Branko J. Hribovšek 07/2018

Göbekli Tepe – earthly and heavenly

Zuerst kam der Tempel, dann die Stadt.

Klaus Schmidt

Maybe…Therefore I will try to be *der Teufelsanwalt* – the Devils Advocate to check: *Zuerst kam das volle Magen, dann das andere...*

The excavations on the archaeological site of Göbekli Tepe are far from finished, but the interpretation of the funds seems to be already somewhat already fixed, almost final, only some minor details to the narrative may be added…Uncovered were, as believed up to date, the oldest man made monumental constructions of the megalithic architecture, the dating being indisputable and generally accepted - dependent on the location site from years 9600 BC to 8000 BC [1], [2].

The late archaeologist Klaus Schmidt and his coworkers deserve the whole merit for the discovery, excavations effort, and for the all the vast archaeological research – still underway, explaining and posing new riddles.

The general opinion accepted Schmidt's interpretation, that the buildings (constructions) are the temples, the sites of worship, or burial grounds, belonging to an early religious cult of the Pre-Pottery Neolithic hunter-gatherer society. The neighborhood of nowadays Şanlıurfa, the ancient Ur, the home of the biblical Abraham, gave rise to idea of the garden Eden on this spot – the similarity of the name Abraham to Brahma and the old Egyptian Aba Ra Him suggests the place of origin of the great modern religions...Even a nostratic evolution of religions was proposed in spite the fact that any evolution of religion was till now refuted – the religions emerge as a full narrative, maybe as a sect of the already existing one and if they change, change by splitting in sects.

For the proper research, for the proper interpretation of the funds in archaeological and in historical, not to mention the sociological terms are any present religious concepts devastating as they may impede any rational discussion and interpretation. This is clearly evident from the numerous publications on the subject. Any serious discussion may offend somebody's religious feelings, but the religious side shall not be and cannot be neglected, but shall be unbiased and rationally taken in account. This issue will be touched later.

A prehistoric village 30 km away was discovered. There were found world's oldest domesticated strains of wheat. In this area domestication of animals and somewhat later agriculture around 8500 BC developed, not much more than a millennium after the construction of Göbekli Tepe monuments [1].

...Whatever the carbon-dating eventually shows, Göbekli Tepe stands at the cusp of what is arguably the biggest social revolution in human history - the transformation of semi-nomadic hunters into settled farmers... [3]

This should witness the transition from the hunter-gatherer to the agricultural society. The main argument concerning this transition should be the necessity to settle on the spot due to the worship in the already built temples, what motivated the hunter-gatherer society to abandon nomadic life, but forced them to settle and to develop farming to survive, according to Schmidt.

As far as these ideas are inviting and exciting, of enigmatic and of almost magic character, their religious implications, seeking to rethink the evolution of human society - are there some very important issues yet to be explained – and they are, for the time being, just opposing current interpretations, the details of which I do not

intend to recapitulate as they are widely published and available. Just the same, I do not intend to repeat the whole Göbekli Tepe description, that is already many times being published, I just want to focus on the probable origins of the earliest structures, the circular enclosures in Layer III [1], [2].

The reader may count also this text as belonging to the set of irrelevant publications. The aim of this article is to give alternative ideas, interpretations or even a new explanation of the funds, based on the constraints of the Pre-Pottery-Neolithic hunter-gatherer way of living and as possibly less on the assumptions...

Essentially, I do want to explain - as are all others trying to do - at least partially, the answers on what, why, why here and when by whom!

Geography

Göbekli Tepe, the tell [1], [2], is positioned on a plateau (Figs. 1, 2) of the Germuş mountain range of Anti-Taurus in the Kurdistan hills, in Mesopotamia, on the transition from the – broadly taken – Anatolian heights to the lowlands of the Syrian desert, the Harran plain, the general north – south direction .

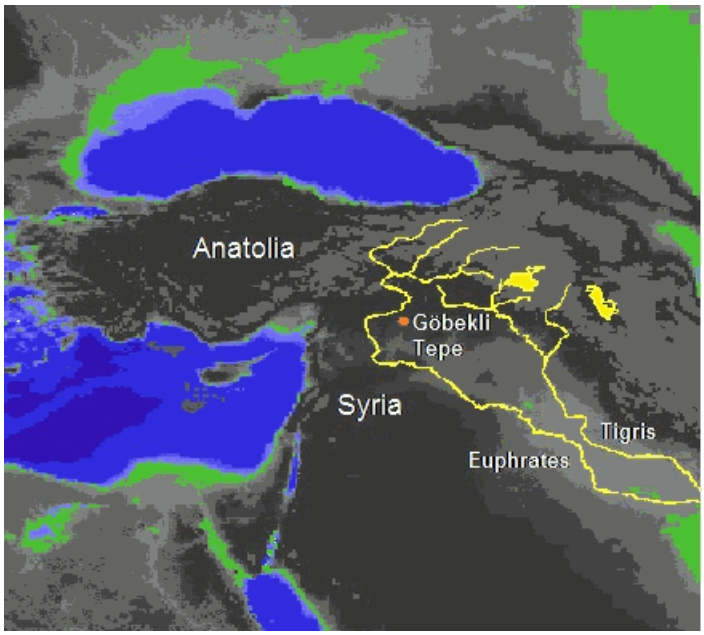

Fig. 1

Asia Minor and Near East in the age of the -60m sea level; water blue, green and grey the regions above sea level; grey the regions above sea level nowadays and yellow indicated Euphrates and Tigris with the Göbekli Tepe site in Mesopotamia. Adapted from [4].

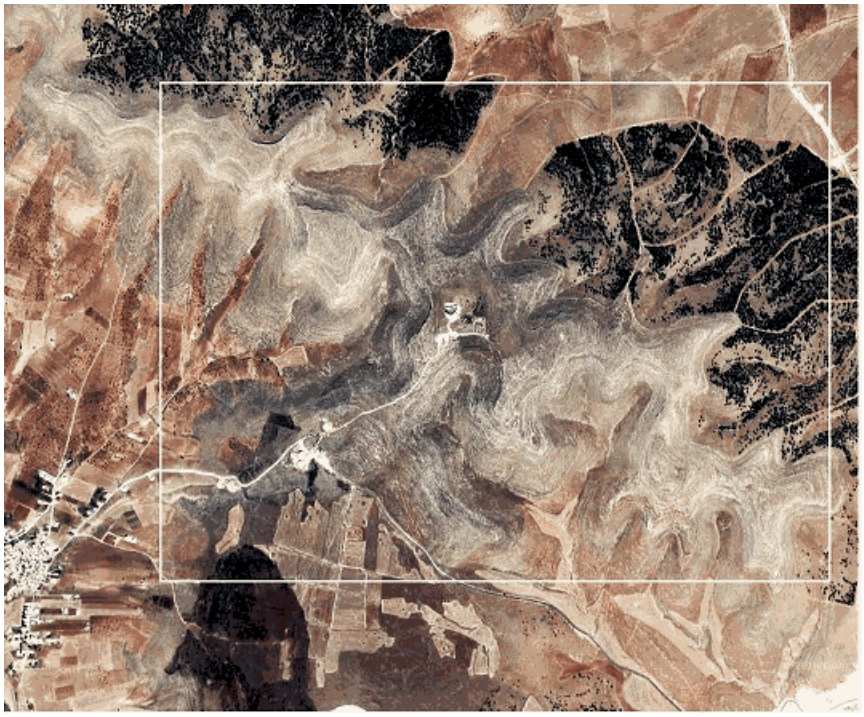

Fig. 2

The color enhanced satellite picture of the Göbekli Tepe and surroundings, Şanlıurfa in south-west, north top, adapted from Google maps [5]. *The framed part corresponds to Fig.* 6.

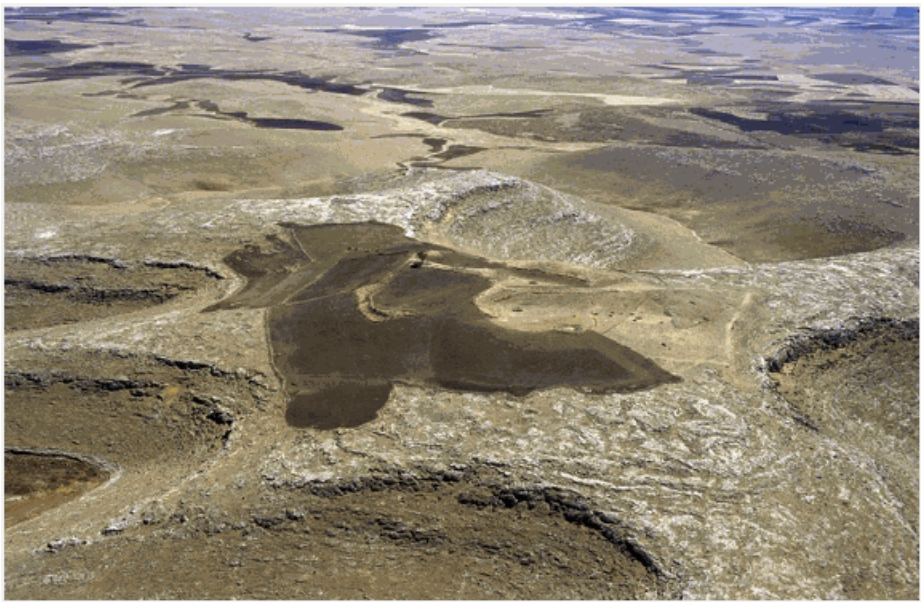

Fig. 3

Göbekli Tepe plateau viewed in app. southeastern direction [6]. *The tell dimensions are a diameter of 300m, area of 9ha and the height of 15* [1],[2].

The plateau has a star-like form (Fig. 3). Except from the narrow ridge in the north, connecting the plateau to the northern hills, are the plateau “arms”are free ending ridges. Their borders are relatively steep rocky slopes forming the open valleys, exposing the sediment strata of the high quality limestone. The plateau’s rocky limestone surface is partially covered, as it seems, with the soil taken from somewhere else, hiding – till the excavations were made – the Neolithic structures. The soil cover is shallow, the soil itself full of stone fragments.

From the plateau, the highest point of the mountain Germuş, is southwards a wide view towards the Syrian lowlands, nowadays a plain of Syrian semi desert, northwards is the view on the soft relief of the hilly Kurdistan landscape in Anti-Taurus mountains, both views missing any geographically outstanding point, or an eye catching landmark.

Age and Climate

At the times of the site constructions enjoyed the contemporary dry, dire and hostile region, the humid, rainy climate conditions, enabling to sustain the rich fauna and flora [1]. The ice age was still present, but declining. The Alps and Caucasus were still covered with “eternal” glaciers, Black Sea was an isolated low level lake, the Mediterranean sea had also much lower water level, the Anatolian high plateau had harsh winters, compared to Syrian lowlands with much milder climate.

The Neolithic quarrying witness the mostly barren stony surface already at that early times due to the sun exposure, the icy winters and the rain erosion. The valleys between the ridges were more shady and therefore humid, overgrown with bushes and trees. The exception was possibly the southwest valley with the eldest Neolithic constructions on the upper mild slope, before becoming steeper, which was over the whole day exposed to the sun, burning at that time as also nowadays.The snow and ice begun to melt first here, and the plateau melt water was running later preferably through this valley. In spite of the generally lower temperatures, the sun irradiation practically equaled the present. The south ridge slopes of the valley seem to be overall less steep as the slopes of the neighbouring valleys.

The climatic conditions can be only estimated aground the general average climatic data of the individual comparatively wast time periods [7]. Also the animal and plant rests, with the carbon dating (Tab. 1, for the discussion of dating problematic see [8]) and the animal depictions on the stone slabs are actually just the momentary glimpses, the week reflections of the long gone, so of the local climatic as of the local fauna and flora, conditions. Their respective traces remained preserved and give somewhat skewed impression of the environments in the following ages. There are indications that still buried structures may be even older – maybe fifteen thousand years or more [8]. So was Göbekli Tepe in “active use” probably three thousand years earlier than the till now established radiocarbon dates, well back towards the peak of the last glacial maximum. This would push back also the possible construction time of the stone structures to some unknown, but very earlier date compared to the current estimate.

The radiocarbon dating [8] indicates also the very long “use” (Tab. 1) of the individual stone structures – in the case of the enclosure C even more than two thousand years (?). The “use” of the other - but estimated for only till presently dug out structures - lasted the “use” from estimated some tens to half millennia years. This all suggests, that the details of the “use” remained quite a long time pretty constant, but slowly, after the long periods, very probably due to the climatic, social and population changes, they had also changed – and the time data give preferably the time when the structures were abandoned.

Where	BCE years	“Use of” years, medium, maximum, minimum
enclosure C	7560–7370	190
	9700+/-30	max 2360, min 2110
enclosure B	8280–7970	310
Layer III	9110–8620	590
Layer III	9130–8800	330
enclosure D	9990+/-30	med 190, max 340, min 40
	9970+/-30	
	9960+/-30	
	9984+/-42	
	9800+/-120	
Layer III	9540+/-30	
enclosure A	9559+/-53	med 309, max 417, min 201
	9452+/-73	
	9250+/-55	
Layer II	8880+/-60	

Tab. 1

Tab 1: Radiocarbon dating. For the ground plan of enclosures see Fig. 10. Data from [8].

The Tab. 2 gives just the coarse impression of the climatic changes not specified to narrower regions . Due to various authors are the denominations of the same vegetation types perhaps somewhat slightly different. The Mediterranean coastal regions are not listed as they had little or no influence on the inland conditions.

Years BC	Anatolia	Syria	Sahara	notice
20000 - 14000	dry steppe, semi desert	semi desert	extreme desert (savanna, prairie)	
13000	forest steppe, steppe	forest steppe, steppe	extreme desert (savanna, prairie)	
11000 (12000-11000)	woodland, steppe, dry steppe	dry steppe, desert	extreme desert (savanna, prairie)	Natufian culture Palestine
10800 - 10000	woodland steppe, dry steppe, semi desert, desert	dry steppe, savanna, semi desert, desert	grassland, semi desert (desert)	Göbekli Tepe, Younger Dryas, end of cold
9000 - 8000	open woodlands, dry steppe	semi desert	grassland, semi desert	Göbekli Tepe end,
5000	wooded steppe, steppe	semi desert	semi desert (desert)	ca 6200 temp. drop, 150-200 years drier than present

Tab. 2: Regional vegetation types from the last Glacial Maximum till the Holocene age. Data from [7].

As it is obvious are the data concerning Sahara contradictory, very probably due to the data sampling on various very different sites, on a mutually remote geographic positions. But it can be asserted with the confidential degree of certainty – as the Saharan petroglyphs depict the variety of still nowadays living animals – that the climatic conditions in Sahara varied simultaneously enabling regions from extreme desert to savanna and grassland. The animals depicted on the Göbekli Tepe stone pillars show fauna somewhat different from the African, missing the large African mammals and reptiles. But to both were common some grazers and predators but not of the same species.

The research results show that the climatic conditions in Syrian lowlands corresponded generally to the Saharan conditions, enabling the landscape variations from desert, semi desert, dry steppe, steppe to forest steppe – being at least in the winter periods mostly grassland and dried out in summer periods. The Anatolian plateau showed also a variety of the vegetation regions – dry in the central regions, desert to semi desert, dry steppe to steppe and in other parts woodland steppe to woodland and forests.

Obviously were the temperature differences between Anatolian plateau and Syrian lowlands considerable, as well also the precipitation amounts. The climate was actually in both regions harsh, in Anatolia very cold in winter, in Syria very hot in summer.

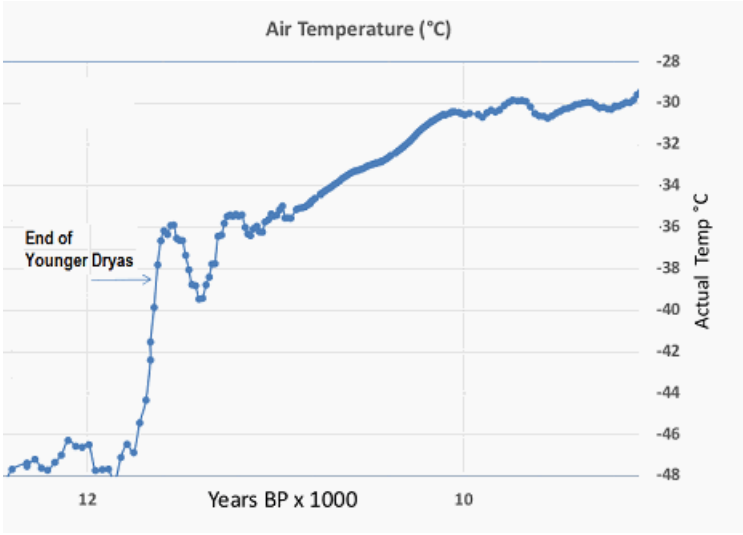

Fig. 4

Temperature changes – on Arctic – in the Göbekli Tepe relevant time period.

Adapted from [9].

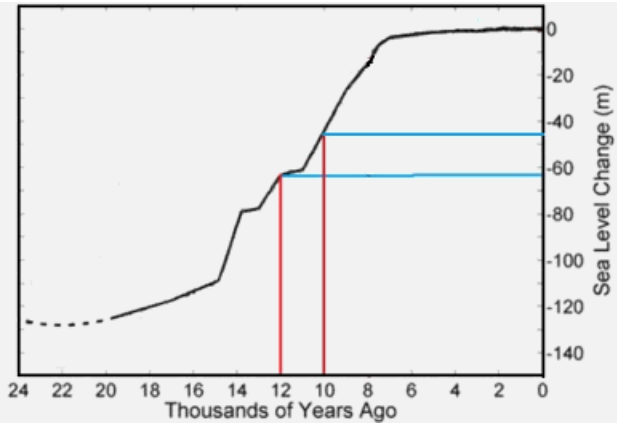

Fig. 5

Global sea level rises in the Göbekli Tepe relevant time period.

Adapted from [9]

The Fig. 4 shows the temperature change – on Arctic – for the relevant time period [9]. So it just reflects very approximately general local temperature change at Göbekli Tepe. Very probably were here the temperatures differences – to the present temperatures – somewhat weaker as in the arctic regions. This conclusion may be made aground the stronger temperature changes in arctic as they in the moderate climate zones also nowadays are. Very illustrative are the corresponding sea level changes – Fig. 5 – showing a strong and accelerated global sea level rises in the given time period [9], reflecting the accelerated global warming after the Younger Dryas cold period, which was caused by the meteor impact as the recent research results revealed [10]. This data show, that the climate was getting milder and more humid in the given time period, but with the further temperature rise dry again, even drier than present by sudden temperature drop at ca 6200 BC.

Hunting opportunities

The persistent climatic differences between the Anatolian plateau and the Syrian lowlands, followed by the corresponding vegetation growth seasonal variations, caused also the persistent seasonally regular grazer migration from Syrian lowlands to Anatolian plateau and back, accompanied by the various predators and scavengers. From the bone artifacts in Göbekli Tepe is evident, that these were mostly gazelles and bovines [11], [12], [13]. These migrations lasted, being significant at least from (the begin of ?) the maximal glaciation, till the early human historic times some thousands years ago. They slowly diminished through the time as the average temperatures raised. But the migration routes did not change over such a vast period of time, actually they stabilized, what surely did not remain unnoticed by the ancient hunters.

...At contemporaneous Göbekli Tepe, the post-cranial remains of gazelle recovered from the backfill of the enclosures suggest midsummer to autumn hunting. Preliminary analyses also show that this seasonal pattern is repeated in the age profiles of aurochs and Asiatic wild ass...

...demographic profiling of Göbekli Tepe gazelle indicates that animals were essentially hunted from midsummer till autumn... an annual round, with gazelle herds (and eventually people?) migrating back and forth between the Balikhheadwaters in south-east Anatolia and the north Syrian Upper Euphrates region... G. subgutturosa wanders seasonally, thereby covering considerable distances in order to evade snow cover and satisfy its food demands...[13]

The animals, notably grazers, usually avoid the forests and the woodlands, they prefer the open space of grassland or steppe. A convenient terrain to hunt them was to be found. The suitable landscape with all the necessary attributes – animal migration paths passing over the convenient ambush sites, the corridors to chase them, the effective traps, the viewpoints to spot early enough the herds – is seldom to be found. The Göbekli Tepe plateau seemed to bid all the necessary conditions. The plateau and its ridges were practically barren, the northern and southern ridge allowed easy plateau access – to ambush and chase, as also presumably the southwest valley to trap – just in the proper migration directions. The views were free from the plateau in all directions.

From the north was the ridge a convenient choice for southwards heading animals, they were already “channeled” by shrubs and trees. The animals coming from the south could fan out in the plains, but they were conveniently then “squeezed” on the south ridge spreading in their direction as the animals preferred to climb up on less steep more barren slopes as through the shrubby valleys in between (Fig. 6).

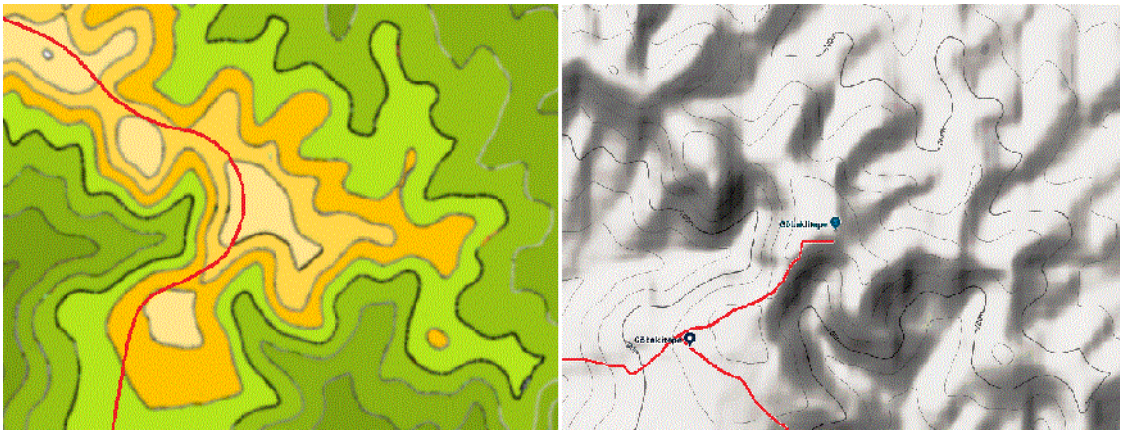

Fig. 6

Göbekli Tepe plateau relief and surroundings. Depicted is also the probable animal migration path leading preferably over the open and less steep terrain, as nowadays also the roads do. The estimated shrubby terrain and woodland are colored green. The heights over 700 m are colored light green and orange. The shaded relief depiction with the current ways is given for the orientation. Compare to Figs. 2 and 3. Adapted from Google maps [5].

Doubtless, the animal abundance in the early times enabled but not assured the rich hunt. The migratory animals offered the most successful and effective hunt, but the great migrations occurred only seasonally and then should have been properly taken advantage.

Hunting structure

...The round constructions are actually build from up to down, surrounding the deeper and deeper levels towards the center. They are in the depression that is open to the south…

...Potentially much more significant, although almost invisible to the untrained eye, archaeologists have also uncovered evidence that the builders of at least one of the oldest circles had dug roughly five meters down through the mound before erecting the standing stones on the bedrock. "For the time being this is just hypothesis, but this leaves us wondering whether the site dates back to before [c. 9500 BCE], when the earliest circles were built," Schmidt says. "Piling up a five-meter mound is not the work of one night." [3]

...at least 16 other megalith rings remain buried across 22 acres...[1]

...one type of structure, referred to as a "kite", was actually used as part of a system for hunting. The long stone walls form a wide open area, which then funnels into a smaller, enclosed area. Wild animals would funnel from the larger area through the neck into the narrow area which was called the "killing floor." This would make it easier to hunt wild animals, as their movement would be constricted once they reached the killing floor..[14]

...estimated 2000 kite structures across the deserts of Syria, Jordan, Southern Israel and Saudi Arabia...the kites were likely used to hunt migrating Persian gazelle...dating has shown the kites to be between 3000 and 5000 years old. There have been claims dating the structures back to 8000 or 9000 years, but these claims have been widely disputed...no excavation has been conducted to date...[15]

Many geoglyphs have kite-like structure while others have wheel-like designs, all built as low dry walls of raw stones.

As elsewhere described [16], was one of common hunting techniques, used by sufficiently large group of ancient hunters, to ambush and to chase loudly shouting animals in traps. At Göbekli Tepe they chased the migratory animals to paths leading to the north ridge or to the south ridge, dependent on the migration direction. The animals were then trapped and attacked in the depression of the southwest valley top end. The ridges enabled hunters to hit animals from the higher position on the slopes, but animals could frequently escape, very probably mostly downwards in the bush or sometimes upwards attacking the hunters. This place showed to be very convenient for trapping and the hunters decided to enhance the safety and the efficiency of the hunt. Actually, they would usually dig a deep pit for a trap, but the solid rock ground of the tell depression bottom prevented such enterprise [1]. Also the "desert or hunting kite" structures were surely known to them, perhaps are their predecessors the builder of the most to be found in the deserts "nearby".

But steep and high sides of a pit to confine animals, especially gazelles capable to jump over the high obstacles, as well to enable hunters a safe position near animals for a sure and swift kill, was mandatory. The solution was to build a wall enclosure instead – a combination of the hunting kit and the trap pit - to bury and to cover it from the outside to make a straight and even path to the so constructed structure, serving as the pit trap. The chased and frightened herd could not see far enough to stop and to turn back; the animals fell or jumped in the enclosure, serving as a killing floor. They were easily hit and killed by the hunters positioned on the enclosure walls.

These walls were not especially stable, bound by a thick layer of clay mortar between the stones. They were with the time due to snow, ice and erosion by rain [17] probably to shaky and prone to collapse inwards. The walls were also inconvenient to balance on, while trying the trapped animals to hit. There was also danger to be overrun by the rush arriving animals. The big game, as the auerochs, could also easily the wall, or its edges demolish, therefore a need to remove these deficiencies emerged.

To achieve a stable and fortified wall, the smaller T-pillars were inserted in the wall. They stabilized the walls. The raw stones were pressed and stuck between the pillars. The structures identified as the "sitting banks" are probably the primary walls enabling to see the most depictions on the pillars, but the higher wall, added later, was necessary to ensure the stability. The pressure forces are so led from the stones in the normal direction to the plain ground pillar sides. Due to the overall oval wall construction were these forces compensated and canceled on the pillars. Achieved was the self stabilizing construction, which prevented the walls to collapse

inwards. The collapse outwards was prevented by the soil and rubble with which was wall from outside covered and buried.

The tops of the T-pillars in the wall were safe standing places for the individual hunters, which were so in the immediate vicinity and above the targeted animals. The hunter's hits were hampered and not precise by the frantically jumping animals; some gazelles were even capable to jump a couple of meters.

...Carbon dating suggests that (for reasons unknown) the enclosures were backfilled during the Stone Age...[17]

...The backfilling obviously is a limiting factor for our understanding of the function of the enclosures, as very few in situ deposits connected to the use-time of the buildings remain...[18].

To slow down and to hinder their movement was the solid rock or terrazzo enclosure ground [17] covered with a thick, but loose layer of stone debris. This caused the floating ground; disabling the firm ground grip and impeding quick movements as well high jumps of trapped animals.

After the killing and butchering was the enclosure layer soaked with blood, full of butchering rests, indigestible body parts, which were mostly then devoured by the vultures. From the decomposing remains emerged very repulsive stench, clouds of flies collected and from the fly eggs hatched millions of larvae – a very unhealthy, actually poisonous ground. It repelled also the animals even from far away, and spoiled the meat of the freshly caught. The enclosures were therefore emptied, cleaned, and the fresh new debris was refilled in to avoid this situation. Probably was made the whole refill, if the enclosure was intentionally "put out of use" to give the hunting opportunity to some other clan in his enclosure.

Later – as well as T-pillars and whole enclosures got a ritual meaning, also a ritual backfilling was at last performed.

The holes on the top of horizontal slabs were later used as the water holes, inviting the by flying or migrating birds to land and drink, so giving the opportunity for an easier catch. The ducks and geese usually land on the open waters and only the water filled molds on the pillar tops, also the molds and pits of the enclosure E [1], can be taken as such. So are the molds the witnesses for the occasional hunt on these water birds, as they can not be caught easy while flying.

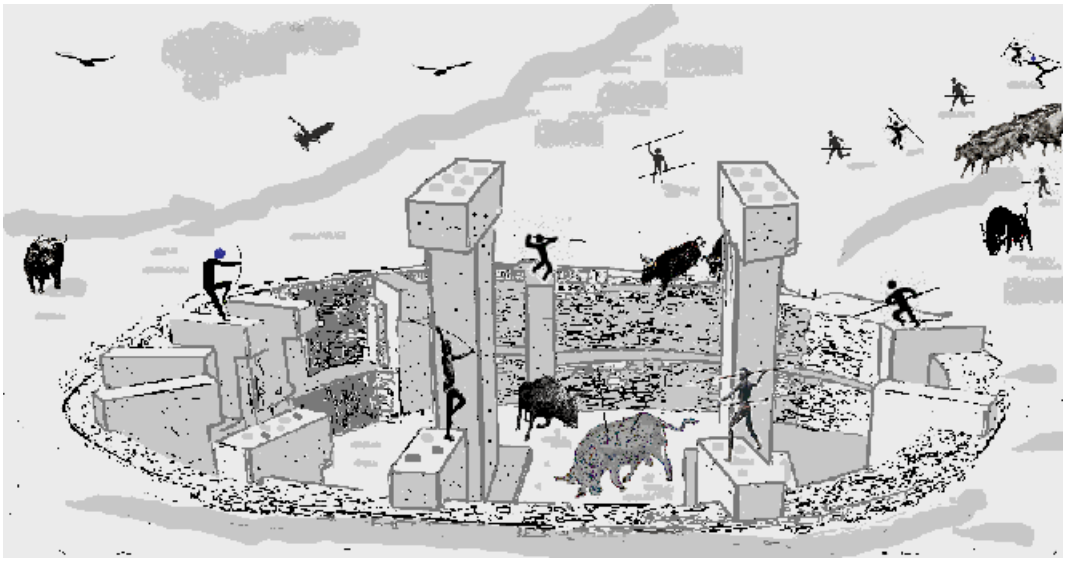

Fig. 7

Idealized hunting scene at Göbekli Tepe, not to scale.

...But why hunt dangerous aurochs when there is an abundance of gazelle? It seems more likely, that aurochs was targeted at occasions different from the work feasts, and maybe more related to the enclosures´ functions which seem to be related to distinct groups of people... [19]

Enclosure C and domestication

Especially enigmatic seems to be the enclosure C (see Fig. 10) , dedicated to boar [11],[18],[19],[20]. It consists of two ovals, the outer and the inner one forming an oval corridor – a *walkaway*, which has a narrow but long straight exit (or entrance, if you prefer) corridor – *dromos* in the north-south direction. The oval corridor is pretty shallow compared to the bottom of the inner oval, which contains the central T-pillars. The whole C-enclosure, contemplated as a trap, could have had a prey "filter" function – some animals – boars and their piglets - would fall in the oval corridor, the more jumpy ended in the inner oval. This means that the structure enabled a species and a size selection of animals. Smaller, younger animals were collected in the oval corridor, the bigger elder animals in the inner oval. The animals in the inner oval were as usually killed, butchered and consumed. But in the shallow oval corridor animals could well survive the jump or fall. They were driven in the straight corridor, where they could move only singled in the queue towards the exit, where they may have been caught alive.

....But there have been striking discoveries: a U-shaped stone sculpted with leopards and a boar that Schmidt compares to the Lion Gate at Mycenae; two almost life-size sculptures of a boar and wild cat found embedded within the rubble walls surrounding one early enclosure. Schmidt and his team have also uncovered a hollowed-out stone, roughly four-foot square, lying cracked in the middle of one of the circles...[3]

The exit stone "door" *U-stone* prevented the animals to rush out and possibly enabled an additional selection. Also the enclosures B and D seem to have had double walls, enclosure B has a porthole stone as an exit or entrance [21].

The smaller and young animals were so selected for the domestication. An additional food reserve was so created and it slowly marginalized the hunt.

As 16 other megalith rings remain buried across 22 acres - that may enable to clarify and to find out further change of their function and the shift in their importance.

Seasons and T-pillars

...Cranes are migratory birds and will cross the Harran plain twice a year while migrating from their breeding grounds to their wintering areas (August-October) or vice versa (March-April). Together with other migratory birds, they announce the turn of the seasons, an important event for many societies of the world....[12]

They announced the season, but gave not the precise timing...

The most important task was to find out, when migrations start and when animals arrive to the spot on which to be ambushed and chased in a preset trap. For this task the scouts would be distributed on various viewpoints, waiting. But the number of scouts was always limited, some could perish or just have not been fast enough to return to announce the fast moving, probably stampeding animals, mostly on the not always identical paths. The probable settlements were considerably far away. To be utmost effective with the whole organization – to distribute the people to scout, chase, ambush and trap - a precision timing was mandatory.

The hunters developed their orientation skills in a course of hundreds of thousands of years. Even if there was no Pole Star when Göbekli Tepe was constructed, was for them no problem to orient themselves wandering in the landscape at night or in daylight, but to hunt on the previously selected sites requested more.

Thus a need for a precise "calendar" emerged and the sun movement offered the immediate possibility to find out and to determine the seasons and migration times.

In the lack of a suitable characteristic landscape relief for this purpose in the near or acceptable distance from Göbekli Tepe, were hunters bound to build their own “landmarks”.

They knew how to determine the precise sun position with a shadow of an object in the reference to some fixed point. But the object and the reference should be very solid and stable to have a precise, reproducible and trustworthy “measurements”. The properly anchored heavy stone slabs, positioned on the spot, where the fix positions of the sun movement – sunrises, midday and sunsets – were conveniently visible, were the solution. Remaining problems to be solved, were the suitable stone construction configuration and its build up, the calibration of the stone slabs positions and the proper anchoring to fix them.

The structure should give a reliable and reproducible estimates many years. Therefore it had to be enough stable in any weather condition, enough stable to withstand any casual or deliberate impact or any other mechanical influence – by animals as well by humans or the plant growth.

The only way to achieve this was to erect massive stone structures – the megaliths. For them as the masters of stone working, was this understandable enterprise [22]. Very probably had they already some previous experiences, perhaps they made some trials with the simpler structures, before they decided for a major construction. But the final solution was the T-shaped pillars.

...What is clear however is that both central and surrounding pillars share the abstracted form. This abstraction is not due to the limited skills of Neolithic people in depicting the human body. It is a deliberate choice that has a meaning...[17]

Yes, it was a deliberate choice with a very straightforward meaning.

...An important role must also have been ascribed to the pairs of pillars at the center of each space which tower over the other pillars...[17]

To have a satisfactory “calendar” function they choose a double T-pillar configuration form. It was actually the most reliable, the simplest and the most effective engineering solution for the given task, which satisfied and united the building requirements and constraints with the calibration and “reading off” necessities.It was quite an ingenious piece of mind – and handwork.

As already said, the north-south and the east-west directions were simply to determine from the highest sun position at midday - for spring and autumn at equinoctiums.

But to determine the other two seasons, the most remarkable events therefore are the sun solstices – the winter and the summer solstice, marking the changes of the seasons. It was necessary to monitor the positions of the sun at the sunrise and / or at the sunset to determine the limiting ones. The observation “data” had to be independent of the position of the observer, but enabling the observer to access conveniently the observation positions. This was achieved by the couple of parallel T-pillars, positioned in some distance from each other, as every direction, or every line, may be defined geometrically with two fix points.

The T-pillar consisted from the vertical slab as the supporting base, anchored in the base rock ground, and the horizontal top slab as the observing reference. To solve the positioning stability problems – especially in winter, with the snow and ice covered slabs could slip or be easily moved, destroying the calibration – was the height of the slabs chosen to stay clear even in the case of the maximal snow cover.

The shadows cast were not very reliable due to variable ground irregularities. A direct observation of the sun position relative to the both top slabs and the shadows cast by them on each others inner surface should have been enabled. The observation positions were due to be on the same height as the top slabs of the T- pillars, which both should have been of the same height and the free view on the horizon.

The major Göbekli Tepe structures show that all listed requirements were fulfilled.

The slabs were cut and chiseled from the solid lime rock with flint tools [1], using also the firing and freezing techniques. The lime rock originates from sediment, therefore were the broad sides of the pillar slabs already as cut parallel [23]. The narrow and chipped sides had to be overworked. After the chiseling were they raw ground and polished with the sand using already other stone's plain surface. The firing inevitably produced also the quick lime and consequently also the slack lime. They surely found out its use as a glue for slabs. It was simpler to chip out both slabs separately and then finally to glue them together.

The surface holes, the moulds, indicate that this surface of the slab should have been horizontally positioned. In the surface to be plain chiseled and ground were first drilled holes, then channels between the holes correspondingly deep chipped out, the holes then filled with water, which could between holes freely flow. The surface was then ground to be parallel to the water level, enabling to produce parallel sides (Fig. 8).

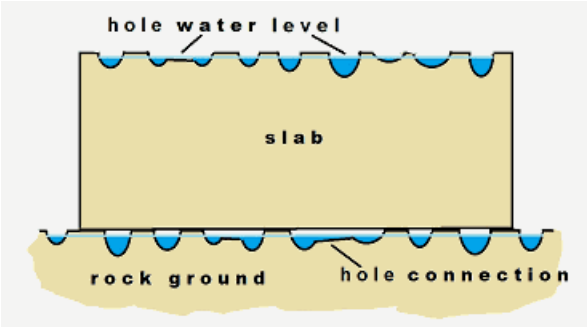

Fig. 8

In the raw slabs side were drilled holes, then the barriers between holes partially chiseled away. The holes were filled with water which could flow freely between the holes and so marked the level of the horizontal plane parallel to which ought the side to be ground.

The narrow sides of (central) pillars were oriented almost precisely towards the south. Vertical slabs were satisfactorily anchored, glued and immobilized in the slits chiseled in the solid rock ground. They enabled the stability of the construction and beard the base for the "observation structure".

The stone chiseling and carving techniques were too raw to enable the necessary position precision without the calibration. But they were ingenious enough to overcome this difficulties. The directions of the sunrise and sunset at the winter and summer solstices were approximately known, they had to be just precised.

The relationships between the T-pillars head slabs and sunrise or sunset at solstices is illustrated in Fig. 9. The sunrise (or the sunset) was monitored between these head stones as depicted.

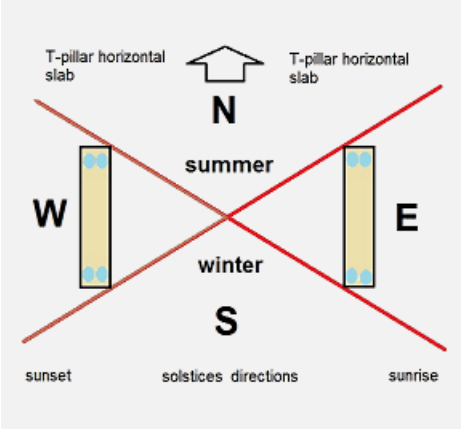

Fig. 9

The basic principle to determine the sunrise or sunset directions at solstices using the direct sight on sun through the "optical slit" - depicted as the red lines between the slabs of the pair of T-pillars. In the times in between the shadow cast by one horizontal slab on the other horizontal slab gave the "date" indication.

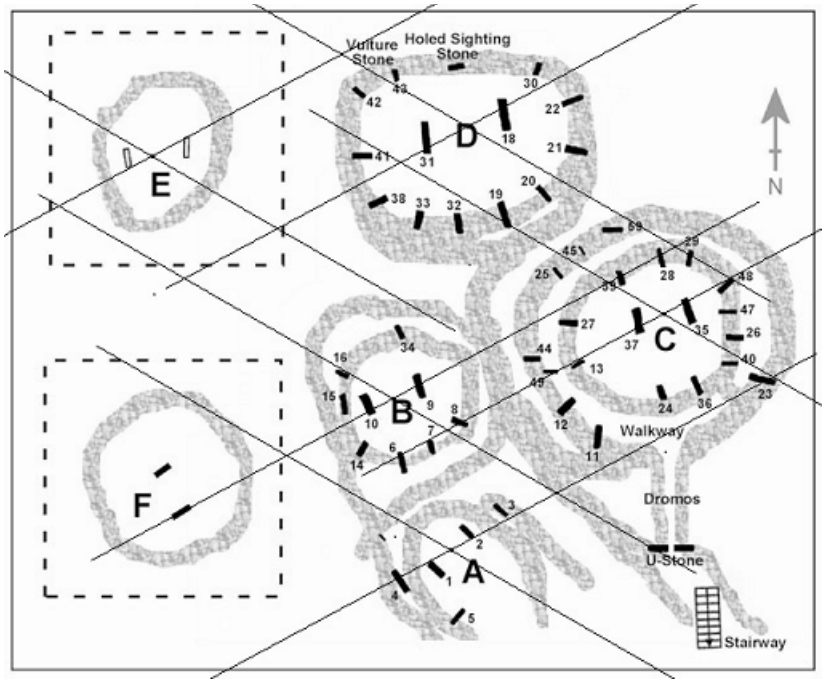

Fig.10

The present solstice directions are depicted overlaid on the projection of the Göbekli Tepe excavated structures (adapted fom [24]*) just to illustrate the idea. The differences are due to the various reasons – the nutation of the earth ax, the terrain slides, the tectonic shifts, excavation influences – the more precise direction calculations are possible, but some assertions have to be made. Maybe the preciser dating (independent of the radiocarbon method) of the individual structure constructions can be estimated. These deviations from the proper directions with the time are possibly the reason to rebuild or to build anew the structures on the top of the old ones.*

The both T-pillars were parallel positioned on the predetermined distance, as it is obvious, approximately twice the length of the head stone slab. The calibration precision is directly proportional to this distance. The chosen head stone slabs length assured the slabs to be positioned as near as possible to the properly calibrated position already at the build up. The slabs were chiseled and ground with the highest possible precision, having the rows of the cup form holes on the upper face, that remained from the initial grinding work. These holes served then as the water balance to place properly the slabs. Thus the monitoring the water level in the holes at the build up enabled the precise horizontal position of the both head stone slabs to achieve.

For the calibration were the head stone slabs, perhaps both alternately, pushed gliding parallel on the vertical slabs of the T-pillar (Fig. 11), on the days prior to solstice, till the exact extreme position of the sun on horizon at solstice was pinpointed. It is obvious (Fig. 10), that the solstice sunrise position was preferred. To fix the head position the quick lime was applied to the both contact surfaces prior to calibration and after calibration the contact sites wet to glue them. With the post grinding of the suitable surface the “fine tuning” could have been also achieved. Thus were enabled the precise reproducible season time estimates. As already said, the “dates” between the solstices could have been estimated by the top slab shadows cast on the each others inner surface at the sunrise or sunset.

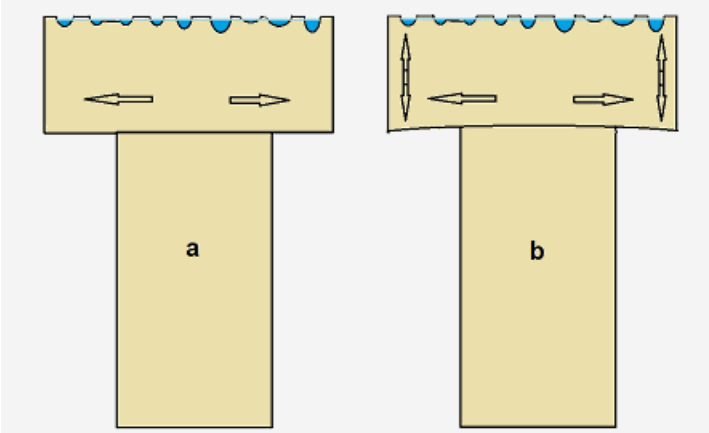

Fig. 11

For the calibration were the holes in the head slab surface filled with water serving as the water balance to position the T-pillar with head slab top side horizontal. For the calibration were the head slabs, both alternatively, pushed gliding on the base slabs (a), on the days prior to solstice till the exact extreme position of the sunrise or sunset at the solstice was pinpointed according to Fig. 9. For the horizontal fine “tuning” the contact surfaces of the head and of the vertical slab could have been slightly convex- concave, enabling to compensate the eventually slight slope of the top surface (b).

On the plateau are three unfinished pillars still in the bedrock. The biggest is 7m long and its head is 3m wide, estimated weight 50 tons [1]. They are witnesses, that the major constructions started with trial and error – their makers recognized that the slabs were too big to be handled properly and they did not finish them. The choose then the more moderate versions, getting to be smaller with the time.

The slabs were transported preferably in winter, using sleighs, upright positioned using ice and snow stacks and piles, making the steeper slopes in the depression or dug the pit prior to main excavation to enable easier work.

Or, they rose them using stones and levers in dry times. These stones were at last built in the walls between the smaller T-pillars. These were probably chipped out of the bedrock in one piece.

The monitoring should have been fast and easy, performed by everybody, so was the positioning of the big and massive T-pillars optimal somewhere on the lower terrain, enabling the sight from all necessary sides, with the free sight between the head slabs on sun on horizon at the sunrise or at the sunset. Therefore were the T-pillars placed in the enclosures, where the observations could be performed from all sides standing on the enclosure wall or on nearby ridge slope. The enclosures were serving otherwise as animal traps – the issue already dealt with.

Fig.10 shows the relation of the present solstice sunrise and sunset positions to the T-pillars configurations as excavated. It is possible, that the slight change in the position and the inclination of the earth ax, maybe also the sliding terrain or the tectonic shifts, caused the deviations observed today. They were the cause for the precision deviations also for their users and therefore they rebuild them corrected or just simply build the new one atop of the old one.

...Old enclosures were periodically decommissioned, desecrated and covered over, quite literally "killed," at the end of their useful lives. New structures were built to replace them...[24]

...once the stone rings were finished, the ancient builders covered them over with dirt. Eventually, they placed another ring nearby or on top of the old one. Over centuries, these layers created the hilltop...[25]

…at Göbekli Tepe we do not know very much about the actual use time of the buildings. We have however the enclosures themselves, their layout, and the richly decorated pillars as starting points. And we know a lot of the things people did with these enclosures at the end of their use life. It seems that they tried to highlight certain aspects of the enclosures´ meaning through their actions...[17]

...And another aspect is of importance. It seems that the enclosures were never really finished. There is permanent construction, deconstruction, and reconstruction activity at Göbekli Tepe, and the intensity of work indicates something else than pure maintenance. Most likely the act of working at the site was central to the builders, and repeated periodically, whether or not a real need existed. For example, in the inner ring of Enclosure C there is barely one pillar standing in its original position….[26]

These T-pillars, stabilizing the walls – twelve of them in the D enclosure, perhaps also in C, but one missing - were conveniently distributed around the oval probably also to mark the seasons according to the important event dates – maybe moon positions for the emerging agriculture necessary times. They were probably used also to divide the time interval between the solstices in the convenient time slices, perhaps connected in some way with the central T-pillar top slab shadows, what is still to be verified. The miniature plaquette [27] depicting the T-pillars (Fig. 12), shows the top slabs decorated with vertical lines, which are not found on any real central or any other T-pillar. These lines may have been just the indication on plaquette for the shadow edge positions to determine the times between the solstices.

Fig. 12

Miniature plaquette [27] *with depicted pair of T-pillars. The vertical lines on the top slabs may have been just the indication for the other pillar shadow edge position to determine the time slices between the solstices. There are five lines on each pillar. Combined with the maybe human shape (red), gives the impression of both hands – five lines as five fingers - rising towards heavens in prayer.*

...The reliefs depict mammals such as lions, bulls, boars, foxes, gazelles and donkeys; snakes and other reptiles, arthropods such as insects and arachnids; and birds, particularly vultures...[1]

...The sculptors of Göbekli Tepe may have simply wanted to depict the animals they saw, or perhaps create symbolic representations of the animals to use in rituals to ensure hunting success...[28]

The animal depictions on the pillars and their symbolism, compared to the prey animals identified from the bone fragments in the ground layers, are discussed in depth in [11], [12], [29], [30], [31], [32], [33], [34]. Here will be just emphasized and somewhat “cleared” the “system” of depictions.

It is obvious, that the animals, which were dangerous, admired or useful, but not as a pray, are depicted. As the hunters were animists, the spirits connected with the depicted animals should ensure a good hunt.

The depicted animals are

The predators – the animals, which were as “hunters” the “colleagues, brothers, competitors” or incarnations of ”hunting spirits”:

- Fox, panther, lion, wolf, wildcat,

The animals which were to be admired more for their strength and aggressiveness:

- Auerochs, boar, mouflon,

The animals which were very dangerous, numerous, hidden, lethal and had to be respected in spite their small size, but overall present:

- Snake, scorpion, spider,

Then the useful birds, as the “heavenly as messengers”, admired for their freedom:

- Cranes, geese, vultures.

Maybe the various clans cherished each their own totemic predator which was then as a symbol chiseled in the slabs. Perhaps the stone masters marked in this way their “signatures” - as the burly “Wild Boar”, the swift “Agile Snake“, the deceiving “Cunning Fox” or …

...The enclosures excavated so far show a variation in the animal species depicted prominently in the iconography of each circle. While in Enclosure A the snake prevails, in Enclosure B foxes are dominant, for example. In Enclosure C boars take over and in Enclosure D birds are playing an important role, while Enclosure H has lots of wildcats...[26]

The fox – the second most numerous - is depicted mostly (predominantly) on central pillars and the snakes - the most numerous on the circle pillars. It was the animal to be encountered mostly in the, woodland and shrubs and so seemed to be the representation of the spirit dominating the Tepe heights and the landscape beyond. Maybe its reddish color somewhat connected the animal to the sun – at sunrise and sunset – in spite being active mostly at night. The fox was cherished, according to Schmidt, as the animal with the especial surviving strategy – being small and vulnerable, but outsmarting the stronger ones by observing and precisely judging the situation. Surely, the hunters found themselves related in this way to fox and they depicted the fox “spirit” somewhat anthropomorphic as the central pillar, or, they assigned to fox the central pillar. This central pillars were dedicated to serve as calendars, but humans “animated” them as watchful beings, observing the sun. The same as we tend to “animate” especially us dear objects – children the toys, elderly their weapons - swords, rifles and our contemporaries automobiles etc. by giving them names and an especial care. Central T-pillars were tools, the objects for use, and utilities. They show their task to observe, to watch towards the sun. The relief of the pair of hands, indicated the observation direction but marked not the pillar as a depiction of a stylized human.

The African hunters know – if there is a snake, then there are hundreds of them hidden in the vicinity, the same is valid also for scorpions. Their bite may be lethal. The dangerous spider is very probably the black widow – her bite is relatively seldom, the bitten one gets nuts and if he does not commit a suicide because of pain, is he back normal in two days. So they all deserve a special respect even if they can be easily killed.

Maybe, they cast a corresponding spell on the pillar by depicting an animal – the spell which was “active” even if the depiction was buried in the enclosure wall. There are completely barren pillars, therefore are the rich depictions on some of them just the occasional craftsman works, made till the use of pillar in the wall. Maybe is just a narrative ones.

If this would not be the case, then were the pillars worked out by an earlier population, and buried in the wall by a later one, but all of them were hunters. Who knows...?

People and Religion

... These enormous monoliths... acted as otherworldly portals to invisible realms...

Enchanted Visitor

But surely not to their builders...

The persistently repeating, seasonally regular, grazer migration from Syrian lowlands to Anatolian plateau and back was the primary reason to erect the first major Göbekli Tepe structures. It is highly unlikely that the catch was transported from some remote hunting site to be consumed on Tepe and sacrifice rituals be performed –

especially if the hunters were not settled on the Tepe. They surely transported a part of catch to their families, but they were somewhere else.

...it can be reasonably assumed that the richness in local bio-resources played a role when more than 11,500 years ago, hunter-gatherers decided to select the particular location of Göbekli Tepe for large-scale building, feasting and other socially and ideologically important activities...[13].

Before we proceed further, let us be conscious that Göbekli Tepe “as is” represents the results, better the rests, of the human actions through a vast time period. These rests are not, and probably can not be fully analyzed or discernible ever fully in their time sequence. Equally, their parts – also the details (for ex. [17], [35]) – are the products of a multitude of generations of people with the similar but various cultural background, always changing with the time.

The same people very surely, not always used the site – the same people meaning the people and their descendants in line, both of the same culture, even if they socially evolved with the time. The diminishing hunting success, the dwindling numbers of prey animals – as a consequence of the overkill and the climate change, other food sources, all that added to rule out the hunt as the main food source with the time passing.

While building structures and hunting, it would be for hunters very convenient to settle somewhere in the neighbourhood. Their shelters should have been also there, but the archaeological search for them brought no results. Also to build a roof over the enclosure did not have any sense. Any stronger rain by the rainwater leaking through the walls and pouring down the slopes flooded the enclosures.

…found none of the telltale signs of a settlement: no cooking hearths, houses or trash pits, and none of the clay fertility figurines that litter nearby sites of about the same age...[2]

...Remarkably, no residential buildings have been discovered...[17]

Maybe, they, being still used to the nomadic life, built the shelters from scrub and mud – similar as the Masai people do even nowadays. Such shelters disintegrate readily and cannot leave any archaeologically detectable imprint on the site. It is reasonable to have a temporary shelter in the woodlands of the neighbour valleys with the easier access to water. On the plateau is all exposed to sun and wind, in summer without water – and the ancient people were very capable to make the proper decision.

...Göbekli Tepe is a special site in many respects: its location is hostile to settlement, no water sources are in vicinity...[17]

The research on other locations in the reasonable neighborhood distance from Göbekli Tepe gave clues to draw the corresponding conclusions, and for example:

...Human isotope studies and the archaeological data suggest a permanent occupation of the site (Körtik Tepe) and might point to a local primordial adoption of a sedentary lifestyle in this region as early as the 11th millennium BC.[36]

Probably are the water holes, cut in the limestone on the plateau, the evidence for their, perhaps only temporary, settlement on the spot. The site E – it is oval as the enclosures – suggests, due to the unimpeded all sides view, was perhaps it really only a temple raised on the top, where the most religious buildings usually stand. It maybe the place where the first, but smaller T-pillars were erected. Their size made them especially in winter too vulnerable, and were therefore later removed and somewhere else used. Then were probably the next enterprises the big unfinished pillars.

For hunt was also very convenient to move, if at all, from the hills in the plain and back according to seasons and animal migration directions.

...An answer to the question why these people congregated for work at Göbekli Tepe comes from the enclosure ´s fillings. The material used as backfill consists of limestone rubble from the quarries nearby, flint artifacts and animal bones smashed to get to the marrow, clearly the remains of meals. … As traces of permanent settlement are absent, this readily leads to the idea of large, ritualized work feasts *rooted in the belief systems of the people congregating there...*[23]

It was the collective hunting, the collective organized action, primary the food acquisition, which led to the buildup and the main use of structures.

… cut marks and splintered edges on them—signs that the animals from which they came were butchered and cooked...The abundant remnants of wild game indicate that the people who lived here had not yet domesticated animals or farmed...[25]

No, they indicate just the fact that the hunters did not settle on the Göbekli Tepe plateau.

...that the bone material described above can be characterized as refuse derived from hunting and food preparation and consumption activities rather than from ritual procedures...[17]

The remains of bones in the ground layer of enclosures are doubtless the remains of catch consumed on the spot. They confirm the use of enclosures as traps. The presence of many vulture bones [12] is also the evidence that for. As animals were killed in the enclosures, hunters tried to protect their catch from vultures, which inevitable gathered and were very probably already used to find food there. The vultures were usually the last resort to eat – there is also not much to eat on them and possibly not very healthy. Besides, they prefer to come to the killing sites, where they have as food for others indigestible animal parts. If the site were just the site to consume the meat – where only for the humans digestible parts were brought and almost completely consumed – there would be almost nothing for the vultures to consume. The ground layer was finally cleaned – to remove the rotten animal rests, stench, flies and to restore the clean surroundings.

The Göbekli Tepe structures were used for a vast time period. There could not have been any orgiastic feasts and if something similar, then very seldom. The really big amounts of the bone rests, distributed over the times of “use” of structures and the population size, are actually the evidence for the mostly relatively modest but - the most important – persistent hunting successes.

The hunting grounds were by the structures localized, any not more far away extended hunting enterprises needed. This suggests also that the people were somewhere already practically settled. They were developing the first agriculture, if it was not already used. Even the animal domestication at that early times of Göbekli Tepe construction, can not be excluded as the enclosure C suggests. The early-domesticated animals were almost indistinguishably from the wild ones. So there is no guarantee that the builders were the “pure” hunters and gatherers. As an example may be taken again the Masai people – they were hunters as well shepherds, and are leading this way of life even nowadays as far as possible.

...Creation of the circular enclosures in layer III later gave way to the construction of small rectangular rooms in layer II...[1]

...Over a period of around 1,500 years twenty or more major enclosures were constructed ... New structures were built to replace them...they became much smaller in construction, until eventually the cell-like buildings...with pillars no more than five feet (a meter and a half) in height...[3]

The T-pillars became the representations of an unknown couple of deities and were therefore in later ages many times copied in smaller form, then set in the smaller enclosures, which were never used as animal traps. The plaquette from Fig. 12 gives the impression that the central pair of T-pillars represents both hands raised in prayer and if so, this may be some late religious interpretation of the pillars.

With the diminishing role of hunt, the magic of the depicted remained and was conserved in this smaller T-pillars in this smaller enclosures, which were used probably as worship “chapels”.

... Why the enclosures were buried is unknown, but it preserved them for posterity...[1]

...They were cleaned, part of their fittings dismantled, and refilled. During the refilling, objects that obviously had a great importance to PPN people were deposited in the filling ... However it seems that refilling was a relatively fast process. There are no intermediate sterile layers brought in by water or wind... [8]

The structures so gradually lost their primary use and their importance. The newcomers came frequently through the ages. They perhaps exterminated the natives, maybe only partially, maybe they assimilated or get assimilated by the original population. They found the formidable structures, the T-pillars, which were for them surely very strange and enigmatic, not knowing their ages old primary purpose. They were then interpreted by shamans, what assigned them a mythic and a magic character and were later imitated for their own use.

They were utterly foreign, placed there by people who saw the world in a way I will never comprehend. There are no sources to explain what the symbols might mean. 26]

So became the “killing floor”, the slaughterhouse, at last an abandoned temple – maybe some new religious belief emerged, perhaps through the newcomers, prevailed, but in any case the old faithful orthodox worshipers hid the structures from the desecration by burying them.

The fact that a stationary structure was build means that a territoriality emerged as a serious issue in the society, and not as a single one – followed by a notion of property and the material property as more or less individual ownership as a base for the settled population. With the “modernity” of the human species came the enhanced stratified hierarchy in the society. The behavior of the earlier (almost) egalitarian society was followed by the society determined more and more by greed, the greed for power and for property of individuals and of the society as a whole. We, us and the others were not more determined solely through the blood lines and the hunger, but perhaps even stronger through the emerging religious concepts.

If not before, but certainly with this “modernity” [37] the females “advanced” to became the property, an asset through a brutal selection. Depicted are solely male animals on Göbekli Tepe, worked out also some ithyphallic sculptures - a sign more, that the population may have been somewhere already settled at the time of the Göbekli Tepe construction. The females and the offspring were held away from the hunting structures, there had to be a settlement somewhere in the far neighborhood for them. It means the practically complete gender labor division. The only female depiction on Göbekli Tepe, raw cut in the stone, is actually by content an “erotic graffiti” [1], probably from some later age and hardly to be taken as the depiction of the Great Mother, the later fertility goddess. It is a sign that the farming and animal husbandry, if present at all, were still something less important than the hunting at that time. The matriarchal society emerged later very probably only with the farming as the main source of food. It lasted only till the armed conflicts between the tribes for the resources prevailed as the social interactions. Female fate was then to become just the production means to produce offspring and crops, this development enhanced by natural selection.

But their “modernity” is also our “modernity”. We share with them all our subconscious archetypes, our greed, hate, cowardice, hypocrisy, recklessness, kill-ability … as the fundamental social drives and wishes, cooperation, compassion, sacrifice, love … as the fundamental social direction regulators, all the result of the individual and social evolution.

Their religious beliefs – if so this animal animism may be named - were obviously connected to the predatory animals, what is the direct consequence of their origins as the primal hunter (and gatherer) society. The animists do not worship – worship taken as a regulated ritual - neither the animals nor extraordinary objects, they just try to appease, to gain, to buy the affection of the spirits to which these animals or objects are dedicated or are

animated with. The hunters themselves, as also the animals, are the parts of the whole animated nature. There is no heaven or hell, only good, bad and probably evil, all relative and “negotiable”. But to all of them was the sun the primeval life *agens*, being deity or being controlled by deity – the sun being common to all primal religious beliefs and maybe the first that was ever worshiped.

The old Egyptian religion may be compared – sun the highest, most other deities are depicted with human bodies, with predatory animal heads corresponding to their various tasks, a clear heritage of the hunter-gatherer times. But their society, save the ruling class, was exclusively agricultural. For comparison, the Hindu society has just some deities in partially animal depiction – the main of them are not predators – for example Ganesha as the elephant and Hanuman as the ape. Their society is already an agricultural society – the goddess Sita – the *wheat* is born from the furrow, named correspondingly *žito* in Slovenian and other Slavic languages – so emerged the fertility archetype of the Great Mother with the farming, but it did not replace the archetype of the great warrior and hunter, the omnipotent Father, nourished by the social conflicts.

The symbols of many states and of their dominance are the heritage of hunter-gatherer societies. There are eagles in the flags, so the antique, as the modern white, black, single and two headed, the lions and panthers in the coat-of-arms of the states in the lands where these animals never lived, mythic animals as dragons and basilisks. All the animals, which should show the vigour, power, courage and the warrior spirit of the represented society.

Actually, in this view no really special mysteries on Göbekli Tepe!

But all this is not more the subject of our discussion, it is out of the scope of this article.

Summary

The large scale climatic change after the last glaciation and especially the relatively fast increase of the global temperatures after the Younger Dryas cool period caused increasingly humid climatic conditions in Anatolia and in Syrian lowlands. The for the fauna and flora favorable change lasted a couple of thousands of years in the broader neighborhood of Göbekli Tepe plateau– situated on the transition between these two regions on the Anti-Taurus hills - turning slowly back to dry in the course of the further global temperature rise. In the humid period was the region abundant on the wild animals and rich on food resources.

The first major Göbekli Tepe structures were erected due to the persistently repeating, seasonally regular, grazer migration from Syrian lowlands to Anatolian plateau and back. The grazer migration route led over the Göbekli Tepe plateau, the open patched stony and grassy landscape, preferred by the herds of migrating animals.

Due to its star form, the north and the south ridge as migration paths, and especially to the southwest opened valley, was Göbekli Tepe plateau very convenient to chase over the migrating animals and to trap them at the southwest valley top.

The hunters were well acquainted with the pit traps and “hunting kite” structures as the means for a major catch. A large pit, to dig it from the solid rock was an enterprise very hard to be undertaken on the Göbekli Tepe plateau, but to build a wall or an enclosure – from the local rocks – and to bury it from the outside, but leaving it uncovered from inside, was the solution. So they succeeded to construct a pit as an enclosure at the top of the southwest valley, easy accessible from outside, actually piling up the embankment leading straight to and in the enclosure. So the animals migrating from north or from the south could be trapped.

The wall of the enclosure was not very stable, the stones were easily loosened, by the rain washed and by wind uncovered, so they had to be bound and anchored. To bind them and to anchor them they they used great stone slabs cut out from the plateau bedrock. They protected the between them stuck and pressed wall stones to fall inside, and the pressure between the stones and the slabs kept both in place. To assure the goodwill of the hunt

spirits, to appease them, to make them favorable, they chiseled the depictions of the animal predators, as the hunting colleagues, in the stone slabs, consecrating them the slabs and the enclosure. The stone slabs were already T-pillars and the heavy head of the pillar was the most convenient hunter standing spot for effective hit and fast kill in the enclosure trapped animals.

To impede the moving of the frantic jumping animals in the enclosure, was the enclosure ground covered with the thick loose layer of stone debris, enabling to hunters a more precise hit.

The scavengers, vultures, predators and clouds of flies were readily attracted to the enclosures, very probably they soon discovered the pits as the persistent easy accessible source of food. The hunters had to defend their catch, therefore are found many bone rests of the animals in the enclosure debris, which did not posses a lot of the consumable flesh. After the kill and the butchering was the blood soaked and with the indigestible animal parts mixed debris of the ground layer exchanged by the clean one to avoid the unhealthy conditions.

For a good hunt on the migrating animals on the chosen spot a precision time prediction of the migration is needed. For this purpose a “calendar” based on the sun movement was created. A pair of T-pillars was chosen for the purpose, where the shadows of the top horizontal slabs on each other at the sunrise or sunset gave the “date” indication. The limiting shadow position at the solstices matched the edges of the slabs, and the view of the sun on the horizon was between both slabs as through the optical slit. Therefore should have been the observation positions on the same height as the top slabs. Beside that, the top slabs should have been not easily accessible to preserve the calibration from the human, animal or plant influence. This was achieved with the especially high pillars erected on the lower ground in the middle of the enclosure, but with a good sight on the top slabs from the enclosure wall or the valley slopes.

Due to the repeated hunting, always on the same convenient place, were the enclosures built and the hunters started to settle in the neighbourhood. The solid dwelling were build, the already skillful gatherers started to plant and grow the plants, to keep and herd the animals. With the time new spirits to be appeased, to assure the fertility of plants and domestic animals, emerged. The old hunt spirits were probable jealous, and they envied the new ones, maybe the old turned evil, the new shaman accessing greater power demanded to abandon the old faith, to “re-educate” the people devoted to the old spirits, buried their worship place, the hunting enclosures that became temples.

Actually, all very humanlike, the earthly became the sacred, than heavenly…therefore at last forbidden...

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