedstead	\$ 6.00	Bedroom
One walnut bureau	\$ 8.00	Bedroom
One pine dinning table	\$ 2.50	2nd Room
Three chairs	\$ 1.25	2nd Room
One small looking glass	\$ 0.25	2nd Room
One kitchen dresser	\$ 3.00	2nd Room
One spinning wheel & reel	\$ 1.50	2nd Room
One cloths press	\$ 0.50	2nd Room
One table	\$ 0 25	Kitchen
One water bench	\$ 0.06	Kitchen
Kitchen furniture	\$ 1.50	Kitchen
One dough trough & bench	\$ 0.25	Kitchen
One cabbage tub and churn	\$ 1.25	Kitchen
Tubs and buckets	\$ 1.00	Kitchen
One ten plate stove and pipe	\$ 4.00	Kitchen or shop
Two vices	\$ 4.00	Shop
One lot of gun stocks	\$ 0.50	Shop
Smith's tools	\$ 0.75	Shop
One box of old iron & smith bellows	\$ 1.12	Shop
One cow	\$ 6.00	Outside
TOTAL	\$43.68	

Entries	Income Source	Item	Job	Ledger Entries		
328	Gunsmithing	Gun	New guns	32		
			Gun repair	46		
		Rifle	New Rifles	28		
			Rifle Repair	58		
		Pistol	All pistolwork	21		
		Lock	All gun lock work	74		
		Misc.	All other arms type work	69		
		228	Misc.		All nongunsmithing work	228
		8	Hire Out		Fricker working for others	8
		21	Rent		Renting something to others	21
19	Loans		Fricker loaning money	19		
29	Sale		Selling something	29		
52	Expence		Fricker pays for something	52		
Total	685			Total 685		

Figure 6. Classification of ledger accounts.

beds, Anthony's clothes or the ubiquitous blanket chest. Either they were deliberately skipped or they were so poor as to have no value. The seventy-five cent valuation of smith's tools probably indicates that Anthony had already disposed of most of the tools.

The inventory indicates either a four-room one-story log house or a two-story log house with two rooms down and two up. Both types of log houses were very common in the area. It also confirms to the usual rural craftsman's practice of using one room of the house for the shop.⁸ It was probably a one story and approximately

28 feet wide and 32 feet long as was the typical one story log house.⁹

George Braunewell filed the account of the estate at the Berks County Courthouse in October 1822. It listed assets of \$220.83½ and debts that balanced that amount. Some debtors obviously did not collect.

ANTHONY FRICKER'S LEDGER

In the mid 1980's, one of Anthony Fricker's ledgers was found and purchased by Gary Hawbaker at an antique mall in Pennsylvania. He published it as a genealogical document because of the extensive customer list. He included in the genealogical document facts on the Fricker family that were known at the time. The original ledger then went through the dealer network until an arms collector united it with the Anthony Fricker rifle that had been found in an old arms collection in New England. The rifle and ledger along with accumulated documentation then passed to the present owner.

The final settlement lists some interesting debts such as:

John Smith, coffin	\$ 8.22
County tax	\$ 0.32
Funeral expenses	\$10.18
Dr. William Woods, medical	\$ 9.10
Dr. Jacob Lesker, medical	\$ 4.35

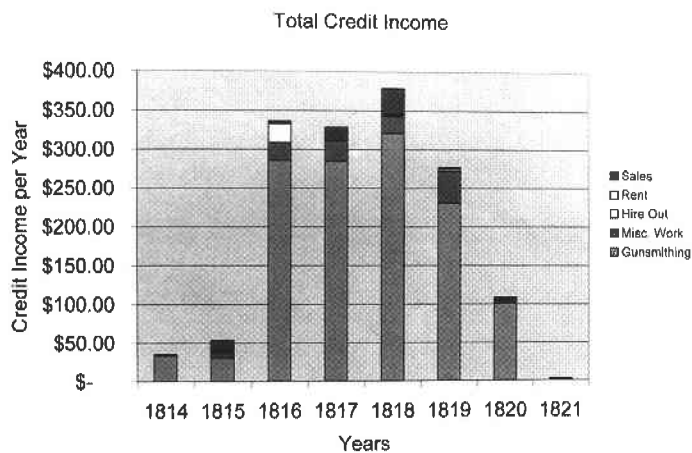


Figure 7. Total credit income from Anthony Fricker's activities.

The ledger is a bound book of 64 pages. The book measures 8 inches by 12 ¼ inches and has marbled covers. The watermark on some of the sheets is a spread-winged eagle. Some have the initials PW. Fricker used 60 of the 64 pages. The frontispiece of the ledger is illustrated in Figure 3.

Anthony Fricker's ledger is not a bookkeeping journal in the modern sense because he did not record cash received or the item sold if he received cash at the time of delivery. He only recorded his purchases as expense items if he did not pay cash at the time of purchase. There was no need to record cash transactions, because there was no gross receipts or income tax to require the keeping of a cash record. The ledger was solely for recording the name of the person to whom he sold the item, the amount owed and the date the account was closed. He did not know he was writing for 21st-century eyes, and he did not follow modern accounting rules, because the ledger was for his own use. Even with these limitations, it is still one of the few surviving documents that provides

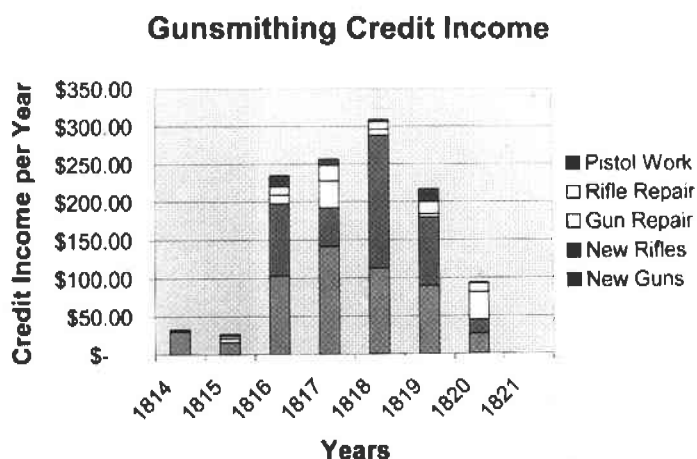


Figure 8. Credit income from gunsmithing activities.

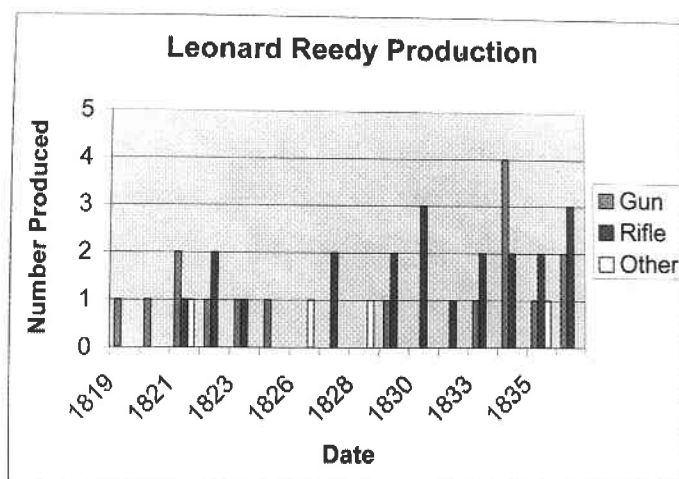


Figure 9. Gun and rifle production of Leonard Reedy.

insight into the life and times of an early 19th-century rural Pennsylvania gunsmith.

His ledger resembles a cash receipts journal that only records credit transactions. Fricker records the date, the work performed for each customer and debits his account on one page as shown in Figure 4. Payment is recorded as a credit in the ledger on the opposite page along with the date. Fricker makes reference to a daybook and to an earlier ledger several times in the present ledger. The sequence of his bookkeeping events was to record the completion of the work and the cost in his daybook, which he probably kept in the shop for ease in recording events. Each transaction is recorded in a daybook in a continuous sequence without regard to spacing between names and does not allow for crediting payments to the customer's account. A daybook for a general store in Taneytown, Maryland is illustrated in Figure 5 showing typical daily entries and the customer's account number from the ledger. In this case the ledger had each customer's account numbered. That number was entered before each transaction in the daybook when it was transferred to the ledger. Apparently Fricker did not use this method of tracking his accounts, because the accounts are not numbered in the ledger. He may have used the page number in the ledger as the reference in the daybook or simply nothing at all. At some later time, he organized and recorded the transactions in the ledger under each customer's name. He spaced the customer's names apart in the ledger to allow for multiple entries under each customer's name. When he filled the space with transactions, he entered the customer's name again further back in the ledger. Transactions for which Fricker received cash at the time of delivery or was paid between the time he recorded the transaction in the daybook and before he transferred the amount to the ledger are not recorded. This understates his income by some unknown

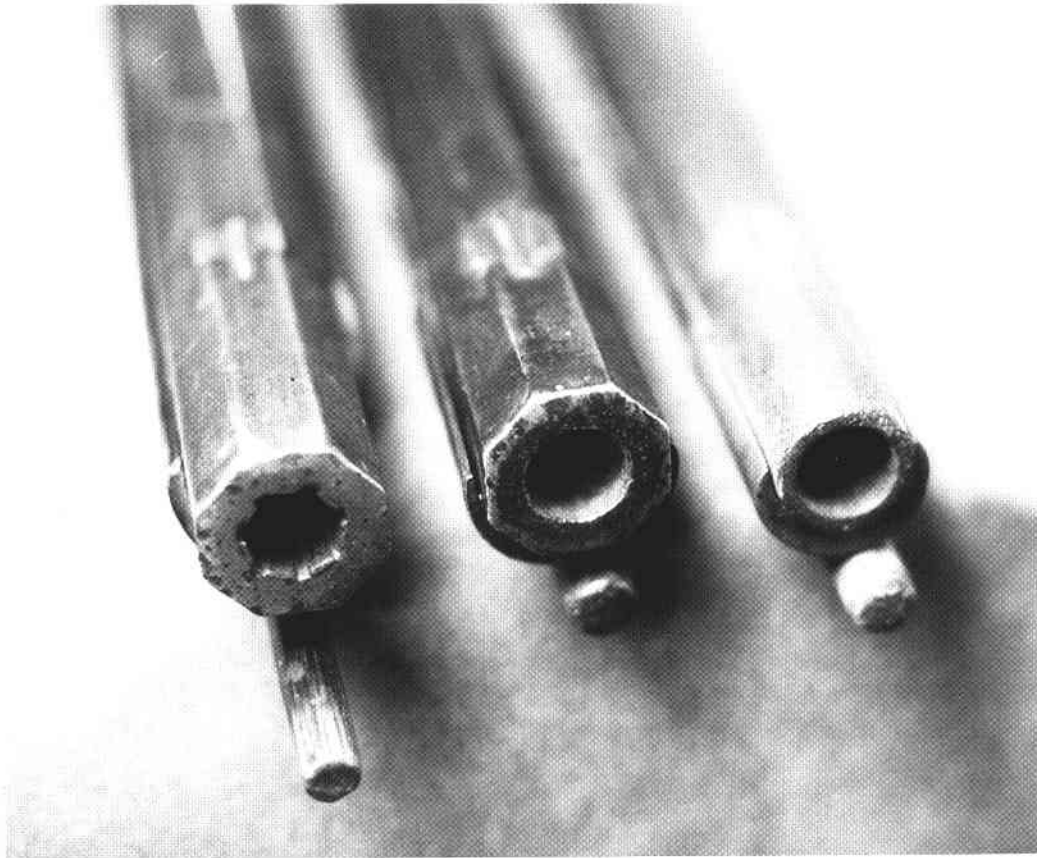


Figure 10. Muzzle configurations, *left*, rifle by John Park, *center*, smooth rifle by Anthony Fricker, *right*, gun by Frederick Sell.

amount. As a result, the income (credit) discussed in this paper can only be considered a lower bound of his total income. Based on the few monthly entries in the early part of the ledger, Fricker must have continued to use the earlier journal as long as there was room for entries under the customer's name. If the customer had not paid off his account, Fricker transferred the balance from the earlier ledger to the customer's account in this ledger.

He also occasionally used the ledger to record his own credited transaction such as the purchase of gun and rifle barrels. In this case he credited the man's account before he debited it. When he paid for the barrels, he debited the account.

The ledger was kept in pounds, shillings and pence which was standard practice in the 18th century. Fricker, as well as many of his Pennsylvania contemporaries, continued the practice well into the 19th century. This was a convenient bookkeeping practice because of the different kinds of money in circulation in the country. The Coinage Act of 1792, established the mint and officially established the dollar as the accounting unit rather than the pound. Also under this act, all foreign coins lost their status as legal tender after three years. For various reasons US coins remained in very short supply. On July 22, 1797, the President by proclamation continued to recognize the

Spanish dollar and other foreign coins in circulation.¹⁰ Foreign currency remained in circulation as legal tender until 1857. As late as 1831, the specie reserve of the Second Bank consisted of \$9 million in foreign currency and only \$2 million in US currency.¹¹ English currency, Spanish dollars, gold and US currency were all in common usage and thus required conversion to a standard for accounting purposes. Fricker entered a few accounts in dollars as well as pounds, which allowed for his conversion factors to be derived from the ledger. A dollar was equal to 7 shillings, 6 pence. Conversely a pound was equal to \$2.667. When this conversion is used almost all of the charges convert to even amounts of US currency such as 10 cents, 40 cents or 14 dollars. He was apparently pricing his work in dollars and cents but recorded the amounts as pounds in the ledger.

It also appears that Fricker did not always record the payment in the ledger, because some accounts were never credited. He readily took some slow payers to court to collect. He records these accounts with the money received from the lawyer but does not record court or attorney's fees in the ledger as the debtor paid them. There is no indication as to why some customers were sued for over due accounts and some were granted additional time. Probably he knew by reputation who would eventually



Figure 11. Lock side, *top*, rifle by John Park, *center*, smooth rifle by Anthony Fricker, *bottom*, gun by Frederick Sell. Photograph by James Atkins.

pay and who would need to be sued. It is also possible that the person had died and Fricker was suing his estate to collect the money.

The daybook and ledger were necessary to conduct business. He had to record the cost when he finished the work because it might be days or weeks before the customer received word that the work was finished. The customer then had to plan a trip to Womelsdorf to pick up his work and pay for it. Thus the written record was necessary even if the customer could pay in full when picking up the finished work. This was probably not necessary for people in Womelsdorf because they could easily check on the progress of their work. Some customers such as Beneville Kein who lived in Reading, 15 miles distant, could easily have taken a week or more to receive word that his work was finished and to travel to Womelsdorf for it. This ledger shows that either the gunsmith or someone in his shop could read and write in order to maintain a record of work performed and to insure correct payment. There is a popular legend among collectors that certain gunsmiths did not sign work due to the fact that they were

illiterate. This hardly seems valid for any gunsmith operating a significant business.

METHOD USED TO ANALYZE LEDGER

The ledger contains 685 entries. These were entered into a computer data base program for ease of manipulation and accuracy. Each ledger entry was classified as to the type of work performed to determine income from his various activities. Payment details were also entered in order to analyze his customer's payment history. The individual classification totals were checked to verify that the number of entries remained the same as the original. A diagram of the method is shown in Figure 6. Gunsmithing tasks were defined as anything pertaining to arms or military items such as breastplates. The miscellaneous account category covers all of his shop tasks that do not pertain to arms such as filing and setting saws. The hire out account entries consists of money received for Fricker's or his children's labor while working for others, typically during the grain and hay harvest season. Rent is income he received when he rented

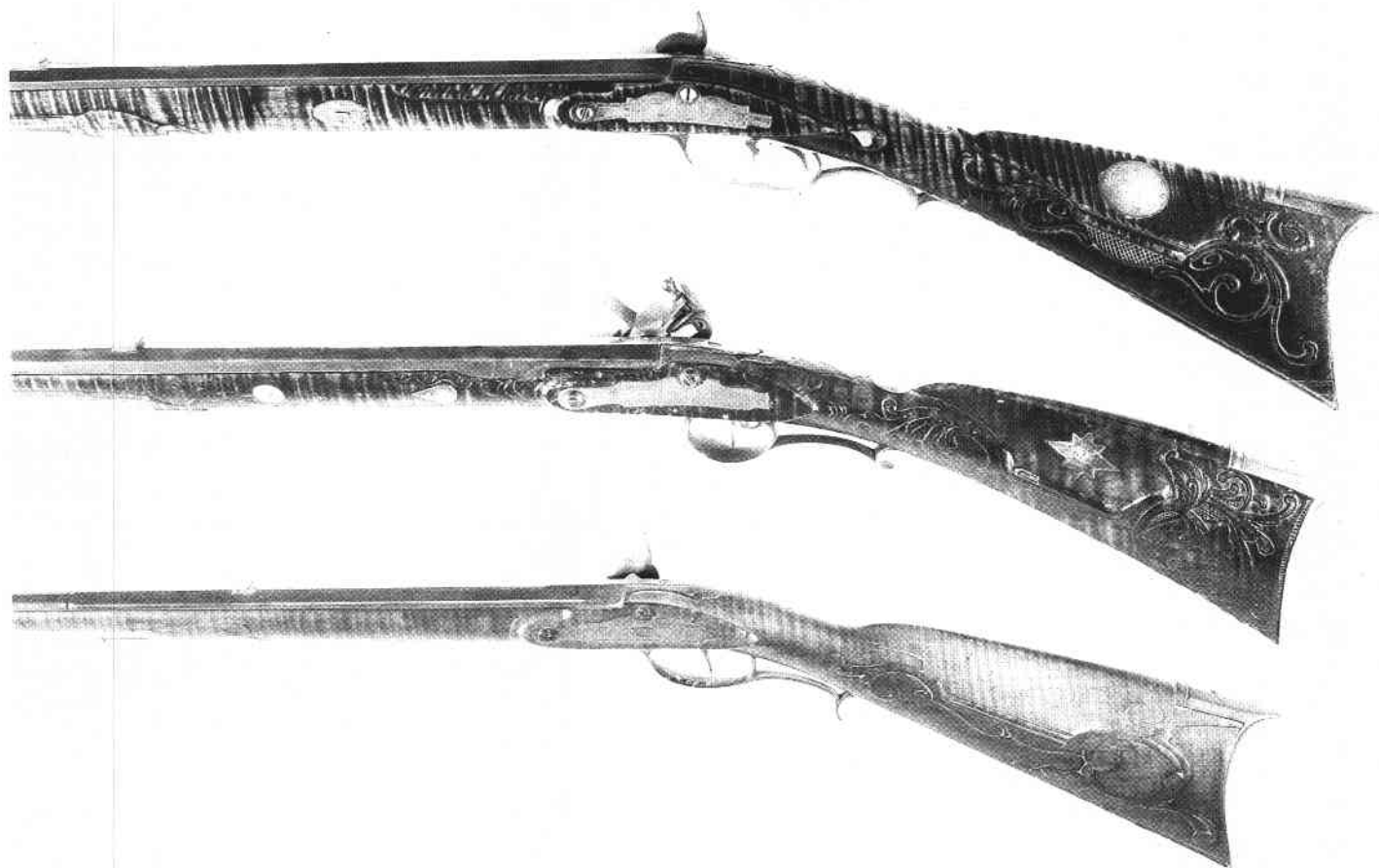


Figure 12. Cheek piece side, *top*, rifle by John Park, *center*, smooth rifle by Anthony Fricker, *bottom*, gun by Frederick Sell. Photograph by James Atkins.

to others. Often he rented his horse. Loans are money that he loans out to others apparently without interest, because the credited amount is the same as the debit amount. The sale account includes items that Fricker sold such as wood and cloth which he had probably taken in trade. Expense covers items that Fricker purchased on credit such as barrels and payment for labor of his journeymen gunsmiths.

The gunsmithing account was subdivided into new guns and repair work on guns. An identical account was used for rifles. The pistol account includes all work pertaining to pistols. The lock account covers all lock repair work. Miscellaneous gunsmithing covers sword work, the making of breastplates and similar work.

Standard data base techniques were used to extract information to analyze Fricker's business activities recorded in the ledger. A simple computer program was written to convert pounds to dollars using Fricker's dollar to pound exchange rate as recorded in his ledger.

AN ANALYSIS OF ANTHONY FRICKER'S INCOME

The term credit income is used to indicate only that amount credited in the ledger and is not Fricker's total

income for the period. He did not record cash income. The amounts discussed represent a lower bound on his income. The amounts shown for 1814 and 1815 are understated because he was still using the earlier ledger. He apparently continued to use the earlier ledger until it was filled. He then transferred the few accounts that had not been closed out to the present ledger. Figure 7 is a graph of his total income by year, which shows a fairly uniform income until 1819 and 1820 when his income fell precipitously. The small amount of income recorded for 1821 is due both to the economic conditions and his death on February 27, 1821. Fricker derived between 80 and 90 percent of his income from his gunsmithing trade as shown in Figure 7. The amount of income by year for his work involving just arms is shown in Figure 8. Most of his income was from building new guns and rifles until 1820, when repair activities predominated.

Anthony Fricker's business decline as recorded in his ledger can only be understood when it is related to the general economy of the early 19th century. His business decline was due to the Crash of 1819. Even in the early 19th century, the United States economy did not function in isolation, but was directly influenced by events occurring in England and Europe.

The American economy in the early 19th century was principally an agriculture-based economy as it was during the earlier centuries. In fact the first quarter of the 19th century was little different from the 18th century in terms of the economy. The American economy was changing from an agricultural economy to a power driven manufacturing economy. The resulting effects were not manifested until the second quarter of the 19th century even though many of the inventions such as the steam engine existed in the first quarter. England was far ahead of America in industrialization and manufacturing. After the War of 1812, English manufacturers flooded America with their wares in order to regain their markets lost during the War. This primarily impacted the city wage earners employed in industries in direct competition with English goods. Employment fell by 94% in cotton factories, 79% in woolen mills and 95% in the iron industry in Philadelphia.¹² The effect was most severe in port cities and less severe further inland. Factory workers at this time comprised only 10% of the labor force because most workers were engaged in some type of agriculture pursuit. Contemporary reports suggest some decline in farm prices but not any wholesale layoff of farm workers. The most likely effect in rural areas such as Womelsdorf was to cause people to be more careful with their money. People would have stopped buying discretionary items such as guns and rifles from Fricker, much the same as people today stop buying cars, TV's and other luxury goods during an economic recession. This is reflected in Figure 8, which shows his production rapidly falling from what it was in 1818.

The principal American exports at this time were cotton and foodstuffs. These items were shipped to England and Europe where markets had greatly expanded during and after the War of 1812. This along with available land to be settled for farming fueled widespread land speculation. Many additional state banks were chartered and they provided the credit to facilitate the land speculation. The Bank of the United States, which was supposed to provide some stability to the banking system, also supported liberal lending policies. Speculation became widespread with investments in internal improvements, transportation, factories and banking. Much of this wealth was artificial and based on liberal credit. When banks began to call in loans, the entire credit and banking system collapsed starting in 1818. There had been earlier minor economic depressions, but this was the first major depression since the founding of the United States, and its effects were devastating to the people and their attitudes toward

life and financial success.¹³ The panic affected everybody from simple farmers to the highest businessmen in the land. Anthony Fricker's customers no longer had the necessary discretionary money for new guns and rifles. Note in Figure 8 how in 1820, the amount of income from repairs increased while income from new guns and rifles declined. Unfortunately the progress of the depression cannot be tracked beyond 1820 in Fricker's ledger, due to his death on February 27, 1821.

Supporting evidence for the effect of the 1819 Crash can be found in the gunsmith, Leonard Reedy's ledger. Joe Kindig published what he considered to be the interesting portions and items from this ledger in his book, *Thoughts on the Kentucky Rifle in its Golden Age*. He listed all new guns and rifles and some repair work as well as examples of non-gunsmithing work. Reedy's total income is not given, so only the number of arms produced by year can be plotted. Figure 9 is a chart of the number of guns and rifles produced by year and it shows production increasing as the effects of the depression wore off during the 1820's.

The increase in repair work performed by Fricker in 1820 also demonstrates his customer's lack of money for new guns and rifles. Ten percent of his income was from repair work in 1818 and 15 percent in 1819. In 1820, the depths of the depression, repair work reached 56 percent.

As illustrated in Figure 8, economic factors deprived his customers of discretionary funds to purchase new arms and they spent more on repairs both in absolute terms as well as a percentage of gunsmith work.

The 1819 economic depression also affected clockmakers. The historical and economic significance of the tall case clock is similar to guns and rifles as individuals needed sufficient discretionary income to purchase them. Bruce R. Foreman in *Clockmakers of Montgomery, 1740-1850* discusses this and shows that the actual number of clockmakers in Montgomery County, Pennsylvania declined after both the depression of 1819 and 1837.¹⁴ Not surprisingly, economic depressions also affected rural cabinetmakers as well. Studies of their ledgers and account books have shown the same decrease in rural cabinetmaker's income.¹⁵

Not only did the severe economic depression of 1819 reduce the gunmaker's income, but also it essentially marked the end of production of the classic relief-carved Kentucky rifle. When the economy slowly improved during the 1820s, the percussion lock replaced the flintlock on most new rifles and guns. These factors combined to end what Joe Kindig called the "Golden Age of Kentucky Rifles." The "Golden Age" of Kentucky rifle production lasted from the end of the Revolutionary War until the Crash of 1819, and was a result of the increasing

discretionary income of the middle-class Germans. The close of the Revolutionary War was the start of an expansion of the American economy that continued with only minor interruptions until the depression of 1819. The economic expansion based on the production of cotton and wheat for export enabled the rural entrepreneurs to have the income to purchase fine arms. The German settlers brought with them from Europe the traditions of target shooting and hunting. Their increasing economic prosperity allowed them to indulge in their traditions. Fricker's ledger shows his decline in new gun and rifle sales exactly following the decline in the economy in 1818-1819. Joe Kindig himself observed that 1820 marked the approximate end of the golden age of Kentucky rifle production without ascribing any reason beyond the changing styles in rifle making. The depressed economy is what really ended the production of fine arms. When the economy slowly expanded later on in the decade, the style of rifle had indeed changed to the more ornate silver-mounted arms of the 1830's. The timing of the depression was also such that many of the original Golden Age gunsmiths had grown old or died by the time the recovery was under way.

GUNS, RIFLES AND SMOOTH RIFLES

One of the important items from the ledger entries is the distinction between three types of longarms produced by Anthony Fricker. The first thing noticed in the ledger is the use of the terms gun and rifle to describe arms in both new and repair activities. Upon careful reading, Fricker is not being careless in designating the arms but is making a careful distinction between two types of weapons. This distinction is illustrated by the entry for January 16, 1819, when Fricker records the cost of a rifle barrel and the cost of a gun barrel as 2/12/5 and later on March 20, 1819, one rifle barrel and two gun barrels as 3/18/9. Further illustrating the difference between guns and rifles is the entry for Sept. 10, 1819, where Beneville Keim is charged \$16 for a rifle and \$14 for a gun on the same day. A second category of rifle is what Fricker calls a "smooth rifle." He records making four. Interestingly, the ledger record shows 32 new guns and 28 new rifles of which four were smooth rifles. The obvious and major difference is that rifles are rifled and guns are not. Guns are smooth bore which makes them capable of efficiently firing shot or a solid ball. Shot fired in a rifle spins as it travels down the barrel due to the spiral rifling grooves. This results in a hole in the center of the shot pattern. Additional support for the distinction between guns and rifles can be found in English account books of the same

period. Purdy's records list the production of both guns and rifles. Mortimore, Griffen, and Joseph Manton accounts also make the distinction between rifles and guns when listing longarms. Interestingly, both Christie's and Sotheby's London auction catalogs still list sporting arms as guns and rifles.

Based on surviving examples, the part round, part octagon smooth bore arms are what Fricker called guns. His ledger entries distinguish between the two types of barrels before they are stocked, so he must have been differentiating between barrel types by shape. Additionally, the arm with the part round-part octagon barrel is rarely found with rifling. Normally the wall thickness of these barrels is less than the wall thickness of a rifle. Many of these smooth bore guns, but not all, lack patch boxes as well. Probably the lack of patch box was one of custom as well as price. The presence of a patch box may also indicate the intent to use round balls as well as shot. Examples of these part round-part octagon barrel guns survive from all areas of Kentucky rifle production. They include all degrees of ornamentation from no carving or engraving to some that are as elaborately carved and engraved as the finest relief-carved rifles. Additional support for this definition of a gun is provided by the entry in the farm account book of David Wertz of Franklin County, Pennsylvania who recorded in 1813, "To stocking and mounting a gun: to John Noll \$9.31."¹⁶ This gun exists today and has a part round-part octagonal smooth bore barrel with a patch box and some minor relief carving. A typical gun with a part round-part octagon barrel is illustrated in Figures 10 to 12. This gun, signed F. Sell, is the typical configuration and the most common type of gun.

A smooth rifle is an arm that is in all respects a rifle with a full octagon barrel that is bored smooth inside instead of being cut with spiral grooves to spin the ball when fired. As illustrated in Figures 10 to 12, the Fricker rifle, which is a smooth rifle, is configured the same as the traditional rifle signed John Park. Other researchers, such as George Shumway have noticed the existence of smooth rifles. He discusses the existence of George Schreyer rifles that apparently were never rifled in *George Schreyer, Sr. & Jr. Gunmakers of Hanover*. In the lists of arms purchased by the Office of the Indian Trade for the Indians are several smooth bore rifles.¹⁷ The same reference also lists Government purchases of smooth bore guns with and without patch boxes. The patch box added fifty cents to the cost of the gun. The 1809 inventory of a prosperous farmer, Daniel Althaus of Berks County, lists a smooth rifle and hunting bag for 2 pounds, 5 shillings.¹⁸ Apparently smooth rifles were not rare and were a readily understood concept in their period of use.

Modern collectors differentiate fowlers from guns in that fowlers have thinner barrel walls and resemble the classic English fowler. The most obvious difference is that fowlers lack the rail behind the trigger guard of the rifle and also have a rounded bottom to the butt stock. Some but not all fowlers have full round barrels as well. Normally fowlers have only a front sight and lack the rear sight of the gun and rifle. Fowlers were intended to fire only bird shot and lacked a rear sight similar to a modern shotgun. This type of firearm was made in Pennsylvania in imitation of the English fowler but is far rarer than either guns or rifles. Fricker either did not make any or did not differentiate between guns and fowlers in the ledger.

The problem with this modern classification of 18th and 19th century longarms is that the original makers and customers did not follow it. Arms can be found exhibiting a mix of characteristics due either to the maker's whim, price or the customer's desires. This classification of longarms applies to many examples but by no means all the examples that will be encountered. The only constant differentiating factor is that guns are not rifled and generally have part round-part octagonal barrels. Complicating the problem of classification, is the subsequent modification of the gun or rifle after the original maker sold it. The first or subsequent owners could return it to the gunsmith for changes to suit their ideas of what they wanted and this may account for the occasionally encountered part round-part octagon barrel gun with rifling. The part round-part octagon barrel may also have been the only barrel blank available the day the customer wanted a rifle made and consequently an occasional part round-part octagon barrel will be found rifled. In the second quarter of the 19th century many guns and rifles were converted from flintlock ignition to percussion. In this conversion process, many barrels were shortened several inches at the breech. A smooth bore gun could have been rifled at this time if the owner so desired. Conversely, a rifle could have been bored smooth when converted to percussion. Since guns and rifles had a clear-intended principal use, there does not seem to be any really compelling reason to convert one to the other. Unfortunately, there are no published period gunsmith accounts that mention either rifling a gun or boring a rifle smooth to answer this question.

Fricker's apparent production of more smooth bore arms than rifled arms prompted a check of the published details of Leonard Reedy's ledgers for the type of arms produced in the same time period. Reedy's production of arms as detailed by Kindig is illustrated in Figure 9.¹⁹ This shows that Reedy also produced more smooth

bore guns than rifles until 1828, when rifle production began to predominate.

This is a rather startling finding. Two gunsmiths, based on their written ledgers in the same time period, produced as many or more smooth bore arms than rifled arms. This is at variance with all the myths that have grown to surround the Kentucky rifle and Kentucky rifle gunsmiths. This result needed to be verified by some other means independent of Fricker and Reedy. Since Fricker worked in Womelsdorf and it is believed that Reedy began his career in Womelsdorf with Bonewitz before moving to Pine Grove, a sample from another area would be needed to verify the general conclusion that as many if not more smooth guns were produced than rifles. Data from another area would also show that it was not a local phenomenon in the Womelsdorf or Berks county area. The independent source would have to be something that encompassed a number of arms selected independently of whether they were rifled or smooth bore. Publications that focus on a school of gunsmiths, a geographical area or a collection were not suitable as they contain biases towards collector's interests such as elaborately carved and engraved arms in their arms selection criteria. What was needed was a detailed study of arms that used an all-encompassing selection process to contain all arms and not just those of specific collector interest. The only published detailed analysis of a maker's work is George Shumway's excellent study of arms signed or attributed to George Schreyer Sr. & Jr. of Hanover, Pennsylvania.²⁰ The gun and rifle criteria can be applied to the arms described in the book with some interesting results that support the conclusions derived from Fricker's and Reedy's ledgers. Namely, Kentucky rifle makers actually made more smooth bore guns than rifled ones when smooth rifles and smooth bore guns are counted in their documented production. Forty-six arms are cataloged in detail in the Schreyer study that can be classified as rifles, smooth rifles and guns. The result is 13 rifles, 16 smooth rifles, 15 guns and 2 rifles with part-octagon-part round barrels. It also appears that Schreyer's customers preferred patch boxes on their smooth bore guns. Fricker's ledger entries are not detailed enough to ascertain whether or not his guns had patch boxes. Based on the spread of prices, some of them certainly had engraved patch boxes as well as relief carving.

The fact that a large number of smooth bore guns were produced along with rifles in Pennsylvania prompted an informal survey of Germanic arms produced in Europe. While no actual numbers were recorded, it was obvious that large numbers of smooth bore Jaeger-type arms exist with and without patch boxes. Understandably most of the smooth bore guns also had part round-part octagon barrels

Work Performed	Range of Costs	Gun	Rifle
Mend, without specifying item	\$0.25 to \$1.50	8	3
Repair, without specifying item	\$0.37 to \$1.50	13	6
Mend or repair stock	Note 1	1	1
Make a new stock	\$4.00 to \$30.83	7	1
Mend barrel	\$0.75	1	
Straighten barrel	Note 1	2	2
Draw bore	\$0.62	3	1
Freshen	\$0.50 to \$1.00		23
Cut a rifle	\$0.50 to \$2.00		9
Bush touch hole	\$0.25	3	1
Make sights	Note 1		4
Clean	\$0.25 to \$0.75	2	6
Mend lock	Note 1	2	1
Harden frizzen	\$0.12	2	1
Springs	Note 1	2	
Set screw & fly	Note 1		1
Make a ramrod	Note 1	2	5
Make a wiper	\$0.37	1	2
Make a socket	Note 1		
Make charger	\$0.50		11
Ream a bullet mold	Note 1		1

Note 1 Repair occurs in combination with other repairs so that individual costs cannot be separated

Figure 13. Table showing that guns required more stock repairs and rifles more barrel work.

as do Pennsylvania-made arms. This is another example of the continuation of European traditions by both the craftsman and his customers.

ACCURACY OF RIFLES AND SMOOTH BORE GUNS

Entries from Fricker's ledger would indicate that many buyers preferred a gun with a smooth bore to one with rifling. The same evidence exists from the published ledger of Reedy during the slightly later time period. This leads one to the conclusion that smooth bore guns were either as accurate as rifles or that rifling did not make any difference at the normally encountered shooting distance for hunters and target shooters. Another possibility is that the convenience of being able to use shot outweighed the loss of accuracy if in fact the guns were less accurate when firing a round ball.

The Kentucky rifle has a legendary reputation for accuracy. If rifling is so important, what are the smooth bore guns and smooth rifles that Fricker and Reedy recorded in their ledgers? The Kentucky rifle gained its fame for accuracy in comparison to the military smooth bore musket. Any arm firing a tight-fitting patch and ball will be more accurate than the musket with its loose-fitting ball. Military tactics of the period called for rapid and massed firing by troops in close formation on the battlefield. The rapidity of fire was gained at the expense of accuracy by using a loose-fitting ball in the musket that could be loaded and fired by men trained to fire as rapidly as possible. The typical musket ball was 0.64 inches in diameter and fired in a barrel with an inside diameter of

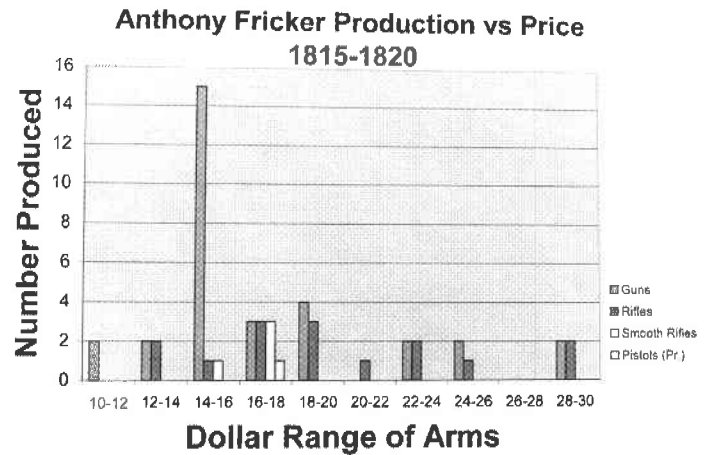


Figure 14. Price ranges for rifles, smooth rifles and guns as sold by Anthony Fricker.

0.69 inches.²¹ The ball bounced from side to side as it traveled down the barrel and took whatever direction it was traveling when it exited the barrel. In contrast, the tight fitting patched rifle ball traveled straight down the bore and exited traveling concentric with the center of the bore. The spin of the ball imparted by the spiral rifling in the barrel acted to keep the axis of the ball parallel to the direction of flight and further increase accuracy. This is the standard explanation for the Kentucky rifle's accuracy and superiority over the smooth bore. This explanation is another of the legends that surround the fabled Kentucky rifle and military history in general. Neither the rapid firing of muskets, nor the legend of the musket ball bouncing down the barrel, is supported by documentation or facts.

There is no proof that the loose-fitting musket ball bounces from side to side in the musket barrel and in fact would not have time to make more than one or two contacts with the barrel before exiting the muzzle. The correct explanation for the inaccuracy of the musket was first published by Benjamin Robins in the 1740's and expanded by Dr. Charles Hutton later in the century.²² The musket ball spins due to the escape of gas along one side as it travels down the barrel of the musket imparting a random spin as it exits the muzzle. The direction of spin will be random, but at some angle to the axis of the bore. The actual cause of the smooth bore gun's inaccuracy is that the air resistance encountered by the random spinning ball exerts uneven pressure due to the spin causing it to deviate toward the side with less air pressure. This phenomenon is what causes a baseball to curve when the pitcher throws a spinning ball. The question of accuracy between rifles and smooth bore guns in their period of use must be addressed by using examples of target shooting that were not designed to show the superiority of

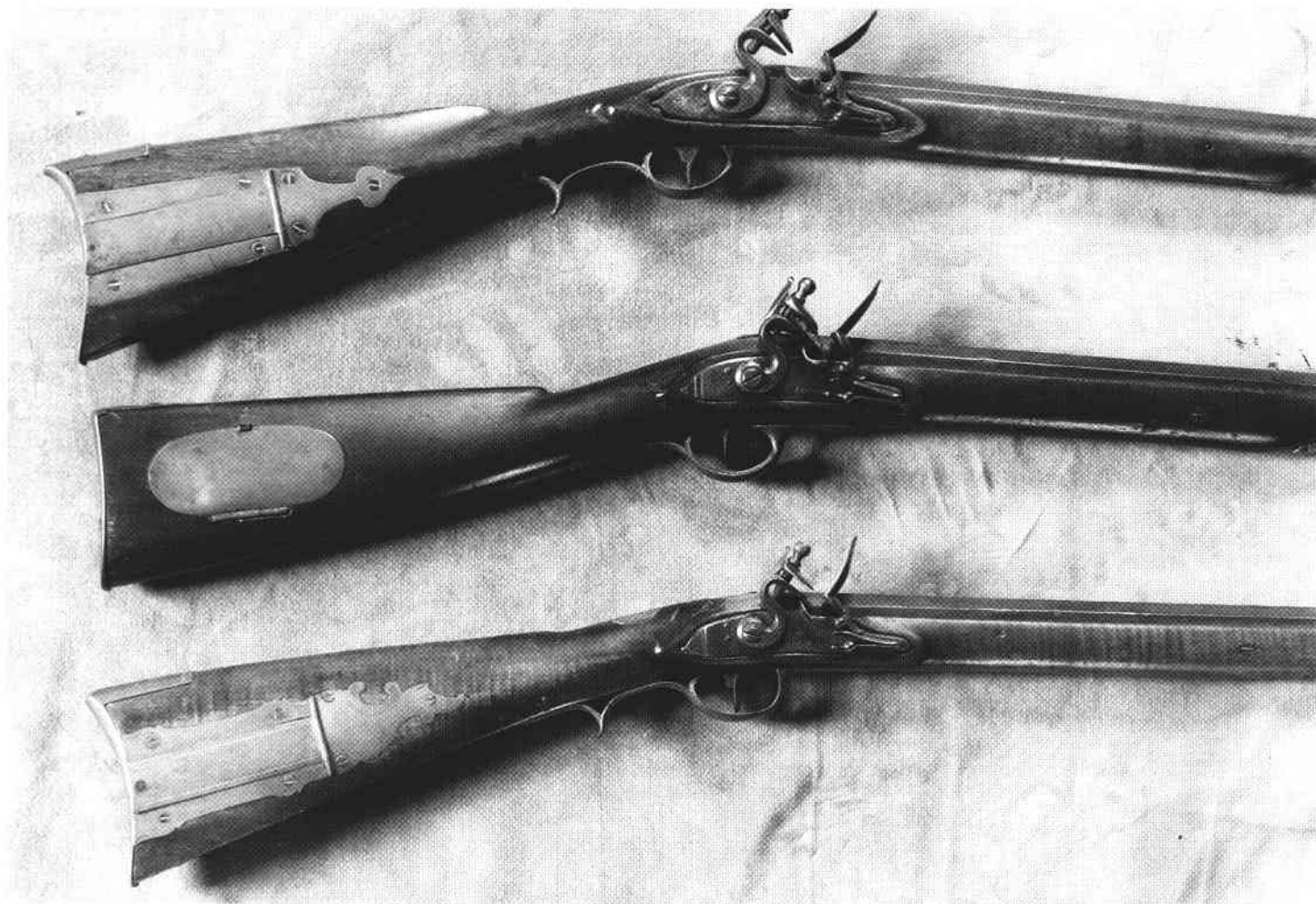


Figure 15. Lock side, *top* Virginia Militia rifle by Archibald Rutherford for \$15, *center*, Pennsylvania Militia rifle by George Tryon for \$17, *bottom*, rifle by Louis Ghriskey for \$17.

rifles over muskets. All demonstration tests designed to show the superior accuracy of rifles or the speed of firing are suspect as being biased towards the desired test result. Modern tests can be performed with smooth bores and rifles but the shooter has knowledge that the early 19th century shooter did not possess and the powder is more uniform than in the period. The East Indian Company archives contain extensive target scores of English and Indian troops firing in annual target practice. This target shooting was not designed to prove anything other than the skill of the troops in using the weapons assigned to them. Extensive analysis of these target scores show that when the troops were firing smooth bores with wadding that prevent random spin and rear sights in aimed fire, there was little practical difference between the rifle and the smooth bore out to 80 or 100 yards. Beyond this range the rifle was clearly superior.²³ These shooting competitions while conducted in India are germane because they used the best available gunpowder, clean guns and well-trained troops. These troops were probably better marksmen than the average gun owner

resident of Pennsylvania because there was great prestige attached to being a soldier and an accurate marksman. The fact that so many smooth bores were made by Kentucky rifle makers indicates that there was a body of practical knowledge regarding the respective accuracy of smooth bores versus rifles held by the early 19th century Pennsylvania shooters.

RIFLE AND GUN USAGE

Since there were practically equal numbers of smooth bores and rifles produced by the gunsmiths, they must have been used differently by the original owners. The primary original use of the guns and rifles can be deduced from their repair record in the ledger. The repair record for the two types of arms is summarized in Figure 13. These repairs are indicative of the first and intended use and do not necessarily reflect the uses that subsequent owners put them to a generation or more later.

There are major differences in some categories of repair or mending of the guns and rifles. Fricker apparently



Figure 16. Cheek piece side, *top*, Virginia Militia rifle by Archibald Rutherford for \$15, *center*, Pennsylvania Militia rifle by George Tryon for \$17, *bottom*, rifle by Louis Ghriskey for \$17.

used the terms repair and mend interchangeably and there is no discernable difference in his meaning of the two words. He lists repairing or mending actions for 21 guns and only 9 rifles. New stocks were made for 7 guns and only 1 rifle. Fricker draw bored only 3 guns and 1 rifle which was probably a smooth rifle. Draw boring is a process for smoothing the inside of the barrel to improve accuracy.²¹ The equivalent operation for a rifle is freshening which he performed 23 times on rifles. He also cut rifles 9 times. This operation was probably a more drastic reworking of the rifling rather than just freshening since it generally cost more. Rifles required more cleaning and more ramrods to be made than guns. A major difference is that he made 11 chargers for men who had rifles and none for gun owners. The only bullet mold mentioned in connection with rifles or guns is the enlarging of one after the man's rifle had been freshened several times.

In summary, the types of repairs indicate that smooth bore guns were used harder than rifles, as they required more repairs and more replacement stocks than rifles. On

the other hand rifles required more internal barrel work, more replacement ramrods and chargers to accurately measure the powder so that the powder charge could be adjusted for accuracy.

This indicates the primary use of guns was hunting. Rough handling in the field necessitated the many repairs and replacement of broken stocks. Ned Roberts also provides support for smooth bore rifles as hunting rifles with the story of the old hunter who used a smooth bore to hunt because it would shoot shot, buckshot or patched round ball.²⁵

The primary use of rifles was target shooting. The rifle shooters broke more ramrods as they used them more often than the hunters. The rifles were not physically subjected to the rough handling like the hunting guns. The rifles were freshened many times, far more than just casual hunting would require. Probably after an individual lost a match, he blamed the rifle and had it freshened.

Additional argument that the intended use of rifles was target shooting is the unusual ledger entries for Isaac

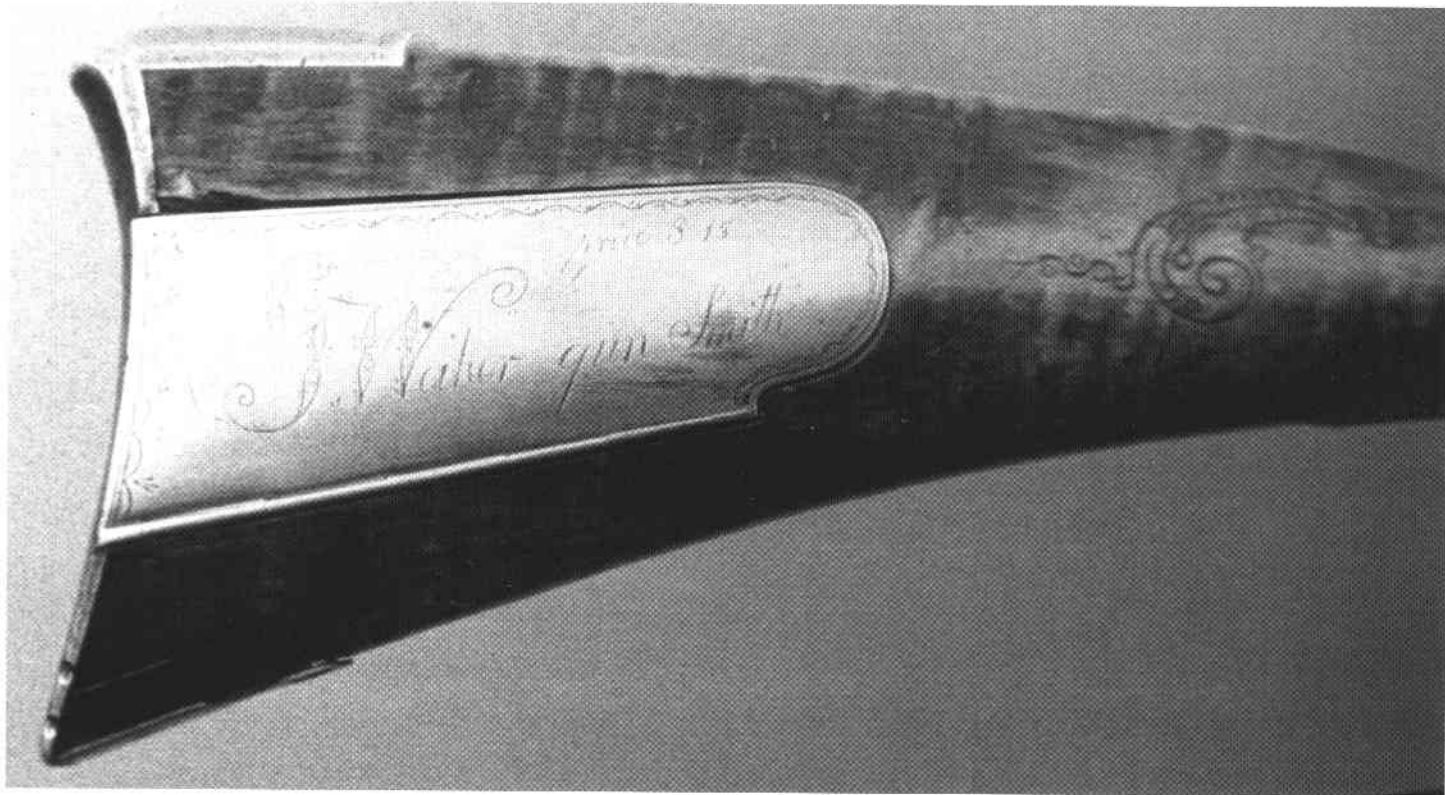


Figure 17. \$15 Kentucky rifle patch box view.

Fultz who must have been one of the local marksmen. To date, Fultz's occupation has not been discovered other than he liked to shoot based on the following entries from the ledger.

Purchased a new rifle on 13 December 1817 for \$28.00

Fultz had the barrel freshened on 2 November 1818

On 26 December 1818, Fricker charged him 37 cents to bush the touchhole and to "Make barrel rough inside"

Purchased a new rifle on 11 September 1819 for \$16.00

Fultz apparently had the barrel of one of the rifles replaced because Fricker charged him \$4.00 to rifle and make the barrel fit the stock on 4 November 1819.

On 19 January 1820, he had the barrel roughen inside for 25 cents.

On 25 January 1820, he had the barrel freshen for 50 cents

On 29 February 1820, he had the barrel freshen and his bullet mold bored out for 75 cents.

Making the barrel rough on the inside probably refers to an early form of choke boring the barrel near the muzzle to improve accuracy.²⁶ Choke boring the barrel was a method of improving the accuracy of target rifles made and used by men such as Harry M. Pope in the late 19th century.²⁷ This sequence of actions certainly shows a man obsessed with trying to improve the accuracy of his target

rifle because these actions would have little practical effect on hunting.

GUN AND RIFLE COSTS

Fricker recorded the production of 32 guns, 24 rifles and 4 smooth rifles in the ledger. A chart, Figure 14 was developed from these ledger entries where the full price of the arm was debited. Arms for which only a balance was due and not the full price are not included on the chart. He made more guns (15) in the 14 to 16 dollar range than any other price range. Approximately 25% of his arms fall into this narrow price range. The median price for the three types of longarms was computed even though the sample is rather small. Twenty-eight guns were recorded in the ledger at full price ranging from a low of \$10 to a high of \$28 with a median price of \$15.00. The 15 rifles range from \$12 to \$28 with a median price of \$17.00. The four smooth rifles fall between \$15 and \$17 with a median price of \$16.25. As you would expect, rifles cost more than guns and more rifles are recorded as partially paid than guns.

WHAT DOES A 15-DOLLAR GUN LOOK LIKE AS PRODUCED BY FRICKER?

There are two approaches to determining the approximate dollar value of Fricker's arms. One is to exam-



Figure 18. \$15 Kentucky rifle cheek piece view.

ine existing arms for which a price is known. The other is to try to add the various components that Fricker bought or recorded the cost to replace on an arm. The only records and guns that are readily available for comparison are contract arms for state militias and the Federal Government. Arms must be selected that were purchased or contracted for during or at least near the time of Fricker's ledger to negate the inflation factor. In modern times a contract for a number of items results in a lower price per item. In the first decades of the 19th century that was not necessarily true because each weapon was still hand made, as the first machines were not introduced into arms manufacturing until the 1820-1830 period. The suppliers of these arms such as Henry Deringer, George Tryon and Lewis Ghriskey all operated small factories even though the work was still performed by hand. They also subcontracted portions of the work such as locks and barrels. This probably allowed them to produce a weapon for less than it should have cost Fricker. However they had overhead costs such as larger buildings, surety bonds for the work and the owner's profit that Fricker did not have in his small shop. The net result of all these factors is prob-

ably comparable prices between Fricker and contract arms. There are a number of state and Federal contracts from this time period that allow for cost comparisons.

COMPARABLE ARMS CONTRACT PRICES

The state of Pennsylvania placed a contract with Henry Deringer in 1814 for 100 rifles at \$17 each and placed a similar contract with George W. Tryon also for 100 rifles at \$17 a piece.²⁸ These rifles were delivered and marked with CP with a serial number. Tryon rifle CP 166 is illustrated in Figures 15 and 16. This plain unadorned rifle is probably representative of Anthony Fricker's average rifle and gun. Another bench mark for plain rifles is the Archibald Rutherford rifles delivered to the state of Virginia from 1809 through 1815. One of these rifles for the 93rd Regiment, Augusta County, is also illustrated in Figures 15 and 16. The state paid \$15 dollars for a rifle from Rutherford when he supplied the lock and \$12 dollars if the state provided the lock as in the example illustrated.²⁹ The Federal Government was also procuring Kentucky rifle-type arms during the same time period. Louis

Work Performed	Range of Costs	Number
New lock	Note 1	1
Repair or mend	\$0.25 to \$0.75	27
Make cock	\$0.50	1
Mend cock	\$0.50	2
Make frizzen	\$0.50	1
Mend frizzen	\$0.50	1
Harden frizzen	\$0.25 to \$0.50	10
Make frizzen spring	\$0.50 to \$0.62	3
Make sear	\$0.75	2
Make sear spring	Note 1	1
Make fly and set screw	\$0.75	3
Make main spring	\$0.75 to \$1.12	5
Freshen tumbler	\$0.37	1
Make screw	\$0.25	4

Note 1: Repair occurs in combination with other repairs so that individual costs can not be separated

Figure 19. Lock repairs.

Ghriskey of Philadelphia received a verbal contract from Callender Irvine in 1814 for 100 rifles at \$17 a piece.³⁰ There are at least 3 known almost identical Kentucky-type rifles with a P proof mark on the barrel that are believed to be from this contract. One of the rifles is illustrated in Figures 15 and 16. This is another example of a plain rifle priced in the range of Anthony Fricker's average-priced gun. Shops produced all these examples with a number of employees as well as some subcontract work for items such as barrels and locks. This approach to producing the arms probably resulted in a somewhat different cost for these plain arms compared to what Anthony Fricker charged for a plain gun or rifle.

KNOWN KENTUCKY RIFLE PRICES

George Weiker of Bucks County Pennsylvania marked the cost of the rifle on the patch box of the rifle. Two of his rifles and their prices were used for comparison and the \$15 is illustrated in figure 17 and 18. The earlier rifle dating from the 1805-1810 period lacks the silver of the later rifle from the 1815-1820 period. The earlier rifle is marked \$15 and the later one is marked \$18. They have practically the same amount of incised carving with the \$18 having a silver star and thumb piece. The difference of three dollars cannot be solely attributed to the addition of silver because the quality and cost of the flintlock is another unknown variable between the two rifles. An additional difference between the two rifles is the year in which they were produced because inflation was a factor even in the first quarter of the 19th century. Prices had been slowly rising from the end of the Revolutionary war and continued to the crash of 1819. This was not a uniform rise due to scarcities caused by the embargo acts of 1808 and the war of 1812. These individual price peaks were generally of short duration

on the overall upward trend in prices. The only conclusion that can be supported is that a later rifle with silver mounts cost more than an earlier rifle without silver. However, the two rifles do support the general conclusion that a plain rifle with a simple patch box and perhaps some incised carving cost about \$17 in the 1815-1819 period. The date of 1820 is excluded because very few arms were produced during the crash of 1819 and there is no accurate way to measure the effect of the crash on arms prices.

PRICE BY COMPONENTS

Fricker's prices for making or repairing components and his purchase costs as recorded in his ledger can be used to estimate the price of a gun. The barrel cost \$3.33 as it came from the forge. The barrel was probably rough finished on the outside and not rifled. In the case of guns, the barrel would not be bored smooth on the inside. In both cases the barrel would have required sights, a breech plug, and loops to fast it in the stock. Fricker's prices for stocking a gun vary with the lowest being only \$5.00. The lock would have added \$2.00 to \$4.00 to the repair cost. The different cost for stocking and lock could be a combination of wood and lock quality. The lowest cost gun recorded in the ledger is \$11, which would include \$3.33 for the barrel and \$7 for stocking with lock. This leaves only \$0.67 for the rest of the gun. This seems low, but he could have used some old or used parts to keep the overall cost low.

The conclusion derived from these two ways of considering the price of a gun is that the majority of Fricker's guns probably would have been plain uncarved guns with no patch box. Most of his rifles would have probably been plain including just a patch box, simple engraving, no relief carving or silver. However, he did produce rifles and guns costing as much as \$28. One ledger entry is for a balance due of \$30.83 and this was just for stocking a gun. He obviously could produce a fine arm when the customer requested it as shown by the one existing example. Since the signed Anthony Fricker example is a smooth rifle and there are no expensive smooth rifles recorded, the rifle in question is not in the ledger. This probably means the customer paid cash and the sale was not recorded or was recorded in the preceding ledger.

FRICKER'S CUSTOMERS

The majority of people were employed in agriculture in the first quarter of the 19th century, because the nation's economy at this time was still agricultural from

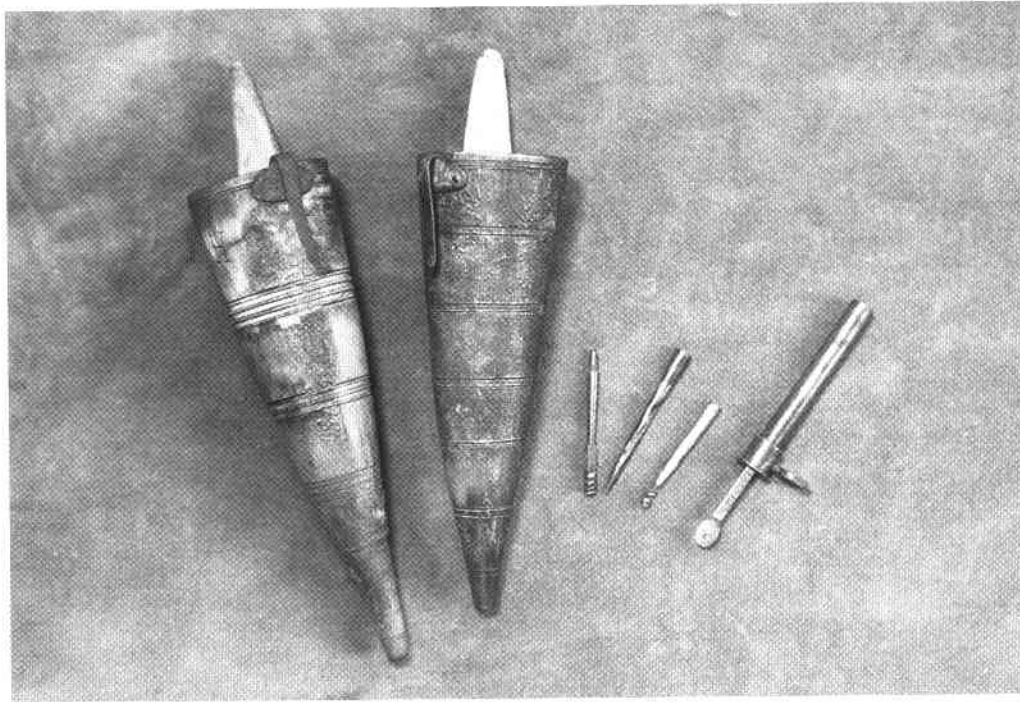


Figure 20. Whetstone horns with iron belt hooks, wipers, and a charger that are similar to the ones recorded in Anthony Fricker's ledger.

the late 18th century. Approximately 68% of the free labor force was engaged in agriculture or some aspect of it.³¹ Most village inhabitants had sufficient land or access to land to keep a cow and/or a horse. Fricker recorded transactions in his ledger involving renting out his horse as well as the cost of pasturing his cow on another's land. The demand for carpenters, cabinetmakers, blacksmiths, gunsmiths and other skilled mechanics in rural areas was too thin to support full time employment in these specialized trades. Records indicate that these men performed not only their chosen trade but also any work that needed some of their skills in order to augment their income. The additional income almost always involved something related to agriculture, raising part of their own food, or taking subsistence in trade for work. Fricker's ledger shows that he was engaged in all of these activities to manage a living as a gunsmith. Work other than gunsmithing contributed only a small amount to his income. It may well be that non-gunsmithing work was undertaken as a favor to his neighbors rather than strictly for income. Even many early ministers were parttime farmers or worked at some trade in order to survive.³²

Barter was very common. Most laborers or tradesmen did not actually receive a full cash wage but instead received part or all in some commodity associated with their employment or trade. This makes early 19th century wage rates somewhat unrealistic when thought of in the modern sense of cash payment. Another problem with determining wages was that a tradesmen might discount

the bank notes in which the employee was paid by up to 10% from face value. Fricker discounted one customer's payment by 10%.

The wages for farm laborers in Pennsylvania in 1818 with board was \$11.00. This was for a 26-day month and work from sun up to sun down. In 1826, after the depression of 1819, it was \$9.00. The wages paid in Pennsylvania for labor in mines was \$1.20 per day in 1817.³³ Woodcutters were paid at the rate of \$1.00 per day for two cords of wood.³⁴ Physicians at the famous Pennsylvania Hospital were paid \$300 per year or \$25 per month. A Methodist minister was paid \$100 per year, for married men \$200. An additional allowance of \$16 was made for children if under 7, and \$24 if between 7 and 14.³⁵

Labor by the day was more costly than by the month reflecting the greater risk in employment termination when hired by the day. Many peak employment farm tasks such as the grain harvest did not last a month. In July of 1815, Fricker hired himself to John Shaeffer for just two days at \$0.50 per day. It is impossible to tell whether this was because Fricker needed the money or that he was helping a friend for two days during harvest. In 1819, his two sons worked for Joseph Deppy several days during haymaking and harvesting. John, age 17, was paid \$0.75 per day and William, age 13, was paid \$0.25 per day. John at 17 was probably apprenticed to his father to learn the trade of gunsmithing, because there is a known rifle signed John Fricker. Otherwise in this period John would have had a full time job.

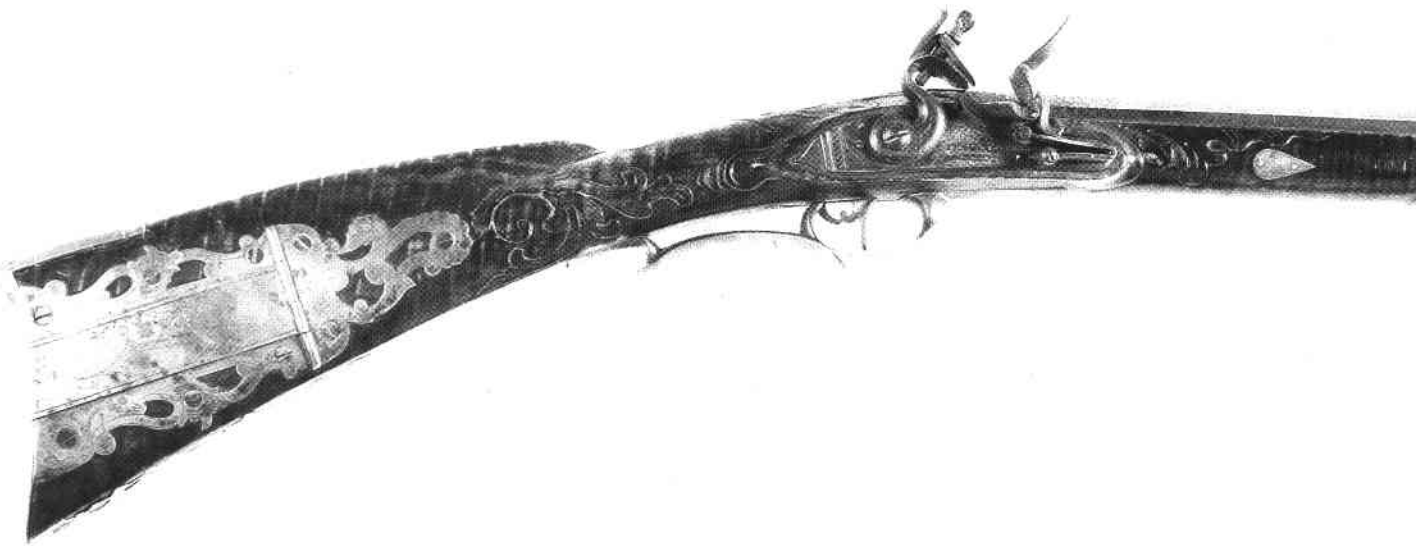


Figure 21. Anthony Fricker rifle patch box view. *Photograph by James Atkins.*

It is obvious from these wage rates that the laboring class did not purchase new guns and rifles from the local gunsmiths because they cost more than a month's wages. After the laborer paid for food and lodging for his family there was no money remaining for luxury goods such as a new rifle or gun. Entries in Fricker's ledger support this analysis as the identified purchasers of even the plain guns were men of some means and belonged to the middle class such as prosperous innkeepers or craftsmen.

Anthony Fricker recorded accounts with 222 different individual customers in his ledger from 1814 to 1821. This number would be even larger if the first two years were not understated due to his continued use of the earlier ledger. Another feature that seems odd to our eyes is that no woman's name appears in the ledger. There are no Sunday sales recorded which is not surprising given the religious sentiment of the times.

Some customers have been identified by their occupation and probable status in the rural community. They were all craftsmen or tavern keepers in Womelsdorf.

Robert McConnel, an innkeeper who owned the Swan Tavern in Womelsdorf, purchased a gun on October 12, 1816, for \$15.00. This is the only gunsmithing item recorded in the ledger for him. The majority of entries (9) for McConnel refer to sharpening and setting his saw.

John Smith, lumber dealer,³⁶ purchased a new rifle on December 18, 1818. The first entry in the ledger for John Smith, dated August 3, 1815, is for making two rivets which were probably used to fasten the handle to a saw because several tasks include making rivets as well as sharpening a saw. Not surprising for a lumber dealer, there are 27 entries for sharpening and setting saws. Fricker also purchased maple planks from John Smith as

well as performed other odd jobs such as mending a brass kettle on August 18, 1820. One job was, "Shoding a spanstal"³⁷ which is part of a loom and was probably performed for his wife.

John Swalm,³⁸ tailor, bought a gun October 4, 1817. On October 20, 1818, Fricker charged him \$1.00 for draw boring and straightening the barrel. This indicates that Mr. Swalm had probably dropped the gun while hunting and was having Fricker repair it. Fricker makes a wiper for him on 26 August 1819 and finally a new gun on August 14, 1820. A possible explanation is that the repair to the barrel was not satisfactory and he purchased a new gun.

Michael Petree, a hat maker in Womelsdorf, purchased a gun for \$15.00 on July 11, 1816, and on November 26, 1817, Fricker made a sight for 25 cents.³⁹ On January 2, 1818 he straightened a gun barrel for 50 cents. On August 11, 1819, Fricker made him a new gun for \$13.00. Since this is below the \$15.00 median, Fricker may have used some parts from the first gun. Fricker also did other odd jobs for him such as renting a horse to him for \$1.00 per day. He also filed and set his saw, mended his hatter and sharpened his scissors. Michael Petree must have also been a friend as he was one of the appraisers of Fricker's estate.

The accounts of Swalm and Petree indicate that straightening a gun barrel was not always successful because both men bought new guns after Fricker straightened gun barrels for them.

Some customers such as George Martin appear only once in the ledger. Martin was a blacksmith⁴⁰ and he could probably do all the minor repairs and adjustments that might be needed on his own gun.



Figure 22. Cheek piece view of the Anthony Fricker rifle. *Photograph by James Atkins.*

Samuel Miller, a weaver by trade purchased an expensive rifle on September 21, 1816, because he had a balance due of \$21.00 dollars. Fricker did not record the total price, because part of the payment was cash or trade.

John Rece (Reis), cooper, bought a gun on September 10, 1817 for \$17.00 and apparently broke the ramrod because he returned October 3, 1817 for a new ramrod at a cost of 25 cents.

Daniel Smith, a saddler, had a lock repaired by Fricker March 25, 1817 at a cost of 25 cents; on September 5 he repaired a lock and cleaned the barrel, specifying in the ledger whether it was a rifle or a gun barrel. He again repaired a lock on March 18, 1820. Daniel Smith must have gotten tired of having the lock fixed because he purchased a new rifle June 1, 1820 with a balance due Fricker of \$6.00.

Daniel Smith also must have been in the militia because he purchased a breastplate on December 12, 1818 for 50 cents. He returned on the 24th to have a name engraved for an additional 25 cents. This would have probably been a brass breastplate because Fricker charged \$1.50 for a silver one.

All of these customers were small town craftsmen or businessmen. So far, research into occupations of the gun and rifle customers has not identified any farmers or laborers as customers of Fricker. However, most customers remain to be identified as to occupation. Fricker sold a total of 60 guns, rifles and smooth rifles to 47 individuals. To date only 8 of these have been identified with a specific occupation.

LOCK WORK

In addition to the lock that was recorded with respect to guns and rifles in Figure 13, Fricker also recorded just lock work without specifying the arm. Lock work is summarized in Figure 19. He recorded that he repaired or mended 27 locks without specifying exactly what he did to each lock. His next most common repair was hardening the frizzen to improve sparking when struck by the flint. Also main and frizzen springs must have broken fairly often based on the number of replacements. He only replaced one lock even though he made many lock repairs. This is in keeping with the philosophy of the period of repair if at all possible, replace only as a last resort.

OTHER GUNSMITHING TASKS

Fricker performed a number of gunsmithing tasks involving swords, pistols and breastplates that must have been related to the local militia units. He cleaned pairs of pistols with a usual charge of \$0.75 and occasionally restocked a pistol. He repaired one of a pair and restocked the other one for a total of \$5.00 for John Kinser on August 24, 1816. On December 8, 1820 he charged George Braunawell, his brother-in-law, \$17.00 for making a pair of pistols.

He performed a surprising amount of work on swords. Such work included mounting for \$3 to \$4 per sword, and cleaning at \$1.00 per sword.

Fricker made seven silver breastplates which cost \$1.50 apiece.

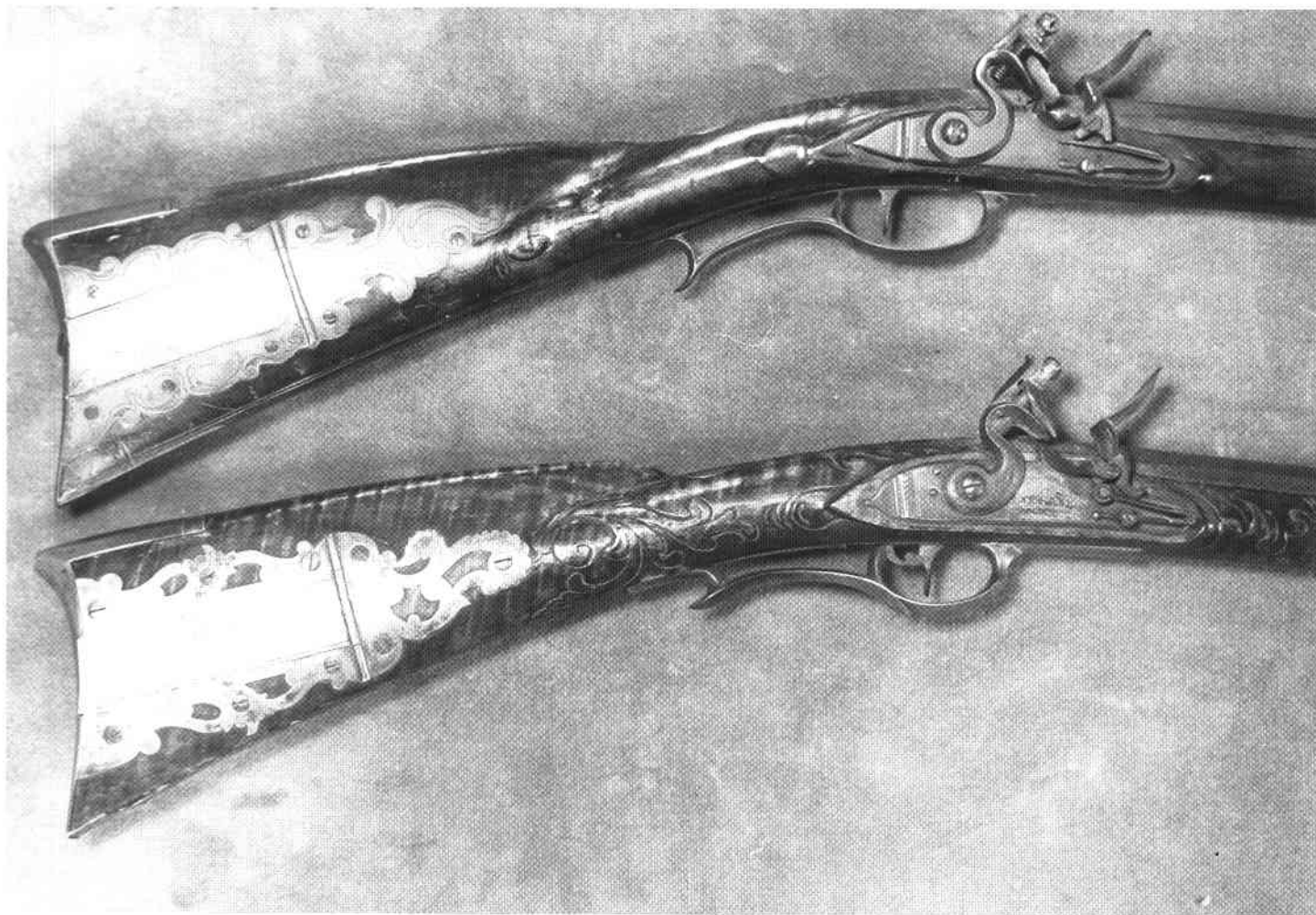


Figure 23. Anthony Fricker rifle in comparison with a rifle attributed to Leonard Reedy.

The only mention of powder horns contained in the ledger is making one for Peter Yeiser in 1817. Peter Yeiser later bought a rifle from Fricker for \$13.00 in 1818.

Since he bought the horn before the rifle, he obviously owned some kind of rifle or gun before he bought the new rifle in 1818.

Fricker performed gun and rifle related work for customers who are not recorded in the ledger as customers for new guns or rifles. Unfortunately he never recorded the name of the maker when he did work one of these weapons.

MISCELLANEOUS WORK UNRELATED TO GUNSMITHING

Fricker appears to be the repairman for many small metal items such as a drawer lock, bridle bit, trunk catch, and brass kettle. By far the most common tasks in the ledger are related to saws. Wood was both a building material and the fuel for heating, which required sawing for either use. There are 99 entries in the ledger where Fricker repaired, sharpened and/or set some kind of saw. He

mounted planes, made four brass plates for a bureau and made handles for a saw for Samuel Wegley. Another common task was sharpening scissors for various people. He mounted two horns for 25 cents and this may refer to the iron hooks on whetstone horns as illustrated in Figure 20. Also, illustrated in figure 20 are wipers for which he charged 37 cents and a charger that cost 50 cents.

These tasks are all for mostly small sums ranging from 6 cents for grinding scissors to 75 cents for filing and setting a crosscut saw. Since none of these tasks brought in much income, they may have been performed more as favors for his neighbors.

EMPLOYMENT OF JOURNEYMEN GUNSMITHS

Anthony Fricker employed two men who were apparently journeyman gunsmiths. He recorded William Jameson as starting work Tuesday, December 1, 1818 with his first payment to him of 25 cents on Friday, December 4 followed by a second payment of \$1.50 on Saturday, December 5. He credits Jameson \$4.50 for making a rifle on December 9. Jameson continued to work for Fricker

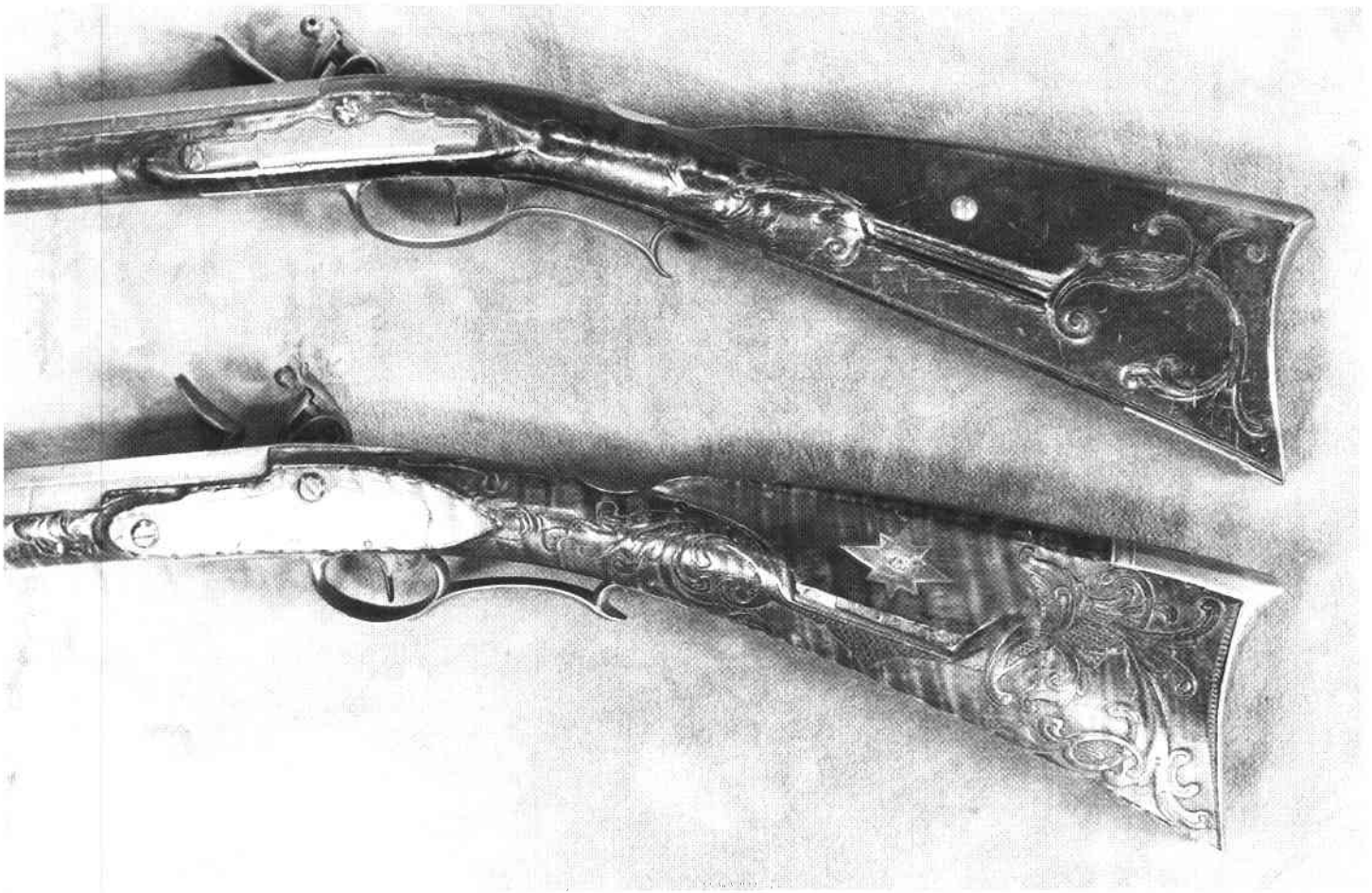


Figure 24. Carving of the Fricker and Reedy rifles.

until Saturday January 9, 1819. Jameson is recorded in the ledger as making three rifles, one smooth rifle, one gun, three chargers and two main springs for which Fricker credited him a total of \$21.15. The account was not balanced out and it appears that he was only paid \$13.89 with no reason listed for not completing payment. He was credited for one rifle at \$4.00, two at \$4.50, the smooth rifle at \$3.50 and the gun at \$3.50. Since the median cost of a rifle was \$19, these costs probable reflect just the labor for stocking and not the cost of the barrel, lock or the mountings. It is impossible to tell from the ledger what kind of gun or rifle was made by Jameson or whether he worked every day. The interval between completion of the rifles and gun is consistent with the amount of credit granted by Fricker. The calendar interval for the \$4.50 rifles is eight days, the \$4.00 rifle is six days, the gun and smooth rifle also apparently required only six days. Jameson worked a total of 35 days according to the ledger entries and was credited with \$21.15. This is an equivalent rate of 60 cents per day. Fricker actually paid him \$13.89 or 40 cents a day. There is no entry in the ledger to explain this discrepancy in the record. William Jameson is not listed in the standard works on gun makers.

Jacob Mires, the second man employed by Fricker began work on Tuesday, March 9, 1819 and was employed to April 27, 1819. Mires was credited \$4.00 a piece for three rifles and \$2.67 for a gun. He was also credited \$2.67 for a gun and \$1.50 for stocking an old gun. This is the only mention of old or used arms in the ledger. The account for Mires is balanced and totaled \$16.17 credit and the same debit. Mires worked 44 calendar days for \$16.17, which would be 38 cents per day. In this case it appears that he did not work every day because the intervals for making a \$4.00 rifle vary from six to 12 days. The six days is consistent with the time interval of Jameson for making a \$4.00 rifle. This indicates that Mires did not work full time in the gun shop and it did not matter because they were both paid by the piece.

A man named Jacob Miers is listed as a gunsmith in Somerset County starting in 1822.¹¹ This may or may not be the same man as the names Jacob or Mires are not rare in Pennsylvania. The timing is such that it could be the same man; if so, he was about 26 years old when he worked for Fricker.

There is a correlation between the guns and rifles produced by the two journeymen and the sales of guns and rifles recorded in the ledger. From December 1, 1818 to

April 27, 1819, Fricker recorded the sale of four guns and five rifles. It appears that Fricker was able to sell the guns and rifles made by William Jameson and then hired Jacob Mires to make some more in addition to Fricker's own. Between December 1, 1818 when Jameson started work and March 9, 1819, he recorded the sale of five rifles and two guns. This is two rifles and one gun more than Jameson made. The sale of the smooth rifle is not listed. This could have been sold for cash and not recorded. It appears from this that Fricker decided to make rifles and guns in anticipation of sales. These did not materialize in the spring of 1819, due the depressed economic conditions starting in 1819. These new guns and rifles did not sell as well, because he recorded only one gun sale during the time Jacob Mires was working for him.

Anthony Fricker fell into the classic economic trap at the end of a period of economic expansion and the start of a depression. He was successful in selling extra weapons during the expansion, anticipated continued economic prosperity and expanded his business by hiring Jacob Mires to assist in making more guns and rifles. These sales failed to materialize. He sold only four guns and two rifles in the eight remaining months of 1819.

THE ANTHONY FRICKER RIFLE

The Anthony Fricker rifle pictured in figures 21 and 22 is one of the very few Kentucky rifles to survive with the lock in original flint condition and the rifle has been neither improved nor restored by dealers or collectors. This rifle remained in the same condition as it was when someone put it aside in the early 19th century. The barrel is signed A. Fricker in script within a panel outlined with a single-engraved line. The lock is Signed T. Ketland & Co, for Thomas Ketland a lock and gunmaker in Birmingham, England.¹² The rifle is a smooth rifle with a .53 cal. barrel. The lock has been modified with what Fricker refers to as a fly and set screw. This consisted of a set screw in the tumbler to allow for adjusting the depth of the full cock notch in the tumbler. The fly was used to prevent the sear from catching in the half-cock notch. By adjusting the depth of the full cock notch, the trigger pull could be adjusted so that a very light touch would fire the gun for target shooting. This served the same purpose as the conventional double set triggers that are found on many rifles.

The carving is a more elaborate interpretation of the carving found on the signed John Bonewitz rifles and those attributed to Leonard Reedy. The Anthony Fricker rifle and a rifle attributed to Leonard Reedy are illustrated in Figures 23 and 24 to show the relationship in the carving design. The engraving on the patch box lid is identical to a signed Bonewitz rifle and the patch box finial is the mirror image of

the finial on both a Figthorn and a Reedy rifle.⁴³ The only thing this proves is that the three men were aware of each other's work. At this time, this is the only signed Anthony Fricker rifle, which is unusual considering the 60 documented. He must have made many more during his probable 20 year working period. As shown in Figure 14, he did not make many arms costing over \$20. These along with the lower-priced ones probably did not survive. There are other examples such as the George Nunnamacher rifle at Winterthur and the John Park rifle in Figures 10-12 where the only known surviving rifle is an outstanding example. So while unusual, it is not unknown for just one outstanding example of a man's work to survive.

SUMMARY

The Anthony Fricker ledger in conjunction with other sources demonstrates that more smooth bore guns were made than rifled arms. The evidence indicates that rifled arms were primarily target arms and the smooth bore guns were the general purpose hunting guns in the first quarter of the 19th century.

Anthony Fricker was a full time gunsmith whose income in the peak years before the Crash of 1819 placed him in the middle class of rural craftsmen. He expanded his business with the aid of journeymen gunsmiths and was a victim of the 1819 depression. When he died in 1821, his debts exceeded the value of his estate. Not only did the Crash of 1819 drastically affect Fricker, it ended for all practical purposes the Golden Age of Kentucky rifles.

ACKNOWLEDGMENTS

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