1st August 2011

By Clive Sinclaire

In the middle of July 2011, I rather unexpectedly became the custodian of a suit of Japanese armour. I say "unexpectedly" as being a collector of Japanese swords, armour is not normally on my shopping list although, I have owned one for in excess of 30 years. Of course, being part of samurai culture, there is a natural empathy between swords and armour, so maybe it is not so surprising.

The lady, whose family had owned the armour for some 130 years, also brought around to my house a jingasa, a naginata and a tachi, all of which were for sale. Whilst I was OK to buy both the jingasa and naginata, the tachi and the armour both had problems which I did not really wish to inherit.

The armour in particular, was in a very sorry state of repair and had apparently had suffered extensive flood damage. This meant that all the fabric parts, including much of the lacing was very fragile and completely rotted away in many places. I was not particularly interested in taking on a major restoration project, especially as the armour appeared to have belonged to a fairly low-ranking samurai and which the owner thought might even have been a boy's armour (although I did not think this was the case). However, against my better judgement, I was persuaded to accept the armour and I felt that this put me under an obligation to restore it to its former glory, presupposing, of course, that it had a former glory. I was later informed that it is properly described as a Hishi Toji Gusoku.
Original condition (note mud covering on the gesan near the measure).

Close up of detached and discoloured gesan and haidate.

My first job was to inspect the armour in detail so that I could ascertain exactly what needed to be done. It comprised of the following separate pieces:
1) A kabuto which may be described as Akoda-nari, that is rising towards the back, I had already inspected and which was of a simple 8 plate construction lacquered red, the lacquer beginning to flake at the edges. The unsigned bowl seemed to be of rather thin metal, the tehen-kanemono was wanting and the shikoro was detached. All the lining and tying cords were rotted away.

2) A russet-coloured hanbo (half face mask) complete with a black yodarekake (throat defence) which matched the shikoro (neck defence) and there was an asa-nagashi no ana (sweat running hole) located under the chin.

3) A pair of kote (sleeves) of the Oda-gote style, the chain-mail of which was rusted red. The fabric, although slightly stained, was in good order and seemed to have avoided the destruction visited on the lower parts.

4) A two part dō (curiass) of solid construction and completely lacquered. It was a faded orange colour, similar to that of the kabuto and hanbo. On the back was attached a black lacquered device for holding a sashimono known as a gattari and also a large gold lacquered fan. The gesan or kusasari, which seemed to have taken the brunt of the flood damage, were in various states of disrepair and some, although present, were completely detached. Amazingly, a good number, as well as parts of the bottom of the dō, were covered in thick brown mud!

5) The mune-ita or top part of the front section of the dō was completely separate and all its lacing was missing.

6) Two medium sized sodé (shoulder defences) which were in reasonable condition. Unlike the majority of the lacing, the sodé were laced with red himo, possibly indicating that it was originally from a different armour.

7) The haidate or thigh protectors were in a sorry state of repair. The fabric on which the plates were attached, was mainly rotten and half the plates were detached from it.

8) There were two suneate or leg protectors, which although present have been badly exposed to the flood damage and were "solidified" in a wrapped position. The leather sections were thoroughly dried out and stiff, whilst the
small parts of chain mail were rusted and there was some damage to the metal black lacquered strips.

9) All the above were accompanied by a traditional black lacquered armour box, which was only held together by the two metal strips on two sides. The lacquer was highly distressed and there was actually a huge hole in the bottom or base of the box, making it unsafe to use. However, the inside of the lid has an interesting brushed inscription which is further explained below.

In addition to the above there are some 22 other separate pieces which were not attached to anything. Mostly, these mud encrusted pieces were from the haidate. It was the gesan at the front that was completely unattached but most of the other thread was in very poor condition. All red lacquered parts were backed by a black lacquer "lining" on the inner surface. In some instances this was flaking but it was generally in reasonably good order.

Assembled in the garage and in the garden ready for cleaning!
Gold lacquered fan and damaged gesan, some caked in mud, on back of the dō before cleaning.

As mentioned above, there is an interesting inscription brushed on the inside of the box's lid, as follows:

1) *Kaei Shishinen Shogatsu Kichinichi* (1854, a lucky day in the first month) appearing on the right hand vertical column.

2) *Minamoto Katsuharu* plus *kakihan* (owner's name) appearing at the bottom left hand side.

3) *TenKa Hai Ei* (Congratulations or Eternal Peace) along the top horizontal line.

4) *Tanshu??* (another form of the name of Tamba province, plus the owner's full address) at the bottom, between the name and date.

Of course, such information is of great interest and breathes life into the armour. At first I thought that the name Minamoto Katsuharu might be the maker's name but I think his name would have been found on the actual armour rather than the box, although I have seen details of the maker as lacquer inscriptions on boxes before. Further, I considered the presence of the address is quite a personal thing and more likely to belong to the owner.
The temporary assembly of kabuto, shikoro and hanbo.
Diary of the Restoration of a Suit of Japanese Armour - Part 2

30th September 2011

August 2011

It seemed obvious to me that the essential first priority was to clean off as much of the mud and dirt as was possible. Fortunately, as the weather was very good, I was able to do this messy job outside in my garden. As lacquer is designed to withstand water, I had no concerns in gently applying soapy water with a small soft toothbrush, which successfully cleaned the discoloured lacquered parts. After washing away the surface grime and drying the lacquer, I followed this up by spraying very small areas with a wax polish using a soft cloth. Finally, I buffed all surfaces with a silicone impregnated cloth of the type used to clean guns and fishing reels.

I started the restoration process with the kabuto and hanbo which, as previously mentioned, was a delicate job as some of the lacquer on both the helmet bowl and the shikoro was rather delicate, especially around the edges. I had been advised to stabilise these areas by using super-glue, which apparently is now used for this purpose in Japan, but possibly because I was not doing it correctly, it did not seem to work for me. The washing and polishing completed, I was amazed at the result. The faded orange colour had transformed into a deep blood red that was both unexpected and very pleasing. After a similar result with the hanbo, I crudely attached the shikoro, and mounted the simple gold lacquered wooden disc, which I had been in two pieces and which I had already repaired, and which was the maedate. With the kabuto, hanbo and shikoro all reunited and mounted on a wooden stand, at last the project began to make some kind of sense!
Both the front and back sections of the dō or cuirass, which was the largest single section of lacquer, were the next section to be treated in the same manner. Apart from the mune (top of the front section) which had become separated, the dō was in a reasonable condition and responded well to the cleaning. Of particular interest was the large gold coloured open fan on the back section together with a fitting to hold a sashimono (this was one of the reasons that I considered the piece to have belonged to a retainer of quite low rank).

The next area to demand attention was the pair of kote. These were both in reasonable condition and importantly, the fabric on which they were based, was in sound condition. The large area of chain mail, however, was lightly rusted throughout as shown by its dark red colour. This, I was able to treat with a rust-cleaning and inhibiting oil, applied generously with another small tooth-brush. This seemed to solve most of the problem but the process
needed repeating. The black lacquer on the back of the hand of the kote only required gentle polishing. Fortunately all the ties on both kote were both present and in reasonable condition.

Finally, the time consuming job of cleaning and polishing the lacquered parts of the haidate and gesan (both attached and detached) was begun and successfully completed. I had started off some 6 weeks earlier with a mass of seemingly un-associated pieces, that were covered in mud and dirt and now at least I had something that could be put together, stood in a corner of my sword room and which resembled a suit of Japanese armour! Still left to do was the complete re-lacing of the gesan, the rebuilding of the haidate, the proper attachment of the shikoro and various smaller tidying and stabilising jobs. I had come to the end of what I was capable of doing myself and from now on, I needed professional and expert help.

September 2011

I was amazed to discover that within a mere 65 miles from where I lived was a Japanese trained armour restorer! Robert Soanes, who also had a degree in fine art metalwork restoration and conservation, came very highly recommended and on contacting him by e-mail, I realised we had met before. We arranged that I should take the armour to his home where we assessed the work that needed doing. We agreed that the Sodé 袖 would be left as they were and the primary job was the complete re-lacing of the Gesan 下散, the plates of the Haidate佩楯 needed to be remounted on new fabric, both the Munaita 胸板 and Shikoro 錾 would be re-attached and lacquer stabilised and repaired where possible. I selected a design of Odoshiito 縦糸 that was very similar to most of the existing braid (Robert estimated that an incredible 60 metres of Odoshiito would be needed!) and we agreed to proceed and access the work in stages. I retained the armour box (Yoroi-bitsu 鎧櫃) which needed only to be glued back together, which was not as easy as one might think.

At the London Arms Fair, my friend Victor Harris, showed me some photographs of kabuto that he was cataloguing for a Christie's sale in November. The one shown below bore a remarkable likeness to my kabuto and was certainly of the same style and colour. However, this one was complete with tehen-kanemono as well as having the suji decorated. I sent a copy of this to Robert Soanes who said the design was Hiramaki-e of Karakusa which I take to mean that it is a scrolls and tendrils design in lacquer.
Obviously, the maedate is different and there is a moustachioed mempo, but I must agree with Robert that the deeper coloured red lacquer on my kabuto, is more attractive than this one which looks almost new in colour.

**Christie's red kabuto**
Catalogue Description:

THE PROPERTY OF A EUROPEAN COLLECTOR

379

AN AKODA-NARI KABUTO

Momoyama-Edoperiod (16th-17th century) An eight plate helmet lacquered red and having black lacquered suji (ridges) with gold lacquered scrolling, black-lacquered blue-laced shikoro (neck guard) of five itazane (simulated scales), the fukigaeshi (returns) with Wakasa kenkatabami-mon, the gilt wood maedate (forecrest) of a shikami (grimacing, horned beast), red-lacquered mempo (face mask) with detachable nose, moustache, and chin tuft, and black-lacquered four tier yodare-kake (throat-guard).

£8,000-10,000  (US$12,000-15,000,  €9,000-11,000)

The lot was, not surprisingly, unsold at an apparent £5,000.

Based on this picture, Robert and I discussed whether or not a tehen-kanemono that he already made, or a smaller one that was in production,
would be most suitable. We agreed to leave it to Robert's judgement as to which one would look better.

Got in touch with Robert after returning from Japan. He has made and fixed the _tehen-kanemono_ (see below) as well as the four _kiku-byo_ (rivets which secure the _shikoro_ to the rim of the _kabuto_. The _tehen_ is made from copper sheet which is gilded and silvered where appropriate. Robert has quotes from armour braid suppliers in Japan so as to match the existing _Odoshiito_.

_Tehen Kanemono._
March 2012

I am informed by Robert that he has fully restored the badly chipped lacquer on the Koshimaki (the band around the bottom of the helmet bowl to which the Shikoro is attached) in the same lovely warm red lacquer (Shu urushi) and it has all gone well, which sounds good news.

Additionally, he was in the process of making and fitting a new helmet liner (Ukebari) and will be making a helmet tying cord (Kabuto no Ō).
It seems that in order to fully restore the chipped lacquer work on the Shikoro 錏, a complete re-lacing would be necessary. To the best of my memory, I felt that the existing condition of the Shikoro was not too bad and so we decided that stabilising any damaged lacquer in this area would suffice. It seems that I should be able to retrieve the restored kabuto soon, probably at London Arms Fair.

April 2012
Robert wrote:

"I have started to make the helmet cord for you with a core of Japanese Asa麻布 (hemp cloth) and the outer fabric of indigo dyed (Ai蓝) crepe silk (Chirimen縮緬). The Shikoro does have some areas of lacquer missing mostly around the bottom lame which I have stabilised. This was caused by rust detaching the lacquer from the iron substrate. The only way to restore the lacquer would be to strip back all the lacquer to the bare metal, remove the rust and then re-lacquer from scratch. This would obviously be expensive and would also require a total re-lace. I remember you said that you wanted to keep as much of the original as possible so consolidation is probably the better option. You can always change your mind later if you wish."

Further:

"As mentioned before the helmet cord (Kabuto no O兜の紐) I have made with a core of Japanese hemp cloth (Asa麻) and an outer fabric of Indigo (Ai蓝) dyed crepe silk (Chirimen縮緬). Remarkably, the length of the helmet cord is just over seven feet long. The crepe silk I dyed using natural indigo and the sewing is all by hand. The helmet liner (Ukebari浮張) is also made from Japanese hemp cloth and Chirimen silk, hand sewn in a spiral starting from the centre working out to the sides. When the thread is pulled carefully it creates the characteristic head shape. It is edged with Japanese doeskin (Shikagawa鹿革) which I also dyed with natural indigo. The four silk cord loops to which the helmet cord is attached were salvaged from a 200 year old Japanese armour. These are known as Maru-himo丸紐 (round cord) and pass through the Shikoro and the Koshimaki of the helmet bowl (Hachi鉢)."
Fully assembled Kabuto, Hanbo, helmet cord etc
Shikoro in place showing the restored urushi on the koshimaki

Handmade replacement Kiku-byo that secures the shikoro to the koshimaki
The inside of the Kabuto showing the liner and cord

Detail of the indigo dyed Chirimen (crêpe silk) helmet cord or Kabuto no O

The two pictures below show the extent of the rust damage to the Shikoro and as previously stated, this would be an expensive job that would also necessitate a complete re-lace. I am going to meet with Robert on Saturday at the London Arms Fair and collect the kabuto and hanbo in its present state. I will then be able to study it at my leisure and see if I can live with it in its present condition or whether I will feel I am compelled to go further!
Rust damage to shikoro

Rust damage around Kiku-byo
One of the parts of the armour that was most subjected to the flood damage, was the Haidate 佩楯 and it was to this that Robert had paid recent attention.

This job involved re-assembling all the separated Iyozane 伊予札 into their correct rows plus the restoration of the Shita-toji 下締 (the leather thong that holds all the scales together) where necessary. The leather that he used for the Shita-toji is a traditional Japanese tanned cow leather, called Shironameshi-gawa 白鞣革. Unfortunately though, it is only now made by the last remaining tanner of this type of leather in Japan.
A severely damaged iyozane

There are a couple of places where the iyozane 伊予札 are so badly damaged that they needed new ones to be made. Robert has made them using Nerigawa 生皮 (the same hard rawhide type leather that was used to make the originals).

New Nerigawa Sané 札
He will begin the lacquering process on these and the restored Shita-toji soon.

**Re-assembled Iyozane**

Robert informed me that he has also sourced a suitable Japanese hemp cloth (Asa麻) for the fabric part of the Haidate 佩楯. The cloth he has dyed himself using Kakishibu 柿渋 (the astringent unripe juice of persimmons) which, when dyed and hung to dry in the sun, develops a lovely warm deep brown colour. This was the same dye used for the original fabric parts of these Haidate.

Most of the above is quoted verbatim from recent correspondence with Robert.

July represents the first anniversary of the start of this restoration project. Of course, this auspicious occasion has been suitably toasted in fine sake.

Clive Sinclaire

July 2012
Diary of the Restoration of a Suit of Japanese Armour - Part 5

7th October 2012

At the Birmingham Arms Fair in September 2012 (incidentally, there seem to be increasing numbers of Japanese sword dealers at these Birmingham shows these days and I would even suggest that, from this point of view at least, it is better than the London shows) Robert shared a table with Ian Chapman where he displayed examples of his work. Ian told me that Robert had now decided to work independently as a self-employed, full-time, free-lance restorer. Robert expanded on this bold venture, hoping that he would then have more time to devote to armour restoration, lacquering etc. We also arranged that my Haidate and Kote, which have now been fully restored, would be returned to me at the London Arms Fair some 2 weeks later. I transferred the money owed to his account and we met at the London Fair at Olympia.

It may be better if I quote Robert's exact words as I am happy to admit that I am less than conversant with some of the technical terms that apply to Japanese armour. Robert also supplied the pictures seen here.

Quote Robert Soanes:-

"The Iyo haidate are now fully restored. I have tried to salvage as much as possible of the original Haidate but because of the very poor condition this was very limited.

The Iyo Haidate"
Before Restoration (also see Part 4)

After Restoration
The two new Iyo-zane伊予札made from Nerigawa生皮, have been lacquered with Shu-nuri朱塗 (red urushi lacquer). To replicate the correct hue I mixed raw urushi with pure cinnabar pigment. The blue silk trim (called Sasaberii) that edges the fabric sections of the Haidate佩楯has been re-used as well as the silk cord loop seen at the centre of the waist ties (Koshi-himo腰紐). This silk loop is attached through a folded tab of smoked deerskin (Fusubegawa獅べる革) properly called the Kosaru-gawa小猿革.

The band of leather seen above the rows of Iyo-zane (known as Chikarakagawa力革) I made by dyeing Japanese doeskin with natural indigo. Unfortunately, the originals were too damaged to re-use. The fabric section of the haidate (known as leji芯地), as previously mentioned, are made from Kakishibudied hemp cloth. The leji is made from three layers of cloth, the outer facing fabric, a middle lining and a backing fabric. All the sewing to attach the rows of Iyo-zane to the fabric is completed before the backing fabric is attached. After which the Sasaberi笹縁trim is attached followed lastly by the waist tie (Koshi-himo腰紐). All sewing is by hand using indigo dyed hemp thread (Ai-iro no Asa-ito藍色の麻糸)."
The Kote 籠手 or sleeves for the armour were similarly restored and returned at the same time, so that I now have everything except the Dō back at home. The Odoshiito 織糸 (silk lacing braid) required for the Gessan of the Dō is approximately 60 meters in length and has been ordered from Japan. This will probably be the last, and arguably, the most work intensive part, of the entire restoration. However, it is very exciting and the end of this restoration trip is in sight!
Diary of the Restoration of a Suit of Japanese Armour - Part 6

29th December 2012

The following is exactly what was written by Robert, the restorer and shows that latest situation

Please see attached photos of some of the damaged plates of the Gessan. The worst one so far has been the top plate of the front row of Gessan (when viewed directly from the front). It has suffered water damage the most and was pretty much in two halves (horizontally) with a lot of the lacing holes missing. To rectify this I have adhered the two halves back together and strengthened them with a strip of Asa hemp cloth. This is adhered with Mugi urushi (wheat paste and raw lacquer). Once hardened (after about a week) I smoothed over the hemp cloth with Sabi-tsuki (a mixture of clay powder and raw lacquer). This is then followed by rubbing smooth with whetstones and several layers of Kuro urushi. Unfortunately, the vast majority of the plates have suffered damage (mostly at the back of the plates), so I am filling the missing areas of lacquer as best as I can whilst also trying to keep the cost down.
Damaged Gessan
Repaired Gessan with Asa

One small hiccup is my braid supplier in Japan sent me the wrong order in which I received someone else's order. Anyway, it has all been returned and is being sorted out so a slight delay.

I don’t know if you ever noticed but on the front of the Do there is a sword cut (a real one) directly below the Muna-ita. It is about 6-7 inches long and is really interesting and shows that this armour was used in battle! Which battle I don’t know? But it either puts your armour at the late Momoyama period before (just before 1605, when 250 years of relative peace prevailed) or towards the end of the Edo period (Satsuma rebellion). Personally, and from what I can see whilst working on, it I would put it in the late Momoyama jidai.

So progress is being made steadily and the ”sword-cut” had previously gone un-noticed. I am always rather suspicious to attribute such things as signs that the object was inflicted in war, but it would be great if this were the case!
Diary of the Restoration of a Suit of Japanese Armour - Part 7

22nd May 2013

The following is exactly what was written by Robert, the restorer and shows that latest situation:
The above photos are of the main front of the now restored Do showing also the restored lower edge of the Do (before being laced). This area is hidden from the finished view by the completed rows of Yurugi-ito lacing. As you remember most of this had been burst off the surface by the layers of rust underneath. The area was cleaned and consolidated and then the lacquer restoration could begin.
Above is a photo showing a detailed view of the laced Waki-ita (the area of the Do that fits under the arm).

Stages in restoring
I have added two photos showing stages in restoring the interior bottom of the Do. This area was particularly bad, worse than the front in fact, with rust having completely lifted the black lacquered leather from the iron substrate. I first cleaned all the flaking rust followed by consolidation (to prevent the rust from being active). This was then covered by a layer of very thin leather which was pasted on using Sokui-urushi. After about a week of drying several layers of Kuro-urushi were then applied.
Photos this time are of the worst of the broken Gessan which was at the front of the Do. This Gessan was split almost in two by the main hard leather substrate having been eaten, by what appeared, to be small insects. The gessan was restored by reinforcing the two pieces with pasted on Japanese hemp cloth followed by several layers of Sabi-ji ("rust suface", a name given to a mixture of special earth and lacquer). Once this was completed the colour matching of the Shu-urushi (red lacquer) for the front and Kuro-urushi (black lacquer) for the reverse could begin. The replacement Odoshi-ito (armour lacing) used on the Gessan and throughout the armour is pure silk and was woven to order in Japan in two colours of white and green in a variety known as Takaboku-ito (woodpecker thread).
Diary of the Restoration of a Suit of Japanese Armour - Part 8

21st November 2013

Quote from Robert:

The hemp cloth (Asa 麻) on the neck protection (Tate-eri 立襟) collar was quite badly damaged through wear and age deterioration of the materials, with the interior padding exposed.

I restored the area with vintage Japanese indigo (Ai 藍) hemp cloth to match the original. The ribbed silk Sasaberi edging of the Tate-eri was still strong enough to be re-used and was carefully sewn back in place.
The Tate-eri was then re-attached to the shoulder straps (Watagami 肩上) using new Japanese smoked deerskin (Fusubegawa 撲べる革) ties as was originally used.

The very bottom plate of the back of the Dō (to which the Gessan are laced) was again very badly corroded through rust which had caused the original lacquered leather lining to deteriorate.
The area was cleaned, consolidated and covered with new, very thin leather. Over this many layers of natural black lacquer (Kuro-urushi 黒漆) were applied and polished.

Virtually all of the plates of the Gessan at the rear of the Dō needed lacquer restoration (just like the front of the Dō) due to damage caused by rust corrosion (on the iron back strap) and damp causing the original leather substrate to warp. These areas were cleaned, consolidated and restored using genuine urushi (本漆).

Restoration to the badly damaged areas of red lacquer at the front were restored by mixing real Cinnabar (本朱) with Shuai urushi (朱合漆) to the right shade followed by drying in a special damp box (Urushiburo 漆風呂) for several days. Following this all the parts were assembled in to their correct rows and then laced together with the pure silk Odoshiito in Sugake Odoshi (素懸) style for joining the separate plates together and then in Kebiki odoshi 毛引威 style for the Yurugiiito (揺るぎ糸) to which attaches the Gessan to the bottom of the Dō.
The row of Hishinui (菱縫), the cross knots (across the shoulders), needed restoration, not only to the silk Odoshiito (威糸) braid but to the foundation rawhide (Kigawa 生革) ties. These ties support the main weight of the Dō on the shoulders. Over this the silk Odoshiito is laced.
Where possible, throughout the armour, all the original ties and cords that could be re-used were kept in-situ. This is an important part of conservation and restoration that many amateur "restorers" fail to recognise. Many historical suits have been completely stripped and over restored through this basic lack of understanding of preservation of historical objects. If braids, cords, fabrics and leathers have to be replaced they should be done so using traditional Japanese materials rather than synthetic modern counterparts and methods. The Japanese approach to restoration, which is often seen in a museum context is that if any part is replaced it is done so in a slightly different shade of colour so as to still show the original.
I finally collected those parts that Robert had been working on, at Birmingham Arms Fair on 17th November 2013. I assembled it at home in my tatami room.
on the same day. It should be noted that the stand on which it is mounted; is
not ideal and does not display the armour as well as it might. I am making efforts
to find another and will then remount it. Meanwhile, after an interesting and
informative project, below is the finished article in its new home.

Clive Sinclaire

November 2013