

# UKDN WORD

WORLD OF RESPONSIBLE DETECTING

ISSUE NO.83  
July 2014



## Clunk's 14th/15thC Key



## Hectorsfarm Finds Gold Quarter Stater



**Within these pages: Articles  
on Coin Clipping and  
Making Lead Fly**

**inside:**

NEWS, VIEWS, COMPETITION RESULTS AND MORE



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UKDN would like to thank Tom Redmayne for the cover page image,  
DetectingDavid for image enhancement and UKDN members for their input.



## ***The Admin Team***



### **Brian & Mo'**

Founded UKDN in  
Sept 2002, Detecting  
since 1978.

### **Kevmar**

Here since Sept 2002.  
Detecting since 1978.



### **Coreservers**

Word Assistant Editor.  
Here since 2003,  
Detecting since 2003

### **Kev Woodward**

Here since 2005.  
Detecting since 1990.



### **Tomredmayne**

Here since Sept 2006,  
Detecting since 2005



### **Puffin**

Here since Nov 2007,  
Detecting since 2007

## ***Junior Admin***



### **Tinner**

Here since 2006  
Detecting since 2001



### **Baldric**

Here since 2004  
Detecting since 2003



### **Meandmydreams**

Here since 2007  
Detecting since 2002



Hi Everyone

Well we expect that within a few weeks we will all be detecting again. Some pea crops are already being harvested and an early harvest is being predicted with barley well on the way to ripening. 2010 saw barley off in the first week of July so it could be the same this year.

There is a massive Blackgrass weed problem in wheat this year so farmers may not be in a good mood about it but use the fact as a talking point to break the ice when looking for permissions. Farmers are having to spray much more than normal using up time and expense.

It was with sad news that an announcement was made on the forum that Jim Halliday had sadly passed away. Jim was a fantastic ambassador for the hobby. He did a lot for PAS and served the York Club for many years.

Jim set up the A.R.C (Archaeological Resource Centre) at York, and was very involved with Bones Jones, Ceinwen Paynton, Simon Holmes and other detector friendly Archaeologists. He had a wry sense of humour and was a great teacher. He will be sorely missed in the detecting hobby and of course by his family and friends.

We are hoping to run a tribute to Jim and his work in Word magazine next month.

With the pick up in Forum posts expected with the harvest we will be running a brand-new competition as well as our regular Lottery which will start this coming Sunday.

We hope you enjoy your magazine. Believe it or not this is the 83rd edition and the magazine wouldn't exist without the contributors, the experts who put it together and you the readers. Please tell your friends and club members about it and if you are a Facebook member please share our Facebook announcements.

Good Hunting to you all.



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TODAY

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# Did you See

With almost 500 members visiting every single day and 100's of new posts every day it is so easy for you, the members of UKDN, to miss out on some very interesting posts. So, each month in the magazine we will bring to your attention some posts that you might have missed like.....click on the link

<b><i>Minelab CTX 3030 price slashed</i></b>	<b><i>D-Day</i></b>
<b><i>Evidence that the A1 is TEN THOUSAND YEARS old</i></b>	<b><i>Silver Roman x 4</i></b>
<b><i>Garmin Etrex 10 GPS</i></b>	<b><i>Top Of Your Wish List</i></b>
<b><i>Is this a toggle?</i></b>	<b><i>What's your Top Tip for a Beginner?</i></b>
<b><i>A couple of things from the weekend.</i></b>	<b><i>Tricky Jumbo landing !!</i></b>
<b><i>Disc Brooch or Strap Fitting?</i></b>	<b><i>In praise of metal detecting</i></b>
<b><i>Dead Hawkeye</i></b>	<b><i>Deus settings for Hoard hoovering</i></b>
<b><i>Scary bath time.</i></b>	<b><i>CTX3030 or Deus?</i></b>
<b><i>Laser Hi power B1 user manual ?</i></b>	<b><i>Re-stamped coin</i></b>
<b><i>How did that get there??</i></b>	<b><i>Roman coin and partefact for ident</i></b>

# Coin of The Month

## Winner - Hectorsfarm Gold Quarter Stater



It was quite a warm and dry May day and I had a full day's worth of detecting in front of me!

The farmer had given me permission for some fairly short pasture (due to the grazing cows) to detect on. I had been over this ground before when it was cut stubble the year before and not really detected anything apart from a couple of young Victoria six pences, so my hopes were not too high.

This field is very large and 'dips' down sharply at about half way, so I concentrated my efforts on this 'bank' part of the field. After about two hours of going up and down this steep slope with not much to show for it, I decided it was time for some refreshment and headed over to the wire dividing fence where I'd hung my rucksack.

*(Continued on page 9)*



## MONTHLY COMPETITIONS

*(Continued from page 8)*

Whilst slurping and munching away, I gave thought to perhaps having a bit of a break from the field I was in and have a detect in the field in front of me, which was a lot flatter and an easier dig! I hadn't really ever found anything in this field either, apart from some 17th/18th century dress accessory fittings etc.

I hopped over the wire fence and joined the sheep in milling about! Recalling correctly, I had been in the field about 20 minutes, sauntering up and down in a vaguely organised fashion, when the Deus gave out a very 'solid' yet not particularly 'bright', two-way 52 signal! I remember saying to myself "well, that's got to be SOMETHING decent!?"

I cut a neat plug of about 4/5 inches in depth and flipped it over – I could see the unmistakable edges of the vibrant yellow that only comes with high quality gold! I calmed myself and said it might not be that old and perhaps thinking it may be a Guinea or some such, but wiping away the dirt, my hopes came true... An Iron Age British Qc quarter Bognor Cogwheel Regini and Atrebatas Stater from about 60 – 50 BC!!! I have since found it is probably a southern mint, perhaps in West Sussex.

Thanks everyone for voting for me and happy hunting!

Hec.

***(c) Hectorsfarm July 2014***



# Artefact of the Month

## Winner - Clunk 14th/15th Century Key



It was a weekend and my father rang and said to me "Are you going out digging?, if so I would like to come with you". I said "Yes but I don't know what pasture was short enough".

So off we went with sandwiches and lemonade. The first small pasture field we got on didn't turn up much, just two George 3rd half pennies and one George 3rd bank token, which

was a forgery, still with a bit of silver on it. It was about four yards into the field from the main road so whether it had been tossed over the hedge in disgust we will never know.

I said to dad "There is a field about 20m by 20m not far from where we are but I've searched it with my mate four times in the past"

*(Continued on page 11)*

# Artefact of the Month

*(Continued from page 10)*

I continued saying, "We only found chopped-up cans and the odd vicky coin". Dad said, "Why don't we give it a quick go and then go home?"

We got there quickly. The first hole I dug was foil, I thought this is a waste of time!! The next hole was a blank coin then I dug my next hole and all I could see was the top of what looked like a copper circle about 6 inches down. Dad looked in the hole and said "What's that?" so I pulled it out.

I said "Wow look at that!!" It was the top of the key facing down. "I didn't expect that" I said. My first bit of medieval off the farm.

Dad went to wash it in the cattle trough laughing when he came back. I said "What's the matter?" he said, "I've just rescued a bat trying to get out the cattle trough. I've put him in the barn on the straw." So, a good day had by all.

**(C) Clunk - May 2014**



# Treasure hunting

BRITAIN'S BEST SELLING  
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## Monthly Competitions Runners up



**Popsandme  
Nerva  
Denarius**



**Bobgunnis  
Corieltauvi  
Boar stater**



**Tinner  
Follis of  
Constantine**

## **Monthly Competitions Runners up**



**Far left  
Bobgunnis  
Military  
Cap Badge  
Left -  
Tinner  
Viking  
Strap End**



**Above -  
Puffin - BA  
Spear tip  
Right  
Tinnerdsad  
Saxon Brooch**



# UKDN FUN DSLR - Camera PHOTOGRAPHIC COMPETITION

**Winner - Slapeddicus  
Red Kite**



**Runners Up Featured Overleaf**



# **UKDN FUN DSLR - Camera PHOTOGRAPHIC COMPETITION RUNNERS-UP**



**Deetektor  
Mk18 Spitfire at  
Duxford.  
Taken with Nikon  
D3300**

**Stig - Fire Truck -  
Built 1938.  
Nikon D3100.**



**Popsandme  
Canon 600d  
Aphyd**

# **UKDN FUN POINT, PRESS & PRAY PHOTOGRAPHIC COMPETITION**

**Winner - Nick**

**Brixham Harbour taken 13/05/2014  
iPhone 3GS.**



**Runners Up Featured Overleaf**

# **UKDN FUN POINT, PRESS & PRAY PHOTOGRAPHIC COMPETITION RUNNERS-UP**



**Puffin - Nant-Y-Moch six images stitched together, Canon Powershot 2400 IS.**



**Tom Redmayne - Dandelion clock before  
telling the time.  
Fujifilm Finepix HS 30 EXR bridge camera  
taken 16/5/14.**



# ARABLE FARMING

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## Arable news



### UK needs millions of hectares of extra land to meet population needs

22 June 2014

THE UK does not have enough land to meet the growing population's need for food, space and renewable energy and faces a 2 million hectare (7m acre) shortfall of additional 'multi-functioning' land, a new report has warned.



### Government considers neonicotinoid derogation request

24 June 2014

THE Government is considering a request for a UK derogation

from the EU-wide ban on neonicotinoid seed treatment, which would enable farmers to plant 155,000ha of treated oilseed rape this autumn.



### Agricultural societies join up via knowledge transfer hub

24 June 2014

AN ambitious new project to bridge the gap between scientific research and farmers in the field has been launched by the Royal Agricultural Society of England

(RAS).



### Cereals Event 2014: Ulrich Attachments push off preb

22 June 2014

British attachments firm Ulrich has developed a new range of attachments.

## Arable Farming on Twitter

Tweets [Follow](#)

 Syngenta UK 24 Jun  
@SyngentaCropsUK  
RT @JamieM\_Roberts: Interesting calculations from @ADASGroup #blackgrass trial, WW @ 4.9 tillers/bg plant #Hyvido @ 1.7 p/c.twitter.com/3VMSQtsAFa 13 Retweeted by ArableFarming



Tweet to @ArableFarming

## Competition



Win one of three trips to Denmark for you and your agronomist with Lemken.

Feed wheat growers wanting a variety which combines consistently high yields with excellent all-round disease resistance have an exciting new option in Evolution this autumn.

## Croptec show 2014

New technical event aims to help farmers develop profitable and sustainable farming.



## Also in: Cereals 2014: Plenty Of New Kit To Fire Visitors' Imaginations

- > [Cereals Event 2014: Claydon trailed Hybrid drill](#)
- > [Cereals Event 2014: JCB Fastrac 4000 Series](#)
- > [Cereals Event 2014: Cultivating Solutions Rapid Lift toolbar](#)
- > [Cereals Event 2014: Sulky DX fertiliser spreader](#)
- > [Cereals Event 2014: Sumo Seeder](#)
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# COIN CLIPPING

BY  
Coreservers

Coin clipping is the practice of cutting small pieces from coins. Coins were once made of pure gold and silver, and through everyday use were subject to wear. It was not unusual to receive a coin which was not perfectly round.

So cutting or filing a small amount off the coin would probably go unnoticed. The cut-off pieces would then be melted into a bar and sold to a goldsmith, or used to make counterfeit coins, and was common from roman times right through to the introduction of milling.

## ***A serious criminal offence***

The act of clipping was a serious criminal offence as it undermined the currency of the country. So serious a problem, in Britain clipping was high treason and punishable by death. In 1677, a judge at the Old Bailey Court in London observed that "'Tis sadly known how common that mischievous crime of Counterfeiting, Clipping, and Filing of his Majesties Coin is become in most parts, to the great abuse of all good Subjects."

## ***Clipping could be profitable***

The threat of hanging did not put off the criminals, for clipping could be profitable, and at its simplest, the only tools required was a file, some shears or strong scissors, and a melting pot.



## ***A well organised crime***

The act of clipping was not just the occasional coin, it could be a well organised crime. For example, one woman arranged with various apprentices, servants and cashiers who were responsible for safe custody of their masters' money, to bring it her to be clipped and then returned to them.

*(Continued on page 20)*



*(Continued from page 19)*

### ***Burned to death***

For each £100 of coin brought to her, she gave them £5. This gives an indication that in monetary terms clipping was worth while, but the sentence was not. She was drawn on a hurdle or sled to Smithfield where she was burned to death.



### ***Ornament and a safeguard***

Various measures were introduced to stop clipping. Machines to make the coins, milling (ridges) around the edge of the coin and engraving up to its edge. Notably, the phrase Decus et Tutamen, 'an ornament and a safeguard', appeared on the edge of the Crown coin of Charles II. The same phrase appears on the present day £1 coin. The problem was finally solved by changes to the metals with which coins are made. Coins are no longer made of any metal which is worthwhile clipping. However, they are still counterfeited, by different methods. I'm sure we've all had one of the fake £1 coins in recent times.



These 3 coins show just how much could be removed in the process.... These are siliquae from the Hoxne hoard.

***(C) Coreservers June 2014***



# The art and history of making lead fly by Archer



It's a rare event when a detecting trip doesn't yield at least one item of ammunition - typically a shotgun cap, a cartridge case, a musket ball, bullet, or maybe a piece of shrapnel. All this is hard evidence of man's ingenuity to kill fellow man or beast over the centuries. For some of us this material is ultimate fodder for the nearest hedge, ditch, scrap or waste bin, or for others maybe just something to be left discarded on the surface in laziness, frustration, or a bit of both!

Where all this metal ends up varies depending on the individual and for each of us there's no doubt a wide variety of personal cut-off points. For example I'll wager that more male detectorists hang on to selected bits and pieces like this than female - it's a man thing born out of testosterone and watching too many war films.

My cut-off point is WWII, anything older generally lands in the collection, younger, and unless it's particularly unusual or complete it's destined for the waste bin - although I confess not before I have looked at dateable marks such as cartridge head-stamps for any date information that may help in interpreting the site history. Figure 1 shows a range of typical ammunition finds.

The human race has been playing with pyrotechnics for many hundreds of years, in fact since the 9th Century in China. The Chinese are believed to be the first to use gunpowder with a "recipe" comprising of 75% finely ground potassium nitrate (saltpetre) 15% charcoal and 10% sulphur by weight. In its infancy it was used for fireworks, eventually finding its way into the Arab world around the 12th C and by the 14th C was used in Europe.

*(Continued on page 22)*



**Figure 1 - Ammunition fragments**

- 1 : Musket ball
- 2 : Pin Fire shotgun cartridge cap
- 3 : Driving band shrapnel
- 4, 5, 6, 7 : Assorted anti-aircraft shell shrapnel
- 8 : British Mortar Tail fin

*(Continued from page 21)*

Along the way its principal use had transformed into a military one, it being used as a propellant for cannon and "hand-gonnes". The earliest hand-gonne was essentially a metal tube tapered into a solid butt. It was developed in the 15th C but was not a great influence in battle. It was in

effect a small cannon with a touch hole to ignite the charge. It was heavy and unwieldy and required that the user prop it on a stand, brace the butt-end against the chest, and use the other hand to touch a lighted match to the touch hole.

*(Continued on page 23)*

*(Continued from page 22)*

The effective range was around 40 yards, which up against a charging mounted knight took real faith in the efficacy of your new fangled device.

During the early to mid 15th C the Arquebus arrived on the scene, and with a wooden stock and shaped butt started to bear some resemblance to a modern rifle. Since both hands could now be used to hold the weapon it was also possible to take rudimentary aim. The method of igniting the charge was through a pivoted metal arm called a serpentine. This held a slow burning match of hemp or cotton rope soaked in saltpetre. By pulling the bottom trigger-part of the serpentine the match attached to the upper part was lowered to the touch hole and the powder ignited. Over the next few centuries firearm development concentrated largely on improved methods of igniting the charge through improved lock mechanisms.

In the early part of the 16th C the musket started to appear. It was considered the largest and most powerful gun that a soldier could operate. Weight was around 20lbs and at five to six feet in length required a forked rest to support the weight. The simple serpentine of the arquebus had been replaced with a sear matchlock which used a spring operated trigger to lower the match into the priming pan.

The matchlock musket would become the workhorse of European armies and would see action in the English Civil War and the Thirty Years War.

Although more advanced lock mechanisms came about such as the Wheellock (circa 1510) The Snaphaunce (circa 1547) the flintlock (circa 1610) and the percussion lock (circa 1805) the inexpensive and easy to manufacture matchlock musket remained in European service until the 1690s. Since much of the fighting was at close quarters the musket was almost an accessory to the bayonet and acted as a short pike.

Muskets were relatively fast to load but extremely inaccurate. The effective range was from 100 to 200 yards but in reality they were only accurate to 40 yards or less. The term "couldn't hit a barn door" was literally true when it came to the accuracy of smoothbore muskets. At 300 yards only 1 shot in 20 would hit a target of 18 square feet and the guns did not even have an aiming device. General Grant wrote in his memoirs "You might fire at a man all day from a distance of 125 yards without him ever finding out. The limitations of the smoothbore led directly to the military tactic of massing troops into lines and firing coordinated volleys.

*(Continued on page 24)*





Figure 2 - The Brown Bess the Army musket 1700 to 1815

(Continued from page 23)

It was even considered un-gentlemanly to draw a bead on an enemy combatant. With muzzle loading weapons the size of the ball had to be smaller than the bore of the gun barrel in order to fit easily. This contributed to the inherent inaccuracy of the smoothbore musket since some of the force of the expanding gases from the exploding charge could by-pass the ball on its passage up the barrel - a phenomenon known as "windage".

For the same reason the undersize ball could easily rattle up the barrel, which coupled with the variable shape of the musket ball affecting its consistency of flight made achieving accurate fire impossible. Gun calibre was measured by the number of balls with diameters equal to the diameter of the bore that when combined weigh a pound. Most muskets fired a lead ball of between 10 and 20 bore. The most famous British flintlock musket was the Brown Bess or Long Land Pattern musket which was in use with the Army from 1796 to 1839 when it was replaced by the Enfield percussion rifle.

It was a muzzle loading smoothbore and fired a lead ball 0.69" in diameter. It saw considerable action in India, the American Civil War and the Napoleonic Wars, and albeit much later in 1910 even inspired poetry from none other than Rudyard Kipling. Seven versus, of which this is the last.

*"Brown Bess"*

*Where old weapons are shown with  
their names writ beneath,  
You will find her, upstanding, her  
back to the wall,  
As stiff as a ramrod, the flint in her  
teeth.  
And if ever we English had reason to  
bless  
Any arm save our mothers', that arm  
is Brown Bess!*

*Rudyard Kipling*

Figure 4 shows a variety of Musket Ball sizes, these are frequent detectorist finds across the fields of Britain.

(Continued on page 25)



**Figure 4 - Examples of detector found Musket balls**

*(Continued from page 24)*

The example far right is close to Brown Bess calibre. It was recognised quite early that ballistic improvements could be made to shot accuracy by imparting spin to the projectile, this was made possible by creating a spiral groove inside the barrel, the aim of which was to physically engage with the bullet and cause it to rotate on its path to the target.

The grooves came to be known as "rifling" and the weapons as rifles. Rifling was invented as early as the 16th C but in order to be effective, the bullet had to be a tighter friction-fit in the barrel. This made muzzle loading slow and sometimes impossible, due to fouling of the barrel from gunpowder residue and it was not pursued fully until much later on in the sequence of firearms development. One of the earliest was the muzzle loading rifled Baker rifle adopted by specialist Army units around 1801.

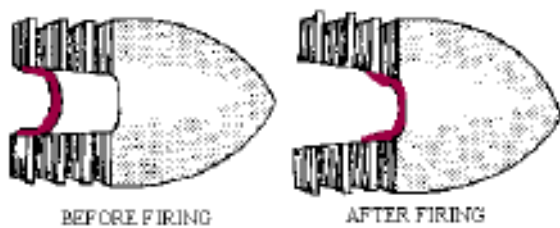
Designed by Ezekiel Baker, the improved gyroscopic stability of the spinning projectile meant that the rifle could score nine out of 12 shots at a target from 200 metres, and riflemen during the Napoleonic wars of the 95th and 60th regiments boasted "one shot, one kill."

Its short, 30-inch barrel also gave riflemen the choice of loading the weapon while lying down. Sharpe in the TV series of the same name uses a Baker rifle. Gun ammunition itself had seen very little in the way of innovation and development, consisting for centuries of the plain and unsophisticated spherical musket ball that we are all so familiar with.

Given that breech loading weapons were not available at this time, projectiles had to be sufficiently undersize to fit down the barrel. This set the challenge for designers to come up with a viable solution to the ease of loading and rifling engagement dilemma.

*(Continued on page 26)*

(Continued from page 25)



**Figure 3 - Minie Ball Principle**

A number of experimenters worked on testing new expanding bullets as a way of overcoming this problem. It was resolved most successfully by a Captain in the French Army, Claude-Etienne Minie and his minie ball. This bullet was made with a dome-shaped top and a series of greased annular rings around a hollow base. In the base was an Iron cup, and upon firing this was forced by the expanding gases into the hollow base so expanding the skirt against the internal rifling of the barrel.

This had a good number of advantages. Loading was made easier, the bullet profile was more aerodynamic and the spin imparted by the expanding skirt engaging with the rifling improved accuracy and stability. Furthermore, this reduced windage and improved muzzle velocity. The bullet calibre was still large, going through many variants to suit particular weapons but generally well in excess of half an inch, in general though ammunition calibres were starting to reduce.

The Minie ball was widely adopted in the 1850s and was used extensively during the American Civil War.

The Brunswick rifle introduced in 1836 saw further developments. The weapon had a two-groove barrel engineered to accept a "belted" round ball. There were a number of variants produced in .704 and .654 calibres. The weapon also had a more modern percussion lock. This used a top hat shaped copper alloy cup filled with mercuric fulminate (see Figure 9). This compound is extremely explosive, and is shock sensitive, a sharp blow, or even too much finger pressure, can cause it to detonate. A percussion cap was placed on a nipple-shaped cone, hollowed through to the rifle chamber, when the cap was struck by the falling hammer the hot gas ignited the main charge and fired the weapon.

**Fig 4 Brunswick belted ball**



(Continued on page 27)



(Continued from page 26)



**Figure 5 - Enfield musket Bullet a variant of the Minie ball called a Pritchett bullet. Found with a C-Scope back in the late '70s**

The Enfield Pattern Rifled Musket was used in a number of different variants. The 1853 model was a .577 calibre muzzle-loading rifled musket and fired a Pritchett bullet with the same expanding principle as the minie. The Pritchett bullet was designed to expand without the need for an iron cup. The rifle's cartridges contained 68 grains of black powder, which would drive out the ball with a muzzle velocity at around 850-900 feet per second.

With practice a good marksman could hit a man-sized target at about 500 yards. The example shown in figure 7 was found back in the mid '70s on a Victorian range site used by Yeomanry regiments close to the Royal Small Arms Factory in Enfield North London.

It was unearthed at the firing point end so has in all likelihood been dropped not fired. The range also produced a number of buttons of the 'Duke of Lancasters Own Yeomanry' shown in Fig 8 and the rather unusual and still unidentified white-enamelled artefact in Fig 7.



**Figure 6 - Unidentified object with remains of white enamel. Note the fixing points on the back. Found on the site of a former Victorian shooting range.**



**Figure 7 Graphic of a Boxer cartridge with the real thing alongside note the ceramic plug in the base of the bullet.**

(Continued on page 28)

*(Continued from page 27)*

My best guess was, and still is, some kind of epaulette flash – any ideas out there would be gratefully received. The RSAF was the company that manufactured many of the small arms in the latter part of the 19th C and into the 20th C. Up unto this point breech loaders had never really been very successful due to difficulties in sealing the breech, backflash and windage being the main issues. Manufacturing technology had now reached the point where production techniques, machining tolerances, metallurgy and ingenuity of design made such improvements viable.

Integrated metal cartridge development alongside this resulted in many Enfield 1853 Rifled Muskets being converted to breech loading Enfield Snider rifles in 1867. The main advantage of a breech loading weapon is a reduction in the reloading time; it is much quicker and simpler to load the projectile and charge in at the breech than it is to force them down a long metallic tube, especially when the bullet is a tight fit and the barrel is rifled.

The firing rate of the Enfield Snider was around 10 rounds per minute. The cartridge used was a metal Boxer cartridge named after a Colonel Boxer and firing a Snider bullet of 0.577 calibre.



Figure 8 - Uniform button of the Duke of Lancasters Own Yeomanry

Fig 7 shows a graphic of the Boxer cartridge for the Snider with metal detector found examples of the real thing alongside. Note the ceramic plug in the base of one of the bullets. The Boxer cartridge case was made of a thin sheet of brass rolled around a mandrel, which was then soldered to an iron base. They were found to be vulnerable to being easily damaged, and produced inferior muzzle velocities.



Figure 9 – “top hat” percussion caps

*(Continued on page 29)*

*(Continued from page 28)*

Later, the rolled brass case was replaced by a solid drawn brass version which remedied both of these problems. The Snider was a converted muzzle loader, but the first service rifle designed from the outset to be a breech loading metallic cartridge firearm was the Martini Henry. It protected and served the British Empire and her colonies for over 30 years and was made famous in the Zulu wars in particular by the defence at Rorkes Drift.

All the weapons up to the late 19th C used black powder as the charge for the projectile. This was not far removed from the original concoction invented by the Chinese centuries earlier. As a propellant it had a number of problems. It produced clouds of acrid white smoke, and this not only obscured the battlefield but if you were trying to snipe at the enemy your position was given away on the first shot with a tell-tale puff of white smoke. Being hygroscopic it did not like getting wet, and the spent residue also produces a thick corrosive layer that eventually fouls the gun barrel.

A major improvement took place when Guncotton was introduced in 1846. Guncotton was many times more powerful than gunpowder, but at the same time was somewhat more unstable.

After several production accidents it went out of use for several decades until it had been tamed and made more stable. It was not until the 1880s that nitrocellulose based smokeless propellant became viable. Smokeless propellants such as cordite were introduced in the 1890s and the new type of powder removed much of the obscuring smoke from the battlefield and, combined with high-velocity ammunition and increasingly accurate rifles, made the long-range sniper all but invisible. Furthermore the higher muzzle velocity developed caused the bullet to have a flatter trajectory and better accuracy. Ammunition also started to become smaller and lighter and was more resistant to moisture.

As described earlier, in the 19th C lead projectiles had moved on from musket balls into shaped more streamlined bullets. The word "Bullet" is derived from the French "boulette" which roughly translated means "little ball". Much experimentation took place on the rifling inside the barrel investigating the number of grooves and the pitch of the spiral required to give optimum spin to the bullet. Lead is very soft, and some bullets were found to override the rifling leading to adjustments of the alloy in order to make it harder and more resistant to the deforming effects of increasing propellant power.

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*(Continued from page 29)*

Lead bullets fired at high velocity may also suffer surface melting due to hot gases behind and friction with the bore. However, because of its density lead was still a good choice, since the mass developed high kinetic energy.

The next important change in the history of the rifle bullet occurred in 1883, when a Major Rubin came up with the innovation of putting a copper jacket or envelope over a lead core.

Full Metal Jacket as it came to be known. The copper jacketed bullet allows much higher muzzle velocities than lead alone, as copper has a much higher melting point, greater heat capacity and is harder.

All this said, identifying and dating the myriad of diverse projectiles can be a problem. Whilst there was growing standardisation in military arms, outside of this there was a hotchpotch of types and calibres. Over centuries of innovation and development, mans ability to come up with ever more ingenious means of accurately doing away with kith, kin and sundry beasties has resulted in this massive variety. You couldn't hope to identify all of these, but by following some broad principles and knowing the dates of the key developments you can end up in the right ball-park if you'll excuse the pun. Below is a list of questions, answering some or all of which may help narrow things a bit.

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A Selection of projectiles

*(Continued from page 30)*

Does it show any rifling? Commercially Rifling was a largely a 19thC innovation.

Is the bullet jacketed? – If yes then after 1883 and most likely 20thC onwards.

Is the calibre large? – In general calibres became smaller in the later 19thC. If it's a ball then smaller calibres are often pistol rounds.

Does the bullet have cannelures - radial grooves on the bullet? These were introduced with cartridges in order to crimp the bullet in place and will be post the late 19thC

Is the bullet dumpy or more elongated? Short dumpy bullets are more common in hand guns like pistols and revolvers, and in early rifles/muskets.

Does it have an expanding skirt – then it must be the wife – no sorry it will most likely be post 1850.

I hope this article has been of some interest and if it causes the more interesting finds to remain in the find box, or at least some respectable delay in the majority hitting the hedge, ditch or waste bin faster than they left the gun in the first place, then it has achieved its aim.

***(c) Archer Garry Crace***

# ***News and Views from June 2014***

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***Thought this might be of interest***

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## New members in June 2014

Brian and Mo and the team would like to thank and extend a warm welcome to all the new members listed below who have joined UKDN in the last month. Please introduce yourselves so that the members can welcome you aboard and make you feel at home. [Click here to introduce yourself](#)

If you are not already registered with UKDN you can register by clicking on this link and see what you are missing [Click here to register](#)

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# About us

UK DETECTOR NET was created on September 28th 2002 to bring together responsible metal detectorists everywhere to discuss the hobby, their finds, the machines they use and a million and one other detecting related subjects.

## Visit the forum

[Click here to visit forum](#)

## Contact UKDN

[enquiry@ukdetectornet.co.uk](mailto:enquiry@ukdetectornet.co.uk)

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If you would like to contribute to the newsletter please contact either UKDN as above or PhilD via PM,.

## UKDN aims

UKDN is a forum for people who are interested in the hobby of metal detecting. UKDN is an online community where members can exchange and share knowledge, their views, discuss the hobby, their finds, the machines they use and a million and one other detecting related subjects. UKDN actively works towards the following aims:

1. Develop a greater understanding of the hobby and some of the wider issues through healthy pro-active debate within the forum and through the monthly magazine, which is distributed to, and read by, our membership and beyond. The magazine includes UKDN based news and articles, as well as wider news, debate, and issues of heritage interest.
2. Provide a platform to inform beginners in the hobby of the basic principles in the use of a metal detector, gaining permission, site research, basic heritage law, farming scheme rules and in the 'best practice' for conservation, recording and co-operation.
3. Actively promotes the 'Code of Practice for Responsible Metal Detecting' to all members of the UKDN online forum and beyond.
4. Encourage all UKDN detectorists to record their finds with the appropriate bodies (depending where they detect); In England and Wales, this is with the Portable Antiquities Scheme, in Scotland this is the Treasure Trove Unit.
5. UKDN will actively work towards ensuring the future security of the hobby. We will liaise and co-operate with heritage professionals in a way which is mutually beneficial to all parties whilst maintaining our independence, and we encourage their active participation, either in the UKDN online community or through our on-line magazine.