CLEANING ARMOUR

THE TO-KEN SOCIETY OF GREAT BRITAIN

for the Study and Preservation of Japanese Swords and Fittings

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PROGRAMME NO. 73

MARCH - APRIL 1973

NEXT MEETING

MONDAY 5th March, 7.30 p.m. at the Princess Louise, High Holborn. To get there:- Underground to Holborn, turn west, cross Kingsway and the P.L. is 50 yards down on the left hand side.

FOLLOWING MEETING:

MONDAY 2nd April at the Princess Louise, 7.30 p.m.

SUBJECTS:

MARCH - 100th Meeting. Fine Pieces.

APRIL - Sword Etiquette

CHAIRMAN'S REPORT:- by John Anderson

At the last meeting we had a sword judging contest ably arranged by John Harding. I think this is an interesting exercise and I trust it was beneficial to those members present who had a go. However, it is painfully obvious that we will have to have a session at which sword etiquette is considered. I personally was horrified to see the way some members handled the blades on exhibition with little or no regard for the swords and even less for the life and limbs of any members foolhardy enough to get within cutting range; indeed it was often difficult to keep out of the way as the damn things followed you. It is not my practice to mention names so you can all say that I am not referring to you, but to somebody else, but for heavens sake examine your own actions and see if they could not be improved upon. I know some members are new enough not to have learned the niceties but it seems we will have to have a talk on the subject.

I have heard from a couple of sources that someone is of the opinion that I suggest low reserves for armour I catalogue for Sothebys and subsequently purchase the items myself. May I make a few points clear... Whereas I do on occasion catalogue armour for Sothebys, I do not suggest reserves; that is purely between Sothebys and the vendors. I did indeed purchase an armour in the last sale as a favour for an overseas buyer, not for myself.

In future, if anyone has reason to doubt my honesty please feel free to approach me direct. I might sue but I seldom bite.

JANUARY MEETING

The meeting opened at 8.10 p.m. We had the pleasure of welcoming Per Terje Norheim from Oslo, our stalwart and total Norwegian membership. Also welcomed were:- Francis Monkman, George Crop, Colin Nunn and last but not least Tom & Derek !!?

The meeting for the evening was to have been an illustrated talk with slides on Dallas. Bon's slides of the Shinsa at Dallas, however, turned out a little on the dark side - too dark in fact for our projector. So it was decided that if we could obtain a powerful projector then we could show them at a later date. (Offers for projector welcomed). However, R. Caldwell had taken some quite good photos of the Shinsa and these were passed around. It was rather noticeable that one particular person appeared in almost every one and in the final photos was showing distinct overheating - from work!! or rushing to be in all the photos?!! As it turned out they were John Harding's mementos - he being the much photographed person.

The photos did show a quite staggering quantity of blades and gave an impression of the immense task before the panel and helpers.

Mr. Ogawa pre-judged the items for shinsa and where there was any doubt for disqualification, conferred with Mr. Sato. Blades were judged by Mr. Ikada and Mr. Sato and fittings by Mr. Sasano.

A slip giving details of blade and assessment was given to the owner at the Shinsa - the appropriate paper, either white or green, to be sent in due course from Japan. Approx. 30% of items achieved green papers and 30/40% white.

A general discussion followed on just how serious English collectors are in comparison with American and Europeans. It was generally agreed that we are not in the main as studious - do we really study all the books we can lay our hands on! - do we ask questions and try to glean knowledge from those more knowledgable than ourselves? If you don't know the answers, they are; quite definitely we do not.

John Harding, as provocative as always (and why not), demanded to know "Who asks questions and in any case, who answers when they do!!? Having successfully ignited the fuse, questions were fired and interest started to shine in our midst. John got the questions and gave very interesting answers.

Q. Much has been said about the colour of steel but most of us cannot recognise it.

A. Forget it!!

Q. Shinto steel is generally considered black. Is this not so?

(John asked if anyone had a Shinto blade. Vic Harris, in an effort to illustrate the point, promptly produced a very dirty blade. There must have been a pound of dirt on it at least. The members had a good laugh at Vic's witty gesture).

A. Not so, said John - it depends on the polisher - some will polish any steel black.

Q. What do you think of Ayasugi?

A. It is not good and only considered nice by European collectors who like to see the wavy pattern. Also considered inferior work is Hitatsura (full temper), it is not seen on good blades.

Q. Can you tell from the Hada if a blade is not good?

A. Yes, a large Hada is the sign of an inferior blade.

Q. How can you tell good Suguha?

A. A thin line is no good - there should be no activity on the Jihada side of the hamon on a good blade. The Habuchi should be deep white and taper towards Ha. Sukehiro shows this fade off - do not be confused, it is not necessarily deep. (Per Norheim's sword, which was passed around, showed this characteristic).

Q. What is Tobiyaki?

A. It is perfectly round shapes of Nie representing a sun or moon on the Ji in the dip of a notare hamon. That is good tobiyaki.

Malcolm Kesson

Our renowned Tsuba and fittings maker, has been awarded a Japanese name to engrave on his works. Henceforth he shall be known as MARUKON.

The Japanese are amazed that an Englishman can produce such good quality work and regard the quality of his shakudo as good and of good colour. They were extremely pleased that the Tsuba was made in traditional style and not Kinko. It was considered that the work would have fetched a green paper.

Malcolm is at present hard at work making a Tsuba for exhibition. We are all very pleased to hear that such hard work has been suitably rewarded. Good luck Malcolm!

FEBRUARY MEETING

Our Chairman John Anderson, opened the meeting for which the main item was to be a Kantai, very graciously organised by

John Harding. Guests present included: George Gough, Miss Noble and Mr. Plaisted. Bill Gray from Birmingham was welcomed once again.

A discussion on our next meeting followed. Our next meeting will be the 100th of the Society and it has been decided to hold a showing of fine pieces. (Please bring along those hidden treasures - no one will touch them).

It was hoped to have our President B.W. Robinson to give a nostalgic talk of how it used to be (5/- blades and all that). However, he will be in Geneva on the day in question. He sends us his best wishes and says that he hopes to be with us more frequently after May when the demands upon him may subside. Other older members (Society-wise) were asked, but would either be away or were just not nostalgic enough. We hope, however, to come up with something.

Arms Fair. No approach has been made to us as regards the Arms Fair, but we feel we should be represented even if not on the same scale as the Autumn Arms Fair.

Bill Gray on behalf of the Birmingham Token Society extended their thanks to Sidney Divers, who took up their cry for help and gave them a damn good talk on the basics, which in their words was just what they needed. He also presented them with a copy of Nihon To which will prove very helpful. The offer of train fare and a meal to all would-be lecturers still stands and any talk will really be appreciated by this new and very interested part of the Society. They meet on the first Friday of the month.

Alan Bale astounded the meeting with the news that Albert Yamanaka's Nihon to Newsletter has folded up. This is indeed a great blow to all of us who eagerly awaited the wealth of knowledge contained in his news sheet. It certainly deserved more support than it got.

Sidney Divers informed us of a play the Midland Arts Theatre Club are at present running. It is called "Narrow Road to the Deep North". It involves samuri, zen etc. There is an exhibition of swords and Kendo pictures on the stairs at the entrance to the theatre. Bill Gray expressed concern at the state the swords are getting into through handling and not being cleaned. The swords are on loan from Birmingham Fine Arts Museum.

KANTAI NYUSATSU

The meeting was then handed over to John Harding for the Kantei. 8 swords were numbered and laid on the central table and members were invited to write down their impressions. Not whether the sword was genuine or what it was, but whether the Hamon was good or bad, any weak spots or particularly good points.

After everyone had studied the blades closely and written down their impressions, John then tried to extract some views on the first blade... (Why won't members offer opinions - even if you're wrong, it won't hurt. No one is right all the time and even the best here are only right some of the time). After a few moments of deathly silence one brave member expressed his opinion that the Hamon was weak, the Hada was quite clear and the Kissaki was in proportion to the rest of the blade.

John agreed basically with these remarks and said the blade was mass production of Seki.

Sword 2. Classical Bitchu blade, tired but as the skin on Bitchu blades is always very thin, then they are nearly always tired. By the standard of blades in Europe it could be considered of medium quality.

Sword 3. Opinion from a member was that the blade was very tired, Mino school, early, possibly Kanesada. John's pronouncement was somewhat different:

John - It's not early, it's late and it's not Kanesada. It is a sword which has been made for presentation purposes and this can be seen by the fattening on the tang and type of holes that have been drilled. The old style of making a hole was to punch it from both sides but the other kind is produced by a hand drill, again cutting from both sides and finished by filing the middle. This easier method is employed on swords of this nature which were made for presentation, the swords were never any good.

The sword was also in a classical presentation mount. The reason for the tiredness is that it never had any meat (niku) in the first place. The thickening of the tang was to act as a wedge so that the tsuba (special presentation type) could be hammered on and there was no need for a seppa or Seki-gane. These blades are nearly always Mino and not for serious use. Regards the Hamon, all activity is on the wrong side. It is all in the skin area and not in the Hamon where it should be.

A member stated that he had a very early blade which had one original hole very rough but the rest had been skimmed down and were as Sword 2. John explained that when a tang was shaved down to take a tsuba then it couldn't be any good. Any good blade would have the Tsuba fitted to the blade. In the trading period - 1854 onwards, many bad blades had their tangs shaved to make them fit Tsukas etc.

Sword 4. Comments from floor - nice shape - Shin Shinto - no flaws. John - This type of hamon which starts in a type of Ichimonji tendency and then into Suguha, is classical of Takada and this blade is a good Takada, exactly as it's supposed to be. Shinto blade.

Sword 5. John - signature reads Suishinshi Masahide and a very good signature, but made of stainless steel. The blade had been tempered without the use of clay, in fact with fat, candlewax etc. There was no Jihada whatsoever. When asked if he were serious, John replied he was and it was in fact modern stainless steel, probably made in 1971. The boshi was fatter than the sword. There were no details of forging to be seen.

Sword 6. John - There is very little to be seen on this sword but it is Seki mass production. In answer to a question on how long has retempering been going on, John replied, 800 years. This particular blade had been made just before the war. They were not made in a factory but by groups of swordsmiths who made the swords properly but on a production line basis: i.e. one group may produce the steel, another shape the blade and others temper them.

Sword 7. Signed Kanemitsu - the blade is not Kanemitsu and has once again a slender tang with a swelling and if closely observed a little dent on each side of the tang where the Tsuba was jambed on. A presentation sword. Just about always when these dents appear, it is on a presentation sword. John's explanation of a presentation sword is as follows: You give a paper fan, but if you really want to be nice you give a crummy sword and never give a good sword. These were sometimes given during Boys' Festival.

Sword 8. Hizen Tadayoshi and has the signature of early Tadayoshi but it is not the early one, but 9th generation which sometimes used the early signature. It is a perfectly good sword and as it is supposed to be. This same man often made Kozuka and you often see his signature on these.

Sword 9. This sword is a mass production Bizen. This can be seen from the fact the Hamon has double cloves and a space, double cloves and a space etc. It is always mass production. Possibly end of Muromachi going on to Edo period.

Sword 10. Kaneyasu. A genuine Kaneyasu - not a particularly good sword. The Hamon is weak and seems to have on one side Nioi-giri (a break in the hamon), but cannot be seen properly as blade needs polishing. However, it is a competently made sword.

A member, rather horrified at seeing John wipe his thumb on the blade, asked if this was done because the blade was dirty. No, sometimes the oil on your hand can bring up what is not clear on a poor polish. (Do clean the blade afterwards).

So endeth a very interesting evening and I am sure most of us went home considerably wiser than when we came. Although the swords were not of good quality, they are the kind we see most of, and therefore the lesson learnt tonight should help us to improve the standard of the blades we buy and I hope at the

next Kantai a larger proportion of blades will be genuine good examples. Thank you, John, for a most informative and interesting Kantai.

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I seem to be in hot water over that one, so let's clear up a few points.

1st. Alan Bale's talk on Tsuba. Unfortunately no notes were available so the talk was put together from rough scribblings. The result being an inaccurate version of the talk. So please disregard. My apologies to Alan.

2nd. Refers to W. Hawley and a computer (page 7). I have received a letter from W. Hawley clearing up the statement. I quote - "I do not have a computer, though I have actually made inquiries as to the feasibility of picking up an old Klunk that is too slow for normal modern use, and programming all Japanese sword data to do just what the programme suggested. The notion doubtless got started when Blaine Navroth used a computer to index the Shinshinto Taikan to my book and vice-versa. All this does is tell my number for each page of the SST and vice-versa for my book. No sword data at all". End of quote.

3rd. W. Hawley again re Shinsa. "I note references to Dallas shinsa swords as having received Juyo certificates. The shinsa issued white papers that in effect stated that a sword signature was genuine or that attribution of a mumei blade was almost certain. Green papers indicate that signature or attribution are certain and that the blade is a good example of the man's work. No relation to Juyo, which is the next step up and requires sending the blade to Japan for consideration by the full panel of 16 experts, who can then certify it as extra fine example in mint condition. The charge for this is about $100, I believe, maybe more, as it includes printing in the Juyo Token nado Zufu".

Ed. - Sorry to have given the wrong impression but I did not mean the Juyo rating for the blades concerned was given at the Dallas Shinsa. Anyway, information gratefully received.

4th. W. Hawley once again. Re: forging - folding. A more simple explanation that everyone can understand - Fifteen times folding produces 32,800 layers in about 1" of thickness, so each layer would be 1/32800 of an inch thick which would be almost down to one molecule. Since molecules could not be broken up, any more foldings would be just useless stirring them up!
I doubt that a few additional folds would weaken the steel, but there is a definite loss of material with nothing gained.

It is said that folding 20 times produces a 90% loss from the original weight. Even at 15 folds the loss is supposed to be 75% which may have been one of the determining factors in laminating, as only a small edge piece was required. Labour and material saved would be a big argument for laminating if for nothing else.

5th. Kantei Nyusatsu. A further correction from W. Hawley... quote "Yamanaka says Kantei nyusatsu is not practiced anywhere outside of Japan. We have two other Token clubs in Los Angeles that are run on that basis entirely, and I believe some other clubs in the USA and Hawaii do also". End quote.

Ed. Well, I reckon that just about cleans up the last programme. Nice to have some mail - even complaints, providing they are constructive. I do think that to run a club entirely on Kantei nyusatsu signifies a very considerable dedication to our subject and that is what it takes if one is to achieve any standing at all. I would like to see something of this nature practiced in our Token Kai. Possibly say a blade per meeting with all details recorded put up and members, prior to the meeting, to make their own judgment. Later the details of the blade be passed over and reasons as to why it is so.

Anyway, let's have your ideas and we can try the best ones.

LETTER - CLIVE RICHARDS

"The kantei at the last meeting was a great idea. It's too bad that the so-called organisers could not keep the so-called sword lovers in control. I've seen as much respect shown at a jumble sale and far better organisation.

I was always under the impression that a person handling someone else's sword should treat it better than a sword of his own, but perhaps I was wrong. However, if this is the kind of respect normally shown by members, they do not deserve to own swords at all.

John Harding asked for individuals to comment as he held up different blades. The comments were few and far between and I soon realised why, the reason obviously being that people do not like their comments turned into jokes, which John Harding frequently did. Although the Society should be a happy one, it should not be so at the expense of the individual.

As this is my first letter I hope members will not be too offended by my criticism, but surely criticism and praise are the only way to improve the Society, and judging by the conduct of members and organisers at the last meeting, it does most certainly need improvement."

Ed. This problem of sword handling has unfortunately been with us for a long time and I fully agree that more care must be shown - before someone loses an ear or damages a blade.

This bad handling has prompted Sword Etiquette to be the basis of our April meeting. Let's face it, even if you consider the blade you are handling to be tatty, it is probably someones pride and joy and should be treated accordingly. I would say, however, that I thought there was an improvement on previous occasions, remarkable as it may seem.

Thanks for your first letter, Clive, the more concerned members are, the higher become our standards.

TOKEN SOCIETY - NORTHERN BRANCH

The November meeting of the Northern Group was held in Manchester on Tuesday November 21st. Twenty members and friends attended, and listened to a talk by Martin Rayner on "Habaki". We were all impressed by the amount of detail that is involved in such a minor part of a sword, and enjoyed Martin's presentation very much.

Member's subscriptions are now due to cover the cost of room hire.

The Northern Branch extend their good wishes to the newly formed Midlands Branch. They seem to have got off to a very promising start, and we wish them every success.

Forthcoming meetings for 1973. Meetings will be held as usual in the Seven Oaks Hotel, Nicholas Street, Manchester. (off Moseley street, next to the City Art Gallery), at 8.00 p.m. Meetings: March 20th, May 15th, July 17th, September 18th.

HABAKI - MARTIN RAYNER

Translated 'Habaki' means 'leggings' or 'a covering' and makes sense in that it covers part of the blade.

Basically it is a metal ferrule which surrounds the blade next to the tsuba. From an artistic point of view it is the least important of the sword's fittings. As a general rule the interior fits over the last quarter of an inch of the blade and the last three quarters of an inch of the tang.

There are two types of habaki, the 'hitoye habaki' and the 'nijiu habaki'. In the former the collar fits the blade and the scabbard. In the latter the nijiu or double habaki the longer sleeve fits the blade and it is the shorter sleeve which

engages in a tight fit with the saya. (The double form is older). Habaki follow exactly the cross-section of a blade, therefore a grooved blade will be equipped with a habaki with two internal ridges or more, dependant on the number of hi.

Habaki from early periods e.g. Heion, and Kamakura tend to be of gold or are plated with gold, later specimens employing gold tend to be gilded.

Functions. The most important function is that of a 'shock-absorber' in that it would transmit the energy of a blow through the tsuba to the tsuka so that the securing mekugi would not take the full force (the habaki butts tightly against the munemachi/hamachi).

The habaki also prevents the yakiba rubbing against the saya and ruining its beauty. The snug fit of saya and habaki ensure a hermetic seal which protects the blade from rust. In particular it protects the part of the blade most likely to be attacked by rust as it is nearest the elements. (However, it is wise to keep the portion of blade beneath the habaki slightly oiled).

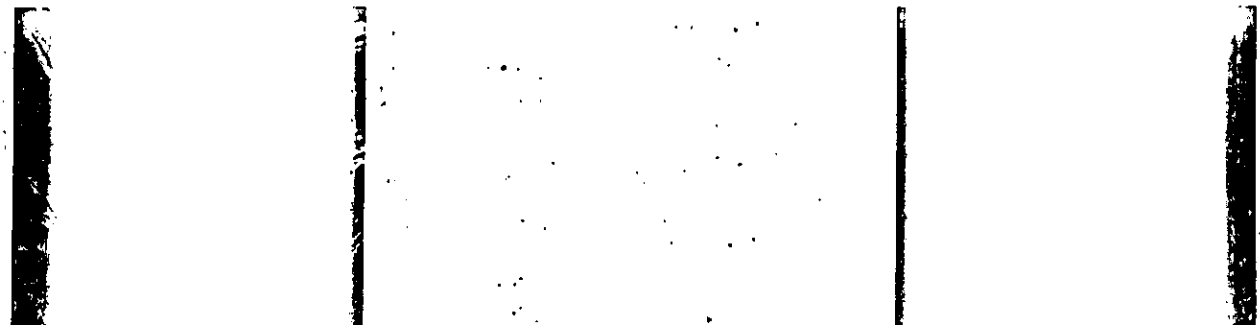
Many habaki have neko-dashi or 'cat scratches'. These help in securing a tight fit. (In good quality saya neko-dashi may engage with intended grooves near the saya mouth).

Materials and Decoration. Mention has been made of early habaki made of gold or plated with the same metal. Other materials used are: silver and various bronzes. Stamped, pierced, and repoussé designs are those most generally encountered on decorated habaki. A material not often encountered is iron (probably because of the inherent risk to the blade) although there is one in the Metropolitan Museum in New York which is inlaid with gold chrysanthemums. The various alloys used for habaki are:-

Shibuichi - an alloy used for ornamental work. The name means 'four parts' - silver, copper, lead, tin and zinc (five parts?). The proportions vary, sometimes the silver content is over 90% (at this level it looks and acts like silver). Alloys with lower percentages of silver assume beautiful shades of silver-grey when correctly 'pickled'. Colour varies according to composition and pickling.

Shakudo - a variety of bronze - when treated turns a bluish-black or velvety-black. Thirty parts of antimony (occurring as sulphide of antimony) plus copper and up to ten parts of gold.

Sentoku - an alloy imitating and named after the Chinese bronze of the period Suen T'ieh (1426 - 1436) seventy-three parts of copper, eight of tin and six of lead. Pickled in copper-sulphate solution the surface shows bright areas.



Some General Points. Habaki on Ken swords serve the same function but their shape is necessarily altered. Habaki on naginata are the same as non-Ken swords. Yari Habaki are conical and are generally made of iron.

At least one habaki the chairman has heard of has been signed and dated. Other materials besides those usually encountered are - iron, ivory, wood, horn and porcelain. These are found on swords not mounted for serious use.

Nijiu habaki are found on swords where the blade is thinner than normal and requires more protection.

Habaki often provide a guide to the quality of the blade. Nijiu habaki and those decorated with mou are often indicative of a fine blade. (However nijiu-habaki tend to be prolific on 'merchants' swords - perhaps for reasons of ostentation so it is a rule which should not be too closely adhered to.)

Solid precious metal habaki are very unusual and tend to be early. Stylistically speaking, Edo period habaki have a smooth curved surface flowing back towards the guard from the mure to the ha. Meijii and modern habaki tend to be square, and flat sided, often with deep striations parallel to the edge, sometimes a smooth groove also at right angles to the edge.

Habaki are of one piece manufacture wrapped and soldered along the ha surface.

THE CLEANING, REPAIRING AND MOUNTING OF ARMOUR - by Ian Bottomley

(This article has been edited by the Chairman to whom any criticism should be addressed).

Since very little information is available to the collector on cleaning and repairing armour it is hoped these few notes, the result of much experiment and not a few mistakes, will be of assistance to those members who may own armour and wish to restore it to something like original condition. The more experienced among us will find much of what follows rather elementary and obvious but I hope they will bear with me and perhaps add to and point out deficiencies in my techniques.

Let us suppose then that you have just become the proud owner of an armour. If it is at all typical it will be in a pretty sorry state from long years of neglect and improper storage. If the armour is mounted on a dummy as many are, take great care in removing it as there are often items of clothing underneath. Keep a sharp eye open for wire that may have been used in the past to lash pieces together as this can do a terrible amount of damage to the lacings and fabrics if it is allowed to remain.

Examine the various portions of the armour and try to assess the damage and repairs that will be necessary; bearing in mind that you are not going to rebuild the armour only to repair it so that it can be displayed and handled safely. Any lacquer that flakes off should be put on one side to be reglued in its original position later.

Now to the actual work and you may as well start on the helmet and work downwards. It will also give you something to look at for encouragement when your initial enthusiasm begins to subside. Examine the method of attachment of the shikoro. It will be either by split - shank rivets or by a combination of rivets and cords. If you can remove the shikoro without doing damage then do so as it makes for easier handling, but if you have any doubts at all then it would be best to leave it in position. The ends of these rivets will be covered by leather tabs which need to be prised off and stored. Be very careful with the rivets as the shanks are often very brittle with age. Should one break off you will have to make a new one from thin sheet copper and solder it into place. It is a good plan to push the shanks of the rivets into a piece of card as soon as they have been removed, draw a rough sketch of the portion being dealt with and place them in their exact positions, making any relevant notes i.e. "rivet bends left". This not only prevents them becoming lost but enables them to be replaced in their original sequence. The fabric lining will also need removing or at least partly detaching so that you can get at the fastenings of the mounts.

The helmet bowl will be either lacquered or given a russet finish so that the quality of the work is visible. If lacquered then go to work on it with cotton-wool moistened with alcohol or methylated spirit which is perhaps easier to acquire; and remove all the dirt from the surface. A trace of soapy water with the alcohol often helps to soften hard deposits. You will find the cotton-buds used for cleaning babies' ears invaluable for getting into crevices and awkward corners. Occasionally helmets were gold lacquered, that is either gold dust or leaf was applied to the final coat of lacquer whilst the latter was still wet. This surface layer of gold is very delicate and will not stand rubbing. All that should be attempted is a gentle stroking with the cotton-wool. Once the surface is clean it can be protected with a coat of wax furniture polish, either paste or liquid variety. Some of the latter give a good deep lustre to the lacquer but are rather difficult to apply, tending to leave a white deposit in the crevices.

John's comment - 'a little weak ammonia or ammonia mixed with soapy water will often speed up the work on gold lacquer and lessen the need for hand rubbing. As to polish, I always advocate a wax which seems to dry harder and is less prone to fingermarking.

The very greatest care should be taken dealing with gold lacquer as even rubbing with polish will sometimes remove it.'

There will usually be numerous little chips and scratches that mar the lacquer surface and you can disguise these very successfully by touching them in with a black felt tip pen. If large areas of lacquer are missing then tone the areas down with matt black paint applied with a small brush so that none extends on to the surrounding lacquer. The idea in both cases is not to repair the damage, which is not a job for the amateur, but to make it as inconspicuous as possible.

John again - 'I do not personally like to paint in missing areas of lacquer, but the felt tip pen for toning down scratches seems a good idea.'

The kanemono can now be tackled and nine times out of ten these will be of copper gilt. Corrosion takes place through holes in the layer of gold and the products spread through and onto the surface. In most cases this layer needs only to be removed to reveal the gilt surface almost intact. Do this by soaking the item in strong household ammonia. Do not be alarmed when it turns deep blue and lumps of black matter start floating about, your kanemono will be alright as long as you don't leave them in for a very long time. Take them out and wash them under running water from time to time, a little gentle brushing with an old tooth brush will loosen up the corrosion layer. When they are clean, dry them thoroughly and give them a thin coat of transparent lacquer of the type used by jewellers for silver; this should keep them in good condition for a long time to come.

John yet again - 'Soaking the Kanemono in ammonia is, I feel, a little drastic. I have had some rather frightening experiences using this method, especially on poorer quality pieces. I prefer to apply the ammonia with a small stiff brush, wiping off after each application. Stubborn areas can be given individual attention and hard build-ups of deposit can be eased with the gentle use of the point of a scalpel.'

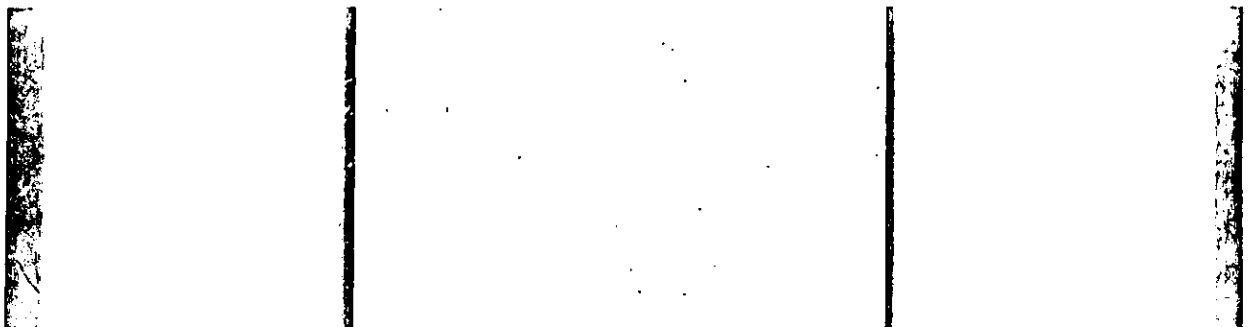
Shakudo mounts respond well to the same treatment as copper gilt except that the ammonia is best diluted with an equal quantity of water and the brushing is best omitted or at least replaced by a gentle rubbing with cotton-wool. Shibuichi and sentoku are best left well alone as is red copper. If the latter is heavily corroded then clean it with ammonia and leave it to time, it should be looking reasonable after about a year and can then be lacquered. Silver and foil covered mounts can be cleaned up with any proprietary cleaner but those items that have been silvered respond to none of the treatments I have yet tried. On the few occasions that I have had them to deal with I have either left them or had them replated.

Replace the kanemono on the helmet bowl making sure that there is a soft leather washer under each of the shanks. If these are omitted the mounts themselves tend to work loose after a while to the detriment of the lacquer under them.

The helmet lining is the next on the list and this should be well brushed to remove as much dirt as possible. If it is very bad then it can be washed in warm soapy water but try to avoid wetting the printed leather edging as this will shrink and become soft and slimy. Any tears or holes can be repaired by glueing a patch onto the wrong side with latex adhesive. With care even those linings that seem to be a mass of tatters and shreds can be reconstituted in this way, especially if the patching material is chosen with a view to matching the original in colour and texture. Re-sew the lining with linen thread or some other dark coloured strong materials in such a way that as little thread as possible shows when the helmet is reassembled. The Japanese almost invariably use green for their stitching and with a little care it is usually possible to find some silk which almost matches in colour.

In the above description I have assumed the helmet bowl was finished with a lacquer surface but as stated previously many were given a russet finish. Russeting is a process of allowing an even coating of rust to build up on the steel surface and then stopping the reaction by some means or other. Since rust itself is hygroscopic this layer of rust will eventually start to grow again resulting in a thick incrustation. The aim in cleaning therefore is to remove all of the secondary rust without damaging the original, a task that is not as impossible as it sounds since the secondary rust is softer. The tool for the job needs to be hard enough to scrape off the loose corrosion but not so hard as to scratch through to the bare metal, and I have found a chisel-shaped piece of bone about right. If bone is not available then try a piece of hard wood or plastic. Using the tool to both push and scrape, work over the whole of the bowl until you have a nice even surface. It helps to judge the progress of the work if you wipe the surface with a rag soaked in meths from time to time. When it is as good as you can get it, then give the whole of the bowl a coat of your transparent lacquer to prevent further oxidation. I usually finish the job with a coat of wax polish as well since this fills up the smaller corrosion pits and gives a better surface.

John again with his method - 'I always use mild steel blades of various shapes for removing rust. I have tried wood, ivory and horn and have found them only partially successful. Many of the build-ups of rust are just too hard for them. I am utterly convinced there is no substitute if used with care and patience, but whether it is a tool for the masses is a bit of a moot point. If in doubt, stick to your bone.



Having removed the rust I brush off the surplus and give the whole surface a good wash with meths or thinners to remove any old oil or grease. When thoroughly dry give it a good brush with a bristle brush, the old wood-backed nail brushes seem fine, after which you are left with a polished russet surface. Then finish with lacquer or wax or both.'

The shikoro can be cleaned in the same way as the lacquered helmet bowl, not forgetting those parts of the plates below the lacing. If true or false scales have been used then the cotton buds and an old tooth brush should help to clean out the grooves but avoid touching the silk with the brush as it tends to scuff the material. Very dirty lacing that is in sound condition can be washed by inserting a wad of absorbent paper behind it and applying warm soapy water to the front with a soft brush. Rinse the braid with clean water and pad it as dry as possible with more paper. Finish the drying either by holding the shikoro near a fire or if you can get one use a heated hair dryer.

The helmet can then be reassembled and given a final polishing with a duster. In order to keep it clean you may as well make a bag for it out of some soft cloth, traditionally this should be a pale yellow colour, and put it away until you have cleaned the whole armour.

You may have noticed that I have made no reference to damaged lacing and cords. This is mainly because I am always torn between total conservation and replacement. On the whole I tend towards the latter providing I can use the proper Japanese silk for the job. There is no doubt that when armour was worn it was re-laced as often as was deemed necessary and after a battle I would imagine the greater part of it would need repairing. A cuirass in my collection has no less than four different shades of blue lacing scattered here and there as evidence of this. If you feel that the original must be preserved at any price then the best advice I can give is to suggest a system of supporting threads under the original lacing to carry the weight. These can be inserted through the original lacing holes with a needle and should to a large degree prevent further deterioration of the decayed lacing. If, however, you wish to replace a section of lacing and you have the correct material, then by all means go ahead. Any problems that may arise can be solved by a study of 'The Manufacture of Armour and Helmets in Sixteenth Century Japan' by Sakakibara Kozan, edited by H. Russell Robinson, Chapter 11, which gives full details of the lacing of both parallel and tapering portions of armours.

If the real braid is unobtainable, I would be inclined to leave the original lacing in place until such times as you can

get hold of new stuff. The possible substitutes that are available in this country, such as boot laces and the like, are very unsatisfactory to say the least. Not only are they of the wrong texture and appearance but they are often of the wrong dimensions making threading very difficult.

Using the techniques outlined above you should now be able to go ahead and clean most of the other portions of the armour. There is however one problem that has not arisen yet and that is the internal ties that hold the rigid portions of the armour together. These will normally be found only on the Dō but occasionally other portions are so treated. They consist of leather thongs fastened through the lacing holes of a plate and connecting the upper edge to the lower edge of the plate above. The whole arrangement is concealed by the lacing but will be visible on the inside of the piece in the form of a row of small knots. These are frequently broken by misguided attempts to force an armour into its box in the incorrect manner. Replacement should be by thin strips of strong leather or by several thicknesses of strong thread. Whatever it is that is used it must be very strong because it is these ties that really hold the cuirass together, the lacing being more of a decorative feature. Insert them by threading with a needle following the original route under the lacing. Do not tie them off until you have completed the whole of a horizontal row and then work from the centre outwards pulling them as tight as you can. The slight elasticity of leather is a big help in this job but it is difficult to obtain in sufficiently thin pieces that have enough strength.

There now remains only those portions of the armour mounted on fabric and this will generally include the sleeves, haidate and suneate. If the cloth used is hemp, a rough linen like material, there should be little or no damage as it seems to have almost everlasting qualities. Silk, however, is another matter altogether becoming very brittle with age, especially on exposure to light. Sewing is hopeless and the only satisfactory way I know of repairing it is to glue the edges of tears and splits either onto the backing fabric or onto new cloth inserted under the silk, with latex adhesive. It is important to be sparing with the adhesive since it will show through the thin silk if too much is used. Treat holes in the same way using a patch of new cloth that blends in with the brocade as unobtrusively as possible.

The mail portions can be cleaned with a stiff brush and polish but be careful not to touch the fabric with the brush. If the mail has broken away from the fabric in places, resew it back with strong dark coloured thread. If you are clever you can guide the needle between the layers of cloth so that next to nothing shows on the inside. As far as repairing mail is concerned, I have tried it once but never again. It is far too tedious for my taste.

That then is the general method I use for cleaning armour, but since Japanese armour is so individual there are bound to be problems that I have not mentioned and these you will have to solve by yourself. It may be of interest to describe some of the more unusual difficulties I have had, since they may give you clues to solving yours.

1. Gilt copper eyelets that could not be removed for cleaning because of the cords passing through them. These were first of all slackened off slightly and a mask of thin celluloid was slipped underneath to protect the printed leather surrounding them. I also protected the cords with more celluloid and cleaned them in situ with ammonia applied by a cotton bud. After washing and drying they were lacquered, the masking was removed and the eyelet retightened.

2. Gilded leather on the peak of a helmet that was covered with a layer of dirt that would not respond to normal cleaning methods. Fortunately the leather had been given a coating of transparent orange coloured lacquer after gilding and this enabled me to clean it with a weak solution of ammonia without damaging it.

3. Broken hinges on a pair of tsutsu - gote. The main difficulty with these was that the hinges were rivetted to the underside of the plates, the upper surface being lacquered smooth. This meant that I could not remove the remains of the old hinges without damaging the surface. New hinges were made from mild steel, rusted up and fitted in place under the remains of the old ones with epoxy adhesive. The final result gives the impression that the original hinges are still intact.

4. Soft fur along the lower edges of a set of kusazuri that were so dirty it looked black. After a lot of heart searching I plucked up courage and washed the fur with shampoo and the minimum of warm water followed by rapid drying. The fur turned out to be that of a polar bear.

5. Damage to the peak of a helmet lacquered with sabi nuri. This damage was the result of a violent blow to the edge that had bent the metal and caused a large piece of lacquer to flake off. Attempts to touch in the missing area with paint of the correct colour was a hopeless failure because it had the wrong texture and appearance. Since the whole idea of sabi nuri is to imitate rust it occurred to me that rust might be the answer. Casting around for a supply I found the exhaust system of the car gave it in abundance. This was ground up to what I judged to be the right particle size, sieved and mixed with clear lacquer. A trial on a piece of scrap iron dried to exactly the right colour

and texture. After straightening out the metal of the peak the potion was applied, making no attempt to fill in the missing piece only to reduce the obvious nature of the damage.

6. A missing fukigayeshi on a helmet. This seems to be a common complaint of helmets and results I am sure from the attempts of the uninformed to straighten them out. Normally I do not worry too much if they are missing but in this case the whole helmet looked distinctly odd having only one. The remaining fukigayeshi was of steel covered with a very wrinkled leather that had been lacquered dark brown. The steel plate was easily made from a paper pattern taken from the remaining one. A small flange was added to the bottom edge for attachment later. The leather was more of a problem, and proved to be impossible to duplicate with real leather. Since it was to be lacquered anyway I decided to try epoxy putty of the kind sold for car body repairs. A thin layer was spread over the surface of the steel and then grooved and wrinkled with the point of a nail. On drying it did not look too promising but after polishing with steel wool the result was remarkably like the original. After a coat of paint of the right colour and a good rubbing in dirt, the match was so good that I decided to attach it to the shikoro which I did by two small rivets through the original rivet holes. The mitsu-tomo mon in shakudo was way beyond my ability so I left it off but it is not so obvious as might be supposed.

Having taken all the trouble to clean and restore your armour to display condition as outlined in the earlier part of this article, my next piece of advice may seem rather odd; and that is not to display it. By this I mean do not stand it around your house as part of the permanent décor, for a little thought will show that these were the conditions that made restoration necessary in the first place. So unless you are prepared to install glass cases in specially darkened rooms, my advice is to pack your armour away until either you or someone else wishes to see it. Nothing goes more unnoticed than the everyday objects around you and the simple task of unwrapping and mounting the armour will renew your pleasure in it.

Ideally the armour should be stored in the box originally made for it, but so many have become separated that a boxed armour is something of a rarity these days. If you have no box then the next best thing would be to make one but we warned that the necessary skills need to be of a high order. The originals are very lightly built and it is not easy to obtain the required strength without sacrificing the delicacy of the originals. An Alternative would be to use an old trunk, chest or even a tea-chest providing it is sound and clean.

Having acquired a box and I hope made cloth bags for all the pieces as recommended in part I, your next problem is to fit one into the other. The general packing arrangement is to fold the kusazuri up inside the Do, or if possible take the Do to pieces, and place this to one side of the box. All the small portions are then packed into the Do leaving a space clear either above or to one side for the helmet. Most of them were very tight fits but they do go into the space in spite of appearances. It is as well to sprinkle a little insect repellent into the box before putting the armour away just in case there is an unnoticed infestation of something nasty. Surprisingly, it seems to be the portions made from horn that are attacked first and I have seen armours with all of the fastening toggles eaten away but with the cords and fabrics in good condition. If you acquire such an armour the toggles can be replaced without disturbing the cords by making new ones without the dividing wall between the two holes. Once the cord loop has been inserted through the slot it can be held in place by a small dowel glued into a hole drilled through the face of the toggle.

During storage the armour should be inspected at fairly frequent intervals just in case any trouble should arise it will give you time to nip it in the bud.

Displaying the armour will depend to a large extent upon your own taste. You can either mount the armour standing, as is done in the Metropoliton Museum, New York, or in the traditional manner sitting on its box. To my mind the standing armours never look very pleasing so I can give you no details of the types of stands used but please let it be a stand made for the job and not a converted dress-makers dummy. There is nothing more calculated to destroy the effect of a mounted armour than to see a trio of scrolled mahogany legs peeping out from under the haidate.

For a sitting armour the stand can be of any design providing it fits and does not put undue strain onto the cords and fastenings. Over the years I have gradually evolved a stand that seems to answer all requirements and which can be modified to suit the requirements of individual armours. None of the joints are permanent so that the whole thing can be dismantled for storage. The diagram should make the construction clear. The critical dimensions are marked on the diagram and should be measured off from the armour as follows:

A. This is the distance from the underside of the watagami to the top of the box. To find this length drape the armour over a pole and measure the distance from the pole to the lower edge of the Do, ignoring the kusazuri. Add about 2" to the measured length to get A. The kusazuri should then spread out

from the Do and overlap the upper edges of the box, and with the stand pushed to the back of the box will give the armour a good lap on which to rest the hard defences.

B. This should be just long enough for the lower edge of the shikoro to clear the watagami by about an inch.

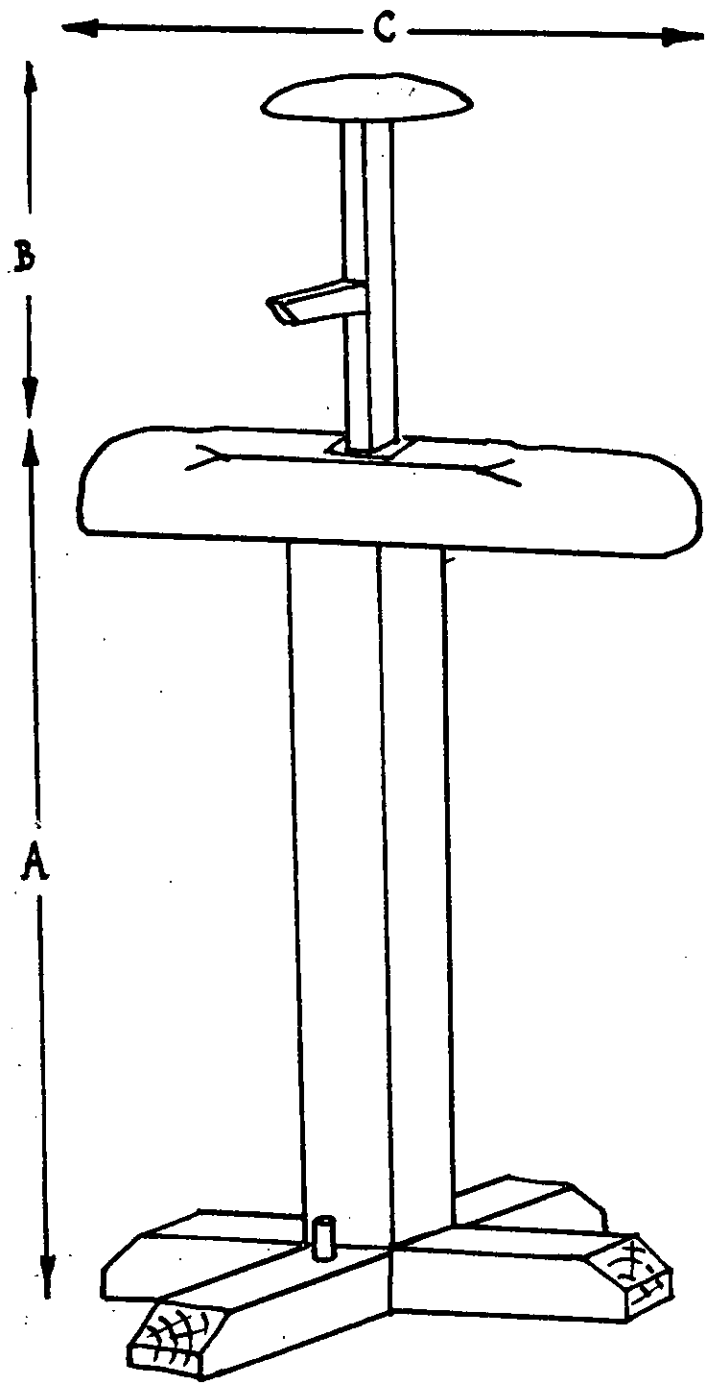
C. This is the most difficult dimension to obtain and I usually arrive at it by trial and error. On average it seems to work out at about the width across the watagami plus about 2½" to to 3" each side. Cut them a little long at first and then gradually shorten them until the sode and kote hang right.

The only other items that may need an explanation are the strut that fits into the chin of the mempo, and once again this is a trial and error job, and the dowel peg on the base which takes the weight of the haidate.

To mount the armour on such a stand I normally follow the same procedure as was used for donning an armour for wear: Place the stand on the box as far back as possible. Hook the loop attached to the waist band of the haidate around the dowel and then tie the waist band around the stand. Lift the Do into place, fasten it and then attach the kote and sode. The appearance of the former is much improved if a roll of newspaper is inserted into the forearm portion. Hang the mempo in place and secure it with the helmet cords, finishing them off in a reef knot under the chin and tuck the ends away. Either place the suneate flat against the box or better tie them around a roll of newspaper and stand them with their upper edges under the haidate. Finally fit any crests or other accessories. Place the hand guards on the armours lap and the job is finished.

Occasionally an armour will be encountered that needs special treatment. For example an O - yoroi, true scaled Do maru etc. For these the stand will need modifications in the form of struts fastened to the central pillar to hold the Do in the correct position. The only time this problem arose with me, I simply screwed on blocks of wood with padded ends until the cuirass hung properly. Incidentally it is not a bad idea to pad the ends of the cross piece anyway since the fabric of the kote is stretched tightly at this point and there is little enough strength in some of these pieces anyway.

That just about concludes the article and I hope some of what has been written will be of use to someone. I hope even more that some of the abuses to which armour has been subjected in the past will not continue.


C
B
A

John's final comments: If you roll newspaper to the full length of the sleeve you can bend the arm to give it an elbow and still give the upper arm some shape.

Points to remember - daylight, and particularly sunlight, will fade lacing, fabric and lacquer. Mounting armour puts continual strain on cords and fabric. There is no quick way to clean armour; if you lack patience don't start! An armour is as much a work of art as a sword or a Tsuba. Both these are kept in bags or boxes, so should armour.

LONDON SWORD PRICES by S.R. Evid

In 1970 I produced an article and graph showing the average price per sword over the years 1964 to 1969 inclusive based on sale prices of a London auction house. I have recently been asked, in view of the very high prices currently ruling in London, what is happening to the graph since 1969, so I have plotted these out up to end of December 1972.

My article in the Programme No.54 (1970) should be re-read by those interested in the price trends to save my writing them out again but the same rules apply. As forecast in that article, the higher prices are bringing out more swords on to the market in London auctions, contrary to the often expressed belief that there will be few swords left in the U.K. due to overseas buying. One reason for this phenomenon is that London has established itself as the world centre and attracts a considerable quantity of swords from abroad so it acts as a clearing house both for incoming as well as outgoing sales.

That sword price increases would accelerate was also forecast in that article, due to lack of faith in currency and stock exchange erratic fluctuations. To this must be added the increase in wealth of the average Japanese, the increase in purchasing power and the increase in numbers of collectors, and world inflation.

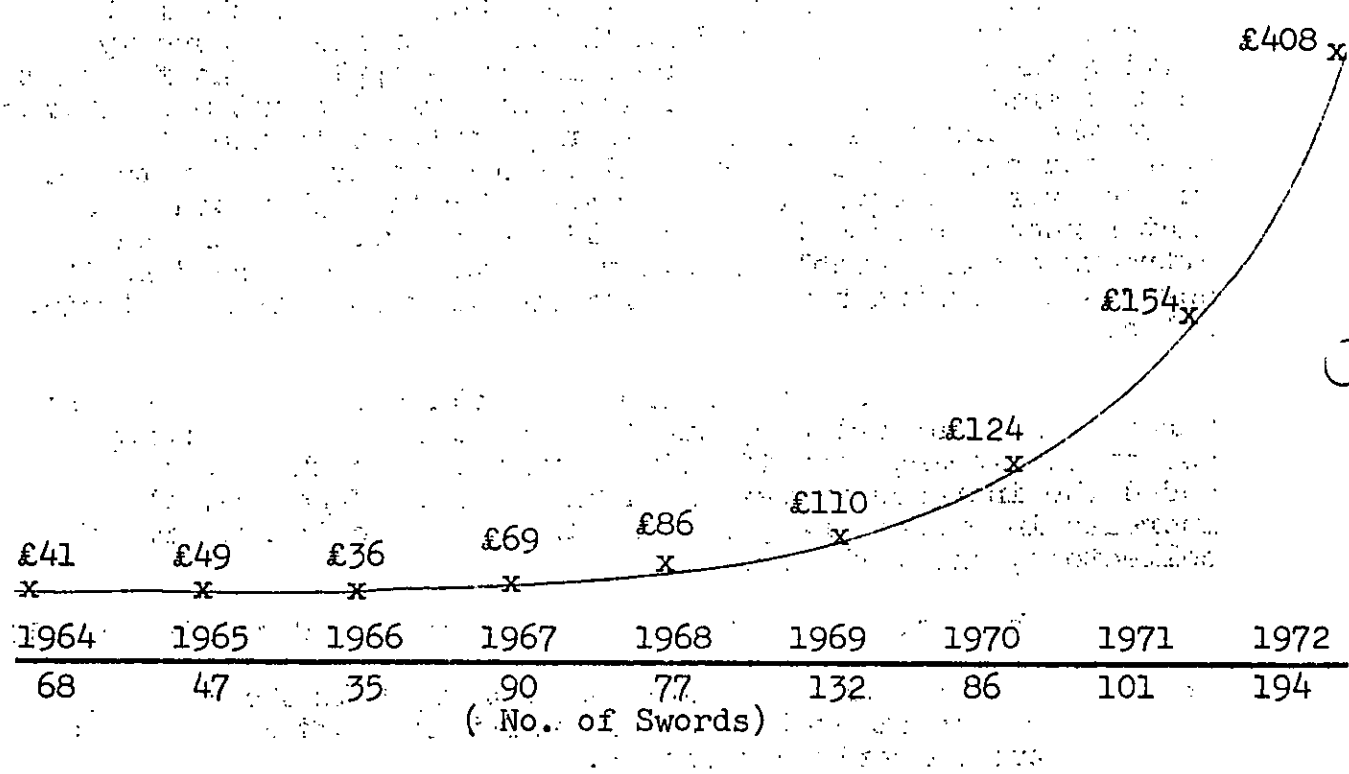
The price acceleration has produced bad points as well:-

a) A sword can be bought at auction, held for a year, resold at auction and a profit made after paying the Auctioneer's commission.

b) The advantage of "Knowledge" is disappearing. Anyone can watch the knowledgable collectors and dealers, overbid at the end, scooping the cream of the "know-how".

Though the 1972 average was £408, during the year the average per sale has steadily accelerated from £228 in March, £381 in July to £507 in December. The average quality of swords was much higher in 1972 than in previous years. A word of caution should not come amiss here and 1972 should not be used as a criterion for market behaviour over future years as, though the trend will continue upwards for the forseeable near future, this is so dependent on quality that a batch of poor swords could even show a price fall as seen in 1966.

GRAPH OF SWORD PRICES - LONDON AVERAGE PER SWORD OVER THE LAST 9 YEARS



ONWARD AND UPWARD WITH TECHNOLOGY

GIVING UP THE GUN

In early January, 1855, the U.S.S. Vincennes, an eighteen-gun sloop of war under Commander John Rodgers, USN, dropped anchor in the southern bay of Tanegashima Island, twenty miles south of Kyushu, in Japan. The Vincennes was the flagship of the newly created United States Surveying Expedition to the North Pacific Ocean and was beginning a six-month survey of Japanese coastal waters. Her arrival was one of the first results of the celebrated "opening of Japan" by Commodore Perry in 1854.

Sometime on January 9th, Commander Rodgers led an armed party ashore on Tanegashima to buy provisions. He was not well equipped for bartering, having no knowledge of Japanese and no interpreter - nothing, in fact, but an English-Chinese dictionary. Nevertheless, he did get his wood and water, bargaining for them in sign language. He also got a good look at native life. The thing that impressed him most about the islanders was their almost complete ignorance of ordinary nineteenth-century weapons. "These people seemed scarcely to know the use of firearms," he noted in his report to the Secretary of the Navy. "It strikes an American, who from his childhood has seen children shoot, that ignorance of arms is an anomaly indicative of primitive innocence and Arcadian simplicity."

In writing his report, Commander Rodgers showed himself to be almost as Arcadianly simple as the Tanegashimans themselves. They were innocent about guns, all right, but it was an acquired innocence, not a primitive one. The ancestors of those islanders not only had used guns but had been the first in Japan to do so, and during the mid-sixteenth century guns were known all over Japan as tanegashima. (Later, the standard name became teppo.) By the time of Commander Rodgers' visit, the Japanese had moved from swords to guns and back to swords again. They had learned to cast cannon of a respectable size, and had then nearly (but not quite) unlearned the art. Even today, the whole complicated story is not fully known, but one fact is certain: The Japanese were keen users of firearms for about a hundred years, and then turned back to swords and bows. Few scholars agree completely on what made them do it, or on how, after having gone so far with guns, they were able to retrace their steps. Comtemporary accounts are scarce.

The story begins clearly enough, however. It starts within a mile or two of where the Vincennes anchored in 1855. The year was 1543, and a Chinese cargo ship - maybe half the size of the Vincennes - had come into the harbor. Its name, if it ever had one, has been lost. Concerning the hundred men on board, though, much survives. Most of them were Chinese trader-pirates of a type common at the time. One however,

was an educated Chinese sailor named Goho, and three were Portuguese adventurers, also of a type common at the time. Portugal had had a colony in India since 1510, and Portuguese men and ships were beginning to appear all over the Far East. The three Portuguese citizens on board this Chinese ship were the first Europeans known to have reached Japan. Two of them had harquebuses and ammunition with them, and at the moment when Lord Tokitaka, the feudal master of Tanegashima, saw one of them take aim and shoot a duck, the gun enters Japanese history. Using Goho as an interpreter, Lord Tokitaka immediately made arrangements to take shooting lessons; within a month he had bought both Portuguese guns. He is supposed to have paid a thousand taels in gold for each of them - a sum difficult to translate accurately into modern terms. But it was a lot of money. Seventy years later, you could buy a good harquebus in Japan for three taels, and sixty years after that six taels a month was still regarded as fair wages for a workingman.

The same day that Tokitaka bought the guns, he ordered his chief swordsmith, a man named Yatsuita Kinbei to start making copies of them. There is a sad story that Yatsuita, unable to get the spring mechanism in the breech quite right, gave his daughter to the captain of a Portuguese ship that arrived some months later in return for lessons in gunsmithing from the ship's armorer. Whether that is true or not, it is certain that within a year Yatsuita had made his first ten guns, and that within a decade swordsmiths all over Japan were making the new weapons in quantity. An order for five hundred tanegashima put in by a certain lord named Oda Nobunaga in 1549 is still on record. By 1560, their use in large battles had begun (a general in full armor died of a bullet wound in that year), and fifteen years after that they were the decisive weapon in one of the great battles of Japanese history.

All this represents what would now be called a technological breakthrough. As present-day Japanese writers like to point out, the Arabs, the Indians, and the Chinese all gave firearms a try well ahead of the Japanese, but only the Japanese mastered the manufacturing process and really made the weapon their own. There were good reasons for Japan's special success. The country was a soldierly one to begin with. Furthermore, at the moment when firearms arrived it happened to be in the middle of a century-long power struggle; the Japanese name for the period from 1490 to 1600 is Sengoku Jidai, or Age of the Country at War. Several dozen major feudal lords were vying to get military control of the country, make a puppet of the shogun (the emperor was already the shogun's puppet), and rule. Naturally, such men were interested in new weapons, and in anything else that would give them an advantage. Equally important, Japan had already reached a high level of technology. Her copper and steel were probably

better, and were certainly cheaper, than any being produced in Europe at the time. For two hundred years, Japan had been the world's leading exporter of arms. In 1483, an ordinary year, thirty-seven thousand swords were shipped to China alone. A hundred and four years later, a visiting Italian merchant named Francesco Carletti noted a brisk export trade in "weapons of all kinds, both offensive and defensive, of which this country has, I suppose, a more abundant supply than any other country in the world." Even as late as 1614, when things were about to change, a single trading vessel from the small port of Hirado sailed to Siam with the following principal items of cargo: fifteen suits of export armor at four and a half taels the suit, eighteen daggers at half a tael each, twenty-eight daggers at a fifth of a tael, ten guns at four taels, ten guns at three half taels. Finally, Age of the Country at War or not, Japan was in booming good health. During the sixteenth century, it had a larger population than any Western nation - twenty-five million people, compared to sixteen million in France, seven million in Spain, five million in England, and maybe a million in what is now the United States. Agriculture was flourishing. So was the building industry. So were schools. The arts were thriving. Indeed, Father Organtino Gnecchi, a Jesuit missionary stationed in Japan in the late sixteenth century, thought that the general level of culture (religion excepted) was higher than back home in Italy. Don Rodrigo Viveroy Velasco, the retiring Spanish governor of the Philippines, came to much the same conclusion after a visit in 1610. This is not the conclusion that Spaniards came to in, for example, Peru.

Even in so receptive an environment, of course, firearms naturally did not take over all at once. On the contrary, there was an enormous overlap with existing weapons, and there was plenty of skepticism about guns' having any real military value at all. Those five hundred guns ordered by Lord Oda Nobunaga in 1549, for example, represented arms for only a tiny proportion of his troops, and even ten years later he seems to have regarded firearms as a sort of military gimmick. "Weapons of war have changed from age to age," he is supposed to have said at a conference with his followers. "In ancient times, bows and arrows were the fashion, then swords and spears came into use, and recently guns have become all the rage. These weapons all have their advantages, but I intend to make the spear the weapon on which to rely in battle." Then he opened a debate on the question of long spears vs. short spears.

Lord Oda's skepticism reflected partly the mere newness of firearms in 1559 and partly their primitive nature.

The Portuguese harquebus, or the Japanese teppo, or the English matchlock, was a very slow-firing weapon; not only did you have to load it from the muzzle but it took a set of complex motions to arrange the priming. According to one sixteenth-century estimate, an archer could shoot two dozen arrows while a matchlockman was loading once. The light bullet that early models carried did damage only up to eighty or a hundred yards, and even inside that range it was likely to bounce off well-made armor. Furthermore, a matchlock would not work in the rain. (Europeans encountered this difficulty, too. On one memorable occasion during the civil wars in France - at La Roche-L'Abeille on June 25, 1567, eight years after Lord Oda's debate - a brisk rain set in just as two groups of matchlockmen were about to shoot it out. They were reduced to clubbing each other over the head with their wet guns, like so many boys with baseball bats. (Japan is a very rainy country.) But there were solutions to all these problems, and Japanese generals found them - in some cases sooner than European generals. They developed a serial firing technique to speed up the flow of bullets, they increased the calibre of the guns to improve each bullet's effectiveness, and they made waterproof lacquered cases to carry the matchlocks and gunpowder in. A couple of years after the skirmish at La Roche-L'Abeille, they had come far enough so that Lord Oda's principal opponent, a nobleman named Takeda Shingen, could issue a new order to his retainers. "Hereafter, guns will be the most important arms," he said. "Therefore, decrease the number of spears (per unit), and have your most capable men carry guns." One proof of Takeda's rightness about the growing importance of guns was that he himself died of a bullet wound in 1573. But much more important as proof was the Battle of Nagashino, fought between Takeda's successor and Lord Oda in 1575. In this battle, Lord Oda, the former devotee of the spear, appeared in an army of thirty-eight thousand men, of whom ten thousand were matchlockmen. Of these, the three thousand best trained were the chief cause of his great victory. Lord Oda had them drawn up in three ranks behind breastworks. They were told to hold their fire until the last instant and then shoot, on command, in volleys of thousand. Thus, the men in the first rank could be nearly reloaded, and those in the second rank reaching for their bullet pouches, before the third rank ever fired. It all worked out brilliantly. In fact, the plan was so successful that a Japanese lieutenant general writing in 1913 could say that in his opinion very little improvement in infantry tactics had been made since. At Nagashino, incidentally, both sides had a few pieces of light artillery. They were made in Japan but by the Portuguese. A few months after the battle, the first two cannons made in Japan by Japanese were delivered to Lord Oda for test-firing at Gifu. They were two-pounders, about nine feet long.

It was worth taking a moment to compare Nagashino with European battles of the time. In terms of weaponry, the Japanese would appear to have been substantially ahead. By comparison, the Battle of Glenlivet, in Scotland, looks distinctly medieval, even though it was fought twenty years later. In France, King Henry of Navarre's victory at Coutras, twelve years after Nagashino, seems a little primitive, despite the fact that more of the French gentry perished at Coutras than in any previous battle of the French civil war. There were a good many firearms at Coutras, including two cannons on Henry's side and about seven with the Duc de Joyeuse. But, keeping in mind Lord Oda's army, one finds it hard to be impressed by Henry's stratagem of putting a platoon of twenty-five harquebusiers between each squadron of his spear-bearing cavalry, or even by his three hundred men-at-arms with pistols. These however, are generally reckoned to have won him the day. They are also supposed to account for the great disparity in casualties - fewer than two hundred men on Henry's side and twenty-seven hundred on the other. At Nagashino, sixteen thousand died.

During the half century after Lord Oda's victory, firearms were at their height in Japan; not to know how to use them was not to be a soldier. But, at the same time, the first resistance to firearms was also developing. It arose from the discovery that efficient weapons tend to overshadow the men who use them. Prior to Nagashino, the normal Japanese battle had consisted of a very large number of single combats and small melees; people paired off. Such a battle not only could produce almost as many heroic stories as there were participants but had a kind of morality, since each man's fate depended principally on his own ability and state of training. Equipment counted, too, of course. Defensive armor was considered especially important, and a well-made piece of it came in for a full share of praise. In an old description of a battle fought in 1562, there is one incident that reads remarkably like a modern advertisement. Late in the battle, a general named Ota Sukemasa, who had already been wounded twice, got into single combat with an enemy knight named Shimidzu. "His assailant, a man noted for his strength, threw down the now weary and wounded Ota, but tried in vain to cut off his head," the account runs. "At this, Ota, his eyes flashing with anger, cried out, 'Are you flurried, sir? My neck is protected by a NODOWA (a jointed iron throat-piece). Remove this and take off my head.' Shimidzu replied with a bow, 'How kind of you to tell me! You die a noble death. You have my admiration!' But just as he was about to remove the NODOWA, two squires of Ota rushed up and, throwing down Shimidzu, enabled their master to decapitate his foe and retire safely from the field."

Incidents like this occurred very rarely in mass battles with matchlocks. A well-aimed volley of a thousand shots killed flurried soldiers and cool-headed ones without discrimination (and at a distance too great for conversation.) Bravery was actually a disadvantage if you were charging against guns, while if you changed sides and became a matchlockman yourself, there was still not much chance for individual distinction. You were now simply one of the thousand in your rank, waiting behind your breastworks for orders to mow down the charging enemy. It didn't even take much skill to do this; skill had been moved back from the soldier to the manufacturer of his weapon, and up from the soldier to his commander. Partly for that reason, many of Lord Oda's matchlockmen were farmers and members of the yeoman class called goshi, or ji-samurai, rather than samurai proper. It was a shock to everyone to find out that a farmer with a gun could kill even the toughest samurai so readily. The result was that soon after Nagashino two conflicting attitudes toward guns began to appear. On the one hand, everyone recognized their superiority as longrange killing devices, and all the feudal lords ordered them in large numbers. On the other hand, no true soldier wanted to use them himself. Even Lord Oda avoided them as personal weapons. In the skirmish in which he died, in 1582, he is supposed to have fought with his great bow until the string broke, and then with a spear. The following year, during a battle in which something like two hundred ordinary soldiers were hit by artillery fire, the ten acknowledged heroes of the battle made their names with swords and spears. This attempted division of warfare into upper-class fighting with swords and lower-class fighting with guns did not, of course, work. The two methods kept colliding. The death of Lord Mori Nagayoshi, in 1584, is typical. Lord Mori, who was wearing full armor with a kind of white silk jupon over it, and who thus made an extremely conspicuous target, persisted in riding out in front of his troops to rally them. He probably waved his sword. A matchlockman took careful aim at his head and knocked him off his horse dead, aged twenty-seven.

A couple of years later, Lord Hideyoshi, the regent of Japan at the time, took the first step toward the control of firearms. It was a very small step, and it was taken not simply to protect feudal lords from being shot by peasants but to get all weapons out of the hands of civilians. What Lord Hideyoshi did was characteristically Japanese. He said nothing about arms control. Instead, he announced that he was going to build a statue of Buddha that would make all existing statues look like midgets. It would be of wood, braced and bolted with iron. Many tons of iron would be needed, both for the statue and for its accompanying temple, which was to cover a piece of ground something over an eighth of a mile square. All farmers, ji-samurai, and monks - the Knights of

Malta were practically pacifists compared to the Buddhist monks of the time - were invited to contribute their swords and guns to the cause. They were, in fact, required to do so. As a result, anyone visiting Kyoto in 1587 could have seen scores of blacksmiths busy hammering matchlocks into religious hardware. The Jesuit Annual Letter for that year reported rather bitterly that Lord Hideyoshi was "planning to possess himself of all the iron in Japan," and added, "He is cunning and crafty beyond belief. Now he is depriving the people of their arms under pretext of devotion to Religion."

No one was depriving the armies of their arms, of course, and the production of guns continued to rise for another twenty years. Lord Hideyoshi himself had a powerful need for them. He had a new plan, which was, briefly, to conquer Korea, China, and then the Phillippines. China was his real target, but Korea came first, as offering the best invasion route. The Philippines were an afterthought, included chiefly because Hideyoshi had received a report that the small Spanish garrison would be a pushover. (The report was apparently correct. Most military historians agree that if Hideyoshi had reversed his order of attack, Manila would have been a Japanese city from 1592 on.) During a campaign as Napoleonic as this, one might have expected the efficiency of guns to triumph over the mere heroism of swords and spears. It almost did. The Japanese started off to Korea with mixed upper and lower-class units, their weapons as ill-assorted as ever. The samurai, who were a majority in most detachments, carried their traditional two swords, plus at least one other weapon, usually either a spear or a bow. The rest of the soldiers carried guns. During the first few months, when the Japanese were advancing up Korea almost at will, this arrangement worked very well. But when the Chinese began to send whole armies of reinforcements to help the Koreans, the idea of guns for everybody began to look very attractive to the Japanese commanders. A couple of letters written home from Korea in the fifteen-nineties reveal their view rather clearly. One was written in 1592 by a provincial lord who had gone over with approximately 1500 gunners 1,500 archers, and three hundred spearmen. He wanted to change the ratio. "Please arrange to send us guns and ammunition," he wrote to his steward. "There is absolutely no need for spears." Seventeen years had passed since Nagashino, and it can hardly have been news to the steward that guns outperformed spears. The news was the change in his master's attitude. The other letter was written much later in the campaign, when the Japanese - rather like the Americans three hundred and fifty years later - had swept up to the Yalu River and then been driven well down again by the Chinese (who made up a quarter of the world's population then, too.) A Japanese nobleman named Asano was holding Yol-San Castle against a very much larger force of Koreans and Chinese, and he wrote his

father to arrange for replacements. "Have them bring as many guns as possible, for no other equipment is needed," he said. "Give strict orders that all the men, even the samurai, carry guns." In other words, the knightly retainers of the Asano family were to be dragged, kicking and screaming, into the late sixteenth century.

Leaving out Hideyoshi's civilian disarmament act, Japan seems at this moment - the winter of 1597 - to have been much in the same position as any European country of the era, even to the view of its upper class. For the Japanese were by no means alone in feeling that progress in weapons (a) meant better killing and (b) diminished human stature. In France, Blaise de Montluc and the Chevalier Bayard despised firearms as much as any samurai did. But France went on to the Minie ball, while fifty years after Lord Asano's time the matchlock was again rare in Japan. "Cannon and firearms are cruel and damnable machines; I believe them to have been the direct suggestion of the Devil," said Martin Luther. But Germany moved ahead to become one of the great cannon foundries of Europe, while Japan continued making suits of mail well into the nineteenth century. And in the very year that Asano was writing home for more guns, Shakespeare was describing a young English lord who had chosen to give up a military career altogether, because firearms, he said, made war too ugly to contemplate. Yet two centuries later, at a time when Japan was having a prolonged renaissance of the bow and arrow, the English were systematically killing Chinese with grapeshot.

There seem to be at least four reasons that explain why Japan, once she had made peace in Korea, could and did turn away from firearms while Europe went rapidly ahead with their development. One - the most obvious - is that for every Blaise de Montluc there were about thirty samurai who felt that firearms were getting out of hand. A second reason is geopolitical. The Japanese were such formidable fighters, and islands are by nature so hard to invade, that territorial integrity could be maintained even with conventional weapons. A third, and rather curious reason, is that in Japan swords had a symbolic value far greater than they had in Europe. Two examples will suffice. After Nagashino, one of the leading heroes of the battle - a young man of twenty-four who had held a small fortress principally with matchlockmen - received from his feudal superior a cascade of rewards. These included an increase in precedence, a wife, a landed estate, and a weapon appropriate to his heroism. This was not a super-matchlock but a Nagamitsu sword that had once been owned by a shogun. Thirty years later, when the government wanted to honour the four leading gunsmiths in Japan, it gave each of them a sword.
(Such symbolism exists in the West, too - it was a jewelled sword and not a jewelled burp gun that General Eisenhower

received from the Queen of the Netherlands in 1947 - but for several centuries the West has made a clear split between the merely nice and the actually useful. The samurai never did.) Still another reason is that the deemphasis of the gun took place as part of a general reaction against outside ideas - particularly Christianity and the Western attitude toward business. (Christianity was illegal in Japan after 1616; as for businessmen, a seventeenth-century shogun observed that "merchants are fond of gain and given up to greed, and abominable fellows of this kind ought not to escape punishment.")

Interestingly, there was never any formal abolition of firearms in Japan. Instead, there was an extremely slow series of cutbacks, with no one point at which one could say: At this moment the Japanese gave up guns. In 1603, the first Tokugawa shogun took office, having conclusively established his primacy among the feudal lords at the Battle of Sekigahara, in 1600. Lord Tokugawa Ieyasu was approximately as powerful as his contemporary King James I of England - with whom, incidentally, he had a brief correspondence. That is to say, he could hand down edicts on a very broad scale, but if they were unpopular he could by no means always get them obeyed. Both rulers, for example, disapproved of smoking, and both ordered their subjects to give up the habit on pain of severe penalties; neither made the faintest impression. The matter of firearms was handled differently. In Tokugawa's time, there were two great gun-manufacturing centers in Japan - one at Nagahama and one at Sakai, just south of Osaka. In addition, there was an unknown number of gunsmiths and powder-makers scattered through Japan, working for local rulers. Rear Admiral Arima, a retired Japanese naval officer of the Second World War, who has made an intensive study of early firearms in the Far East, lists sixteen other places in Japan where guns were made between 1601 and 1604, but he doesn't claim to have got them all. The Tokugawa shoguns first began to assert control over arms production in 1607. They started by calling in the four senior gunsmiths at Nagahama and giving them their swords - thus, of course, promoting them to samurai - and by simultaneously issuing a set of orders governing the industry. One was that guns and powder were henceforth to be made only in Nagahama, which meant that the provincial gunmakers, one by one, were required to move there. Another was that all orders for guns had to be cleared with Tokyo before they could be filled. A Commissioner of Guns was appointed to make sure that these rules were followed. By 1625, the government's monopoly was well entrenched, and further gradual cut-backs began. By 1673, the government had settled down to routine of buying fifty-three large matchlocks in one

year and three hundred and thirty- four small ones in the next. In 1706, even this modest quantity was reduced, and for the next eighty years the production at Nagahama amounted to thirty-five large matchlocks in even years and two hundred and fifty small ones in odd years. Considering that during all this time the number of samurai ran to half a million men or more, guns from Nagahama had ceased to be much of a factor in battle.

The order concentrating all gunmaking in Nagahama was at first resisted by the manufacturers at Sakai, and for a while their business stayed fairly brisk. Records still exist of their production between 1623 and 1696. It begins quietly with an average of two hundred and ninety matchlocks a year in the early sixteen-twenties, reaches a peak of twenty-five hundred a year in the sixteen-sixties, and then permanently dwindles off. After 1688, the central government never ordered a gun from Sakai, and Admiral Arima thinks that after 1696 almost no one else did, either. Just how small a role guns came to play can be gathered from a Japanese government document of 1725. That year, a new king came to the throne in Korea, and since Japan and Korea had long before resumed friendly relations, the shogun sent him a boatload of sumptuous coronation presents. Looking down the list, one finds five hundred suits of heavy armor, three hundred and fifty swords, two hundred suits of light armor, sixty-seven spears and halberds, and, finally, a pitiful twenty-three old-fashioned matchlocks.

The new king's matchlocks could be nothing but old-fashioned, because research and development had also tapered off in Japan, coming to a complete stop long before 1725. Once one has learned to make matchlocks in large calibres, and once one has developed steel strong enough to prevent their barrels from bursting - which the Japanese did very quickly - there is nowhere further to go except on to flintlocks and, eventually, to repeating rifles. For two centuries, the Japanese did not go further, although they knew all about the next step at least as early as 1636, because in that year a Dutch trading mission at Hirado presented the shogun with a dozen smart new flintlock pistols. Even the worst enemies of the Dutch conceded them a high degree of expertise in firearms. A seventeenth century Portuguese historian, tired of Dutch pirates who attacked larger Portuguese ships, once wrote, "The Dutch are only good artillery-men and beyond that fit for nothing save to be burnt as desperate heretics." As late as 1650, a Dutch gunner was in Tokyo for nine months, giving instruction in the casting of large cannon. Records of what went on are extremely scarce, and the Dutch gunner himself left no diary, but

apparently the Japanese didn't really want to learn. It became an accepted notion in Japan that eight-pounders were the largest cannon one could safely make, and it was eight-pounders that were mounted as harbor defense in Tokyo Bay when Commodore Perry arrived in 1853. By then, the Japanese had almost forgotten how to shoot them. One of the few intelligent foreigners to get a glimpse of Japan after 1650 was a Swedish botanist named Carl Peter Thunberg. He reported in 1776 that the coastal-defense guns were test-fired only once every seven years, and even then by means of a match on the end of a long pole. He also reported seeing an extraordinary number of very well made swords, which "in strength and goodness surpass the manufactures of any other country."

The rest of the story is soon told. Modern weapons did of course, return to Japan. Even before Commodore Perry's fleet arrived, with its ten-inch naval guns and its iron sixtyfour- pounders, a few Japanese had begun to press for renewed arms development. As early as 1809, stimulated by the intrusion into Nagasaki harbor of a heavily armed British frigate, a man named Sato Nobuhiro wrote and secretly published a book called "How to Use Three Types of Firearms." In his eagerness to develop means of repelling further frigates, Sato also invented "two types of miraculous bullets, which I called the New Thunder and the Golden-Purple Bell." No details were given. In 1828, another modernizer finally took up the hint that the Dutch trading mission had given in 1636 and began furiously experimenting with flintlock weapons. In 1852, the year before Perry's first visit, still a third modernist, this one named Sakuma Shozan, made a private inspection of ten shore batteries near Tokyo, all of which he found principally armed with six and eight-pounders cast before 1620. The disposition of the guns, he said, "made no sense, and none of them could be depended on as a defense fortification." He added, "I struck my chest and wept for a long time."

But these men had almost no effect on the general preference for swords and bows. It was Commodore Perry who really caused the reintroduction of firearms into Japan; he accomplished it by convincing the majority of the Japanese leaders that the only way to keep future Perrys out of Tokyo Bay was to get ten-inch naval guns of their own. Even then, the resistance was extraordinary. It culminated in 1876, nine years after the old feudal regime had toppled. The new government, anxious to get ahead with modern military methods and a national army, forbade the samurai to continue wearing their two swords. On the night of October 24th, a hundred and seventy samurai dressed in armor and carrying swords, attacked the national troops stationed at Kumamoto, killing

about three hundred of them, including the major general in command. That attack proved abortive, but it led to a full-scale rebellion the next year, in which something like forty thousand samurai took part. It required the entire national army, less one, to put them down; that one was Field Marshal Saigo, the commander-in-chief, who was not available to help defeat the rebellion because he had joined it. An American teacher who was living in Japan in 1877 has left a description of the rebels, which would serve equally well for an account of Takeda Katsuyori's army in 1575. Most of them, he wrote, "were equipped with the keen double-handed swords of feudal times, and with daggers and spears. It seemed to be their opinion that patrician samurai could rush into close quarters with the heimin (peasant soldiers) and easily rout them," even though the heimin were equipped with modern French rifles. Lord Oda could have told them otherwise. The American teacher himself was less sure, since he recalled an incident a few years earlier in which two samurai had attacked twelve fully armed British dragoons in Kyoto and had disabled nine of them with spectacular swordplay, not getting a scratch themselves. But a full-scale battle of guns against swords can have only one outcome, and the rebellion of 1877 substantially followed the course of Nagashino. Another American living in Japan in the eighteen-seventies - a Boston sea captain named John Hubbard - had a chance to examine the battlefield the day after the rebellion was crushed. Two things impressed him. One was the stacks of captured rebel weapons, in which a few small arms, chiefly matchlocks, were totally overshadowed by the number of captured swords, which rose in a mound "at least ten feet from the ground" and "were of all sizes and lengths, and appeared to have had some very rough usage." The other was a fortification in the rebel lines. "Here, to our astonishment, we found two wooden cannon. One was 8ft. 6in. long, with a 9in. bore, made of two hollow pieces of wood and hooped its entire length with bamboo hoops. It... did not appear to have been used, but was mounted in a pile of sandbags ready for use. A smaller one, about 6ft. long, was lying near and dismantled; this had been fired and was badly burst." The seventeenth century gunsmiths of Nagahama would have been aghast as such primitive weapons.

Ten years later, they would have been amazed at the change. From 1878 to the present, Japan's attitude toward firearms has been much like that of any other developed industrial society. The clock that had been turned back was turned forward again with almost incredible speed. Before 1900, Japan had again caught up militarily with the Western world. Viewed from the nuclear present, her two hundred and fifty years of technological retrogression may seem to have

no great significance except as a historical curiosity. But viewed firsthand by contemporaries, they were another matter. The most famous of such views is that of a European scientist, Engelbert Kaempfer, M.D., Ph.D., who managed to spend two years in Japan in the late seventeenth century, about two generations after guns had been renounced. Dr. Kaempfer had grown up in a Europe that had used firearms so enthusiastically during those same two generations that the population of his native Germany had been cut in half. In the final paragraph of his two volume "The History of Japan," he summarizes the strikingly different situation of the Japanese: "United and peaceable, taught to give due worship to the Gods, due obedience to the Laws, due submission to their Superiors, due love and regard to their Neighbors, civil, obliging, virtuous, in art and industry exceeding all other nations, possessed of an excellent Country, enriched by mutual Trade and Commerce among themselves, courageous, abundantly provided with all the necessaries of life, and withal enjoying the fruits of peace and tranquility. Such a train of prosperities must needs convince them, whether they reflect on their former loose way of life or consult the Histories of the remotest ages, that their Country was never in a happier condition than it now is."

NOEL PERRIN

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Colin Nunn, 72 Barrington Road, Bexleyheath, Kent DA7 4UW.
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OSHIGATA

A reminder to new members who may have difficulties in reading tang inscriptions due to inadequate references; if they care to send a rubbing (oshigata) of the tang, addressed to Tony Chapman, 71 Ingaway, Basildon, Essex, he will check it for them and send them all available information he has on the swordsmith or inscription. Please remember to make a careful rubbing of the whole tang, both sides, not just the inscription.
