International Journal of Modern Anthropology
*Int. J. Mod. Anthrop.*2023. Vol. 2, Issue 20, pp: 1301 - 1329
DOI: http://dx.doi.org/10.4314/ijma.v2i20.2
Available online at: www.ata.org.tn & https://www.ajol.info/index.php/ijma

Research Report

Parallelism of Prehistoric Lanzarote (Canary Islands) Quesera/Cheeseboard Lunisolar Calendar and intriguing strip band channels of the City of David archaeological site (Middle East)

Antonio Arnaiz-Villena[1 *], Marcial Medina[2], Christian Vaquero-Yuste[1], Carlos Suarez-Sanchez[1], Ignacio Juarez[1] and Fabio Suarez-Trujillo[1]

[1]*Department of Immunology, Medicine Faculty, Complutense University of Madrid, Spain.*
[2]*Freelance archaeologist, Arrecife, Lanzarote, Islas Canarias (Spain)*
[*] *Correspondence: Antonio Arnaiz-Villena, Departamento de Inmunología, Facultad de Medicina Universidad Complutense, Avda. Complutense s/n, 28040 Madrid, Spain. e-mails: antonioarnaizvillena@hotmail.com, aarnaiz@med.ucm.es Webpage: http://chopo.pntic.mec.es/biolmol*

*(**Received** 10 October 2023; **Accepted** 4 November 2023; **Published** 25 November 2023)*

Abstract - It has recently been discovered and widespread in worldwide media that a puzzling and unusual channel structures have appeared at the City of David archaeological site in Middle East (Al Quds - Jerusalem). No function has been agreed for them and their building age has been calculated in an uncertain time before 2800 years BC when these structures ceased to be used. We have been working in Lanzarote Island (Canary Islands) rock epigraphy and other archaeological matters in the last 20 years, and we have found that the structure of "Quesera"/Cheeseboard of Zonzamas was a lunisolar calendar similar to the Egyptian one (365 solar days and about 27.5 days) built up by aboriginal Guanches. It consists in channels carved in basaltic rocks in a precise way, which is very similar to one of the intriguing structures found at the City of David that may also represent an ancient Egyptian-like calendar. The second structure having parallel channels may be either part of another "Quesera"/Cheeseboard-like calendar or even a cart-ruts structure more widely defined in Malta as a Bronze Age construction. Both structures might also be astronomical observatories. We have proposed from our studies in Lanzarote and Malta Bronze Age cart-ruts that they also may be used to measure time and astronomic observations. This specific homology would certainly may bring Lanzarote megalithic archaeological "Quesera"/Cheese board centuries of years BC in antiquity. This so specific parallel between artifacts found in Middle East and Lanzarote could be explained by a "green" Sahara culture before desertification started 10-5,000 years BC.

Keywords: Lanzarote, Canary Islands, Middle East (Al Quds - Jerusalem), City of David, Cart-ruts, Malta, Lunisolar Calendar, Bronze Age, Sahara, Quesera/Cheeseboard, Iberia, Zonzamas.

Introduction

The City of David has been found to be one of the most ancient settlements, about the 4th millennium BC, in Middle East (Al-Quds – Jerusalem), **Fig. 1**. (https://en.wikipedia.org/wiki/Jerusalem),

Fig. 1. Map of Eastern Mediterranean Basin and Middle East showing David City at Al Quds - Jerusalem location (White spot).

Recently (August 2023), it was disclosed that intriguing and puzzling structures had been found in the archaeological excavations that are being carried out in the City of David (**Fig. 2**) (https://arkeonews.net/archaeologists-find-mysterious-2800-year-old-channels-in-jerusalem/

Fig. 2. Archaeological site at the City of David (Al Quds - Jerusalem). Arkeonews. IAA. https://arkeonews.net/archaeologists-find-mysterious-2800-year-old-channels-in-jerusalem/.

Professor Yiftah Shalev, a senior researcher, said about these puzzling structures (**Figs 3**, 4, **5**) that their age was unclear. However, these structures were fell out of use at 9th century BC, said also other researchers. Thus, age of these constructions is very ancient and before 2800 years before present. It means that these rock channels were constructed in and undetermined time before this date. Professor Yuval Gadot said that structure shown in **Figs. 3** and **4** was placed only 10 meters away from structure shown in **Fig. 5**. Both kind of structures were made in hewn rock (30 cm wide and 50 cm high). There are no traces of blood, and they are not thought to transport or contain a great volume of water. Other possibilities of their uses have been hypothesized in worldwide newspapers. (https://arkeonews.net/archaeologists-find-mysterious-2800-year-old-channels-in-jerusalem/)

Fig. 3. Rock channels structure found in the archaeological site at the City of David (Al Quds - Jerusalem). Image taken from https://arkeonews.net/archaeologists-find-mysterious-2800-year-old-channels-in-jerusalem/. IAA.

Fig. 4. Rock channels structure found in the archaeological site at the City of David. People is probably shown for structures size comparison. Height and width of channels can be appreciated in this photograph. Forked middle crest and channels may both represent spring and autumn equinoxes sunrise, because this middle non-forked crest represents equinoxes at Lanzarote "Quesera"/Cheeseboard rock calendar. Image taken from IAA: https://arkeonews.net/archaeologists-find-mysterious-2800-year-old-channels-in-jerusalem/.

Fig. 5. Rock channels carved in rock found at the City of David archaeological site similar to cart-ruts structures found in Malta and Lanzarote. This structure is 10 meters far from the one shown in **Figs 3, 4**. Photograph taken from https://arkeonews.net/archaeologists-find-mysterious-2800-year-old-channels-in-jerusalem/. IAA.

On the other hand, North African and Iberian genes (people) have been exchanged since prehistoric times (Arnaiz-Villena *et al.* 1999, 2001, 2002). Thus, genetic differences between western Mediterraneans and Northwest Africans are scanty (Arnaiz-Villena *et al.* 2015, 2017; Hajjej *et al.* 2018) because prehistoric Atlantic Europe, North Africa and Canary Islands belong to related cultural and genetic group (Arnaiz-Villena *et al.* 2017). Also, Canary Is prehistory should in part be interpreted in the context of Megalithic Atlantic culture (Arnaiz-Villena *et al.* 2015, 2017; Medina & Arnaiz-Villena, 2018a; 2018b) (**Figs 6**, **7**). In addition, a lunisolar calendar representation has been found in Lanzarote Island, Canary Islands, "La Quesera"/Cheeseboard of Zonzamas (Medina & Arnaiz-Villena 2018a; 2018b), see Results and **Figs 8, 9**; volcanic Canary Islands (Spain) are placed in front of Moroccan Coast (**Figs 6, 7**). This Lanzarote lunisolar calendar resembles very much the Jerusalem structures shown in **Figs 3, 4**. (see **Figs 8** and **9**).

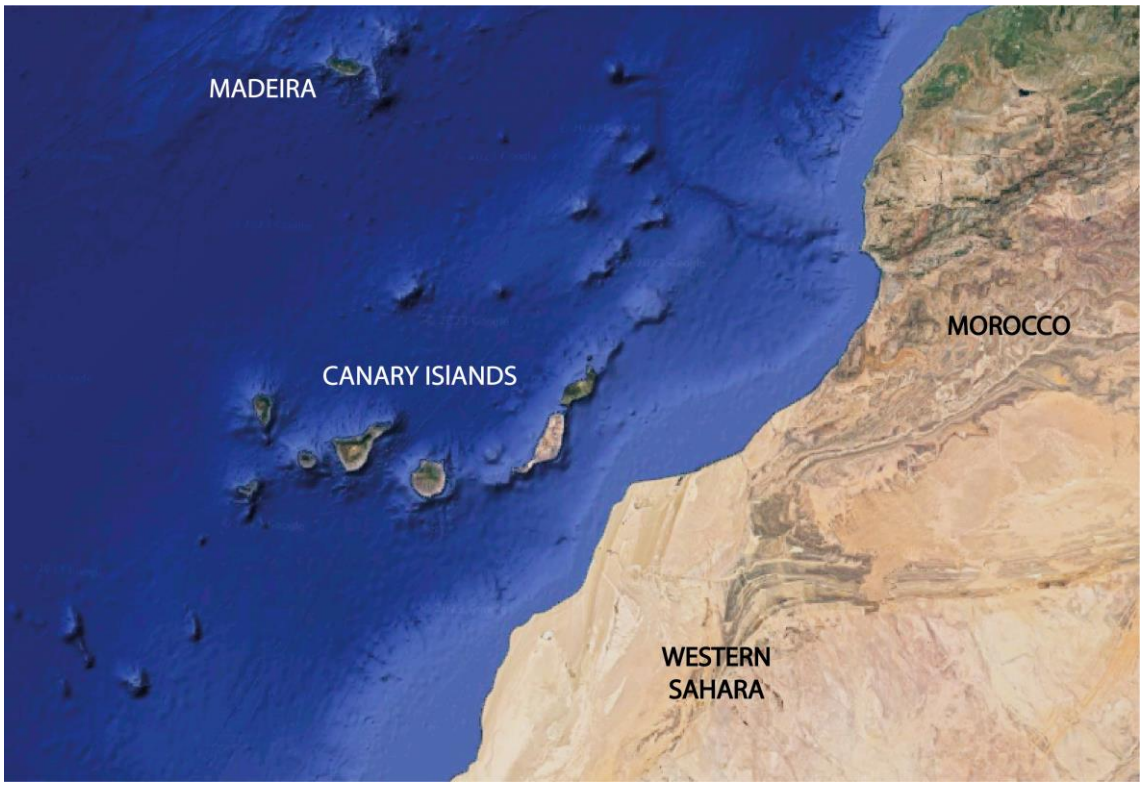

Fig. 6. Map showing Canary Islands archipelagos in front of West Africa coast.

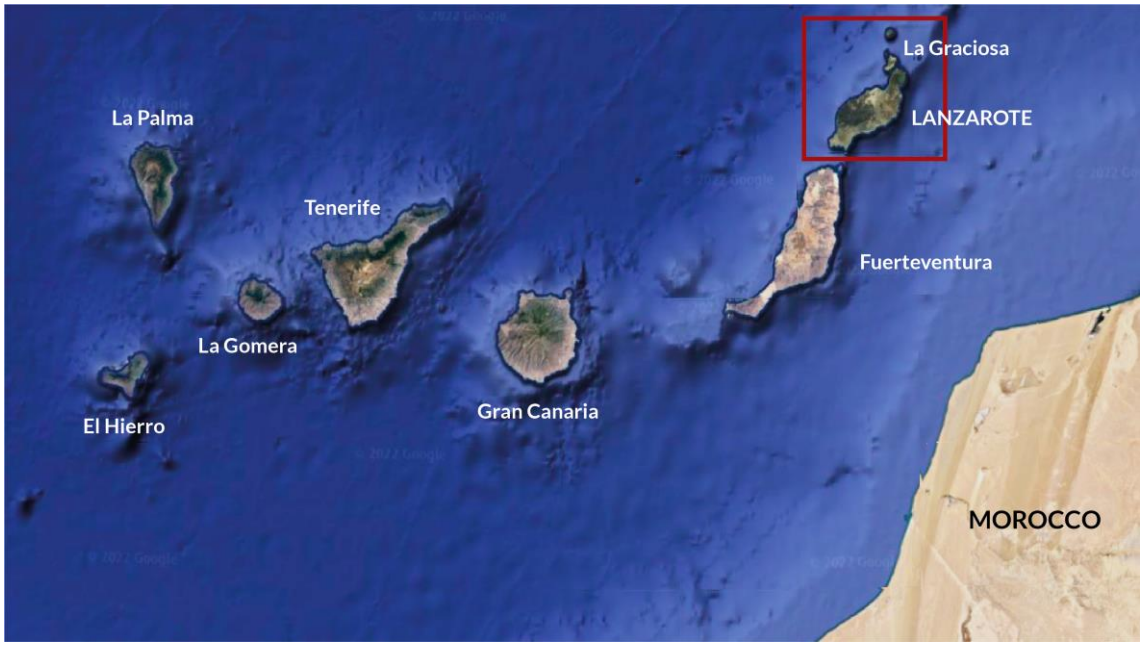

Fig. 7. Detailed map of Canary Islands remarking Lanzarote Island which is marked into a red square where both "Quesera"/Cheeseboard and cart- ruts have been found. Canary Islands (Fuerteventura) are only 90 km away from Morocco coast.

Prehistoric Atlantic petroglyphs, mummifications, pyramids and possible megalithic buildings have been found in Canary Is. (Medina & Arnaiz-Villena 2018a; 2018b), particularly this lunisolar calendar "Cheeseboard" of Zonzamas in Lanzarote Island. However, archaeological dating based on absolute objective methods are greatly lacking in Canary Islands archaeological patrimony (Atoche Peña & Ramirez Rodriguez 2009).

Therefore, man has used lunar measure of time by taking Moon phases and months early in societies, giving a particular importance to full Moon phase. The lunar calendar is interrelated with the solar calendar in "Quesera"/Cheeseboard of Zonzamas Lanzarote Island monument; its builders must likely belong to a megalithic Atlantic culture which is the main character of this monument (Medina & Arnaiz-Villena 2018a; 2018b).

The cart-ruts are prehistoric grooves hewn on the rock face of about ten to sixty centimeters deep and fifteen to twenty-five centimeters wide, as observed in Malta Archipelago (**Figs 10, 11**). These are deep ruts, rails, tracks, grooves, channels observed in Malta's rocks and are very frequent along territory and in such numbers, variety and construction that they leave more questions than answers. They are located all over the islands of Malta and Gozo. Cart-Ruts themselves are sunken grooves, ruts, tracks, rails found in rock. Channels are rarely running strictly in parallel. They follow approximate parallel convergent directions; some are perpendicular to others and finally others change to curved lines after a straight trajectory.

The purpose of cart-ruts is still an unsolved mystery, as there were no written, images, myth or verbal record of what they were used for. Maltese historian, Abela (1647), described them and "cart-ruts" that were just as puzzling then as they are today. They have always been interpreted as tracks left by some form of vehicle, but the term "cart-rut" may, in fact, be a misnomer when applied to all of the cuttings. Abela clearly demonstrated that they belong to a more distant past, but time when they were made and who were peoples that fabricated them are matters that have puzzled archaeologists working in Malta until present. Bonanno states: "The enigmatic cart-ruts are too obvious in the Maltese rocky landscape to be ignored in any work" (Bonanno 1993). They are in fact now widespread throughout the Archipelago, and it is feasible that many of them have been destroyed.

Fig. 8. "Quesera" (Cheeseboard) of Zonzamas (29. 0005702º North latitude and 13. 5677934º West longitude).
It consists of six grooves carved in basaltic rock, 30 cm high (11.8 inches) and between 27- 45 cm wide (10.6 - 17.7 inches). Its largest diameter is 3.9 meters (127.9 feet) six/rock segments-strips were left prominent between carved channels. Podomorph rock engravings are recorded in other nearby places (Cabrera Perez 1992). Its location lays on a hill close to ancient capital, Zonzamas; it has a wide view to present day Lanzarote capital, Arrecife (Medina and ArnaizVillena 2018 a, b). (Photo taken by M M).

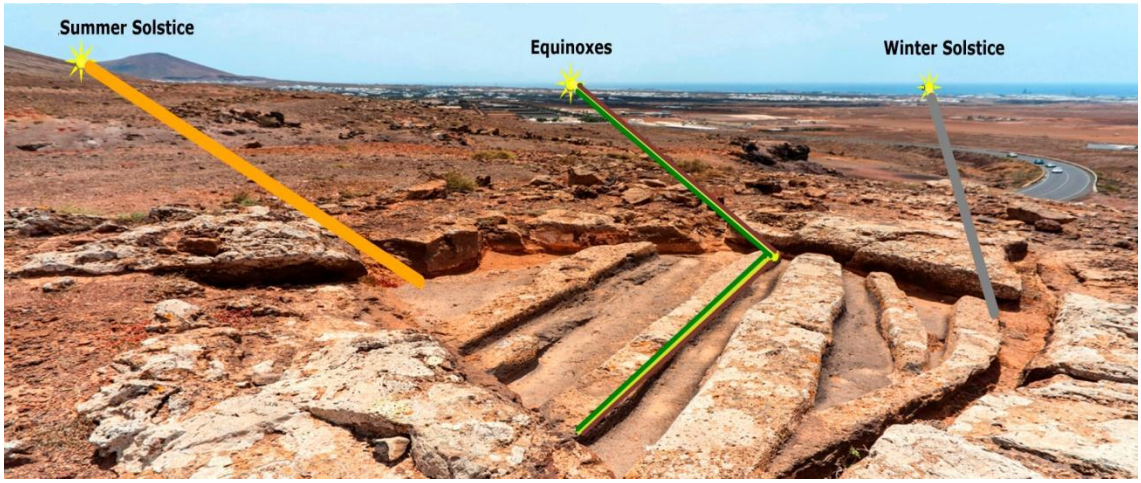

Fig. 9. Sunrise at Summer Solstices, Autumn/Spring Equinoxes and Winter Solstice from a "Quesera" observer (left to right).
Photography from "Quesera" of Zonzamas (Lanzarote). **Left:** Sun rises (2014 AD) between Maneje and Tahiche mountains at Summer Solstice (orange line). It is possible that if "Quesera" is ancient enough, an observer from this point might have seen Sun rising at Tahiche mountain slope or vertex in Antiquity because Ecliptic obliquity is diminishing about 0.47 arch seconds per year at present times. **Middle:** Sun rises at middle sea horizon, both at Autumn and Spring Equinoxes (green line). **Right:** Sun rises at right sea horizon at Winter Solstice (grey line). Sunrises complete a yearly azimuth arch between 62º and 117º degrees going from June 21st to December 21st and back (Medina and Arnaiz-Villena,2018 a, b).

Fig. 10. Map of Malta Archipelago including Malta and Gozo Island, south to Sicily, Italy.

Dating cart-ruts is a difficult problem. Great antiquity is suggested by those examples that have underwent geological events; some have been cut short at cliff edges, others have been broken by fault lines and others go into sea (Trump 1998, 2002, 2008; Mifsud *et al.* 2000). Trump assigns their construction in Malta to Bronze Age, but building time may be stratified depending on each studied site (Arnaiz-Villena *et al.* 2019; Bonnici 2005). Cart-ruts are nowadays seen widespread throughout Malta and Gozo Islands.

Fig. 11a. Archaeological site of Tal-Mensija, San Gwann village, (Malta). 35.911ºN, 14.478ºE. http://www.cartrutsmalta.com/.
2a - Plain photograph. 2b – A North-East photograph of the cart-rut complex because ruts follow a South-West direction. 2c – A close up photograph of 2b. The photographs were taken on summer noon day with full sun light which fades colors and also plants and dried bushes are exuberant because of the time of the year Medina and Arnaiz-Villena *et al.* 2019a. (Photos taken by A A-V)

There are extensive studies of many of the Malta cart-rut sites which are at present identified and some of them are studied in deep (Trump 2002, 2008; Bonnano 1993). They have been constructed by man and not by Nature because of their intentional skewing and steps and also their frequent lack of-strict parallelism, convergence or curve perfection in many cases (Trump 2008). They started to be built in Malta around Bronze Age or before at Malta Temples Age (Trump 2002, 2008; Bonnici 2005) and they may have been continued to be built in later periods (Trump 2002, 2008; Bonnici 2005). As started above, their function is debated: most of them are useless as rail roads for any kind of transport; therefore, this "cart-ruts" name is misleading. At present, scholars only think practical and present-day terms of usefulness. However, the problem of the many cart-

ruts uses and purpose in Malta is not more important than the problem of explaining why so many megalithic temples were built in Malta since 5th millennium BC, many of them with precise astronomical intentionality. By homology with temples, one could not discard that cart-ruts are also necessary for establishing time and also astronomical/geographical directions or even being used for a religious purpose. It is widely accepted that both Malta megalithic temples and cart-ruts belong to Megalithic Culture (Trump 2002; 2008; Bonnici 2005; Bonanno 2017) and that some of them may have been built in more recent times.

Cart-ruts exist in other parts of the World including Atlantic Islands (Azores Islands, Portugal) and Lanzarote (Arnaiz-Villena *et al.* 2018). These two places were not included in the European Community Research Project led by Prof. Bonnici (2005) which has widely studied cart-ruts in Mediterranean area and different authors explain their discoveries and views. Cart-ruts have been found in several countries: Spain, Italy, France, Switzerland, Greece, Portugal, England, North Africa (Egypt, Dougga in Tunisia and Cyrene in Libya), Turkey and Azerbaijan. However, this multi-author study (Bonnici. 2005) is missing studies in cart-ruts extant in the Atlantic Ocean, i.e.: Lanzarote (Arnaiz-Villena and Medina 2018b; Arnaiz-Villena *et al.* 2018, 2019) and Azores Islands (Ribeiro *et al.* 2015; 2017; Rodrigues *et al.* 2015).

Material and methods

Malta

Malta field work was carried out with a compass/ inclinometer NS1620 (SAC Electronics, Sutton, Nottinghamshire, UK). At least three different measurements were taken for each value. Also, a Sony Camera Cybershot 14.1 Megapixels Carl-Zeiss lens Vario-Tessar was used for photograph work. In addition, Android software Ulysse Gizmo was also employed as compass/inclinometer to obtain azimuth, geographical directions and longitude/latitude. Its software was calibrated each time after one single use and several measures were taken in three different times; also, reverse direction measurements were taken for assessing data. Values obtained by SAC compass/inclinometer were coincidental with those obtained by Ulysse Gizmo software in a Sony Xperia G3112 cellular phone.

Lanzarote

Sunrise azimuths and altitude every day during a two-year period (2014-2015) were measured from the "Quesera"/Cheeseboard de Zonzamas elevation (162 meters, 531 feet above sea level) placed at 29.0005702º North latitude and 1.5677934º West longitude. SPSMAP 60c color map Navigator was used for local coordinate assessment (Garmin International, Kansas, and USA). Suunto Tandem/360PC/360R DG compass and inclinometer (Turku, Finland) was used to astronomical records (Medina & Arnaiz-Villena 2018a; 2018b) and a computer program calculated other parameters (SunEarthTools.com, online program). Other instruments were used for reassessing measurements: above mentioned SPSMAP navigator and binoculars 7x50 Estancos Anti-Impactos with Plastimo Compass (Sea Binoculars, Plastino USA Inc, Wilmington, Delaware, USA).

Results

Malta

Cart-ruts

Malta Cart-ruts sites in Malta could have apparent similarities with Lanzarote "Quesera"/Cheeseboard, although they need further study. We have examined three of them. First one was placed at San Gwan City center (**Fig. 11**) surrounded by modern buildings which had destroyed a great part of cart-ruts. In fact, removing bushes and grasses it was possible to distinguish 6 rock carved channels and 6 strips (**Fig. 11**). Our construction view may not correspond to the initial builder aim, however, twelve rock elements (prominent and hollow strips), like in Lanzarote "Quesera"/Cheeseboard were recorded; this bunch of cart-ruts is deteriorated and also some of the strips go further up (about 30 meters – 98 feet) as far as they became discontinuous, probably because of construction of modern houses and destruction (Arnaiz-Villena *et al.*, 2018).

Second site was placed at Ta Cenc area on the southern part of Gozo Is. close to cliffs and to the City of Sannat. Again, a structure similar to "Quesera" / Cheeseboard was observed in this case (**Fig. 11b**) and 6 hollows and 6 prominent strips could be traced (Arnaiz-Villena *et al.* 2018). This structure that was more isolated than the first one studied at San Gwan City center (**Fig. 11a**).

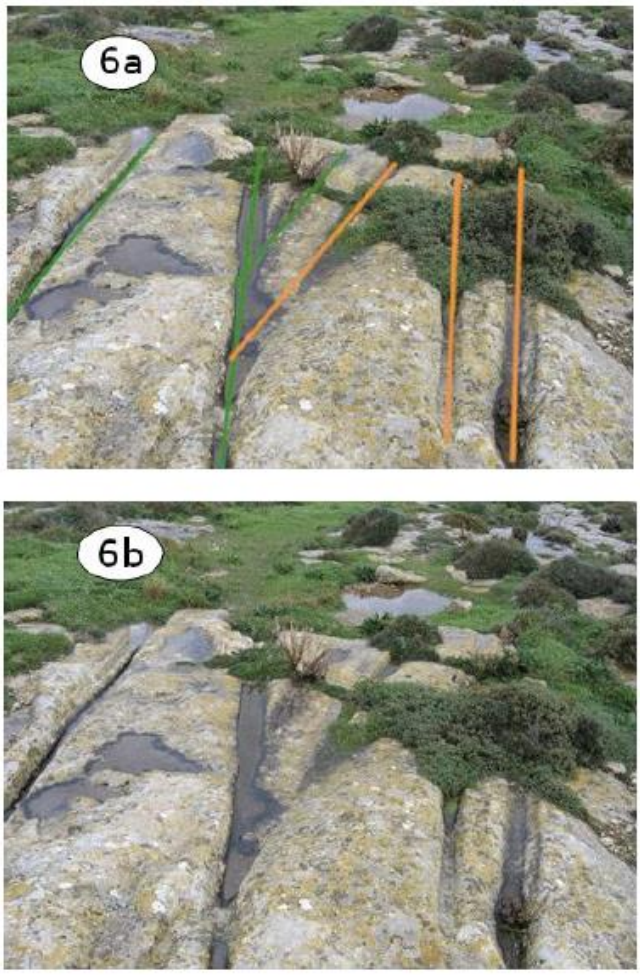

Fig. 11b Archaeological site of Ta Cenc, Sannat Town, close to cliffs (Gozo Is., Malta).36.017 ºN, 14.259º E - 6a - Underlined carved strips in order to make it clear that it is a construction similar to Lanzarote "Quesera"/ Cheeseboard rock prehistory calendar.6b - Plain photograph. It shows a 6x6 crest/ grooves/crest pattern (Photo taken by AAV; from Arnaiz-Villena *et al.* 2019a**)**

Lanzarote

Cart-ruts

Human made Cart-ruts have been observed by us in Lanzarote mountains: Mt. Guardilama, Mt. Montaña Blanca, Mt. Guatisea, Mt. Mina, Mt. Zonzamas, Mt. Guanapay and Mt. Tenezara (**Fig. 11**) (Arnaiz-Villena *et al.* 2020a). These mountains/volcanoes emerged in a period between about 2 million years and 240.000 years ago. Thus, Cart-ruts may have been built up in a very ancient prehistoric period on these volcanoes: Neolithic or Preneolithic Ages, possibly in the Megalithic Atlantic Bronze Age period, when Atlantic Dolmens of Europe (7,000 years BP, Arnaiz-Villena *et al.* 2013) and Africa were constructed and most Malta Cart-ruts are also thought to have been (Bronze Age)

(Trump 1998, 2002, 2008). It is striking that 3 out of 7 searched Lanzarote volcanoes show that they point out to important sunrise points: both Solstices and Equinoxes (Arnaiz-Villena *et al.* 2020a).

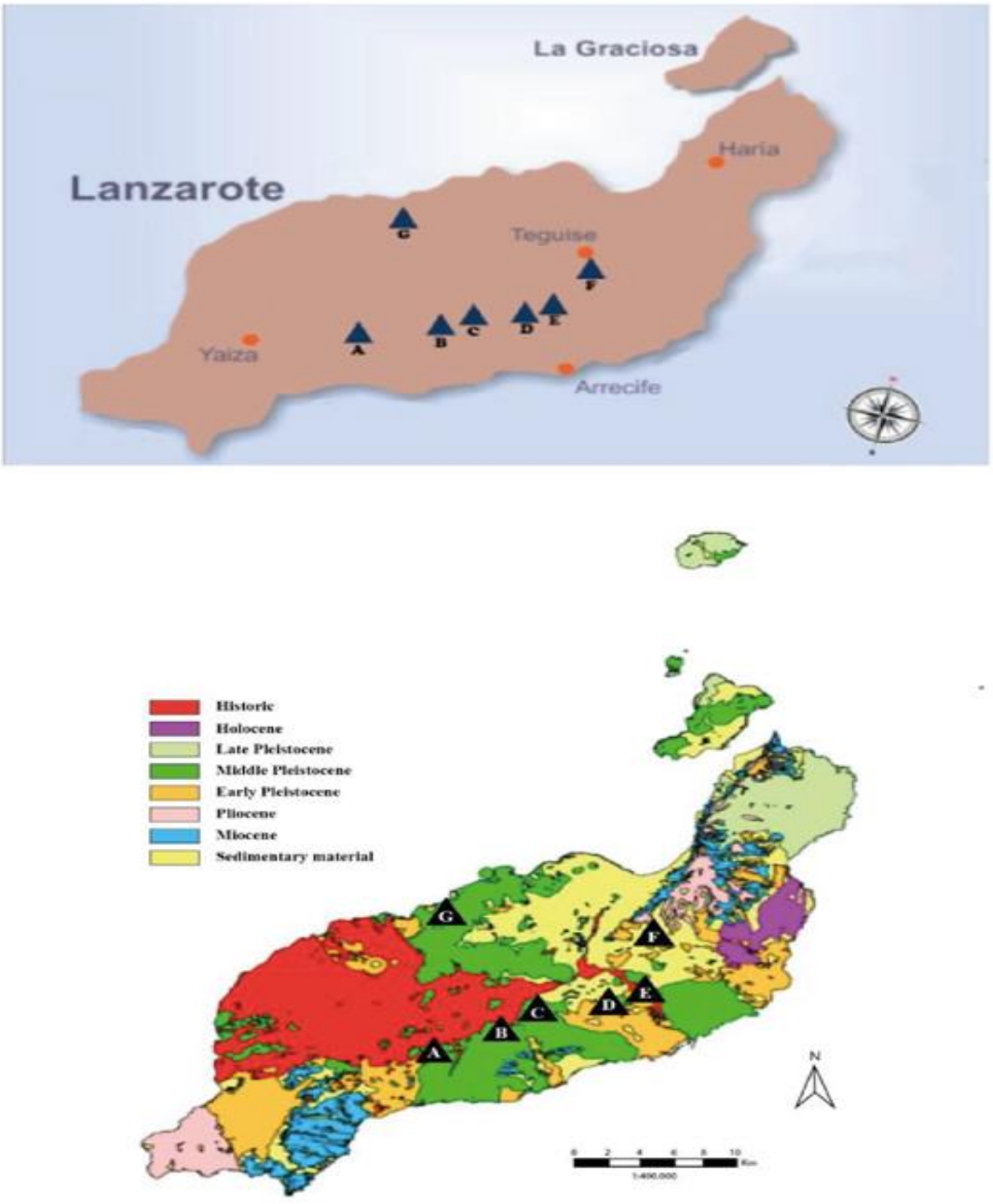

Fig. 11c (A) Mt. Guardilama: 28°57'42.0"N 13°42'24.0"W, (B) Mt. Montaña Blanca: 28°58'42.1"N 13°38'27.8"W, (C) Mt. Guatisea: 28°59'31.1"N 13°37'50.0"W, (D) Mt. Mina: 29°00'06.3"N 13°35'39.8"W, (E) Mt. Zonzamas: 29°00'23.1"N 13°33'46.2"W, (F) Mt. Guanapay (Castillo de Santa Barbara): 29°03'28.6"N 13°33'00.7"W, (G) Mt. Tenezara: 29°04'01.0"N 13°42'24.3"W. Lanzarote volcanoes were all formed between about 2 million years and 240.000 years ago. This map has been taken from Geoparque website: http://www.geoparquelanzarote.org/geologia/;https://www.idecanarias.es/resources/GEOLOGICO/LZ_LITO_unidades_geologicas.pdf

The factorial probability that these Cart-ruts specific astronomical alignments would be due to chance is close to zero: 3 volcanoes, 360 possible Cart-ruts azimuths directions and 7 mountains examined (n= non calculable, more than 40 digits number). Thus, there is no possibility that these constructions were due to chance: they were intentional and possibly coordinated at Mt. Tenazara, Mt. Guardilama and Mt. Mina (**Fig. 12**), as some other astronomic monuments markers may have been coordinated in Gran Canaria Island (Barrios *et al.* 2018). Mt Montaña Blanca azimuth follows a close North/South direction with possible navigation or other implications.

Fig. 12. Cart-ruts found in Mt. Mina, Lanzarote Island (Canary Islands): 29°00'06.3"N, 13°35'39.8"W.

Discussion

Lanzarote (From Medina and Arnaiz-Villena, 2018, a. b)

A prehistoric megalithic lunisolar calendar has been described in Lanzarote Is at Zonzamas (see **Figs 13a** and **13b**).

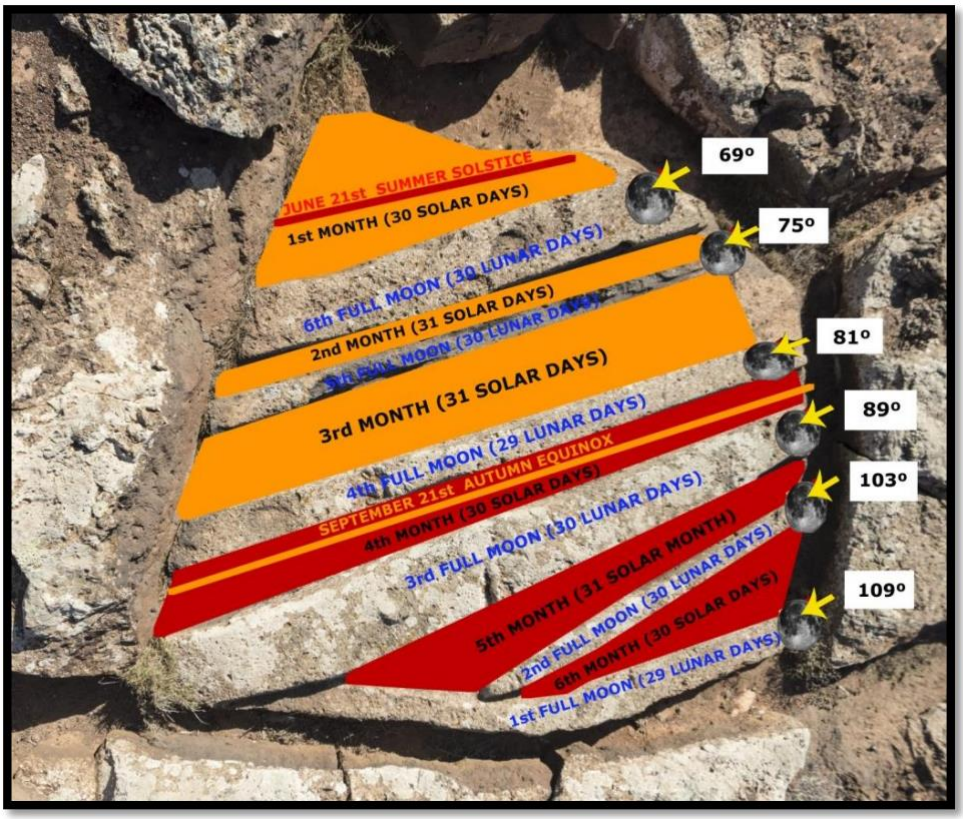

Fig. 13a Lunisolar "Quesera"/Cheeseboard Prehistoric Canarian Calendar (First half year time).
Sun Calendar: was studied in (Medina and Arnaiz-Villena 2018a). First half of solar year (six solar months) is shown starting in the 21st Summer Solstice. Solar months are registered / represented in hollow carved strips; solar months follow from top to bottom up to 6th solar month. Sunrises and Sunsets azimuths for solstices and equinoxes are given in **Fig. 6** of Ref. Medina and Arnaiz Villena 2018a. Lunar Calendar: starts with its first prominent bottom rock strip. The following lunar months (2nd-6th) are recorded in the following prominent rock strips upwards in figure. Starting lunar month azimuths are depicted in white squares. See Medina and Arnaiz-Villena 2018b (Anónimo Cedeño 1682; Marin de Cubas 1687; Barrios García 2004).

Several prehistoric structures have been proposed to be calendars: including megalithic and ceramic engravings (Magli 2016). Diverse megalithic paleolithic tools have been claimed to be calendars in Euro-Mediterranean-Atlantic area (Magli 2016; Gaffney *et al.* 2013). Most ancient calendars are seen and thought to be based on lunar phases and their use was mainly for religious and ritual practices, not excluding some other usefulness. However, agricultural calendars for sowing and harvesting have been solar seasonal ones, which have coexisted with lunar calendars (Magli 2016). Neolithic and megalithic archaeological constructions measuring year time equinoxes and solstice shave also been described throughout world (Gaffney *et al.* 2013).

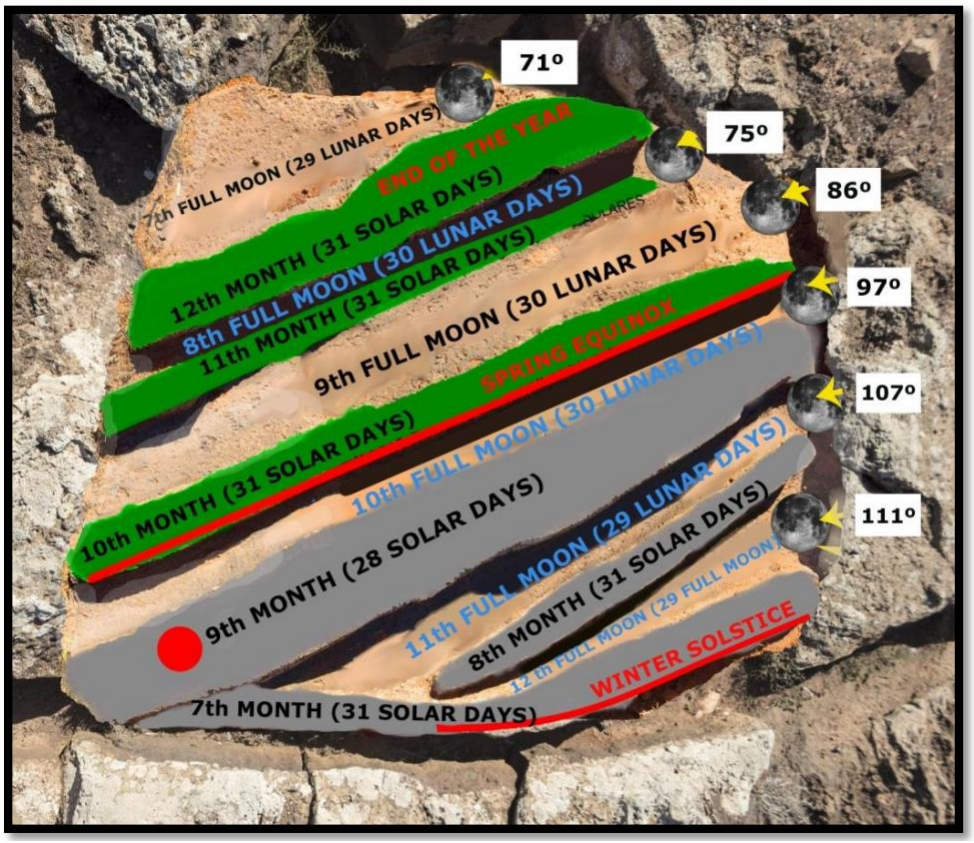

Fig. 13b. Lunisolar "Quesera"/Cheeseboard Prehistoric Canarian Calendar (Second half year time).
Sun Calendar: was studied in a previous paper (Medina and Arnaiz-Villena 2018a). Second half of year is represented in this figure; the solar month was shown in the first bottom prominent strip and following sun months were shown in the following upwards prominent rock strips. Sunrises and Sunsets azimuths for solstices and equinoxes are given in **Fig. 6** of Ref. Medina and Arnaiz-Villena 2018a, a previous paper analyzing only Sun calendar. Note that Sunsets azimuths for Equinoxes are at 271º in **Fig. 6** of previous paper and there is mistake there, as they are stated "Azimuth Sunrise" instead of azimuth sunset. Lunar Calendar: The lunar month is represented in first top hollow carved strip at 71º moonrise azimuth January 7th 2015; following lunar months are represented in the following bottom wards hollow/carved strips. Starting lunar month azimuths are depicted in white squares. See Table **1** and Appendix **I** of Medina and Arnaiz-Villena 2018b for consulting first lunar months day and sunrise azimuth and moonset (Anónimo Cedeño 1682; Marín de Cubas 1687; Barrios García 2004).

Regarding relatively other calendars, it seems that Babylonian and Persian (Iranian) calendars (2,000 years BC) were the first recorded ones as solar calendars, favoring it over a lunar one. Iranians used a 360 days solar calendar and 12 months of 30 days which were divided according to lunar phases. They added one additional month every 6 years to synchronize seasons with calendar. The oldest recognized astronomical text come from Babylonia, but the system used is thought to stem from earlier Sumerian society. Although Sumerian calendar seems to have had 12 lunar months of 29 or 30 days

(354 days with an extra month periodically added for Sun cycle connection) (Britannic Encyclopedia 2008).

Ancient Egyptian civil calendars

It was a solar calendar with 365-days year, with 3 seasons (Flood, Growth and Low Water) and each 30 days month divided in decades (10 days) (it was used by about 2,510 years BC). This calendar was a quarter of a day shorter than the present solar year (Gregorian calendar). Some correction (not yet documented) may have periodically been done. Civil calendar was related with Sirius star raising, but it was not that precise and Sun calendar became widespread in Egypt. Sirius raised in Heliopolis between June-July in the last 3,500 years BC till 5th century AD. This was a civil calendar; however, an Egyptian lunar calendar was also used in parallel for religions purposes. This lunar calendar was more ancient than sola calendar: and started with a new Moon phase (Claget 1989; Britannic Encyclopedia 2008).

Greek, Roman, Julian, Gregorian calendars

Greek calendar was first Moon based calendar with a 354-day year and 12 months of 29 or 30 days; periodical yearly corrections were done to keep up with Sun 365.242 days cycle. Several kinds of calendars coexisted in Greek classical times in nowadays Greekand Turkey area. Most early Mediterranean civilizations started using 24 seasonal hours in the day (half for day and half for night) (Britannic Encyclopaedia 2008). Julian calendar (Julius Caesar, 46-year BC), had 365 days with 12 months for a year; one day was added in February each four years. It was a bit longer than the exact tropic calendar. Years later, Pope Gregory XIII introduced Gregorian calendar that it is nowadays used in most western World. Gregory XIII removed ten days from Julian calendar in October 1582 and also reduced year by about ten minutes.

Solar Year of ancient Canarians

It is documented that ancient Canarians "Guanches" had a lunisolar calendar with 12thmonths, counting days by Sun and probably months by lunar phases. Week had seven Sun days. Ancient Canarian year was named as "Achano "(Anónimo de Cedeño 1682). The beginning of the ancient year started with the Summer Solstice, around June 21st (Marín de Cubas 1694). This author was also supported by others in that "Guanches" orancient Canarian calendar started at Summer Solstice: Gomez Escudero, Chil y

Naranjo, Betancourt Afonso, Alvarez Delgado and Anónimo de Cedeño among others. Thus,"Quesera" represents a solar calendar according to our results (and a Lunar one) as stated by Anónimo de Cedeño, 1682, with months varying between 30 and 31days but one of them is shorter than others: 28 days; the latter corresponds to the second month of our present-day Gregorian calendar: February. It is the 3rd month after Winter Solstice in "Quesera" calendar (**Fig. 13**). The particular rock prominence strip representing this 3rd month had a conic salient (Serra Rafols 1942); it corresponds to February and conic vertical salient function was most probably to point out that this month representation had to undergo periodical corrections. For example, adding one day more each four years, reaching 29 days instead of 28 like in Julian and present-day Gregorian calendar. This longer month resulted in a longer year ("leap year") that would have 366 days instead of 365. In this way calendar was adjusted by ancient Canarians who showed a high degree of advanced astronomical knowledge by probably adding a leap year each 4 years.

Mixed lunisolar calendar

This described basalt rock carved in Zonzamas is thus a solar calendar that can also go together with Moon phases cycles data and function as a Lunar calendar probably more useful for religious and ritual data than for sowing and harvesting (Agriculture Sun Calendar). Nuñez de la Peña (1676) clearly stated that a Lunar calendar was used by "Guanches" or Canarian aborigines. Sun Earth Tools program was also giving data for Moon phases. These phases were recorded for 2014-2015 longer time. Moon phase cycles could be also assessed, and a Lunar calendar could be constructed in Zonzamas “Quesera” that parallels with Sun calendar starting June 21st, Summer Solstice (unpublished data).

Ancient Canarian year, anthropology genetics and Iberian scripts in Lanzarote

The Ancient Canarian year was named “Atxano “(Anónimo Cedeño 1682; Nuñez de la Peña 1676). Atxano like many Canarian names may be traduced from Basque language, which is very similar to ancient Iberian language (Arnaiz-Villena & Alonso García 2001). Atx, ats=stick, axis, hill; ano=shadow. It gives an idea that time may be measured by an axis and the shadow (of Sun). They could probably connect a stick/axis/hill to a "Quesera" type calendar and take another kind of additional measurements. Stick shadow on "Quesera" would be pointing northwards and would be minimal at Summer Solstice, middle longitude at Equinox and largest one at Winter Solstice: otherwise stick shadow could have been useful even for constructing "Quesera" calendars. On the other hand, we

have demonstrated that Iberian scripts are spread over Lanzarote and Fuerteventura Is. Rocks (and also in all other Canary Islands, Arnaiz-Villena *et al.* 2020c) and are more ancient than old Berber writing on rocks, because Berber scripts are placed over Iberian scripts in most cases. The presence of mummification, pyramids and genetic data support that "Guanches" existed in Canary Islands thousands of years ago (Arnaiz-Villena *et al.* 2015). Presence of megalithic carved rock channels (similar to the so called "cart-ruts") in Lanzarote Island (unpublished) also put ancient Canarians as being a part of Atlantic/Mediterranean Bronze Age Megalithic culture (Ribeiro *et al.* 2015), together with archaeology and ceramic studies in Lanzarote (Atoche-Peña & Ramirez-Rodriguez 2016; Sluys & Gonzalez-Atarbe 2017). Therefore, "Quesera" calendar is for us an Atlantic/Mediterranean Megalithic culture artefact and built long before Phoenician and Roman culture reached Canary Islands.

In year 2023, appearance of a scripted bronze hand in Iberian with a direct translation to Basque has recovered the Basque-Iberism, i.e.: that is Basque is the primitive language of Iberia, South France and some Mediterranean places at least. This Basque-Iberism established since centuries BC was interrupted 70 years ago, when scholars did not admit it. Numerals and numeration system identity and the Hand of Irulegi (Arnaiz-Villena & Juarez 2023) has brought back the Basque-Iberism established worldwide in the 19th century by Wilhem von Humboldt.

Context of Canary Islands rock art and other prehistoric artifacts: history, genetics, rock scripts. "Quesera"/Cheeseboard dating

Context and dates for most Canarian archaeological patrimony was yet lacking in 1996 according to Beltrán (1996). However, he related prehistoric Canarian Art Rock with Atlantic Megalithic Age, Bronze Age, Mediterranean and North African ancient cultures. Later, an attempt to a rational dating was accomplished because a lack of absolute dating (i.e.: C14) in Canarian archaeological patrimony still existed (Atoche-Peña & Ramirez Rodriguez 2009); these authors recognized that objective time measurement was still necessary to place in context many Canarian prehistoric archaeological items. In addition, they have more recently obtained C14 absolute dating for 43 different samples coming from 4 archaeological sites from all over Lanzarote Island (Atoche-Peña & Ramirez Rodriguez 2016). An age estimation of 2nd/1st millennium BC was found for the items; some of them were dated as old as 1300 years BC from El Bebedero site (Lanzarote Island). Complex issues like the study of Past should be addressed with help of several

approaches or scientific disciplines, because univocal scientific views for complex matters have usually failed due to academic dogma established in each field; a more complete and open approach to topics, like History or Language, should be used. This is useful to take into account different scientific fields for approaching to the prehistoric age in which "Quesera"/Cheeseboard was built.

Language

Ancient Iberian writing graffiti (also named "Latin" inscriptions) are found all over Fuerteventura and Lanzarote islands rocks. This Iberian-"Guanche" or "Ibero-Canarian" inscriptions are more ancient than Lybic (Berber) inscriptions which are usually engraved over (over the top of) ancient Iberian-Guanche inscriptions on the rocks where the two writing types are found together. These two kinds of inscriptions are very frequently close to each other in the same rock place (Arnaiz-Villena *et al.* 2001, 2015; Medina & Arnaiz-Villena 2018a; 2018b). Iberian writing in Iberia, France and Mediterranean Islands is at least found as old as the beginning at 1st millennium BC. However, this dating is not measured by absolute means and may be older. Origin of Iberian-"Guanche" or Iberian-Canarian scripts (named also as “Latin” scripts by Pichler (2010), and even Punic by others: see review by Atoche-Peña & Ramirez Rodriguez (2009). It is possible that this Iberian - “Guanche” writing may thus be of either Iberian or African origin, and all seven main Canary Islands harbor these “Latin” or “Iberian-Guanche” scripts (Arnaiz Villena *et al*. 2019; 2020b; 2020c; 2021).

Genetics

Our group has been studying North Africa genetic relationship with Iberia (Arnaiz-Villena 1999, 2002, 2015, 2017). Recently a meta-analysis always using 56 Mediterranean and African population and 20,566 chromosomes have found that groups of almost all North Africa, above Sahara and also Yemen and Saudi Arabia are genetically related with Iberia according to HLA genes (Hajjej 2018). Also, it is proposed that classic Greek and Roman authors referred to Celts who had not a clear distinction from Iberians; they might often refer to the same population (Arnaiz-Villena *et al.* 2015; Arnaiz-Villena *et al.* 2017). Canarians have been genetically related with both Atlantic and North African (Berbers)-Mediterraneans (Arnaiz-Villena *et al.* 2015) and also on cultural archaeological traits bases (Beltran 1990). Thus, it is useless to genetically try to distinguish North Africans, Iberians and Canarians: all of them share a similar genetic pool

In conclusion, archaeological absolute C14 data, genetic and linguistics show that Lanzarote prehistoric artifacts may have been constructed by Canarians long time before Phoenicians and Romans reached Canary Islands.

The Moon in the Lunisolar Zonzamas "Quesera"Calendar

Moon or lunar calendars were soon used since Paleolithic times, including a Basque calendar (Naberan 2006) and easy to observe (Magli 2016). However, when agriculture was important for Humans in Neolithic times it was necessary to precisely record yearly seasons measurement in order to correctly accomplish sowing and harvesting. Other type of calendars were also used for other events, for example Egyptians had star calendars for marking and predicting Nile flooding (Magli 2016; Britannic Encyclopedia Online 2008). However, lunar calendars are easy to observe but they are more unstable and difficult to be kept a constant type of time record. It is necessary to maintain constant and time record relating Moon year with a Sun year; the latter is the time that Earth rotates around Sun taking into account seasons, wherever they exist in Earth, and it is necessary to be able to record for agriculture managing in different seasons.

In order to construct a solid and stable lunisolar calendar, it is necessary to add an additional lunar month each 2-3 years in the lunar calendar. A synodic lunar calendar has one year with 12 synodic months and lasts 354.36 days composed of alternate 29- and 30-days months. A lunisolar calendar, like the one studied in this paper (Cheeseboard/"Quesera") is constructed for maintaining synchrony of Moon phases with Solar/tropical year. It has 12 synodic months, and one more synodic month is added each 2-3 years, for adjusting to the Solar year starting (note that solar year has more days: 365.24 (Magli 2016; Britannic Encyclopedia Online 2008).

Another easy lunar calendar approximation to a solar calendar is as follows: 37 sidereal months add up to 1,093 days which correspond to 3 solar years with 364.25 days each. Other approximation was described by Greek Meton (who lived at 432-year BC): 235 Lunar months of 29.5 days add up to 19 solar years of 365.25 days each. (Magli 2016; Britannic Encyclopedia Online 2008). Other cultures have a strict lunar calendar (Muslims) without correction (Magli 2016). Our official western World calendar is a solar one with corrections (leap year, adding one extra day in February) each 4 years but with some "lunar corrections" for celebrations, i.e.: first Friday close to full Moon after Spring Equinox is used to celebrate death of Christ. Other cultures, like Old Canary Islanders could have used Moon calendars also for festivities in addition to follow a strict solar

calendar for sowing and harvesting. This lunisolar calendar is represented by "Quesera"/Cheeseboard Lanzarote monument (see Barrios García 2004).

Other “Queseras-Cheeseboard” megalithic Monuments have been recorded extant in Lanzarote until recent times. Three of them have been destroyed and “Quesera de Bravo” also remains unprotected and, in the way to be destroyed **Fig. 14**.

Fig. 14. “Quesera”/Cheesboard de Bravo. This monument is placed close to “Los Jameos del Agua·” turistic attraction. (Photo AAV). One of the two extant ”Quesera”/Cheesboard (together with Zonzamas) out of five recorded in recent years.

Al Quds - Jerusalem

Two types of carved channels/crest structures have been found in the City of David archaeological site:

1) “Quesera” type (Figures 3 and 4): may be an Egyptian-like lunisolar calendar (about 365 solar days and 27,5 lunar days lunar cycle). and also, an astronomical observatory with the help of sticks or other axles shadows and ropes or other artifacts, if they are in the correct geographical position like Quesera/Cheeseboard in Lanzarote

2) Cart-ruts type (**Fig. 5**): this excavation representation cannot completely rule out that is a cut "Quesera"/Cheeseboard type by only photographs. It would have to be studied personally " in situ".

This is the first time that a "Quesera"-type and cart-ruts-type buildings are found in Middle East: however, atypical non-divergent cart-ruts there exist in Egypt close to Red Sea (Bonnici 2005). The European Community gave a generous founding directed by Malta, Italy and Spain for studying cart-ruts in the Mediterranean Area. They did an exhaustive study and found these cart-ruts first evidences in Malta Bronze Age (Trump 2002; 2008). Only descriptive results were obtained (Bonnici 2005). They found and studied cart-ruts in the previously named countries along Mediterranean Basin, including Turkey and Azerbaijan. Also, in Egypt close to Red Sea were found and may have been used in this case to transported rock blocks for monuments construction 120 km by also using Nile River. In Tunisia, Dougga City cart-ruts were also found and in the ancient Libyan Cyrene.

It is remarkable that the megalithic temples and cart-ruts are found all across Malta archipelago (Arnaiz-Villena *et al.* 2019; Trump 2002; 2008) attributed to Bronze Age by the same author (Trump 2002; 2008). However, they left out Canary Islands and Azores for the study where they exist (Ribeiro *et al.* 2015, 2017; Rodrigues *et al.* 2015).

The City of David archaeological site history may be enriched by Jewish author Flavius Josephus who says about "the high-quality construction work that was achieved by the combined effort of Tyrians, Sidonians, Giblites and Israelites in the building of Solomon Temple" (Laudels 1978; Bonnici 2005, page 91). Thus, the skills of cutting and dressing rectangular faced blocks of stone were introduced by Phoenicians into the Malta archipelago (Bonnici 2005; page 91).

Chronology

Two dates may be considered for the study of the Monuments found in City of David and represented in **Figs 3**, **4** ,**5**: 1) The Israel Antiquity Authority archaeologists have given 2,800 years old when the structures ceased to be used; a much older construction might be attributed at present knowledge. 2) Similar structures in Malta (cart-ruts) where proposed indirectly to be dated by using paintings of dated ceramics by 5^{th}-4^{th} millennium BC, a much older date, when some of the Malta megalithic temples were being built up (Arnaiz-Villena *et al.* 2019a). Although cart-ruts may have been constructed in a variety

of time, ”Quesera”/Cheeseboard type structure represented in **Figs 3**, **4** is more specific and only found up until now in Jerusalem and Lanzarote in the Canary Islands: in Lazarote Island is a lunisolar calendar representation almost identical to the Egyptian one (Solar year: approximately 365 days with a extant correction in one of the crests in Lanzarote calendar, which would correspond to present day February, 28/29 days, Lunar cycle:27,5 days). The preservation of these structures may be due of being earthed in both Jerusalem and Lanzarote until very recently; in Lanzarote probably unearthed recently because of rain or landslide or even volcanic or human activity. The last recorded noticeable volcanic Lanzarote activity was in 1730 (Timanfaya) and lava did not cover this high and relatively distant area of Zonzamas Cheesboard (**Figs 8**, **9**, **13a**, **13b**)

Astronomical observation

It is apparently clear that Zonzamas Lanzarote Cheeseboard is an Egyptian type lunisolar calendar representation and that it is placed high enough in a privileged place facing East that permits observation of sunrise, moonrise and celestial bodies rise like Sirius star during all year. If axis, sticks and ropes (and/or unknown tools) were placed in this Zozamas “Quesera”/Cheeseboard site, shades for a sun time observation and other stars astrological measurements could be achieved for the routine man life-survival or ritual/ religious activities (see **Figs 6**, **7**. **8**, **11c**). Lunar rising could either directly been detected or by a possible reflection on water filled “Quesera”/Cheeseboard channels,

City of David structure in **Figs 3**, **4** and possibly **5** (if rock bands are not cart –ruts like structures and is a “Quesera”/Cheeseboard calendar type) could be used in prehistory as calendar and astronomical activity. The resemblance to Zonzamas Lanzarote “Quesera”/Cheeseboard is striking and we propose that it may be. Six ridges and six channels may be observed and the middle one which is forked: this fork could represent Spring and Autunm Eqinoxes sunrise, which in fact are the same point: it could be the same type of Egyptian calendar representation as in Lanzarote. These similarities and lunar representation together with possible other astronomic observations may be studied.

Finally, we have also postulated that cart-ruts may also be useful in some cases to measure time and space and other astronomical observations. Only by using a stick or axis (geographical aspect) with ropes/strings one can measure space and time (Arnaiz-Villena *et al.* 2019). If Lanzarote (West of Sahara) and Jerusalem (East of Sahara)

contain these very specific (up until now) artefacts it could be due to a sharing of the ancient Sahara culture when it was green and forced people migration after desertification started about 10,000 BC (Arnaiz-Villena *et al.* 1999, 2002).

Acknowledgements
This work was supported by grants from the Spanish Ministry of Science and Universities (PI18/00721 and PI18/00626) and European FEDERS funds.

Conflicts of Interest: authors declare no conflict of interest.

References

Abela G. 1647: Della Descrittione di Malta Isola nel Mare Siciliano con le sue Antichita, de altre Notitie. Ed. Midsea Books (1984), Malta.

Anónimo Cedeño. 1682. Naturalezza y Costumbres particulares según otros autores [Copied by Marin de Cubas TA]. Manuscript film-Millares Carlos: Museo Canario, Las Palmas, Gran Canaria, Islas Canarias (Spain).

Arnaiz-Villena A., Martinez-Laso J., Alonso-Garcia J. 1999. Iberia: Population Genetics, Anthropology and Linguistics. *Human Biology* 71: 725-743.

Arnaiz-Villena A. & Alonso García J. 2001. Egipcios, Bereberes, Guanches y Vascos. Ed. Visión Libros. (3rd Edition 2011) ACCI. Madrid (Spain).

Arnaiz-Villena A., Gomez-Casado E. and Martinez-Laso J. 2002. Population genetic relationships between Mediterranean populations determined by HLA allele distribution and historic perspective. *Tissue Antigens* 60: 111-121

Arnaiz-Villena A., Alonso-Rubio J, Ruiz-del-Valle V. 2013. Tiwanaku (Titikaka Lake, Bolivia) and Alberite Dolmen (Southern Spain) ritual "ears". Celtic, Iberian, Aymara and Basque languages. *Int. J. Mod. Anthrop*. 6: 61 – 76.

Arnaiz-Villena A., Muñiz E., Campos C., Gómez-Casado E., Tomasi S., Martínez-Quiles N., Martín-Villa M., Palacio-Gruber J. 2015. Origin of Ancient Canary Islanders (Guanches): presence of Atlantic/Iberian HLA and Y chromosome genes and Ancient Iberian language. *Int. J. Mod. Anthrop* 8: 67-93.

Arnaiz-Villena A., Carballo A., Juarez I., Muñiz E., Campos C. *et al*. 2017. HLA Genes in Atlantic Celtic populations: Are Celts Iberians? *Int. J. Mod. Anthrop*. 10: 50 - 72.

Arnaiz-Villena A., Medina M., Palacio-Gruber J., Lopez-Nares A., Ruiz-del-Valle V. 2018. Malta and Lanzarote (Canary Islands, Spain) -ruts and Rock Prehistoric Calendar at Zonzamas, Lanzarote-"Quesera"/Cheeseboard-. *Int. J. Mod. Anthrop*. 11: 214-231

Arnaiz-Villena A., Medina M. López-Nares A., Julian Rodriguez-Rodriguez J., Valentín Ruiz-del-Valle V.. 2019a. Cart-ruts in Lanzarote (Canary Islands,Spain) and Malta: first evidence of dating supported by dated ceramics.
Int J of Mod Anthrop. 2 (12): 115 – 140. DOI: http://dx.doi.org/10.4314/ijma.v2i12.5

Arnaiz-Villena A., Lopez-Nares A., Juárez I., Ruiz-del-Valle V., Callado A. *et al.* 2019b. "Latín" rock scripts in Canary Islands are ancient Iberian inscriptions (Iberian-Guanche). A story of forgotten genetics, scripts, pyramids and other prehistoric artifacts. *Int. J. Mod. Anthrop.* 12:189 – 212

Arnaiz-Villena A., Medina M., Ruiz-del-Valle V., Lopez-Nares A., Rodriguez-Rodriguez J., Suarez-Trujillo F. 2020a. Cart-ruts in Lanzarote (Canary Islands, Spain) volcanoes tops point to Equinoxes, Summer and Winter Solstices. *Int. J. Mod. Anthrop*. 2(13): 123 – 138.

Arnaiz-Villena A., Medina M., Ruiz-Del-Valle V., Lopez-Nares A., Rodriguez-Rodriguez J., Suarez-Trujillo F. 2020b. The Ibero-Guanche (Latin) rock inscriptions found at Mt. Tenezara volcano (Lanzarote, Canary Islands, Spain): A Saharan hypothesis for Mediterranean/Atlantic Prehistory. *Int. J. Mod. Anthrop.* 2 (13): 140 – 162.

Arnaiz-Villena A., Suárez-Trujillo F., Ruiz-del-Valle V., López-Nares A., Pais-Pais F.J. 2020c. The Iberian-Guanche rock inscriptions at La Palma Is.: all seven Canary Islands (Spain) harbour these scripts. *Int. J. Mod. Anthrop*. 2 (14): 318 – 336.

Arnaiz-Villena A, Medina M, Ruiz-Del-Valle V, Palacio-Gruber J, Lopez-Nares A, Barrera-Gutierrez L, Suarez-Trujillo F. 2021b. The Saharo-Canarian Circle: The forgotten Prehistory of Euro African Atlantic façade and its lack of eastern demic diffusion evidences. *Int. J. Mod. Anthrop*. 2 (16): 586 – 600.

Arnaiz-Villena A. & Juarez I. 2023. The Hand of Irulegi. Basque-Iberism return after seventy years of dismissal. Int. J. Mod. Anthrop. 2(19): 1201-1214.

Atoche-Peña P. & Ramirez Rodriguez M.A. 2009. Manifestaciones rupestres protohistoricas de Lanzarote pp 187-209, in "rock carvings of the European and African Atlantic Façade". Ed. Blablu Behrkay et al. 2043, Archaeopress, Oxford (UK).

Atoche-Peña P. & Ramirez Rodriguez MA. 2016. C14 References and Cultural Sequence in the Protohistory of Lanzarote (Canary Islands), Iber-Crono. Actas del Congreso de Cronometrias para la Península Ibérica, pp 272-285. Barcelona (Spain). Available at Research Gate.

Barrios-García J. 2004. Sistemas de numeración y calendarios de las poblaciones bereberes de Gran Canaria y Tenerife en los siglos XIV-XV. Thesis doctoral. Universidad de La Laguna, Tenerife, Islas Canarias (Spain).

Barrios-Garcia J., Valencia Alfonso V. and Brito Mayor A. 2018. Investigaciones arqueoastronomicas en Gran Canaria. La recamara equinocial de la cueva de la virgen de la Candelaria (Tara, Telde) XXIII Coloquio de Historia Canario Americana. Las Palmas, Gran Canaria. (Islas Canarias, Spain), 1-23.

Beltrán A. 1996. Introducción. In "Manifestaciones rupestres de las Islas Canarias", pp: 9-24. Santa Cruz de Tenerife. Edited by: Dirección General de Patrimonio Histórico.

Bonanno A. 1993.Tarxien Cemetery. Break or Continuity between Temple Period and Bronze Age in Malta? Mediterrâneo 2: 35–47.

Bonnano A. 2017. The Archaeology of Malta and Gozo. Heritage Malta Publishing. Ed. Gutenberg Press Ltd, Malta.

Bonnici H. (Project Leader) 2005. The significance of Cart-Ruts in Ancient Landscapes. Ed. Midsea Books, Malta.

Britannic Encyclopedia online. 2008. "Calendar" article.

Cabrera Perez JC. 1992. Lanzarote y los Majos. Ed. Litografía Romero. Santa Cruz de Tenerife, Canary Islands (Spain).

Claget M. 1989. Ancient Egyptian Science: calendars, clocks and astronomy. Ed.American Philosophical Society (3 vols). Philadelphia (USA).

Gaffney V., Fitche S., Ramsey E., Yorston R., Ch'ng E., Baldwin E., *et al.* 2013. Time and Place: A luni-solar "time-reckoner" from 8th millennium BC Scotland. *Internet archaeology* 34: https://doi.org/10.11141/ia.34.1

Hajjej A., Almawi WY., Arnaiz-Villena A., Hattab L., Hmida S. 2018. The genetic heterogeneity of Arab populations as inferred from HLA genes. *PLoS ONE* 13(3): e0192269. https:// doi.org/10.1371/journal.pone.0192269
http://www.etnomatematica.org/publica/trabajos_doctorado/tenerife.pdf

Magli G. 2016. Archaeoastronomy: introduction to the science of star and stones. Ed.Springuer Iternational Publishing Switzerland.

Marín de Cubas TA. 1687. Historia de las Siete de la Gran Canaria Ed. Príncipe. Transcripción de F.Osorio Acevedo. Canarias Clasica.1993. La Laguna, Tenerife, Islas Canarias (Spain).

Medina M. & Arnaiz-Villena A. 2018a. A lunisolar prehistoric calendar in Lanzarote Island: "La Quesera"(Cheesboard) from Zonzamas. *Int. J. Med. Anthrop*. 21:147-161.

Medina M. & Arnaiz-Villena A. 2018b. The Moon: in Prehistoric Lunisolar Rock Calendar "Quesera"-Cheeseboard- at Lanzarote, Canary Islands, Spain. Int. J. Mod. Anthrop. 2 (11): 182 – 212.

Mifsud A., Mifsud S., Agius Sultana C. & Savona Ventura C. 2000. Malta: Echoes of Plato's Island. The Prehistoric Society of Malta, Malta.

Naberan 2006. El antiguo calendario lunar vasco. Ed. Basandere Argitalextea. San Sebastian (Spain).

Núñez de la Peña J. 1676. Conquista. Antiguedades de las Islas de la Gran Canaria. Ed.Imprenta Real, Madrid (1676). Re-edited in 1847: Imprenta Isleña. Santa Cruz deTenerife, Islas Canarias (Spain).

Pichler W. 2010. Las inscripciones rupestres de Fuerteventura. Ed. Calildo de Fuertevfentura, Puerta de Rosario, Fuerteventura, Canary Islands (spain).

Ribeiro N., Joaquinito A., Rodrigues Af., Azevedo M.T. 2015. Achaeology and rock art of Macaronesia: New contributions. IV Encontro de Doutorandos e Post-Douorandos Macao.

Ribeiro N., Joaquinito A., Rodrigues AF., Azevedo MT. 2017. Arqueologia e Arte Rupestre na Macronesia, novos contributos. *Techne*. 3: 113-124.

Rodrigues AF., Martins NO., Ribeiro N., Joaquinito A. 2015. Early Atlantic Navigation: Pre-Portuguese Presence in the Azores Islands. *Archaeological Discovery*. 3: 104-113.

Serra Rafols A. 1942. Crónica arqueológica visita de estudio a Lanzarote y Fuerteventura. Revista de Historia Canaria nº58: 126-127.

Sluys Mvd & Gonzalez-Artabe J. 2017. Consideraciones tras el Estudio de la Ceramica. Lanzarote. Islas Canarias (Spain)

Trump DH. 1998. The Cart Ruts of Malta. Treasures of Malta 4(2): 33–7.

Trump D. 2002. Malta, prehistory and Temples. Ed. Midsea Books Ltd., Malta.

Trump DH. 2008. Cart-Ruts and their impact on Maltese landscape. Ed. Midsea Books Ltd. Malta.

To cite this article:

Arnaiz-Villena A., Medina M., Vaquero-Yuste C., Suarez-Sanchez C., Juarez I. and Suarez-Trujillo F. 2023. Parallelism of Prehistoric Lanzarote Quesera-Cheeseboard Lunisolar Calendar and intriguing strip band channels of the City of David archaeological site (Middle East)
International Journal of Modern Anthropology. 2(20): 1301 - 1329
DOI: http://dx.doi.org/10.4314/ijma.v2i20.2