AN ATTEMPT TO SOCIAL EXPLANATION OF THE LATE BRONZE AGE AND EARLY IRON AGE IN THE CARPATHO-DANUBIAN REGION

First millennium BC societies in the Carpatho-Danubian region differ substantially from those of preceding periods. Notable economic changes occurred after 1.000 BC that affected the social structure as well as the production and distribution of goods. Subsequently the size, duration and number of settlements increased, suggesting a substantial growth in population for most regions. Increased population size meant increased social and economic complexity. It is proposed here that the Carpatho-Danubian social groups have responsed to such complexity by adopting new levels of social organization such as chiefdoms.

To understand how the Dacian cultural complexity emerged we are going to review the social concepts utilized here. The conceptual terminology reflects the evolutionary school of American anthropology *(Service 1971; 1975; Fried 1960; 1967; 1968)* because it offers a comparative analytical framework. Service's model provides an explanation as well as a meaningful concept for how hierarchization works and functions. His first two social levels, band and tribe as well as the last one, state, are not applicable to data discussed here, although the term "tribe" is often applied to early Iron Age European societies lacking state level organization. Only the third level, chiefdom, will be discussed here and compared against empirical data to establish the social organizational level of the ancient Carpatho-Danubian region.

A chiefdom, according to Service *(Service 1975)*, has a hierarchical socio-political organization or pyramid structure, based on ranked lineage. Variation in rank, with associated privileges and obligations, is the primary means of social integration. This hierarchical system centers on a single status position, that of the chief, and descent is frequently the primary, determinant of the relative positions of different individuals vis à vis the chief and within their own kin groups. Chiefdoms do not have social classes in the modern sense, but some members attain social positions with enhanced power and privilege which are socially sanctioned. Despite the apparent importance of the chief, he lacks a true differential access to and control of strategic resources that would constitute social stratification. Furthermore a chief lacks formal delineation of power and coercive techniques of political control, and a chief remains dependent upon the peoples's will to maintain his politically superior position. Thus a chief is a servant of the people providing definite, observable benefits to them (*Service 1974;* p. 293—94). At the top of this hierarchical society, in time, the chief gained a degree of

independence in the process of political decision making such as those involving warfare, real campaigns and actual conquest on a limited scale, as well as religious and ambassadorial matters. Compared with tribes, chiefdoms exhibit greater capacities for the incorporation of new groups. This is often facilitated by a chief's authority to coordinate economic, social and religious activities. However, variation exists among chiefdoms in the degree to which systems of ranking are developed, as well as in the amount of power and reverence accorded to a chief. It may also be worthwhile to distinguish simple from complex/advanced chiefdoms: the later has a more multi-tiered hierarchical network and lager geographical territory. Once a complex chiefdom developed, Service *(Service 1975)* argues that a chief's position become a focal point for other coordinating and organizing activities, that were not within its original jurisdiction, thus allowing for further development of new social integration levels.

The various social integration levels are associated, according to Fried *(Fried 1967,* p. 108—9), with developments in individual status within society. Fried's model maintains that in simple societies, status is essential egalitarian except for roles reflecting age, sex, ability and charisma. In ranked societies, the next category, status reflects individual achievement through one's position within a lineage or a solidarity. Finally, in stratified societies status in based upon kinship inheritance, as is typical of many chiefdoms and states in Service's terminology.

In a ranked society social complexity is often centralized on one individual or a "big man" — an individual who functions as a nodal point for regional exchange and who, while having great prestige, does not necessarily possess any other status within society. This role may be inherited, but each individual has to establish his own prestige. A ranked society has differential statuses for members with similar abilities, but statuses are without privileged economic or political power. A ranked society is one in which there are "fewer positions of valued status then individuals capable of handling them" (*Fried 1967,* p. 109—110). According to Fried ranked society developed as a response to ongoing changes in material conditions of life. These changes were related to population growth and agricultural efficiency, which required the social system to devise more efficient means of production and resource distribution. Increased efficiency, was due to the concentration or responsibility and authority in particular individuals, who in turn assumed positions of superior status and rank in their society.

The period surrounding 1.000 BC. was one of profound economic changes in the Carpatho-Danubian region, changes particularly reflected by the increased production and circulation of bronze objects. Increased bronze production provided more wealth enabling some individuals to increase their status and authority, giving them new power over their peers. In the Late Bronze Age more bronze was available and manufactured irato finished products such as new production toals (sickles and other items). Concomitantly other aspects of economic organization, settlement size, population expansion, subsistence patterns, non-bronze manufacturing and trade were greatly affected by this new

available wealth. Transportation improved as the wheeled wagon and horses were used influencing the use of cargo, carts and chariots. Archaeological evidence of terracotta wagon models, chariot remains, harness fragments and horse skeletons indicate the horse was present after ca. 800 BC.

Late Bronze and Early Iron Ages settlement data, compared with earlier periods, indicate larger and more enduring settlements that, combined with cemetery data suggest substantial increases in population. During this period, for the first time, many settlements were occupied for several centuries, rather than a few generations. Fortified settlements became common after 1.000 BC, although unfortified settlements like Noua continued to be identified. Fortified sites combined with an increased wesponry found in wealtheir graves argue for more conflict or increased social position at least among some social categories. At the same time grave goods reflect an uneven pattern of wealth distribution with a small number of elite burials.

Intracommunity interaction increased as the Carpatho-Danubian economic system intensified Duding the Late Bronze and Early Iron Ages regional stylistic variation was replaced by more standardized forms. For example, pottery vessels made at sites in Transylvania, Moldavia, Muntenia and Dobrouja are very similar. These developments suggest increased intrasettlement communication, exchange of information, and shared patterns of production, demonstrating that regional economies became more integrated during this periods.

1. Material Culture

1a. *Bronze Metallurgy*

The archaeological record of the Carpatho-Danubian region clearly reflects the presence of advanced craft technologies, including a highly developed metallurgical industry. The great advantage in copper metallurgy was the widespread use of copper alloys, of both arsenic and tin, to make a harder metal. The discovery that copper alloys improved the metal strength increased the demand for metal tools[1]. During the Late Bronze and Early Iron Ages metallurgical production intensified as reflected by the increase in bronze objects found in hoards and graves. The splendid Romanian cultures of Otomani, Monteoru, Tei, Wietemberg, and Verbicioara are the most representative. Hundreds of hoards have been discovered inside the Carpatho-Danubian region [approximative 400+, weighing ca. 10.000 kg *(Petrescu-Dîmboviţa 1977)*]. Particularly representative hoards are those from Drajna de Jos, Hida, Dragușesti, Otomani, Ostrovul Corbului, Baniabic, Ocniţa, Boxia Nouă, Oniac, Stupini, Persinari, Suceava, Tufa, Tomeşti, Ciorani, Ruginoasa, Spălanca, Sîngiorgiu de Pădure, Rozavlea, Fizeşul Gherlei, Bogdăneşti, Gusteriţa, Cincu, Ghidici-Addena, Pecica, Ilişeni, Suseni, Poarta Albă, and Crăciuneşti.

Bronze artefacts from hoards and graves consist of four major categories: tools, jewelry, weapons, and vessels. Bronze tools are the do-

minant artefact category found in hoards and graves, more rarely in habitation deposits, especially sickles and axes, but knives, hammers, chisels, saws, gouges, awls, hooks, needles and razors also occur. Jewelry, such as dress pins, pendants, bracelets, fibulae, torchs and finger rings, are the next most frequent artefact category found in graves, albeit complete and fragmentary examples are known from hoards. Weapons are rare compared with tools, and consist primarily of projectile points. Swords are associated with most wealthy graves such as at Sincani and Rosiorii de Vede, whereas helmets, shields and cuirasses are by comparison rare. It must be noted, however, that axes may function both as a weapon and tool, and at present no clear criterion exists for distinguishing one function from other. Bronze vessels are rarely found in either a hoard or grave context.

The intensity and variety of the Carpatho-Danubian region bronze production and its impact on other economic branches is reflected by quantity and frequency of different artefact categories found in hoards. By comparison with Central Europe, in Romania the agricultural and manufacturing tools outnumber other categories such as ornaments and wespons. Harding *(Harding 1983)* estimates 7.200 ring ingots, torques, and 2.800 rib ingots, incapsulating raw material, accounting for 88% of all metal objects found in hoards spread over an area of more than 250,000 km^2 in central Europe (Austria and adjoining countries). By comparison in Romania, covering 237,500 km^2, of 20,630 bronze artefacts found in hoards, 12,165 or 59%, are artefacts representing agricultural and manufacturing tools (sickles, axes, celts, loops, bars, saws, needles, chisels, rasors and hooks) versus 8,597, or 41%, of other artefact categories (bracelets, knives, swords, daggers, horse accessories, vessels, arrow and spire heads, belts and unidentified small objects). In addition, it is factured into finished products, such as new food production tools estimated the 10,000 rings and ingots, representing 88% of the total number of artefacts in Central Europe, weight 1,900 kg *(Harding 1983)* and that the total hoards weight of 2,169 kg was much less than the 10,000 kg of Romanian bronze hoards. The above mentioned numbers reflet the importance of bronze metallurgy in the Carpatho-Danubian region and its economic impact of other economic branches.

Bronze objects in a habitation context were, however, rare, small and fragmentary (such as pins and small ornaments) at excavated sites such as Cunesti, Babadag, Glina, Tei and Cernavodă. Unlike iron which litters the surface of habitation areas in La Tene period (500 BC. — 100 AD), fragmentary bronze objects were not casually discarded, but remelted and recast. Although numerous bronze ingots are found in hoards and habitations, few copper or tin examples have been recovered suggesting that their allowing occurred at an early stage of production and distribution. However, it was scrap bronze in forms of broken objects and metal cakes (my estimation over 4,500 pieces) rather than ingots (600+ pieces) that dominate the metal hoards. The large number of scrap metal hoards relative to ingots indicates that more bronze was recycled now than at any previous time. The majority of known hoards contained substantial amounts of scrap bronze. The frequency of scrap and cake metals in hoards indicates a widespread effort to conserve

and recycle bronze and suggests a great deal of cultural value was involved in it.

The increased demand for bronze and efforts to conserve it are also reflected in the burials. Although the proliferation and size of metal hoards in the Carpatho-Danubian region suggest a vast amount of metal was circulating, the quantity of metal objects placed in graves did not increase proportionately during Late Bronze and Early Iron Age/Hallstatt periods. The majority of bronze grave objects were restricted to one or two examples of pins, bracelets, and knifes. Burials containing numerous or larger bronze objects, such as swords and vessels, are rare. Therefore, relatively little metal was removed from circulation by inclusion in burials, but at the same time the quantity of bronze hoards suggest that the metal availability increased. Moreover, the demand for bronze increased even more rapidly due to increased production of basic tools for food production such as sickles and axes and for elite goods such as swords, daggers and vessels *(Collins 1984)*. Consequently, alt available metal was recycled.

The majority of hoards are probably intentional bronze deposite belonging to metallurgists that were buried for safekeeping *(Wells 1984)*. The bronze metallurgist may has been an itinerant who deposited his material along a determined route. These hoards seem unlikely to have been the possesions of part-time craftsmen farmers living in the village. Residents would have been less likely to bury tools in the ground, since repairs or replacement of broken tools should have been needetd quickly: and it is more likely that an itinerant craftsmen than a resident bronze-smith would acquire varied materials. This can account for the great frequency of hoards not directly linked with any evidence for other occupation. It seems likely that individual initiative was involved at least in the distribution of the bronze products if not in the actual mining and smelting operations since little evidence exists for major bornze production centers. Luxury itmes were most likely produced by a small number of workshops, the location of which are unknown. Seams that the bronze smith exercised a great deal of autonomy, if the prevailing interpretation of bronze hoards is correct a metal stock in form of finished products for distribution and broken objects ready for remelting, left in places presumaly known only by the smith, and collectted again when the area in question was revised *(Wells 1984)*. However, beacuse of the vast cuantities of bronze hoard objects found, and availability of bronze minerals many investigators suggest the Transylvanian region was a center of production *(Wells 1984; Honddott 1981; Berciu 1967; Petrescu-Dîmbovița 1979)*. Unfortunately no workshops have been identified in the Carpatho-Danubian region, except for one at Sarata-Monteoru and another at Otomani.

The large number and size of Transylvanian hoards suggest large scale metallurgical production in the final phases of the Late Bronze and Early Iron Ages (see Table no. 1, 2, 3, 4, 5 and 6). For example six large upper Mureș River hoards (Dipșa, Uioara, Spălnaca, Gusterița Aiud and Band) contained a total of 5,000 kg, of bronze (5,800+ items weighing 1,300 kg from Uioara alone). Tin was extensively used,

approaching 17—25% of the metal cast *(Rusu 1972; Petrescu-Dîmboviţa 1977)*. Although Transylvanian metallurgy focused on tools, weapons and oranaments, (notably celts, axes, sickles, swords, arrowheads, daggers, knifes, toggle, pins, rings, armlets, bracelets and necklaces), objects such as vessels and buckets were discovered at Gusternița and Brinco-venesti, as well as cauldrons from Scortaru and Castelu. Casting moulds and bronze slag were also discovered at Sararata Monteoru, and Otomani *(Berciu 1967)*.

At the close of the Early Iron Age there was an increase in the number of metal manufacturing and agricultural tools, suggesting an expanded economic role for bronze metallurgy. Based on Petrescu-Dîmboviţa's (1977) catalog of Romania bronze metal artefacts I quantitatively plotted the temporal-spatial distribution of each artefact category (see Tables no. 7, 7a—d and 8, 8a—d). Hoard objects included a variety of tools (studs, celts, sickles, hooked or tanged socks, axes, hammers, needles, saws, chisels and fishing hooks), weapons (swords, daggers, disked and studded battleaxes, and arrow — spire heads (and assorted ornaments (pins, fibulae, pendants, bracelets, rings, etc.). Readily apparent is a 700% increase (from 2,200 to 17,772) in the total number of bronze artefacts between 1.300 BC to 1,100 BC followed by 1,004% decrease (from 17,772 to 1,769) after 1,100 BC (see Table no. 9). Throughout the Late Bronze and Early Iron Ages manufacturing and agricultural tools (such as celts, hammers, sickles, chisels, axes, saws, needles and awls) accounted for more than 50% of the bronze objects until they underwent a substantial decrease at ca. 600—500 BC (see Tables nr. 10—15). The relative frequency of bronze ornaments (here defined as bracelets, pendants, torks, buttons, sarrings, fibulae, necklaces and pins) declined steadily between ca. 1,300—600 BC (from 25% to 15%) and then dramatically increased to 71% at 600—500 BC. This dramatic decline in bronze tools and increase in ornaments at the end of the Early Iron Age reflects increased use of iron tools and wespons while bronze concontinued to be used for personal ornaments (see Table nr. 14, and 15). During most of this period the relative frequency of bronze weaponry fluctuated around a mean of 11% but increased significantly to 20% at ca. 600—500 BC (see Table no 15). However, this increase is attributed to horse and wagon accessories whereas actual weapons, such as words and daggers were replaced by iron examples (see table 14). In general, the frequency patterns defined for hoards reflect a quantitative decline in the importance of bronze as it was replaced by iron.

1b. *Gold Production*

Another important Late Bronze and Early Iron Ages metal presented in the Carpatho-Danubian region was gold, that probably originated Transylvania, especially the "Golden Polygon" in the Muntii Metalici and around Baia Mare. Since gold often occurs in Transylavia as a native metal (*Morariu 1969:* 200 sites), it was easily recovered (for gold technology see appendix no. 2). Gold objects date from the Neolithic and Chalcolithic periods and have been found at Gumelnita, Vidra, Ruse,

Perisani, Varasti, Hotnita and the famous Varna site. Throughout the Bronze Age gold artefacts increased in frequency, variety and artistic quality. By the Late Bonze Age more gold than ever before was circulating although it was still rare and associated with other indicators of special wealth in the form of jewelry, symbolic objects ornaments. Gold is rarely found in habitation areas and is known almost exclusively from wealthy graves and hoards. Its context and distribution suggests that gold was a subsistence restricted to individuals of considerable wealth. As an indicator of ils relative value, Homer (*Iliad,* VI, 234—236) mentions that "a set of gold armour is valued at more than ten times the worth of a set of bronze armour."

Among the best known finds from Late Bronze and Early Iron Ages are: Galesu, Oradea, Argighiol, Sacuieni, Acis, Pericei, Sibiu, Hodis, Otlaca, Macin, Lapus, Pipea, Turnu Magurele, Bia, Peretu, Boarta, Socosul Mare and Hirsova with over 1,000 gold objects weighing 5 kg. For the first time objects of symbolic status appeared. For example two massive gold crowns at Galesu; gold swords and daggers at Macin, Paulis and Tufalau; and the more than 430 golden artefacts related to wagon equipment as Tirgu Magurele *(Burada 1979).* Archaeologically sites with gold artefacts are known only north of the Danube River (Berartefacts are known only north of the Danube River *(Berciu 1967; Burada 1979)* where rich gold deposits are located.

1c. *Iron Metallurgy*

The beginnings of iron production in the Carpatho-Danubian region is a controversial subject. Iron implement were discovered at Babadac, Boboda, Rozavlea and Lapus, that may date ca. 1,300—1,100 BC, but are usually considered Mediterranean or Cimmerian imports. However, recent discoveries at Galita and Cernatu of iron slag, ingots, ore and workshops, contemporary with those mentioned above, suggest an early development for iron metallurgy *(Glodariu — Iaroslavski 1979; Lazlo 1975; Hoddinott 1981).* Forged iron appears during the first centuries of the Early Iron Ages, but it was often limited to ornamental inlay on a few bronze composite objects like the Lapus knife. Although iron was processed at different communities, it had no major economic importance before 700 BC. Throughout most of the Early Iron Age iron objects were limited to weapons and ornaments. For example bronze pins, rings, and weapons were often inlaid with iron, iron finger rings were cast as were knives with iron blades and bronze handles. Iron jewelry and iron awls are frequently found in graves and only rarely in habitation deposits. After 600 BC the frequency of iron objects increases and for the first time large objects auch as spearheads, axes, and swords are found. The principal advantage of iron over bronze in the Carpatho-Danubian region was its near universal availability. Once local inhabitants learned smelting and forging techniques many communities utilized the vast quantities of iron ores available. By the end of the Early Iron Age/Hallstatt iron weapons (spearheads, swords, daggers, battleaxes, arrow heads) and tools (axes, knives, chisels, hammers, gouges, awls) were replacing those of bronze. The quantity and variety

of iron tools played a significant role in a general intensification of economic production that developed during the Carpatho-Danubian Early Iron Age. However, an extensive local iron metallurgical industry can not be dated until the Late Iron Age.

1d. *Other Aspects of Material Culture*

Late Bronze Age material culture demonstrates continuity with earlier Bronze Age periods (the following discussion is based on: *Berciu 1966; Morintz 1979; Crisan 1974; Hoddinott 1981*), albeit the variety of objects increasses. The most diagnostic feature of Late Bronze and Early Iron Ages material culture was the inter and intraregional stylistic homogenity suggesting communication and interaction between regional social groups.

Pottery vessels were used for many purposes, including preparing and serving food and beverages, and storing foodstuffs and other items. Pottery recovered from smaller settlements and low status burials is predominatly plain and coarse, whereas finely made and highly decorated pottery was restricted to high status burials. The undecorated pottery found at settlements consist of dishes, bowls, cups, beakers, and large wide-mouth storage jars, which become common in the Late Bronze Age. Biconical vessels with a cylindrical neck and flaring rim, were commonly used for cremated remains whereas decorated bowls, cups and beakers were limited to high status burials. Other terracotta objects include loom weights, spindle whorls, two-piece molds for bronze casting, zoomorphic figures, and a variety of rattles.

Bone and antler were frequently utilized to make: hammers, hoes, projectile points, bridles, hafts, combs, buttons, and various types of ornaments. These bone and alter objects are often found at settlement sites. Likewise wood was commonly used for hafts, especially for metal tools. However, the most common use of wood was for construction of buildings and defensive systems, followed by its use for wagons, furniture and tools.

Flint flakes are often found at settlements sites. These flakes lack a distinctive from, and were unretouched. The flint itself was locally available. A variety of stone types were collected from streambeds and used as hammers, pestles and sling-stones. Sandstone was the preferred stone for making flat molds used for casting bronze objects, and milling stones.

Large scale production and trade in a variety of Moldavian amber and glass beads is evidenced in the archaeological record *(Berciu 1980)*. They are found principally in burials but have also been recovered in habitation areas.

Although evidence is primarily indirect there appears to have been an intensive, locally based, production of textile. Most excavated settlements have evidence for textile production in the from of numerous terracotta spindle whorls and loom weights. Another indicator for textile production is the high frequency, of bronze needles found in hoards. However, most tools used in textile production, such as the wooden loom

frames and textiles themselves, have not survived in the archaeological record.

To what extent did the Late Bronze and Early Iron Ages technological developments impact the social, political and economic organization of social groups. No great craft specialization would be necessary within a community for the utilization of small pieces of native copper. However, the quantitative and qualitative increase in Late Bronze Age production suggests the advent of metallurgical specialists, not longer involved directly in food production. Casting bronze, gold and silver into a variety of tools, weapons, ornaments and other personal items suggest these craftsmen were socially and economically recognized specialists occupying a special status in society. Moreover, those metallurgists manufacturing the elaborate items, wagon fittings and swords found in wealthy burials, may have enjoyed a special status compared with other bronze smiths that focused on only local demands. This is suggested by identical seals and names, probably the artisan or workshop name, engraved on most elaborated metal objects found at different sites such as Baicen, Garcinova and Varita *(Voevozeanu — Moscalu 1979)*. Those metallurgists supplying external demands were potentially in a position to accumulate social wealth and power. That these metallurgical developments were accompanied by a increasingly differentiated social structure is reflected in differential distribution of wealth in the burials.

2. Settlement Pattern

The Late Bronze — Early Iron Age settlement patterns compared with those in the earlier periods suggest an increased population within the context of continuity. The three major settlement locations were: dry land or flatland; river terrace; and, hilltops. Flatland, the most favored location, and river terrace settlements, were primarily agricultural in nature being located on fertile, easily worked, loess soils, and near fresh water. Hilltop settlements were defensive in nature consisting of substantial earthen, stone and timber fortification structures. However, many flatland settlements were also surrounded by defensive structures. Although hilltop settlements had a primarily defensive function, baser on location and strong fortifications, they were apparently continuously occupied rather just temporary places of refuge.

A major change during the Late Bronze Age was a substantial increase in the size of fortified settlements (*Horedt 1974*). For example, the site of Otomani 6—7ha., was one of the largest hilltop sites in the initial Late Bronze Age, which was dwarfed by later sites such as: Cornești—Jadani (200ha), Sîntana de Mureș (78ha.), Ciceu—Corabia (30ha), and Teleac (25ha) *(Hoddinott 1981; Berciu—Popa 1965; Mitrofan 1967)*. These settlements were heavily fortified with multiple walls, remparts and ditches. The initial Sîntana de Mureș defensive walls were 4m high, 10 m thick, and surrounded by a ditch 3 m deep and 4,5 m wide. These structures were later replaced by massive walls, 7 m high, 25 m thick surrounded by a ditch 4 m deep and 13 m wide. Similarly the

Costeşti—Jadani settlement was enclosed by two walls, the inner wall enclosed 200 + ha and the outer 586 ha *(Hoddinott 1981)*. Such vast fortified areas could accommodate even a large population and industrial facilities. At Teleac the defense system of walls, terraces and ditches cover more than 25 ha. Throughout the Carpatho-Danubian region substantial defensive structures are recorded at Late Bronze Age hilltop settlements such as: Subcetate, Bodoc, Medieş, Saratel, Tilisca, Lapus and Babadag. Many of these settlements may have been occupied for several centuries. At Babadac, for example, in northern Doroudja, excavations *(Morintz 1964)* uncovered three occupations levels. A similar pattern has been identified at fortified and other unifortified sites, such as at Stoicani and Rousse *(Petrescu—Dîmboviţa 1978; 1980)*. Concomitant with increased fortifications are thick deposits of charcoal indicating large conflagrations. At the same time the quantity and variety of weapons increased suggesting a period of serious conflict. The conflict appears to have been localized, since there is no evidence for extensive migrations comparable to those which took place in the Early Bronze — Late Iron Ages.

Wells *(Wells 1984)* has emphasized that given the scale of hilltop settlement defensive works they required strong leadership for their construction and suggested that these settlements reflect a chiefdom social organization. However, experimental construction of earthworks has demonstrated *(Athens 1977, Barker and Hodges 1981)* that total man/hours required may have been much less than expected. Indeed Late Bronze and Early Iron Ages settlement fortifications may have been within the capacity of a community of a couple of hundred individuals to erect them. On the other hand the massive fortifications at Sintana de Mureş and Cornești Jadani suggests much larger work forces were required, and with sites of Ciceu—Corabia and Teleac may represent unparalleled Early Iron Age developments in the Carpatho-Danubian region. Unlike the vast majority of communities which remained agrarian and similar in size to those in the Bronze Age, these settlements were significantly larger and argue for the existence of a settlement hierarchy, albeit their function remains unknown.

The few excavated small settlements, such as Babadac *(Morintz 1984)*, Rousse and Stoicani *(Petrescu—Dîmboviţa 1978)*, appear similar in internal structure and economic activities; there are no indications for industrial activities; and they do not seem to be centers of wealth or trade. However, the excavated areas are small, ranging from 20—50 m^2 to, 1,000 m^2 and excavations focused on site defensive structures. At Babadac two habitation structures (one and two rooms) were excavated, and Sarata Monteoru an inner, fortified, multiple building complex (Cetăţuia = Little fortress) has been identified *(Morintz 1984; Berciu 1966)*. Although there are evidences of differential structure sizes, it is unclear, because of limited excavations, whether this relates to function, social differentiation or shifting intrasettlement patterns. It is ironic that the artefacts from hoards, graves and those asociated with the exca-

vated defensive systems have received so much analytical attention (e.g. organizing them in subgroups, groups, and groups into cultures, each with different phases) but little is known of what was behind these defensive structures.

3. Subsistence Economy

Intersite animal and plant remains are essentially similar, suggesting that were no specialized subsistence sites. It should be emphasized, however, that only limited quantitative data are available and we cannot account for relative proportion of fauna to floral remains at settlements. Likewise subsistence related artefacts are limited: metal sickles, grinding stones, and ideographic evidence for the plow. The most evident change in agricultural technology during the Late Bronze Age and Early Iron Age/Hallstatt periods was the use of metal sickles throughout the Carpatho-Danubian basin.

Bronze sickles first appeared in the Middle Bronze Age and by the Late Bronze — Early Iron Ages their number and widespread distribution indicate that they along with Bronze axes (used for clearing farm land) were important for agricultural production. Because of its brittleness a bronze sickle had to be short or it would break during use. Sickles have been located most frequently in hoards, but they are known from habitation deposits, and more rarely, in bruial context. Their importance is reflected in the number they comprise among the tool artefacts found in hoards. Stickles are the most numerous category of tool (see Tables no. 16 and 16a) and outnumber the combined total of all tool categories found in hoards between 1,300 and 600 BC (3.762 vs. 3,297 — see Tables no. 17, 17a). Indeed, some hoards contained only sickles, such as those from Preşinari, Otomani, Ruginoasa, and Hida where — as others contained only sickles and axes; or a variety of bronze objects and scrap. Hoards with sickles included both complete as well as fragmentary examples. Settlements with significant numbers of sickles are krown mainly from eastern (Moldavia) and southern Romania (Muntenia). During this period the bronze sickle became important in agricultural technology, suggesting a new subsistence role for metal was being established.

The most common domestic animals were cattle and pigs, followed by sheep, goats, horses and dogs based on the fauna identification at sites like Teleac, Ruginoasa, Babadag, Bodoc, and Stoicani. The faunal remains from settlements indicate cattle and pigs were the main sources of meat protein. Pigs were exclusively meat animals, whereas cattle were also important as draft animals, dairy production and leather. Sheep were raised principally for wool, but provided food and leather as well. Goats were kept both for milk and meat. Horses were eaten but mainly used as draft animals and for riding. Dogs may have been kept mainly as pets, but also for guarding settlements and herds. Unfortunately for this period no quantitative data are available, just presence/absence animal identification.

Limited numbers of wild fauna are found at all settlements. The most common were red deer, but roe deer, wild boar, bear, hare, fish and birds are also reported indicating hunting continued on at least a limited basis.

The subsistence pattern indicates the use of a variety of species with a primary focus on domestic ones. No single species predominates in the diet of any community, nor is the diet restricted to a small number of species. The pattern appears to be one of diversity, suggesting dietary flexibility and adaptability.

4. Trade

The Late Bronze and Early Iron Ages were periods of increasing interaction, especially trade, among communities throughout the Carpatho-Danubian region. The intensity of these trading networks is reflected in the hoards containing bronze tools and ornaments as well as other status objects. The most important commodity traded was bronze and apparently every community had access to this metal. For the first time ecomomically productive metal items were available in substantial quantities, as were ornaments or jewelry, vessels and weapons. By the Late Bronze and Early Iron Ages, many communities were importing substantial amounts of bronze. The large number of functional bronze objects in hoards, such as agricultural and manufacturing tools, suggest that metal was not restricted to a small number of people but was possessed by a substantial segment of the population. Communities' need of goods from outside their immediate territory increased the importance of trade in daily life. The production and distribution of bronze was not apparently related to social obligations but rather its distance from the sources. This is seen in the quantity of metal artefacts found in Transylvanian hoards (region rich in copper minerals), which significantly exceeds those from Moldavia, Dobrouja and Muntenia, 500 to 900 km distance and separated from Transylvania by chain of mountains (see Tables no. 1, 2, 3, 4, 5 and 6).

The scope and intensity of the trading activities were probably restricted by the limitations of human porters as size of many bronze hoards corresponds closely to the amount of metal an individual porter can carry. The 400 bronze hoards, belonging to Late Bronze and Early Iron Ages, weighed about 10,000 kg. Half of this amount is divided among Uioara, Dipșa, Spălnaca, Gusterița, Band and Aiud hoards (*Petrescu—Dîmboviță 1977*), giveing an average of 12.5 kg for the rest. At the same time, however, pack-horse and/or wagons were used for transport as the first mentioned hoards, with Urioara alone 1,300 kg, suggest.

Evidence for trading networks suggests an exchange focused on bronze and luxury items. In addition to bronze hoards, habitation areas and elite bruials reveals that trade also involved: Moldavian amber (*Berciu 1967*), glass beads, Mediterranean seashells, akinakes daggers (at Bîrsești, Ferigele, Măcișeni), cauldrons (at Scorțaru and Castelu), swords (at Balta Verde, Curtea de Argeș, Ferigele) which are known

mainly from wealthy burials. Current data suggest in contrast to agricultural and other tools, specific types of objects such as vessels and armour were not confined to any local area, but distributed throughout the Carpa-tho-Danubian region. Furthermore, rare sets of bronze drinking and serving vessels of Mediterranean origin were found in elite burials and a few hoards may indicate that some foodstuffs may have been involved in these trading networks but no actual evidence remains.

Archaeological evidence for trade networks reflects mostly non-perishable commodities such as copper, bronze, gold, amber and glass beads. Trade in perishable foodstuffs, such as furs, honey, wine, olives, dried fruits salt or wax leave little archaeological evidence. Trade in such perishables may have focused on local communities but in some instances, like wine and olives, they may have been conjoined with nonperishable, long distance trade. In these instances such commodities have moved over increasing distances which affected their exchange value and thus restricted their social and economic availability versus regionally produced commodities like foodstuffs which may have been available to a broader segment of the population. The trade in such long distance and/or limited services of origin commodities like gold and amber involved mainly the socio-political elites of various groups. Long distance trade was not essential except for luxury goods that became associated with social status. Otherwise Carpatho-Danubian populations were largely selfsufficient through inter-regional trade.

5. Wealth Distribution

The general trend throughout the first millennium BC was toward increasing social differentiation. Archaeological evidence indicates that in the Late Bronze and Early Iron Ages quantities of portable wealth objects were accumulated by only a few individuals. Not only were more intems of portable wealth available, especially bronze objects, but also a greater variety than in previous periods.

The increased production of wealth objects correlates with the establishment of new hilltop settlements having substantial defensive architecture as well as an increase in metal weapons such as swords and projectile points. It is also interesting to note that for the first time metal keys are encountered suggesting a qualitatively new need or desire for security.

In the Carpatho-Danubian region the distribution of wealth and social status are reflected archaeologically in the burial patterns[1]. Late Bronze and Early Iron Age cemeteries demonstrate a pattern in which only a very few graves have the vast majority of objects whereas the majority have few or no objects. A differential burial treatment also can be delineated by: inhumation versus cremation; grave size; and the presence or absence of special tomb architecture such as barrows or tumuli versus simple pit graves.

Barrows, were timber lined subterranean chambers covered by a stone paved earthen mound associated with inhumation. For example,

the Lăpuș tumuli contained a centrally located wealthy grave associated with other less wealthy graves arranged concentrically or higher up in the mound deposits *(Hoddinott 1981)*. Tumuli were similar to barrows but lacked wooden chambers, and while inhumations are known, the vast majority contained cremations such as at Balta Verde, Ferigile and Gogosu. However, the vast majority of burials were cremations in simple pit graves, containing few or no objects such as the cemeteries at Corbu, Gura Bahnei, Poiana, Stoicani, Soldana, Basarabi, Tîrnava, Trusest, Zimnicea and Gîrla Mare. At Zimnicea, for example, sixty four simple pit burials were excavated *(Alexandrescu 1974)* and only two had more than one ceramic vessel and 1/3 had no objects at all. Moreover, the pottery itself was of poor quality. Likewise at the Tursesti cemetery thirty-four out of forty nine excavated cremations contained grave goods of which thirty three had only a single pot. A small gold ring was the sole item of value *(Hoddinott 1981)*.

At the Ferigele cemetery, ca. 600—450 BC, 151 tumuli were excavated which contained 198 cremated burials *(Vulpe 1967; Nicolaescu-Plopșor 1975)*. Based on grave inventories I have plotted in Table no. 18 the distribution of objects per grave. The pattern reveals an uneven distribution of grave goods, with the greatest majority of graves (152) having few or no objects, and only 46 graves between 10 and 53. The ceramic vessels (including the burial urns), were the most common artefact and even they show a gradual distribution from a large number of vessels in a few graves whereas the majority had only a few or no vessels (see Table no. 19). Metal weapons, which consist of 101 arrow heads, 13 spear heads, 23 double axes, 21 daggers, 25 knives, 1 celt, 4 swords, 6 sheaths and 22 horse and wagon trappings display a similar distribution with their concentration in but a very few graves (see Table no. 20). Likewise the relatively limited number of ornaments, such as glass beads, bracelets, pendants, pins and fibulae, have a comparable distribution pattern (see table no. 21). Clearly the distribution of these objects, especially metal, in graves, suggests, „wealth" was controlled by a social category occupied by very few individuals. Equally interesting were 89 cenotaphs with a distribution of „wealth" that paralleled (see Table no. 22) that of the other burials including the second „richest" grave (42 objects) in the cemetery. The osteological data indicated that 59 burials were infants (Nicolaescu-Plopșor 1975) and even among these, a differential distribution of objects can be observed with 1 to 3 graves containing more than 4 objects and the rest fewer or no objects (see Table no. 23) which suggests the presence of ascribed social statuses. Nicolaescu-Plopșor *(Nicolaescu-Plopșor, 1975)* identified 13 or 38% of the adult burials by sex: 9 males, 18%; and 6 females, 12%. Although, we are dealing with a small proportion of the total burials, the distribution of grave goods does not depart from the general pattern of few graves with larger number of objects and more graves with a smaller number (see Table 24). One kilometer away from Ferigele was another contemporary cemetery (145 graves) of cremations in simple pits without any grave goods.

A comparable situation was observed at Balta Verde cemetery, ca. 7th century BC, where 27 tumuli were excavated. These tumuli contained

67 burials of which 20 (30%) had an unusually large number of grave goods and Berciu (1967) thought them to have been warriors' graves. One tumulus contained a male skeleton with chariot remains and a female skeleton with rich grave goods *(Berciu 1966)*. A similar pattern was identified at Gofosu, ca. 6th century BC, where 70 tumuli were excavated but only 10 (14%) (see Table no. 25), were associated with Mediterranean akinakes daggers, spear-heads, double axes, pins, fibulae, glass beads, bangles and finely made pottery (see Table no. 26; *Berciu 1966)*. At Birsești ca. 550—450 BC, 40 tumuli were identified, but only 28 excavated. Ten percent of cremated remains were associated with arrow heads, double-bladed iron fibulae, glass beads, and zoomorphic ornaments *(Berciu 1967)*. At Stoicani, ca. 6th century BC, 55 cremations in simple pit graves were excavated with two having one and two vessels of a poor quality, two pins and weapons were absent *(Berciu 1966)*. A similar pattern was recorded at Tîrnava (6th century BC), where 36 simple pit graves with cremations containing only one to three ceramic vessels of a poor quality *(Andrițoiu 1981)*.

Inhumation graves were always roofed under barrows while tumuli contained both inhumations and cremations, but most cremations were simple pit graves. Barrows and tumuli contained the wealthiest burials represented by metal weapons such as projectile points (bone example are also known), akinakes, axes, knives and swords; and they were surrounded by poor burials. More rarely inhumation graves had horses remains, wagons or wagon and horse trappings. Personal ornaments made of bronze, silver and gold also have a higher frequency in inhumation graves. Available data suggest that barrows and tumuli were heaped over graves of persons of cultural importance whereas simple pit graves with few or no objects were burials for the rest of the population. Simple cemeteries ranged in size from a few graves to several hundred. Usually cremated bones were placed in a burial urn and were accompanied by only a modest quantity of funerary goods which most interestingly did not contain weapons. For example among the 400 excavated graves at Sărata Monteoru, only a few had significant grave goods like an adult female with 200 + faience beads and a gold ring *(Hoddinott 1981)*. Likewise at Cruceni more than 20 bronze objects such as knives, arrowheads, fibulae and pendants were found in a child's grave *(Berciu 1966)*.

The general cemetery pattern of wealth distribution suggests a small number of elite burials. In many cases these elite graves are characterized by containing more of the same kinds of objects. Available data suggest that a few individuals had significant wealths, as reflected in their accompanying metal objects. These burials contained not only more than average quantities of ordinary grave goods but also special rare, highly crafted objects such as wagon and horse bronze trappings, high quality ceramic vessels, bronze buckets, swords, arrowheads, daggers, cups, and gold jewelry, some of them of Mediterranean origin. In these graves wagons were quite rare; bronze vessels were exceptional; and swords and gold ornaments were not found in many. Many of these objects reflect not only large amounts of metal and craft skill but were also indicate the long scale of contact of these individuals. Comparable situations were never encountered in simple graves with cremation. The

amount of such wealth accompanying an individual to the grave may reflect an individual's resources, power and status. The social position of these individuals within society and in relation to each other is not easy to define, and the exact basis of elite power remains unknown. Their social status may have been based on control of trade, raw materials, military power, or a combination of these factors. It would seem that we are dealing with local 'chiefdoms'.

The grave goods suggest a two tiered hierarchy among these chiefdoms. At one level were the barrow burials, such as at Lapus and one at Balta Verde, one with wooden burial chamber, wagons or horse trappings, imported and local bronze or silver vessels, Mediterranean imports, high quality ceramics, and objects of gold. The second level consists of a series of elite graves lacking a chamber and wagon, but possessing high status metal objects such as daggers, knives, swords, projectile points, double axes, celts, horse trappings, sheaths, and one or two ornaments; and in the case of women pins, bracelets, fibulae, and beads. At Ferigele this two tiered hierarchy is also reflected in the infants burials and cenotaphs. Large concentrations of socio-political power are, however, unlikely for this period (Hallstatt) since this hierarchical burial pattern is not reflected in other cultural patterns such as exceptionally large, or otherwise distinctive residences or other public buildings.

6. Summary

Available data suggest that among the important factors involved in the transition to increased social complexity during the Late Bronze — Early Iron Age, were intensified metallurgical production and warfare. The present data indicates that production of surplus production may be a major factor in emergence of higher levels of political organisation. Food production should be sufficiently high to provide a certain minimum surplus to permit the division of labor such as military, trade, religious, craft and food specialists. It appears that this minimum surplus existed from the beginnings of the first millenium B.C., as is reflected by subsistance patterns and other economic activities, especially bronze production. Increased metallurgical development combined with increased number and size of settlements, indicating higher demography, resulted in a greater demand for metal tools and an associated accumulation of wealth by a limited number of individuals. The increased demand for metals and their value as reflected in the hoards and burials suggest that society was making major adjustments to assure its production and distribution, and thus providing some individuals the opportunity to seize power by controlling bronze production and distribution or via military activity. Social organization increased in complexity as communities developed defensive and offensive strategies. Large, nucleated population aggregates, such as Sîntana de Mureș, Cornești—Jadani, Ciceu—Corabia and Teleac were advantageous for defense but they also represented concentrations of material wealth that may have stimulated aggression increasing the need for larger defensive structures and wea-

pon production. Fortified settlements are known, but very few have been studied systematically, particularly the larger examples. Most of our information is based on surface surveys supplemented by small excavations which provide only limited understanding of inter-interasettlement patterns and demography, although, the frequent deposits of charcoal indicate increased conflagration. Consequently, data to test the hypothesis of warfare as a prime factor promoting social stratification must focus on the burial patterns. A quantitative and qualitative increase in weaponry is reflected in burial patterns, although, the weapons distribution in graves is uneven. Few male, cenotaphs and children graves contain the majority of weapons. Also the burial pattern strongly suggets an unequal distribution of wealth which when combined with age and sex distribution argue for the existence of hereditary hierarchical social structures. These burial patterns appear to correlate with an increase number and size of fortifications nad large populated settlements. This data when taken in its totality may indicate an increasing social concern about conflict. But, given the persistent, basic similarities definable among the material culture, such as ceramic motifs, tool types, subsistence practices and trade goods, throughout this period it appear conflict was at a local and not everybody was involved in such conflicts. It is proposed here that one response to this intensifying conflict was the emergence of a local hereditary chiefdoms throughout the Carpato-Danubian region. The population appears to have been divided into social hierarchical categories with differential access to important resources. The actual productive activities were limited to certain social grups and access to important resources was unequal. The totality of data from this period suggests the existence of regional chefdoms of relative small size. These chiefdoms represent the foundation for the subsequent dramatic changes that occur in the Late Iron Age.

ELENA TÂMPEANU

Endnotes.

[1] Because we lack information about the relative values of different substances the most useful measure is a simple count of the quantity of objects in each grave. But there are, however, problems with the simple count method. For example, a sword is surely more difficult to produce than a pin and consumes more material. An ornated gold bowl is and probably was more valuable than a small, undecorated ceramic cup. On the other hand, graves that were well equipped with such exceptional objects as swords, bronze vessels, and gold ornaments usually also contained a much larger number of grave goods than other burials. Thus the simple count in fact provides a reasonably satisfactory means of comparing a wide range of graves in a cemetery. Other additional qualifications must be mentioned. Some objects such as wagons and harnesses comprise numerous metal parts; rather than counting all parts as indiviudal objects, in this analysis the entire assemblage of parts is counted as one, and a special mention of such an assemblage in individual graves is made.

APPENDIXES

Appendix no. 1.

Alloying was dependent on the availability of the materials to be mixed. Mineralogic survey from Romania shows that minerals rich in cooper have been identified at 632 sites (427 in Transylvania, 108 in Banat, 34 in Moldavia, 54 in Dobrouja and 9 in Muntenia) *(Morariu 1969)*. The same mineralogic survey proved that the antimony (or stibium) and tin (or stannium) necessary to make bronze are also available in the Carpatho-Danubian region. Antimony was identified at 161 sites and tin at 12 sites. Initial exploitation of alloys may be attributed to the color and smell, and to textural changes visible to the unaided eye. It would have taken some time to realize that the combination of metals produced stronger, harder objects and that objects made of alloy were easier to cast because of increased fluidity. Copper-arsenic alloys have many advantages over pure copper, both in terms of fabrication by casting and in the resultant mechanical properties. Arsenic could be obtained from high arsenic-copper minerals such as enargite and tennantite, and from oxidized copper arsenites like demeykite and algodenite and arsenopyrite. All these minerals have a metallic grey appearance, are sufficiently alike in texture and have a characteristic garlic smell when bruised by hammering or heated, which would encourage smiths to experiment with them. Each type of ore requires different mineral dressing: roasting or watering. All minerals must be crushed and selected but the sulfide minerals should be watered before roasting to accelerate the oxidation process, while the pyrite minerals should be directly to release the iron. After this stage the minerals are suitable for smelting *(Koucky—Steingerg 1982)*. Extensive studies indicate that the best roasting temperature ranges are from 540°C. to 620°C to allow the pyrite to break down forming iron oxides. These oxides through volatilization, eliminate different contaminants such as sulfur, selenium and antimony *(Koucky—Steingerg 1982)*.

The smelting process requires other operations, such as gilns construction, charcoal preparation, loading the furnace with alternative rows of charcoal and ore, and firing process itself. The chemical components of ore melt at different temperatures ranging from 800 to 1.080°C. Also the critical temperature for melting depends on which metal is added to the copper and in what percentage. It is generally recognized that a copper tin alloy requires a higher temperature than copper arsenic. Another aspect of pyrometallurgy is the huge quantity of charcoal used during the roasting and smelting processes. Data from other parts of Europe indicates that pine, holm and oak have been used most. *(Salkield 1982; Koucky—Steingerb 1982)*.

Appendix no. 2.

Gold is easy to work since it is soft and ductile. It may be hammered into sheets of less than 0,0025 mm. thickness without annealing. It may occur in combined forms, requiring some ingenuity to isolate and use. In Transylvanian placer deposits, gold often forms a natural alloy, up to 25%, with silver *(Glodariu 1979)*. As an ore it occurs in quartz veins in combination with lead, copper and sometimes zinc *(Glodariu 1979)*. There are several processes by which gold can be separated from its impurities. One is by amalgamation with liquid mercury, a substance which can be boiled away easily, leaving, relatively pure gold behind. When gold and silver occur as a natural alloy gold can be separated from silver, through cupellliation. Silver is not entirely removed, but some percentages are maintained to increase its strength and to help in maintaining its shape.

ABBREVIATIONS AND REFERENCES

Alexandrescu 1974 A. D. Alexandrescu, *Thracia*, thried edition, București

Andriţoiu 1981 I. Andriţoiu, *Necropola din epoca târzie a bronzului de la Târnava*, în *SCIV*, 32, 1981, p. 553—60.

Athens 1977 S. J. Athens, *Theory Building and the Study of Evolutionary Process in Complex Societies*, in *For Theory Building in Archaeology*, New York, p. 177—203.

Avery 1982 D. H. Avery, The Iron Bloomery, in *The Evolution of the First Fire Using Industries*, ed. by T. A. Wertime and S.A. Wertime, Washington, D.C., p. 205—215.

Bader 1978 T. Bader, *Epoca bronzului în Nord-Vestul Transilvaniei: cultura pretracică şi tracică*, Bucureşti, 1978.

Bate 1984 L. Bate, *Towards the Quantification of Productive Forces in Archaeology*, in *Marxist Perspectives in Archaeology*, ed. by M. Springs, Cambridge, p. 53—58.

Berciu 1967 D. Berciu, *Romania before Burebista* London, 1967.

Berciu 1969 a D. Berciu, *Mormântul „Princiar" de la Agighiol şi unele probleme ale artei traco-getice*, în *Pontica* II, 1969, p. 169—87.

Berciu 1969 b D. Berciu, *Arta traco-dacică*, Bucureşti, 1969.

Berciu—Popa 1965 I. Berciu, Al. Popa, *Aşezarea hallstattiană fortificată de la Dâmbar—Teleac*, în *Apulum*, 1965, p. 71—92.

Bindford 1962 L. R. Bindford, *Archaeology as Anthropology*, in *American Antiquity*, 29, 1962, p. 425—441.

Bindford 1965 L. R. Bindford, *Archaeological Systematics and the Study of Cultural Process*, in *American Antiquity*, vol. 31, 1965, p. 203—10, 1981, p. 231—238.

Braudel 1970 F. Braudel, *History and Social Science: the Long Term.*, in *Social Science Information*, 9, 1970, p. 145—174.

Brudiu 1981 M. Brudiu, *Contribuţii la cunoaşterea genezei Hallstattului în sud-estul României*, în *SCIV*, 32, 1981, p. 529—535.

Bucovală—Irimia 1971 M. Bucovală, M. Irimia, *Cimitirul din sec. VI—V î.e.n. de la Corbu, jud. Constanţa*, în *Pontica*, IV, 1971, p. 41—56.

Burda 1979 Şt. Burda, *Tezaure de aur din România*, Bucureşti, 1979.

Butzer 1980 K. Butzer, *Civilisation: Organisms or Systems?*, in *American Scientist* 68, 1980, p. 517—223.

Carniero 1967 R. Carniero, *On the Relationship between Size of the Population and Complexity of Social Organization*, in *Southwestern Journal of Anthropology*, 23, 1967, p. 234—243.

Carniero 1970 R. Carniero, *A Theory of the Origin of the State*, in *Science*, 169, 1970, p. 733—738.

Casson 1926 St. Casson, *Macedonia, Thrace and Illyria*, Oxford University Press, Oxford, 1926.

Champion 1985 S. Champion, *Production and Exchange in Early Iron Age Central Europe*, in *Settlement and Society: Aspects of West European Prehistory in the First Millennium B.C.*, ed by T. C. Champion and J. V. S. Megaw, New York, p. 134—164.

Champion 1979 T. C. Champion, *The Iron Age* (ca. 600 BC—200 AD), în *Introducton to British Prehistory*, ed. by J. V. S. Megaw and D. D. A. Simpson, Cambridge, p. 344—432.

Champion 1982 T. C. Champion, *Fortification, Ranking and Subsistance*, in *Ranking, Resource and Subsistance*, ed. by C. Renfrew and S. Shennan, Cambridge, p. 61—66.

Champion 1986 T. C. Champion, S. Champion, *Peer Polity Interaction in the European Iron Age*, in *Peer Polity Interaction and Socio-Political Change*, ed. by C. Renfrew and J. F. Cherry, Cambridge, p. 59—78.

Champion 1985a T. C. Champion and J. V. S. Megaw, *Settlement and Society: Aspects of West European Prehistory in the Frist Millennium B.C.*, New York, 1985.

Champion 1985b T. C. Champion and J. V. S. Megaw, *Introduction: Approachs to the Study of Iron Age Settlemet and Society*, in *Settlement and Society: Aspects of West European Prehistory in the First Millennium B.C.*, ed. by T. C. Champion and J. V. S. Megaw, New York, p. 3—8.

Champion 1986 Thimoty and Sara Champion, *Peer Polity Interaction in the European Iron Age*, in *Peer Polity Interactian and Socio-Political Change*, ed. by C. Renfrew and J. F. Cherry, Cambridge, p. 59—78.

Cherry 1986 J. F. Cherry and C. Renfrew, *Epilogue and Prospect*, in *Peer Polity Introduction and Socio_Political Change*, ed. by C. Renfrew and J. F. Cherry, Cambridge, p. 149—58.

Childe 1925 V. C. Childe, *The Down of European Civilization*, London, 1925.

Childe 1929 V. G. Childe, *The Danube in Prehistory*, Oxford, 1929.

Childe 1950 V. G. Childe, "The Urban Revolution", in *Town Planning Review*, 21, no. 1, 1950, p. 1—17.

Childe 1951 a V. G. Childe, *Man Makes Himself*, New Âork, 1951.

Childe 1958 V. G. Childe, *The Prehistory of European Society*, Harmondsworth 1958.

Chițescu 1981 L. Chițescu, *Formațiuni unional-tribale sau formațiuni statale?* in *Cercetări arheologice*, IV, 1981, p. 193—99.

Classen 1978 H. J. M. Classen and P. Skalnik (editors), The Hague, 1978.

Collins 1982 J. Collins, *Gradual Growth and Sudden Change — Urbanization in Temperate Europe*, in *Ranking, Resource and Exchange*, ed. by C. Renfrew, Cambridge, p. 73—78.

Collins 1984 J. Collins, *European Iron Age*, New York, 1984.

Crișan 1974 I. H. Crișan, *Transilvania la sfârșitul Hallstattului (sec. VI—V î.e.n.)*, in *In memoriam Constantini Daicoviciu*, București, 1974.

Danov 1976 H. M. Danov, *Tracia antica*, București, 1976.

Driscoll 1988 S. T. Driscoll, *Power and Authority in Early Historic Scotland: Pietish Symbol Stones and other Documents*, in *State and Society. The Emergence and Development of Social Hierarchy and Political-Centralization*, ed. by J. Gledhill and B. Bender, London, p. 215—236.

Flanery 1972 K. V. Flanery, *The Cultural Evolution of Civilization*, in *Annual Review of Ecology and Systematics*, 3, 1973, p. 339—424.

Fried 1960 M. H. Fried, *On the Evolution of Social Stratification and State*, in *Culture in History*, ed. by S. Diamond, 1960, p. 713—731.

Fried 1967 M. H. Fried, *The Evolution of Political Societies: An Essay in Political Anthropology*, New York, 1967.

Fried 1968 a M. H. Fried, *The State: The Institution*, in *International Encyclopedia of the Social Science*, 15, p. 143—50.

Fried 1968 b M. H. Fried, *On the Concept of "Tribe and Tribal Society"*, in *Essay on the Problem of the Tribe*, ed. by J. Helm, 1968.

Fried 1978 M. H. Fried, *The State, the Chicken and the Egg, or What Came First*, in *Origins of the State: The Anthropology of Political Evolution*, ed. by R. Cohen and E. R. Service, Philadelphia, 1978, p. 35—48.

Fried 1983 M. H. Fried, *Tribe to State or State to Tribe in Ancient China*, in *The Origins of Chinese Civilization*, ed. by D. N. Keightley, Barkley, 1983, p. 467—93.

Gledhill 1988 J. Gledhill, *Introduction: the Comparative Analysis of Social and Political Transitions*, in *State and society. The Emergence and Development of Social Hierarchy and Political Centralization*, ed. by J. Gledhill, B. Bender and M. T. Larsen, London, p. 1—29.

Gledhill 1988 J. Gledhill, B. Bender and N. T. Larsen editors, *State and Society. The Emergence and Development of Social Hierarchy and Political Centralization*, London, 1988.

Glodariu 1979 I. Glodariu and E. Iaroslavschi, *Civilizația fierului la Daci*, Cluj-Napoca, 1979.

Hass 1982 J. Hass, *The Evolution of the Prehistoric State*, New York, 1982.

Harding 1983 A. F. Harding, *The Bronze Age Central and Eastern Europe: Advances and Perspectives*, in *Advances in World Archaeology*, II, ed. by F. Wendorf and A. Close, New York, 1983, p. 1—50.
Hodder 1982 I. Hodder, *The Identification and Interpretation of Ranking in Prehistory: A. Contextual Perspective*, in *Ranking, Resource and Exchange*, ed. by C. Renfrew and S. Shennan, Cambridge, 1982, p. 150—154.
Hoddinott 1981 R. F. Hoddinott, *The Thracians*, London, 1981.
Istoria poporului Român, 1989, Bucureşti.
László 1975 A. László, *Începuturile metalurgiei fierului pe teritoriul României*, in *SCIVA*, 26, 1975, p. 17—40.
Megaw 1970 J. V. Megaw, *Art of the European Iron Age*, New York, Evanston, 1970.
Milisauskas 1978 S. Milisauskas, *European Prehistory*, New York, 1978.
Mitrofan 1967 I. Mitrofan, *Aşezarea hallstattiană de la Teleac*, in *ActaMN*, IV, 1967, p. 431—38.
Morintz 1978 S. Morintz, *Contribuţii arheologice la istoria tracilor timpurii*, I, Bucureşti, 1978.
Morintz 1974 S. Morintz, *Cercetări arheologice la Hârşova şi împrejurimi*, in *SCIVA*, 25, no. 1, 1974, p. 47—69.
Müller-Karpe 1959 H. Müller-Karpe, *Beitrage zur Chronologie der Urnenfelderzeit nördlich and südlich der Alpen*, 1959, p. 507—41.
Németi 1977 I. Németi, *Descoperiri Hallstattiene târzii din nord-vestul României*, in *ActaMP*, 1, 1977, p. 57—62.
Nicolăescu-Plopşor 1975 D. Nicolăescu-Plopşor and V. Wolski, *Elemente demografice şi ritual funerar la populaţiile vechi din România*, Bucureşti, 1975.
Petrescu-Dâmboviţa 1977 M. Petrescu-Dâmboviţa, *Depozitele de bronzuri din România*, Bucureşti, 1977.
Petrescu-Dâmboviţa 1978 M. Petrescu-Dâmboviţa, *Scurta istorie a Daciei preromane*, Iaşi, 1978.
Petrescu-Dâmboviţa 1980 M. Petrescu-Dâmboviţa, *Premisele civilizaţiei Geto-Dace*, in *Arheologia Moldovei*, IX, 1980, p. 63—8.
Phillips 1980 P. Phillips, *The Prehistory of Europe*, London, Bloomington, 1980.
Piggot 1965 S. Piggot, *Ancient Europe, from the Beginnings of Agriculture to Classical Antiquity*, Chicago, 1965.
Popa 1965 Al. Popa and I. Berciu, *Un depozit de obiecte Hallstattiene de la Vinţul de Jos*, in *Apulum*, V, 1965, p. 51—70.
Redman 1978 C. L. Redman, *The Rise of Civilization*, San Francisco, 1978.
Reinecke 1911a P. Reinecke, *Attertum unserer heidenischen Vorzeit (1904—1911)*, V, Mainz, 1911.
Reinecke 1911b P. Reinecke, *Mainzer Aufsätze zur Chronologie der Bronze und Eisenzeit*, Bonn (1965).
Renfrew 1978 C. Renfrew, *Space, Time and Polity*, in *The Evolution of Social System*, ed. by J. Freidman and J. M. Rowlands, Pittsburg, 1978, p. 89—112.
Renfrew 1979 C. Renfrew, *Problems in European Prehistory*, Cambridge, 1979.
Renfrew 1982 C. Renfrew, *Socio-Economic Change in Ranking Societies*, in *Ranking, Resource and Exchange*, ed. by C. Renfrew and S. Shennan, Cambridge, 1982, p. 18.
Renfrew 1986 C. Renfrew, *Introduction: Peer Polity Interaction and Socio-Political Change*, in *Peers Polity Interaction and Socio-Political Change*, ed. by C. Renfrew and J. F. Cherry, Cambridge, 1986, p. 1—18.
Renfrew 1986 C. Renfrew and J. F. Cherry (editors), *Peer Polity Interaction and Socio-Political Change*, Cambridge, 1986.
Renfrew 1986 C. Renfrew and J. F. Cherry, *Preface*, in *Peer Polity Interaction and Socio-Political Change*, Cambridge, 1986, p. VII—VIII.
Renfrew 1982 C. Renfrew and S. Shennan (editors), *Ranking, Resource and Exchange*, Cambridge, 1982.
Robertson 1989 I. Robertson, *Society: A. Brief Introduction*, New Yok, 1989.
Rowlands 1972 M. J. Rowlands, *The Archaeological Interpretation of Prehistoric Metalworking*, in *World Archaeology*, 3, 1972, p. 210—44.

Russu 1972 M. Russu, *Metalurgia bronzului din Transilvania la începuturile Hallstattului*, Rezumatul tezei de doctorat.
Rusu 1974 M. Rusu, *Începuturile metalurgiei fierului în Transilvania*, in *In Memoriam Constantini Daicoviciu*, Cluj, 1974, p. 349—60.
Sabloff 1981 J. A. Sabloff (editor), *Archaeology*, Austin, 1981.
Service 1971 E. Service, *Primitive Social Organization: An Evolutionary Perspective*, second edition, New York, 1971.
Service 1975 E. Service, *Origins of the State and Civilization: The Process of Cultural Evolution*, New York, 1975.
Sherratt 1972 A. G. Sherrat, *The interpretation of Change in European Prehistory*, in *The Explanation of Culture Change*, ed. by C. Renfrew, Pittsburg, 1972, p. 232—57.
Springs 1984 M. Springs (editor), *Marxist Perspective in Archaeology*, Cambridge, 1984.
Voevozeanu 1979 P. Voevozeanu and E. Moscalu, *Mormântul princiar de la Peretu, jud. Teleorman*, in *Cercetări arheologice*, III, 1979, p. 353—361.
Vulpe 1967 Al. Vulpe, *Necropola hallstattiană de la Ferigele*, București, 1967.
Walbdum 1980 J. C. Walbdum, *The First Archaeological Appearance of Iron and the Transition to the Iron Age*, in *The Coming of the Age of Iron*, ed. by Th. A. Wertime and J. D. Muhly, New Haven, 1980, p. 69—99.
Wardgailey 1988 C. Wardgailey and Th. C. Patterson, *State Formation and Uneven Development*, in *State and Society*, ed. by J. Gledhill, B. Bender and T. M. Larsen, London, 1988, p. 77—90.
Welbourn 1985 D. A. Welbourn, *Craft Specialization and Complex Societies: A Critique*, in *Settlement and Societes: Aspects of West European Prehistory in the First Millennium B.C.*, ed. by T. C. Champion and J. V. S. Megaw, New York, 1985, p. 123—131.
Wells 1981 P. Wells, *The Emergence of an Iron Age Economy*, Cambridge, Masschusetts, 1981.
Wells 1983 P. Wells, *Rural Economy in the Early Iron Age: Excavations at Hascherkeller 1978—1981*, Cambridge, Massachusetts, 1983.
Wells 1984 P. Wells, *Farms, Villages and Cities*, Ithaca.
Wenke 1980 F. J. Wenke, *Patterns in Prehistory*, Oxford 1980.
Wertime 1980 T. A. Wertime and I. D. Muhly (editors), *The Coming of the Age of Iron*, New York, 1980.
Wertime 1982 T. A. Wertime and S. F. Wertime (editors), *The Evolution of the First Fire-Using Industries*, Washington, D.C., 1982.
Whesler 1980 T. S. Whesler and R. Naddin, *Mettallurgy and Ancient Man. Int Coming of the Age of Iron*, ed. by T. A. Wertime and. J. D. Muhly, New Haven, p. 99—126.
White 1949 L. A. White, *The Science of Culture*, New York, 1949.
White 1959 L. A. White, *The concept of Culture*, in *American Anthropologist*, 1961, p. 227—51.
White 1975 L. A. White, *The Concept of Cultural System*, New York, 1975.
Zah 1971 E. Zah, *Exploatarea fierului în Dobrogea*, in *Pontica*, IV, 1971, p. 191—207.
Zaharia 1970 N. Zaharia, M. Petrescu-Dâmbovița and E. Zaharia, *Așezări din Moldova din paleolitic până în secolul al XVIII-lea*, București, 1970.

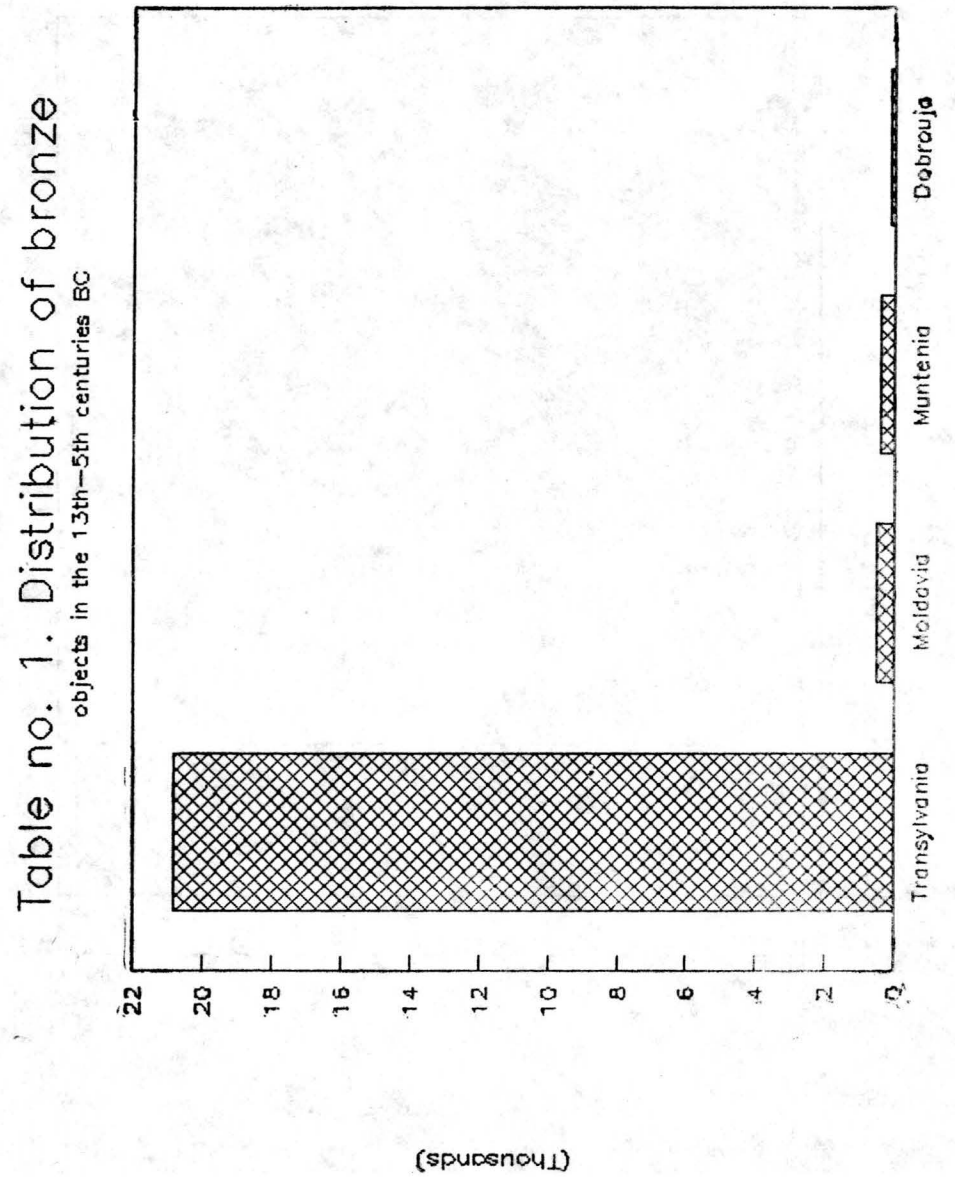
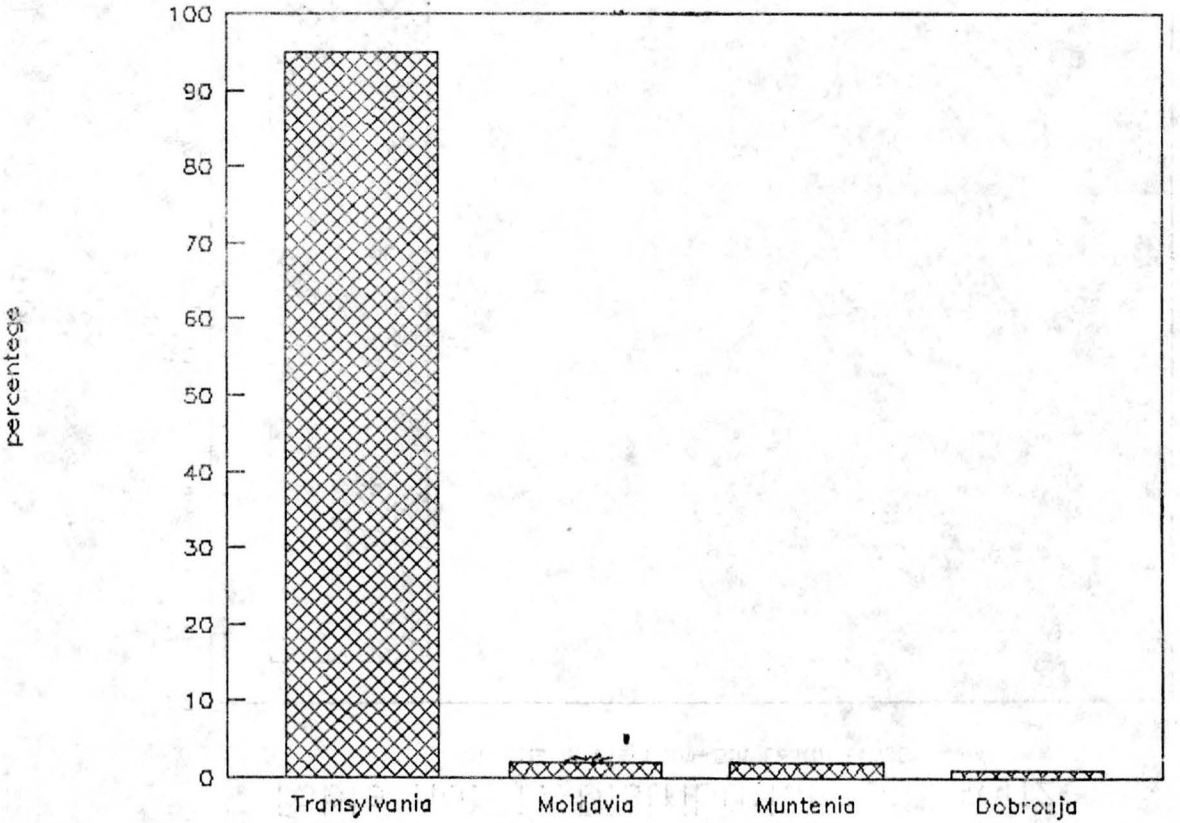


Table no. 1. Distribution of bronze
objects in the 13th–5th centuries BC
(Thousands)
22
20
18
16
14
12
10
8
6
4
2
0
Transylvania
Moldavia
Muntenia
Dobrouja

Table no. 2. % distribution of bronze objects in the 13th–5th centuries BC



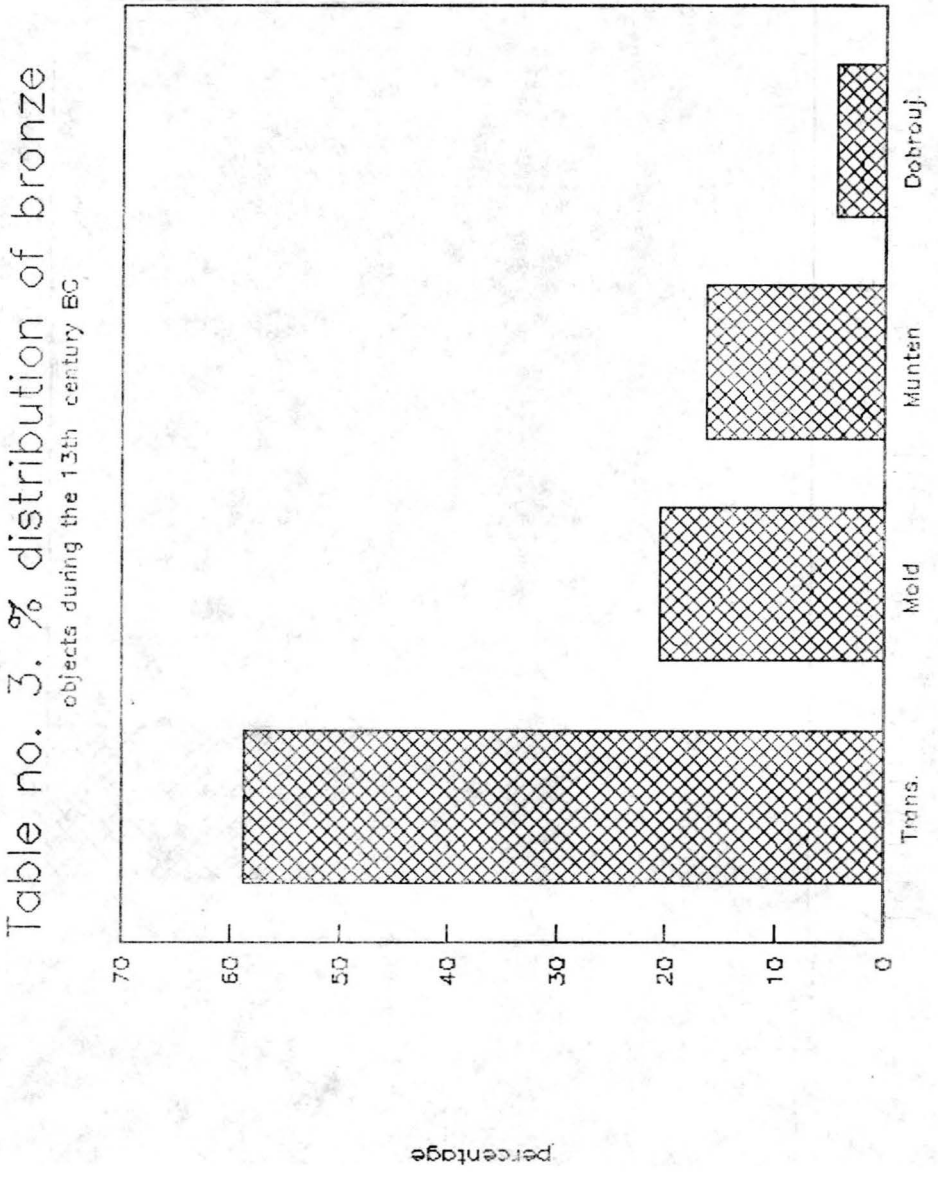


Table no. 3. % distribution of bronze
objects during the 13th century BC
percentage
0
10
20
30
40
50
60
70
Trans.
Mold
Munten
Dobrouj.

Table no. 4. % distribution of bronze objects in the 12–11th centuries BC

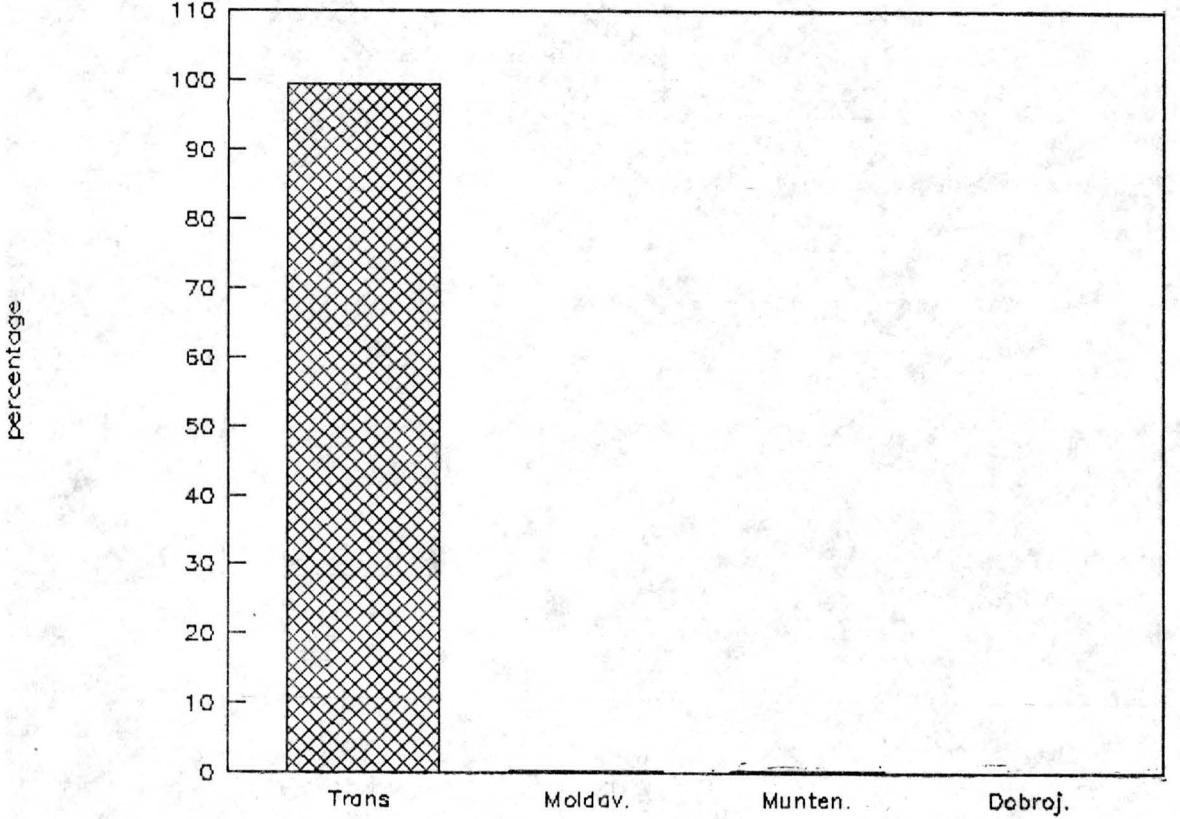


Table no. 5.% distribution of bronze objects in the 10—9th centuries BC

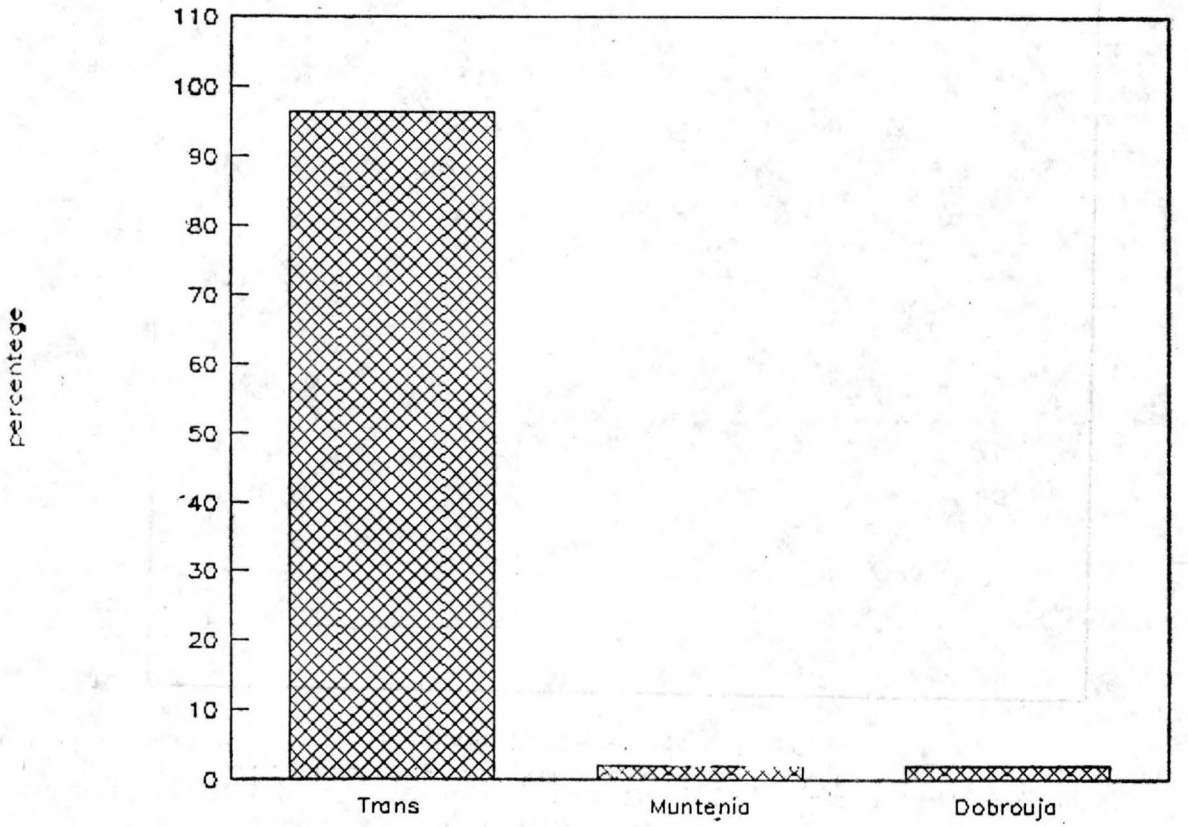


Table no 6. % distribution of bronze objects in the 8–7–th centuries BC.

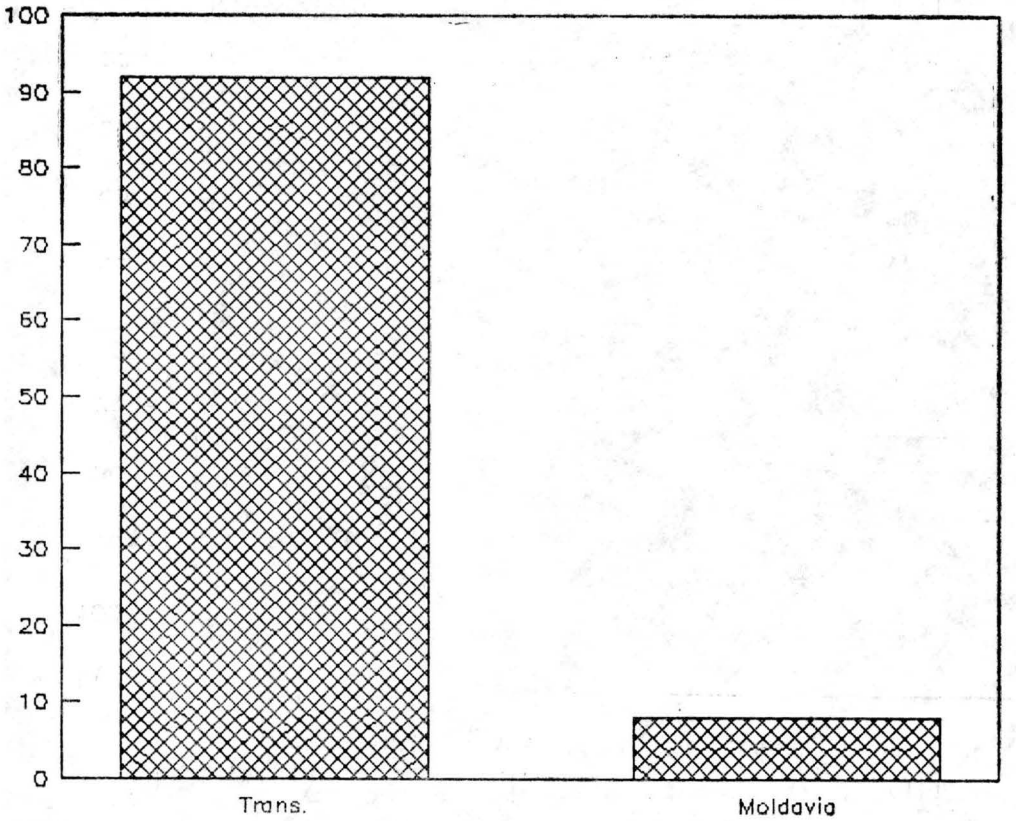


Table no. 7. % of bronze object types

from the 13th to 5th centuries BC

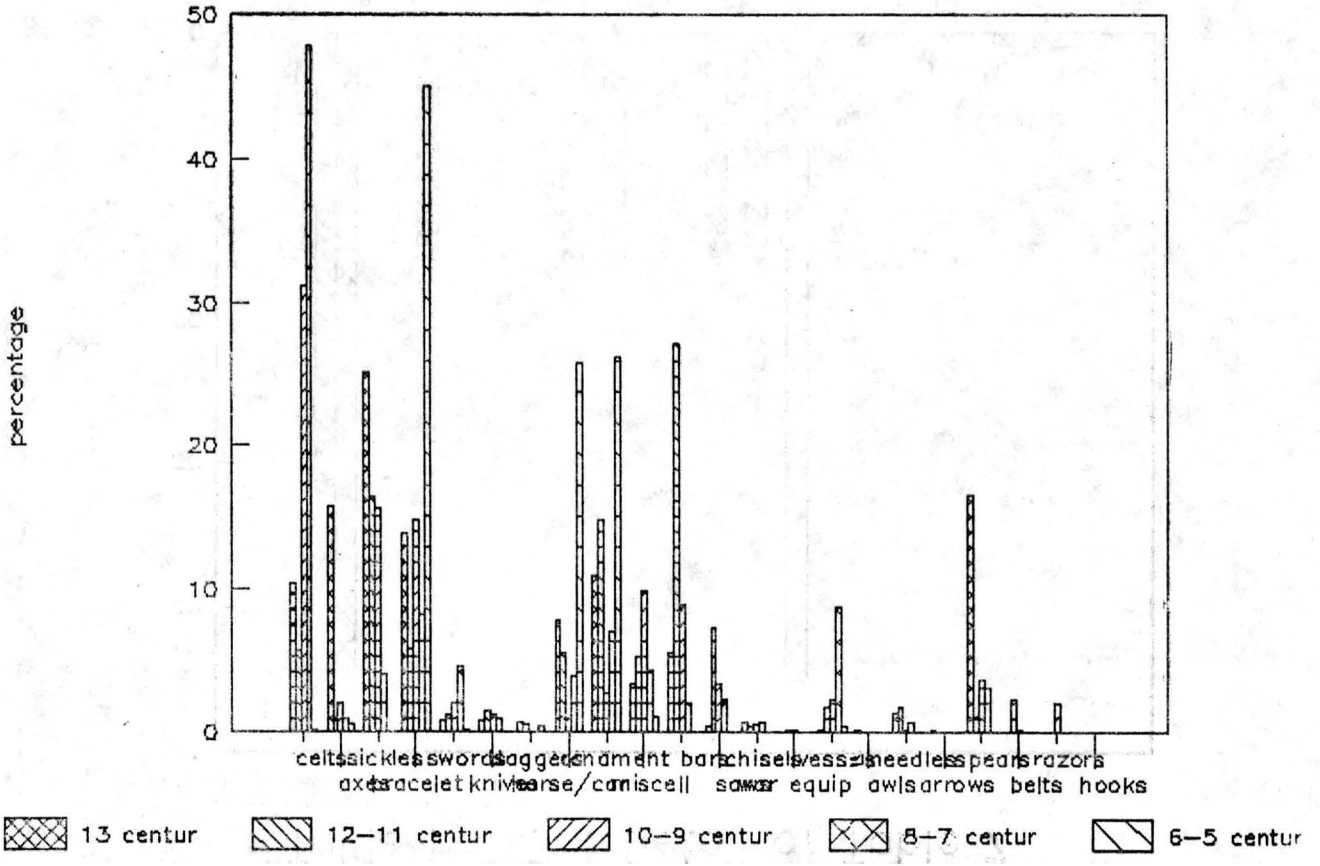


Table no. 7a. Detail of Table 7

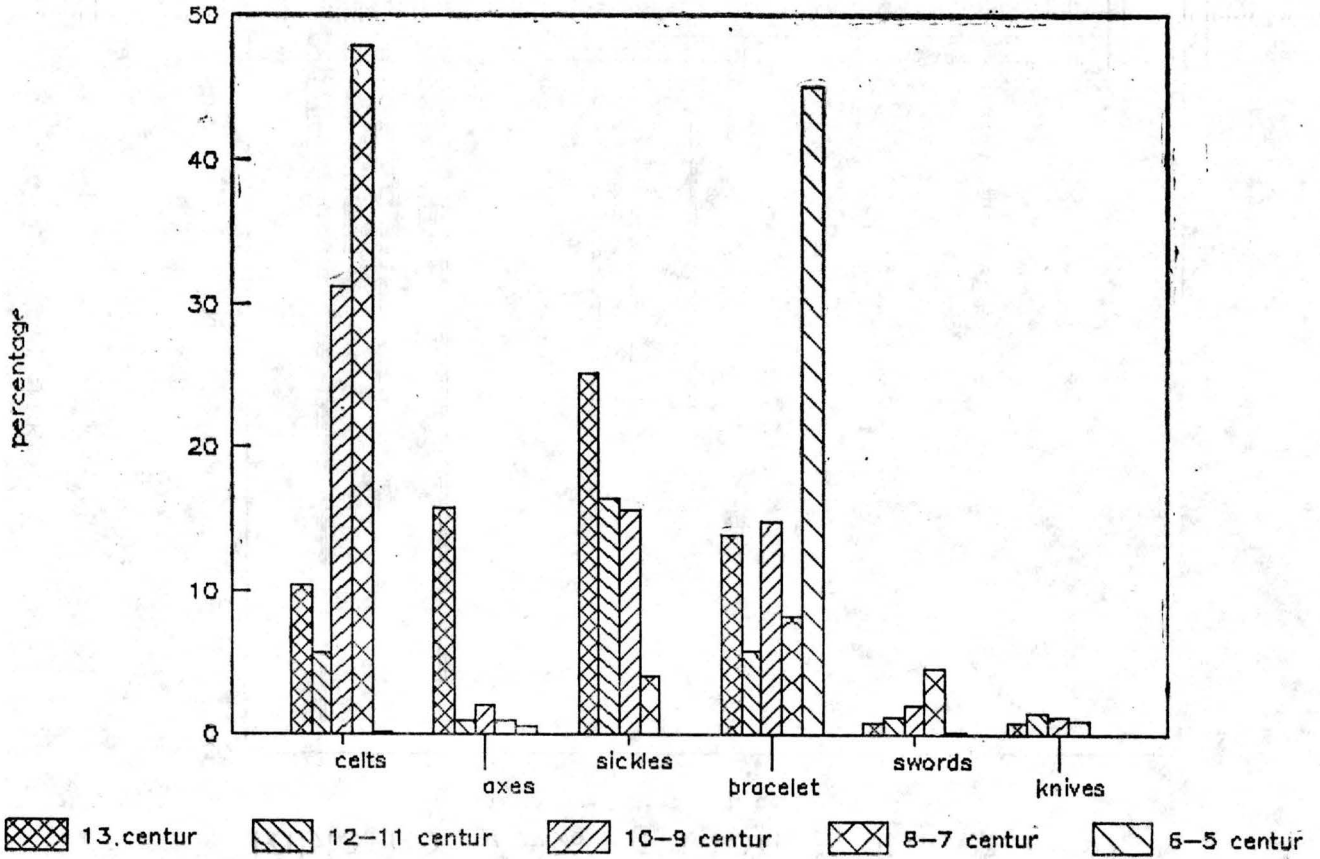


Table no. 7b. Detail of Table 7.

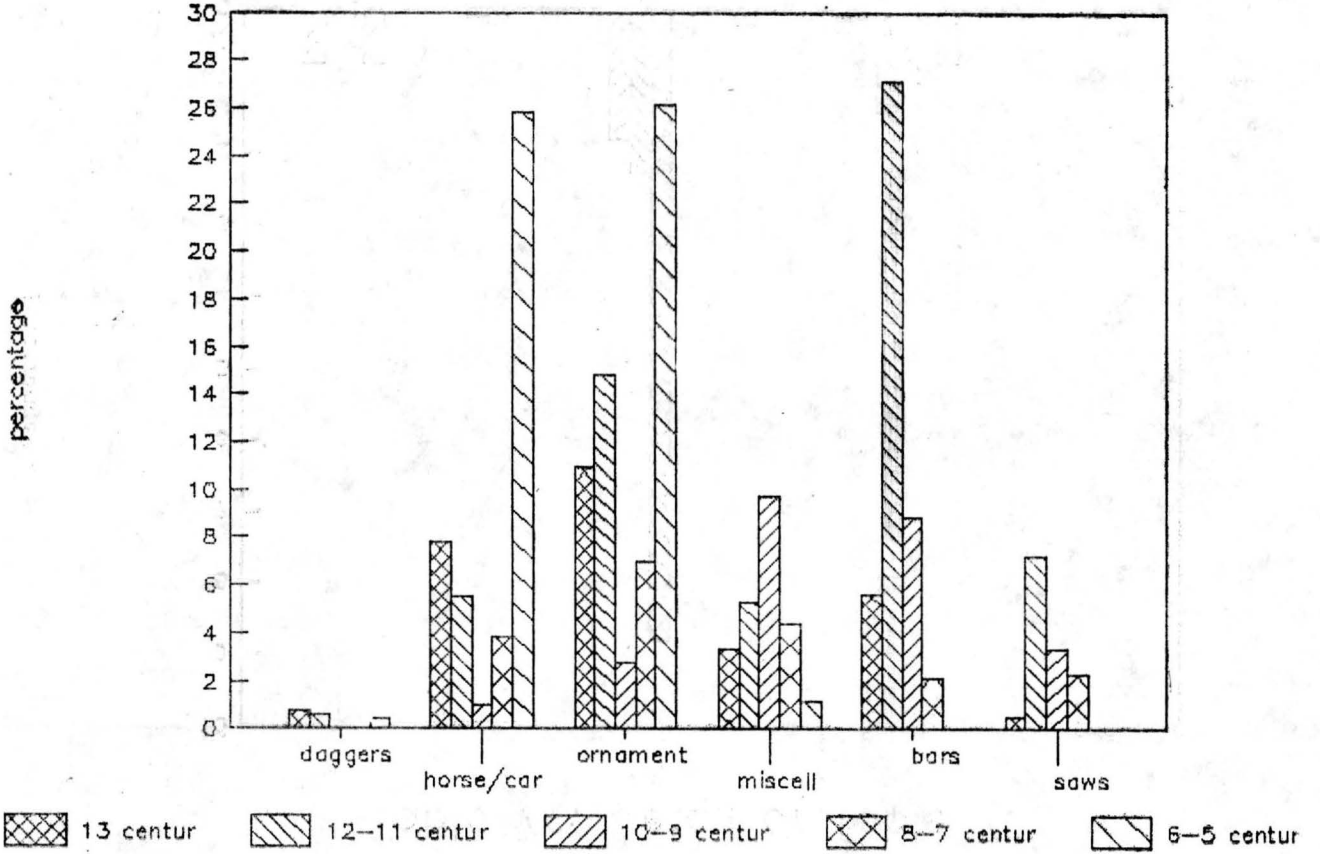


Table 7c. Detail of Table 7.

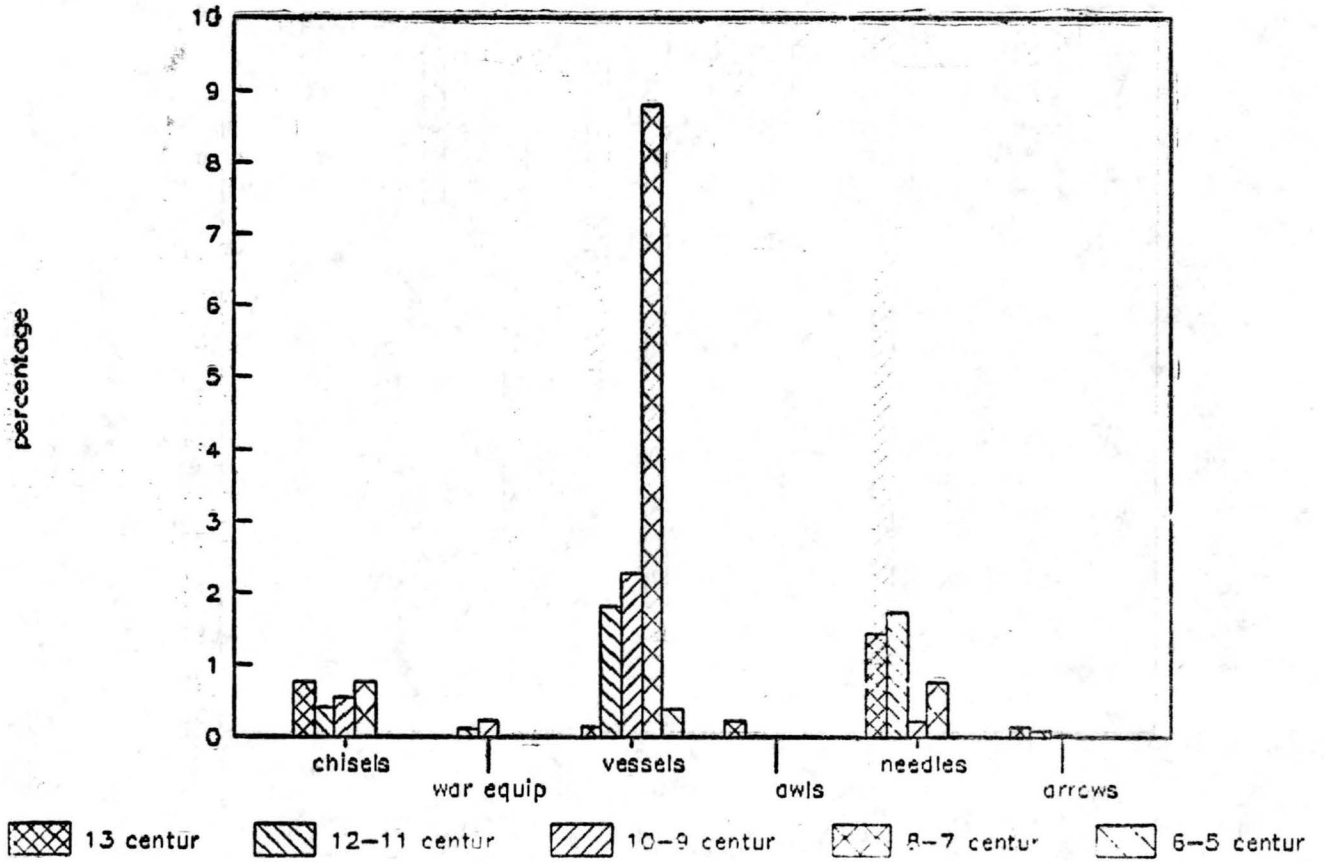


Table no. 7d. Detail of Table 7.

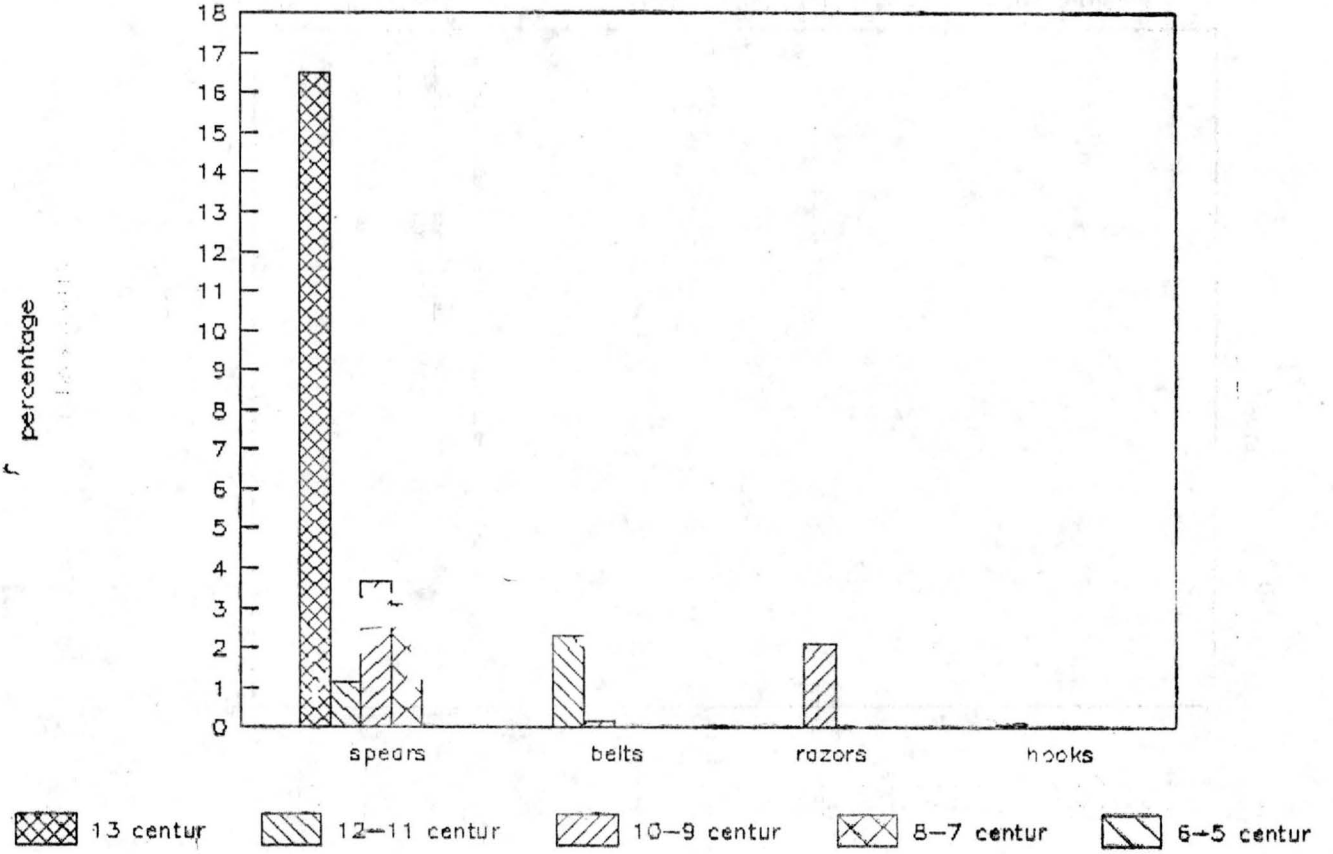


Table no. 8. Number of bronze object types from the 13th to 5th centuries BC

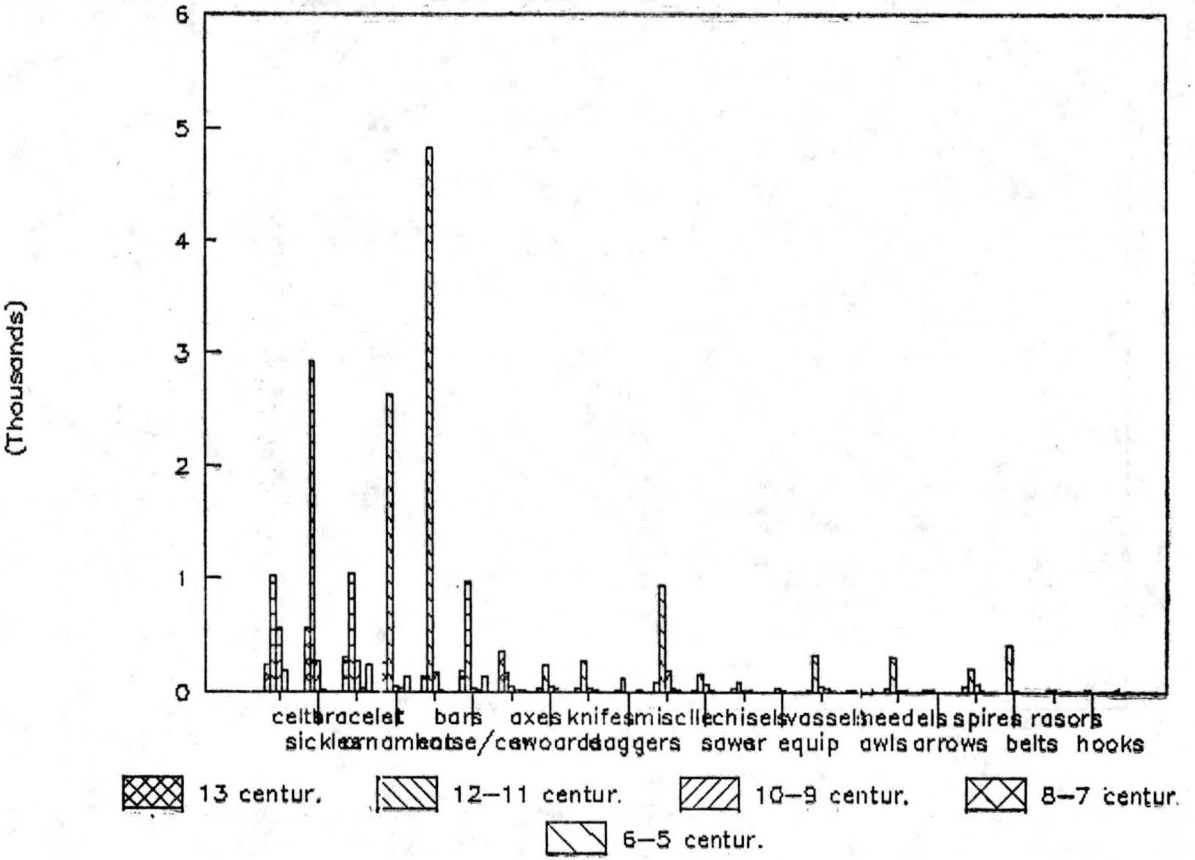


Table no. 8a. Detail of Table 8.

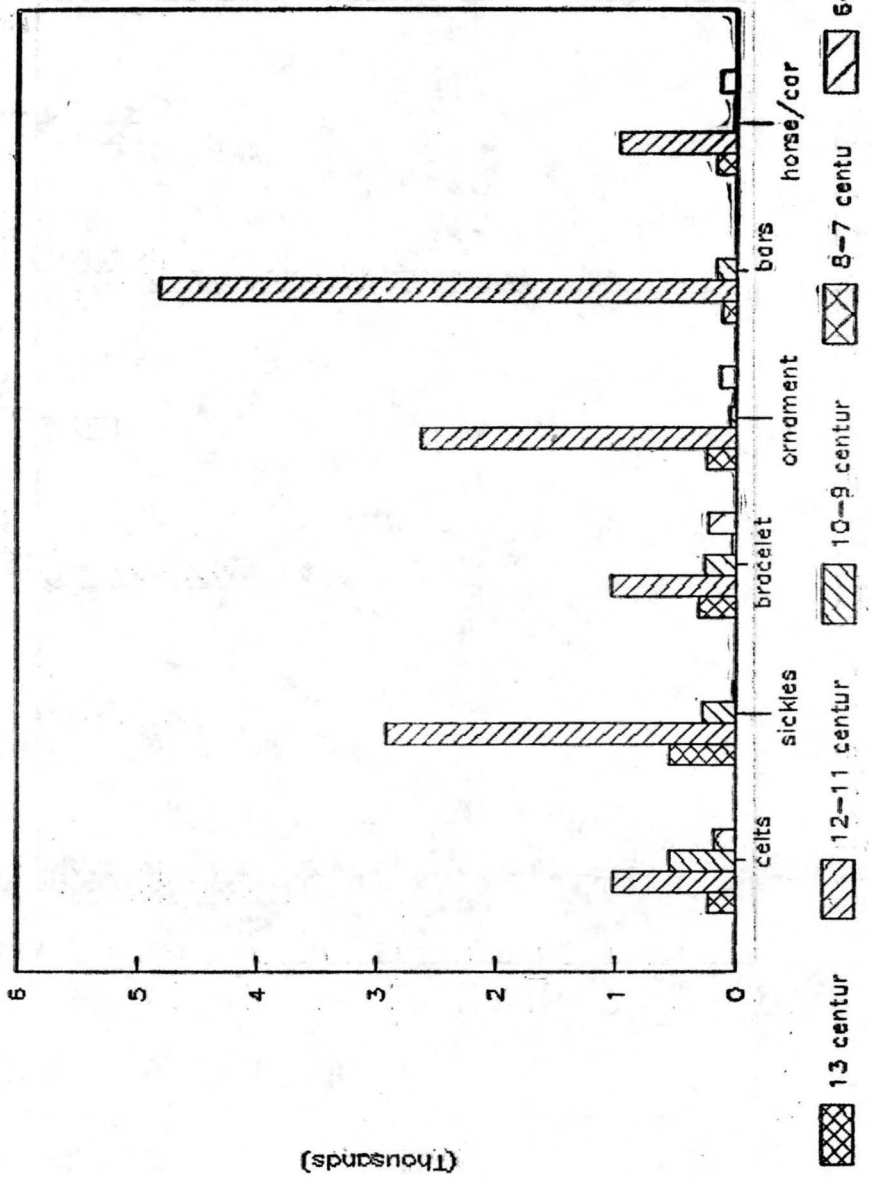


Table no. 8b. Detail of Table 8.

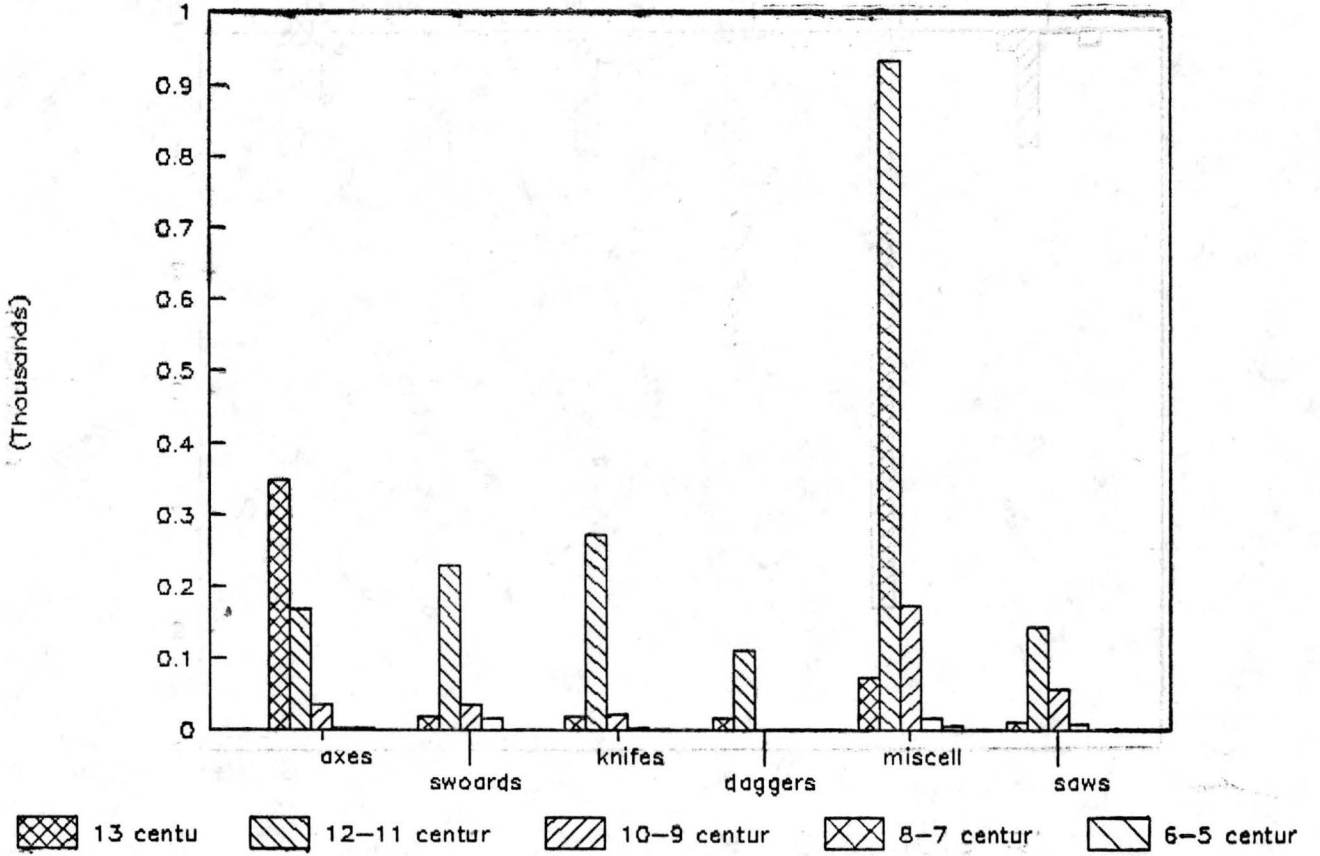


Table no. 8c. Detail of Table 8.

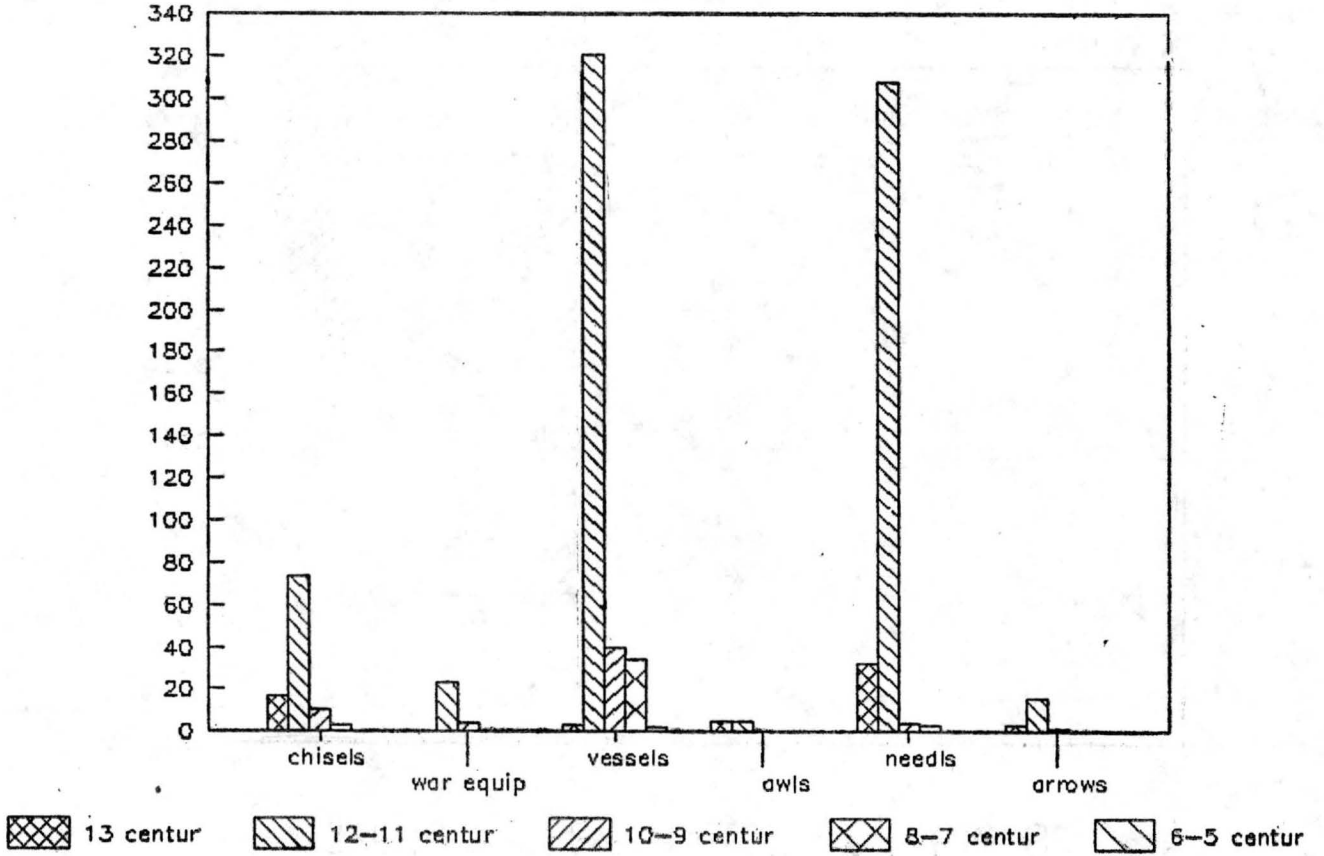


Table no. 8d. Detail of table 8.

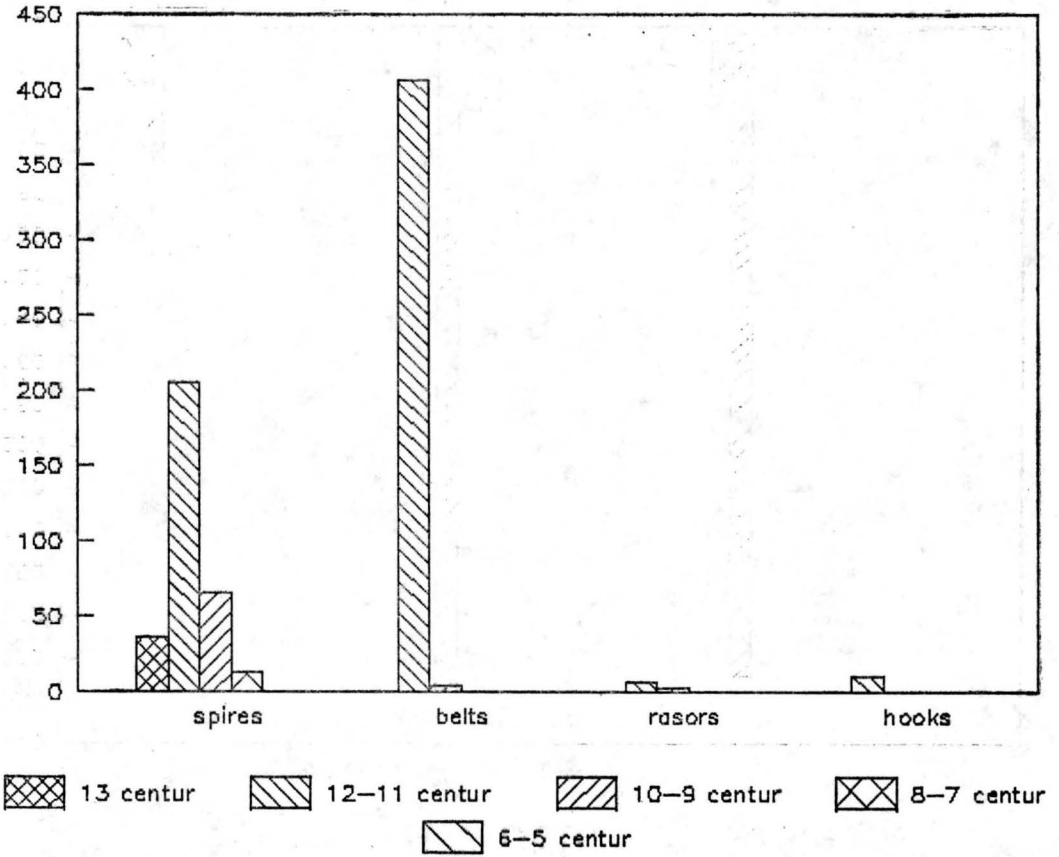


Table no. 9. Distribution of bronze

objects per centuries.

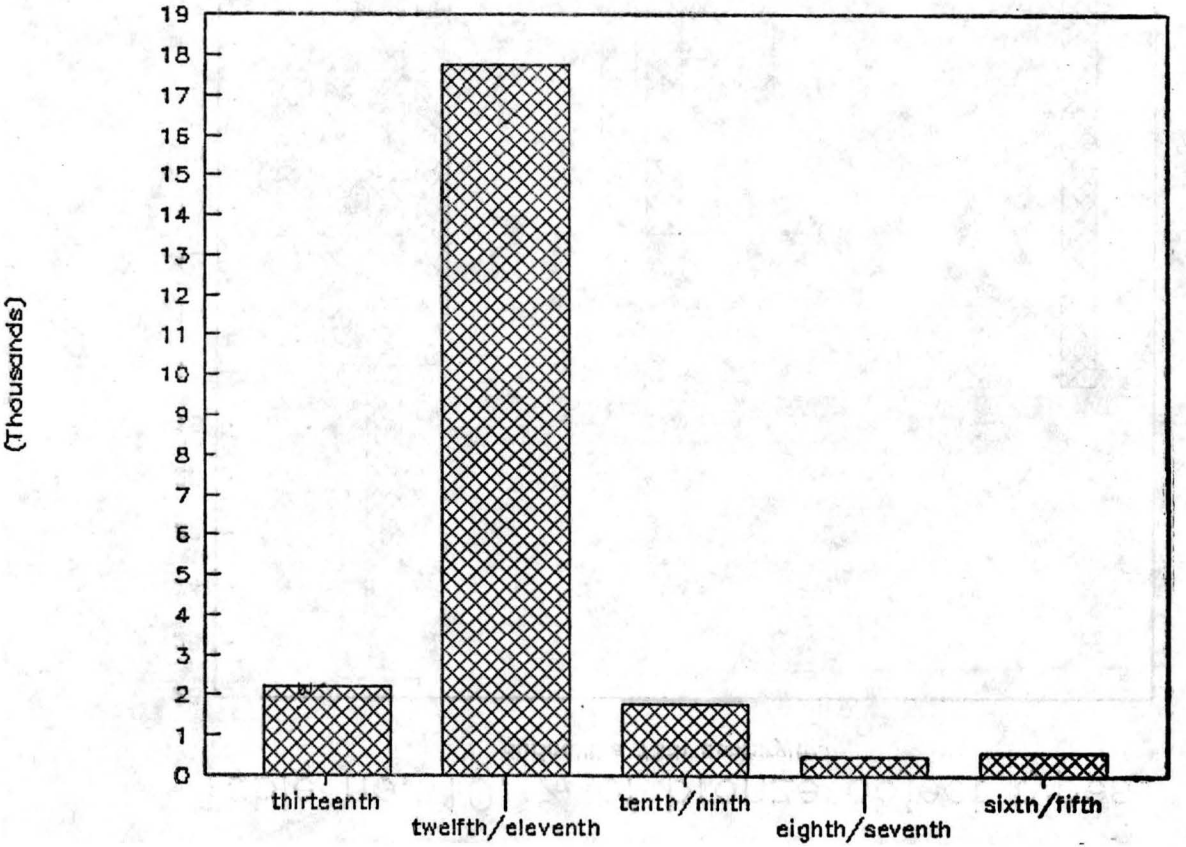


Table no. 10. % of bronze object types

during the 13th century BC

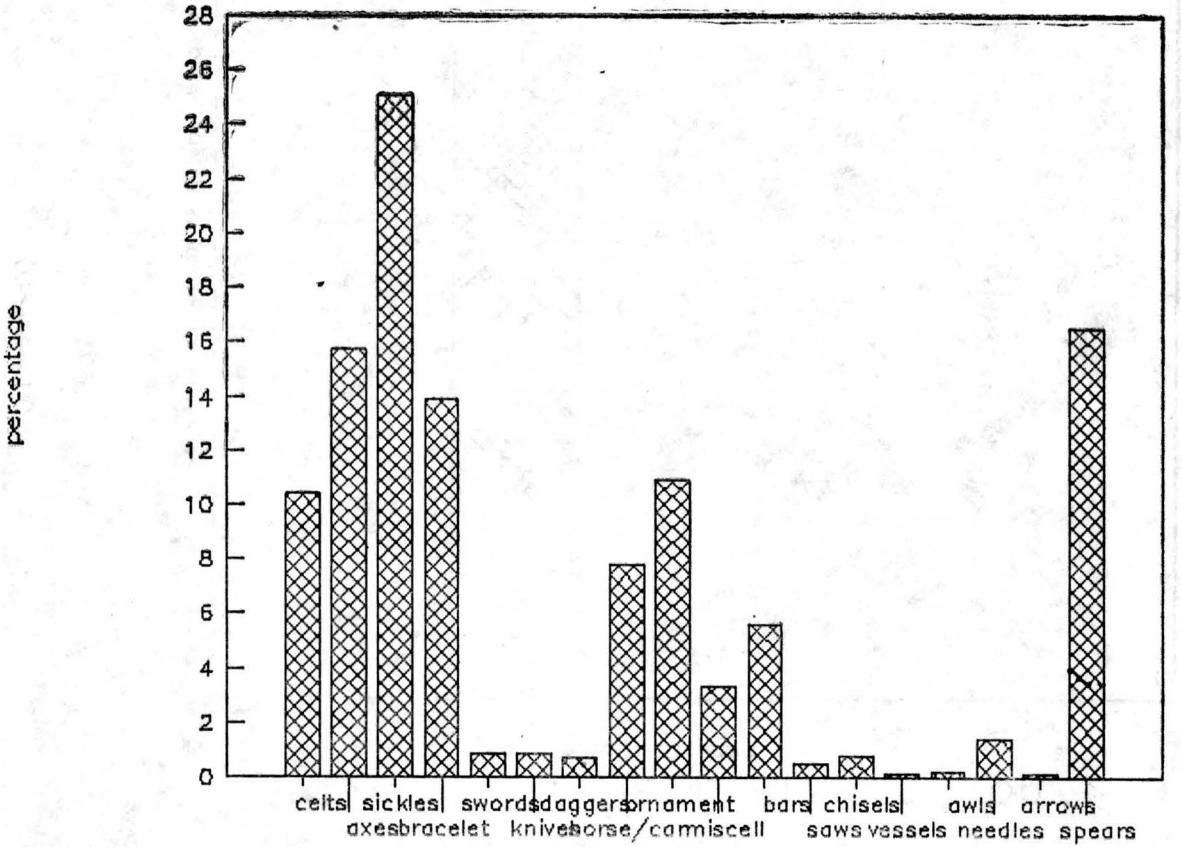
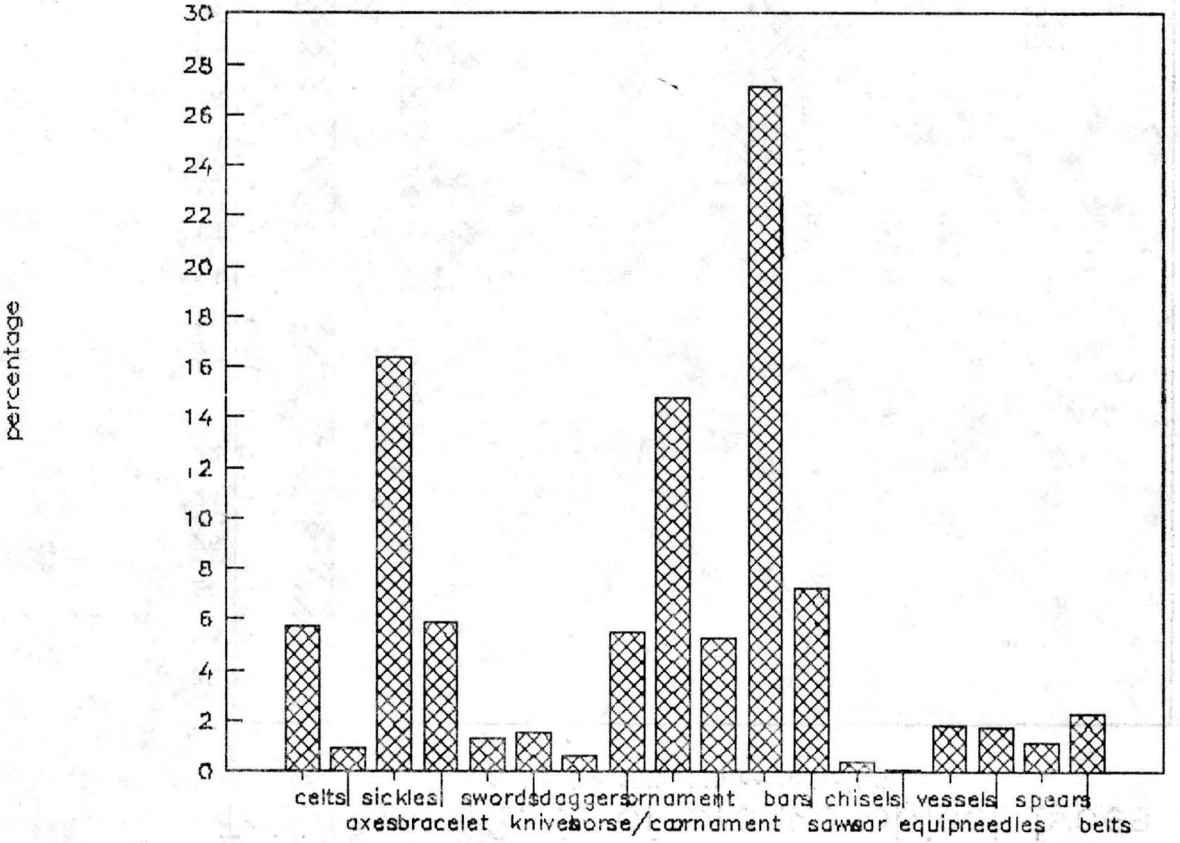


Table no. 11. % of bronze object types

during the 12th–11th centuries BC.



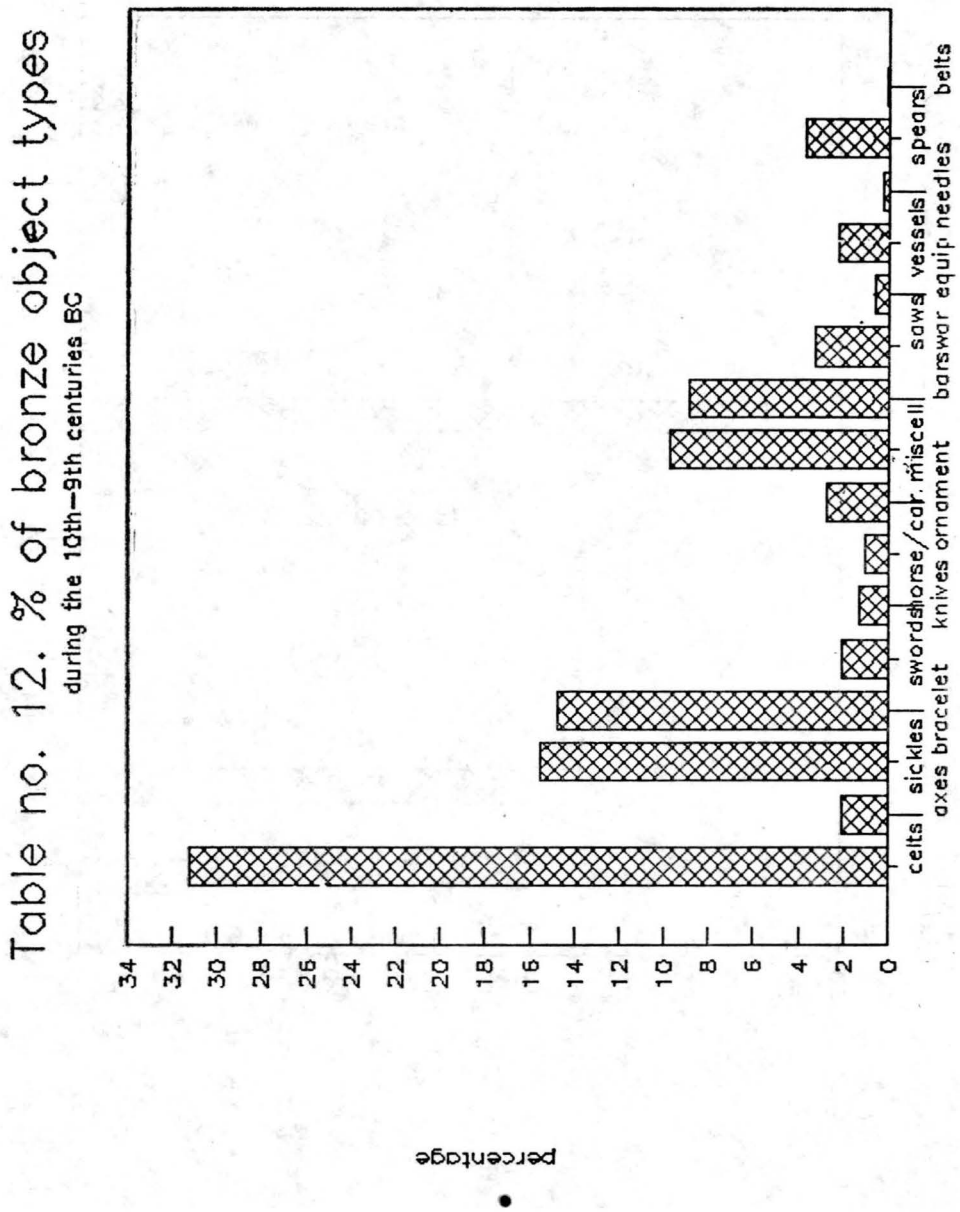


Table no. 12. % of bronze object types
during the 10th–9th centuries BC
percentage
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
celts
sickles
swords
horse/car.
misceII
saws
vessels
spears
axes
bracelet
knives
ornament
barswor
equip
needles
belts

Table no. 13. % of bronze object types

during the 8th–7th centuries BC.

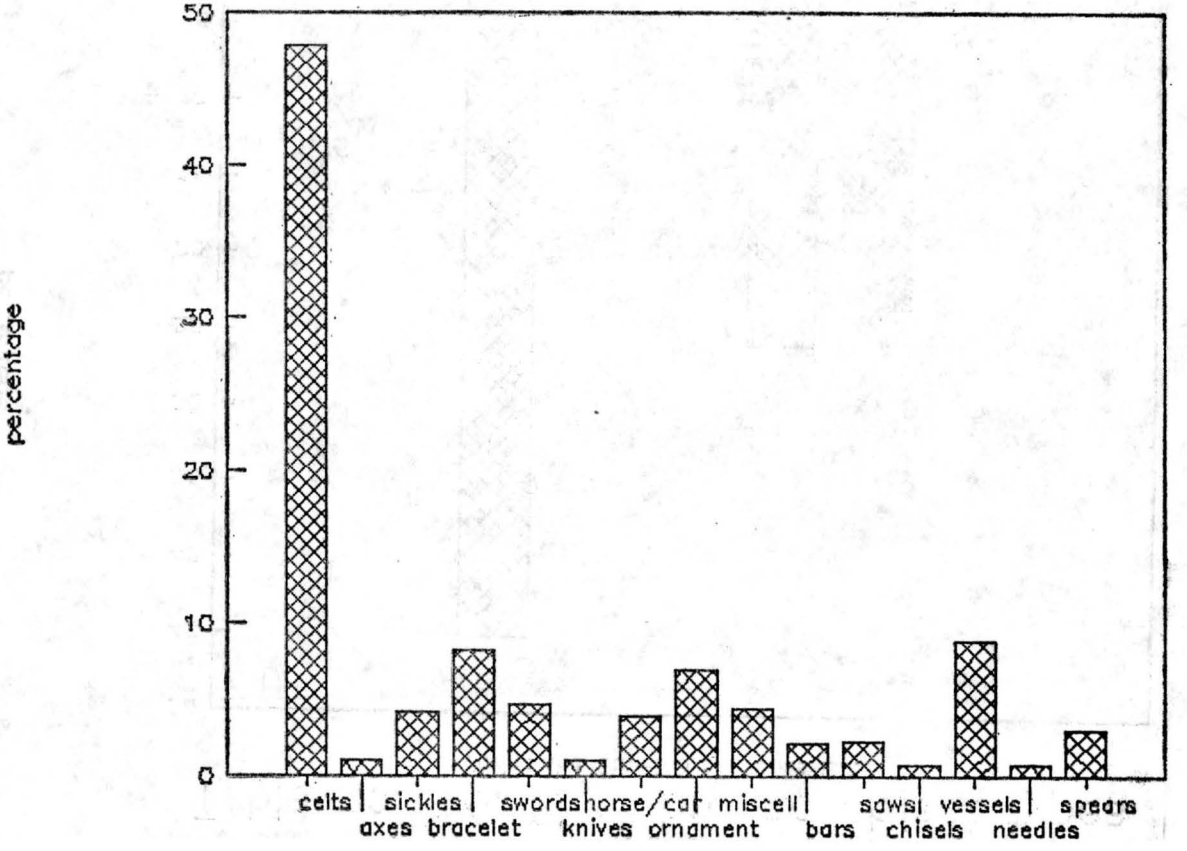


Table no. 14. % of bronze object types

during the 6th–5th centuries BC.

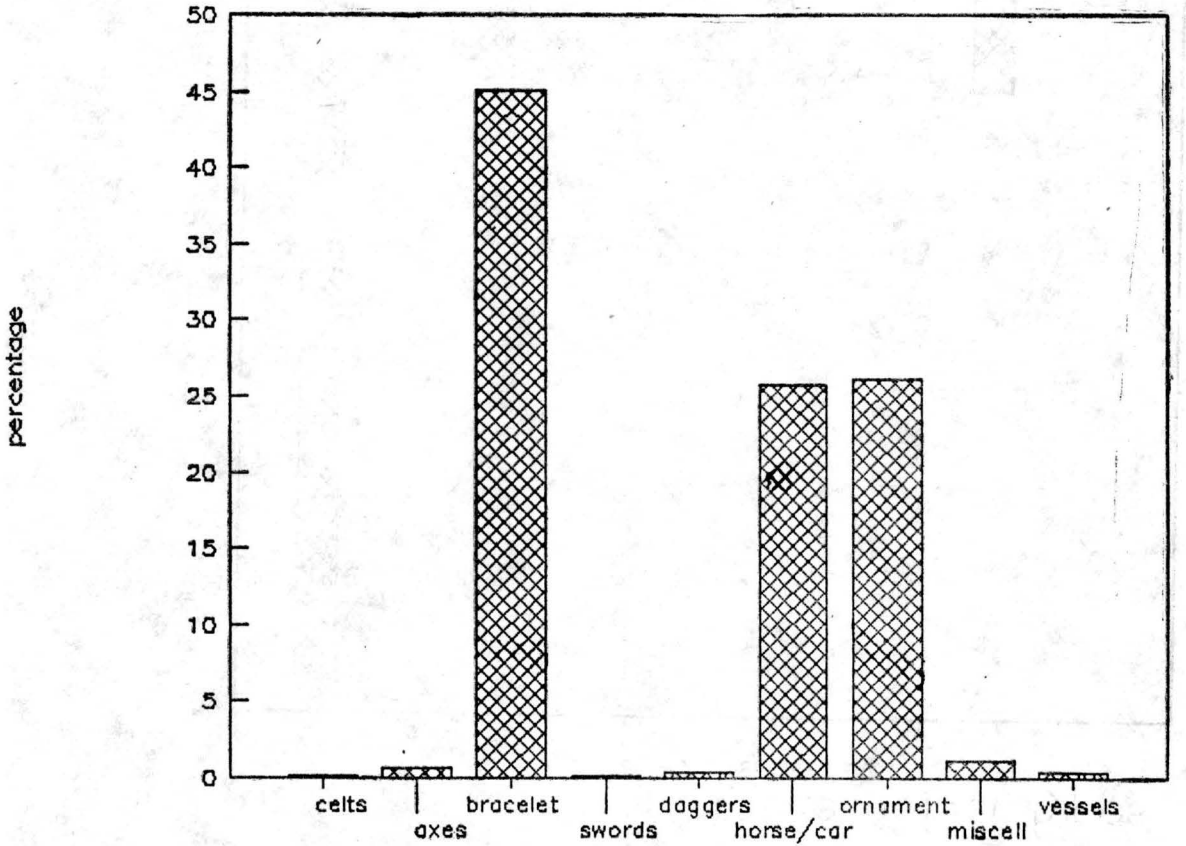


Table no. 15. Temporal distribution of bronze object categories (13–5th BC).

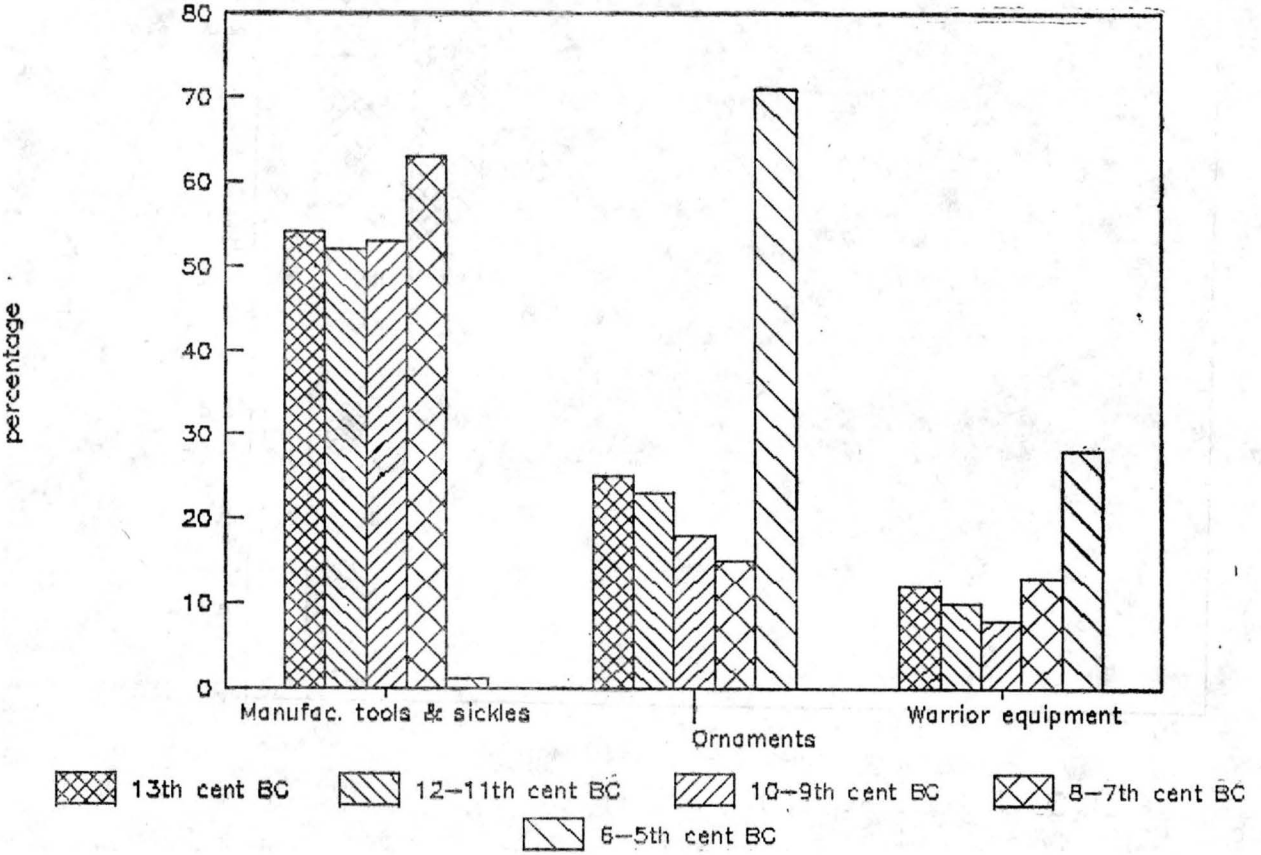
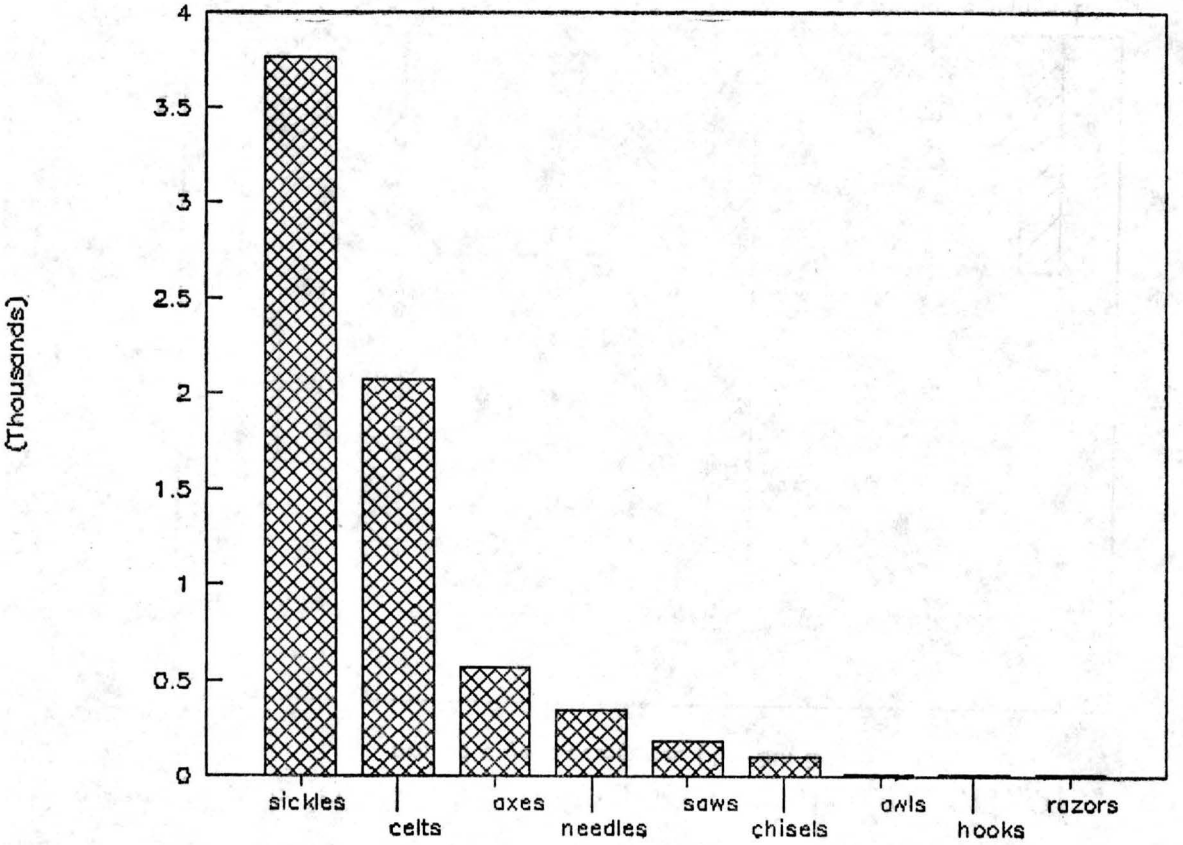


Table no. 16. Total number of bronze tool types (13–5th century BC).



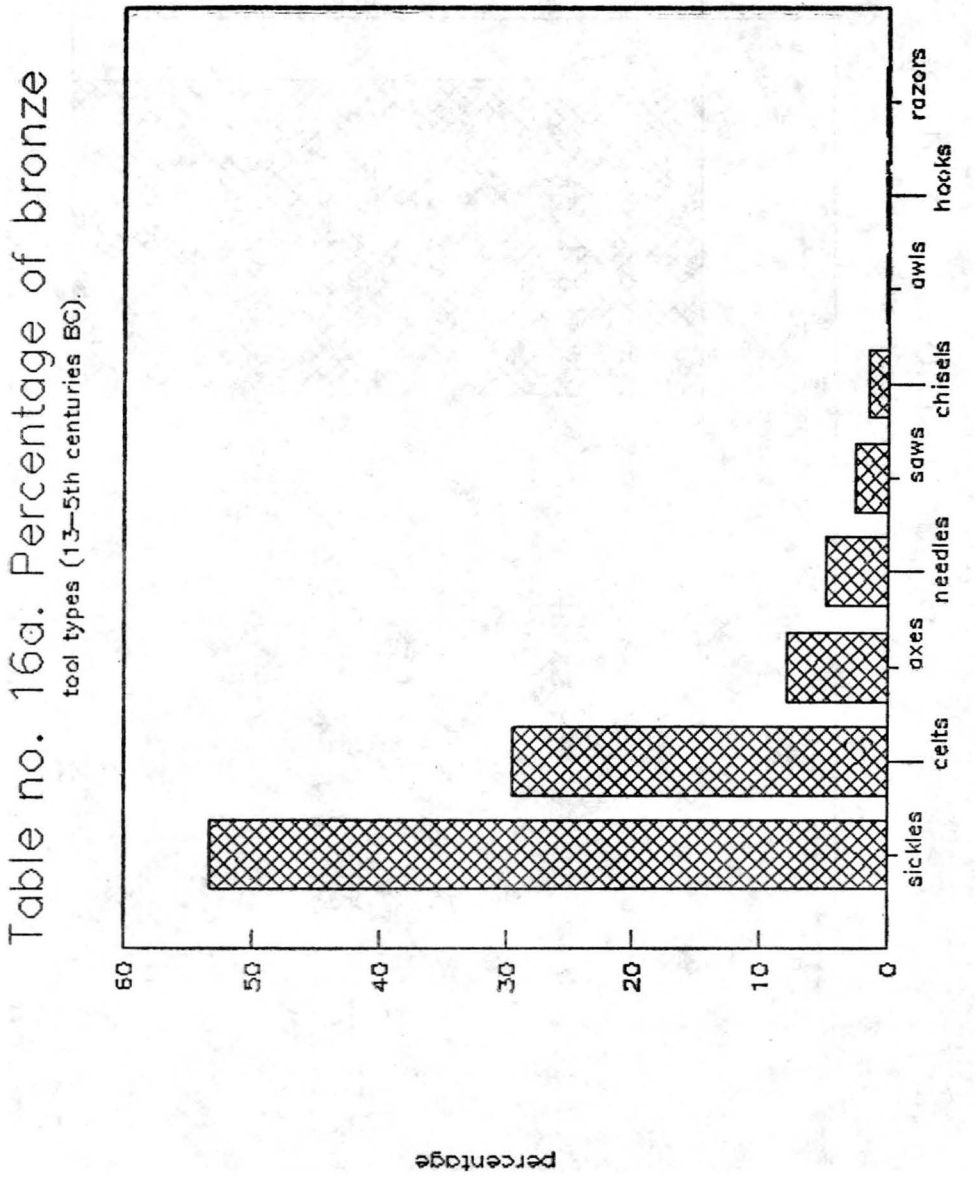


Table no. 16a. Percentage of bronze
tool types (13–5th centuries BC).
percentage
60
50
40
30
20
10
0
sickles
celts
axes
needles
saws
chisels
awls
hooks
razors

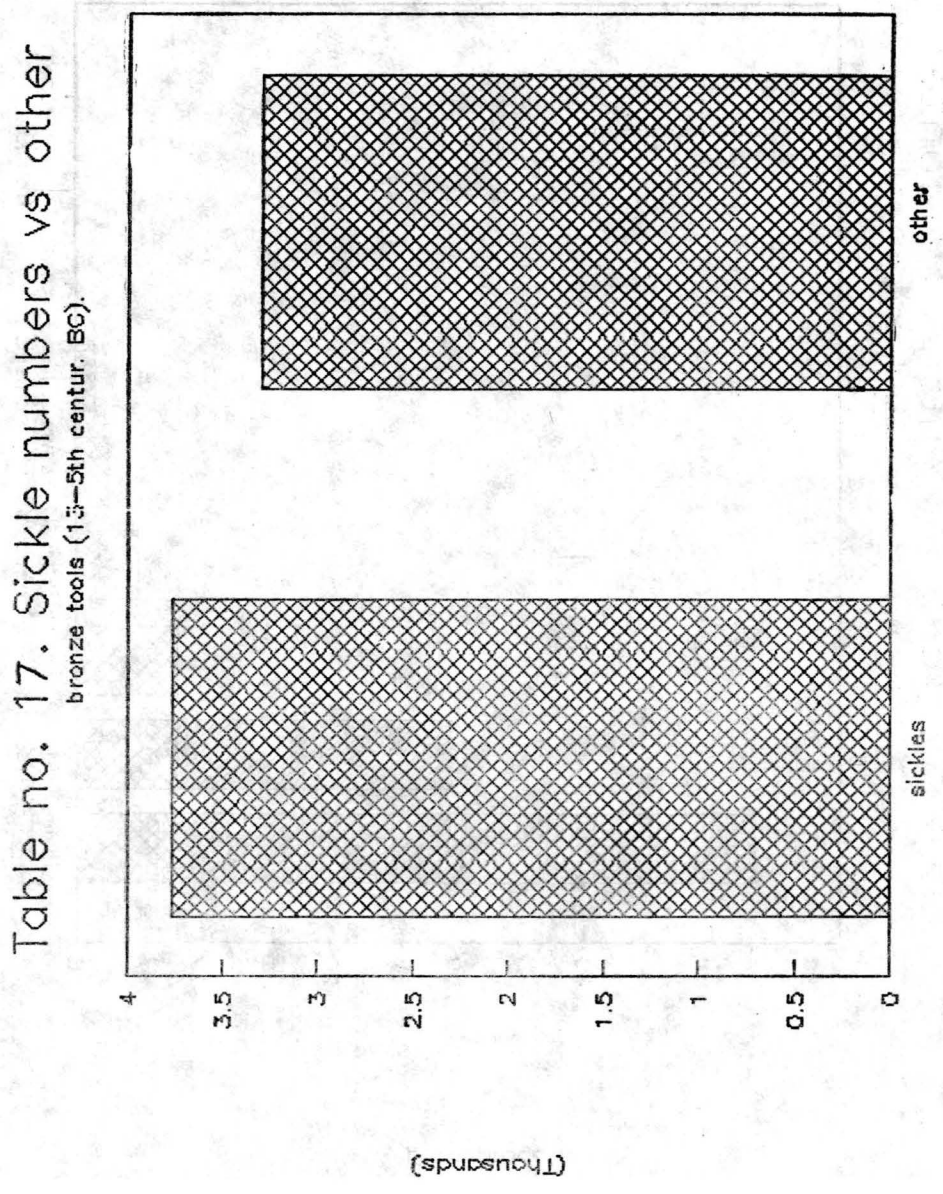


Table no. 17. Sickle numbers vs other
bronze tools (1.3—5th centur. BC).
(Thousands)
4
3.5
3
2.5
2
1.5
1
0.5
0
sickles
other

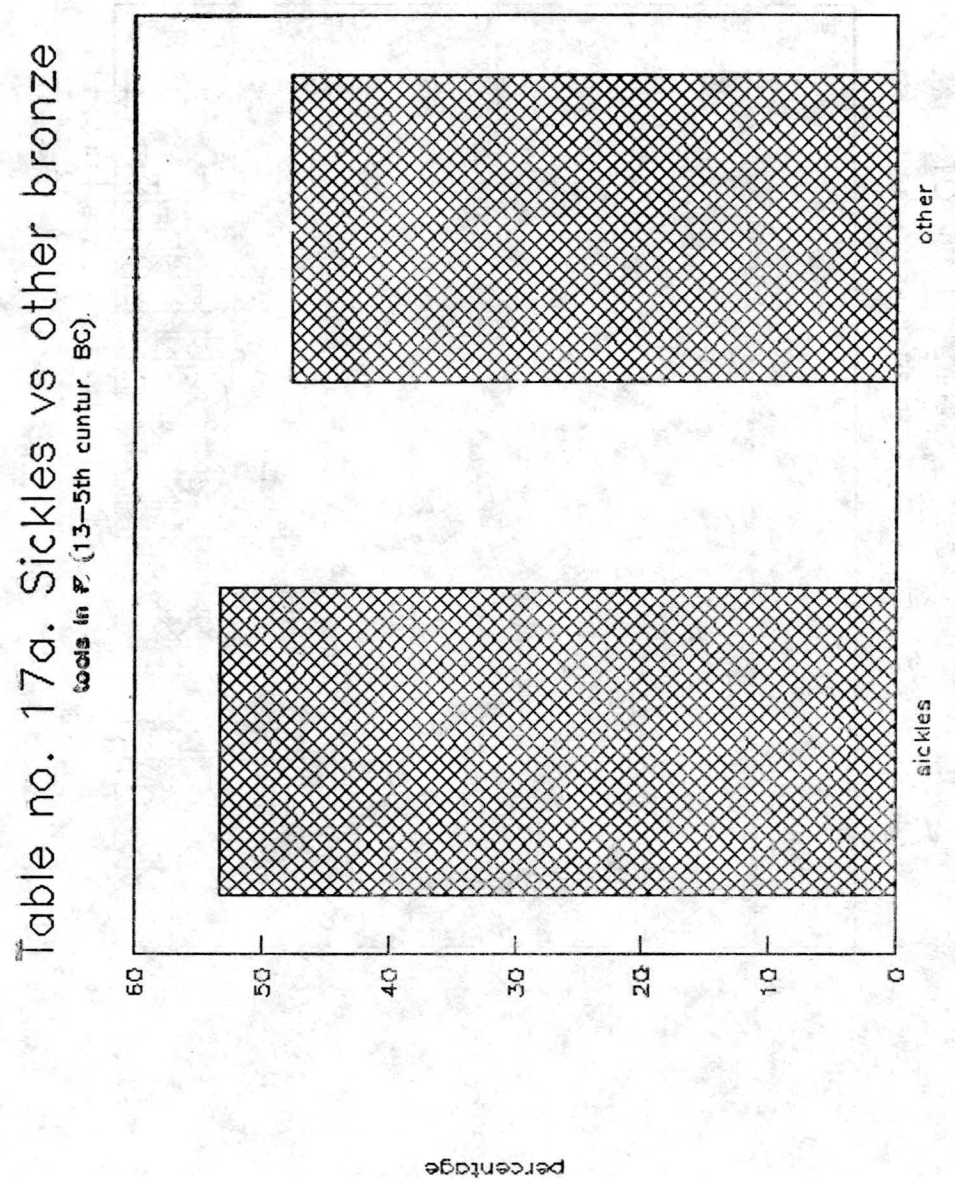


Table no. 17a. Sickles vs other bronze
tools in % (13–5th cuntur BC).
percentage
60
50
40
30
20
10
0
sickles
other

Table no. 18. Distribution of grave goods at Ferigele

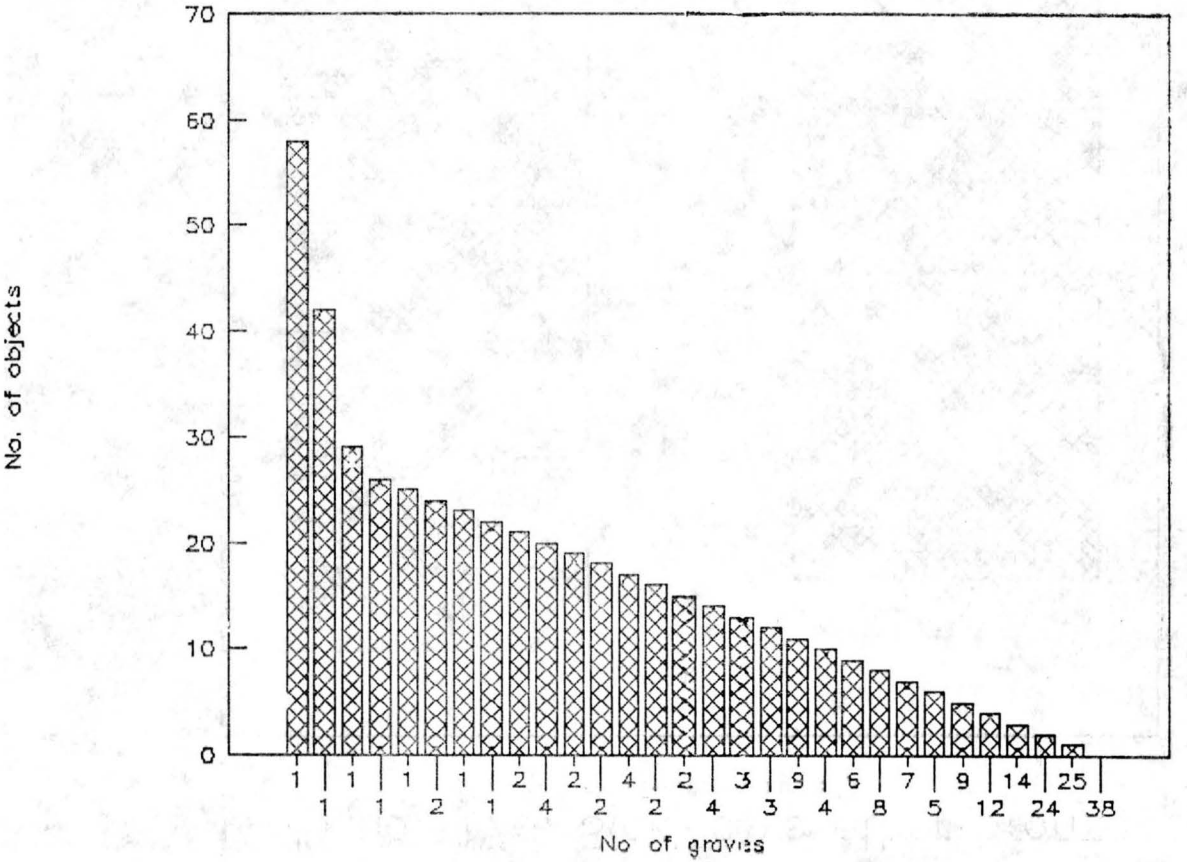


Table no. 19. Distribution of vessels at ferigele

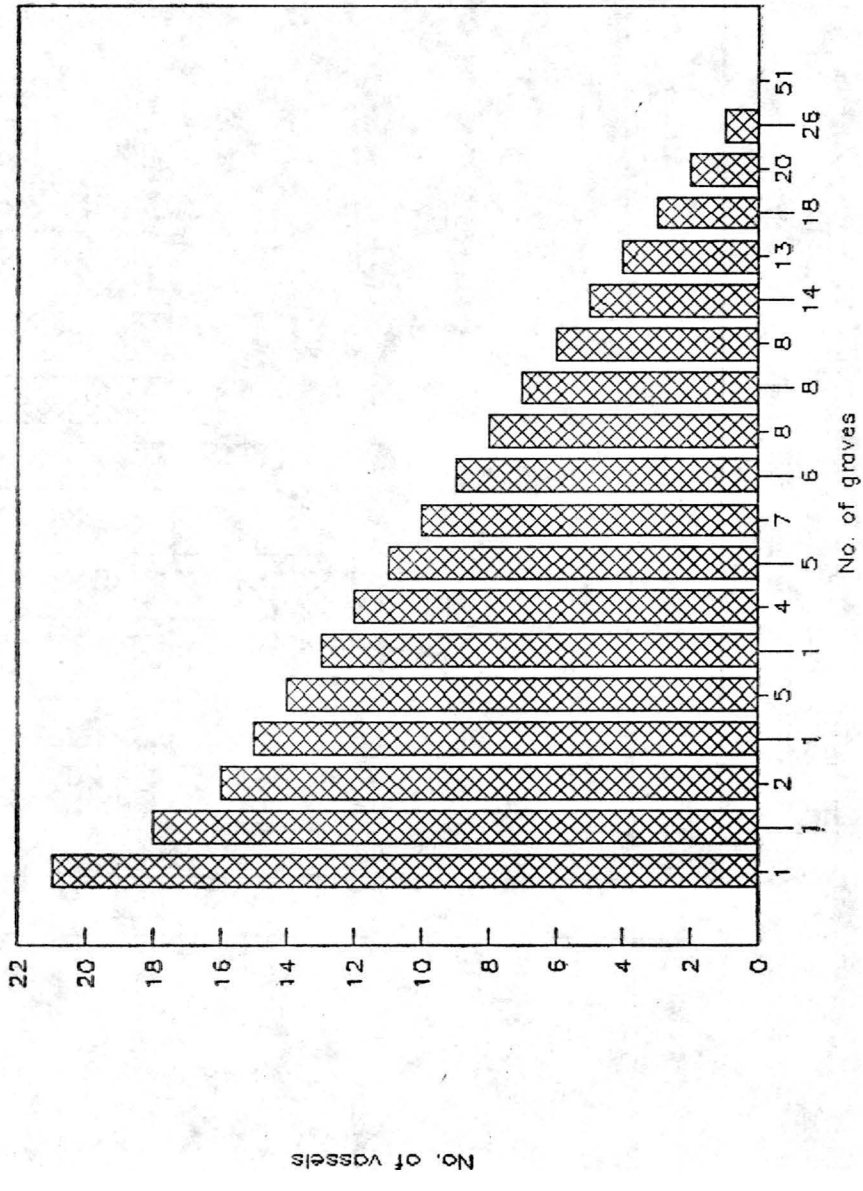
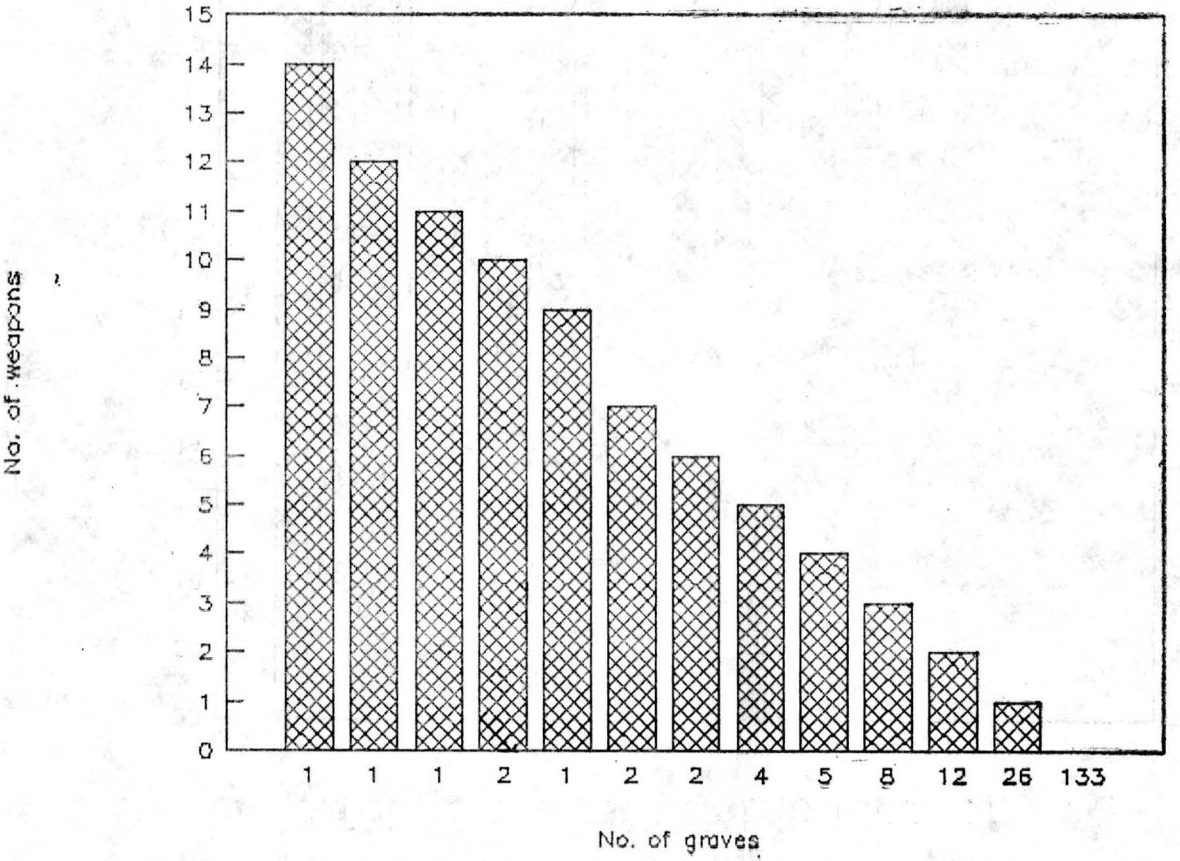


Table no. 20. Distribution of weapons at Ferigele



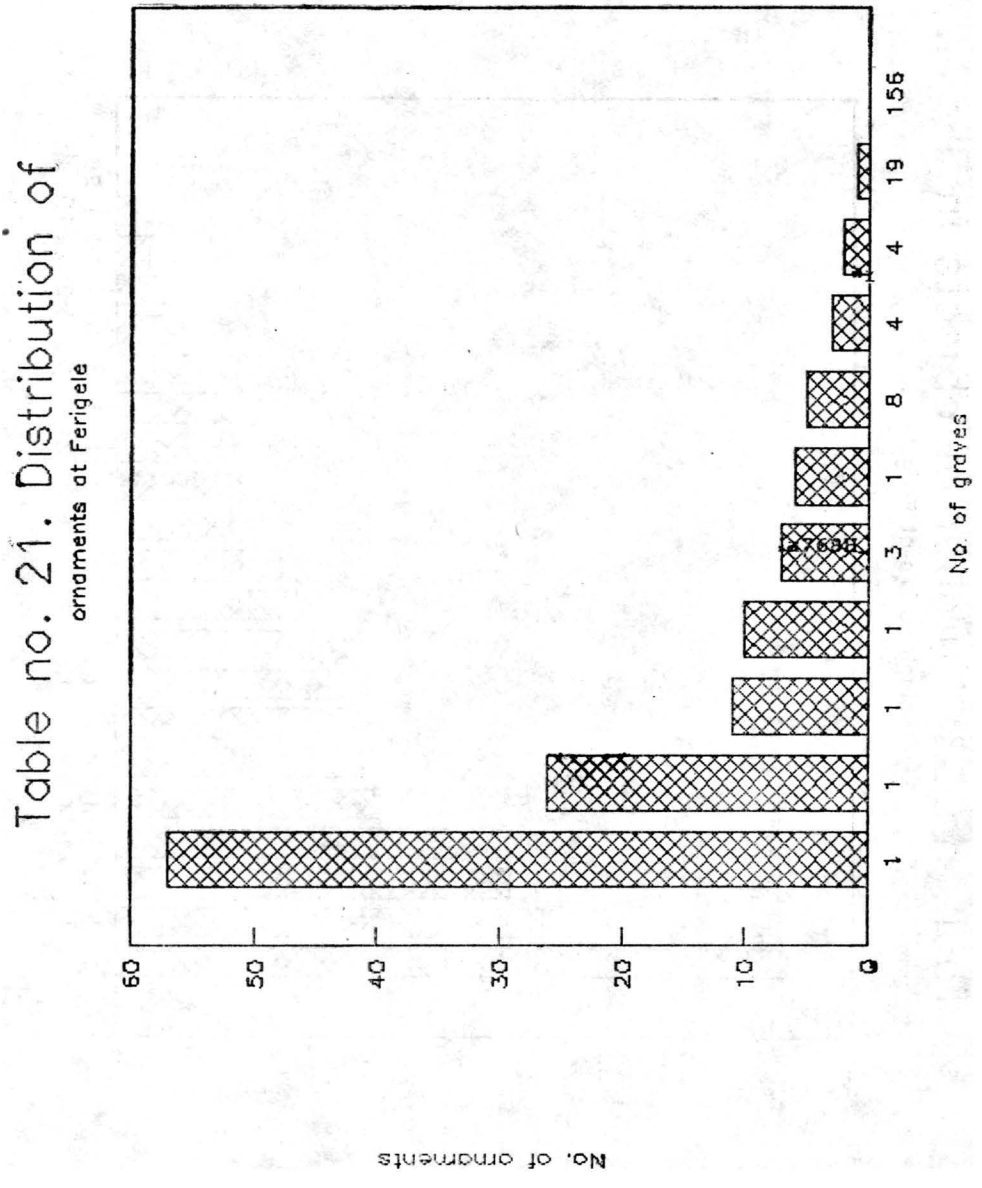


Table no. 21. Distribution of
ornaments at Ferigele
No. of ornaments
60
50
40
30
20
10
0
1 1 1 1 3 1 8 4 4 19 156
No. of graves

Table no.22. Number of objects in

cenotaph burials at Ferigele.

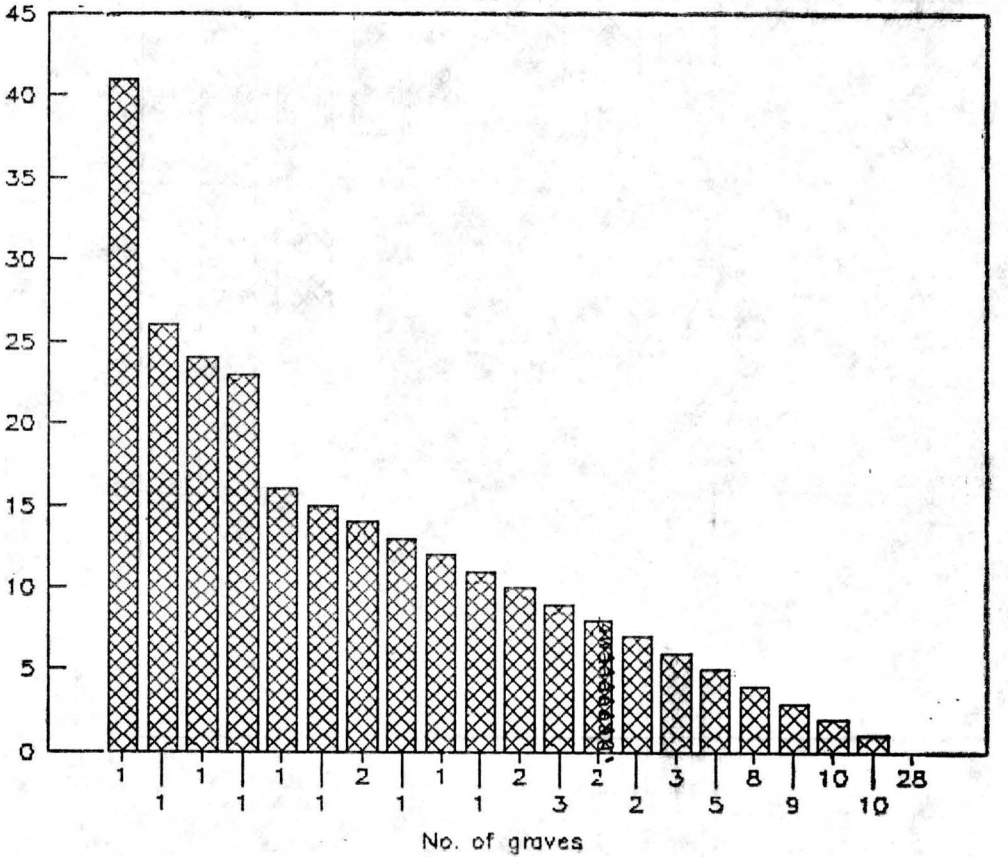


Table no. 23. Number of objects in children's graves at Ferigele.

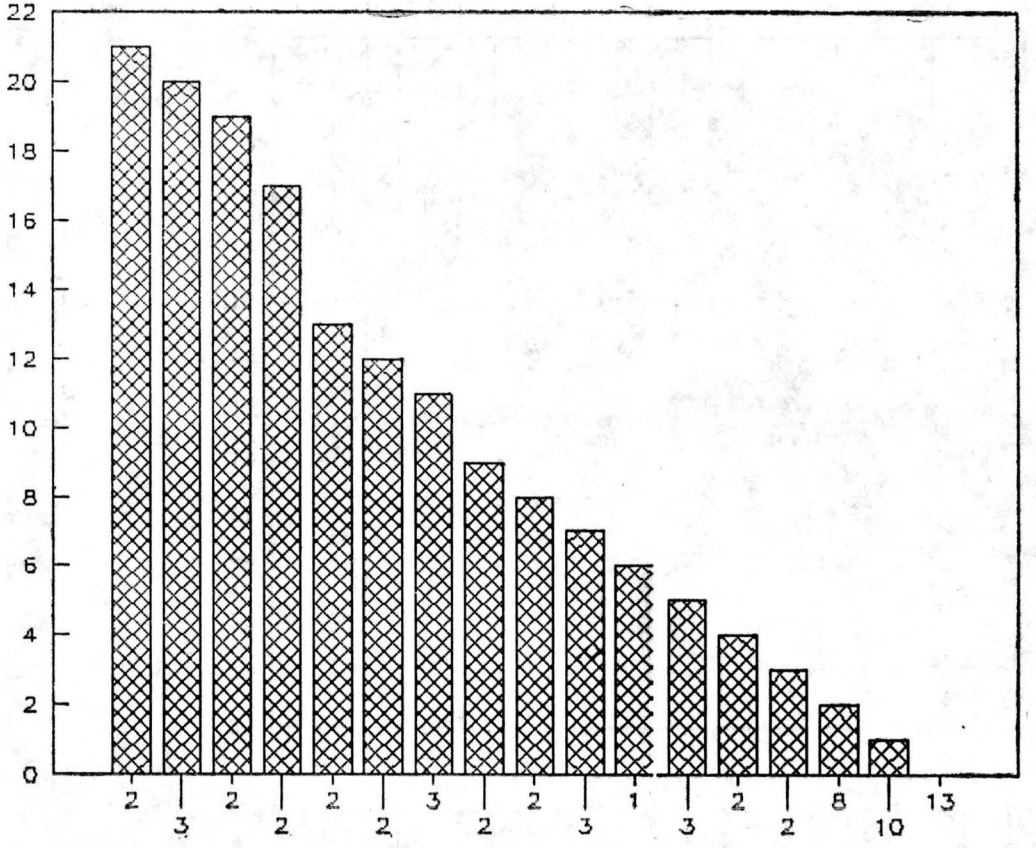


Table no. 24. Goods distribution in male vs. female graves at Ferigele

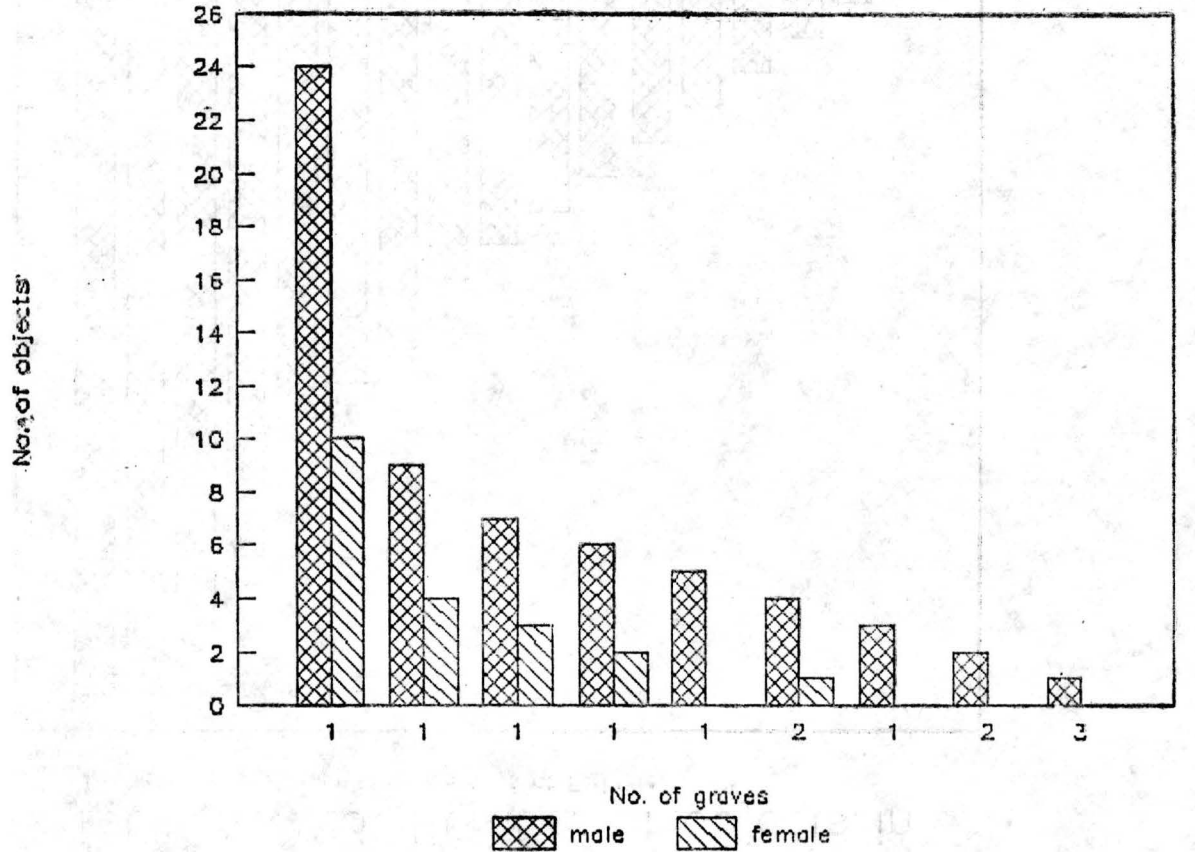


Table no. 25. Burials with goods vs. no goods grave at Gogosu.

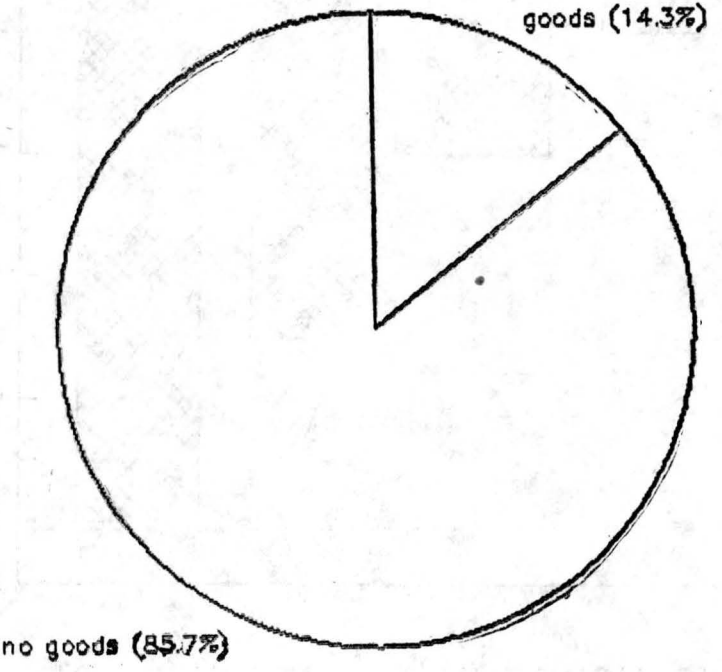


Table no. 26. Distribution of grave goods at Gogosu.