Chapter 3

Southern Levant in the Chalcolithic and the Early Bronze Age I

1. Chalcolithic period (4500-3650 BC)

In the Chalcolithic, Southern Levant saw a number of important changes over the preceding Neolithic, such as rapid population growth, emergence of specialized craftsmen, introduction of metallurgy, advent of public sanctuaries and burial grounds, and appearance of settlement centers where social, economic and religious activities were coordinated (Levy 1992b: 65-82; 1995: 226).

In the area of Canaan archeologists identified several regional cultures or cultural complexes, typical for the Chalcolithic (Fig. 2). The best known (and best investigated) ones include: the Ghassulian culture in the Dead Sea area, the northern Negev and territories located west of the Mediterranean; and the Beersheba culture in the northern Negev. Due to major similarities, both cultures are commonly seen as a single cultural complex. Although their origins have not been fully explained yet, it is generally accepted that Chalcolithic cultures were founded on late Neolithic cultures, including *inter alia* the poorly defined Qatafian and Besorian cultures (the latter was identified in the northern Negev) (Goren 1990; Levy 1995: 229). However, in the opinion of I. Gilead (2007: 45-46, tab. 3) the Qatafian should be regarded as a Late Neolithic culture, since both culturally and chronologically it is too distant from the Ghassulian. Moreover, according to the same researcher the Besorian can be treated as a transitional late Neolithic to Chalcolithic entity, and a precursor of the Ghassulian. An alternative view is presented by S.J. Bourke (2007: 29), who is of the opinion that both the Ghassulian and the Besorian culture most probably originated from the still little understood Late Neolithic cultures of the North Jordan Valley. This view is based on the similarities in economic strategies as well as in pottery and flint inventories. Apart from Ghassulian and Beersheba cultures other, less explored Chalcolithic cultural complexes were identified in the area of the Jezreel (Megiddo, Hazor, Tell Shimron), in the highlands of Samaria (Tell el-Fara North), the Jordan Valley (Beth Shan) and on the Golan Heights (Joffe 1993: 33-35). Towards the end of the Chalcolithic the youngest Chalcolithic group appeared in the Judean Desert in Southern Levant.

Chalcolithic populations subsisted on agriculture and animals breeding. One of the novelties of the period is the domestication of fruit trees: olive, pomegranate, date palm and fig. Most probably, also flax was an important crop of this period (Gonen 1992: 61;

Grigson 1995: 250). T. Levy (1992b: 65-82; 1995: 232) also attributes pastoralism to Chalcolithic communities, particularly those inhabiting the Beersheba Valley, where sheep and goat bones prevail in most sites (*e.g.* in Shiqmim – 90%). According to T. Levy (1995: 232) „this developed form of pastoralism involved the use of specialised population, namely herders, who took village animals on an annual cycle in search of seasonally available pasture". Apart from animal breeding, Chalcolithic communities in the Beersheba Valley busied themselves with plant cultivation. According to O. Bar-Yosef and A. Khazanov (1992: 1-9), the presence of agriculture in the Chalcolithic pastoralism offered greater stability to the population, making it less dependent on external sources of supply. C. Grigson (1995: 264) coined the term "agro-pastoralism" to describe this subsistence system, consisting of less integrated plant cultivation, animal keeping and partial seasonal transhumance. According to her, the compound term more adequately reflects the system's complexity.

Chalcolithic economy triggered the formation of a settlement system featuring large principal settlements with satellite campsites. Such centralized settlements were established mostly in valleys, alongside water reservoirs in semi-arid and steppe areas (Elliott 1978: 38; Levy 1992b: 65-82).

One of the most important sites from the period is Teleilat el-Ghassul, an unfortified settlement situated on twelve small mounds. The settlement's arrangement was irregular, with rectangular or trapezoid buildings and foundations of unworked fieldstones and mudbrick walls, separated by narrow walkways. Almost all excavated houses were similar to one another in terms of structure and layout. Some of them, however, were larger than others, which implies that they may have had a public function (Gonen 1992: 49-59). In several houses, remains of colorful murals were discovered on the walls, showing geometric, anthropomorphic and zoomorphic (avian) motives. Currently, the murals are interpreted in the context of cult activities (Gonen 1992: 71-72; Bourke 2002: 160).

Other items discovered in the settlement include numerous granaries and storage pits, confirming the importance of agriculture for the settlement's economy (Aharoni 1982: 36; Maisels 1999: 120; Bourke 2002: 159). Sites with similar structures are also known from the Golan Heights, the Jordan Valley and the Beersheba region, *e.g.* at Rasm Harbush or Faza'el (Gonen 1992: 50).

Apart from major, permanent settlements, smaller seasonal settlements used by pastoralists were also common in the Chalcolithic (*e.g.* En Yahav). At the end of the annual migration season they would be abandoned and never resettled. They are characteristic for the presence of diverse traces of human activities (pottery, flint tools, hearths) and the lack of permanent structures (Gonen 1992: 49).

In the Chalcolithic people also used caves as dwellings. Some of them were used for burial purposes as well. The most famous one, known as the Cave of the Treasure, is located in Nahal Mishmar. Inside the cave, a hoard was found containing 442 different objects: 429 of copper, six of hematite, one of stone, five of hippopotamus ivory, and one of elephant

ivory. The objects in the Nahal Mishmar hoard appear to have been hurriedly collected. Therefore it has been suggested that the hoard was the sacred treasure belonging to a shrine at En Gedi, some twelve kilometers away.

The settlements in the Beersheba Valley are characteristic for pit houses dug into loess and consisting of several small oval rooms connected with one another by means of corridors (*e.g.* Shiqmim). According to T. Perrot (1984) these structures were a form of adaptation to dry climate. I. Gilead (1988) regards them as storage facilities accompanying open-air settlements. In the opinion of T. Levy (Levy *et al.* 1991) they were used not only for storage, but also for defense purposes. In the younger stages of the Beersheba culture the tradition of digging pit houses was discontinued and replaced with rectangular above--ground structures with foundations of unworked fieldstones and mudbrick walls (Levy 1995: 229).

The burial customs of the Chalcolithic have not been well understood yet, due to the scarcity of findings. While the dead were still buried inside settlements, formal cemeteries separated from permanent settlement sites were introduced. At the settlement in Teleilat Ghassul several inhumation graves were discovered, such as children's graves in ceramic pithoi jars (Bourke 2002: 159). In the recent years, in the vicinity of the settlement in Adeimeh a Chalcolithic necropolis with circular tumuli and rectangular cist graves was discovered (Mazar 1990: 79; Levy 1995: 235). A similarly diverse grave structure was recorded in Shiqmim, another well-known necropolis, where circular graves filled with burial offerings, cist graves and small tumuli clustered in groups were found. In the Beersheba Valley, attention is drawn by mass pit graves with remarkable stone foundations and possibly brick superstructures (Mazar 1990: 82).

Numerous chalcolithic cemeteries have been discovered along the Israeli littoral, *i.e.* in Azor, Hedera, Benei Braq, or Ben-Shemen. They feature natural or artificial caves dug into the Kurkar ridges, into which ossuaries were placed. Ossuaries were animal or house-shaped clay urns holding burnt human remains (Gonen 1992: 74, fig. 3.24-26; Levy 1995: 235). The question of the community that followed this particular burial custom is still disputed among researchers. Formerly, in the absence of settlements contemporary to those necropolises, some scholars claimed that the caves were used by the communities inhabiting the Teiliat Ghassul area and the Beersheba Valley (Aharoni 1982: 45-46; Gonen 1992: 75). However, new cemeteries discovered in the area in the recent years pose a challenge to those claims. Thus one cannot preclude that this particular burial custom was characteristic for the inhabitants of the area where it was recorded (Joffe 1993: 33).

Many scholarly debates concentrate on the question of organization of Chalcolithic societies. On the basis of field research in Shiqmim, T. Levy and D. Alon (1982; 1989) assume that already in the Chalcolithic there could have existed chiefdoms centered around conical clans with lineages controlling the territory. According to T. Levy (1995: 235) the grave from the cave at Nahal Qananh, where a large number of golden objects were found, may denote

a special social status of the deceased. Thus, it may be the evidence of a hierarchical social organization in the Chalcolithic society. However, there also exist theories stressing the low degree of social complexity of Chalcolithic societies (Gilead 1988: 429, 434-435).

One of the key features of the Chalcolithic period is the production of metal objects – both copper and gold. Apart from those objects, sites from the period revealed also slags, crucibles and metal working installations. Furthermore, metal ware was manufactured using the sophisticated 'lost wax' method, which indicates a solid understanding of metal working techniques.

The material used for manufacturing metal goods was copper sourced from the Feinan mining district, situated approx. 50 km south of the Dead Sea. The most recent study at Tall al-Magass, Aqaba showed that also the Timna ore district at the southern Wadi Araba was a source of copper used for manufacturing purposes in the period in question (Hauptmann *et al.* 2009).

Thus far, there have been discovered 17 sites in Southern Levant where metallurgy was carried out (Pfeiffer 2009). However, in only 5 of them (Tall Hujayrat al-Ghuzlan, Tall al--Magass, Tall Ash-Shuna, Abu Matar and Wadi Fidan 4) the complete metallurgical chain could be detected. In most sites, only traces of ore processing and smelting activities are visible. Therefore it is assumed that casting activities could be carried out in few sites only. According to K. Pfeiffer (2009: 337) this could be linked to the availability of specialized metalworkers or special orders originating in the social group.

The first reconstruction of the copper ware manufacturing process became possible thanks to the study carried out in at Abu Matar the 1990s, where a metallurgy workshop had been discovered (Perrot 1955; 1984; Shugar 2001). Another important site that provided ample information on Chalcolithic metallurgy is Shiqmim (Golden *et al.* 2001).

According to A. Shugar (2001: 79-80), high grade carbonate copper ores were mined and minimally beneficiated. The concentrated ore was transported to sites in the Beersheba Valley, where after selection the highest grade copper ore was smelted in crucibles placed in a hearth-type ground furnace. After the first smelting, copper was then resmelted for casting. Additional information on Chalcolithic metallurgy comes from the study held in Shiqmim. All of the evidence for metal production on this site, including ore, slag, refractory ceramics and metal registered in Shiqmim indicates that there were two separate industries: one focused on complex metals and the other on 'pure' copper (Golden *et al.* 2001: 961). Each of the industries produced different types of objects. Complex metals were used to manufacture prestige items, while utility appliances, such as axes or awls, were made of the relatively pure copper. The research on the origin of copper used for manufacturing both product groups caused a great deal of controversy due to the high arsenic content in items made of complex metals. Probably, arsenic was intentionally added to copper to change its properties (improved casting, altered color, lower melting temperature) (Shugar 2001: 90). As copper sourced from the Sinai does not contain arsenic and no arsenic ore deposits have been discovered in the vicinity of the Feinan mining district, it has been assumed that arsenic

ores were brought in from Anatolia (Shugar 2001: 83). In addition, on the basis of available data it has been determined that while pure copper artefacts were probably manufactured in such sites as Abu Matar, Bir es-Safadi and Shiqmim, there are no traces of complex metal castings in Southern Levant. Therefore, it is assumed that such artefacts were supplied to the sites either as finished goods or in the form of metal for local casting (Golden *et al.* 2001: 952). However, the theory of the local manufacturing of items made of arsenic containing copper is also supported – according to T. Levy (1995: 234) – by the finding of a copper macehead in Shiqmim, whose core was made of local Arava glaucaunitic chalk.

The presence of arsenic in the metallurgy of the period allowed researchers to investigate the organization and social status of Chalcolithic metallurgy from yet another angle. Arsenic is an element which can deposit in bone from respiratory exposure. Studies held at the Shiqmim settlement showed that metal tools manufactured at that site contained small amounts of arsenic (0.08%). Therefore, researchers assume that the bones of people who were involved in manufacturing those tools should contain trace amounts of arsenic. Thanks to the fact that a necropolis was discovered at Shiqmim as well, it became possible to identify the graves of metallurgists by means of specialist bone analyses. Consequently, their social status and role can be determined by reference to burial customs. Although the analyses are still under way, the results achieved thus far are promising. They can be helpful in understanding the processes of forming a complex society in the end of the 5th and in the 4th millennium BC (Oakberg *et al.* 2000: 895-901).

The high social status of metallurgists can also be inferred from the fact that metallurgic operations in the Chalcolithic were not carried out on an "industrial" scale, because the process was enormously labor-intensive. Experimental studies at Shiqmim showed that in Chalcolithic conditions, the smelting time necessary to obtain approx. 3 grams of metal was 45 to 60 minutes. Given that a small Chalcolithic copper axe weighs approx. 100 grams, it took 30 hours of a metallurgist's work to obtain the necessary amount of raw material. The workload, and thus the value of the item and the expertise possessed by metallurgists, could have determined their social status. However, due to the small number of research projects the currently available data remain inconclusive.

Pottery is another important element of the Chalcolithic cultures of Southern Levant. Chalcolithic pottery was hand made and usually only the top parts were turned. The repertoire of pottery types is fairly well developed. The most characteristic are V-shaped bowls with a red painted ribbon under the rim, small-size vessels on a high, fenestrated pedestal, large storage vessels (*pithoi*) and various kinds of jars. Pottery could have been decorated with painted geometrical motives (triangles, crescents, zigzag lines), engraved patterns and rope or finger impressions (Amiran 1969; Aharoni 1982: 36-39; Gonen 1992). The pottery from the Beersheba Valley is slightly different: cornets and vessels with rope impressions are very rare here. On the other hand, there are a number of new items, such as churns or pottery made of kaolin clay, with notably cream-colored surface (*Cream ware*) (Kellner & Amiran 1953: 11-14; Amiran 1969; Amiran *et al.* 1978: 6; Levy & Menahem 1987: 313-331; Gonen 1992).

Flint inventory is represented by a wide array of tool types, such as tabular scrapers, fan scrapers, sickle blades with denticulated working edges and axes with retouched longer edges and polished working edges (Elliott 1978: 38; 44-45; Gonen 1992).

Other remarkable artefacts found at Chalcolithic sites include bone ware – handles, pendants, awls and figurines of bearded males and naked females. The last of those groups draws one's attention with precise workmanship (Aharoni 1982: 42-43; Gonen 1992: 72, fig. 3.22). Particularly noteworthy are ivory figurines of Bir Safadim, where an ivory workshop was unearthed (Gonen 1992: 71).

The establishment of public sanctuaries – in Teleilat Ghassul, En Gedi and Gilat is one of the more important features of the Chalcolithic. All of them are different in terms of form, location and assemblages (Gonen 1992: 63-66; Levy 1995: 236). En Gedi is particularly noteworthy. While the assemblage found in the temple itself was rather poor, it is believed that from this very temple had come the cache from the Nahal Mishmar cave (some 12km south-west of En Gedi) (Aharoni 1982: 43-45; Gonen 1992: 64). The cache consisted of 442 items, probably of prestigious character, *e.g.* crowns or scepters (Gonen 1992: fig. 3.15-19).

Taking into perspective all aspects of material and symbolic culture of the communities inhabiting southern Levant in the Chalcolithic one can easily see a sophisticated social structure. Specialized metallurgic, flint processing and stone processing activities had clearly formed (Levy 1995: 232). Workshops manufacturing products on a mass scale coexisted with those specializing in cult or prestigious items. According to T. Levy (1995: 238), a new social organization – the first chiefdom – emerged in the Chalcolithic. The establishment followed by strengthening of elites in the Chalcolithic is related *inter alia* to craft specialization and metal working. Control over metal production created a basis for social inequality in the Chalcolithic society.

In the Chalcolithic period also the Sinai was under the cultural influence of the Canaan. Pastoral campsites of the period concentrated in the eastern part of the southern Sinai. As a result, the material culture of those communities was technologically and stylistically convergent with Southern Levantine materials (Yekutieli 2002: 429-432). However, the Sinai had its own, distinct burial custom. Pastoral communities buried their dead in *nawamis* graves – round chambers built of stones (Mazar 1990: 82; Finkelstein & Perevolotsky 1999: 67-80).

Towards the end of the 4th millennium BC, Chalcolithic settlements in Southern Levant were deserted. Only in the Beersheba area cultural continuity between the Chalcolithic and the Early Bronze Age was preserved. The reasons for those changes have not been fully explained and disputes concerning the genesis of Early Bronze cultures still continue. Various arguments have been presented, including natural disasters (draughts, epidemics, earthquakes), weakening of social and political structures (and thus economic structures related to them), as well as an external interference caused by a wave of immigrants (Elliott 1978: 48-50; Aharoni 1982: 47, 51; Mazar 1990: 89; Joffe 1991: 8-11; Gonen 1992: 79-80; Levy 1995: 241). The still mysterious period of transition between the Chalcolithic and EB I lasted ca. 300-200 years (Braun *pers. comm.*).

2. Early Bronze Age I (3650-3000 BC)

As for EB I, two main cultural provinces (northern and southern) have been identified. Their borders were not permanent and shifted throughout EB I. The northernmost sites in the northern province include Rosh Hanniqra and Lawieh on the Golan Heights. The southernmost ones were Palmahim Quarry and Jericho (in the late EB I Jericho was already part of the southern province). The eastern border of the northern province was marked by the Jordan Valley. The southern province included: part of southern Samaria, the Judean Valley, Negev, southern part of the Sharon plain, the Mediterranean littoral to the boundary of the Sinai (Fig. 2). By the late EB I the province additionally included the Jordan Valley and the Dead Sea area (Braun 1996).

The prevailing division into northern and southern province was originally based on materials recovered from necropolises. In addition, in the 1960s and 1970s researchers had access to little amount of precise information on EB I chronological sequence. It was only through the new discoveries from sites of precisely determined stratigraphy that a more precise periodization of EB I became possible. On the basis of the most recent data, E. Braun (1996) identified four horizons within the two provinces: north-central (Yiftahel, Palmahim), north-eastern (Tell Umm Hammad), south-western (Nizzanim, Site H, Taur Ikhbeineh) and south-eastern (Bab edh Dhra'). The purpose of the division was to reflect not only on geographical diversity, but also on chronological variations in Early Bronze pottery.

The transition from the Chalcolithic to EB I period is a very complex issue, as numerous scholarly disputes in the literature illustrate (*cf.* Braun 1996: 4; Gophna 1995a; Levy 1995). One of the key issues addressed in those disputes is the lack of continuity between Chalcolithic and Early Bronze communities. Extreme demographic decline of the Chalcolithic population and complete disintegration of the settlement pattern are generally accepted. Likewise, differences in burial customs, architecture and various artefacts are so significant that – according to most researchers – they are indicative of the lack of cultural continuity between the Chalcolithic and EB I. However, in the face of unexplained mechanisms of the Chalcolithic – EBI transition, the question remains open. Some scholars believe that the assumption of discontinuity over the entire Canaan territory is a certain form of simplification. Already in 1996 E. Braun (1996: 12-28) pointed out to possible continuation of some Chalcolithic elements by EB I communities, *e.g.* in pottery production. In his opinion the transition should be reevaluated together with the entire understanding of what constitutes EB I in the Southern Levant. One of the key tools for understanding the transition are studies held at sites where continuity from the Chalcolithic to EB I was preserved, such as Ashqelon (Braun *in press*). They can provide information on an existing link between Chalcolithic and EB I societies.

The disappearance of Chalcolithic and emergence of Early Bronze cultures in southern Levant was linked to profound economic, social and political changes. In the early EB I the settlement system changed. Humans moved to hills, plains and valleys with predominantly

Mediterranean climate, where average annual precipitation exceeded 300mm (Ben-Tor 1992: 83). Unlike in the Chalcolithic, the northern areas of the Canaan became the main settlement zone, with almost 90% of all EB I sites. However, not all Chalcolithic settlements became deserted. According to A.H. Joffe (1993: 47-48) some of them (*e.g.* Tel Telo, Meser, Tel Halif, Palmahim) show traces of settlement continuity. According to R. Gophna (2001: 269), the appearance of EB I communities in Chalcolithic settlements was caused by their favorable location – easy access to water and cultivation areas.

Environmental changes in the beginning of EB I made typical, extensive Mediterranean economy possible. According to A. Ben-Tor (1992: 84) agricultural patterns prevalent before the Chalcolithic period were restored. In addition, ecological conditions in highland areas were conducive to agricultural specialization. Hill slopes were excellent for the cultivation of vines and olive trees. Social and political stability of Early Bronze societies was favorable to the production of those two crops. The importance of stable conditions derives from the fact that both vines and olives become profitable only after a relatively long period of time. Olive trees yield fruit only after two decades; similarly, wine of adequate quality can be made of grapes picked from mature bushes. Consequently, agricultural specialization required many years of work on the one hand and contributed to stability and internal development of EB I society on the other (Finkelstein & Gophna 1993: 13). EB I also saw a growth in vegetable and fruit production (figs, almonds, dates, plums, pomegranates) intended as a supplement to food supplied by pastoral economy (meat and milk products). To some degree, agricultural development was also caused by the use of oxen for land farming (Ben-Tor 1986: 1-27; Levy 1992a: 65-82). Only in semi-arid areas of the Canaan and in the northern Sinai pastoralism continued to be the main economic strategy (Mazar 1990: 97).

Population number and density also grew in EB I. Pastoral communities gradually shifted from nomadic to sedentary lifestyle. New, large settlements emerged (*e.g.* Megiddo, Beth Shan, Beth Yerah, Tell el Fara, Jerusalem, Lachish) and then evolved into the main cities of the Canaan in EB II. New settlements were established in locations offering the presence of three factors: water, arable land and trade routes. Some sites (*e.g.* Tel Erani) may have been surrounded by defense embankments. Larger settlements-towns together with their satellite sites formed autonomous social and spatial units (Ben-Tor 1986: 1-27; Portugali & Gophna 1993: 164-186). In some of them remains of cult structures were discovered (*e.g.* Jericho, Ai, Megiddo). According to A. Ben-Tor (1992: 87) there is a continuity in the design of these temples from Chalcolithic to EB I periods. Certain changes are also observed in settlement architecture, although caves and pit houses were still inhabited (Sebag 2005: 224). Characteristic EB I elements include curvilinear architecture with oval, sausage shaped or round buildings with fieldstone foundations and brick walls. Bigger buildings may have had several rooms with floors paved with flat stones (*e.g.* Yiftahel) (Braun 1989: 20-24; 1996: 13). The younger phase of EB I saw the emergence of rectilinear structures with stone foundations and mudbrick walls, floors slightly embedded in the ground, and stone pillar bases (Andelković 1995: 15).

Concentration of a large number of people in one place triggered the development of a food supply system. In Jaffa, a fortified town of an area of 25 acres, a special water supply system was introduced (Mazar 1990: 97). Inside settlement towns herds of lactating and young animals were held. Herds of males were pastured by specialized shepherds outside settlements (Levy 1992a: 65-82). Specialization was also visible in other professions – for instance, it was in EB I that merchants first emerged as a social group (Ben-Tor 1986: 1-27). The structure of Early Bronze communities was still based on independent clans or lineages. However, the best organized, most wealthy and most productive groups constituted an early form of elites. Stratification was further driven by specialization in agriculture and trade exchange of wine and olive, for instance with Egypt, because it offered the elites access to prestigious goods which denoted their social position (Joffe 1993: 61).

In EB I the dead were typically buried outside settlements. While graves within settlement boundaries are not unheard of, this particular custom was reserved first of all for children and disappeared altogether in late EB I (Braun 1996: 23). Like in the Chalcolithic, caves were used repeatedly by removing old skeletons. Mass graves were common, and the number of individuals buried together varied from several to nearly 200. Although some traces of cremation have been found (*e.g.* at Gezer and Azor), this particular practice was not widespread. Grave goods consisted mostly of pottery and – very rarely – of copper items (Ben-Tor 1992: 88; Andelković 1995: 15). Oval mass grave structures made of mudbrick appeared during EB I (Mazar 1990: 98).

While at the first glance it may seem that there is no continuity in pottery production between the Chalcolithic period and EB I, E. Braun (1996: 18) suggests that in certain cases the early EB I pottery may have drawn inspiration from the previous period. E. Braun notes that EB I pottery is characteristic for certain innovations, such as „thumb impressed/wavy-line ledge handles, small rounded or hemispherical bowls, carinated bowls with or without protrusions or sinus lines on the carination, high loop handles, bag-shaped vessels and *pithoi* jars with wide bases, splayed rims and distinctive fabric and surface treatment known as *Gray Burnished ware*".

When analyzing EB I pottery, one can distinguish two horizons: northern and southern. Red Burnished ware is characteristic for the northern EBI. As far as forms are concerned, the dominating ones include various kinds of bowls and jars, amphoras and mugs of relatively thick walls. Vessels could be decorated with a painted net pattern, colored brown, red and/or yellow (band slip and grain wash). Other typically northern items include *Gray Burnished ware* with specific carinated bowls. In its turn, the southern horizon was characteristic for *Line Painted Group ware*. The surface of vessels belonging to this ware (bowls, plates, jugs, amphoras and mugs) was covered with painted straight or wavy lines forming a net pattern or a zigzag.

A. Ben-Tor (1982: 1-27) noticed a functional change in Early Bronze pottery as compared to Beersheba and Ghassulian cultures pottery, reflecting a change in the economic system used by Early Bronze cultures. In the Chalcolithic, most vessels were wide-mouthed,

which is useful in an economy based on the use and processing of milk. In EB I, narrow--mouthed vessels (jugs, bottles) became the most popular for storing liquids. Changes in the repertoire of vessel forms were followed by changes in technology. In the Chalcolithic vessels were made of clay containing aluminum and lime. Vessels made of this material were used for storing water or milk, but were impractical for highly acidic liquids. In EB I clays containing silicates became a popular material that reduced the permeability of vessel walls.

Changes in the economic system also affected Early Bronze flint production. With a growing importance of plant cultivation the number of flint tools used for pastoral purposes (*e.g.* arrow heads) was reduced. The basic flint tool of the period was the Canaanite blade with a characteristic sickle-gloss of one of the edges, as well as tabular scrapers (Rosen *in press*).

Thus far, only a small number of EB I copper weapons and vessels have been identified. The most famous finding is the cache of Kafr Monash, containing 35 tools and weapons (Tadmor 2002: 239-251). However, a recent study held in Shuna, Ashqelon-Afridar, Nahal Tillah-Halif Terrace and Arad provides evidence confirming a more widespread metallurgic production (*e.g.* Golani *in press*). As compared to the Chalcolithic, the organization of metallurgic production changed as well. Strong specialization and concentration of manufacturing in a single workshop is well visible, *e.g.* in Abu Matar (Golden 2002: 226, 235).

The end of EB I and the beginning of EB II again saw important political, social and economic changes that eventually led to the formation of a fully urbanized and centralized society (Portugali & Gophna 1993: 164-186). However, this transformation is seen as a continuum and another stage in the development of Southern Levantine communities (Joffe 1993: 64).