

JAPANESE SWORD - APPRAISAL/刀剣の鑑定

ITS' SIGNIFICANCE FOR ARCHAEO-METALLURGICAL RESEARCH WITHIN INTERNATIONAL ARCHAEOLOGY AND MATERIALS SCIENCE

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INTRODUCTION:

THROUGHOUT THE FOLLOWING PAGES AN IN THE MEANTIME WELL-CORROBORATED PERSPECTIVE FOR FUTURE COOPERATION BETWEEN JAPAN AND EUROPE IN THE FIELD OF ARCHAEO-METALLURGY WILL BE INTRODUCED¹. ONE OF JAPAN'S MANY UNIQUE CULTURAL TRAITS IS AN UNBROKEN TRADITION RELATED TO THE CRAFTING AND APPRAISING OF HIGH QUALITY SWORD-BLADES. THE SURVIVAL OF THE PRE-INDUSTRIAL SWORD-MAKING SEQUENCE UP TO THE PRESENT DAY IS IN ITSELF A CULTURAL ASSET THAT PROVIDES CRUCIAL LESSONS FOR ANY RESEARCH INTO PRE-INDUSTRIAL SWORD-MAKING OUTSIDE OF JAPAN ALSO. NOT ONLY IN JAPAN, BUT ALSO IN EUROPE, THE ISLAMIC SPHERE, AFRICA, INDIA, CHINA ETC., THE BLADE OF A SERVICEABLE SWORD REPRESENTED THE STATE OF THE ART IN STEEL-, TEMPERING- AND SURFACE-TECHNOLOGY UNTIL AT LEAST THE 18TH CENTURY. TO OBTAIN A MORE COMPREHENSIVE RANGE OF RESULTS, COMBINED EFFORTS OF ARCHAEOLOGY AND MODERN MATERIALS SCIENCE ARE INDISPENSABLE. IN THIS CONTEXT ONE MAJOR AIM IS TO DEVELOP A BASIC SET OF STANDARDIZED EXAMINATION METHODS BY THE APPLICATION OF WHICH RESULTS CAN BE COMPARED DIRECTLY. ONE STEP IN THIS DIRECTION HAS ALREADY BEEN TAKEN BY POLISHING AND ANALYZING SEVERAL EARLY-MEDIEVAL SWORDS ACCORDING TO THE TRADITIONAL JAPANESE SET OF DESCRIPTIVE CRITERIA.

AT PRESENT, RESEARCH INTO HISTORICAL WEAPONS IN GENERAL AND INTO EDGED WEAPONS IN PARTICULAR IS REGARDED AS "NOT POLITICALLY CORRECT" BY

¹ Maeder, S., 2000: *Mado wo akeru* – ein Fenster öffnen. Überlegungen zur Kategorisierung europäischer Klingen auf der Grundlage japanischer Begutachtungskriterien (*Thoughts on categorizing European swords on the basis of Japanese Kantei-criteria*). Ethnographisch-Archäologische Zeitschrift 41, H. 1, 2000, 17-27. – dto. 2001: *Mado wo akeru*. Untersuchungen an Alamannenschwertern in Japan (*Examination of Alamannic Swords in Japan*). <http://www.archaeologie-online.de/magazin/thema/2001/01/d1.php3>. - dto. 2002a: Notizen zu Lanze, Sax und Spatha – Vorbericht über einen 6-monatigen Forschungsaufenthalt in Japan (*Notes concerning lance, short-sword and long-sword – preliminary report on a 6-month research-stay in Japan*); in: Bücker, Chr./Hoepfer, M./Krohn, N./Trumm, J. (Eds.): *Regio Archaeologica – Archäologie und Geschichte an Ober- und Hochrhein*. Festschrift für G. Fingerlin (Rahden 2002) 277-285. - dto. 2004: *Alter Stahl in neuem Glanz (Old steel in new shine/polish)*. Der Wormsgau 1, 2004, 23-31. - dto. 2005: *Stähle, Steine und Schlangen – ein neuer Blick auf alte Schwerter (Steels, Stones and Snakes – a new glance at old swords)* Karfunkel Combat 1, 2005, 49-51.

SOME AUTHORITIES. EVIDENTLY, MOST HISTORICAL WEAPONS WERE MANUFACTURED AS A MEANS TO KILL. AS IS THE CASE WITH MILITARY TECHNOLOGY TODAY, ARMS AND ARMOUR WERE THE MOST WANTED "HIGH-TECH"-PRODUCTS OF THEIR RESPECTIVE ERA. THUS COMPARATIVE STUDIES ON THEIR FABRICATION AND RESPECTIVE CULTURAL SIGNIFICANCE - ON AN INTERNATIONAL SCALE - WILL SHED LIGHT NOT ONLY ON TECHNOLOGICAL ASPECTS, BUT ALSO ON THE DEVELOPMENT OF EARLY ECONOMIC AND TRADE-SYSTEMS. WITHOUT EVEN THE SHADOW OF A DOUBT, WORLD-HISTORY - BE IT ASIAN, EUROPEAN OR AMERICAN - IS LARGELY AN OUTCOME OF THE, HOWEVER UNFORTUNATE, APPLICATION OF ARMS. INTENTIONALLY NEGLECTING RESEARCH INTO THE TECHNOLOGY OF ANCIENT WEAPONS THUS PAVES THE WAY FOR A FALSIFICATION OF HISTORICAL FACTS. ASSUMING A VIEWPOINT IN THE FUTURE: IF THE PRESENT IS EVER TO BE RESEARCHED BY HISTORIANS WHO SHOULD DECIDE TO NEGLECT COMPUTER-TECHNOLOGY AND ELECTRONICS BECAUSE OF THEIR WIDESPREAD USE IN MODERN MILITARY DEVICES (IN FACT THE MOST TERRIFYING WEAPONS IN HISTORY), THEIR RECONSTRUCTED SET OF CIRCUMSTANCES FOR THE TURN FROM THE 20TH TO THE 21ST CENTURY WILL DEFINITELY BE CLOSER TO DREAM THAN TO REALITY.

IN EUROPEAN ARCHAEOLOGY, IN ACCORDANCE WITH THE TYPOLOGICAL METHOD, SWORDS HAVE HITHERTO BEEN CATEGORIZED MAINLY BY THEIR MORPHOLOGICAL FEATURES². THUS HAS BEEN ACHIEVED A FAIRLY ACCURATE SYSTEM FOR DATING SWORDS FROM THE LATE BRONZE-AGE (CA. 900-700 B.C.) UP TO THE 19TH CENTURY. HOWEVER, SOME EUROPEAN SWORD-BLADES HAVE BEEN REMOUNTED AND REASSEMBLED OVER GENERATIONS JUST AS THEIR JAPANESE COUNTERPARTS. THUS THE DATE OF A SWORD'S MOUNTINGS CANNOT NECESSARILY BE TAKEN AS AN INDICATOR FOR THE DATING OF ITS' BLADE. AT ANY RATE, THE MOUNTING OF A SWORD IN MOST CASES GIVES A *TERMINUS ANTE QUEM* FOR THE PRODUCTION OF ITS' BLADE. AS THE MOST COMMON DOUBLE-EDGED STRAIGHT SWORD-BLADE HAS LONG BEEN REGARDED AS OF MINOR ASSISTANCE FOR TYPOLOGICAL STUDIES, RESEARCHERS FOCUSED MAINLY ON THE INFORMATION PROVIDED BY THE STYLE OF A SWORD'S MOUNTINGS FOR ASCERTAINING A DATE FOR IT. ESPECIALLY THE SHAPE AND DECORATION OF THE POMMEL, THE CROSS-GUARD AND THE SWORD-BELT WERE RECOGNIZED TO PROVIDE CLUES FOR THE DATE OF A SWORD IN A GIVEN ARCHAEOLOGICAL CONTEXT. COMPARED TO THE STUDY OF POTTERY-FORMS HOWEVER, SWORDS ARE OF MINOR IMPORTANCE FOR ARCHAEOLOGICAL DATING IN EUROPE AND IN JAPAN. SO WHAT BENEFIT IS TO BE GOT FROM NOT ONLY STUDYING SWORD MOUNTS AND SHAPES, BUT FROM FOCUSING EVEN FURTHER ON MANUFACTURING DETAILS OF SWORD-BLADES?

² An exception from this rule are the "pattern-welded" sword-blades, retrieved from Merovingian cemeteries of the 5th to 8th centuries A.D. in Central Europe. These will form the subject of a further introductory article, dealing with the opportunities provided by researching the variation of patterns and the different types of blade-construction.

LEAVING ASIDE THE MYTHOLOGICAL, RELIGIOUS AND LEGENDARY ASPECTS OF FAMOUS SWORDS PRESENT IN BOTH CULTURAL SPHERES, THE TRADE OF SWORD-BLADES IS A CRUCIAL POINT FOR A BETTER UNDERSTANDING OF THE SPREAD OF STEEL-TECHNOLOGY THROUGHOUT EUROPE AND ASIA FROM PREHISTORIC TIMES (FIRST USE OF IRON FOR SWORD-BLADES IN LURISTAN (IRAN) AROUND 1000 B.C.) UP TO THE HIGH MIDDLE AGES (11TH/12TH CENTURIES A.D.). IT IS A WELL-ESTABLISHED FACT THAT A TRADE NETWORK FOR UNMOUNTED SWORD-BLADES HAS BEEN ESTABLISHED BY CAROLINGIAN TIMES (8TH TO 10TH CENTURIES A.D.) THROUGHOUT THE WHOLE OF EUROPE. THE EVIDENCE PROVIDED BY FINDS OF ROMAN SWORDS IN NON-ROMAN CONTEXTS ON THE CONTINENT AND IN SCANDINAVIA HOWEVER POINTS TOWARDS A TRADE OF SWORD-BLADES ALREADY IN ROMAN TIMES, AT LEAST DURING THE 3RD AND 4TH CENTURIES A.D.. TYPOLOGICAL PARALLELS BETWEEN A CHARACTERISTIC OCTOGONAL CROSS-SECTION OF EARLY CHINESE SWORDS AND SOME ROMAN *SPATHAE* (LONG-SWORDS) HAVE NOT YET BEEN EXAMINED CLOSELY, BUT SHOULD BE BOURNE IN MIND WITH RESPECT TO THE ALREADY ACKNOWLEDGED TRADE-RELATIONS BETWEEN THE ROMAN EMPIRE AND CHINA. PLINIUS THE ELDER (23 – 79 A.D.) REFERS TO THE IMPORT OF IRON FROM CHINA AND TO THE HIGH ESTEEM IN WHICH IT WAS HELD BY THE ROMANS DURING THE 1ST CENTURY A.D.: “THE PALM (OF EXCELLENCE, TRANSLATOR’S NOTE) BELONGS TO THE SERIC IRON. THE SERES SUBMIT IT TOGETHER WITH THEIR GARMENTS AND FURS; THE PARTHIC HOLDS THE SECOND RANK.”³

BY ANALYZING EUROPEAN SWORD-BLADES ACCORDING TO THE TRADITIONAL JAPANESE METHOD OF SWORD-POLISHING AND SUBSEQUENT APPRAISAL BY APPLYING THE EXTENSIVE SET OF JAPANESE DESCRIPTIVE TERMINOLOGY, INDIVIDUAL TRADITIONS OF WORKMANSHIP CAN BE TRACED, THUS RENDERING POSSIBLE THE ATTRIBUTION OF SWORD-BLADES TO DIFFERENT WORKSHOPS OR SCHOOLS OF SWORD-MAKING. THIS STATEMENT HAS BEEN PROVED BY THE ANALYSIS OF 15 EUROPEAN EDGED WEAPONS FROM THE 4TH CENTURY TO THE 17TH CENTURY A.D. UTILIZING THE METHODS OF JAPANESE SWORD-POLISHING AND *KANTE*-TERMINOLOGY. THE FOLLOWING TEXT IS CENTERED ON FOUR OF THESE BLADES AND AN OUTLINE OF THE AUTHORS PHD-THESIS ON THE SUBJECT⁴.

THE PROJECT:

³ “*Ex omnibus autem generibus palma Serico ferro est; Seres hoc cum vestibus suis pellibusque mittunt; secunda Parthico.*” Semi, F. (Ed.): C. Plinius Secundus: *Naturalis Historiae Libri XXXI-XXXVII* (Pisa 1978), book XXXIV, 41.

⁴ Maeder, S.: *Stähle, Steine und Schlangen – Ein Beitrag zur Kulturgeschichte von Schwertklingen des frühen Mittelalters* (Steels, Stones and Snakes – a contribution towards the cultural evaluation of early medieval sword-blades). PhD-thesis (Humboldt University Berlin 2001), available on microfiche only.

IN THE YEARS 1999 AND 2001 FOUR EARLY-MEDIEVAL LONG-SWORDS (*SPATHAE*), FOUR SINGLE-EDGED SHORT-SWORDS (*SAXE*) AND ONE SPEARHEAD WERE TAKEN TO JAPAN BY THE PRESENT WRITER. THE WEAPONS DATE FROM THE 6TH TO THE 8TH CENTURIES A.D.. THEY WERE PROVIDED BY THE NATIONAL BOARD FOR THE PRESERVATION OF ARCHAEOLOGICAL MONUMENTS AND THE NATIONAL ARCHAEOLOGICAL MUSEUM IN STUTTGART, BADEN-WÜRTTEMBERG, FOR AN INTERCULTURAL STUDY ON MEDIEVAL SWORD-FORGING- AND SURFACE-TECHNIQUE BY GRINDING AND POLISHING. ONE AIM OF THE PROJECT WAS TO FIND OUT IF THE TRADITIONAL *KANTEI*-METHODOLOGY, DEVELOPED AND TRANSMITTED IN JAPAN OVER MORE THAN 4 CENTURIES, COULD BE APPLIED TO EDGED WEAPONS FROM ANCIENT EUROPE ALSO. THE BOOK ON THE RESULTS OF THIS INTERCULTURAL APPROACH IS AS YET UNPUBLISHED DUE TO CIRCUMSTANCES OUT OF THE AUTHOR'S REACH. IT PRESENTS THE CRAFTS INVOLVED IN SWORD-MAKING IN JAPAN AND EUROPE FROM A NEW PERSPECTIVE. IN ADDITION IT SHEDS NEW LIGHT ON THE ROOTS OF THE FASCINATION THAT EMANATED FROM EXCELLENT SWORD-BLADES SINCE AT LEAST EARLY MEDIEVAL TIMES IN EUROPE AND IN JAPAN.

WHEN LOOKING AT THE HEAVILY CORRODED BLADES OF MEDIEVAL SWORDS IN THE COLLECTIONS OF EUROPEAN MUSEUMS, SOME MIGHT HAVE CONFRONTED THE QUESTION OF WHAT THESE BLADES WOULD HAVE LOOKED LIKE IN THE PERIOD WHEN THEY WERE WORN AND USED. I CAME ACROSS THIS LARGELY UNSOLVED PROBLEM DURING A WORKING-STAY IN ICELAND IN THE SUMMER OF 1997. THE FOUNDATION STONE FOR THE AUTHOR'S PERSONAL INTEREST IN SWORD-BLADES, THEIR MANUFACTURE AND CULTURAL SIGNIFICANCE WAS LAID BY - AT FIRST HESITANT - ATTEMPTS AT PRACTICING *KENDÔ*. IN ANY COMPREHENSIVE PUBLICATION ON THE EDGED WEAPONS OF THE WORLD, THE JAPANESE SWORD FEATURES PROMINENTLY AS THE SUMMIT OF THE SWORDSMITH'S CRAFT. IN THIS CONTEXT WRITERS FREQUENTLY REFER TO ITS' CONSTRUCTION FROM HUNDREDS OF THOUSANDS OF TINY STEEL-LAYERS, WHEREAS EUROPEAN BLADES HAVE HITHERTO BEEN DESCRIBED BY WESTERN ARCHAEOLOGISTS AS CONSISTING OF SOME DOZEN LAYERS AT BEST.

THE ESSENTIAL PARTICULARITY OF SWORD-CULTURE IN JAPAN RESIDES IN THE FACT THAT THE PRODUCTION SEQUENCE OF A SWORD-BLADE HAS BEEN HANDED DOWN TO THE PRESENT DAY OVER MORE THAN 1000 YEARS, STARTING WITH THE SMELTING OF IRON ORE AND ENDING WITH PERFECTLY POLISHED SURFACES AS WELL AS FLAWLESSLY CRAFTED MOUNTINGS. ALL THE CRAFTS INVOLVED ARE STILL PRACTISED TODAY AT POSSIBLY THE HIGHEST LEVEL IN THE HISTORY OF THE SWORD. AROUND ONE HUNDRED BLADES FROM THE 8TH CENTURY ARE PRESERVED IN PRISTINE CONDITION IN THE SHÔSÔIN REPOSITORY OF TÔDAI-JI IN NARA. THE NUMBER OF PERFECTLY PRESERVED SWORDS FROM THE HEIAN- AND KAMAKURA- PERIODS ESCAPES THE AUTHOR'S KNOWLEDGE. BEING AWARE OF THIS CULTURAL

BACKGROUND, CAN THE QUALITY OF ARCHAEOLOGICALLY FOUND BLADES FROM EUROPE IN THEIR MOURNABLE CONDITION BE COMPARED TO THE QUALITY OF THEIR PERFECTLY PRESERVED JAPANESE COUNTERPARTS AT ALL?

THE KEY FOR THE DETAILED APPRAISAL OF A JAPANESE SWORD-BLADE IS PROVIDED BY THE SURVIVAL AND DEVELOPMENT OF THE HIGHLY SPECIALIZED CRAFT OF THE JAPANESE SWORD-POLISHER SINCE AT LEAST THE 10TH CENTURY A.D.. BUILDING ON THIS TRADITION, WITHIN THE COURSE OF THE LAST FOUR HUNDRED YEARS A SYSTEM FOR BLADE-APPRAISAL — *KATANA NO KANTEI* — WAS DEVELOPPED, WHICH RENDERS POSSIBLE THE REGISTRATION OF TINIEST CHARACTERISTIC FEATURES IN A SWORD'S SURFACE. FOR EXAMPLE THE NUMBER OF *KANTEI*-TERMS FOR MARTENSITIC PHENOMENA IN THE HARDENED EDGE-AREA OF A SWORD EXCEEDS THE METALLOGRAPHIC MEANS OF DESCRIPTION BY FAR. THUS UNSIGNED OR SHORTENED BLADES OF A HIGHER QUALITY LEVEL CAN BE ATTRIBUTED TO KNOWN SCHOOLS OF SWORD-MAKING AND EVEN TO INDIVIDUAL SWORDSMITHS. AT THIS POINT IT HAS TO BE MENTIONNED THAT SINCE THE 10TH CENTURY A.D. IT BECAME CUSTOMARY FOR JAPANESE SWORDSMITHS TO CHISEL THEIR SIGNATURE INTO THE TANG OF THEIR SWORDS. DUE TO A SHIFT FROM CAVALRY DOMINATED WARFARE TO MORE INFANTRY BASED BATTLES, FROM THE 15TH CENTURY ONWARDS MANY BLADES WERE SHORTENED BY CUTTING OFF A PART OF THE TANG (*SURIAGE*), WHICH IN MANY CASES RESULTED IN THE LOSS OF THE SWORDSMITH'S SIGNATURE.

THE *KANTEI*-SYSTEM REPRESENTS A VARIANT OF METALLOGRAPHY THAT IS ENTIRELY FOCUSSED ON THE DETAILED DESCRIPTION OF SWORD-STEEL. IT ANTEDATES ITS' WESTERN COUNTERPART WITHIN THE NATURAL SCIENCES BY 300 YEARS. ALTHOUGH THERE HAVE BEEN QUITE A FEW STUDIES ON SWORD-STEEL CARRIED OUT BY USING METALLOGRAPHY AND OTHER METHODS OF THE NATURAL SCIENCES, ALL THESE STUDIES WERE AND ARE CARRIED OUT ON A HIGHLY INDIVIDUAL BASIS, WHICH RENDERS THE DIRECT COMPARISON OF THE OBTAINED RESULTS DIFFICULT, IN SOME CASES IMPOSSIBLE. UP TO THE PRESENT DAY SCIENTIFIC INVESTIGATIONS ARE NOT BASED ON COMMONLY AGREED ON STANDARDIZED PROCESSES. TAKING THESE FACTS INTO ACCOUNT, THE DECISION RIPENED TO HAVE SOME RELATIVELY WELL-PRESERVED EARLY-MEDIEVAL BLADES FROM SOUTHERN GERMANY POLISHED BY AN EXPERT IN JAPAN. THE BLADES DATED FROM THE 6TH TO THE 8TH CENTURIES A.D., ROUGHLY CORRESPONDING TO THE LATER *KOFUN-JIDAI* IN JAPAN. THUS FOR THE FIRST TIME IN THE HISTORY OF SWORD-RESEARCH EUROPEAN BLADES WERE SUBMITTED TO THE TRADITIONAL STANDARDS OF RESTAURATION AND EVALUATION OF SWORD-BLADES IN JAPAN. MAINLY DUE TO THE UNPREJUDICED ATTITUDE OF THE SWORD-POLISHER SASAKI TAKUSHI FROM MISATO IN SAITAMA, THE PROJECT FINALLY GOT ON THE WAY (**FIG. 1**). THE MANUFACTURING TRAITS OF THE GERMANIC SWORD-BLADES, WHICH SHOWED UP DURING AND AFTER THEIR POLISHING WERE SUBSEQUENTLY ANALYZED BY

APPLYING *KANTEI*SYSTEMATICS. IN 1999 THREE BLADES WERE PROVIDED FOR THIS UNDERTAKING, THE EVALUATION OF WHICH WILL BE A MAIN CHAPTER IN THE PROSPECTIVE BOOK.



“ES IST GESCHERFT, DAS ES SCHLAHE DIE OPFER, ES IST GESCHWERTFEGT, DAS ES LEUCHT.”

(“IT IS SHARPENED TO SLAY THE VICTIMS, IT IS “SWORD-POLISHED” TO SHINE”)

THIS QUOTE ON THE NATURE OF THE SWORD STEMS FROM A GERMAN TRANSLATION OF THE HOLY BIBLE FROM A.D. 1483. TO THE PRESENT DAY ARCHAEOLOGISTS AND RESEARCHERS OF ARMS AND ARMOUR IN THE WEST LARGELY IGNORE THE DEVELOPMENT OF SURFACE-TECHNIQUE IN GENERAL AND OF SWORD-GRINDING AND –POLISHING TECHNIQUES IN PARTICULAR. IN ORDER TO CHANGE THIS UNSATISFACTORY STATE OF RESEARCH THE FIRST PART OF THE WORK DEALS WITH THE WRITTEN, PICTORIAL AND ARCHAEOLOGICAL SOURCES FROM EUROPE DEPICTING THE APPEARANCE OF HIGH-LEVEL SWORD-BLADES FROM EARLY TO LATE MEDIEVAL TIMES. A

VALUABLE IMPRESSION OF THE APPRAISAL AND APPEARANCE OF EXCELLENT SWORD-BLADES IS PROVIDED BY A LETTER OF GRATITUDE FROM THE OSTROGOTH KING THEODERIC TO A KING OF THE VARNI FROM THE LATE 5TH CENTURY A.D.:

“TOGETHER WITH BLACK TRUNKS (OF MOOR-OAK) AND INDIGENOUS BLOND BOYS YOUR FRATERNITY HAS CHOSEN SWORDS FOR US, THAT ARE ABLE EVEN TO CUT THROUGH ARMOUR, AND WHICH I PRAISE MORE FOR THE QUALITY OF THEIR IRON THAN FOR THE GOLD ON THEM. THEIR POLISHED CLARITY IS SHINING SO STRONG, THAT THEY REFLECT WITH UTMOST CLEARNESS THE FACES OF THOSE WHO LOOK AT THEM. THEIR EDGES RUN SO REGULARLY TOWARDS THE POINT, THAT ONE IS TEMPTED TO ASSUME THAT THEY WERE NOT SHAPED BY FILES, BUT FORMED IN THE SMELTING-FURNACE. THEIR MIDSECTION, SKILLFULLY WROUGHT WITH HOLLOWES, APPEARS TO BE COVERED WITH SWIRLING WORMS, AND THERE ARE SO MANYFOLD SHADOWS, THAT ONE MIGHT BELIEVE THE SHINING METAL TO BE INTERWOVEN WITH MANY COLOURS. THIS METAL IS GROUND ON YOUR GRINDSTONE AND POLISHED WITH YOUR MOST FAMOUS POWDER SO DILIGENTLY, UNTIL ITS STEELY SHINE BECOMES A MIRROR FOR MEN. THIS POWDER IS PROVIDED TO YOU BY THE NATURAL TREASURES OF YOUR COUNTRY AND MAY ITS POSSESSION BRING SINGULAR FAME UPON YOU. REGARDING THEIR BEAUTY SUCH SWORDS MAY APPEAR AS THE WORK OF VULCANUS, WHO IS SAID TO HAVE ENNOBLED HIS CRAFT WITH SUCH SKILL, THAT EVERYTHING HE CRAFTED APPEARED TO HAVE BEEN MADE NOT BY HUMAN BUT BY DIVINE POWER.”⁵

AS WAS THE CASE SEVERAL CENTURIES LATER IN JAPAN, THE HARMONIOUS FINISHING OF THE FORGED BLADES BY FILING, GRINDING AND POLISHING WAS PRAISED EVEN HIGHER THAN THEIR ACTUAL WORTHINESS IN BATTLE. UP UNTIL THE HIGH MIDDLE-AGES A GOOD SWORD WAS REGARDED AS A WORK OF ART, RESPECTIVELY AS A SPIRITED BEING IN EUROPE ALSO. FROM THE 13TH CENTURY ONWARDS, THE RELIGIOUS AND MYTHOLOGICAL SIGNIFICANCE OF THE SWORD WENT INTO DECLINE. THE PRE-CHRISTIAN NOTION OF THE SWORD AS POSSESSING A SOUL OF ITS OWN IS REFLECTED THROUGHOUT MEDIEVAL LITERATURE FROM THE 12TH TO THE 14TH CENTURIES A.D..

⁵ *Regi Vvarnorum Theodericus Rex.*

Cum piceis timbribus et pueros gentili candore relucentes, spathas nobis etiam arma desecantes vestra fraternitas destinavit, ferro magis quam auri pretio ditiores. Splendet illic claritas expolita, ut intuentium facies fideli puritate restituant, quarum margines in acutum tali aequalitate descendunt, ut non limis compositae, sed igneis fornacibus credantur effusae. Harum media pulchris alveis excavata quibusdam videntur crispari posse vermiculis: ubi tanta varietatis umbra concludit, ut intextum magis credas variis coloribus lucidum metallum. Hoc vestra cotis diligenter emundat, hoc vester splendidissimus pulvis ita industrie detergit, ut speculum quoddam virorum faciat ferream lucem, qui ideo patriae vestrae natura largiente concessus est, ut huius rei opinionem vobis faceret singularem: enses, qui pulchritudine sui putentur esse Vulcani, qui tanta elegantia fabrilis visus est excolere, ut quod eius manibus formabatur, non opus mortalium, sed crederetur esse divinum. Proinde per illum et illum legatos vestros solventes debita salutationis affectum arma vestra libenter nos accepisse declaramus, quae bonae pacis studia transmiserunt: vicissitudinem muneris pro expensarum vestrarum consideratione tribuentes, quae tantum vobis reddantur accepta, quantum nobis vestra fuere gratissima. Praestent divina concordiam, ut haec inter nos grata mente facientes gentium nostrarum velle iungamus et invicem solliciti mutuis possimus utilitatibus obligari.” Mommsen, Th. (ed.): Monumenta Germaniae Historia, Auct. Ant., 1894, V, I.

A COMPILATION OF PICTORIAL SOURCES PERMITS FOR THE FIRST TIME TO PROVE A CONTINUITY REGARDING THE WORKING TECHNIQUES OF GRINDERS AND SWORD-POLISHERS IN EUROPE FROM THE 9TH TO THE 19TH CENTURY. THE INITIAL MEANING OF THE GERMAN TERM *SCHWERTFEGER* (= SWORD-POLISHER) IS BEING REVEALED BY TURNING TO WRITTEN SOURCES FROM THE HIGH TO LATE MIDDLE-AGES. A LATER REVERBERATION OF THIS MEANING IS TO BE FOUND IN AN 18TH CENTURY DICTIONARY WHERE THE TERM “*SCHWERDTFEGER*” IS RENDERED AS LAT. *POLITOR GLADIORUM* (POLISHER OF SWORDS).

BESIDES THE AESTHETIC QUALITIES OF A SKILLFULLY POLISHED BLADE, THE PRACTICAL EFFECT OF GOOD BLADE-POLISHES IN THE COURSE OF HISTORY SHOULD NOT BE OVERLOOKED. DESCRIBING THE CRAFT OF THE “POLISHER” (**FIG. 2**) WE FIND THE FOLLOWING LINES IN CHRISTOPH WEIGEL’S DESCRIPTION OF CRAFTS AND TRADES FROM 1698:

“ALTHOUGH SOME TEND TO THINK / THIS CRAFT WOULD BE INTENDED FOR DECORATION RATHER THAN FOR PRACTICAL USE / BECAUSE WEAPONS CUT WITHOUT A POLISH ALSO / AND OTHER IMPLEMENTS CAN BE USED WITHOUT SHINE / THEY ARE NONETHELESS ENTANGLED IN A FALSE DELUSION / BECAUSE NOT ONLY WEAPONS, BUT ALL OTHER INSTRUMENTS CONSISTING OF STEEL AND IRON ARE BEING KEPT FROM RUSTING AND DECAYING BY POLISHING, ESPECIALLY IF THEY ARE WELL CARED FOR THEREAFTER.”



LEAVING ASIDE THE SCIENTIFIC GAIN OF KNOWLEDGE FOR A MOMENT, A SKILLFULLY POLISHED EUROPEAN BLADE IS A VERY SPECIAL OBJECT ALSO FROM A MUSEOLOGICAL POINT OF VIEW. IT ENABLES THE VIEWER TO GET A FAR MORE ACCURATE IMPRESSION OF A SWORD'S ORIGINAL APPEARANCE THAN THE UNSTABLE PRESERVATION OF ITS' CORRODED STATE OR CHEMICAL TREATMENTS DO PERMIT. TO AVOID MISUNDERSTANDINGS: A JAPANESE SWORD-POLISH IS NOT TO BE UNDERSTOOD AS A RESTAURATION METHOD FOR ALL KINDS OF EDGED WEAPONS. THERE ARE MANY SWORD-BLADES FROM ARCHAEOLOGICAL CONTEXTS WHICH HAVE BEEN UNPROFESSIONALLY CLEANED IN THE PAST, AS WELL AS MANY ILL-TREATED BLADES FROM LATER PERIODS. IT IS MAINLY THESE BLADES WHOSE APPEARANCE DOES PROFIT FROM A SKILLFUL POLISH.

RAFFINIERT, RAFFINIERT!

(REFINED, REFINED)

ONE POINT STEADILY REPEATED AS AN INDICATOR FOR THE SUPERIORITY OF THE JAPANESE SWORD OVER ITS' EUROPEAN RELATIVES IS THE SEEMINGLY UNIQUE CHARACTERISTIC OF ITS' INNUMERABLE TINY STEEL-LAYERS. IN TWO *SAX* BLADES (SINGLE-EDGED SHORT SWORD) AND ONE *SPATHA* (DOUBLE-EDGED LONG SWORD) — BOTH FROM WARRIOR GRAVES IN BADEN-SHÛ, SOUTHERN GERMANY — THE JAPANESE POLISHING METHOD REVEALED FINE FORGING TEXTURES (*JIHADA*) THAT WERE UNTIL THEN CONSIDERED TYPICAL FOR JAPANESE SWORDS OF THE SAME AND LATER PERIODS. THE REASON WHY THE QUALITY OF FORGING TEXTURES WAS NOT KNOWN FROM EUROPEAN SWORDS CAN BE EXPLAINED BY THE CUSTOM OF LEAVING THE BLADE-SURFACES IN THEIR DESTROYED CONDITION. IN JAPAN THE ILLUSTRATED SHORT-SWORD BLADE (**FIG. 3, A,B,C**) WAS SHOWN TO THE SWORDSMITH AND LIVING NATIONAL TREASURE AMADA AKITSUGU. HE EXPRESSED HIS ASTONISHMENT AT THE CIRCUMSTANCE THAT THE HIGH-QUALITY BLADE WAS NOT FOUND IN A NOBLEMAN'S GRAVE, BUT IN THE GRAVE OF A SIMPLE WARRIOR-FARMER OF THE EARLY 7TH CENTURY A.D.. MR. AMADA ENCOURAGED THE AUTHOR TO FURTHER PURSUE RESEARCH INTO EUROPEAN SWORD-BLADES INCORPORATING THE TRADITIONAL JAPANESE METHODOLOGY AND THE BENEFITS PROVIDED BY MODERN MATERIALS SCIENCE DESPITE THE RESISTANCE CONFRONTED IN THE FORM OF PREJUDICIAL VIEWS PURPORTED BY SOME AUTHORITIES.



FIG.3: SAX-BLADE FROM GRAVE NO. 54, CEMETERY "UNTERER STOLLEN", BAD KROZINGEN, BREISGAU-HOCHSCHWARZWALD, GERMANY.

THERE WAS ONLY ONE POSSIBILITY TO HOMOGENIZE AND CONDENSE THE SPONGE-LIKE BLOOM FROM THE IRON-SMELTING FURNACE: THIS CONSISTED - IN EUROPE AND IN JAPAN - IN A PROCESS OF REPEATED HEATING, FOLDING AND FORGE-WELDING. THIS PROCESS WAS KNOWN AS “*GÄRBEN*” IN GERMANY (=ORIKAESHI) OR REFINING. AS FOR A SWORD, IN MOST CASES SEVERAL SMALL BLOOMS WERE NECESSARY TO CREATE AN ELEMENT FOR THE OFTEN ELABORATELY CONSTRUCTED BLADES OF ROMAN, MEROVINGIAN AND CAROLINGIAN TIMES. FROM THIS MANUFACTURING PROCESS RESULTS THE LAMINATED STRUCTURE OF THE PRE-INDUSTRIAL FORGE-WELDED STEELS. DEPENDING ON WHICH SIDE OF THE STEEL BLOCK BECAME VISIBLE IN THE BLADE’S SURFACE, ONE COULD DISCERN A LAYERED PATTERN (*MASAME*) OR A MORE IRREGULAR PATTERN IN DIFFERENT DEGREES OF DENSITY (*ITAME*) CALLED “ *WILDER DAMAST*” IN GERMAN LITERATURE. HOWEVER, NEITHER THE DIFFERENT SHADES/COLOURS OF THE STEEL OR THE STRUCTURES IN THE HITHERTO POLISHED *SAX*-BLADES, NOR THE ELABORATELY PATTERN-WELDED LONG-SWORD BLADES HAVE ANYTHING TO DO WITH THE TOWN OF DAMASCUS IN SYRIA. AS A MATTER OF FACT, THE COMPLICATED WELDING-PATTERNS (**FIG. 4 A,B**) IN MOST LONG-SWORDS FROM THE MEROVINGIAN ERA (5TH TO LATE 8TH CENTURIES A.D.) POSSESS A HIGHLY SIGNIFICANT MEANING OF THEIR OWN, WHICH WAS RECOGNIZED IN JAPAN AND CONFIRMED BACK HOME IN GERMANY BY COMPARING A LARGE NUMBER OF SIMILARLY CONSTRUCTED BLADES. TO UNDERSTAND THIS MEANING, SEEMINGLY ABSURD DESCRIPTIONS IN OLD NORDIC SAGAS HAVE TO BE TAKEN INTO ACCOUNT LITERALLY, IN ORDER TO SEE THE SAME WORMS/SNAKES/DragONS RUNNING UP AND DOWN SWORD-BLADES THAT WERE A HALLMARK OF MANY AN URBAN SMITHS’ GUILD’S COAT OF ARMS IN GERMANY UNTIL THE LATE MIDDLE AGES.

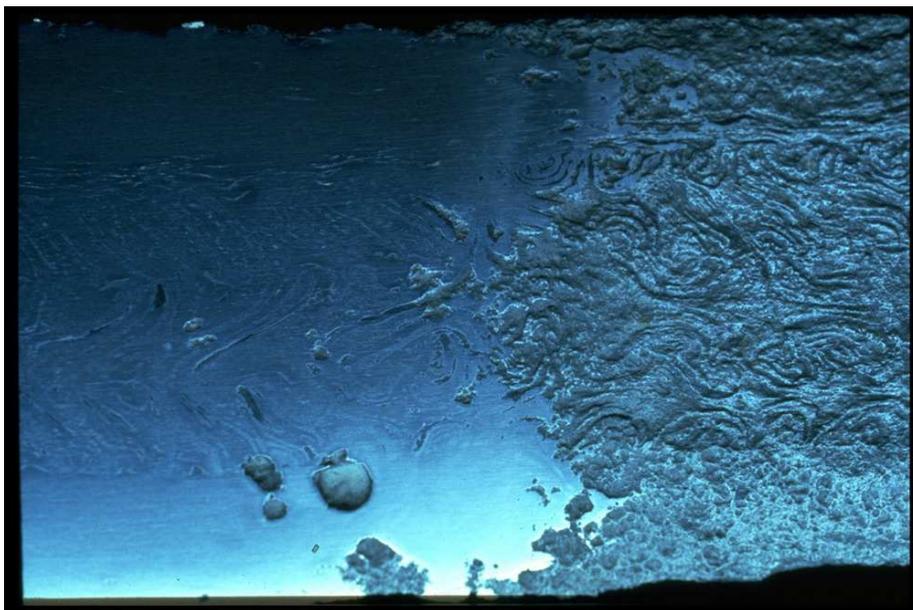




FIG. 4, A,B: SPATHA-BLADE FROM GRAVE NO. 75, CEMETERY “AUF LÖBERN”, NEUDINGEN, SCHWARZWALD-BAAR, GERMANY.

THE COMBINATION OF SOURCE-BASED RESEARCH IN EUROPE WITH THE TRADITIONAL JAPANESE METHOD OF SWORD-POLISHING AND SUBSEQUENT APPRAISAL (*KANTEI*) OPENS A NEW PERSPECTIVE FOR THE DETAILED INVESTIGATION OF OLD SWORD-STEEL. THE JAPANESE METHODOLOGY OFFERS A FAR WIDER SPECTRUM FOR CATEGORIZATION OF TYPOLOGICALLY IDENTICAL SWORD-BLADES THAN HITHERTO APPLIED METHODS OF WESTERN ARCHAEOLOGY. THUS PRODUCTION CENTRES AND SWORDSMITHING-SCHOOLS FOR THE MOST ELABORATE HIGH-TECH PRODUCT OF THE MIDDLE AGES – THE SWORD - CAN BE ISOLATED IN THE FUTURE. HOWEVER FOR FUTURE RESEARCH A MORE TIGHT-KNIT COOPERATION BETWEEN THE NATURAL-SCIENCES, ARCHAEOLOGICAL AND EXPERIMENTAL APPROACHES TOWARDS THE SUBJECT IS NOT ONLY DESIRABLE, BUT INDISPENSABLE FOR A BALANCED VIEW OF PRE-MODERN STEEL-TECHNOLOGY AROUND THE WORLD. THE STUDIES ABOUT THE CRAFT OF EUROPEAN SWORD-GRINDERS AND POLISHERS IN ADDITION HAVE YIELDED SUCH DETAILED RESULTS, THAT A SOLID BASIS FOR THE EXPERIMENTAL RECONSTRUCTION OF THE OLD TECHNIQUES IS NOW AVAILABLE. USING THE HITHERTO OBTAINED RESULTS AS A GUIDELINE, ONE RECONSTRUCTION OF A MEROVINGIAN SWORD-BLADE⁶ FROM THE 6TH CENTURY A.D. HAS ALREADY BECOME A “MIRROR FOR MEN” AGAIN (FIG. 5 A,B,C). IT WAS FORGED BY MR. ARNO ECKHARDT OF PLIEZHAUSEN, *DIE TRAUMSCHMIEDE*, GERMANY, AND POLISHED BY THE PRESENT AUTHOR. THE MAKING OF THIS SWORD-BLADE IS INTENDED AS A MODEST CONTRIBUTION TO THE FURTHERING OF EXPERIMENTAL ARCHAEOLOGY. IT PROVIDES THE VIEWER WITH A MORE ACCURATE IMPRESSION OF THE ORIGINAL APPEARANCE OF AN EARLY-MEDIEVAL POLISHED SWORD-BLADE FROM MEROVINGIAN EUROPE, THAN HITHERTO ATTEMPTED RECONSTRUCTIONS.

⁶ Forged by Arno Eckhardt (Die Traumschmiede-Company), polished by the present writer.

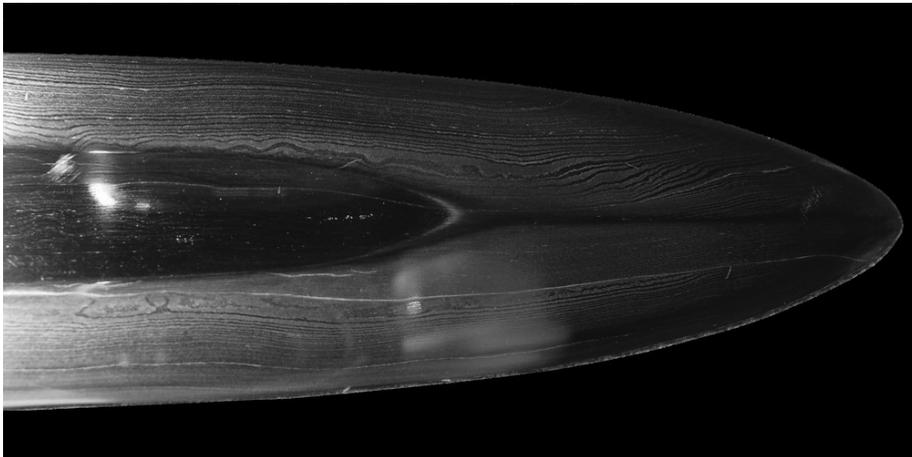


FIG. 5, A, B, C: SPATHA-BLADE FORGED BY ARNO ECKHARDT, PLIEZHAUSEN
(WWW.DIETRAUMSCHMIEDE.DE)