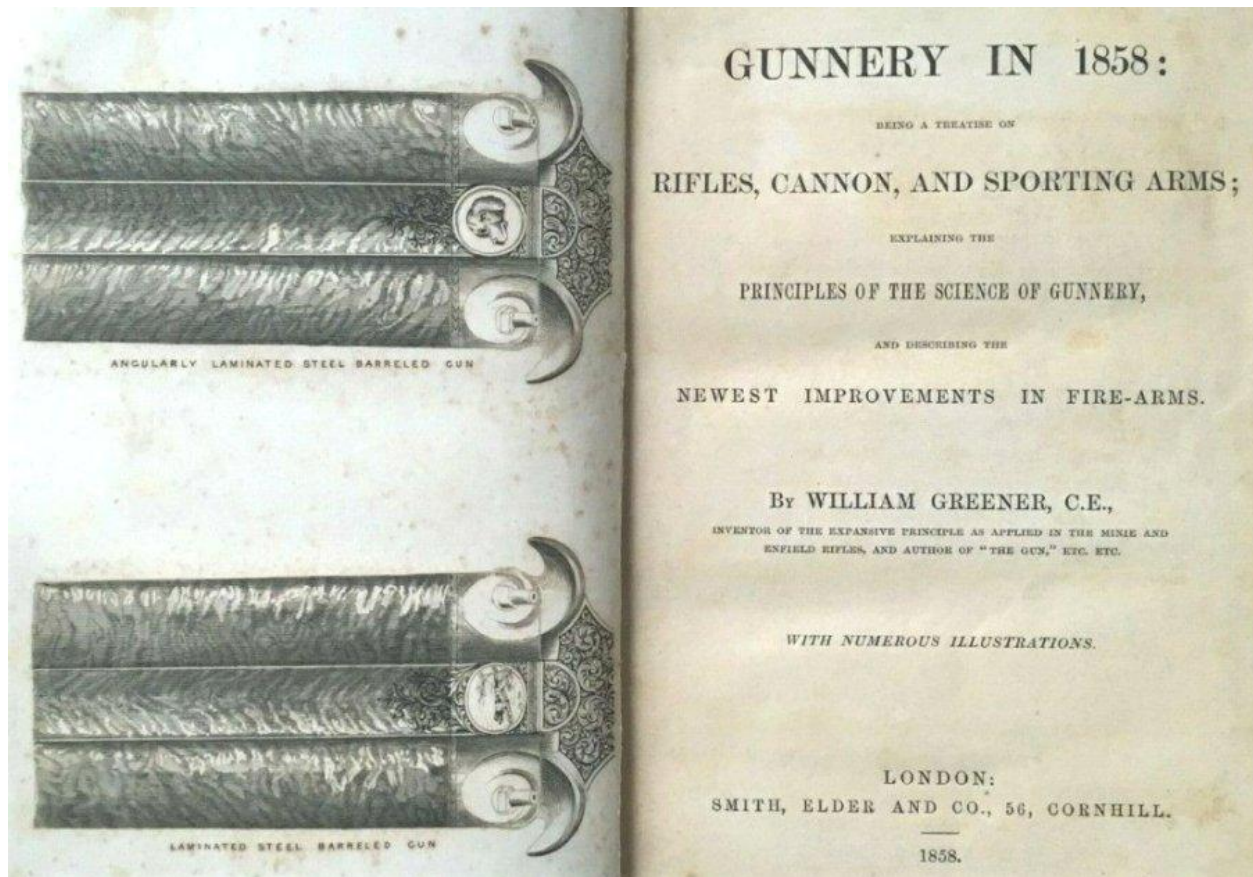


William Greener & Early British Pattern Welded Barrels



Stub Twist and Plain Twist were used 1820s-40s, then both Twist and an early Laminated Steel into the 1860s. Two and Three Iron “Damas Anglais”/ “Oxford” Damascus were used starting about 1850, and Four Iron “Oxford” and “Turkish” Damascus appeared after 1870.

The first Purdey with Whitworth steel was 1880.

Lower quality English and Belgian guns used Plain Twist/Skelp into the early 1900s.

The Gun, or a Treatise on the Various Descriptions of Small Fire-Arms, 1835

http://books.google.com/books?id=oIEY4qL6_z0C

Greener described 9 different gun barrels at that time, and in general was extremely critical of the quality of British gun barrels being produced:

1. Damascus from only two sources: Mr Clive of Birmingham and George Adams of Wednesbury (introduced about 1820 and possibly what Greener called "Stub Damascus")
2. Wire-Twist Iron
3. Stub-Twist Iron - **Made from horse-nail stubs (iron) mixed with coach spring steel, fused ("puddled") into a "bloom of iron", then hammer forged or rolled into thin rods (threads) but NOT twisted, which were then wrapped around a mandrel and hammer welded. He later describes Stub Damascus as Stub Twist rods which ARE twisted then hammer forged into a ribband.**
4. Mr Wiswould's Iron Barrels and a similar product called Silver Steel. These are described as $\frac{3}{4}$ steel and $\frac{1}{4}$ iron and from the description **may be early Two Rod "Laminated Steel"**
5. Charcoal Iron (without steel) – inferior to Stub-Twist
6. Threepenny Skelp Iron
7. Twopenny/Wednesbury Skelp
8. Sham Damn Skelp which apparently was stained to look like Wire-Twist
9. Swaff Iron Forging made up from small scraps of lockplates and gunscrews

He measured the strength of the barrels (strongest to weakest) as:

Wire-Twist

Stub Twist

Charcoal

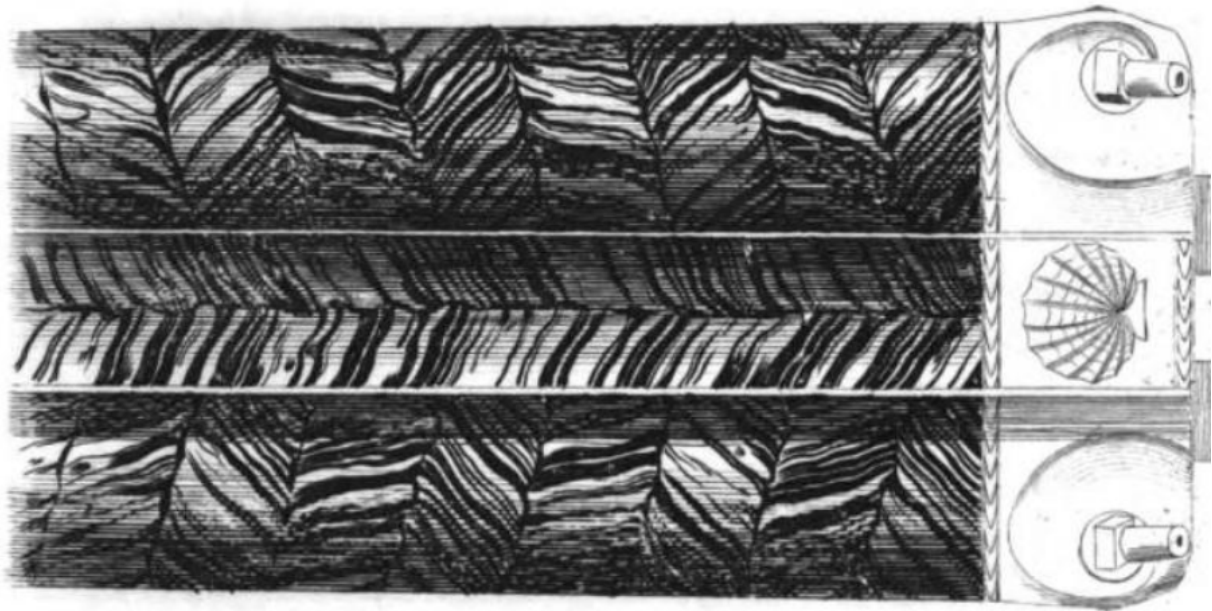
3d. Skelp

Damascus

Wiswould's

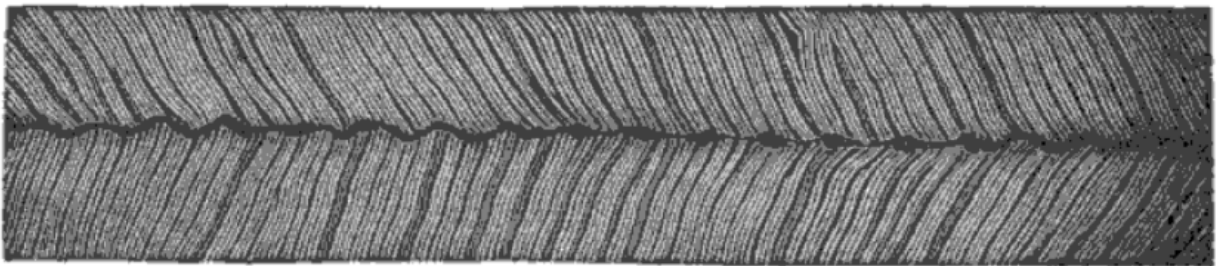
Mr Wiswould's Iron Barrels

http://books.google.com/books?id=oIEY4qL6_z0C&pg=PA18-IA1&dq



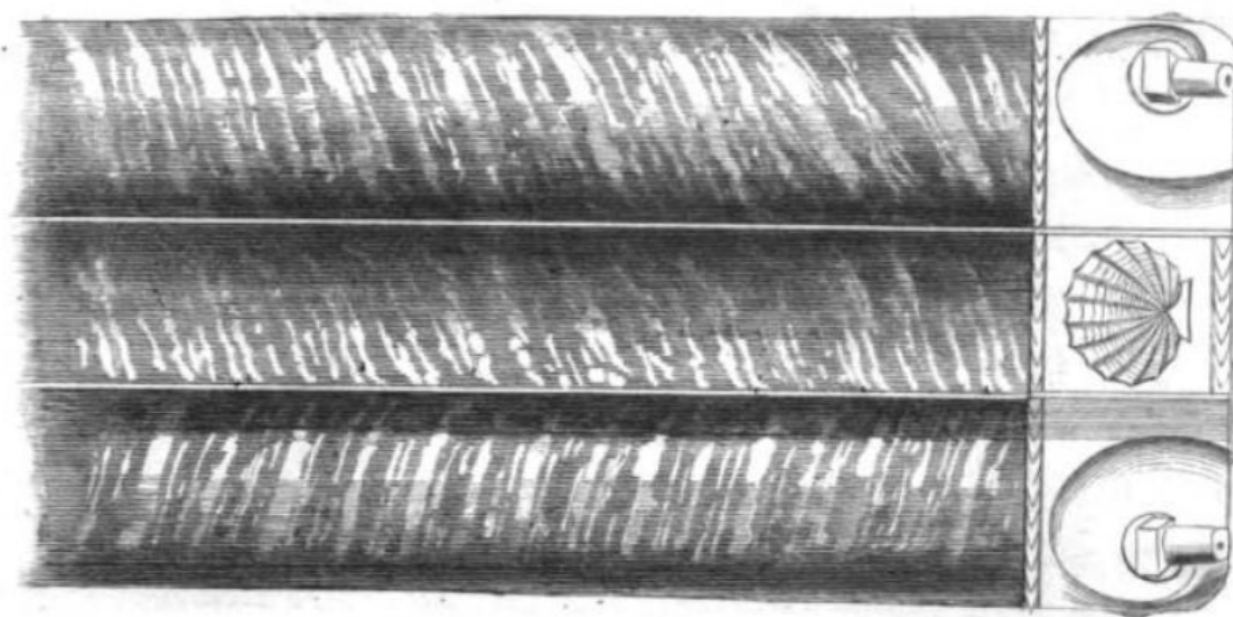
MR WISWOULDS **IRON** BARRELS.

This is a mixture of steel and iron, invented by Mr. Wiswould, of Birmingham; but as he wishes the method of making it to be kept secret, I cannot say more than that its composition is three-fourths steel, and one-fourth iron; and that, like the Damascus, it is twisted in the rod, but not to the same extent, not having more than from four to five twists in the inch. Two of these twisted rods are welded together, with the grain of the metal running in an angular direction, as represented.

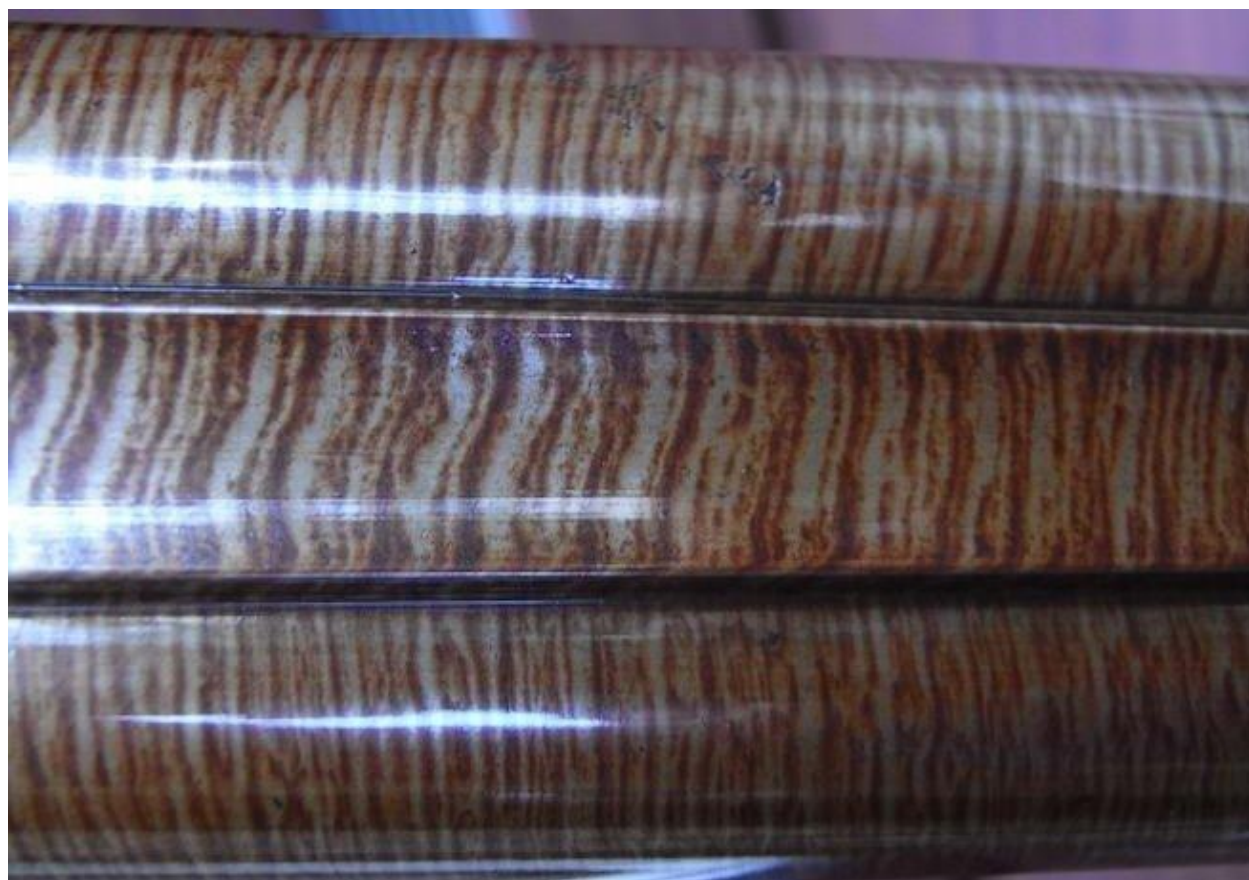


Stub Twist

http://books.google.com/books?id=oIEY4qL6_z0C&pg=PA30-IA1&dq



STUB TWIST BARRELS.

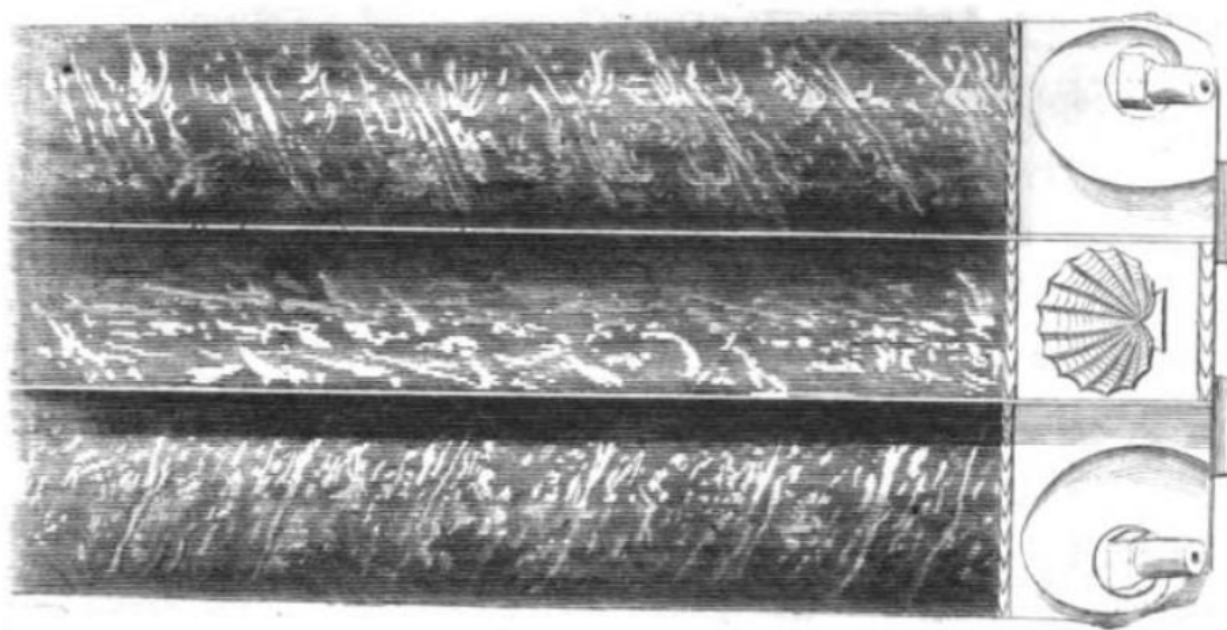


Plain Twist/Skelp (referred to as **"Wire Twist"** by Greener in 1835) courtesy of Paul Stevens



Stub Damascus

http://books.google.com/books?id=oIEY4qL6_z0C&pg=PA30-IA1&dq



STUB DAMASCUS BARRELS.

Knubley "Stubs Twisted"



“**Stub Damascus**” was used by both W. Greener and Henry Wilkinson in 1841 to describe **horse-nail stubs (iron) mixed with coach spring steel, fused (“puddled”) into a “bloom of iron”, then hammer forged into rods which were then twisted prior to being wrapped around a mandrel and hammer welded but with various descriptions thereafter.**

From *Game Guns and Rifles* by Richard Akehurst, 1969

“**Stub Damascus**”...was made from a quantity of old files, heated red hot and rendered hard and brittle by quenching in cold water, after which they were pounded to the size of No 5 shot and a proportion of 15 lb of these added to 25 lb of stubs. The mixture was fused together on the bed of an air-furnace, hammered to condense the metal and rolled into rods 3/8 inch square. **These rods were twisted and treated as for Damascus, the effect being of a mottled twist.**

From *The Century Book of Facts* Henry Woldmar Ruoff, 1906

Some barrels are made of a mixture of old files with old horseshoe nails; these are called **stub Damascus** barrels. The files are heated, cooled in water, broken with hammers, and pounded in a mortar into small fragments. Three parts of these fragments are mixed with five of stub and the mixture is fused, forged, rolled, and twisted.

From *Appleton's Dictionary of Machines, Mechanics, Engine-work, and Engineering*, 1873

Stub Damascus is merely **one** square rod of Damascus iron twisted and flattened into the riband for forming the barrel (**or One Iron Crolle.**)

W.W. Greener seemed to use the term for **any British damascus barrel**, using the terms One, Two, and Three Iron and **Best “Stub Damascus”** as late as 1907
http://docs.google.com/Doc?id=dfg2hmx7_234chsrtv6s

No “Stub Damascus” barrels were listed as tested in the 1891 Birmingham Proof House Trial

One Iron Crolle



Early **British Two Stripe**

c. 1850 Perrins & Son, Worcester courtesy of Paul Stevens



c. 1850 English Two Stripe



c. 1860s English Two Stripe



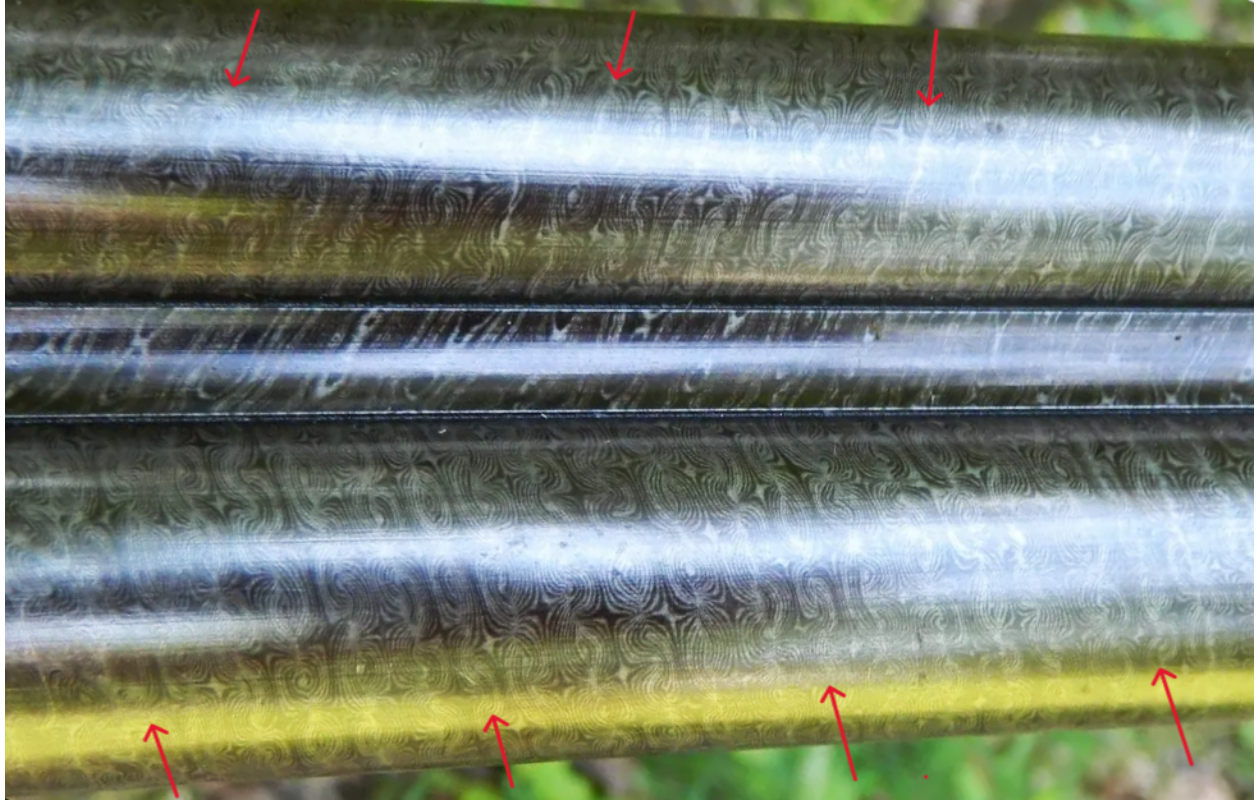
1865 John Dickson central fire



Early 3 Rod “Oxford” or *Damas Crolle*’



1874 Purdey with **6** Iron “Oxford”



R.H. Thomas Pinfire Chequered Damascus



Laminated Steel

Early Westley Richards muzzleloader



Greener Pinfire with rib stamped “Laminated Steel Indestructible By Gunpowder.”
Greener percussion guns have been identified with “Inventor of Laminated Steel”
stamped on the rib.



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