

## BOARD GAMES BEFORE UR?

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It has for long been accepted that one of the earliest known board games was the celebrated ‘Royal Game of Ur’ (Fig. 1), that is exhibited in the British Museum and is dated to around 2500 BCE (Becker 2007; Finkel 2007: 17). The game of ‘twenty squares’ – the type of game that is exemplified by the ‘Royal Game of Ur’ – is indeed one of the oldest known board games.

As Sumer is sometimes dubbed the ‘cradle of civilization’, it was assumed that there could be some sort of correlation between the rise of earliest states and the birth of board games. Although very simplistic, the hypothesis receives some kind of support from ancient Egypt. There too we have board games – senet (or *znt*) and mehen (*mhn*) – which appear as early as the first dynasties, and seem to accompany the rise of the Egyptian civilization. If we leave apart a miniature board from el-Mahasna, which is exhibited in the Musées royaux d’Art et d’Histoire, in Brussels, and which is assigned to the Naqada I period (*ca* 4000-3500 BCE), because there are doubts about its actual function (Crist, Dunn-Vaturi, de Voogt 2016: 41-43), boards for playing senet (Fig. 2) – at least fragmentary – appear in the First Dynasty (*ca* 3100-2900 BCE). Mehen, another board game from ancient Egypt, offers examples that date back to the end of the fourth millennium BCE, in other words around 3000 BCE (Crist, Dunn-Vaturi, de Voogt 2016: 17).

Keeping with these very early times we can see that the Indus civilization also had board games. Although they are hard to characterize, because the few gameboards that have been unearthed are just fragments, and the field is ‘invaded’ with small objects often interpreted as ‘gamesmen’ (or ‘pendants’...), and even sometimes as... chessmen, it is clear that the game of ‘twenty squares’ was also known there. Not only were terracotta fragments of gameboards excavated at Mohenjo-daro, but four fragmentary boards, made of stone, were unearthed at Dholavira, Gujarat, two of which being easily recognizable as parts of ‘twenty squares’ games (Bisht 2015: 8.9.4.1., p. 594-6) (Fig. 3 – forget the ‘gamesmen’). The city of Dholavira flourished between *ca* 2500 and *ca* 2000 BCE.

Remaining on this part of the world, that is, between the Indus Valley and Western Europe, the inventory of ancient board games, known to have been in existence before the turn of the Common Era, appear, strikingly, to exclusively belong to the class of ‘race games’. Based on a more detailed and rational classification of a large corpus of documented board games, the illustrated diagram (Fig. 4) shows clearly when the various classes appear in the course of history. The left column, devoted to race games, is the highest one; it spans from *ca* 3250 BCE to the present.

Without entering in too many details, we can define race games as board games played with a random generator – dice of all kinds.<sup>1</sup> The design of their boards is typically ‘unilinear’, that is, it shows a linear path, that, for convenience sake, is often bent, folded or spiralled, but that can be geometrically represented as a single line segment. On this track gamesmen have to ‘race’ from one endpoint to the opposite. They cannot go sideways (Fig. 5). The backgammon family of games well exemplifies the class of ‘race games’, but most ancient board games whose mechanics can be understood belong to this class. Exceptions are the Greek game of *polis* (πόλις), which appears in the literature around 450 BCE, and the more or less contemporary Chinese game of *weiqi* (‘go’), which, under the name of *yi* (弈), is mentioned in Confucius’s *Analects* (*Lunyu*) compiled between *ca* 470/50 and 280 BCE. All other board games around the world that avoid using a random generator, and are therefore games of pure reasoning (or ‘strategy’), have to wait until the beginning of the Common Era to be supported by archaeological, iconographic or literary evidence.<sup>2</sup>

### **Rollefson’s ‘Neolithic’ Mancala**

Gary O. Rollefson is a well-respected archaeologist specializing on Near-Eastern prehistory. He made his name famous with the excavations at

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<sup>1</sup> It is unclear, though, whether the Egyptian game of *mehen* used a random generator. None has ever been found in association with that game (Crist, Dunn-Vaturi, de Voogt 2016: 24), and its rules are unknown. But, whatever it is, the shape of the board, a coiled serpent, implies a ‘unilinear’ track, as in all race games.

<sup>2</sup> A fact that I have underlined in my presentation ‘A Timeline of Mind Games, with some correlations’ to the 22nd BGS Colloquium, at Bologna, in May 2019. To be published soon.

‘Ain Ghazal, Jordan, a site now included in the 2004 World Monuments Watch. It is the discovery, there, of spectacular lime plaster figurines, dating back to *ca* 7000 BCE, which called the scientific world’s attention to the importance of ‘Ain Ghazal. In a less spectacular way Rollefson published a short article called “A neolithic game board from ‘Ain Ghazal, Jordan” in 1992 (Rollefson 1992)<sup>3</sup>, where he presented a stone slab marked with rows of holes which he interpreted as a board game (Fig. 6 A). The find was a stone plaque where two vaguely parallel lines of six small depressions each could be observed. Radiocarbon dating pointed to 6876 BCE cal  $\pm 275$ . Parallel lines of holes are indeed a feature of some board games, particularly mancala, which have two or four, sometimes even three, rows of cavities where seeds are put in numbers.

So it came to Rollefson’s mind that his perforated plaque was a kind of similar game. It *must* have been a ‘mancala-type game board’, albeit in a prehistoric form, the more so as there are claims to a great antiquity for this family of games. No other alternative hypothesis is offered. It is stated in the title of the article, and the word ‘board game’ is used throughout, as an obvious fact. One may, however, wonder about the references Rollefson used for comparison: an anonymous article about ‘Playing Board Games in the Stone Age’ (*sic*), found in the *National Geographic Magazine* of 1990, F. Grunfeld’s popular *Games of the World* (Unicef, 1975), and Claudia Zaslavsky’s much (too much...) read and often reprinted book *Africa counts* (1st edition 1973); the absence of Murray (1952) or even Bell (1960/69) is remarkable. The only academic publication Rollefson quotes is Swiny (Swiny 1980).

The comparison with mancala is here irrelevant. (Did Rollefson ever see a mancala game?)

The cavities, whose diameter does not exceed 3 cm, and whose depth is only 2 cm, would be unable to receive more than two prehensile seeds, and not of the kind that is currently used in mancala games. Actually the ‘gameboard’ looks very unpractical for a game. But even if it were a very early, very crude prehistoric ancestor of mancala, we would have to fill a time gap of more than 6,000 years, since the earliest documented mancala

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<sup>3</sup> A re-assessment of the same was published in French, as ‘La préhistoire des jeux’, in *Histoire Antique & Médiévale*, special issue no. 33, Decembre 2012: 18-21. It adds nothing to Rollefson’s theory.

boards, found in Matara (now Eritrea), an ancient Aksumite site, during excavations led by Francis Anfray, are dated to the 6th-7th centuries CE (Anfray 1990; Pankhurst 1971, 1982; Townshend 1979). Although only one fragment was published by Anfray (Anfray 1963: pl. CXII), there were more which the excavator seems to have communicated to Pankhurst who mentions and illustrates them with photographs from the Institut éthiopien d'archéologie in his 1971 article (Pankhurst 1971: 154-8).

In his paper Gary Rollefson correctly reminds us that “the absence of evidence should not be taken to be evidence of absence”. But, if this is a wise caution for ‘narrow’ gaps – say, a few decades or even centuries –, it becomes embarrassing for such an enormous time span. And little has been found, since 1992, to fill in the gap.

To support his conclusion Rollefson informs us that “more recent excavations ... have turned up a considerable number of game boards from areas between these ‘cusps of the fertile crescent’.” (Rollefson 1992: 2). Actually the ‘considerable number of game boards’ include those from Cyprus that were published by Swiny, and belong to the Bronze Age. Reference is made too to Amiran 1978 and Lee 1982, who, like Swiny, describe Bronze Age artifacts. They clearly have nothing to do with mancala games either, and seem to be games borrowed from Egypt (Crist, Dunn-Vaturi, de Voogt 2016: 70-71). MacDonald 1988 is just a reference to undated rows of cupholes that can be assigned to modern Bedouins.

Thus the remaining finds are those of Beidha, Jordan (Kirkbride 1966) (Fig. 6 B), and Chagha Sefid, Iran (Hole 1977). Not exactly a “considerable number”...

### **Simpson's Contribution**

In a more recent contribution St. John Simpson has made a further attempt to consolidate the theory. Again without expressing any doubt, Simpson argues that “the consensus of opinion is that these objects are gaming boards” (Simpson 2007: 7), an extraordinary statement. To Rollefson's short list, Simpson adds some more ‘gaming boards’: two fragmentary ones from Wadi Tbeik, in Southern Sinai (Bar-Yosef 1982; Simpson 2007: 6, no. 2), four other fragments from El-Kowm 2, Syria

(Maréchal 1982; Simpson 2007: 6-7, no. 3), so that St. John Simpson counts twelve possible ‘gaming boards’.

Simpson is particularly concerned with dating. He never questions the function. For him, as for Rollefson, they are just ‘gaming boards’, nothing else.<sup>4</sup> Let us first get rid of the single Chagha Sefid fragment, which presents a series of eight irregularly scattered holes, and can be anything (Simpson 2007: 7, no. 5 and his Fig. 1.4). There is no serious reason to assign it a function in a game. The Beidha slabs are more impressive: they offer two parallel rows of regularly spaced holes, with a kind of wavy groove that links them (Simpson 2007: 5-6, no. 1). One is said to be complete, with only four cavities per line (*Ibid.*, Fig. 1.2 left), while another shows three holes and is obviously incomplete (*Ibid.*, Fig. 1.2 right). The exact function of these grooves is unclear, but we will see further an alternative explanation. Unfortunately the Wadi Tbeik and El-Kowm objects are not illustrated. The Wadi Tbeik slab is ‘semi-complete’, with “three parallel rows of circular hollows” (three or four), and here too a single straight groove connects the holes in each row. At El-Kowm the ‘gaming boards’ are made of plaster; they are all small fragments, the larger one measuring 11.4×6.6 cm; only one is described, “and this consists of two or more rows of hollows with three or more per row”, so a very indistinct pattern, which sheds no light on the actual function of these plaster specimens. Needless to say that no gaming pieces or ‘dice’ whatsoever have ever been found in the proximity of these slabs.

Trying to sort out this curious collection of ‘games’ Simpson seems to be lost... He recognizes “two or more types, namely one with two rows of hollows (‘Ain Ghazal, Beidha) and one with three or more rows of less regularly spaced and slightly deeper hollows (Wadi Tbeik, Chagha Sefid); the el-Kowm 2 ‘gaming boards’ are of uncertain type. He definitely assigns the first type to... mancala (Simpson 2007: 7), which, as we have seen, is easy to disprove. Simpson concedes of course that the size of the boards needed “tiny pebbles, seeds or small animal droppings”, very tiny indeed...

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<sup>4</sup> For the problems and necessary caution of identifying and dating patterns of holes pecked in stone, see de Voogt 2012.

### An Explanation Comes to Light

Light, or rather fire, is probably what most of these slabs were intended for. In a brilliant article, a team of archaeologists have shown that stone plaques marked with small holes, sometimes connected with grooves, were the result of drilling with clay cylinders to produce fire (Goren-Inbar et al. 2012). They show limestone slabs found at Kfar HaHoresh, Israel, a PPNB (Pre-Pottery Neolithic B) site which they interpret as fireboards. “These fragmentary stone artifacts (...) have one or more pits/sockets *with grooves connecting them*” (my emphasis) (Fig. 7). “Examination of the sockets and their morphology, as well as the straight and curved incisions on the stone block, leads us to consider these artifacts as fireboards, similar to objects recorded through ethnographic observations.” At the end of their article, they have this interesting remark:

“The increasingly frequent occurrence of partially perforated stone blocks described as “game boards” at other Near Eastern PPNB sites, such as Beidha [Kirkbride 1966], Wadi Tbeik [Bar-Yosef 1982], ‘Ain Ghazal [Rollefson 1992], Wadi Abu Tulayaha [Fujii 2006, 2007, 2008, 2009] and Wadi Ghwair [Simmons, Najjar 2006], clearly merits further investigation. Of these, some of these could have functioned as fireboards.”

With the addition of six specimens found by Sumio Fujii at Wadi Abu Tulayaha and three from Wadi Ghwair I the current total amounts to twenty-one slabs with cupmarks.

It is interesting to quote Fujii (Fujii 2006b) here:

“It was our great surprise that a total of six game boards occurred at an outpost isolated in the middle of Hamada. These unique artifacts, all made of relatively fine-textured limestone slabs, fall into two types: boards with six depressions in two rows and those with eight depressions in two rows. (...) Some of our samples are accompanied with engraved lines connecting any two neighboring depressions, another similarity to the Beidha samples. (...) Unfortunately, no clear evidence for game pieces was attested, but small, semi-translucent colorful pebbles ca.1-2 cm in diameter, found in considerable quantity from various

contexts including floor deposits, might have substituted for them.”

At Ghwair I, the excavators have found “three artifacts [which] resemble possible gaming boards similar to those from Beidha and ‘Ain Ghazal” (Simmons and Najjar 2006: 88 and Fig. 7).<sup>5</sup> Although they do not give more details, and show only one of these objects, I was happy to access Claudia C. Woodman’s MA thesis presented in the University of Nevada, Las Vegas in 2005, dealing with Ghwair I stone artifacts. In her thesis the author mentions three such objects, that she describes thus (Woodman 2005: 84-6):

“Several items, including three ‘gaming boards’ (...). Two of the artifacts are sandstone. The remaining gaming board is limestone. The cupmarks on each gaming board are roughly the same size, though the cupmarks on one of the sandstone gaming boards are larger than those on the limestone gaming board. The gaming boards are similar to artifacts identified at Beidha (...), ‘Ain Ghazal (...), and the PPNB mortuary installation of Kfar HaHoresh in Israel.”

One of the stone plaques is illustrated (Figure 6 in her thesis, here Fig. 8);<sup>6</sup> it shows eight hollows arranged in two rows; six hollows are connected with a straight groove. The dimensions, as can be inferred from the scale, seem to be around 29x15 cm; the largest depression has a diameter of approx. 3 cm.

She previously commented (Woodman 2005: 72):

“Gaming boards are called such for want of a better term. They are not common but have been identified elsewhere during the PPNB. They are tabular stones with two series of regularly-spaced cupules. Narrow grooves run between the cupules. Moore

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<sup>5</sup> My thanks to Eddie Duggan for providing a copy of this publication.

<sup>6</sup> I would have kindly asked permission to reproduce her figure, but I have been unable to find where Ms Woodman is presently.

hypothesizes that these could have functioned as bases for bow drills (1978:250)<sup>7</sup>.”

The re-examination of the grooved slabs found in Beidha, Wadi Tbeik, Wadi Abu Tulayaha and Ghwair I leaves little doubts: they were most likely used to make fire. The other artifacts (Chagha Sefid, el-Kowm 2<sup>8</sup>) are too much undefined. The ‘Ain Ghazal specimen is less clear, but Goren-Inbar et al. suggest it might also be a fireboard.

### **A Timeline of Board Games**

In his ‘concluding remarks’ Rollefson (Rollefson 1992: 4) compares the “single two-by-six array of depressions in the ‘Ain Ghazal game board” with the “complex arrangements of the Early Bronze Age games from Mesopotamia, Cyprus, Palestine, and Jordan.” He says that a simple game does not “indicate that Neolithic people had not attained a level of cleverness in game-playing”. Really? Board games, even in their simplest form, are the result of various mental processes, which are cumulative. They associate a set of precise rules and an assemblage of artifacts. Their design supposes a good command of abstract ‘mapping’ – which seems to be lacking in Neolithic times, judging from the chaotic organization of settlements like Jericho, Çatalhöyük, or ‘Ain Gazhal – and some arithmetic. Ancient board games, as we have already remarked, are all race games. And we may hypothesize some kind of evolution, with simple race games coming first and then new innovations later.

The game of twenty squares, senet, and mehen show a very elaborate design. Clearly they must have had precursors, probably less sophisticated, but we know nothing about them. After all the earliest states, with their urbanized centres, political hierarchies, specialized crafts, official religions and highly stratified society, and the use of writing, seem to have sprung up within a few centuries. Not from scratch, but the evolution from pre-state, pre-writing societies was rapid.

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<sup>7</sup> Quoting A.M.T. Moore, *The Neolithic of the Levant*. Ph.D. Dissertation, University of Oxford, 1978.

<sup>8</sup> If the El-Kowm slabs are really made of plaster they can hardly have been used as fireboards. Whatever their actual function, they are the only such artifacts made of plaster.



The only serious candidate for a gameboard that would predate the ‘game of Ur’ is a fragmentary terracotta board, measuring approx. 11 x 11 cm, divided in nine well delineated squares – like a chessboard! – though six of the holes have small holes in their centres, while the other three are plain (Fig. 9). It was found in Tell Majnuna, near Tell Brak (Syria), and is dated to the Late Chalcolithic, that is, “no later than sometime around 3600 BC” (Oates 2012: 117)<sup>9</sup>. Joan Oates, the director of the excavations of Tell Brak, thinks it is a gaming board, but she does not eliminate the possibility it could be a ‘proto-calculator’. Interestingly she adds that “one small spherical ‘gaming piece’ has remained in situ within the equally small hemispherical depression that is found in the centre of each square.”<sup>10</sup> It is therefore very tempting to interpret this clay board as a gameboard.

On the other hand, the perforated slabs, which are too fastly interpreted as ‘gaming board’ by Rollefson, Simpson and their colleagues, may not correspond to the evolution of the human mind as described by scholars like Merlin Donald (Donald 1991), Colin Renfrew (Renfrew & Zubrow 1994, Renfrew & Scarre 1998, Renfrew, Morley and Boyd 2018), Peter Damerow (Damerow 1995), and others. They all base their theories on the accumulation of knowledge and on the development of human memory. Merlin Donald, a Canadian psychologist who is very influential among prehistorians, hypothesizes three ‘stages’ or ‘cultures’ in the evolution of the human mind. Donald calls these three stages ‘Mimetic’, ‘Mythic’ and ‘Theoretic’. Only the two latest ones belong to *Homo sapiens*. Mythic cultures arose as a result of the acquisition of speech and the invention of symbols. The ‘Theoretic’ stage shows an increasing reliance on ‘external memory’ (graffiti, body painting, rock art, and finally writing). Donald argues that there was a revolution in human cognitive capabilities, with the addition of external symbol systems, external memory and external computational devices (‘tokens’, abacus, etc.).

If we examine what happens in the Neolithic, we still are in Donald’s pre-writing, ‘Mythic’ stage. To this we may add Peter Damerow’s ‘cultural evolution of thinking’. Specializing on the history of Babylonian mathematics, Damerow has sketched a possible (pre)history of mathematical concepts, from “no arithmetical activities”, until the end of

<sup>9</sup> I am grateful to Walter Crist for this reference, and for his comments.

<sup>10</sup> Not each: there are three squares that have no holes...

the Mesolithic, when “all judgments about quantities are based on direct comparisons of amounts and sizes”, to a “Proto-arithmetic” stage, which he assigns to the Neolithic period and Early Bronze Age, then to a more complex “Symbol-based arithmetic” stage, where “quantities are structured by metrological systems”, that are typical of the early state societies.

Therefore, it would be surprising to imagine that our Neolithic ancestors had reached enough mathematical knowledge that would allow them to invent board games as early as 7000 BCE. Even if we have to account for forerunners of twenty squares or senet, they can hardly be earlier than a millennium (as perhaps the Tell Majnuna ‘gaming board’). And these forerunners must have been race games. When did race games begin? My own hypothesis is that they cannot be much older than *ca* 3500 BCE. Until then dice games must have been the only kind of formalized games. An evolution from dice games to board games seems possible, but we lack the evidence. Although ‘Ain Ghazal is a very impressive complex settlement, with its hundreds of houses and famous lime plaster statues, it lacks ceramic technology. In spite of a careful digging, the site has not yielded any kind of possible random generator. Perhaps these were made of perishable material, as it often happens, but it is striking that nothing like dice has been unearthed.

This would finally agree with the present author’s ‘Attempt at a Combined Chronology of Dice and Board Games in the Lands Between the Indus Valley and Europe’ (Depaulis 2019), that hypothesizes an evolution from ‘primitive’ dice games in the Neolithic to more complex board games, with race games being earlier than games of pure reasoning. Fig. 4 shows how a modern classification of board games can be used along a timeline of known games. It clearly appears that race games have for long been the only type used around the world.

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**Figure 1:** The 'Royal Game of Ur', a luxury game of 'twenty squares', ca 2500 BCE. (British Museum, Wikimedia Commons)



**Figure 2:** A 'faience' senet board from Egypt, with drawer and gamesmen. (Wikimedia Commons)



**Figure 3:** Fragment of a game of 'twenty squares' found at Dholavira, ca 2300 BCE.  
(From Bisht 2015)

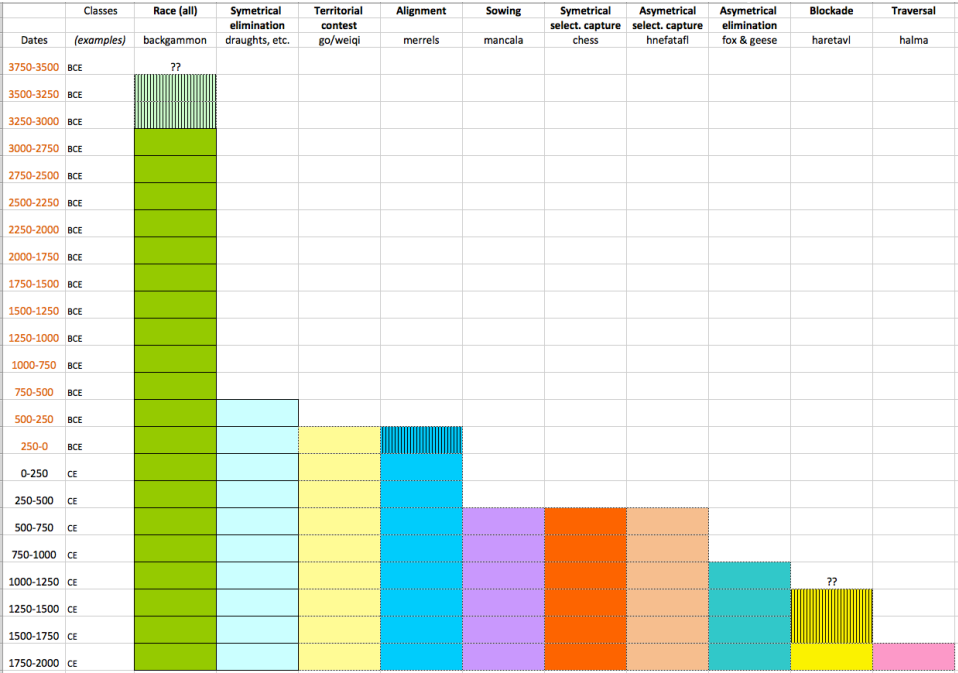


Figure 4: A timeline of board game types. Hatched cells are hypothesized periods. (©T. Depaulis)

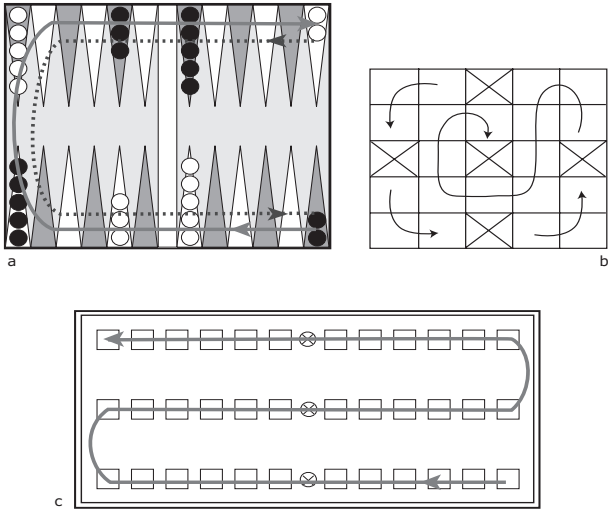
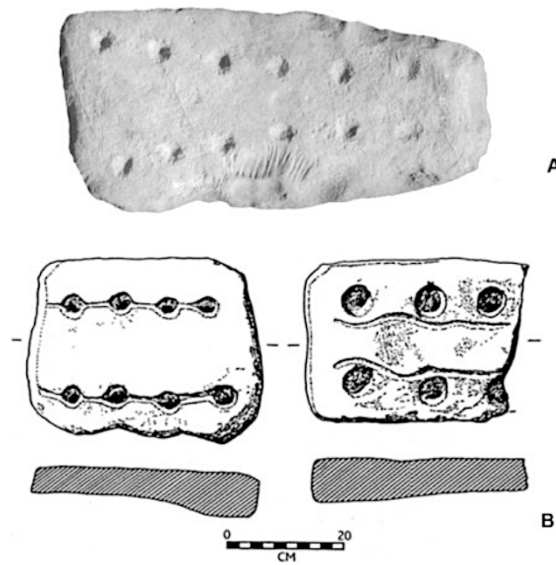
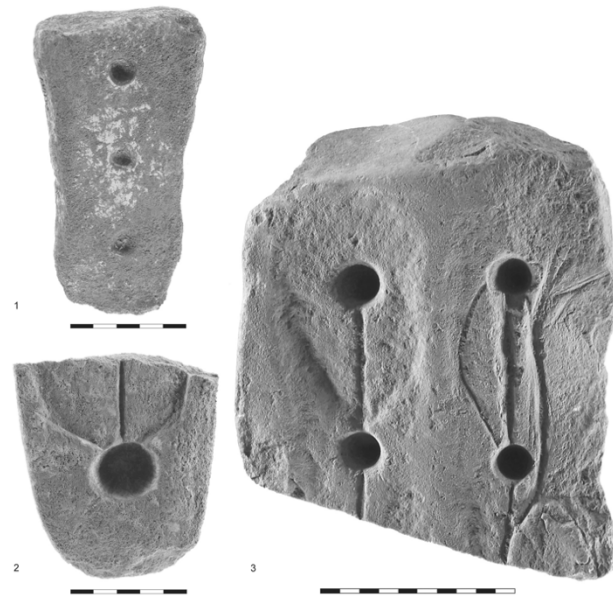


Figure 1: Graphic representation of the track in three race games: backgammon (a); taayam (b), a traditional game from Southern India; duodecim scripta (c), the Roman ancestor of backgammon. (©T. Depaulis)

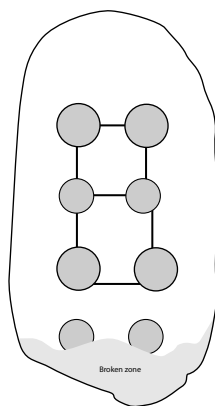




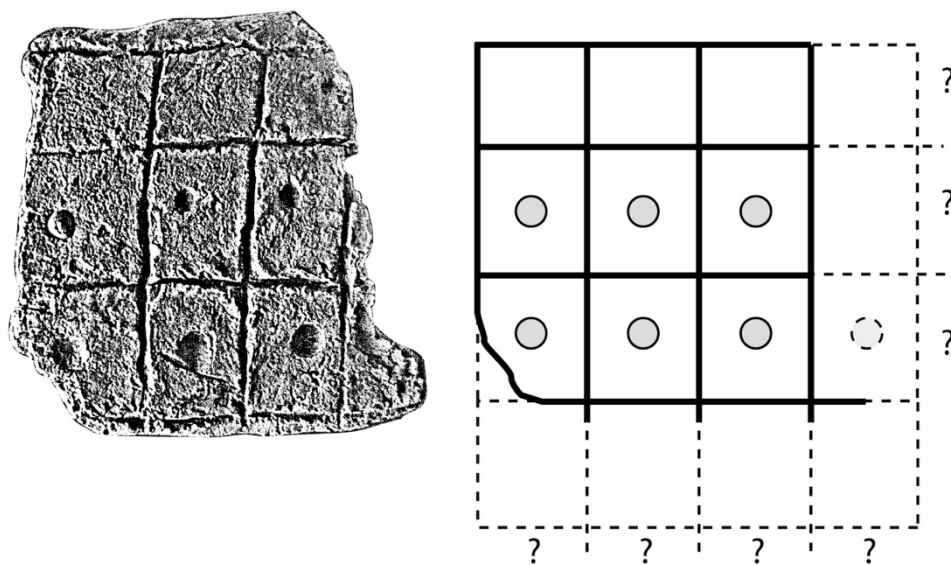
**Figure 3:** Some so-called Neolithic 'gaming boards': 'Ain Ghazal, Jordan (A); Beidha, Jordan (B).



**Figure 2:** Limestone artifacts from Kfar HaHoresh interpreted as fireboards. (From Goren-Inbar et al. 2012)



**Figure 5:** A schematic representation of one of the ‘gaming boards’ from Wadi Ghwair I, personal drawing after Woodman 2005. (©T. Depaulis)



**Figure 4:** A terracotta ‘gaming board’ from Tell Majnuna, ca 3600 BCE. Left, the actual board (from Oates 2012: Fig. 1); right, a possible reconstruction of the board.