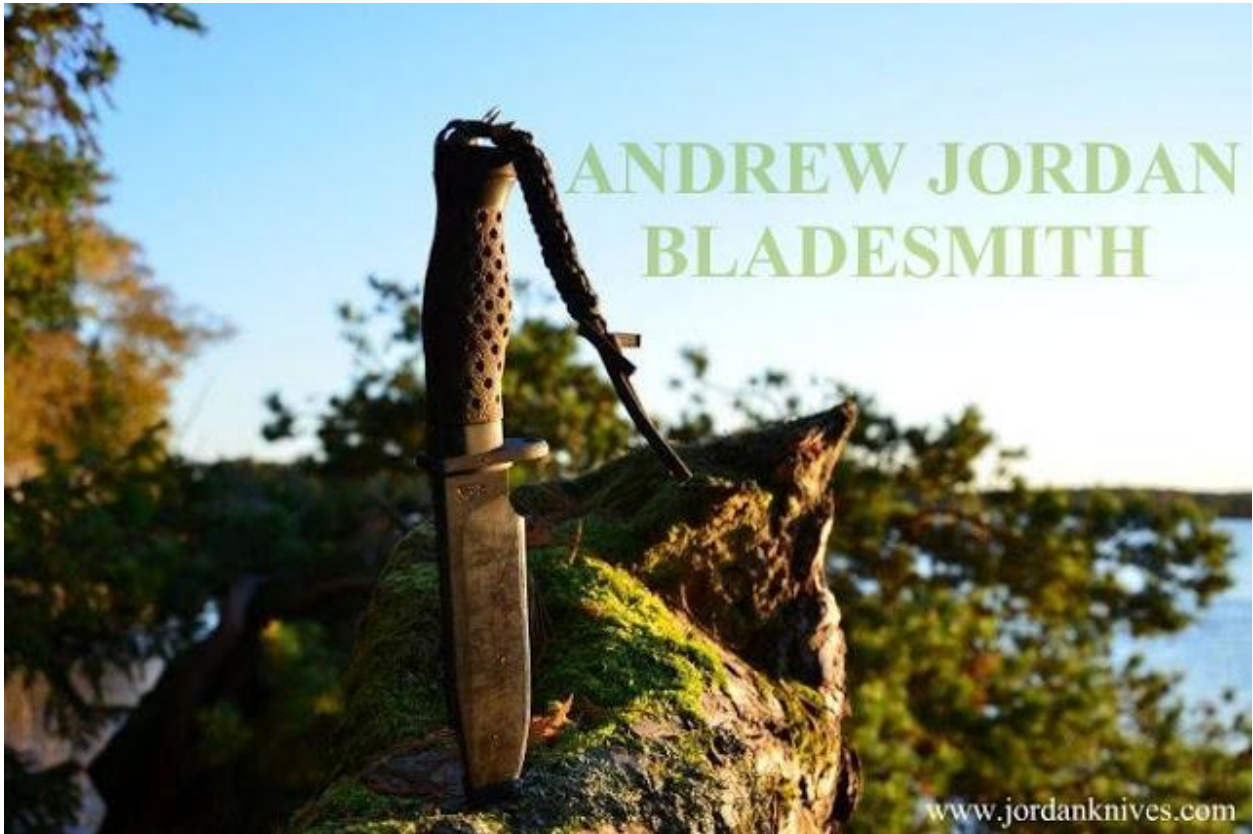


MONDAY, SEPTEMBER 3, 2012

History of Andrew Jordan Knives



It is our pleasure to introduce the renowned blade smith Mr. Andrew Jordan. He has graciously agreed to provide a series of guest articles to be published here on Black Scout Survival. Mr. Jordan is a quite professional and allow's his knives to speak for themselves. I hope you all enjoy getting some information from a master at his craft. You can visit his website to view more of his incredible work at www.jordanknives.com

HISTORY of my user knives thus far:

Black Scout Survival has asked me to write a series of articles for their web magazine. We hope to link this article with another gentleman by the name of Stani Groeneweg, he will author an article in the future for Black Scout Survival. Both articles will support each other in a few aspects.

In the last 9 years after my article in the Royal Marine Commando Magazine the *GLOBE AND LAUREL*. I outlined a design for a modern field knife. I was quite surprised to be allowed to write such an article for them. As we know the Royal Marine Commandos have an ICON as there unit patch "The Fairburn / Sykes Commando Dagger, this of course has a very strong history with them and is still being used by them today. So for a relatively unknown blade smith

to come along and write about what he thinks is relevant for a field knife was a great honor for me and my family (More about myself a little later).

What I outlined in my article for the Commandos was my first idea for a field knife. Field knives have to do just about everything a person might want to use it for in field operations. General field tasks demand a lot from a knife in such circumstances. Good design is essential as well as well carried out functional build quality with a very good focus on the blades ability to hold a good edge and be easily sharpened. The knife will be used for lots of different tasks, so I incorporated a solid butt cap for balance and for using the butt cap for hammering and crushing. The handle material originally was a combination neoprene Micarta washer construction with a larger double guard, a forged mono steel blade in O2 [1:2842 steel]. On the first version I had the serrated section on the rear of the blade near the choil area.



The article was well received by the Commandos when printed. I was able to sell a few of my knives to different people in the units. One of them became a good contact over time, from his help I was able to get feedback from him regarding my knife to help with my already on going field testing. Over time this contact with feedback over the next 9 years, slowly but surely made a great difference to the Commander's design's, it changed subtly from the Mk1 to the Mk5 that now is in production. This feedback was also put into other knives from my User / Military / Survival knives. Over time I have developed a range of knives using the basic same handle construction [a well-tested handle/guard and butt cap configuration] but made different blade length and shapes to put the handle onto.

It was at this point in time around 2 1/2 years ago Stani rang me to come for a visit to my workshop to talk about having a knife made for him. As I'm a Blade smith I accepted and we made the appointment. At this time I was completely unaware of who exactly Stani was and what he had done in his life to become where he was and is at this time in his field of excellence.



Of course over time when you work at a job day by day you learn new things, things evolve too, and knowledge is gained and this is added too, I of course do hard testing on my knives whilst constructing them. The blade goes testing before I go on to make the fittings, spacer, guard, ferrel , butt cap. Three tests are used , a smash test where the blade after heat treatment is repeatedly hit into a piece of unhardened carbon steel in a vice , this is to ensure that the blade has hardened fully , will not chip out and roll over, Then a point stability test is done, by placing the point 1 cm into hardwood and breaking the point out , then a tang stability test, the knife is placed in the jaws of a vice half way up the blade and the remaining part of the blade is hit with a large raw hide mallet to see that the blade retains its form from the hits. IF the blade comes away from this undamaged it then is finished and deemed ready for use. I must say that I do get failures of my knives, this HAS to happen, if I don't get failures this is good, but I do get them. I don't make mystical knives that are forever sharp or anything along those lines. I just try my utmost to make a knife that is something that is as reliable as possible for the user.



Over time I watched other's use my knives, read and watched documentaries traveled to the north of Europe to meet indigenous peoples like the Sami people of northern Europe. Over time I started to form my own opinion on knives and how they fit into the realities of life in the field. The nice thing was that when Stani and I met, it was a kind of coming together of experiences

that matched in many ways. Though I have none of the depth Stani has, there was a good enough match for us to find a meeting ground of knife use.

After the meeting, we had come to the point of deciding that Stani would like to have a drop point OPO. We all know the drop point shape and it is a good shape for the job, other knife shapes can be equally useful to other people. But in this case, Stani felt that the drop point in a wider blade, made with the same tested handle configuration would suit him very well. I went ahead and made the knife for him.



Mk5

Over this last 3 years ,I have had through the contact with Stani the chance to meet and make more knives for people who need knives for the field , Dennis van Dokkum (from survival school OVERLEVEN), Meg Hine (another outdoors woman mountain leader), both are close friends of Stani and we have become good friends over this time . I have made and supplied quite a few knives to them , Wolverines , Commanders , OPO , Grizzly's Bears, Raptors all have been taken and used by these people and their students in the schools. This is also in conjunction with my knives being used by Specialist Police/Military units here in Europe and America. All this work being used by professionals who demand the very best from their knife has led to feedback and testing, reevaluation of design to make the knives I make evolve to better and better user standards. As well as people like Stefan Hinkelmann and Jack from Blackscout Survival and others, who have helped my knives and there development. All in all I'm lucky to have these people to talk and share things with.



Commander



Megan Hine's Knife

[In the next article I will cover my experience from my family, background, Japan, to the present day]

MONDAY, SEPTEMBER 17, 2012

Andrew Jordan: History in Bladesmithing



This is a guest article from the bladesmith and craftsman Andrew Jordan. This is will be an ongoing series that allows us all to see the inside details of a master at his craft. This series will be published every 2 weeks, so check back to be sure not to miss anything. You can also take a look at his extraordinary work at www.jordanknives.com.

I would like to give a review of my history in Blade smithing . My grandfather was a Farrier/Blacksmith, having just completed his apprenticeship before the outbreak of WW1. After joining the army he was sent to the Cavalry as a Trooper/farrier. During the time from 1914 to 1918 he was stationed just behind the lines of trenches along with cavalry regiments. At this time cavalry were considered the main thrust of a break out from any military operation.

So whilst the way military operations were changed because of the stale mate fought from trench to trench, my grandfather looked after the horse's and trained as a trooper in the cavalry. He was a champion military saber [something his grandson would take up later] The issue saber broke on several occasions and because he had the skills necessary to forge, he undertook to make himself a blade that could take the use he felt it should.



WW1 1908 British Cavalry Troopers Sabre

The first sabers in the standard issue format of the 1908/1912 cavalry sword. My Grandfather came up with a thicker tang area that would not fail him, being a man of fairly large proportions and strong like a mule, because of this he would break the sword at the guard/tang area, though the 1908 /1912 saber has the reputation as a thrusting saber this is not necessarily how some of the users would use the weapon. A cut can be a very good thing used in the right manor.

Through time, he got the hang of the forging of a saber he would like to have, this took some development. I know that he used the leaf spring out of a Rolls Royce staff car that had broken an axel whilst trying to travel the horrible roads that were in use behind the lines of trenches. Other sabers broke and cavalry trooper found out that my Grandfather was forging sabers that cut better and were more durable than the issue sabers. This in time got to the ears of the Infantry in the trenches in rotation to training in barracks. These infantrymen came to my Grandfather to ask for trench knives. He did this in his spare time and earned a free pint or two when he was in the bar at night. This is where most of my knowledge comes from. Not a great deal but enough for me to understand what I should be aiming for in my career as a Blade smith.

This is what was passed onto my uncle Sid, one of my Grandfathers sons whilst this was being taught my father a small boy was able to listen and see a lot of the training, by the time my father grew to start his apprenticeship the time of the Blacksmith/farrier had almost come to an end. Though my father had the skills, it was felt that being an apprentice in the PRINT would be a better long term career. His grandson [Andrew] understood from an early age that he would be trained to carry as much of his family knowledge regarding smith-work. This started with him learning how to use a sledgehammer, then on to exercises of moving steel to exact sizes with a hand hammer. Taking a piece of mild 1/2 inch square and hammering it to 3/8 square, then hammering it to 5/8 square, then to a 8 sided regular octagon and on and on, moving steel to understand how it moves. This of course took some time because of my age and the ability to use a coal fire to make coke, this took some time. I must say my father's way of teaching was very hard, I did learn from this by making mistakes that under my father tutelage it was made clear I was NOT to make these mistakes again. Something people who come now to me to learn, find out very quickly, I train in the old ways that worked for thousands of years.



Andrew Jordan: Apprenticing in Japan

Later I went to collage to do an Industrial design model making course for 3 years. Worked as a model maker for 11 years , then was able to get to go to Japan to do an apprenticeship with a Japanese sword smith at the age of 35 [1997] . In the years before this finally happened [going to Japan], I understood that I wanted to become a blade smith. Having tried every rout to find someone in Europe to learn from, I found now one who had a clear lineage from master to apprentice. The Japanese having the only clear medieval process that survives today. I went to Japan not really knowing anything about the Japanese sword but to learn firsthand a medieval technique.

I was able to learn and add a lot of very good information to my already well advanced knowledge over the two years I was in Japan. Upon returning I did the introduction to Blade smithing course in Hope, Arkansas with the American Blade Smith Society. The course was run by Rob Hudson. After this time from 1999 I began the long road to become a full time blade smith. I have spent some time working with some very important people in the field here in Europe as well as in the U.S. Learning certain aspects of Blade smithing.

In 2003 I decided that I would start to develop down the road of my Grandfathers ways of doing things. My father said to me one day that I was making knives that really had not stood the test of hard use. [We] The Jordan's have a history of making supplying Knives/Swords that were used, my father made clear to me, in his way. It was made clear to me that I was making Pattern welded knives that should be used. Pattern welded steel at this time was mostly being talked about as being something that was aesthetic in use, I understood from back ground history; this material was a very good material for a working knife. [I would like to say I am not the only one from this time who did this, there were a few others too]

So after this time from 1997 to the present day I have been working towards this point where for the last 8 years I have been fully fulltime in my career as a Blade smith. It's been quite hard to get to this position, blade smithing is not a thing that is well known as a fulltime career, and there are a lot of hobby blade smith and part-time blade smiths. Here in lies the difference, other full

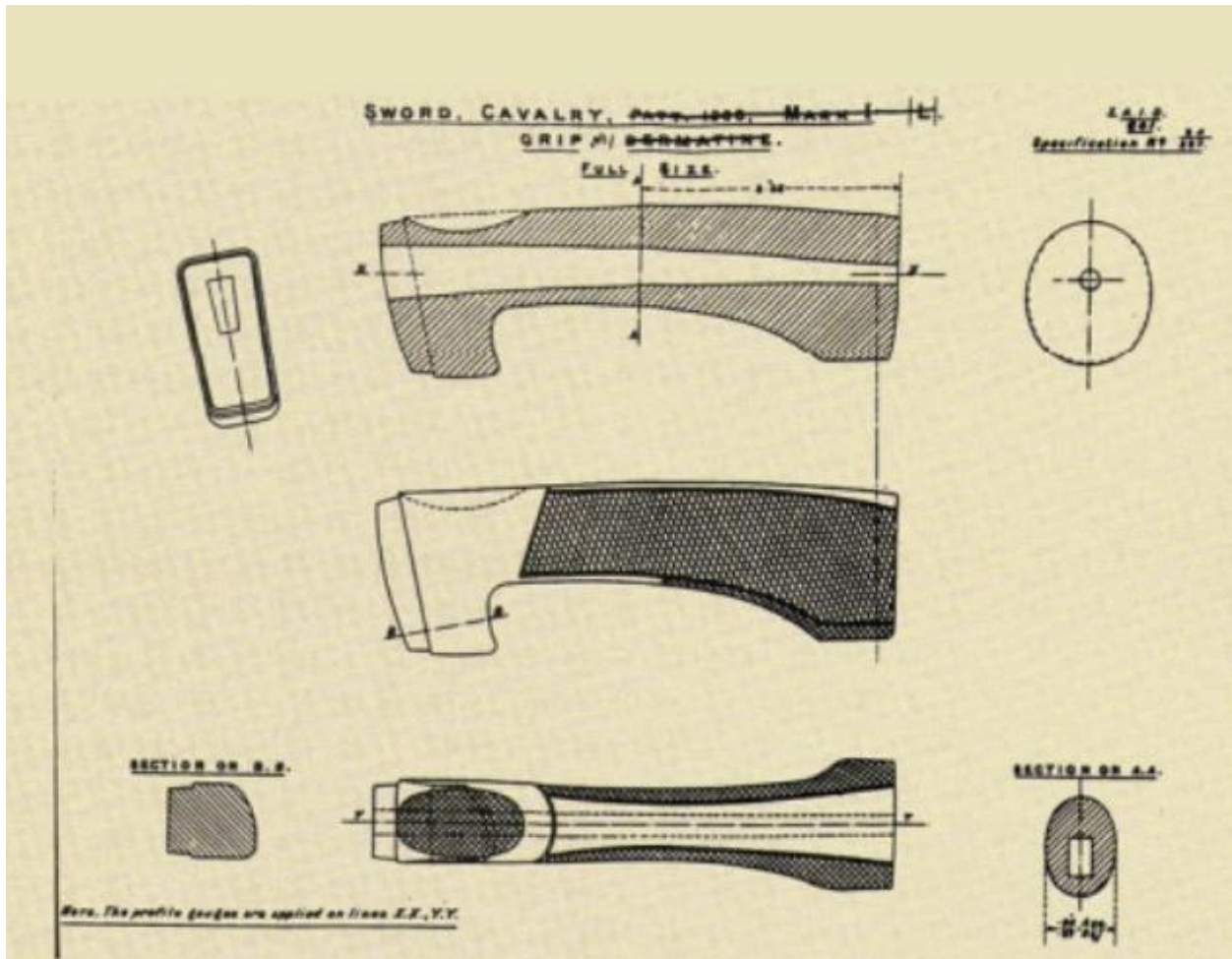
time careers have tests and ways of indicating that a person has come up to satisfactory standard set by themselves so a client can understand he will get a quality tool from this person.

At least here in Europe unlike in the U.S, we do not have a set standard for Blade smith YET. Or how we do have a lot of competence in the blade smithing world, I feel that the differences are not clearly marked enough for people to understand the difference between hobby/part time/full time. I hope this can be addresses sometime in the future, because ostensibly we all seem to be using the same very basic tools, fire/anvil/hammers. Here in lies the complexity of the subject of Blade smithing, there needs to be a clear way of understand these differences. These are my concerns for the future long term heritage to survive on. We are losing rapidly our older types of skills. WE need to protect and keep these as a part of our global heritage. Alive for the future because blade smithing has a very strong history with mankind and still has relevance in these days we live in.

[In the next article I would like to explain what forging does do for a blade and why the subtleties of this process that can and do impart very good things to blade. How I design/construct my utility/survival/hunting knives.]

WEDNESDAY, OCTOBER 10, 2012

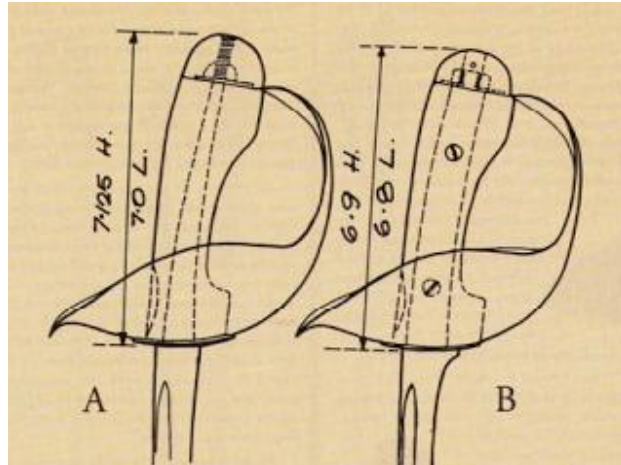
Andrew Jordan Knives: Design Background



This is third article in the series from guest contributor Mr. Andrew Jordan, one of the premier bladesmith's in the world. Please check out the previous articles if you have not had a chance. Also you can see more of his amazing work at www.jordanknives.com.

To continue the articles on myself [something I find rather hard, writing regarding myself/knife making background]

I would like to write some more on how my family background and my father's input helped me start to develop my working knives. After having the conversation with my father, I came away with the idea that following in the steps of our short history since the ending of that horrible 4 years where so much was changed; the 1914/1918 world war was something we must never forget. But having said this, there are things that can be learned from some aspects of this struggle.



As I have said, my grandfather had a job to do as a furrier in the cavalry , as a trooper he had to for file the tasks asked of a trooper as well as being an orthopedic furrier. Whilst training with the then issued Pattern 1908 cavalry sword; he broke a few. This gave him the thought of making his own to replace the broken blades. At this time he was able to see and handle some of the prototypes of the 1908 cavalry sword. Enfield and Wilkinson's had been involved in the bidding for the replacement of the then issued cavalry saber prior to the making of the 1908. Several different types of Blade/guard and handle construction were given over to the army for testing and evaluation before the 1908 pattern became the issued sword for the cavalry.



I would like to say this is not an article on military history but on the effect on my knife making from hearing way my grandfather understood his development of the cavalry saber. So these are broad strokes regarding some of the back ground history. I could write much more in detail, but I feel this is not necessary for the general flow of this ongoing article..



Commander

After the printing of the Article in the Globe and Laurel, I had had several attempts on making a user knife. As the design and function of the knives were for hard use invariably they failed, driving me on to making something at least could stand use. The handles on the above pictures of the handle type reminiscent of the type of handle on the Pattern 1908. I was trying for a type of grip that stabilized the handle in the hand and stopped the forefinger hitting into the guard. Because it was a stepped hidden tang the stepped washers broke away after sometime.



2nd Outdoors knife

Then came the 2nd Outdoors knife. I kept the same kind of handle construction but went on to use a compression butt cap . This means the knife has a butt cap that has the tang coming through a hole in the butt cap that is peened over to compress the handle material up against the shoulder of the blade /tang at the ricasso. This had some good points but I was a little unhappy with the general design ideas of the knife.



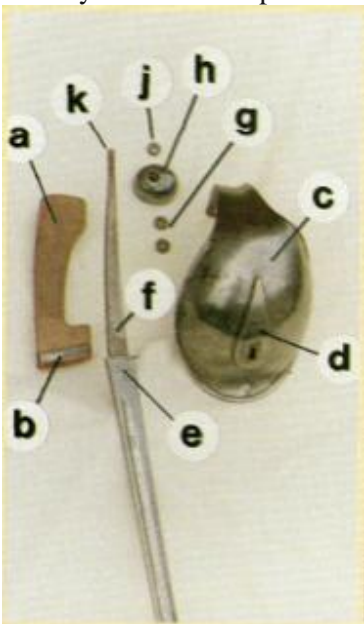
Then came the article in the Globe and Laurel magazine The Commander Mk1. This was the knife made for the article. This too, after some time failed. What I did not understand fully was the use it would be put through.



I used a stacked washer of Micarta and neoprene the Butt cap had been threaded with a M5 thread. It was compressed. I started using a Mullet the piece of metal between the blade and guard. This was too thin, but I started to understand that this is useful. What happened was, when the knife was used the neoprene and Micarta washer flexed a little, this Flexing over time made the steel work harden, then of course a point when it broke because of flex stress fatigue. The Buttcap also had to be rethought as well, the stability of the Butt cap was not stable in a fixed position it could rotate.



So how did the pattern 1908 cavalry sword have such an effect on my knife making, considering two entirely different weapons? I will try to explain using pictures as follows.



A = Handle/grip

B= Ferrel

C= Guard Bowl

D= Mullet

E= Shoulder

F= Tang

G=Nut and lock nut to secure guard
Bowl
H= pommel

The construction parts of the Cavalry sword are above. This construction method is interesting because of the simplicity of the design. 8 pieces come together to make a practical weapon that has to stand a lot of force/and hits to the guard, the handle has to be a stable platform for the user to maintain grip, thus control on an elegant fighting weapon. Seeing this construction method in this picture the light went on in my knife design, I understood what I was aiming at finally. So went on to make my knives in a very similar way. I did though manage to lessen the amount of parts without losing the integral strength of the construction.

My main area of focus after thinking about it was the Handle, it was to be of an ergonomic type, and this helps the user to handle the knife well in sometime difficult circumstances, wet hands/mud/the mess from dressing game. The drawings of the grip and the Guard grip construction of the Pattern 1908 helped me a lot to understand what I was aiming for. The use of a Ferrel [a shroud of steel around the handle that sits up against the guard]. This Ferrel strengthens the handle guard blade enormously. A mullet, this is a piece of soft steel that sits up in-between the blade and guard. The guards on my knives are always hardened. When the Butt cap is peened down the mullet beds the guard down against the tang blade shoulder, simple really. The design worked and I put the handle and blades through some very hard testing and it did not move. The Butt cap, a hardened piece of steel with a 2 degree tapered hole drilled through it, a slight flick to the fingers gives a secure grip that helps the hand stay in place and also as a stop when using the knife as a chopping tool.



Commander Parts

As you can see from the Commander; in parts the construction method has stayed the same pretty much the same for over 9 years. Some changes in some of the parts are available as user options. But this construction is a direct result at looking at the construction of a Cavalry saber. The handle has proven to be a sound well thought out design principle, which works because of the simplicity of its engineering. The compression of the parts through the butt cap with a 2

degree tapered hole has been very effective. The addition of a hardened pin to stop rotation of the Butt cap has been effective to this day and none have failed.



In the next article I would like to explain my choice of steel Forging/coating and water hardening “ WHY “/ tempering [drawing] treatment of the steel .

WEDNESDAY, OCTOBER 31, 2012

Andrew Jordan Knives: Forging/Heat Treat of the Blade. . .The Heart of the Matter!!



This is the fourth installment of the series written by master bladesmith Mr. Andrew Jordan. If you have not, catch up on his previous articles and check out his work at www.jordanknives.com

In this article I would like to write about the heart of the Blade/knife sword. Undoubtedly the development of iron then steel has had a truly amazing effect on humanity's ability's to seemingly achieve impossible tasks. Try if you can to imagine a world without iron or steel, wonder at what might or might not have been achieved.

We have historical knowledge that the first Copper was made some 10,000 years ago. Though not a ferrous metal, man had the time and intelligence to learn to make this metal. In doing so unlocked techniques that have steadily grown from one breakthrough to another to where we are now.

Over thousands of years of practical development these techniques were honed and changed to produce Copper then Bronze [Gold /silver/Brass/Tin /] Then came the breakthrough with IRON

[FE] some 3000 years ago. From this time, man has striven to conquer its secrets. There is a lot of information regarding this on the internet. It would be good to run through it by yourself. It makes for an interesting afternoon of reading.

This continuing article is about my bladesmithing, we have covered in the past three so far, this being the 4th on the heart of the process of the making of a blade. Iron was made to a steel by the introduction of carbon later came other elements, such as alloys [Nickel/chrome/manganese/tungsten and others]. This combination done in the right manor made the iron much tougher and a better material altogether than the earlier irons.

This of course has a great amount of information regarding this development of this process from iron to steel. Huge amounts could be written about this. But I'm making my best attempt to simplify this for this 4th article.

When I first started; forging my father brought me some lengths of Richard cars 23s this is a D3 steel as well as some D2 steel. This was the first steel I used to make my knives from. My father would only use these steel for his knives. So my first years were spent hammering D2 and D3, learning as I went along through making a lot of mistakes. D2 or D3 is still the most commonly used blade steel made today. It has 12% of chrome in it among other alloys. This chrome helps with SOME rust tarnish reduction. Forging it has to be done with utmost care and accuracy. The steel itself does not move in the same manner as steels such as O2 [1:2842 steel] W1, W2, White paper steel. Because of the alloys involved repeated bad heat can and will destroy the grain structure of the steel as will reaped hammering at low temperature.

Thus I spent around two years working with forged D2 or D3 to make blades. After having spent this time I moved onto using O2 and sometimes O1 [the O in front is an indication of the quenching medium to be used O = OIL, in this case. W = Water] Learning to forge D2, D3 taught me a lot about forging and about how to find out about steels and how to forge it correctly.

I would say now that GRAIN size is the cutting edge of the matter here in Blades. Forging is known to improve Iron or steel, if the right forging technique is used. Grain size can be controlled and reduced by repeatedly heating and hammering the steel in the right temperatures. All this can be read about on interesting sites on the net. I need not go into finer detail here.

After some years I have mostly stayed with following steels, making my knives from this material as I went on forging it. O1, O2, W1, W2, 15N20 now 60n20 a nickel steel for pattern welding .Then white paper steel. I have mostly stayed with these steels for my work. I have though used most of the steels that have come onto the market for knife makers and bladesmiths. I stay with these steel because I have found that if forged correctly they will make an exceptional product. I have also found that most of the other steels I tried were not as favorable as the ones I have listed above as the steels I use.

The debate regarding mono steels and newer stainless steel can go on and on from one personal preference to another. This of course is personal choice. I choose to use the steels I use because I know them and they do the job I ask of them. I prefer the continued knowledge that what I make has an ongoing continuity to it. If I forge a blade to achieve the qualities of the blade each and

every time I forge one. This is a very high imperative in my blade production. If I use a steel that has not excelled through time with me, I'm very wary of using it. So I keep things simple for ME and for the people who choose to buy one of my blades.

So GRAIN size is very important, wrong heating or bad heat control whilst forging does have an outcome on a Performance blades Quenching Tempering are also important. When I first started to forge I used most of my data that came from metallurgical books regarding steels. Science is involved in producing forged parts. But as time passed and I gained more and more experience in scientific knowledge as well as practical application of this knowledge through hours of hammering at the anvil or Drop hammer. I began to refine this into my way of doing my forging. So much so that now having the opportunity to look back over 18 years and my father's knowledge and grandfathers knowledge that things have changed quite a bit.

Metallurgical research/science is involved in all of this. We mostly look upon science as having a great deal of the secrets of the art of steel production explained by it. Science has helped us a great deal. Although we understand this, our history shows that man was using Steel a lot longer than science was able to answer the questions. So, practical knowledge of our steel making ancestors was just as valuable. A person working for his life with a product (in this case Steel) to produce the best possible product. Learning by trial and error is the best possible way of doing it. Has just as much relevance as Science I feel. This is then; applied practical knowledge passed from person to person does have relevance. The outcome has the same effect in the end; both have relevance as starting and ending points.

There are known mythical and legendary things written regarding Sword or knives. Again man if he could not understand something completely would form a kind of interesting thing around something, so knowledge could be continued. You only have to hear and listen with the right ears and mind to decode these myth or legends. Again, Magic or the idea of it was much more acceptable to our ancestors as way of keeping information regarding things.

Science although has much of the answers it does not cover all aspects of the CRAFT of bladesmithing. Both metallurgical knowledge and practical experience does have relevance here.

This then is where I'm trying to write about, this can get a little complicated to abbreviate correctly. I will go about this as well as I can describe here. Forging in the correct manor does reduce grain size. But when heating to move the carbon stored inside a steel molecule, there comes a point when the carbon migrates to the outside of the molecule. At this point it is austenitic. If the steel is cooled [QUENCHED] rapidly enough the carbon cannot be reabsorbed into the steel molecule. This then is what make steel what it is; hard, tough, and unbendable.

But this quenching imparts problems with the stability of the hardened material. It was then found out that a steel had to go through a second process called TEMPERING. This was a technique of heating the steel to a lower temperature to relax the bond between the hard skinned carbon molecules enough to stop breaking, if struck hard against something. This tempering radically increases the ability of a KNIFE/Sword to do the things we need to use them for. Cutting edge retention is paramount. The ability of a knife to carry an edge and to continually carry out the tasks we ask of the blade, we are using at any given time or moment. This

knowledge that the knife I'm using can and will do my bidding is a very important part of owning a knife you trust.

One interesting thing occurs when heating the steel to a prescribed temperature to migrate the carbon to the outside of the steel molecule. The point of this is called AC1 on TTC's [Time temperature charts] given with all mono steels by the steel manufacturers of when steel becomes austenitic. AC1 is the point this occurs, the heat increases up to AC2 when the steel becomes anti magnetic, this heating causes grain growth. Though the steel is Austenitic and will become martensitic [hard] if quenched correctly, there has been grain growth from AC1 to AC2.

As a Blade smith who mostly make one blade at a time from bar of steel to finished blade. This is a process that involves many small individual steps from bar to finish blade. All of which have to be carried out in absolute correctness to achieve the kind of performance blade that I drive myself to deliver to a customer. Hence the heavy test I give each blade before I go ahead to finish a blade with its fittings. I am not fool proof, so I have to have set ways of knowing I'm achieving things correctly.

So after using the AC2 temperature for some time, I understood that there was another temperature that was indicated on the Time temperature charts, AC1. Having found out about this I had to find a way of cooling my steel fast enough to catch the steel at this turning point. Because I saw by SNAP testing that the grain was better at a temperature closer to AC1 than to AC2. Snap testing is taking piece of steel, removing it/them from a heat-treating furnace set at different temperatures. Each piece of steel has a number to indicate temperature at which quench took place. After this each piece is broken to look at grain size under an X 5 microscope. Grain can clearly be seen using this process. The smallest size is the correct one for you. The surprising thing is you have become martensitic at lower temperatures that is recommended by TTC, This then became a quest. When I first started I used the prescribed method of cooling, Oil, Hot Oil, Water, Air [fan].

Because I need to get the quench as near to AC1 as possible. I started to understand that quench time in oil was too slow. I was not cooling the blade fast enough to catch the blade at a temperature as close to AC1 as possible. I had some of the blades I quenched [then tempered] looked at a Metallurgical lab. I had some Martensitic but also perlite in the blade. The Martensitic blade is the important hard structure to have. Perlite on the other hand does not function correctly for edge holding. Perlite can be recognized as a white type glow around the edge of a differentially hardened blade.

So I moved from Oil through honey to WATER. I now quench all my steels in Water for the reason that I can cool the blade quickly enough to catch the very finest of grain structure at AC1.

After this, proper Tempering at a correct temperature is highly important as well. Tempering is called draw time as well. So I draw out the toughest blade edge I can by repeated tempering at set temperatures, three times for 1 hour at a time. Then heat a blade to 200 c for an hour; then cool slowly or in water, repeat this twice more. Slow cooling or water cooling does the same thing. It's the holding at a temperature for a period of time that is the key here. With steels like D2 or D3 there is an increase in hardness as well as toughness at a second temperature in the

time temperature charts. This again has a lot of relevance in D2 or D3 use either forged or Stock removal, look at the data available and use it correctly for your application.

So as I understand this. My method of forging , the temperature to quench at as well as tempering correctly all form a staggeringly important part of the production of a Performance blade . This knowledge has come about in my forge through reading and application of modern metallurgically correct methods as well as the Stand behind the anvil approach. Both are relevant as points to understand that they both have equal importance in the making of a performance blade.

The above explanation is quite long. The next thing I wanted to write about was the development of my Pattern welded steel. Pattern welded steels are a method of combining two or more steels together by heating them to a set point that allows for the steels to stick together at molecular level .

Steel when heated will react to air in the fire and make OXIDE. To stop or partially stop the oxide from forming a substance called BOEAX is used or a hydrocarbon layer [but for this explanation I will use the common BORAX method]. Borax will melt over the surface of steels at the right temperature causing a layer of melted glass like material to inhibit oxide forming. When the stacked pieces of steel are brought together either by hammer, air striking hammer, hydraulic press the borax is pushed away allowing the hot steels to come together and WELD at the connecting areas. The molecules connect together at the meeting face and ostensibly become one piece of steel with layers in it. But retain the qualities of the steel of each type. Generally the carbon content migrates to be equal. But the layers of steel do retain different grain structures. Thus the effective cutting of the DAMAST steel.

WE have a very long history with this method of producing steel here in Europe and other parts of the world. The first steels were made in chimney type finances. A Smelt produced piece of un-homogenized steel. This could only be made into steel capable of being used as Blade steel by heating and folding repeatedly to make a bar that could be forged into a blade.

Because of the layering it is possible and now is known to have been either etched or polished to show the layers. Depending on the way a steel had been manipulated it will show a pattern in the steel both in the martin site some Perlite and in the unhardened steel of a blade. This was aesthetic and valued by the owner as much by the method of production to make it.

The archaeological background regarding this is clear. Folding was the only way to purify the smelted boom steel into a usable blade steel , the folding left a separate finger print in the steel, as layers that could be seen. This then was played with by the smiths through 1000's of years. Making very interesting patterns; that were both effective as well as artistically pleasing.

So how does this have relevance to a user performance knife? I began to make Pattern welded steel. Like everyone else stumbling from mistake from mistake; but learning along the way. This material has much better characteristics for a blade than a mono steel has . I saw this with my eyes as well felt it with the edge cutting into things. Simply put, the history was giving me direct feedback here in the 20th and 21st century that this is very good material. I felt then as I do now that Pattern welded steel is phenomenal. This of course now has been worked on by students doing doctoral work in Universities, who study metallurgical tests. Pattern weld steel are much better in many ways than any mono steel.

But again just making a pattern welded steel does not insure that this steel is going to Perform. Again correct procedure whilst forging has to be applied. This is why I deliberately went down the road to make a trustworthy Performance steel or my user knives.

I made layer materials using O2 15n20, now 60n20, went on to use three steels O2, 15N20 and a tungsten steel. I have now come to understand that my favorite steel now for pattern welded knives is the Mixture of O2 and white paper steel. This steel has become my best steel for a user blade. The combination of O2 a well-known industrial steel and steel I've been using for a long time in my mono steel blades, was combined with White Paper steel made from sand iron by Hitachi in Japan. The steel from Hitachi has a very small amount of manganese and no other alloy init. It is used mostly in Japan for knives for the kitchen.

I have found the combination of these steels has produced a very tough durable and highly aggressive cutting edge. A second and most interesting thing happened when I applied the ATN coating. The patter shows through the coating as stripes of light and dark material. I do not each my blades made of this O2 WPS. But the coat brings out the pattern clearly.

I make a Random 15n20 O2, a three layer 15n20 O2 Tungsten steel, and the O2 WPS. They are made as random or twit or as a sandwich steel. A two 200 layer outer with a 30 layer 3 steel core. This has proven to be a very good knife steel for a user knife.

My apologies for the long article this time! It's hard to put together this type of article in this area without some kind of long explanation. It deserves the telling of history. But it takes quite a lot to explain it.

So to conclude- Forging does impart good things into steel, but so does bad forging. But it is difficult to define what is correct or right without the buyer being informed enough to know what he/she is looking for. There is a bewildering amount of information available to buyers. Some of which is correct but some is very misleading indeed. Mono Carbon steels can be very good for a user knife, but the down point is the rust/oxidation problems. Coating my blades has helped this problem enormously. By the edge on a properly forged mono carbon steel blade can be and is exceptional. Pattern welded steel is the best you can have on a performance blade. It will and can outperform mono steel blades. But again the problems of rust and oxidation are there. Coating again has helped me a lot.

So lastly, It is all up to personal choice, what blade or who the person is who makes a blade is. The important thing is the EDGE of the blade. Will it hold that edge for longer periods of time? Will it achieve the need you require of a knife blade? What shape or design is secondary to the EDGE; this is where the metal meets the task. Achieving the task quickly effectively is the most important thing. Having some knowledge of the way a knife is made helps a person who is buying a knife to make an informed decision. Decision made the knife should do exactly what you require from it. This can only be achieved through the person who makes the blade being very knowledgeable about his forging, heat- treatment of the blade, be this from the scientific method or from practical experience or from a combination of the two. I hope this has been of some help to you the readers ...The next article is of design of the blade ...

FRIDAY, NOVEMBER 16, 2012

Design . . . Another Consideration . . .



Here is another article from the Master Bladesmith Mr. Andrew Jordan. If you haven't caught the previous articles go back and check those out. Thanks Andy for taking the time to share your design philosophies with us. See more of his work at www.jordanknives.com

We have covered a lot of ground in the past 4 articles. Things are progressing on nicely now. I hope you all are enjoying the articles so far. This will be much shorter than the last article which was difficult to write because of the complexity of the subject that can and does get technical very quickly.

WE have covered in earlier articles Construction of a blade. Sound construction enhances the blades ability to withstand the hard use it will be put through. Hidden tang blades are an indication of a custom knife as it takes a little more time to make this kind of handle. [This type of construction is also used in production knife, though not common place]

For the most part, most knives are made in the Slab tang type of manufacture or knife making method. This is when two pieces of material wood, Micarta [phenolic canvas or linen] G10 or other material is used. The material can be pinned or screwed with larger bolts through the tang

to keep the slabs in place. Sometimes to facilitate a hidden area in the steel of the tang of the knife, slabs can be removed.

Hidden tang means exactly this; the tang cannot be seen because it lies in the handle material. This of course is construction a method, it has nothing to do with design per say.

Design is aesthetic and functional at the same time. How big is a knife, what are its uses, are taken into account to make a knife that is pleasing to look at and to use.

How we function is interesting in this manor because of all the different needs, we want from a knife. How it functions and looks is important. Some of us put function in front of Design. But both are integrated to a lesser or greater extent in a knife's design.



There are some parts. Blade, guard [if you use one] Handle, Butt cap [if you want or use one] Integration of the two is important both aesthetically as well as functionally. The thing is, we all have different ideas of aesthetics and the look of a knife. So there are always different types of design to be picked by the users.

There are Hunting knives, Tactical knives, Combat knives, Fishing knives, Skinning knives, Survival knives, the list is endless. All we need to do is find something we need to use a knife for and instantly it becomes part of that usage persona.

But still, how it looks is important.

Do we like a broad knife blade, thin blade, do we like finger grooves, or a dropped handle or a straight handle? All these are taken into account in a millisecond as we look at a knife.

Regardless of the function, name, or the group of knife. Things just LOOK RIGHT, so we buy it. Later of course using it will let us know if we were correct or not in our purchase of the knife.



This “LOOK’s GREAT” thing is always there

There are certain age old principles that have applied to aesthetic design for millenniums in man’s dominance of the use of Tools, his living space, his building ability. Our ancestors used basic fundamental scale and dimensions not only for things to look good but this also gave us the ability to make bigger or build bigger. Using a simple knotted rope, the 3/4/5 measure makes a right angle triangle. A compass is used to make curves or draw correct circles. With these simple tools we have made the impossible happen, pushing us onto great and greater deeds. It’s a good to remember that for early man’s existence, Spirituality, Astronomy, Alchemy, Mathematics, Scale, Biology were not separated in to the sciences we know today. They were integrated, used because it worked as a tool for us Was this magic or a spell, a prayer or just the integration of

them all in the development of man? I don't have the answer, better minds than mine, can and will ponder this for me.

What is good or bad aesthetically in a glance is something that is interesting to ponder. Why is this object/building/person right, not so right, or down right butt ugly? We humans come in all shapes and sizes; we have all very different wishes about things. But using statistical methods of choice, we can see that there is an aesthetic built into things that we all naturally like immediately on looking at them. We understand this without even knowing why because it surrounds us, is built into creation that surrounds us, its built into our own human bodies. It plays such a fundamental part of our existence that we see it thousands of times a day, everyday. It's so commonplace we just don't knowingly comprehend it.

WHAT IS THIS THING CALLED?

The name of this is called PHI. Phi is the number 1.618 to 1 as the basic measurement, but breaks down into a very- very- very long number.

$$\varphi = \frac{1 + \sqrt{5}}{2} = 1.6180339887\dots$$

Something a CRAY computer cannot calculate with running for eternity. [If there is a calculation to stump even the greatest of mathematician's mind, this is it!!]

If there is something I have learned to use and see in our life immediately. This was taught to me in School at a very early age. How I have applied it to my Bladesmithing in many ways. It has I feel made the style of knife I make very recognizable to everyone. For myself I feel very strongly that it is evidence that there is a high form of intelligence, ether guiding us or helping us to understand that there is something out there that is unexplainable. You could call it a GOD or other type of spiritual pathway. Phi surrounds us, looks back at us and says " think about this ", why do I turn up in most of nature, animal, mineral, our DNA carries the Phi number 1.618 to 1, this is a way of scaling that does make the difference in many things. In a lot of animals/objects it will just not do without its being there, it will not function at all ... Look at Fish and how they have it built into their bodies.

1.618 to 1 is called the Golden section/golden ratio/gold mean, used in art, painting, architectural design, Industrial design, and Sculpture so on. It can be used correctly or in just about the same proportions, it can be used as a way of not being correct to make us look at something and link that's ugly ... WHY is that ugly?

1.618 to 1 is there working its magic on us, for us, with us, in us. Look on Google/YouTube or any search engine and there are huge amounts of information on this subject. Some of it- way over my very bad mathematical mind. But I'm simple in my approach, I use a right-angle triangle, a steel rule in MM [Sorry , if you use inches] and a simple compass to help me design my knives .

Another good thing to look at for some good ideas is functional applied ergonomics.

Ergonomics are measurements taken from the human body to help us use/operate better in our environment. One of these is the handle offset on a knife. The handle offset helps the handle to increase power to the blades chopping ability, slicing ability, or just the general feel good factor of holding the knife when being used for long period of time. This offset is between 7 to 9 degrees down from the start of the handle. Some may want or like a straight handle, this again is personal choice. But there is statistics that show that mostly if given a choice, on just a “feel good” factor. We like and prefer the ergonomic designed object immediately.

Again this is also a practical thing.

You can see it clearly yourself. Just grip a round pencil in your fist. Hold the pencil sticking out of the top of your fist. Do this a couple of time to feel no tension in your wrist. You will immediately see the pencil is not straight up it lays at an angle, if your wrist feels correct and comfortable. Measure that angle and it's around the measurements I have given. So again, just watching, looking with better eyes has helped us understand that there are many thing seen and unseen that enhance our life's pleasure without even us understanding why this is so. I use this angle to help my design and the feel. If a knife's FEEL is also very important in a knife's persona! Does a knife have a personality? You will have to answer this yourself
..... Maintaining a grip on a knife handle that does not stress the wrist makes using the knife more natural.

“THE FEEL-GOOD” factor!!

Again you can look up simple ergonomics regarding its use to human form or function on Google/YouTube or other search engines.

The next article will be on SHEATHS ... The next most important thing to knife is how you carry it or keep it safe for you to be able to use it. All the time- every time.

WEDNESDAY, NOVEMBER 28, 2012

A Knife Needs a Sheath...



Black Scout Knife and Razorback (Skeleton knife)

This is the sixth article in the Andrew Jordan series. I don't believe I could have conveyed the importance of sheath as well as Mr. Jordan. Sheaths are an often overlooked item when assembling your kit. Check out his previous articles in the links below. If you're interested in purchasing a hand forged knife or want to check out his other work go to www.jordanknives.com

I often wonder why the second most important object you need on you in the wilderness often enough gets overlooked as not being of that much importance. We can agree that a knife is the primary tool in the wilderness. Without one, things can and do get very difficult.

We spend a lot of money on Tents, Hammocks, Bergens, Gor-tex, Trousers, Lights, sleeping bags, but when it comes to the most important tool you need in the wilderness to get back if you lose or are separated from your Bergen. A knife and good sheath is very important in this situation.



Side view to show clearance for handle to allow drawing of the knife

We all have very different needs or opinions regarding what knife we would like to carry and use in the wilderness. We all have different ways of using a knife. We buy or carry the knife that will carry out the tasks we need to get things done when we are in the wilderness. Some will want this, others will want that. The thing to remember is having a knife is important, how it functions is of concern here.



The Back is higher to guide blade into the sheath.
This stops you from stabbing your side on re-sheathing

But I should ask one question ... If you were to get separated from your kit; maybe whilst crossing a river and your bergen gets washed away from you, and this happens. You could fall losing your kit; you may even have to dump your kit because you've got to RUN THE HELL AWAY. There is a lot to think about.

What then?

You are wet, Maybe getting hyper thermic, all you have on you now is what is in your pockets.

So we can agree things are not that good if you lose your main kit from your back all held in your nice Bergen.

This leads me to the main focus of this article ... SHEATHS, the thing that helps keep the knife with you, keeps it from hurting you if you move or slip onto it. Lastly the knife in the sheath stays with you in whatever situation you are in. Putting a knife in its sheath inside your nice Bergen is not going to help you if you lose all your kit. Having your knife on you all the time without it getting in the way or being awkward to carry is very important.

This must not be overlooked EVER.

Sheaths come in different types made from different materials. Leather, plastic, Birch Bark, all are relevant as long as the knife is safe to carry and will be accessible when you need it.

Over the years, just like in my bladesmithing- my knowledge has evolved. So has my understanding that the sheath is running just a little behind the knife as the second most important bit of kit you can carry.

I've gone through lots of different designs made in all kinds of different materials. I can only write now on where I am now in my sheath development. I make my own Kydex sheaths now. After being an industrial design model maker, I understand plastic very well, Push molding the kydex is not too difficult a thing to do. Kydex is a thermal forming plastic; it becomes moldable at around 150 degrees c.



Back of sheath showing male/female, small push bar at bottom, and firesteel holder

I do understand that there are some people who don't like the material for various reasons. In my case I use it because I find it to be the best option for a field /wilderness knife. Its light, fits the blade very well and can be molded to snap fit my knives. The Design of which is very incorporated with the sheath. Attaching it to different places is important, the belt, Bergen MOLLE's, Sling, or a drop leg rig. The latter being in my opinion- the very best for carrying a knife in the wilderness. A sheath on the belt can be accessible but when you put on your Bergen, the waist strap of the bergen will push the knife and sheath into your side causing some discomfort. This in turn makes you put it somewhere else that might not be

that beneficial if you were to lose your KIT or if you need to use the knife for something quickly that needs doing on your travels in the wilderness.



Black Scout and Razorback in sheaths mounted on drop leg



Female plate removed to show Male plate

I have found that the knife is safe, in a place that does not get in the way, allows for moving well, up, under, all types of terrain. The knife sits out of the way on the drop leg, can be accessed very quickly. The knife can be placed back in the sheath very quickly. The drop leg sheath system works well in many ways. I do not put pouches on the sheath to carry kit. One the kits rarely do anything but get in the way. The contents of such a kit are rarely useful in a real situation. I do carry a last ditch survival kit but is not on my sheath, it's in one of my pockets on my jacket. It's big enough to do what I want and carry enough to be useful for more than a day.



MOLLE attachment beside sheath

So I looked at different options. These changed over time. First I thought of a multi-function sheath. But I realized that having one sheath that does lots of things, does not work that well. You have to take the time to take things off or unscrew things. When adjusted it probably means that you are going to use that knife in that way only. Added to this, things get harder if your hands are cold or the screws come undone and things start falling off your Sheath. Or worse, if you leave the knife with sheath laying somewhere without knowing that you have done so. Not the best possible outcome.



MOLLE attachment mounted on sheath

I stumbled upon the military systems made for quick changing holsters from belts to drop legs. I bought a few and looked at the possibility of adapting these to make a quick change sheath that can be mounted to different platforms. The easier, the better, in this situation. Just pressing a small lever unlocks the holding of the male part into the female allowing for the sheath with male fixing to be quickly put onto some other mounting system for the belt, for MOLLE's or to a drop leg.

I added a holder for a firesteel that is very secure. The fire starter stays in position on the main sheath all the time. I never use it. I carry a second attached to a lanyard on my jacket with a compass, whistle, folding knife, in the other pocket a large survival kit that is quite extensive in its parts. The last thing is a second security strap on the sheath to stop any movement or the knife coming free if I were to be washed off my feet crossing rivers or from a fall. The secondary safety has an elastic line in it to pull the strap away out of the way when I release the strap.



Second safety retracted



Sheath w/ Second Safety

The main sheath has 5 stainless folder nuts on each side. This allows for cleaning and un-screwing the nuts/bolts; this takes some doing as they are screwed up tight with an Allen key wrench with lock tight. If they are removed the sheath can be pushed open for cleaning. There is a large hole at the tip of the blade in the sheath on the back to allow water or debris to be flushed out with water. Normally I just put the whole system in the dish washing machine on a 20 degree cycle and leave it to dry.

I normally undertake cleaning and maintenance at home when I return from the Field. When I'm in the field I just use the sheath system as and how I see fit. Cleaning is only done if I get something really nasty in the sheath. This rarely happens and if it does, flushing with water usually cleans it enough to make things work again.



Sheath on Drop Leg rig

WEDNESDAY, JANUARY 9, 2013

Black Scout Survival Knife and Razorback: Andrew Jordan Knives



We've tried to keep a tight lip about it, but most of you have seen it in a few recent articles. This is the Black Scout Knife and Razorback companion knife. A survival knife system designed and hand forged by Black Scout contributor Andrew Jordan. Andrew Jordan has introduced us to the world of bladesmithing in his on-going series of guest articles. If you haven't had a chance to read them- go catch up and come back to this article.

In his series, you can see Andrew's passion for developing extreme use survival knives. Andrew built the Black Scout Knife/Razorback to be used in a no-nonsense environment. A culmination of his bladesmithing skills and survival knowledge.

I'm not going to go into great detail in this article and I'll explain why later.

Not only are these knives beautiful they are also functional.

The Black Scout Knife (the primary blade) features 5 1/2" cutting edge with an overall length of 11 1/2". The blade is a hand forged Sandwich Damascus blade. The handle is constructed of tan and black Micarta. One thing I love about Andrew's knives is the hidden

tang; it allows for a full handle for better grip. I can't describe how exceptional these ergonomics are. One would have to hold one of Andrew's knives to really appreciate it. I'm not only speaking of the handle construction, but the overall balance in the hand. It has "heft" in all the right places. On the spine of the blade is segmented jimping. There are three sections of jimping for different degrees when "choking-up" on the knife. Both knives feature a beautiful Titanium Aluminum Nitride coating, that I'm sure not many of you are familiar with. This isn't a paint it's electrically bonded to the blade for the utmost durability. Basically everything on the knife is there for a purpose or function. Andrew just found a way for all the "function" to look amazing.

The Razorback features a 4 1/4" cutting edge with an overall length of 9". Made of D2 steel and designed to be used for finer work. It's also designed to be used when you need to go a step further with a knife without damaging your primary blade. The Razorback can be used as a spear with its paracord handle wrap to be used as lashing. It's wider than many skeleton knives I've seen in the past. A feature I like because I have large hands and it fits them perfectly.



The Sheath system is based on a Drop-Leg Platform. I have not seen this type of system used on any knife before. It's an ingenious way of carrying a knife system. It keeps the knife out of the way of pack straps and within arm's reach. This system holds both the Black Scout and Razorback. It also has a pouch that a flashlight, multi-tool, or other items can be stored. On the back of the Black Scout sheath is a ferro-rod holder. The sheath system is modular and the knives can be taken off with accompanying sheath. They then can be mounted on MOLLE webbing or a belt for traditional carry. I will go over great detail in the upcoming video.

The K.I.T. Test

For a while now I've seen tons of knife reviews and noticed one common problem with all of them. They are never repeatable. So how can one truly tell a knife's pedigree from a test that's not a true comparison- from one knife to another? For example in a batoning test one could choose a soft wood over a dense wood or use a heavier/longer baton. This would allow for variables that cannot be repeated. One would need to eliminate all variables to provide a true test.

For the past few months I've been working out the details of a repeatable field test. This test will be known as the K.I.T. (Knife Independent Testing) Test. We will grant a certification based on the pass or fail of the test. If the knife passes the test it will then become a Red Certified Knife. There will also be a Certification where a knife maker can become a K.I.T. approved knife producer. I will go into that in future articles.

The K.I.T. test is basically a consumer based compliance report. An indicator for you guys that want to get what you paid for. I understand the importance of you guys spending your hard earned money on equipment that your life may depend on. This will not be a "destruction" test, but a true field test based on survival applications.

This is why I didn't go into great detail of this knife in this article. Andrew is serious about his knives. He didn't want them being talked up in an article, he wants them to be proven in the field. Something I can respect. Especially when he has no idea as to what the K.I.T. test entails. I have not shared anything regarding the K.I.T. Test with Andrew. He was still accepting, showing a great confidence in his work.

We will be posting the K.I.T. Test on our YouTube channel this upcoming February. Our hopes is that this form of standardized testing will help you guys with your future knife purchases. See also <http://www.jordanknives.com/gallery/videos/black-scout-and-razorback-kit-testing>.

PS Because of never increasing amount of hate mails sent to Jack at Blackscout Survival of people venting their misdirected anger at myself Jordan Knife Design, Jack and myself decided to take this article off line because of the stress it was causing.