

*Emergence of specialized pastoralism in the Levant*,  
LEVY, THOMAS E. *World Archaeology*, 1983. 15(1):15-  
37, figures, tables, references cited.

**Even the best  
intentions...**

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This article is a classic example of a study with the right intentions but the wrong methods and assumptions. In one light it is an important example of the kinds of questions more Near Eastern archaeologists should be dealing with, while in another light it is an equally important example of the kinds of mistakes archaeologists should avoid when working with explanatory models.

Levy's hypothesis is that the emergence of specialized pastoralism in the Levant was concomitant with certain changes in agriculture. His premise belies his data, however, in that his entire study is based on the above hypothesis being true. His premise states that nomadic pastoralism occurs only in concurrence with related, although perhaps somewhat ostracized, agricultural neighbors, and must have evolved only as a "specialized" segment of a mainly agricultural component. While one could hardly argue for the existence (at least an enduring existence) of so-called "pure" pastoralism (See Khazanov 1994) as a probable lifeway, his notion of the nature of the dependency of nomadic pastoralists on their agricultural neighbors is grossly overestimated, and this assumption colors the entire paper. In actuality, Levy ignores several other possibilities, such as a local transition from herding to hunting (See Ingold 1980; Ingold 2000) or the immigration of a new group who were already practicing nomadism (See Hole 1996; Hole 1998), and his interpretations of the data skew the results in favor of his hypothesis.

This hypothesis, while not being the only possible one, is far from weak. Its strength lies in its empirical nature: if changes in agricultural land use in the Neolithic/Chalcolithic transition resulted in the emergence of his so-called "specialized" pastoral groups, then these changes must

be documented by a corresponding change in environmental site location factors for farmsteads during this period. Levy's mistake, however, was to leave the "if" out of this statement. The paper does not ask *if* this was the initiating circumstance for nomadic pastoralism in the area, but rather, it asserts a priori that this *is* the cause. The rest of the paper only addresses the nature of this change in land use which he believes can only be one of two possible alternatives: Bosrup's (1965) hypothesis of extensive to intensive land use shift and Sheratt's (1980) hypothesis of intensive to extensive land use shift. Levy's main goal is to test both scenarios against his Be'er Sheva survey data to see which model best explains the actual changes in land use of the area. While this, in itself is un concerning, what Levy uses the outcome of this analysis for is. That outcome indicates that the data support Sheratt's (1980) intensive to extensive scenario, and Levy then goes on to say that this, in turn, supports his "specialized" pastoralism hypothesis. A quick read of this seems quite plausible, but it falls apart upon closer inspection.

The actual survey itself, however, was fairly unproblematic. He surveyed along the lower Nahal Besor/Nahal Be'er Sheva drainage system, and included all territory within two kilometers from the drainage channel. While this shape of sampling universe may have missed some upland pastoral encampments, it most probably included all the agricultural sites. Levy's survey team was not looking for ephemeral encampments, however, as he states quite clearly that "the study area was surveyed for Late Neolithic, Chalcolithic and Bronze Age sites..." (p. 16). To Levy this meant only sites with a significant occupation duration that was long enough to leave enough pot sherds to be positively identified. This means that many ephemeral nomadic pastoralist campsites were probably missed.

Levy's next sampling decision is based on fairly solid geophysical evidence, but is once again used improperly in order to fulfill his preconceived explanations. He divided his sample

universe into two sections based on geophysical characteristics: the coastal plain of the lower end of the sampling universe, and the trough-shaped valleys of the upper end of the sampling universe. The coastal plain is characterized by more rainfall and aeolian sandy loess soil. The trough shape valleys are characterized by less rainfall and gravelly alluvial soil and shallow aquifers. The only permanent springs, however, occur on the coastal plain. His survey found that Late Neolithic sites were found almost exclusively on the coastal plain, and cluster close to these springs. The Chalcolithic sites, on the other hand, appear to be clustered in the trough shaped valleys of the upper section of the sampling universe. He uses this evidence as support for Sheratt's intensive to extensive transition in agricultural land use, and makes a good argument for this hypothesis. He begins to go awry, however, when he reinterprets this hypothesis to explain the emergence of specialized pastoralism.

An interesting phenomenon that Levy fails to mention in his article but that is present in the charts of his data is that no architecture was observed at any of the Late Neolithic sites. He talks of them as being at least semi-permanent, however, because he interprets them as being small agricultural farmstead-type hamlets practicing intensive, irrigation based, fixed plot horticulture. This description, while backed up by evidence from other Late Neolithic sites (that all, however, have plenty of visible architecture), may be too far of a stretch for sites with no observed architecture. Contrariwise, he does distinguish between the architectural and non-architectural Chalcolithic sites. Based on the results of a Chi-squared test, the architectural Chalcolithic sites are significantly associated with floodplain (which he interprets as agricultural) soils, while the non-architectural sites do not significantly associate with these soils. This is problematic in several ways. First, the Chi-squared test is not the proper test to determine affinity between sites and substrate types because it requires the use of only one null hypothesis at a

time. This method of testing can be self-justifying, however, because the process creates bias as the researcher is more likely to set up a null hypothesis that they already believe to be false. A more appropriate test to use is correspondence analysis which lets the data tell its own story (Orton 2000). Also, Levey never tests which soils the non-architectural sites do significantly associate with, but instead simply states that these “Chalcolithic sites... seem to continue some of the Late Neolithic subsistence patterns around the springs on the humid Negev coastal plain” (p. 28). Finally, he uses the result of the chi-squared test as evidence for the presence of two distinct settlement and subsistence strategies in the Chalcolithic—one a continuation of the settlement and subsistence strategy of he believes existed in the Late Neolithic, and the other a new settlement and subsistence pattern seen first in the Chalcolithic. While there is no reason to doubt that new settlement and subsistence strategies became important in the Chalcolithic, it is far from certain that any of the Late Neolithic strategies came through the transition unchanged. He never shows any artifactual evidence, however, of any continuance between the Late Neolithic sites and the non-architectural Chalcolithic sites, and there is no evidence even of similar economic bases for the two types of sites. The above arguments offer significant reason to doubt his conclusion.

His next argument is equally specious. He states that because the maximum distance that sheep can graze between watering points is 5-8 kilometers (based on ethnographic data), sending the herd animals up into the more arid hill zone would have been a high risk activity for these Late Neolithic farmers, and they must have kept any herd animals close to home. This argument is fatally flawed because he assumes that watering points have only to be more than 5-8 kilometers apart to keep pastoralism away. In fact, even he says that 5-8 kilometers is only the maximum distance from water that sheep can be taken to *graze*. This means that the sheep

actually travel 10-16 kilometers round trip, and ethnographic and ethno archaeological evidence support this. Moreover, the shepherd does not have to always make round trips away from a single point source of water. The ethnographic literature quite clearly shows that many shepherds prefer to take one-way trips between water sources while allowing their animals to graze along the way. This means that water only has to be 10-16 kilometers apart, a more than reasonable expectation in this study area as Levy himself states that “shallow aquifers are associated with water-bearing gravelly deposits in wadi beds... [and] in the Negev today, many Bedouin still dig a primitive shallow well...” (p. 18). He also uses modern ethnographic data to make the presupposition that field stubble grazing during the dry season has always been an important aspect of pastoral economies in the Negev, and that the Late Neolithic farmers must have used this system instead of specialized pastoralism. But this assumption relies too heavily on ethnographic analogy, which, because Levy does not support it with any other data, is extremely tenuous ground in which to base any conclusions. In this light, his justification for describing the Late Neolithic sites as agricultural villages practicing only localized pastoralism disappears.

He then uses demographic data from modern Bedouin populations coupled with estimates of the carrying capacity of the coastal plain area under the type of agriculture practiced in the Late Neolithic to discover that there were about 100 people per hectare of arable land making 1,500 people in the whole area during the Late Neolithic. He then shows that the carrying capacity changed in the Chalcolithic to about 200 people per hectare of arable land making a total population of 13,289 people in the area. He writes that this dramatic increase in population was the cause for Chalcolithic expansion into the more arid zones in the northern Negev, where they established permanent settlements in the trough-shaped wadi bottoms and practiced extensive dry-land agriculture. He uses this evidence to suggest that because the population is

now centered in the arid zone, they must move their herds greater distances in order to exploit seasonally available pasture on the Negev coastal plain, occupying the same areas near the springs that were occupied by the Late Neolithic people. He believes that this indicates a need for a specialized component of the society that would be responsible for the herd animals' migrations. There are two main problems with his conclusion. First, what he describes here is transhumance, not nomadism. Having a specialized shepherding component of the society does not necessarily initialize a split into two new (one agriculturally based and one pastorally based) independent societies. Second, there is no reason for seasonal pastoral movements to be constrained to the Negev coastal plain. There is a large corpus of ethnographic and ethnoarchaeological evidence which shows that nomadic movements in that area are just as likely to be vertical as horizontal. This means that pastoralists need not travel long horizontal distances to reach pasture in an area with a wetter climate. They more often simply move up the nearest mountain range to take advantage of elevation effects that produce pasture that is present long after it has been finished in the lowlands. These higher elevations were not included in Levy's sample universe, and therefore any conclusions about how far herds must have traveled are incomplete and his only proofs are the results of a couple of Chi-squared tests that, as mentioned above, more than likely only gave him the results he expected in the first place. Finally, there is no reasonable explanation for Levy's assumption that the Negev coastal plain springs that were occupied by agricultural Late Neolithic people would then become merely pastoral watering holes in the Chalcolithic. Levy even contradicts himself here as earlier he extols a continuance between the Late Neolithic sites and the non-architectural Chalcolithic sites. Why would areas perfectly suited to agriculture in one period be abandoned in the next? If, as Levy concludes, population pressure was the factor for Chalcolithic expansion to new farmlands,

why would the previous farmlands be abandoned to be used only for seasonal pastoral grazing? It seems that Levy ignores these questions because permanent or semi-permanent settlements in that area would give his “specialized” pastoralists no where to go within his sampling universe.

Flawed, though it is, this paper is still extremely important as it is the only study that I am aware of to date that attempts to understand a localized emergence of nomadic pastoralism empirically. It also important because in his attempt, he let ethnographic and ethnoarchaeological data inform his decisions. The problems Levy encountered are more a product of the pioneering nature of this paper than on any purposeful intent. At the time of this study, he simply had no precedent for such an analysis in pastoral archaeology, and very few in other branches of archaeology. Levy was also at a disadvantage because he was trained in the classic form of Near Eastern archaeology and consequently suffers from what Rosen (1992) calls “Tell-mindedness”. This mind set is taken to an extreme by such papers as Finkelstien and Perevolotsky (1990) where if the site is not obvious (i.e. doesn't have large mud-brick walls) it doesn't exist. Most importantly, Levy's paper is founded on a solid idea: population expansion in the Chalcolithic caused farmers to move into more marginal territory and this, as a consequence, reduced in the amount of grazing land available to herds, and may have led to the emergence of nomadic pastoralism as response to this conflict. Although Levy falls far short in his support for this idea, it is far from invalidated. A new study must be done in the spirit of this paper, but more than one hypothesis must be compared with the data, and all presuppositions should be left behind.

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