In regards to certain Late Neolithic - Early Eneolithic synchronism from Banat and Transylvania. A Bayesian approach to published absolute dates[1]

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Abstract: *The study analyzes the synchronism between the cultures of the late Neolithic and the early Eneolithic from Banat and Transylvania, based on the Bayesian models of the ^{14}C data gathered from Uivar-Gomilă, Foeni-Cimitirul Ortodox, Orăştie-Dealul Pemilor, Cerişor-Cauce and Alba Iulia-Lumea Nouă. By comparing the absolute data with the stratigraphic situation of these sites, it has been concluded that the genesis of the Turdaș culture takes place during the Vinča C2 phase, with the help of some cultural elements from Banat at that time. Also, the Turdaș II phase cannot be placed earlier than Vinča C2/C3, while Turdaș III is contemporary with Vinča C3-D and ends with the arrival of the Foeni group in Transylvania. Due to its new chronological position, the Foeni group may have contributed not only to the genesis of the Petresti culture, but also that of the Ariușd-Cucuteni culture.*

Rezumat: *Studiul de față analizează sincronismele dintre culturile neoliticului târziu și cele ale eneoliticului timpuriu din Banat și Transilvania, pe baza modelului Bayesian de interpretare a datelor ^{14}C provenite din siturile de la Uivar-Gomilă, Foeni-Cimitirul Ortodox, Orăştie-Dealul Pemilor, Cerişor-Cauce și Alba Iulia-Lumea Nouă. Prin compararea datelor absolute cu cele stratigrafice din cadrul acestor situri, a fost posibilă concluzionarea faptului că geneza culturii Turdaș are loc în timpul fazei C2 a culturii Vinča, cu sprijinul unor elemente culturale contemporane din Banat. De asemenea, faza Turdaș II nu poate fi plasată mai devreme de Vinča C2/C3, în timp ce faza Turdaș III este contemporană cu Vinča C3-D, iar finalul respectivei culturii fiind marcată de pătrunderea grupui Foeni în Transilvania. Având în vedere noua poziție cronologică a grupului Foeni, acesta poate să fi contribuit nu numai la geneza culturii Petrești, dar, de asemenea, la cea a culturii Ariușd-Cucuteni.*

Keywords: *Late Neolithic and Eneolithic, Banat and Transylvania, synchronisms, Bayesian approach of the ^{14}C data.*

Cuvinte cheie: *neolitic târziu și eneolitic, Banat și Transilvania, sincronisme, abordare Bayesiană a datelor ^{14}C.*

In the year 2009 colleague S.A. Luca published a study on the chronological and cultural position of the "Foeni-Mintia" group. In this study he suggested synchronism between the phases of the Turdaș culture and the Foeni group by showing the ^{14}C data that were available to him (S.A. Luca 2009). At that time, because of the methodological deficiencies in approaching this matter, we didn't wish to turn our immediate attention to it since we would have handled it in detail in the developing monograph about the Foeni site and implicitly on the Foeni group in as a whole.

Contradicting the principle *non bis in idem*, the same study was then republished in 2012, this time in German with the contribution of C. Urian (S.A. Luca, C. Urian 2012). I hoped that by adding the name of a young archaeologist, a guest on the Uivar site who has been exposed to the modern methods of contemporary archaeological research, it would change the overall perception on method, approach, analysis and interpretation of radiometric data in general and particularly those tied to this matter. Unfortunately that has not happened: the study is identical with the one from 2009 starting from page 12, with the exception of the introductory pages, copied from S.A. Luca 2006[2], in which Neolithic, Eneolithic, Bronze Age and Iron Age discoveries are blended together. Its ongoing republishing prompted us to make the necessary clarifications, first and foremost for the author(s). That being said, in our punctual analysis referring to the Foeni group we will limit ourselves to mentions from the last study.

We would like to mention something from the beginning, a fact that is common knowledge to

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[1] This article is the English language edition of a study that will be published in Analele Banatului, XXI, 2013.

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[2] At p. 8 (Dinias) identical text with S.A. Luca 2006, p. 90; p. 9-10 (Sânmihaiu Român), identical text with S.A. Luca 2006, p. 226; p. 10-12 (Timișoara), almost identical text with S.A. Luca 2006, p. 250-253.

others: when attending a matter, regardless what that matter is, one must have a thorough knowledge of the literature tied to it and the prior research. As we can conclude from the presentation of discoveries "Foieni-Mintia" (Foeni is the correct name) the authors mention a new point "discovered" by C. Urian, namely the one from Timișoara-*Termocentrală* (S.A. Luca, C. Urian 2012, p. 12). If the two authors would have been more familiarized with Banat archaeology they would have noticed that the *tell* in question is known from the 70s under the name Chișoda Veche, the *Livezi* point (O. Radu 1978; G. Lazarovici 1979, p. 190; F. Drașovean 1994a, p. 409-410; 1996, p. 22, 30). We think that the confusion was caused by our colleague S.A. Luca, who, in repertoires published in recent years, unfortunately filled with inaccuracies and redundancies (see a similar opinion at D. Țeicu 2005), mentions 2 distinct sites: Chişoda Veche-*Livezi* and Timişoara-*Termocentrală*, (S.A. Luca 2006, p. 70-71: Chișoda Veche-*Livezi*; p. 252: Timişoara-*Termocentrală*). Hence, in addition to the correct name (Chișoda Veche-*Livezi*), there is another name for the same site: Timișoara-*Termocentrală*. Also in the same study, because of other misunderstandings two nonexistent sites are mentioned: Nandru-*Către Vale* (S.A. Luca, C. Urian 2012, tables on pages 15 and 16), the correct version being Valea Nandrului (M. Roska 1941, p. 15-20) and Călan-*Între Sălcii* (S.A. Luca, C. Urian 2012, p. 15-16), the correct version being Călan-*La podină* (M. Ciuta 2002; M. Gligor 2009c, p. 53-55).

By continuing on the path of errors, our colleague Luca intended to discuss "*issues in defining the Foeni-Mintia Cultural-Group in Transylvania*" in a study dating back to 2009. An endeavor done without even knowing the entire palette of ceramics in the aforementioned group, a fact that was easily deducted from the boards published in that work (S.A. Luca 2009, figures 1 and 2), where along with the depicted Foeni material, Vinča C ceramic is also pictured. (figures 1/9, 2/5, 7 and 8). The Vinča C ceramic is however wrongly included in the Foeni group[3]. With all this confusion, the two colleagues believe that "*das abgebildete archäologische Material ist Anlass dafür, einige Fragen zur Foieni-Mintia-Kulturgruppe wieder aufzunehmen*" (S.A. Luca, C. Urian 2012, p. 13).

Once we approached matters tied to absolute chronology, matters that call for a vast knowledge of specific literature, increasingly more diverse and precise, a literature known for methodological precision and scientific arguments, mathematical analysis, correlation and interpretation of radiometric data (A. Bayliss *et alii* 2007; M. Benz *et alii* 2012; D. Borić 2009; C. Bronk Ramsey 1995; 2001; E. Hertelendi *et alii* 1998; W. Schier 2000, p. 193-196; P. Stadler *et alii* 2005; A. Walanus 2009; R.W. Yerkes *et alii* 2009), we found more gaps. If the colleagues we quoted would have had this knowledge, we are certain the approach and conclusions would have been different.

The absence of method led our colleagues S.A. Luca and C. Urian into analyzing the chronological relations between the Foeni group and the Turdaș culture by using a simple enumeration of ^{14}C data from late Neolithic to early Eneolithic from Banat and Transylvania obtained from the Uivar, Foeni, Hodoni, Daia Română, Orăștie and Cerișor-*Cauce* sites. Even from a first glance we are able to tell that the ^{14}C data is presented in the chronological order of the BP data, without taking the site or the culture from which they are a part into account (S.A. Luca, C. Urian 2012, p. 18-21). On top of that, certain data with a culture belonging unbeknownst to the authors is brought into the discussion, not to mention the phase of which they are a part of or their stratigraphical position. On the basis of this simple enumeration, without taking the stratigraphic placement of the evidence into account, without a preliminary Bayesian model done within the stratigraphic sequences from which they come from and finally, without a global modeling of the available data, conclusions are drawn regarding synchronism and contemporaneity between the Vinča culture phase C, Turdaș culture and the Foeni group (S.A. Luca, C. Urian 2012, p. 22-24) which are not backed up by radiometric data.

But let us get to the heart of the matter.

In our colleagues' study the Uivar data plays an important role: 11 out of a total of 24 dates. Although they are only mentioned, without comprehending their remarkable value to the absolute chronology of the Vinča, Foeni and Turdaș cultures, the authors take them into consideration when stating the Turdaș culture position in regards to the Vinča one. In the pages that follow we will start

[3] In the year of 2005, C. Urian showed us these materials and, with that occasion, we pointed to the distinct entity of Vinča C ceramic and plastic discovered at Sânmihaiu Român. More so than that, in order for him to find other painted materials, we recommended him to research by field walking the sites from Chișoda Veche, Parța-*tell* // and Diniaș. In order to better localize the Chișoda Veche site in the field, we indicated to our colleague, as a point of reference, the fixed point of thermo power station chimneys from Timișoara, so C. Urian's confusion probably stems from here to later be picked up by S.A. Luca also.

by analyzing these data (Chart 1) and underline their real importance as the synchronism of late Neolithic and early Eneolithic from Banat and Transylvania, eliminating those that are of no real importance to this matter.

Out of these dates that our two colleagues mentioned we will rule out six that come from stratigraphic contexts that have no direct connection and also no relevance: Hd-22756, 22751, 22659, 22930, 22928, more specifically samples taken from filled moats in Trench IV and Hd-22754 collected from a pit in Trench IV (W. Schier, F. Drașovean 2004, p. 201-204; W. Schier 2008, p. 64) that are not well anchored in the tell's stratigraphic sequence. The remaining 5 data segments (Hd-22734, 22737, 22735, 22736, 22688) to which we add another five (Hd-24591, Poz-18969, 18971, 28040, 28041) will be analyzed while taking their stratigraphic position into consideration.

In the sequence, the Poz-18971 sample comes from the 5033 foundation ditch of a house belonging to the 3.5 level, the earliest level where we found ceramic material belonging to the C1 stage of the Vinča culture[4]. The Poz-18969 sample belongs in the 3.3 level (Vinča C2) and it was collected from the house's foundation 373/351 while samples Hd-24591, 22737, 22735, Poz-28040, 28041, Hd-22688 and from the charred ruins of 373/351, 218, 205 and 54 respectively are part of the second layer. If between the three complexes there is a direct connection manifested in the complex stratigraphy of the tell, the ruins of the 54 edifice, situated at approximately 20 meters of 218 and 205, towards the edge of the tell, although belonging to the same layer, we weren't able to establish contemporaneity that goes beyond a doubt. The Hd-22734 and 22736 samples are part of the first layer that overlaps the charred houses of the second layer; the first bit of data are from the 370 pit that goes through the 373/351 house and the second is from the foundation ditch 393 that overlaps the 370 pit which goes through the ruins of the 373/351 house.

The data mentioned above was split into five stratigraphic sequences: the construction phase of the 3.5 level (Vinča C1): Poz-18971; the construction phase of the second layer (Vinča C2): Poz-18969; the phase in which the constructions from layer 2 are utilized and then demolished: Hd-24591, 22737, 22735, 22688, Poz-28040, 28041; the subsequent phase to layer 2, level 1g1: Hd-22734 and, the last, 1g2: Hd-22736. Beginning from their stratigraphic positioning, these data were analyzed and modeled with the aid of the OxCal software v. 4.2.2. We would like to mention that in this software a sample or a model may only be validated if they have an agreement of minimum 60.

In the first stage it has been established that the Poz-28040 and 28041 data (belonging to the using and demolishing of level 2), with a very low agreement (7, respectively 9), did not pass the stratigraphic model thus not making the entire model (fig. 1) viable (Amodel: 18). In this situation these data were ruled out and the analysis resumed[5]. Also the new model (fig.2), although it has a high agreement (Amodel: 100) shows a problem with correlating the Hd-22688 data (A:50) from the same sequence. The latter comes from edifice 54 and manages to cement our expressed doubts about it's stratigraphic positioning. Hence these bits of data were also ruled out and the obtained model (fig. 3) is highly probable (Amodel: 142). The Bayesian data analysis from Uivar that targeted this model showed with a high degree of clarity that the beginnings of the Vinča C culture, C1 stage are located on this site, with a probability of 94.2%, in the 5053-4901 BC interval (mean 4971 BC) (fig. 3a), the house from level 3.5 ceases to function in the interval 5020-4898 BC (mean 4955 BC) (fig. 3b), the construction of houses in layer 2, Vinča C2, begins between 4999-4897 BC (mean 4943 BC) (fig. 3c), the usage and destruction of houses belonging to layer 2 between 4981-4896 BC (mean 4930 BC), (fig. 3d), the start of level 1g1, Vinča C2, between 4951-4836 BC (mean 4899 BC) (fig. 3e), the end of level 1g1, between 4945-4809 BC (mean 4882 BC) (fig. 3f), the start of level 1g2 between 4941-4784 BC (mean 4865 BC) (fig. 3g) and finally, the end of this level and of the inhabiting of Vinča C2 from Uivar, between 4939-4743 BC (mean 4846 BC) (fig. 3h).

The beginning of the Vinča C1 stage in Uivar is situated between 5053 and 4901 BC (mean 4971 BC) while the beginning of the C2 stage is between 4999-4897 BC (mean 4943 BC) and the end of Vinča C2 inhabiting this site is placed between 4939 and 4743 BC (mean 4846 BC).

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[4] In the latest studies (F. Drașovean 2009; 2013) we used periodization, much more precise, as suggested by D. Berciu (1961, p. 48-49) motivated by professor W. Schier (1995; 1996; 1999) and adopted by a series of specialists (C.M. Lazarovici, G. Lazarovici 2006, p. 117-119, 123), in which phase C is split into three stages: C1 (ex B2/C), C2 (ex C1) and C3 (ex C2).

[5] Samples Poz-28040 and 28041 were collected from the level of ruin of the edifice's walls 373/351 and respectively 205 and it is possible to have been moved from one of the upper levels, situated on a vertical at circa 30 centimeters of the level the houses belong to.

The data gathered from Uivar poses another important issue, that of the chronological position of the site in the Vinča sequence. For the global specification of the phase C stages' chronological limits, the above mentioned data, which passed the stratigraphic model, were modeled together with data that fit beyond any doubt in the C1 and C2 phases of the Vinča culture that were available to us at the time (fig. 4). For the accuracy of the analysis, these data that came from larger cultural attributions (Vinča B-C, Vinča C, Vinča-Plocnik or Vinča C-D) were not introduced. These would have caused redundancies and/or errors. In this sense, along with the ones from Uivar, only data from Vinča were used, depth of 6.4 meters (Hd-16639), from Gomolava (GrN-7376) and the two combined from Hodoni's pit 4 (Deb-1963 and 2018). The obtained model (Amodel:111) specifies, with a probability of 95.4%, that the beginning of the C1 phase in the entire area of the culture is situated between 5253 and 4899 BC (mean 5033 BC) (fig. 4a), the beginning of the C2 stage is between 5002 and 4877 BC (mean 4945 BC) (fig. 4b) while the end of the C2 stage is placed between 4801 and 4655 BC (mean 4736 BC) (fig. 4c).

By comparing the two sets of absolute dates provided by the two models (figs. 3 and 4) we notice that there are differences between the general data of the Vinča and Uivar cultures. And so the beginnings of the Vinča C1 inhabiting Uivar (5053-4901 BC; mean 4971 BC) appear later than the general dates of the same stage of the Vinča culture (5253-4899 BC; mean 5033 BC) however the beginnings of the C2 stage are almost identical: 4999-4897 BC (mean 4943 BC) at Uivar and 5002-4877 BC (mean 4945 BC) in the Vinča culture. We also spot differences between the end of the C2 habitation from Uivar (4939-4743 BC; mean 4846 BC) and the end of the same stage from the Vinča sequence (4801-4655 BC; mean 4736 BC). These data show us that the Vinča C1 habitation from Uivar began later than the start of the C1 stage from the Vinča culture area and acquires almost simultaneously C2 attributes and so, the Uivar community included itself in the general evolution of the culture. The data also shows that the habitation here fades away before the end of the C2 stage in the Vinča area.

One might inquire as to the relevance this analysis has on specifying relations between Vinča, Foeni and Turdaș. For the necessary explanations we will operate in the same manner as above in regard to the data from Foeni and Turdaș.

When it comes to the Foeni site, colleagues S.A. Luca and C. Urian use four dates (S.A. Luca, C. Urian 2012, p. 16, 19-20) however, as was the case with Uivar, they do not know their position in the stratigraphic sequence of the site. Regardless of this fact, by applying the same chronological enumeration of BP data, they use them to establish parallels between hypothetical levels from Foeni and Turdaș phases II and III (S.A. Luca, C. Urian 2012, p. 17).

Before analyzing the ^{14}C data we must right another wrong. A certain piece of information was introduced, information that isn't confirmed by the research done on this site: at Foeni there were no Tisa imports discovered according to our two misinformed colleagues assumptions (S.A. Luca, C. Urian 2012, the chart on page 22). Furthermore, assigning hovel type dwellings only to level 1 and surface dwellings exclusively to the next level is not backed by any data[6] and that is because, according to the ^{14}C data, both types of complexes are present on both levels, the inferior one and the next one. This sort of mechanical assignment of hovels only to inferior levels/layers is a constant in our colleague Luca's research that spans over the last 20 years (S.A. Luca 1997, p. 27-32; 1998, p. 15, 17-18, 19; 2001, p. 37, 148-149) and can raise questions in relation to the accuracy of other archaeological observation.

We should mention from the beginning that all Foeni samples we use in this study were collected from the pits that the two colleagues considered being part of level 1 and from the foundation ditches of houses belonging to the first level of surface dwellings. The samples were collected[7] from: pit 4/S6 (Deb-5725 and 5771), pit 1/S14 (Hd-22653), pit 4/S8, 2000 (Hd-22658), to

[6]The research done in the last two decades on late Neolithic and early Eneolithic sites from Banat, have shown, without doubt, that in all levels, regardless of their positioning in the stratigraphic sequence we find pits (considered as hovels) but also surface dwellings. Only without a researcher's “big picture” (*mea culpa* at Hodoni: F. Drașovean *et alii* 1996, p. 12-13), through a sequential approach in narrow sections and an absolutization of the idea that any pit bigger than a hovel pit can induce the wrong opinion of the exclusive existence of two types of social spaces. This is also induced by the evolutionist concept that many of my generation still have that entails an evolution from inferior to superior, from hovels to surface dwellings.

[7]The samples were collected only from the oldest phase of hovel functioning and not from fillings ulterior to the using phase. When it was impossible to specify the utility of the pit, samples were only collected from the bottom.

which we also add Poz-45669 and 53388 (pit 38/S16), Poz-53356 (pit 28/S16), Poz-53385 (pit 16/S16) and Poz-53386 (pit 19/S17). From a stratigraphic point of view, the samples Deb-5725 and 5771 and Poz-53388 and 45699 belong to the pits, Poz-53356, 53386 belong to the construction phase of a surface dwelling, Poz-53385 is from a ditch that represents a reparation to one of its walls while Hd-22653 a contemporary pit with surface dwellings. Starting from the stratigraphic positions, these data were separated in three sequences: one, named phase I hovels, in which we placed data that come from hovels considered to belong to the oldest level of settlement; the second sequence named phase I houses and the third named phase I houses-reparation.

During the Bayesian modeling of data two pieces of data are combined because they are in the same stratigraphic unit -these are from pit 4/S6 (Deb-5725 and 5771) and, respectively, 38/S16 (Poz-45669 and 53388). The obtained model (fig. 5) shows mismatches, in the hovel phase, between dates from pits 6 and 4 and the combined one from pit 38 and, in the second stage, between the foundations ditch 28 and gr. 1. From the model analysis, with the reserve of differences given by old wood errors (old wood effect), it came out that there are no major time differences between the hovel level and the house level, a fact that made us combine the data into a single phase: phase I hovels and houses. The new model (fig. 5a) is a viable one (Amodel: 87) and shows us without any doubt that the two levels are partially contemporary[8].

According to the modeling, beginning of habitation is placed between 4901 and 4615 BC with a probability of 95.4% (mean 4759 BC) (fig. 5b) and the end of level I of houses between 4699 and 4383 BC with a probability of 95.4% (mean 4519 BC) (fig. 5c) having duration of 175 years (mean 82), (fig. 5c). And so, as the data limit average (mean) above shows, the duration of habitation for the inferior level at Foeni is situated between 4755 BC and 4524 BC. Also the data indicates the fact that at the moment of the start of the Foeni site, the Vinča C2 habitation from Uivar was extinct (4939-4743 BC; mean 4846 BC), a fact that is also proven by the overlap between dwelling 205 and the 211 ditch in which Foeni material was discovered (B. Dammers 2009,p. 242 and Pl. 5/4-9). We are certain that the analysis of all collected samples from the habitation levels at Foeni and finalizing the combined ceramic research will bring more precise specifications of the absolute chronology and cultural evolution of the Foeni group.

To be able to compare the radiometric data from Foeni with the one of the Turdaș culture we will proceed, with the Bayesian modeling. In this analysis we used all the published data referring to the Turdaș culture: Deb-5765, 5762 and 5775 for phase II and Gr. 28994 for phase III. The generated model (fig. 6), with an agreement of 58, shows inconsistencies between data Deb-5765 (A: 44) and the other data from the model, although the other two bits of data (Deb-5765 and 5775) were discovered in the same archaeological complex, hovel 2. Even our colleague S.A. Luca (2001, p. 142) expressed his doubts in regards to the validity of the sample: "*the large difference may be caused first and foremost by a collecting or handling error (...) But the error could have been that of the prehistoric man* (...) *the cranium of sample 2* (Deb-5765 n. n.) *could represent an older ancestor* (sic!) *than the cranium of sample 1*". This fact compelled us to rule it out and reanalyze the model.

The new obtained model is a viable one (Amodel: 119) and shows the absolute chronological position of phases II and III of the Turdaș culture (fig. 7). And so the start of the second phase is situated, with a 95.4% probability, between 4921 and 4557 BC (mean 4721 BC), (fig. 7a), the border between phases II and III is placed between 4736 and 4545 BC (mean 4645 BC), (fig. 7b), while the end of the Turdaș culture, calculated with the help of the only piece of data from Cerișor-*Cauce* (GrN-28994), is found between 4708 and 4206 BC (mean 4527), (fig. 7c). Based on the obtained model,

[8] Starting from the social behavioral model, according to which among the first things a community does when they establish themselves in a location is to build shelters, and building a hovel needs less time than building a house, we can accept the idea that hovels could represent an incipient phase in a habitation's evolution without having the habitation behavior change. On that note, after a certain period of time, in our opinion a short one, surface dwellings are built in the vicinity of hovels (from reasons easy to comprehend, never above!), after which the latter are abandoned. This succession, especially in the case of very thin levels -specific to the first months of a habitation period- can be stumbled upon seldom in an archaeological excavation. In this situation, if not for a careful perception, the archaeologist notes a pit that is then attributed to the beginning of habitation. However the materials discovered in the "hovel" belong to an ulterior stage in which the hovel ceased its function, transforming into a garbage pit and although the archaeologist is tempted to think that there are two distinct levels (chronologically accurate up to a point), the materials in the filling of the old hovels are contemporary with the functioning of the surface dwelling as in our case the radiometric data shows.

the duration of the Turdaș phases II and III was calculated and the result is 171 years (mean 61), (fig. 7d) with a probability of 95.4%. In conclusion, the start of the Turdaș phase II, as shown by the modeled data average, is situated in the interval 4921 and 4557 BC (mean 4721 BC) and phase III comes to an end between the 4708-4206 BC (mean 4527 BC) interval.

By comparing these data with the one from Banat, we ascertain that the Turdaș phase II begins after the extinguishing of the Vinča C2 habitation from Uivar that happened between 4939 and 4743 BC (mean 4846 BC), being established later than the Vinča C2 habitation from Hodoni, situating itself towards the end of the C2 stage in the Vinča culture sequence. Also the ^{14}C data shows that the start of the Turdaș phase II comes later than the start of the Foeni habitation placed between 4901 and 4615 BC with a 95.4% probability (mean 4759 BC).

Considering these data, if the Turdaș culture phase II is born at the end of the Vinča C2 stage, we are compelled to discuss a very important matter: when can phase I be dated and implicitly the start of the Turdaș culture. The colleagues we quoted above believe that this can be situated during the Vinča B2/C phase (W. Schier's Vinča C1). Since we don't have the radiometric data from the inferior level of the eponym settlement, in order to answer this question we will discuss the conditions in which the complexes attributed to the Turdaș I phase were discovered, B1/1992 and B2/1992-1993. The author of the research mentions that the hovels belong to a level that is "*extremely thin and does not show up on the entire surface of the digging*" (S.A. Luca 2001, p. 37; 2012, p. 22), B2 "*functioned for a short while (the most conclusive proof being the leveling done by the inhabitants that soon followed (...)"* from this, colleague S.A. Luca concludes that "*the habitation of level one is very short, the following inhabitants leveling the terrain when the dwellings of their predecessors were still visible*" (S.A. Luca 2001, p. 42-43).

Not knowing what the connection is between a hovel's subsequent activity and estimating the period in which it functioned -used by the author to explain the short period of its usage- we are left with the observation that there is a short period of time between levels I and II. This mention is very important for specifying the interval that existed between levels I and II, or from the Turdaș phases I and II, that we estimate, in the context in which we estimated the existence in that area of a hiatus between the two levels, or of an outskirt of the early settlement as colleague Luca suggests, to a few decades tops. Only in this specific situation could the following inhabitants be able to see -and level- a deep pit, as it can be estimated from the plan , of only 0.6 meters, the difference between the upper part of the hovel fillings (VI) and the upper part of the inferior layer (VII). If however we do not accept the existence of the hiatus and the succession between the two levels is a rapid one, another important question arises: is it possible that, from a cultural point of view, in only a few years, the elements of phase II have formed and consolidated? This question, in addition to the possibility of a short time interval existing between the two levels/phases, raises important questions on both the viability of phase I and the accuracy of defining it from the eponym site. Whatever the situation may be, between the start of the second phase and the beginnings of Turdaș habitation an interval of circa 200 years cannot be placed, as we might have assumed if the Turdaș I phase would begin, as the quoted colleagues say, in the Vinča C1 stage. That is because the Vinča C1 stage ends in the 5002-4877 BC (mean 4945 BC) interval, as the radiometric data have shown.

Going back to the question: when can we situate the start of the Turdaș I phase, a decent and acceptable answer can be obtained by studying the archaeological situation in Banat. For this we come back to the stratigraphic sequence from Uivar, where fragments of quadrilateral receptacles adorned in Turdaș-like technique were discovered in pit 370 from surface I, that belong to the level 1g1 (B. Dammers 2009, Pl. 5/1, 2).

This matter caused us to proceed and model the ^{14}C data of the 1g1 level from Uivar (Hd-22734) and those of the phases II and III of the Turdaș culture. The resulting model (fig. 8) is viable (Amodel: 106) and shows the fact that the "Turdaș" findings from pit 370 are situated in the interval 5397-4693 BC (mean 4952 BC), (fig. 8a) and existed earlier than the second phase from the dates in Transylvania, placing them at the end of the Vinča C1 stage and the start of the next one.

Just like at the Uivar site, the defining materials unanimously recognized for this culture – the quadrilateral receptacles and the strips of incised lines filled with pricks and short lines- also appear in other Banat sites, like Zorlențu Mare (F. Drașovean 1996, p. 50, pl. CIX/2), Sălbăgelul Vechi (F. Drașovean 1996, pl. CVI/5-7), Chișoda Veche (F. Drașovean 1996, pl. LXXXII/5; XCV/5), Parța II (F. Drașovean 1996, pl. CI/6) and Vršac-*At* (G. Lazarovici 1979, fig. 11; C.M. Lazarovici, G. Lazarovici 2006, p. 127, 495-496, 569-571). All these materials connected to Turdaș are an integral part, with the required specificity, of the Vinčian ceramic repertoire (F. Drașovean 1996, p. 50, 97; 2002, p. 75; 2003, p. 52; 2009, p. 260; C.M. Lazarovici, G. Lazarovici 2006, p. 122, 569-571) and were discovered

mostly in settlements dated in the Vinča C1-2 stages and, as the ^{14}C values show, are older than the Turdaș II phase. When corroborated, the above mentioned data lead to the hypothesis that Turdaș influenced those sites obsolete (Luca 1997, 76) and give the idea that Banat elements contribute to the genesis of the Turdaș culture (G. Lazarovici 1987; Z. Kalmar-Maxim 1991, p. 5; F. Drașovean 1996, p. 78; F. Drașovean,T. Mariș 1998, p. 99-100), that takes place during the Vinča C2 phase, moment in which, as the radiometric data indicate, the insufficiently demonstrated Turdaș culture phase I could be situated.

Returning to the absolute data of the Vinča culture in relation to the Turdaș culture periodization, we specified that the third phase begins in the interval 4719-4562 BC (mean 4634 BC) and, with the caveat that there is only one date, it ends between 4708 and 4206 BC (mean 4527 BC). This date shows that the Turdaș III phase in its entirety postdates the Vinča C2 stage (that ends between 4801 and 4655 BC, mean 4736 BC) and is parallel with Vinča C3 and D, being very close to the ones from the Vinča area that show that the start of phase D is between 4850 and 4610 BC (for the beginning of the Gomolava burial grounds), or 4970-4580 BC (for Vinča-*Belo Brdo*) and the end of the culture between 4710 and 4500 BC (Gomolava) and 4700 and 4350 BC (Vinča-*Belo Brdo*) (D. Borić 2009, 226).

Considering all the limitations of the data for the third phase, we cannot overlook the fact that the end places it very close to the radiometric data values from Lumea Nouă, situated in the interval 4632-4499 BC, mean 4557 BC (fig. 9a), more precisely, close to what is currently known as the beginning of Foeni in Transylvania. This chronological level can also be confirmed by the fact that, in a series of Turdaș settlements, Foeni materials have been discovered, in levels IIb from Turdaș and *Cauce*, both belonging to the third phase (S.A. Luca, C. Urian 2012, p. 17). If in level I from Orăștie, contemporary with level IIa from Turdaș and placed in the Turdaș II phase there are no Foeni elements (as the discoverer noted), the discovery of human bones, broken or exposed to fire (S.A. Luca 2001, p. 49) that have in other dimensions, good analogies in the discoveries from Lumea Nouă (M. Gligor 2009a, p. 117-132), can indicate the existence of a Foeni habitation at Orăștie-*Dealul Pemilor* (*Platoul Romposului*).

The end of the Transylvanian Foeni at Lumea Nouă site is confirmed with the help of a compact package of data in the 4534-4441 BC, mean 4495 BC interval (fig. 9b), which shows that the habitation here did not last more than a half of a century.

While taking all of this into account, by comparing the Foeni materials found in a series of sites in Transylvania with those from Banat, a series of typological differentiations can be noted. If at Turdaș, level IIb (S.A. Luca 2001, fig. 24/2, 6, 8; 42/6, 11), Pianul de Jos-*Podei*, Petrești-*Groapa Galbenă*, Bernadea and Archiud (Z. Maxin 1999, p. 101 and pl. XIX/1) forms typical to Banat are present (F. Drașovean 1994b, I/1, 2; II/1; III/1; V/1, 4; VI/1; VII/3; VIII/1, 3), in all of the other Foeni sites (Mintia, *Lumea Nouă*, Zau de Câmpie) those particular forms do not show up anymore (M. Gligor 2009a, p. 138-139). This observation, at the current research stage, could mainly chronologically and stylistically separate two stages in the Transylvanian evolution of this group: the first, named by colleague M. Gligor IIa, in which the majority of Banat elements are present and a second one, in which we notice the disappearance of some forms and the development of others, while painting has a regional and local evolution (M. Gligor's IIb), without this always signifying a crossing to Petrești communities canons.

According to what was presented above, we conclude that the absolute data do not modify the stratigraphic realities in Transylvania, instead, it supports the correct ones and places them on stronger chronological positions by relating to Banat and the Vinča area. If in Banat the start of the Foeni habitation during the Vinča C2 phase and the Foeni group position remain unchanged, in Transylvania a series of modifications occur. These refer to the moment of Turdaș culture genesis, to the Foeni group's involvement, situated during the Vinča C3-D stage and not at the end of the C2 stage, as we thought until now (F. Drașovean 1996, p. 86, 98-99; 2002, p. 76-78; 2003, p. 45-46; 2004, p. 31-34; 2009, p. 262; F. Drașovean, T. Maris 1998, p. 99-101; idea that was borrowed in literature: S.A. Luca 1997, p. 73-74, 75; 2001, p. 124, 144-145; M. Gligor 2009a, p. 134, 145; 2009b, p. 240-241) to the Petresti culture genesis.

This chronological sequence, illustrated in graphic 1, accomplished by adding the cultural segments provided by absolute data modeled in this study, show, with a 95.4% probability, the Vinča C1-Vinča C2/Turdaș I-Turdaș II-III/Foeni II group succession.

From the data mentioned above we can come to the following conclusions:

1. As the stratigraphic position of “Turdaș” materials from Uivar indicates, supported by their absolute chronology and related to the Turdaș culture phase II chronological moment, despite the

problems found in defining the early phase (I), it appears later than the Vinča C1 stage and is born during the Vinča C2 phase out of Vinča elements in Banat that contain the features that will define it: quadrilateral receptacles and typical decorum.

2. The Turdaș culture phase I is older than the Foeni cultural group and, as the ^{14}C data show, the start of the second phase manifests itself later than the start of the Foeni habitation. It also synchronizes itself in its entirety with the end of the Vinča C2 stage and the start of C3 while the end of the third phase is parallel with Vinča C3 and D phase and with the involvement of Foeni communities in Transylvania.

3. The involvement of the Foeni group in Transylvania, with the observations mentioned above, takes place during the Turdaș III phase (level IIb from Turdaș), and clearly not at the 5850 BP moment (S.A. Luca, C. Urian 2012, p. 23) as our two colleagues state[9] in the absence of an elementary analysis. We think that if they would have studied the charts from pages 18-20 that they themselves published -and to which they look for certain referrals- where, just by looking at the BP data enumeration, they could have noticed that all three viable data of the Turdaș culture are ulterior to all Vinča C2 data and, with one exception, to those from Foeni.

4. The beginning of the Foeni group in Transylvania, as the ^{14}C data shows, is situated in the interval 4708-4206 BC (mean 4527 BC)/4632-4499 BC (mean 4557 BC) (fig. 9a) while its end, according to data from Lumea Nouă, between 4543 and 4441 BC (mean 4495 BC) (fig. 9b). These are partially contemporary with the Vinča C3-D phases (G. Lazarovici 2009, p. 208) and with the beginnings of the Tiszapolgar culture early phase in the Pannonia area (D. Borić 2009; D. Diaconescu 2013).

5. The birth of the Petrești culture does not take place during the Turdaș III phase, as the two colleagues believe (S.A. Luca, C. Urian 2012, p. 23) because, at this stage of the research process, the first Foeni elements are documented in level IIb from Turdaș and Cerisor-*Cauce*, attributed to this phase (III), and the ^{14}C Foeni data from Lumea Nouă confirms this synchronism. In conclusion the necessary time span for the culture's genesis in parallel with this phase does not exist.

6. By comparing the above mentioned data to the only available data of the Petresti culture from Daia Română, we note that the latter is situated in the 4800-4500 BC interval (fig. 10), and so would start earlier than the Turdaș III phase and the Foeni group in Transylvania. This is the only inconsistency that we observe from correlating the Bayesian models with data from the intra-Carpathian space done in this study, inconsistency caused by the fact that we compared AMS data with conventional data (the one from Daia) that have a large standard deviation (±100), limiting any modeling of absolute dates to a very large time interval (fig. 10) and so, is inconclusive for an exact analysis (C.M. Lazarovici, G. Lazarovici 2007, p. 37). It remains for future research to bring AMS data for the start of the Petrești culture and for its entire evolutionary sequence.

According to the dating of Turdaș III phases from Cauce or of the Foeni group from Lumea Nouă (M. Gligor 2008, p. 150-151, 159; 2009a, p. 143, 144; 2009b; 2012), the beginnings of the Petrești culture should situate, at the earliest, at the end of the first half of the fifth millennium and evolve in the interval, *terminus post quem*, delimitated by the end of the third phase of the Turdaș culture/involvement of Foeni communities 4708-4206 BC (mean 4527 BC)/4632-4499 BC and, *terminus ante quem*, marked by the beginnings of the Bodrogkeresztur culture, placed between 4300 and 4200 BC (B. Govedarica 2004, 72, 73; P. Biagi, B. Voytek 2006; P. Raczky, Sz. Siklosi 2013, p. 570-571; D. Diaconescu 2013). Therefore, the Petrești culture evolves during, at most, three centuries but in the fifth millennium and not 500-600 years in the third millennium, as colleague S.A. Luca has stated (2001, p. 145), contrary to the ^{14}C data he himself published (S.A. Luca 2001, p. 139-143). Our opinion is that a more exact specification, through AMS data, of this interval would have been an important step in clarifying the entire evolution of the Foeni-Petrești cultural complex, that also includes the Foeni group evolution in Transylvania and its Petrești becoming, specifying elements that might have contributed to this. It would also clarify the evolution sequence of phases A and A-B, but also the persisting Foeni communities in Ardeal and possible relations with other Foeni communities that have the characteristics of what we now name Petrești.

[9] The date 5850 BP brought forward by the two colleagues does not appear between the published dates of the Turdas Culture. However, if we calibrate the closest date, 5825±60 BP (Deb-5762), it is situated in the 4831-4537 BC, mean 4678 BC, meaning that it is an earlier than the beginning of the Turdas III phase (4719-4542 BC, mean 4634 BC), which contradicts the archaeological realities of Transylvania.

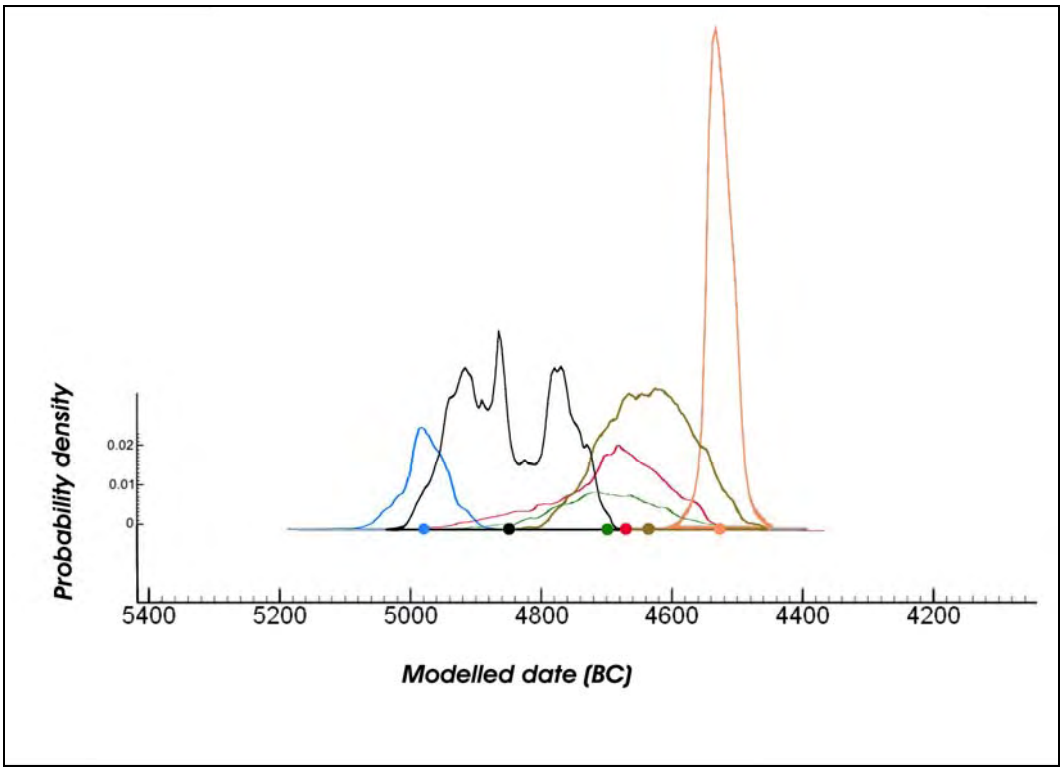

Chart 1. Sum of Vinča C1 phases (in blue), Vinča C2 (in black), Petrești A (in green), Turdaș II-III (in red), The Foeni group from Banat (in brown), Foeni group from Transylvania (in orange) based on the modeled data in figs. 4, 5, 6 and 10.
Suma fazelor Vinča C1 (în albastru), Vinča C2 (în negru), Petrești A (în verde), Turdaș II-III (în roșu), grupului Foeni din Banat (în maro), grupului Foeni din Transilvania (în portocaliu) pe baza datelor modelate în fig. 4, 5, 6 și 10.

7. At this moment, the sole presence of Turdaș forms and decorum in Petrești habitations of A and A-B phase (N. Vlassa 1976, p. 66; I. Paul 1993, p. 51; S.A. Luca 1997, p. 71; 2001, p. 145; Z. Maxim 1999, p. 81) is not a sufficiently sound argument to consider the Turdaș culture carriers as an ethnic base on which the future Petrești culture is built upon (S.A. Luca, C. Urian 2012, p. 23). Until irrefutable evidence is obtained towards this, based on compared anthropological studies and strontium isotope analysis (see for example: Y. Boyadziev 2011; J.I.Giblin *et alii* 2013; T.D. Price *et alii* 2002) the presence of Turdaș elements can only be interpreted as assimilation/survival of an ornamental style. This is also strengthened by the fact that, up to this point, there were no Turdaș habitations identified as ulterior to level IIb from Turdaș (third phase), all habitations ceasing their existence once the Foeni group arrived. The presence of Turdaș elements in the Petrești environment can be explained, not only through their presence already mentioned in the Vinča C phase, but also by comparing it with a similar phenomenon that manifested in the late Vinča cultural environment from northern Banat. Here the incised decorum, influenced by Tisa and Banat cultures have a significant presence in the C2 phase habitations, being an incised category in the ornamentation ensemble of this phase, that individualizes the northern Banat version of the Vinča C culture (F. Drașovean 1996, p. 76-79, 107; 2003, p. 52; 2009, p. 260), however the presence of the pannonic ornamental element doesn't change its Vinča character.

8. The late dating of the Foeni group from Transylvania and, implicitly, that of the Petrești culture genesis, strengthens the idea of the Foeni group influence -and not that of Petrești, as it was believed up to now (Vl. Dumitrescu *et alii* 1983, p. 114; Vl. Dumitrescu, Al. Vulpe 1988, p. 37, 39)- to the birth of Cucuteni (C.M. Lazarovici, G. Lazarovici 2007, p. 15, 158; G. Lazarovici, C.M. Lazarovici 2010, p. 28-29, 84; M. Gligor 2009a, p. 145-146). Also this late dating is no longer in contradiction with Precucuteni I and II absolute data (C.M. Mantu 1998, p. 113; Y. Boyadziev 2005, p. 66, 69; G. Lazarovici, C.M. Lazarovici 2010, p. 36) and validates the opinion that Precucuteni materials discovered in Turdaș sites of phase II and III and Foeni from Transylvania belong to phase I (F. Drașovean, S.A. Luca 1990, fig. 3/4;S.A.Luca 2001, p. 68, 149; G. Lazarovici, C.M. Lazarovici 2010, p.

34-36) and less to the second, as stated up to this point (I. Paul 1992, p. 53-54; F. Drașovean 1996, p. 94-95, 99; 2003; S.A. Luca 2001, p. 68-69). This even more so as Precucuteni II does not develop in Transylvania (S. Marinescu-Bîlcu 1974, p. 134; G. Lazarovici, C.M. Lazarovici 2010, p. 36).

9. The addition of the Mintia name to the one of Foeni, as colleague S.A. Luca proposes (2001, p. 131, 145; 2009, p. 205; S.A. Luca, C. Urian 2012, p. 23-24), could be accepted with the condition of obtaining a satisfactory answer to the question: in what level or in what area of the Mintia site are there the most faithful evolutions of the Foeni phenomenon in Transylvania?. Asking this question is necessary because the research on this site (diggings F. Drașovean and S.A. Luca) has shown in a clear fashion the existence, at this stage, of at least two areas in which the Foeni phenomenon shows distinct evolutionary facets. If in the central area, in SIII and IV, layer II, a segment of evolution towards its Transylvania content was observed (F. Drașovean, S.A. Luca 1990), in the eastern area of the site, especially in SI and II, it has been noted that the ceramic materials lose the specific burning technology and evolve towards what we named as the Hunedoara group (F. Drașovean 1996, p. 99-100; 2002, p. 78-79), or towards what colleague Luca understands by Turdaș IV (S.A. Luca 2009, p. 205; S.A. Luca, C. Urian 2012, p. 23). In conclusion, the Mintia site(s) belong to heterogeneous phenomena as results of connected evolution that take place at different moments of the Transylvania Foeni group, that reflects the zonal becoming, and only partially, the one that took place at a Transylvanian scale. This particular situation spawns the question: to which phase of the Foeni group can the Mintia name be added? Can it be attributed to its entire evolution or only to the one from Transylvania? At this stage of research, materials from layer II in Mintia (SIII and IV), because of the absence of some of the Banat forms (F. Drașovean 1994b, I/1, 2; II/1; III/1; V/1. 4; VI/1; VII/3; VIII/1, 3) can only be attributed to the IIb phase and under no circumstance to the beginning of the Ardeal phase (IIa), while those from the east side and layer I to the third phase (M. Gligor)/Turdaș IV (S.A. Luca)/ Hunedoara group (F. Drașovean). Actually the conclusions of such an analysis have convinced other colleagues, well versed in the Eneolithic, to support the naming of Foeni group (C.M. Lazarovici, G. Lazarocivi 2007, p. 40).

By continuing to analyze matters tied to terminology, we believe that the proposition made by colleagues C.M. Lazarovici and G. Lazarovici deserves to be brought into the discussion, that of Foeni-Petrești, which in our opinion is more complete and targets not only the entire evolution of Foeni communities in Transylvania but also of the entire cultural complex of Eneolithic painted ceramic from Banat and Ardeal.

But let us first consider the broad strokes of what is currently known about this matter. After the involvement of Foeni communities in Ardeal, a change is attributed to them that takes place in two phases: II-III (phase I being considered a Banat phase: M. Gligor 2009a, p. 137-140).

At this stage of research there are still things that will have to be mentioned, especially regarding the third phase (S.A. Luca's Turdaș IV phase and our Hunedoara group) that through the ceramics' features can be a collateral evolution of Foeni carriers, separated from the evolution that gave birth to the Petrești culture or even Petrestians themselves. At the moment, based on ceramic typology, we forward the idea that a stage of the Foeni group from Banat and only a part of its Transylvanian evolution have a continuous developement towards this culture and are an integral part of the cultural complex of Eneolithic painted ceramic that we call Foeni-Petrești. At the current stage of research, this cultural complex can be split into five phases as follows: I, the Banat phase (cultural group Foeni); II, the Transylvania phase, of Foeni group involvement in the Intracarpathian arch and of evolution towards the Petrești culture; III, includes what we understand at this point as phase A of the Petrești culture; IV, assimilates the Petrești A-B phases and V, Petrești B phase. If phases I, IV and V and their stages are better individualized from a typology and evolutionary point of view, phase II, that contains elements that lean towards the Petrești culture, needs a series of clarifications.

Mainly these will have to define in a more exact manner the stages of Transylvanian evolution but also the characteristics and elements that take part in the progression towards this culture. Also there are clarifications needed for the cultural content of the Petrești A phase (the third phase out of the periodization we forwarded) as it was defined by I. Paul (1992, p. 71-76), in which the styles of painted ceramics could separate more evolutionary moments, some that could be placed in the phase II (Foeni group in development towards Petrești, phases IIa and maybe, M. Gligor's IIb 2009a, p. 138-139), and others in phase III (fully formed Petrești A). But about the periodization of the Foeni group, or better said, about the Foeni-Petrești cultural group in its entirety, we will write in more detail in the Foeni site monograph that we have in development.

Settlement	Laboratory Code	Stratigraphical Position	BP Data	Culture	Phase	Bibliography
Uivar	Poz-18971	Feat 5033, level. 3.5	6040±30	Vinča	C1	unpublished
Vinča	Hd-16639	Depth of 6,4 m.	6081±68	Vinča	C1	Schier 1996, 149
Uivar	Hd-24591	Feat. 351, level. 2	6056±43	Vinča	C2	unpublished
Uivar	Hd-18969	Feat 888, level 3.3.1	6040±40	Vinča	C2	unpublished
Uivar	Hd-22737	Feat 205, level 2	6036±22	Vinča	C2	Schier-Drașovean 2004,
Uivar	Hd-22735	Feat 205, level 2	6022±28	Vinča	C2	Schier-Drașovean 2004,
Uivar	Hd-22688	Feat 54,level 2	5947±41	Vinča	C2	Schier 2008, 64
Uivar	Poz-28040	Feat 352, level 2	5875±35	Vinča	C2	unpublished
Uivar	Poz-28041	Feat 205, level 2	5870±40	Vinča	C2	unpublished
Uivar	Hd-22734	Feat 370, level 1g1	5996±60	Vinča	C2	Schier-Drașovean 2004,
Uivar	Hd-22736	Feat. 351 / 373, niv. 1g2	5949±38	Vinča	C2	Schier-Drașovean 2004,
Gomolava	GrN-7376	Level Ia	6010±70	Vinča	C1	Waterbolk 1988, 121
Hodoni	Deb-1963	Gr. 4	5880±60	Vinča	C2	Drașovean 1994, 423
Hodoni	Deb-2018	Gr. 4	5870±60	Vinča	C2	Gläser 1996, 196
Foeni	Deb-5771	S6, Gr. 4	5855±85	Foeni	I	Drașovean 2004, 33
Foeni	Deb-5725	S6, Gr. 4	5835±40	Foeni	I	Drașovean 2004, 33
Foeni	Hd-22658	S8, Gr. 4/2000	5782±27	Foeni	I	Drașovean 2002, 45
Foeni	Hd-22653	S 14, Gr. 1	5699±37	Foeni	I	Drașovean 2002, 45
Foeni	Poz-53356	S16, Gr. 28	5890±40	Foeni	I	unpublished
Foeni	Poz-53385	S16, Gr. 16	5810±40	Foeni	I	unpublished
Foeni	Poz-53386	S17, Gr. 19	5720±40	Foeni	I	unpublished
Foeni	Poz-53388	S18, Gr. 38	5750±40	Foeni	I	unpublished
Foeni	Poz-45669	S18, Gr. 38	5690±40	Foeni	I	unpublished
Orăștie	Deb-5765	Level I, B2	6070±70	Turdaș	II	Luca 2001, 142
Orăștie	Deb-5762	Level. I, B1	5825±60	Turdaș	II	Luca 2001, 142
Orăștie	Deb-5775	Level I, B1	5790±55	Turdaș	II	Luca 2001, 142
Cerișor-Cauce	GrN-28994	Gr. 104	5760±40	Turdaș	III	Luca 2009, 202
A.I.L.Nouă	Poz-19489	G1.II.2003	5750±50	Foeni	II?	Gligor 2009a, 141
A.I.L.Nouă	Poz-19375	G1.II.3003	5650±40	Foeni	II?	Gligor 2009a, 141
A.I.L.Nouă	Poz-19376	C1.III.2005	5670±40	Foeni	II?	Gligor 2009a, 141
A.I.L.Nouă	Poz-19377	G1.III.2005	5770±40	Foeni	II?	Gligor 2009a, 141
A.I.L.Nouă	Poz-19451	B1.II.2006	5700±50	Foeni	II?	Gligor 2009a, 141
A.I.L.Nouă	Poz-22521	G1.III.2005	5690±40	Foeni	II?	Gligor 2009a, 141
A.I.L.Nouă	Poz-22522	G1.III.2005	5695±35	Foeni	II?	Gligor 2009a, 141
A.I.L.Nouă	Poz-47401	D.I.2011	5680±40	Foeni	II?	Gligor 2012, 286
A.I.L.Nouă	Poz-47402	D.I.2011	5690±40	Foeni	II?	Gligor 2012, 286
Daia	Bln-1197	unknown	5900±100	Petrești	A	Mantu 2000, 100
Daia	Bln-1199	unknown	5835±100	Petrești	A	Mantu 2000, 100
Daia	Bln-1201	unknown	5710±100	Petrești	A	Mantu 2000, 100

Tab. 1. Radiocarbon data analyzed in this study.
Datele radiocarbon analizate în acest studiu.

In this context, the matter of Foeni imports into the Petrești A medium, stated by the two colleagues (S.A. Luca, C. Urian 2012, p. 23) is also, at this stage of the research, hypothetical, and along with the above mentioned necessary clarifications that need to be based on an analyses of style and typology as well as physical and chemical analysis of all the ceramic material. This knowledge cannot come from personal opinion born from ignorance of the complete Foeni ceramic assemblage and the Foeni-Petrești phenomenon as a whole. We think this gap made them believe that, with the exception of the Mintia site, there are no other Foeni "clean" habitations in Ardeal (S.A. Luca 2009, p. 206; S.A. Luca, C. Urian 2012, p. 24). Considering this, it would not be useless to mention there are already known Foeni habitations from Lumea Nouă (M. Gligor 2009a, p. 57-58, 71-86, 137), the one from Bernadea (M. Gligor 2009a, p. 168), Noșlac (M. Gligor 2009c, p. 51-52) and from Pianu de Jos. These materials, as we have mentioned before, are in the custody of Brukenthal Museum in Sibiu. If the two colleagues would have had the curiosity to study them, they could have noted that in trenches 9 and 12, between the depths 0.8-1 meters, there is a compact level of Foeni material. And so there are other "clean" Foeni settlements in Transylvania, next to the ones contested without good reason from Zau de Câmpie, Baciu and Archiud (Z. Maxim 1999, p. 101, 103; M. Gligor 2008a; 2009a, 168-169; G. Lazarovici 2009, 207-210).

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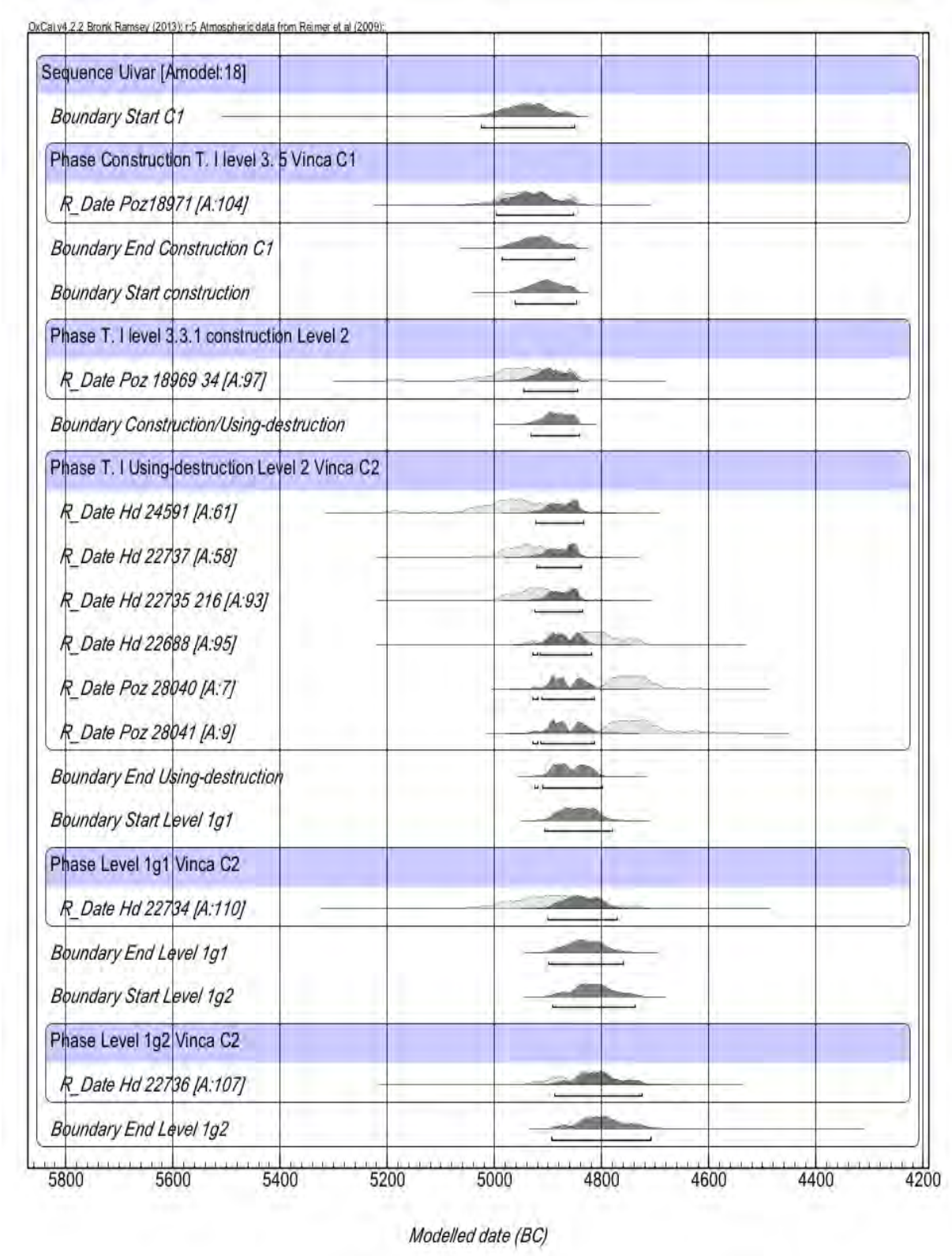

Fig. 1. Probability distribution of data from Uivar modeled in the framework of stratigraphical sequences. The model shows constraints between the Poz-28040, Poz-28041 data and the other modeled data.
Distribuția probabilă a datelor de la Uivar în relație cu secvența stratigrafică. Modelul prezintă neconcordanțe între datele Poz-28040 și Poz-28041 față de celelalte date incluse.

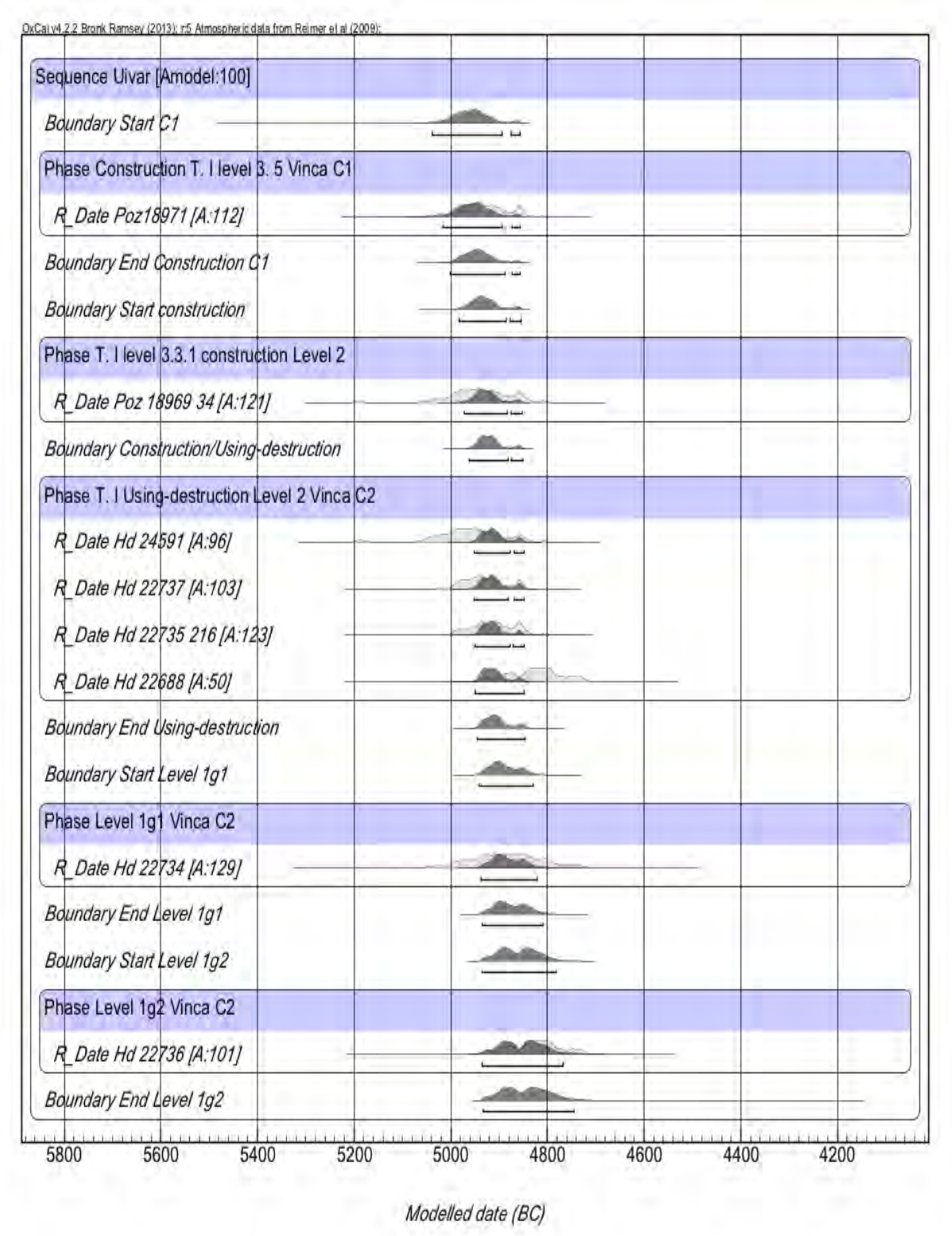

Fig. 2. Probability distribution of data from Uivar modeled in the framework of stratigraphical sequences. The model shows constraints between the Hd-22688 data and the other modeled data.
Distribuția probabilă a valorilor datelor de la Uivar în relație cu secvența stratigrafică. Modelul prezintă neconcordanțe în cazul datei Hd-22688 față de celelalte date incluse.

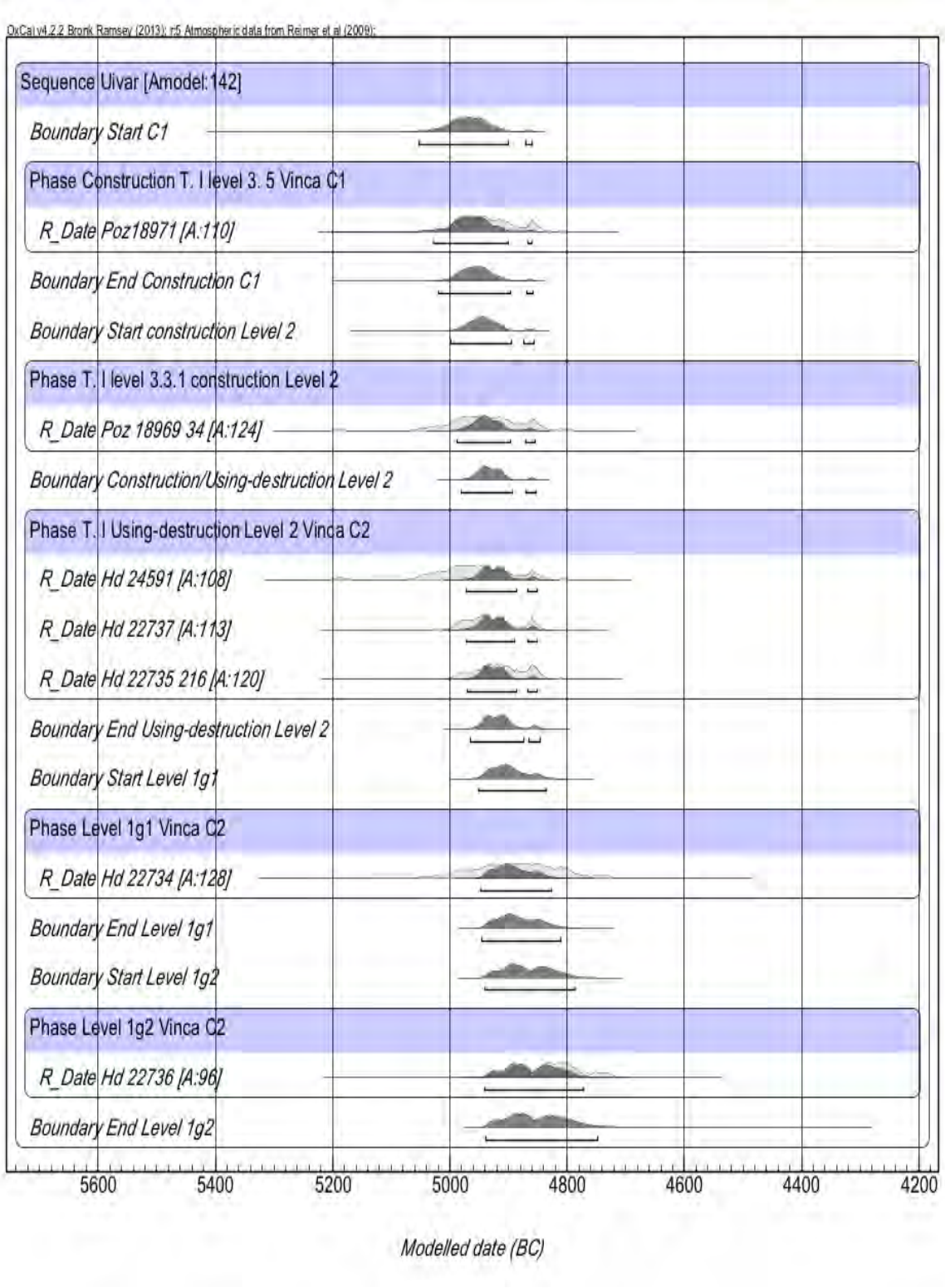

Fig. 3. The viable model of probability distribution of data from Uivar, modeled in the framework of stratigraphical sequences.
Modelul viabil al distribuției probabile a datelor de la Uivar, modelate în cadrul secvențelor stratigrafice.

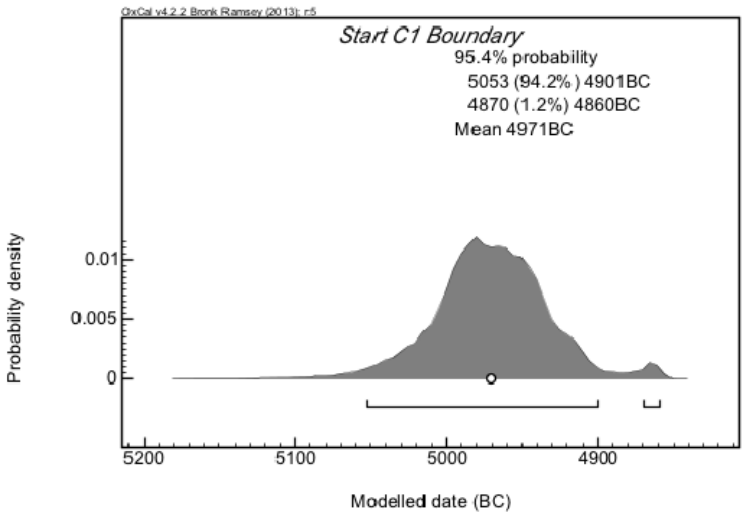

Fig. 3a. Probability distribution showing the start boundary of the modeled data shown in fig. 3. This distribution acts as a *terminus post quem* for the Vinča C1 phase in Uivar.
Distribuția probabilă a valorilor arătând punctul de început a datelor modelate din fig. 3. Această distribuție acționează ca *terminus post quem* pentru faza Vinča C1 de la Uivar.

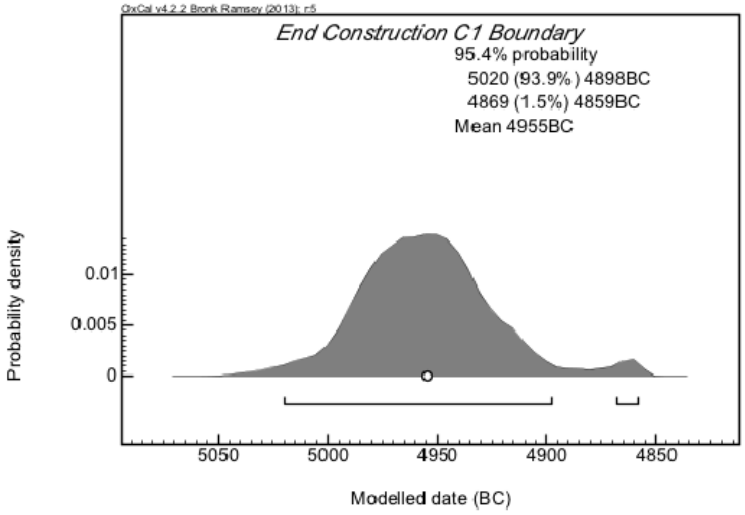

Fig. 3b. Probability distribution showing the end boundary of the modelled data in fig. 3. This distribution acts as a *terminus ante quem* for buildings belonging to the Vinča C1 phase in Uivar.
Distribuția probabilă a valorilor arătând punctul de sfârșit a datelor modelate în fig. 3. Această distribuție acționează ca *terminus ante quem* pentru construcțiile din faza Vinča C1 de la Uivar.

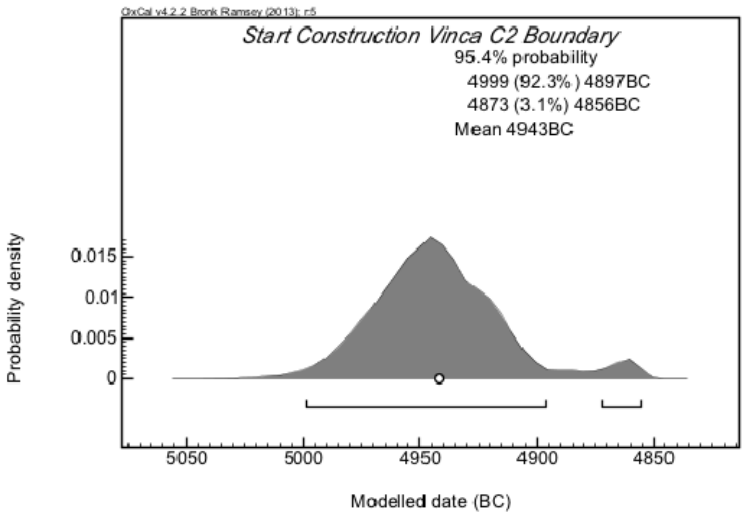

Fig. 3c. Probability distribution showing the start boundary of the modeled data shown in fig. 3. This distribution acts as a *terminus post quem* for the starting of Vinča C2 buildings in Uivar.
Distribuția probabilă a valorilor arătând punctul de început a datelor modelate din fig. 3. Această distribuție acționează ca *terminus post quem* pentru construcțiile din faza Vinča C2 de la Uivar.

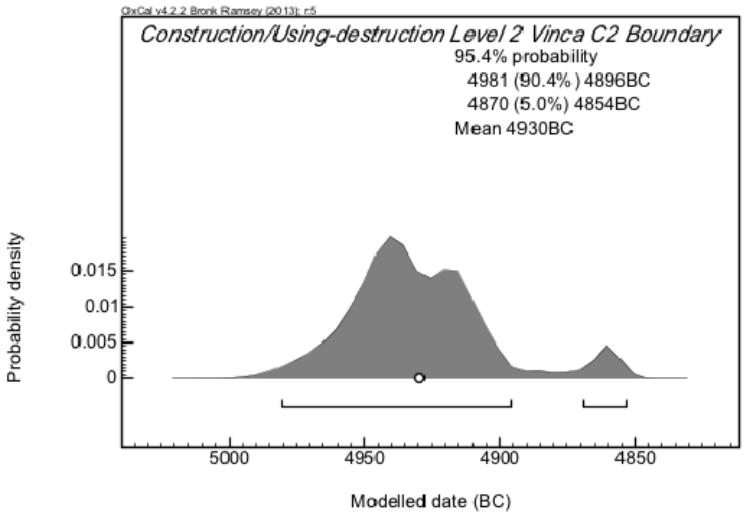

Fig. 3d. Probability distribution of values tied to the use and destruction of houses from level 2 (Vinča C2) in Uivar.
Distribuția probabilă a valorilor ce indică momentele de utilizarea și distrugere a caselor din nivelul 2 (Vinča C2) de la Uivar.

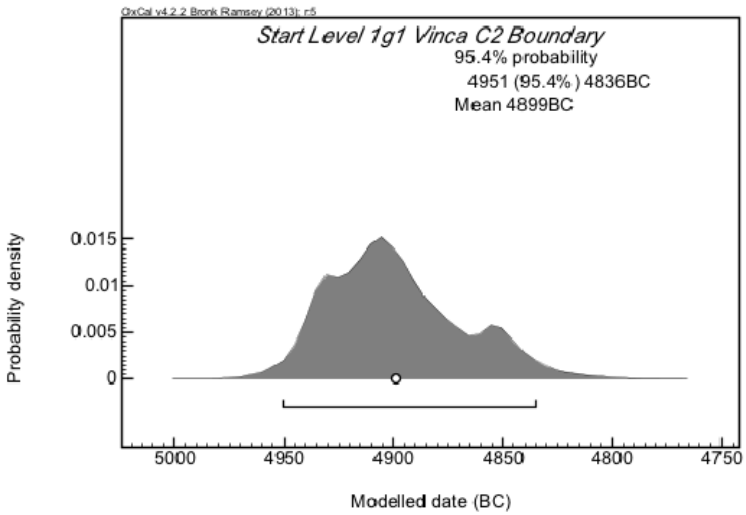

Fig. 3e. Probability distribution showing the start boundary of level 1g1 (Vinča C2) in Uivar based on the modeled data in fig. 3.
Distribuția probabilă a valorilor care indică limita de început a nivelului 1g1 (Vinča C2) de la Uivar, pe baza datelor modelate în fig. 3.

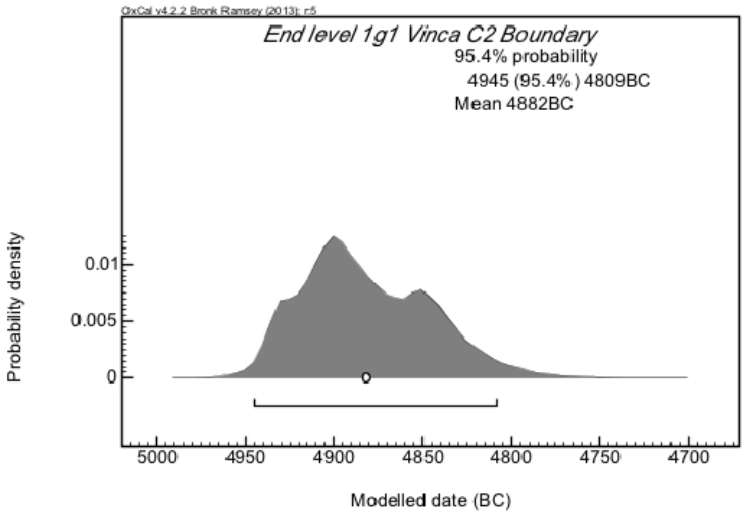

Fig. 3f. Probability distribution showing the end boundary of 1g1 level (Vinča C2) in Uivar based on the modeled data in fig. 3
Distribuția probabilă a valorilor care indică limita de final a nivelului 1g1 (Vinča C2) de la Uivar, pe baza datelor modelate în fig. 3.

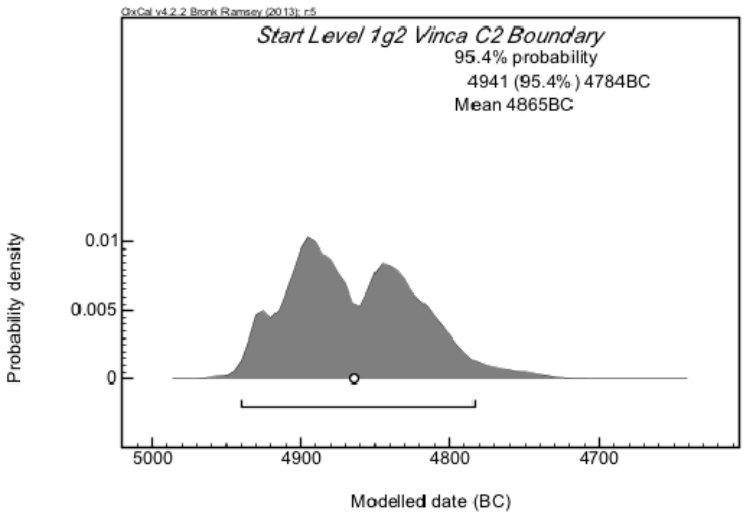

Fig. 3g. Probability distribution showing the start boundary of the modeled data shown in fig. 3 (1G2 level in Uivar).
Distribuția probabilă a valorilor arătând limitele de început ale datelor modelate în fig. 3 (nivelul 1G2 de la Uivar).

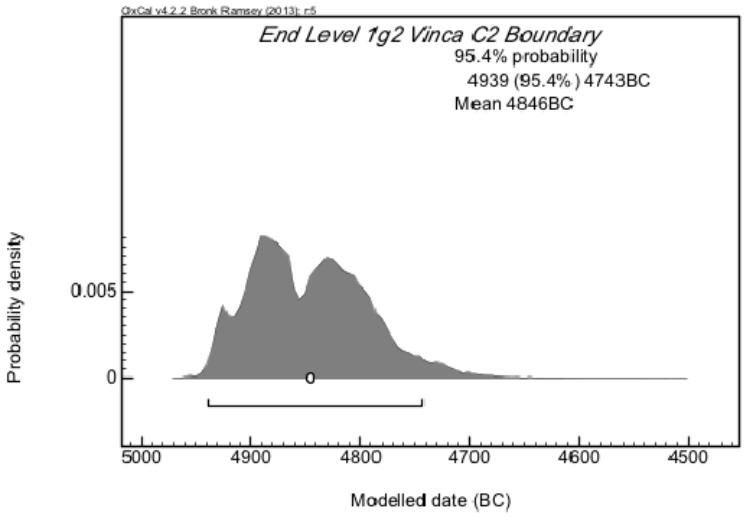

Fig. 3h. Probability distribution showing the end boundary of the 1g2 level modeled data shown in fig. 3. This distribution acts as a *terminus ante quem* for the Vinča C2 phase in Uivar.
Distribuția probabilă a valorilor care prezintă limitele de sfârșit a nivelului 1g2, pe baza datelor modelate în fig. 3. Această distribuție reprezintă un *terminus ante quem* pentru faza Vinča C2 de la Uivar.

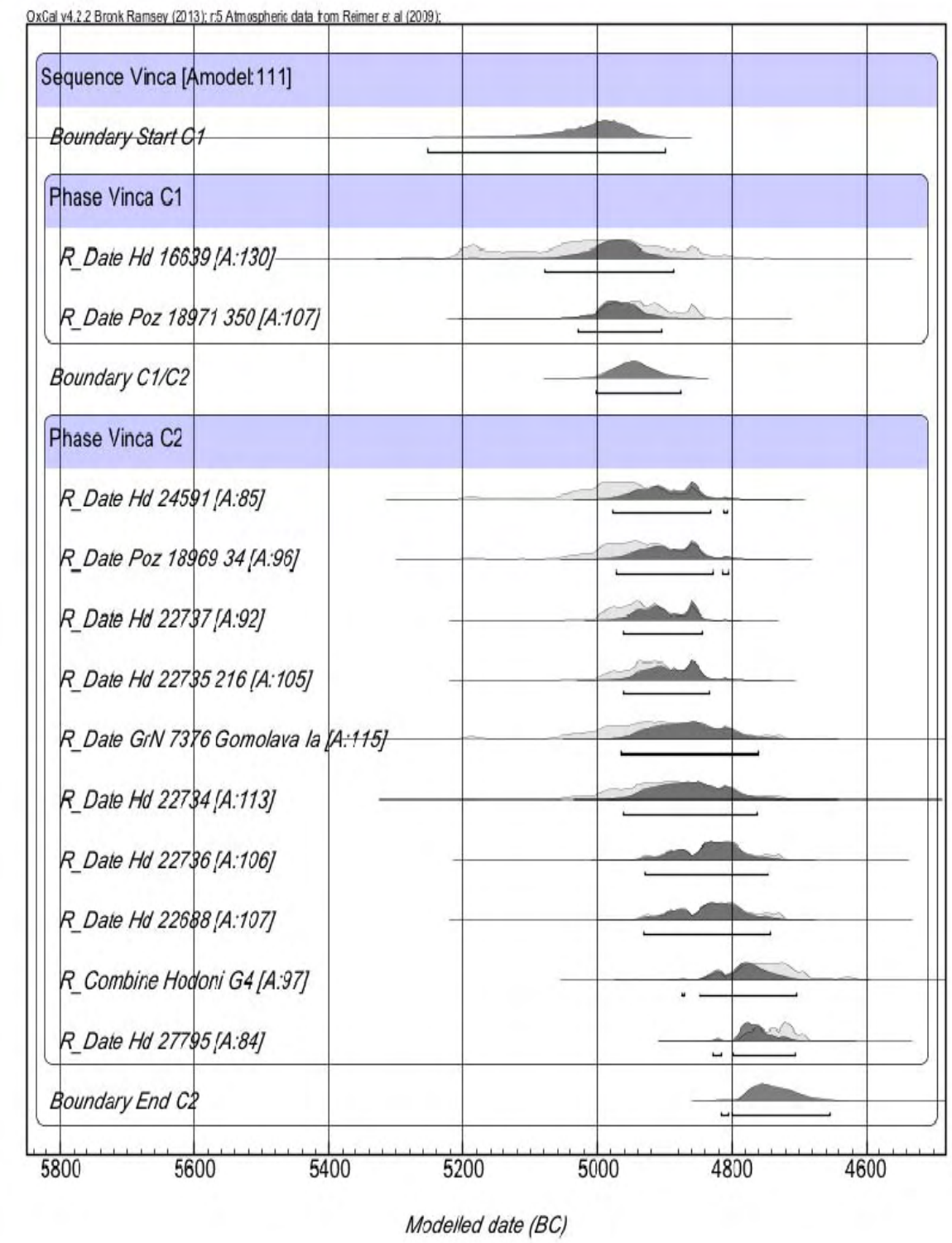

Fig. 4. Probability distribution of dates of the Vinča culture, the C1 and C2 phases.
Distribuția probabilă a valorilor privind datele disponibile pentru fazele C1 și C2 ale culturii Vinča.

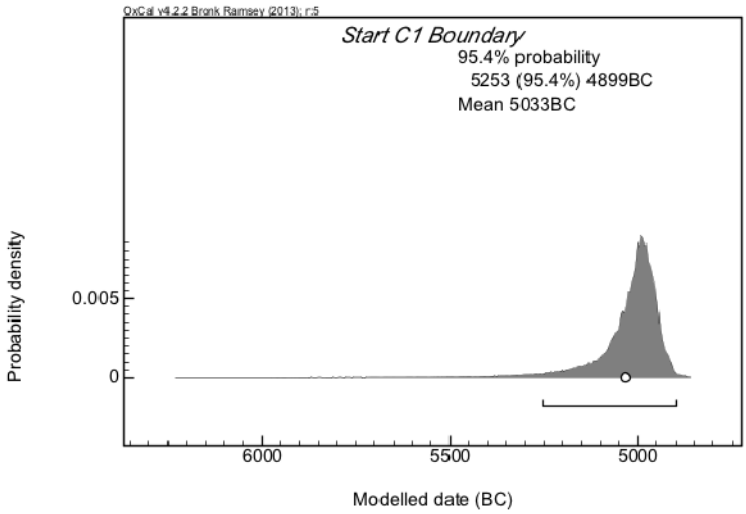

Fig. 4a. Probability distribution showing the start boundary of the modelled data shown in fig. 4. This distribution acts as a *terminus post quem* for the Vinča C culture.
Distribuția probabilă a valorilor care prezintă limitele de început ale datelor prezentate în fig. 4. Această distribuție reprezintă un *terminus post quem* pentru faza Vinča C.

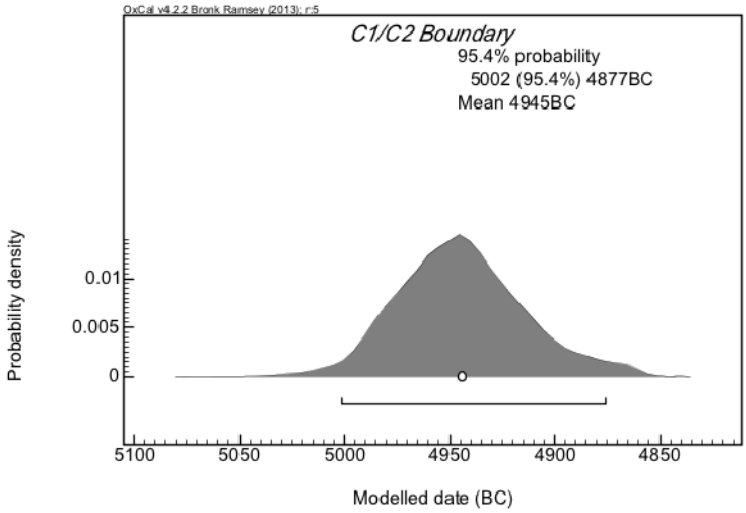

Fig. 4b. Probability distribution showing the end boundary of the Vinča C1 phase, modeled data shown in fig. 4. This distribution acts as a *terminus post quem* for the Vinča C2 phase.
Distribuția probabilă a valorilor care prezintă limitele de final ale fazei Vinča C1, conform datelor prezentate în fig. 4. Această distribuție reprezintă un *terminus post quem* pentru faza Vinča C2.

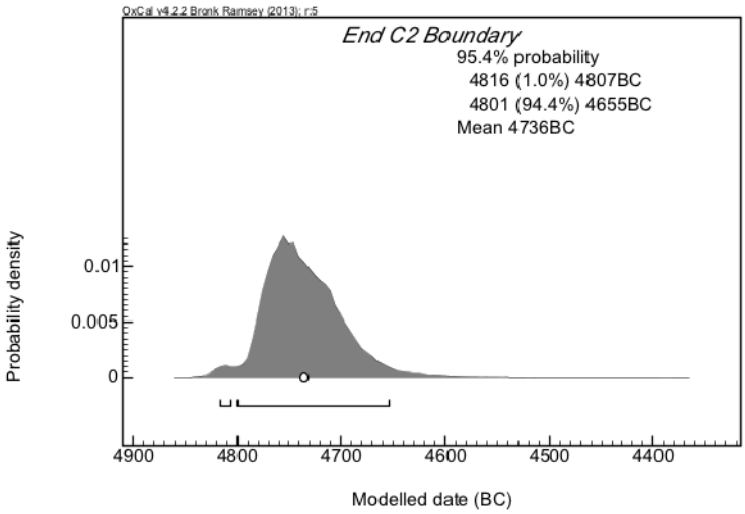

Fig. 4c. Probability distribution showing the end boundary of the Vinča C2 phase, modeled data shown in fig. 4. This distribution acts as a *terminus ante quem* for the Vinča C2 phase.
Distribuția probabilă a valorilor care prezintă limitele de final ale fazei Vinča C2, conform datelor prezentate în fig. 4. Această distribuție reprezintă un *terminus ante quem* pentru faza Vinča C2.

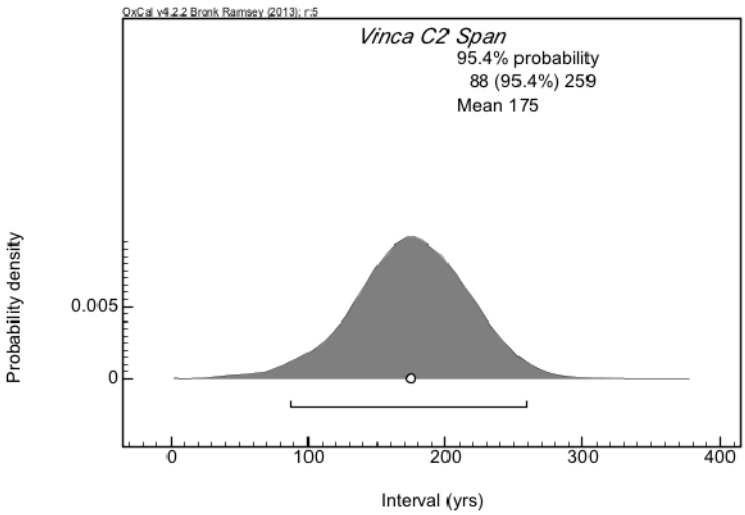

Fig. 4d. Probability distribution showing the span of the Vinča C2 phase based on the modeled data in fig. 4.
Distribuția probabilă a valorilor care prezintă intervalul fazei Vinča C2, conform datelor prezentate în fig. 4.

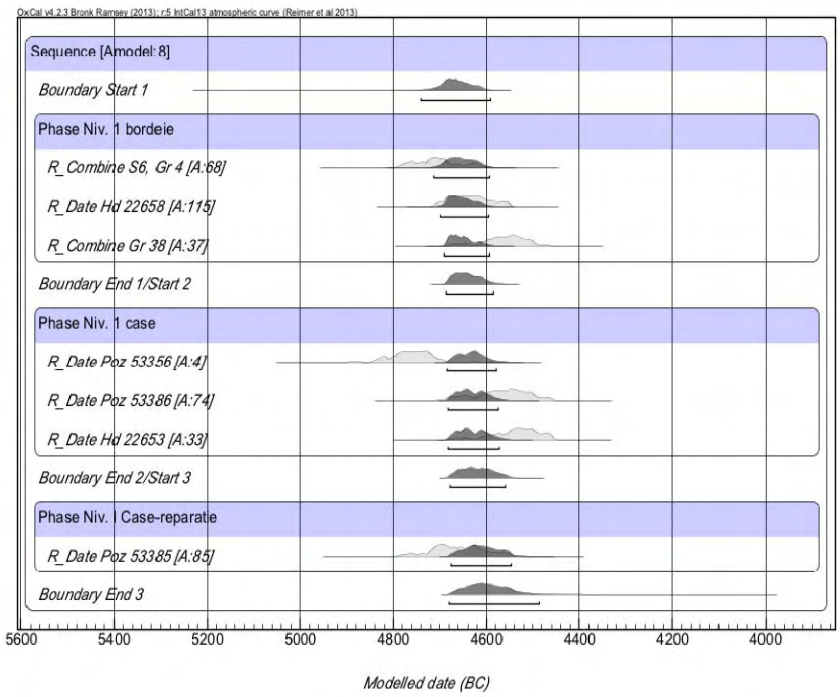

Fig. 5. Probability distribution of the Foeni data modeled in the framework of stratigraphical sequences. The model shows constraints in the hovel phase, between data from pit 6 and 4 and the combined ones from pit 38 and, in the second phase, between the foundation ditch 28 and pit 1.
Distribuția probabilă a valorilor pentru datele Foeni modelate în cadrul secvențelor stratigrafice. Modelul prezintă neconcordanțe pentru faza bordeiului, între datele din gropile 6 și 4, precum și cele combinate din groapa 38, faza a doua, dar și între șanțul de fundație 28 și groapa 1.

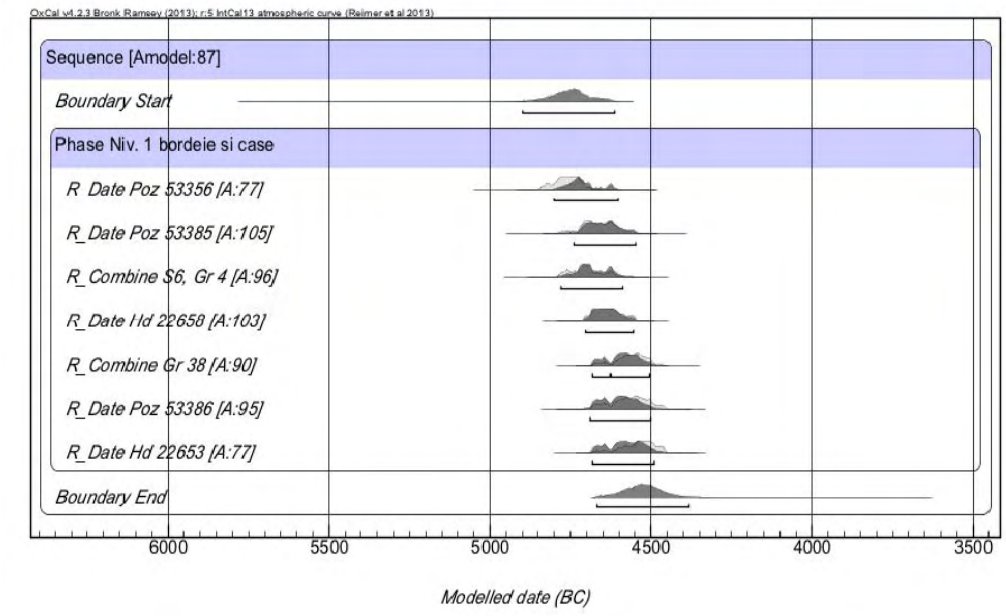

Fig. 5a. The viable model of probability distribution of data from Foeni modeled in the framework of stratigraphical sequences.
Modelul viabil de distribuție probabilă a valorilor privind datele de la Foeni modelate în cadrul secvențelor stratigrafice.

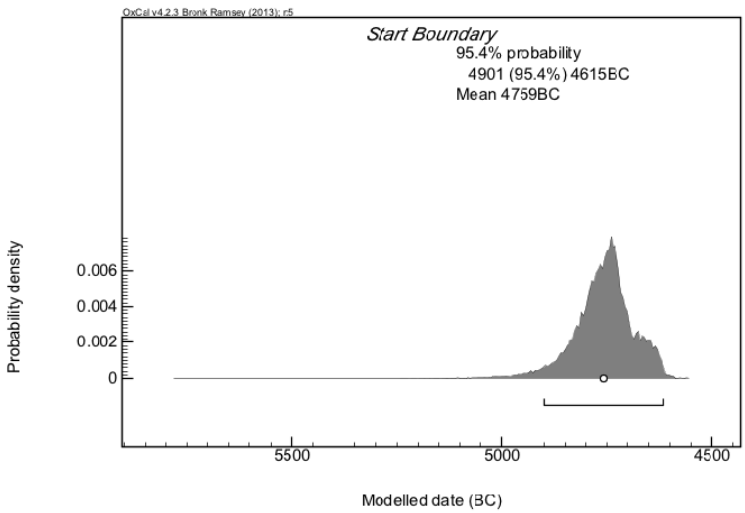

Fig. 5b. Probability distribution showing the start boundary of the modeled data shown in fig. 5. This distribution acts as *a terminus post quem* for the start of the Foeni site.
Distribuția probabilă a valorilor ce indică limitele de început a datelor modelate prezentate în fig. 5. Această distribuție reprezintă un *terminus post quem* pentru începutul sitului de la Foeni.

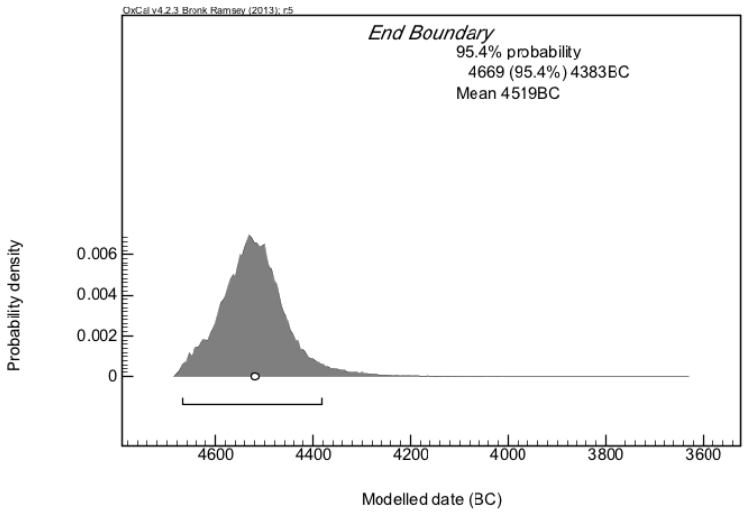

Fig. 5c. Probability distribution showing the end of the houses I phase. The distribution acts as a *terminus ante quem* for the end on I houses phase in Foeni.
Distribuția probabilă a valorilor ce indică limitele de sfârșit a construcțiilor din faza I. Această distribuție reprezintă un *terminus ante quem* pentru finalul construcțiilor din faza I de la Foeni.

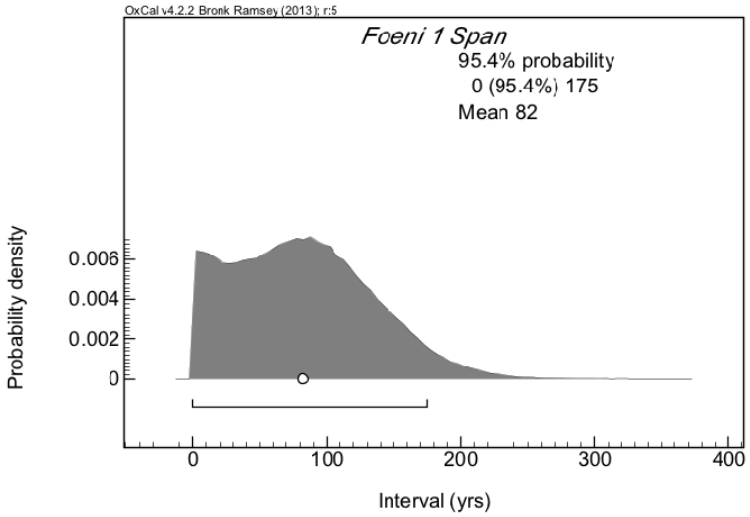

Fig. 5d. Probability distribution showing the span of the level of hovels and houses in Foeni based on the modeled data in fig. 5.
Distribuția probabilă a valorilor ce indică intervalul de utilizare a bordeielor și caselor de la Foeni, pe baza datelor modelate în fig. 5.

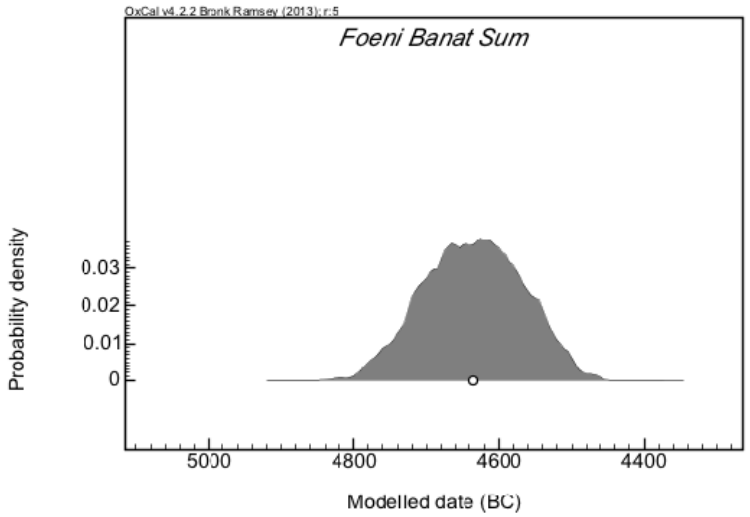

Fig. 5e. Probability distribution showing the sum of modeled data in fig. 5.
Distribuția probabilă a valorilor care arată suma de date modelate în fig. 5.

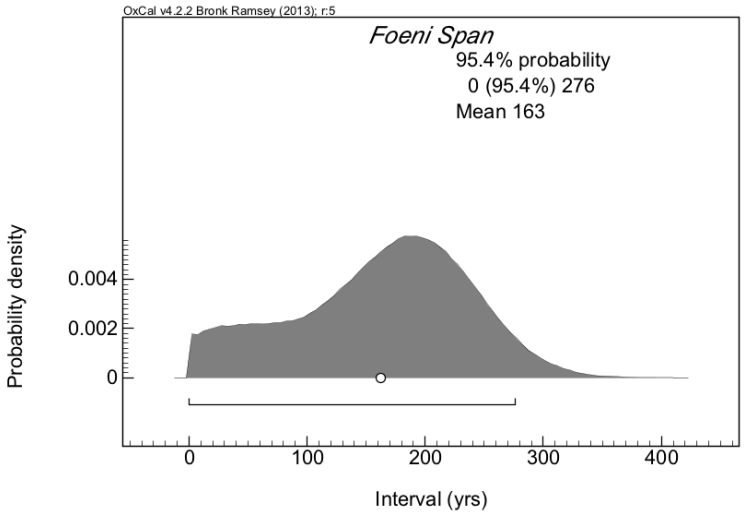

Fig. 5f. Probability distribution showing the span of the Foeni group based on the modeled data in fig. 5.
Distribuția probabilă a valorilor care arată intervalul de evoluție a grupului Foeni, conform datelor modelate în fig. 5.

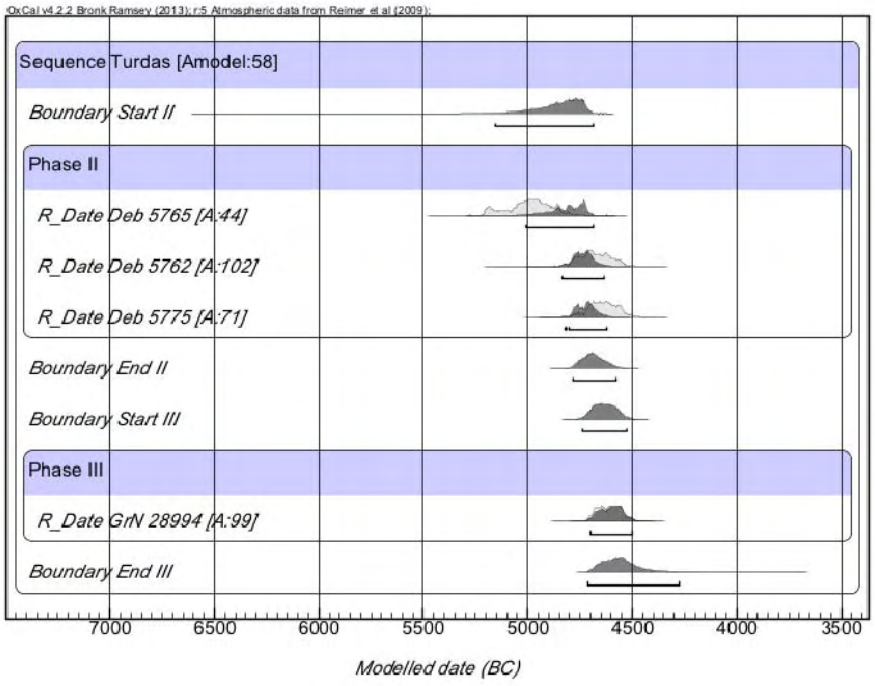

Fig. 6. Probability distribution of the Turdaș II and III phases, data modeled in the framework of cultural sequences. The model shows inconsistencies between the Deb-5765 data and the other data that was modeled.
Distribuția probabilă a valorilor privind fazele Turdaș II și III, pe baza datelor modelate în cadrul secvențelor culturale. Modelul prezintă neconcordanțe între data Deb-5765 și celelalte date care au fost modelate.

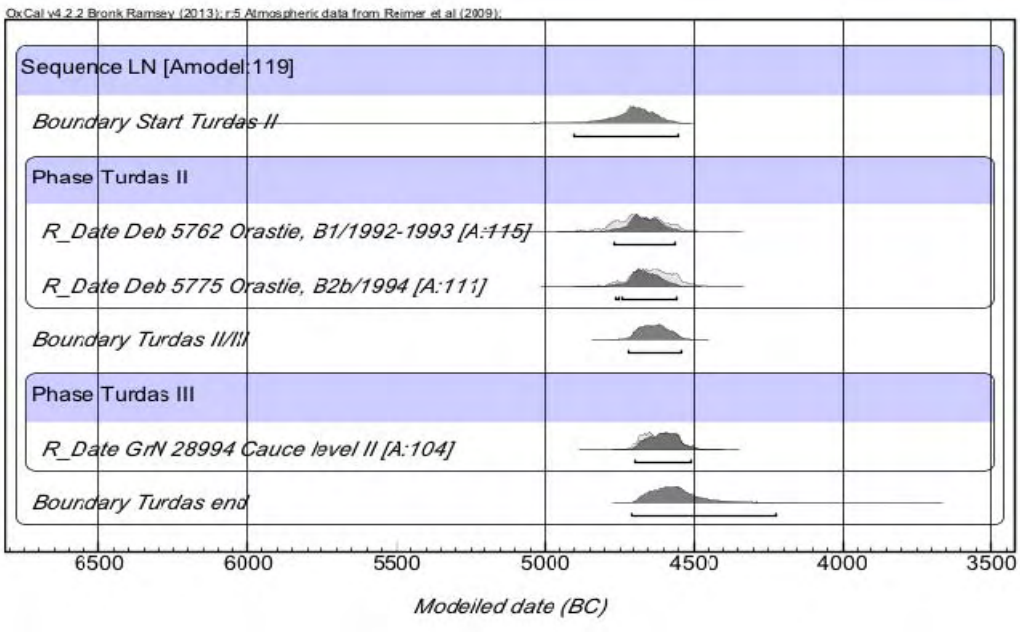

Fig. 7. Probability distribution of the Turdaș II and III phases, data modeled in the framework of cultural sequences.
Distribuția probabilă a valorilor privind fazele Turdaș II și III, pe baza datelor modelate în cadrul secvențelor culturale.

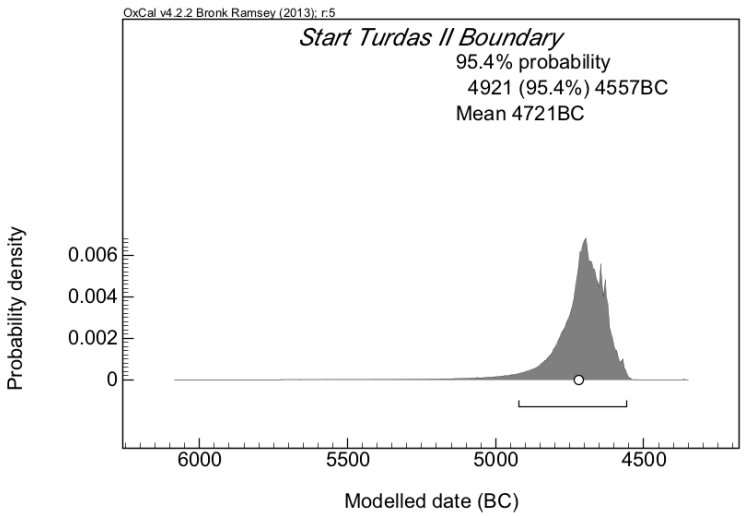

Fig. 7a. Probability distribution showing the start boundary of the Turdaș II phase based on modeled data shown in fig. 7. This distribution acts as *a terminus post quem* for the start of the Turdaș II.
Distribuția probabilă a valorilor ce indică limitele de început pentru faza Turdaș II, conform datelor prezentate in fig. 7. Această distribuție reprezintă un *terminus post quem* pentru începutul fazei Turdaș II.

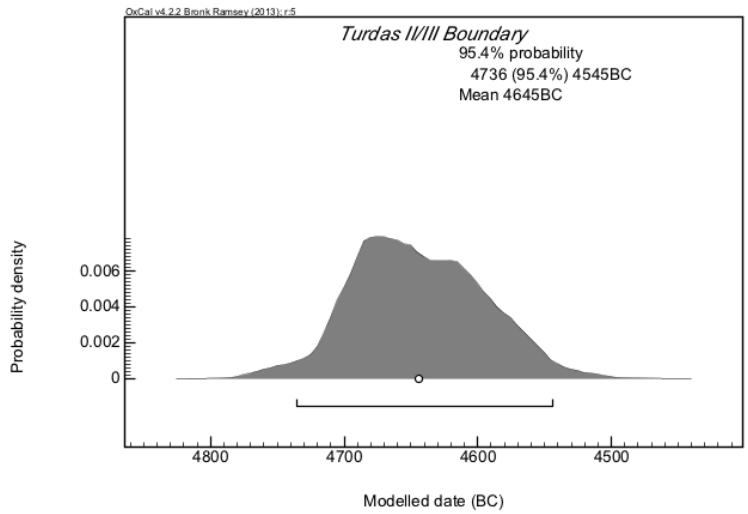

Fig. 7b. Probability distribution showing the start boundary of the Turdaș III based on modeled data shown in fig. 7. This distribution acts as *a terminus post quem* for the start of the Turdaș III.
Distribuția probabilă a valorilor ce indică limitele de început pentru faza Turdaș III, conform datelor prezentate în fig. 7. Această distribuție reprezintă un *terminus post quem* pentru începutul fazei Turdaș III.

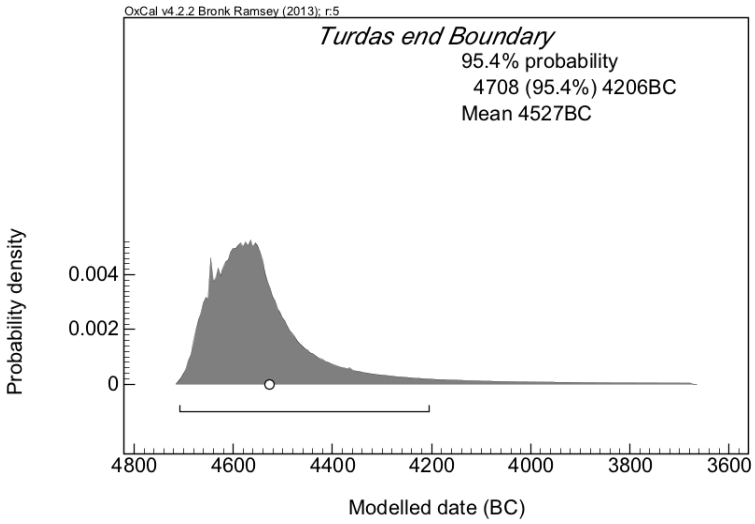

Fig. 7c. Probability distribution showing the end boundary of the Turdaș III based on modeled data shown in fig. 7. This distribution acts as *a terminus ante quem* for the end of the Turdaș culture.
Distribuția probabilă a valorilor ce indică limitele de sfârșit pentru faza Turdaș III, conform datelor prezentate în fig. 7. Această distribuție reprezintă un *terminus ante quem* pentru sfârșitul fazei Turdaș III.

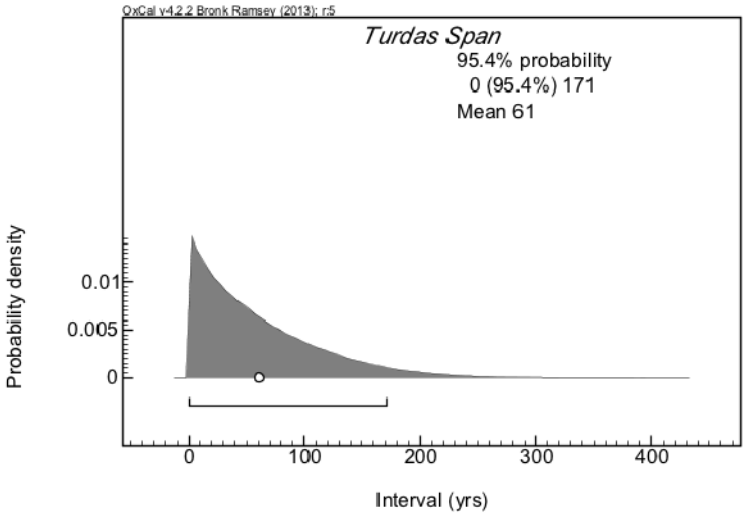

Fig. 7d. The estimated duration of the Turdaș culture based on the modeled data in fig. 7.
Estimarea duratei de existență a culturii Turdaș pe baza datelor prezentate în fig. 7.

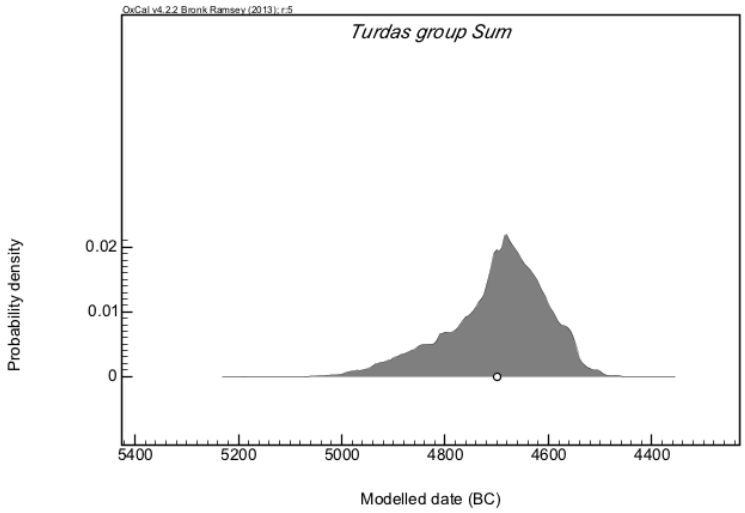

Fig. 7e. Probability distribution showing the span of the Turdaș II and III based on the modeled data in fig. 7.
Distribuția probabilă a valorilor arătând intervalul fazelor Turdaș II și III, conform datelor prezentate în fig. 7.

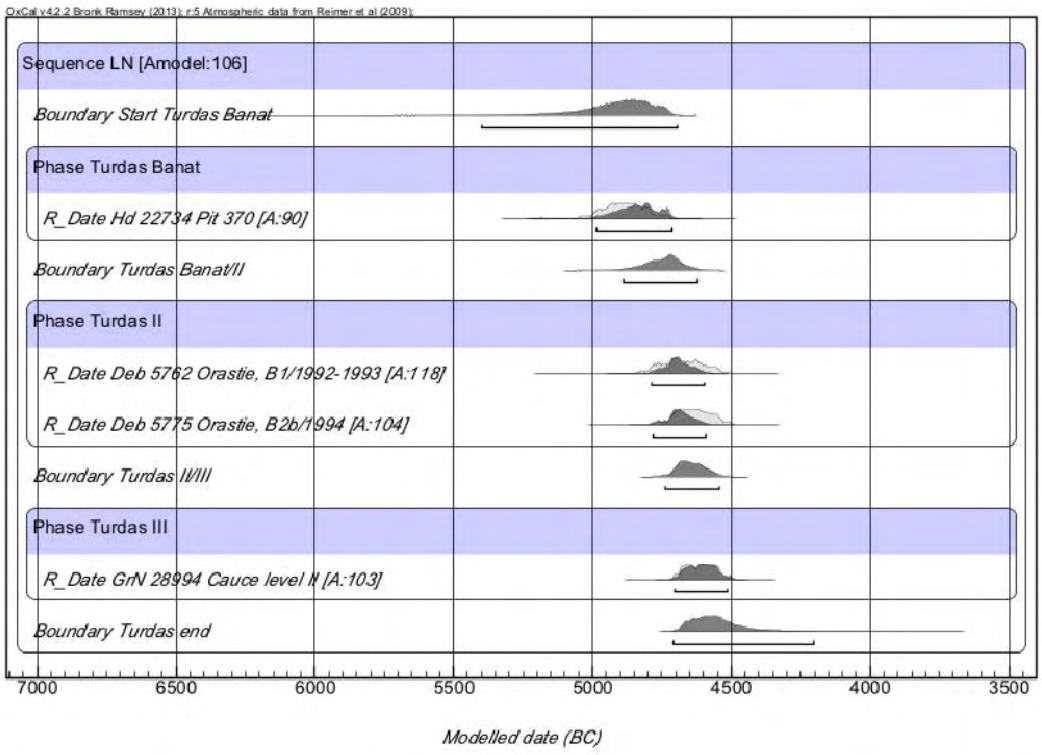

Fig. 8. Probability distribution of the “Turdaș” data from Uivar and Turdaș culture data from Transilvania, modeled in the framework of cultural sequences.
Distribuția probabilă a valorilor privind datele "Turdaș" de la Uivar și celelalte date disponibile pentru cultura Turdaș din Transilvania, modelate în cadrul secvențelor culturale.

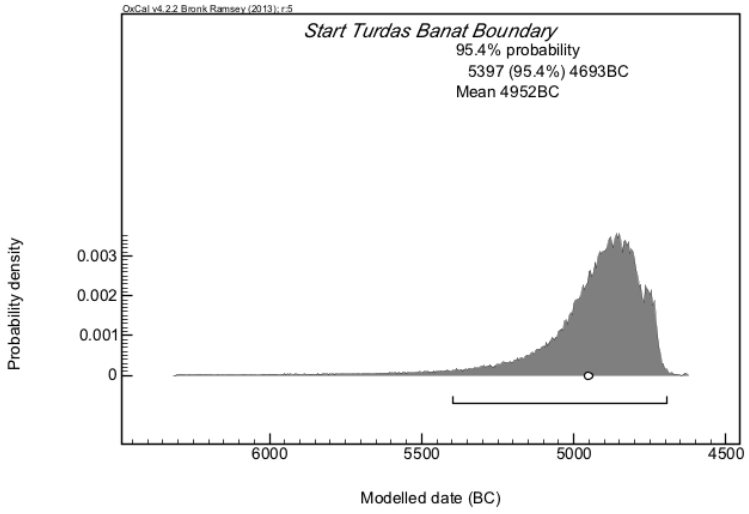

Fig. 8a. Probability distribution showing the start boundary of the Turdaș culture based on modeled data in Uivar shown in fig. 8.
Distribuția probabilă a valorilor care arată limitele de început ale elementelor Turdaș de la Uivar din fig. 8.

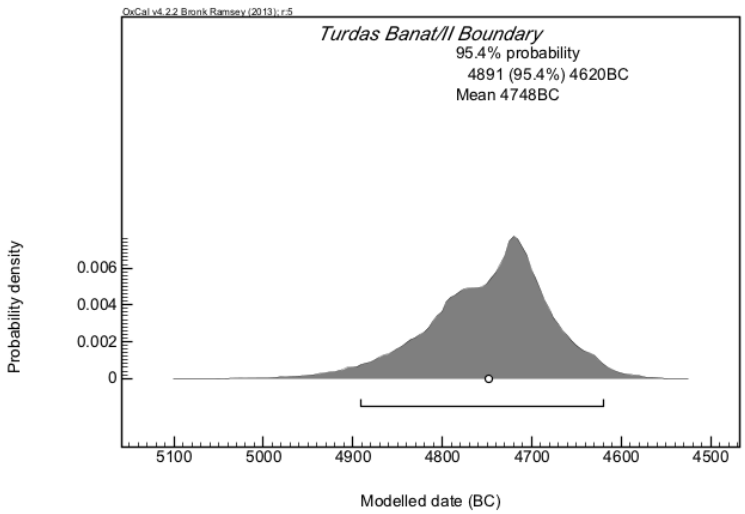

Fig. 8b. Probability distribution showing the end boundary of the ”Turdaș” in Uivar and the start boundary of the Turdaș phase II based on modeled data in fig. 8.
Distribuția probabilă a valorilor care arată limitele de sfârșit ale elementelor Turdaș de la Uivar și limitele de început ale fazei Turdaș II, pe baza datelor din fig. 8.

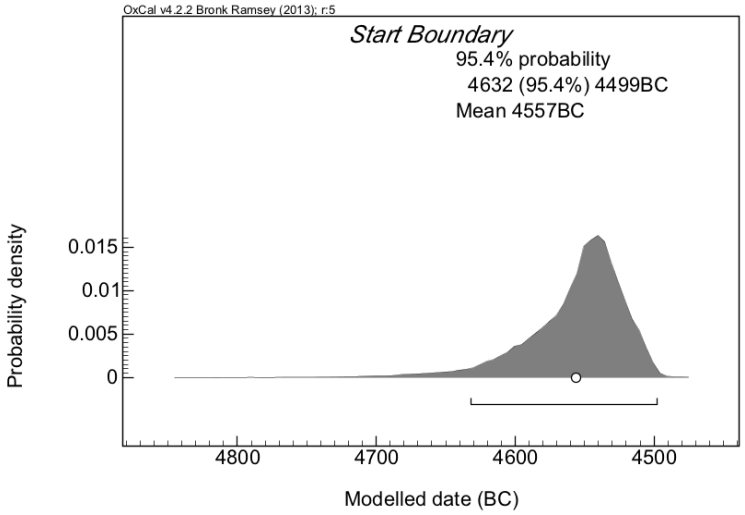

Fig. 9a. Probability distribution showing the start boundary of the Foeni group in Lumea Nouă based on modeled data published by M. Gligor 2009a (Poz-19489, Poz-19375, Poz-19376, Poz-19377, Poz-19451, Poz-22521, Poz-22522, Poz-47401 and Poz-47402).
Distribuția probabilă a valorilor care arată limita de început a grupului Foeni în situl de la Lumea Nouă, pe baza datelor publicate de M. Gligor 2009a (Poz-19489, Poz-19375, Poz-19376, Poz-19377, Poz-19451, Poz-22521, Poz-22522, Poz-47401 and Poz-47402).

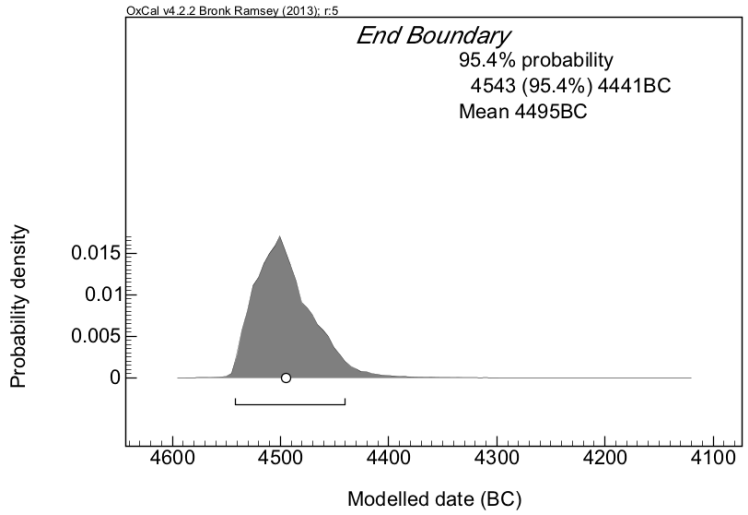

Fig. 9b. Probability distribution showing the end boundary of the Foeni group in Lumea Nouă based on modeled data published by M. Gligor 2009a (Poz-19489, Poz-19375, Poz-19376, Poz-19377, Poz-19451, Poz-22521, Poz-22522, Poz-47401 and Poz-47402).
Distribuția probabilă a valorilor care arată limita de sfârșit a grupului Foeni în situl de la Lumea Nouă, pe baza datelor publicate de M. Gligor 2009a (Poz-19489, Poz-19375, Poz-19376, Poz-19377, Poz-19451, Poz-22521, Poz-22522, Poz-47401 și Poz-47402).

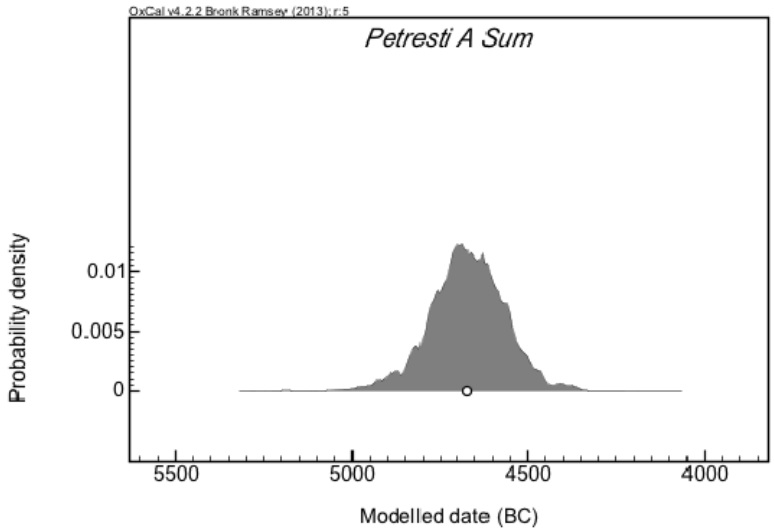

Fig. 10. Probability distribution showing the span of the Petrești, A phase based on the modeled data Bln-1197, Bln-1199 and Bln-1201.
Durata estimată a evoluției fazei A a culturii Petrești, obținută din modelarea datelor Bln-1197, Bln-1199 și Bln-1201.