Tapio Seger

THE SWORDS AND DAGGERS OF THE FINNISH BRONZE AGE
A Functional Analysis

Abstract

The article is an attempt to divide the Bronze Age bladed weapons found in Finland into functional groups and to analyze their uses. The chronological position of the groups as well as the relevance of find conditions for them are examined. Although the number of finds is rather small, the results are encouraging as the obtained groups seem to be relevant even in other, nonfunctional contexts.

Tapio Seger, Isonnevantie 13 A 4, SF-00300 Helsinki 30

Although weapons have often had secondary functions of a social, economic and religious nature, they have always been and will remain primarily tools of war, designed and manufactured for threatening, maiming and ultimately killing enemies. For archaeologists, however, a prehistoric weapon is generally just another artefact, useful primarily for dating purposes as well as for reconstructing cultural connections. The functions and uses of weapons have at best played a very secondary role as objects of study.

The bronze swords and daggers found in Finland are at present 20 in number (as well as an uncertain broken tang from Kokemäki, W. Finland (Satakunta Museum, Pori, 16 454:10; SALO 1981, 234, fig. 120:1).[1] A blade fragment from Kisko, SW Finland (FNM 3 101:11; MEINANDER 1954b, 15, find no. 20) as well as the Kokemäki tang do not offer sufficient basis for reliable classification, but the remaining 19 finds have been published, dated and analyzed, most of them in several publications (HACKMAN 1897; TALLGREN 1906; 1937; MEINANDER 1954b; SALMO 1955; EDGREN 1969; KASKINEN 1980; SALO 1981) with the exception of a recently acquired fragmentary blade from Bromarv, S. Finland (FNM 20 226; SALO 1981, 234, note 2, 237, note 9). These analyses, however, concentrate on the find circumstances, typology, dating and origin of the weapons, while their actual functions are touched upon only in passing with a few remarks (e.g. MEINANDER 1954b, 14; SALO 1981, 237, 388). Generally the distinction between swords and daggers remains rather vague (cf. e.g. MEINANDER 1954B, 14–15).

Even in the Anglo-American and Central European literature, where problems of this nature are dealt with more extensively, there has been much confusion concerning the functional division of bladed weapons and the related terminology (GORDON 1953, 67; CATLING 1956, 120; SNODGRASS 1964, 104). However, the practical and reasoned remarks of Colonel D.H. GORDON (1953), based on actual training experience in sabre and bayonet fencing, have accomplished a great deal towards rationalizing the discussion.

He divides Bronze Age (hence BA) swords into functional groups with the total length from point to pommel as the main criterion (GORDON 1953, 67). By his definition, a *dagger* is less than 14 in. (*c.* 35 cm) long, effective only for stabbing at close range and cutting the throat of the opponent after he was in one's power. Dag-

[1] After this paper was submitted for publication, a new dagger find has come to my knowledge, and at present the number of bladed bronze weapons from Finland is consequently 21 and the number of bronze daggers 6. The new find is published by Ari Siiriäinen in this same volume.

gers obviously also had an optional use as hunting-knives (MEINANDER 1954b, 14).

Furthermore, according to his division, a *dirk* is over 14, but less than 20 in. (*c.* 35–50 cm) long, and because of its relative shortness also good only for thrusting and troat-cutting at close quarters. It has slightly more reach than a dagger, but on the other hand it is bound to be clumsier as a tool; it may be mentioned that the "standard" hunting-knife of modern times, the Bowie knife, has a *blade*-length of 8 in. (*c* 20 cm).

According to Gordon, a *short sword* is between 20 and 28 in. (*c.* 50–70 cm) in length, while a *long sword* exceeds 28 in. (70 cm). Both of these weapon types can be used effectively also for fencing and parrying. The true swords are in addition divided into two further functional groups (GORDON 1953, 69): a *rapier* is a sword that can be used with effect only for thrusting, having a blade-width of less than one inch (*c.* 2.5 cm).

Rapiers frequently have a pronounced midrib in order to strengthen the narrow blade that usually tapers towards the point, often producing a cross-shaped or strongly rhomboid cross-section (e.g. EVANS 1921 – 1935, IV, figs. 832, 841; LORIMER 1950, 266, fig. 33; SANDARS 1960, pl. 17:5 –6). A *cut-and-thrust sword,* on the other hand, is a weapon with a blade-width exceeding one inch (2.5 cm) for the greater length of the blade, the edges being parallel or widening slightly from the mid-section towards the point as well as towards the hilt. This type of sword can be used for dealing slashing blows as well as for thrusting, i.e., in addition to the point, also the edges of the blade can be used for attack with effect. The term "hacking", sometimes used in connection with cut-and-thrust swords, referring to strong vertical blows, is rather misleading, making it "sound as if the Late Bronze Age warrior used his prized sword for chopping firewood" (GORDON 1953, 67). Slashing and cutting are synonymous uses, referring primarily to horizontal blows, ideally aimed at the throat of the enemy. The throat was bound to be the obvious lethal target in many situations, even if the opponent was not carrying a shield or wearing a bodyarmour. Anyone acquainted with fencing is aware that shielding and parrying most effectively cover the mid-section of the body, and the easiest *touchées* (although unaccepted in modern sports fencing) are delivered either below or, potentially more lethally, above this sextion. The Minoan/ Mycenaean pictorial evidence of "the moment of truth" very frequently shows a thrust at the throat of the enemy (e.g. EVANS 1921 – 1935, IV, 551, fig. 511; KARO 1930, 59, fig. 14, 49, 119, fig. 87, pl. XXIV; LORIMER 1950, 140, fig. 2, 142, figs. 5, 6). Throat wounds are also common in the Homeric epics (GREENHALGH 1980, 201). The well-known collared Dendra panoply (e.g. ÅSTRÖM 1977) was evidently the extreme, although heavy, clumsy and consequently short-lived attempt to shield even the vulnerable neck and throat in Aegean BA warfare (GREENHALGH 1980).

An occasional misconception particularly in Anglo-American studies is the argument, according to which only the so-called "leaf-shaped" swords would have been proper slashing weapons. The term has, however, been widely misused. Many cut-and-thrust swords show a gentle widening from the midsection towards the point, while weapons with truly leaf-shaped blades are rare indeed (GORDON 1953, 72; cf. CHILDE 1950, 221, fig. 174:1278; MAXWELL-HYSLOP 1956, pl. XI:2). The type is quite unknown e.g. in Greece (LORIMER 1950, 264; GORDON 1953, 72; SNODGRASS 1964, 106) as well as in Finland.

It has been suggested that a blade of this shape with a highly pronounced swelling towards the point, would have been functional in moving the balance close to the tip. However, this is clearly nonsense as, considering the fact that the hilt part must necessarily be heavier than the corresponding length of a blade of any shape, all swords actually balance, and for effectivity of handling also should balance, well towards the hilt (SNODGRASS 1964, 105). GORDON (1953, 74), on the other hand, sees the form as a "baroque" development that only diminished the effectivity of the weapon. In my opinion, however, the type had one probable functional advantage: the strongly curving edges close to the point offered a wider variety of effective angles for a slashing blow, i.e., the angle at which the blade hit the target was less limited than with a weapon having a blade of parallel edges. In practice the reach was more flexible. A "modern" sabre is somewhat comparable in this ascpect.

Consequently, *all* two-edged bladed weapons of the BA are either daggers, dirks, rapiers or cut-and-thrust swords. Even the latter were not meant for splitting men or even skulls in two, but for dealing cutting blows in addition to thrusting. The long sword of cut-and-thrust type evidently did not emerge as a result of the introduction of cavalry tactics into South-East

Europe, either, despite frequent arguments to the contrary (GORDON 1953, 75; cf. e.g. CHILDE 1950, 221). Some of the very earliest swords known, e.g. one of the famous Mallia weapons (EVANS 1921 – 1935, II, fig. 163; PENDLEBURY 1939, 272; GORDON 1953, 68, 70, fig. 1c; RENFREW 1972, 324, fig. 16.6) as well as some of the swords from Alaça Hüyük (CHILDE 1950, fig. 139; GORDON 1953, 68, 70;, fig. 1d; SANDARS 1960, pls. 15:3 – 4, 17:3; RENFREW 1972, 323 – 325) were already more than 80 or even 100 cm (*c.* 31.5 –40 in.) long, and a few of them in addition true cut-and-thrust swords, long before any mounted warfare in the Aegean or Anatolia. Furthermore, sword-fighting from horseback would have been inefficient and also extremely dangerous for the attacker before the much later introduction of stirrups (GORDON 1953, 75; CATLING 1956, 120). More probably both the rapier and the cut-and-thrust sword were developed simply as the result of the natural need to accomplish the functions of the dagger and dirk, i.e., thrusting and throat-cutting, from a more secure and comfortable distance (GORDON 1953, 68). Another important functional feature of the true swords, both rapiers and cut-and-thrust weapons, is the fact that they can be used even defensively for shielding and parrying.

In the following, the Finnish finds are examined in the light of Gordon's division. For this purpose the original total length of the incomplete specimens had to be reconstructed. The estimations are bound to be rather accurate, as generally only a short fragment of the blade, broken quite close to the tip, is missing, the curvature of the remaining part making reconstruction comparatively reliable. Also the length of the hilt seems to be a rather constant feature: *c.* 10 cm (4 in.) for the daggers and dirks and 11 – 12 cm (here 11.5 cm = 4.5 in.) for the swords (cf. GORDON 1953, 67; MEINANDER 1954b, pls. 3:a – b, 4:a, e – f, 5:a, 14:left; SALMO 1955, 73). Naturally, the estimated length of the lost hilt was not simply added to the length of the blade; the measurements were taken from just below the nethermost pair of rivet holes (in the case of daggers and dirks) or below the shoulders of the blade (in the case of tanged swords).

The results are presented in the form of histograms in Fig. 1, with length intervals of 5 cm (2 in.). The Kisko fragment and the Kokemäki tang are omitted, the studied material being consequently 19 in number. It is evidently too small for any analysis using methods of confirmative

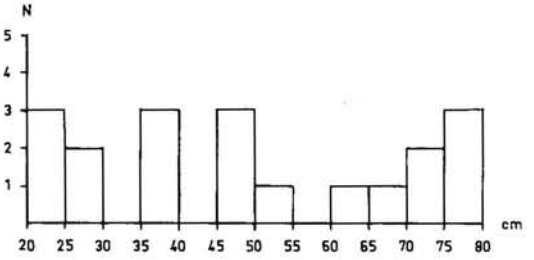

Fig. 1. The distribution of the Finnish bladed bronze weapons according to actual or reconstructed total length illustrated as histograms. The *X* axis represents length in intervals of 5 cm and the *Y* axis the number of specimens.

statistics, and the aim here is only to see whether or not the existing Finnish specimens seem to fit Gordon's groups. This and the following diagrams are only a method to illustrate the distribution of the material at hand, nothing more.

The fit is comparatively good, considering that Gordon's definitions are based on common sense and experience with *steel* swords and bayonets rather that on actual measuring of all the available European BA material. The distinction between daggers and dirks appears also in the Finnish material, but the lower limit for short swords is not quite in agreement with Finnish finds. A group of weapons falls just short of the 50 cm limit, although they are 7 to 9 cm longer than the next longest dirk. It would not be justified to calibrate the limit on the basis of a few artefacts only, but luckily the same observation was also made by SNODGRASS (1964, 104) on the basis of the far larger material of LBA and Protogeometric swords from Greece. Combined, the evidence justifies the adjustment of the lower limit for short swords to about 45 cm and gives it some general validity.

More problematic is the division between short and long swords. The Finnish distribution points to the limit of 60 cm, as the widest gap between lengths lies around this value. However, this observation depends on the lengths of only one or two specimens, far too few for any definite conclusions. The distribution of swords is concentrated at both ends of the scale, around 50 cm on the one hand and around 75 cm on the other (Fig. 1), which might indicate that there was a true difference only between "very short" swords and "very long" ones. After all, the difference between short and long swords lies not in their function, but only in reach. In summary, the following definitions, valid for the existing

Finnish material and potentially even more generally, are obtained:

Dagger	less than 35 cm (14 in.)
Dirk	35 to 45 cm (14 to 18 in.)
Short sword	45 to 70 (?) cm (18 to 28 in.)
Long sword	over 70 (?) cm (28 in.)

The Finnish bladed weapons of bronze can now be listed from the shortest to the longest one and divided into functional groups taking into account the above discussion.

Daggers

FNM	2 800:6	Lappi Vahala
–,,–	2 435:12	Uskela Linnanmäki
–,,–	16 731:2	Lieto Kotokallio
–,,–	6 795:5	Perniö Kankare
–,,–	2 503A:1	Dragsfjärd Långnäs

Dirks

Stockh. Mus.	9 724	Sund Sundby
FNM	3 017:2	Iisalmi Haapajärvi
–,,–	81	Kirkkonummi Kasaberg

Short swords

FNM	12 243	Kiukainen Panelia
–,,–	20 226	Bromarv Fagernäs
Stockh. Mus.	9 724	Sund Sundby
FNM	714	Isokyrö Laurola
–,,–	13 770	Kiukainen Panelia
–,,– (?)	4 740:3	Sodankylä Vajukoski

Long swords

FNM	4 740:1	Sodankylä Vajukoski
–,,–	2 791:2	Kokemäki Nappari
–,,–	4 740:4	Sodankylä Vajukoski
–,,–	1 536	Vihti Haapakylä
–,,–	4 740:2	Sodankylä Vajukoski

Of the 19 specimens, daggers number consequently 5, dirks 3, short swords 6 (5?) and long swords 5 (6?). Remarks to the effect that the Finnish bladed weapons of the BA tend to be shortish, probably because they were also used as tools (MEINANDER 1954b, 14) thus do not seem entirely justified. There is a rather high share of true swords in general and even long swords in particular. However, one must be careful in conclusions concerning the latter, the greater part of which is from a single hoard from Lapland, far beyond the regions of the coastal BA.

Of the eleven proper swords, the Bromarv specimen, one of the swords from Kiukainen (FNM 12 243; MEINANDER 1954b, pl. 4d; SALO 1981, fig. 103:right) and the shortest of the Sodankylä weapons (FNM 4 740:3; MEINANDER 1954b, pl. 16a) may be classified as rapiers. The average blade-width of the Bromarv sword is 21 mm, and although the edges are rather damaged, even the original width seems to have been less than 25 mm. The thick, albeit rounded midrib supports this conclusion. The blade of the Kiukainen weapon tapers towards the point and is well below 25 mm for its greater length. The Sodankylä sword has a blade with strictly parallel edges, unlike the three other weapons of the hoard, which have "mildly leaf-shaped" (COLES & HARDING 1980, 511) blades. Its blade-width is about 20 mm. The remaining eight swords all have a blade-width exceeding 25 mm, and this together with the shapes of the blades makes all of them proper cut-and-thrust weapons.

The 19 weapons are next plotted in a scatter diagram according to their length and dating (Fig. 2; for dates see particularly MEINANDER 1954b; SALO 1981). Also this diagram is only an illustration of the material, not a case of regression analysis, although "the line of best fit" is included to help the eye of the reader. Even if the four swords from the Sodankylä hoard were omitted, the direction of the scatter of plots would remain remarkably similar to that shown in the diagram. Two tight clusters are obvious, one comprising the daggers (periods II – III) and the other the long swords (as well as the shortest of the Sodankylä weapons) (periods V – VI). All daggers in the material belong to the EBA and all the long swords to the end of the period. Dirks and short swords, on the other hand, seem to have been in use for the greater part of the BA. These results are by no means surprising (cf. MEINANDER 1954b, 12 – 15; SALO 1981, 234 – 240, 387 – 388), but the diagram certainly clarifies the tendencies.

Another interesting factor is the distribution of the various weapon groups according to find circumstances (Fig. 3). The distribution is clearly binomial; in crude terms, the shorter the weapon, the more probably it is a grave find and *vice versa*, the longer it is, the more probably it is from a hoard. A striking fact is, that all of the daggers but none of the long swords are grave finds, while 6/7 (or all) of the specimens over 60 cm (*c.* 24 in.) in lenght are from hoards (the term hoard find is understood in this connection as comprising all caches or offerings with one or more artefacts). Despite the limited scope of the material these results seem at least symptomatic.

They are evidently explained partly by chronological factors. Bladed weapons as grave-gifts as well as daggers in the Finnish finds belong mostly to the EBA, while hoards and longer swords are more common in LBA contexts. However, e.g. the bronze-hilted Kiukainen sword of period II FNM 13 770; (SALMO

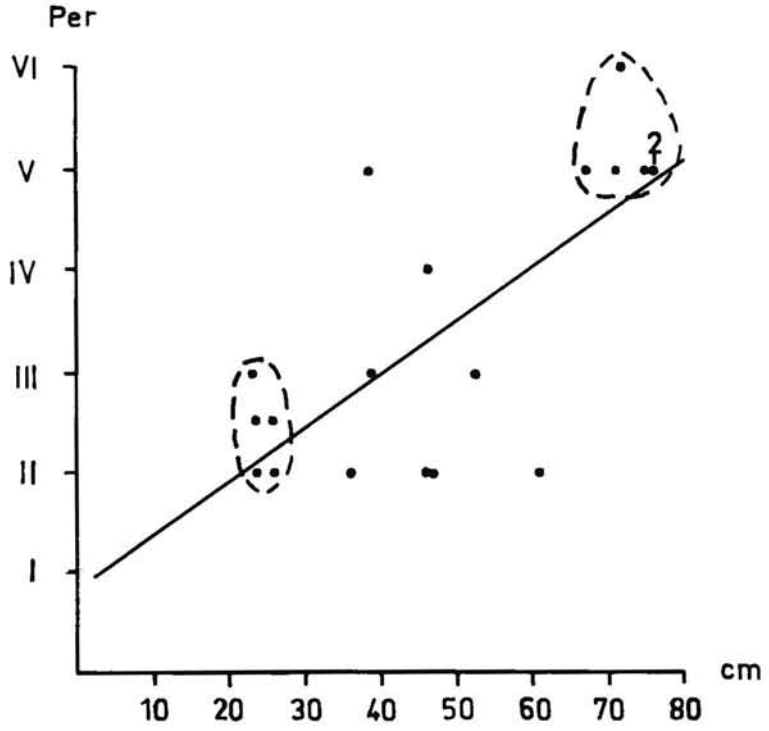

Fig. 2. The Finnish bladed bronze weapons plotted according to total length and dating. The abscissa represents length and the ordinate dates in Montelian periods. Weapons dated with the accuracy of two periods are plotted between these. The "line of best fit" is included in the diagram and the two obvious clusters are circled with a dotted line.

1955), evidently an offering (SALO 1981, 234), indicates that although swords were offered also in the EBA, apparently daggers were not. The distribution may thus be interpreted in part by considering the value of the weapons. Obviously, the price of a bronze artefact correlated directly and positively with its weight. The amount of bronze needed for a sword was naturally manifold compared to that used for a short dagger. Although daggers probably were by no means cheap, we can safely assume that long swords were considered true treasures. Maybe they were in general disposed of voluntarily only as a dedication to deities in some special cases; hoards of religious character are interpreted as remnants of public rituals of great social importance (RANDSBORG 1980, 49). All in all, the longer the weapon, the more valuable it was and perhaps the more reluctantly it was deposited in the grave with its deceased owner. On the other hand, the longer weapons may dominate in hoards and as offerings, not *despite,* but *because* of their great value.

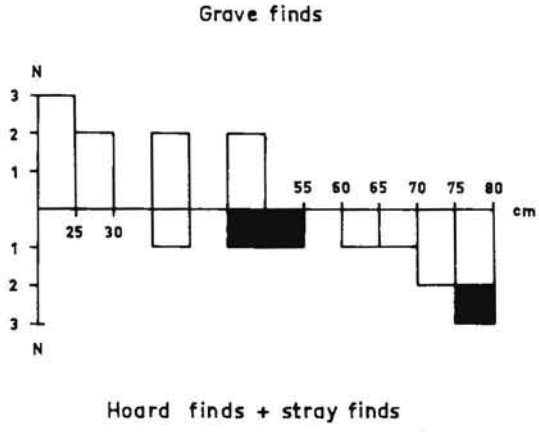

Fig. 3. The distribution according to find conditions and total length (in intervals of 5 cm) of the Finnish bladed bronze weapons, illustrated as two-dimensional histograms. The histograms above the *X* axis stand for grave finds, and those beneath it represent hoard finds (white area) as well as stray finds (black area). The *Y* axes represent the number of specimens.

In summary, the picture presented at the moment by the Finnish finds is rather clear: daggers belong to the EBA and are commonly found in graves, while long swords date to the last two periods of the LBA and are mostly hoard finds. Dirks and short swords, on the other hand, evidently continued in use for most of the period. However, it is not impossible that daggers dating to the LBA will be found in the future. Our present material is small, and daggers occur now and then in Scandinavia as late as periods V and VI (e.g. BAUDOU 1960, 13; SALO 1981, 238).

The emergence of long swords in the two final periods of the BA obviously reflects the actual situation. However, the phenomenon cannot be seen as connected with the spread of horse-riding at this time into the Central and Northern parts of the continent, despite suggestions to the contrary (cf. e.g. SALO 1981, 237, 388). There is evidence of the horse as a draught animal and possibly also of horse-riding in the Scandinavian LBA data (BRØNSTEDT 1939, 88 – 90, 105 – 106, fig. 98b; STENBERGER 1964, 235, fig. 105; THRANE 1965; COLES & HARDING 1980, 491, 513). The animal was probably at least known of also in Finland (SALO 1981, 278 – 279, 388, 401 – 402). Any actual "cavalry warfare", however, is certainly out of the question already because of the heavily wooded terrain. Further, stirrups came in use in Scandinavia only in the Viking Period, and even after that warriors seem to have dismounted for battle; true cavalry tactics in the north are mentioned for the first time as late as AD 1153 (FALK 1914, 8; TAAVITSAINEN 1976, 54).

There remains the question of the effectivity of bronze weapons and their martial importance in Finland. No one will probably argue that a bronze dagger would not have been more penetrating, more durable or sharper than its rather fragile parallels in flint (see MEINANDER 1954a, 121 – 123) or slate, "inexpensive substitutes for the corresponding forms of bronze" (SALO 1981, 297). The bronze sword, on the other hand, was a totally new form of weapon made possible by metallurgy.

The aspect that casts doubt on their martial importance here is the small number of bladed weapon finds from Finland. Divided by the duration of the period, they make less than one weapon per generation, clearly an absurdly low figure. However, it is evident that the known finds represent only a fraction of the bronze weapons actually in circulation and use during the BA. Reasons to this are obvious: the potential reluctance to disposal of swords (cf. also KRISTIANSEN 1978, 164), connected with the absence of weapons and presence of the *pars pro toto* principle in LBA burials (SALO 1981, 196), the limited scope of excavation activity in the case of BA cairns, the rather modest degree of land-use even in coastal Finland as compared to Denmark and Scania, where also the peat-bogs with their numerous bronze hoards have been largely exploited (KRISTIANSEN 1974) and above all, the suitability of bronze for remelting and recasting. Some idea of the importance of bronze arms in Finland might be obtained through a covering and thorough evaluation of the whole range of weaponry of the period, a task outside the scope of this article.

REFERENCES

ÅSTRÖM, P. 1977. *The Cuirass Tomb and other finds at Dendra.* Göteborg.

BAUDOU, E. 1960. Die regionale und chronologische Einteilung der jüngeren Bronzezeit im Nordischen Kreis. *Acta Universitatis Stockholmiensis. Studies in North-European Archaeology* I.

BRØNSTEDT, J. 1939. *Danmarks Oldtid* II. København.

CATLING, H. 1956. Bronze Cut-and-thrust Swords in The East Mediterranian. *Proceedings of the Prehistoric Society* 22.

CHILDE, V.G. 1950. *Prehistoric Migrations in Europe.* Bergen.

COLES, J.M. & HARDING, A.F. 1980. *The Bronze Age in Europe.* London.

EDGREN, T. 1969. Kotokallio in Lieto. Ein Grabfund aus der älteren Bronzezeit. *SM* 1969.

EVANS, A. 1921 – 1935. *The Palace of Minos* I – IV. London.

FALK, Hj. 1914. Altnordische Waffenkunde. *Videnskabsselskabets Skrifter* II. *Hist.-Filos. Klasse,* 1914, no. 6.

GORDON, D.H. 1953. Swords, Rapiers and Horse-Riders. *Antiquity* 27.

HACKMAN, A. 1897. Die Bronzezeit Finnlands. *SMYA* 17.

KARO, G. 1930. *Die Schachtgräber von Mykenai.* München.

KASKINEN, I. 1980. Vanhemman pronssikauden hautaraunio Liedon Kotokalliolla. *Karhunhammas* 4.

KRISTIANSEN, K. 1974. En kildekritisk analyse af depotfund fra Danmarks yngre bronzealder (periode IV – V). Et bidrag til den arkæologiske

kildekritik. *Aarbøger for Nordisk Oldkyndighet og Historie* 1974.
– 1978. The Consumption of Wealth in Bronze Age Denmark. A Study in the Dynamics of Economic Processes in Tribal Societies. In Kristiansen, K. & Paludan-Müller, C. (eds.). *New Directions in Scandinavian Archaeology. Studies in Scandinavian Prehistory and Early History* I.
MAXWELL-HYSLOP, K.R. 1956. Notes on some distinctive types of Bronzes from Populonia, Etruria. *Proceedings of the Prehistoric Society* 22.
MEINANDER, C.F. 1954a. Die Kiukaiskultur. *SMYA* 53.
– 1954b. Die Bronzezeit in Finnland. *SMYA* 54.
PENDLEBURY, J. 1939. *The Archaeology of Crete.* London.
RANDSBORG, K. 1980. *The Viking Age in Denmark.* London.
RENFREW, C. 1972. *The Emergence of Civilisation. The Cyclades and the Aegean in the Third Millenium B.C.* London.
SALMO, H. 1955. Ein Süddeutsches Bronzeschwert aus Finnland. *SM* 1955.
SALO, U. 1981. Satakunnan pronssikausi. *Satakunnan historia* 1; 2. Pori.
SANDARS, N.K. 1960. The First Aegean Swords and their Ancestry. *American Journal of Archaeology* 65. no. 1.
SNODGRASS, A. 1964. *Early Creek Armour and Weapons from the end of the Bronze Age to 600 b.c.* Edinburgh.
STENBERGER, M. 1964. *Det forntida Sverige.* Uppsala.
TAAVITSAINEN, J.-P. 1976. Joitakin ajatuksia kuolaimista ynnä muista rautakautisista hevoskaluista. *Helsingin yliopiston arkeologian laitos. Moniste* n:o 12.
TALLGREN, A.M. 1906. Tärkeä pronssikauden löytö Sodankylästä. *SM-FM* 1906.
– 1937. The Arctic Bronze Age. *Eurasia Septentrionalis Antiqua* XI.
THRANE, H. 1965. De første broncebidsler i Mellem- og Nordeuropa. *Aarbøger for Nordisk Oldkyndighet og Historie* 1963 (1965).

ABBREVIATIONS:

FM = Finskt Museum
SM = Suomen Museo
SMYA = Suomen Muinaismuistoyhdistyksen Aikakauskirja