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A Radiocarbon Chronology for the Middle Bronze Age Southern Levant

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Abstract

For a long time, absolute calendrical dates for the Middle Bronze Age southern Levant were based on very general correlations with the historical chronology of Egypt (the Traditional Chronology). A significantly lower chronology was proposed from the 1980s onwards, mainly based on the excavation at Tell el-Dabʿa (ancient Avaris) in the eastern Nile Delta (the Low Chronology). However, in recent years, radiocarbon sequences for several Middle Bronze Age sites have become available that challenge the Traditional as well as the Low Chronology and suggest a significantly higher dating for the Middle Bronze Age phases. This paper summarizes the radiocarbon evidence for the Middle Bronze Age chronology and proposes a new chronological framework for the Middle Bronze Age southern Levant.

Introduction: High and Low Chronologies

The absolute chronology of the Middle Bronze Age of the Levant has been the topic for heated discussions in the 1980s and 1990s.[1] Although no final consensus in terms of absolute calendrical dates and synchronization with the Egyptian historical chronology has been reached, in recent years, mainly due to the SCIEM-2000 project (Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium BC), directed by Manfred Bietak, Hermann Hunger, and Walter Kutschera, the Low Chronology has become increasingly common in the field.[2]

While the Traditional Chronology (Middle Bronze I: c. 2000–1750 BCE; Middle Bronze II: c. 1750–1650 BC: Middle Bronze III: c. 1650–1500 BCE) was based on sometimes very general chronological associations with Egypt (for details, see below), the Low Chronology (Middle Bronze I: c. 1900–1700 BCE; Middle Bronze II: c. 1700–1590 BCE; Middle Bronze III: c. 1590–1500/1450 BCE) of the Middle Bronze Age Levant was based on Tell el-Dabʿa in the eastern Nile Delta. This site was used as a link between the Egyptian historical chronology and the relative chronological phases of the Middle Bronze Age Levant. "Especially significant was the repetitive pattern of the first appearances of Kamares ware and Middle and Late Cypriot wares in the stratigraphy of a series of sites […]. This enabled the export of the Egyptian chronology to the Levant and to Cyprus by establishing timelines."[3] Therefore, absolute calendrical dates for the Low Chronology of the Middle Bronze Age are essentially based on the excavator's dates for the archaeological phases at Tell el-Dabʿa.

Absolute calendar dates for the archaeological phases at Tell el-Dabʿa rely on linkages with the Egyptian historical chronology. It is important to note that these linkages are in general not based on kings' names found in archaeological contexts, but on (disputable) datum-lines.[4] For the scope of this paper, two datum-lines are essential, which have been used to construct the Tell el-Dabʿa chronology: a stela mentioning the 5th year of Senwosret III that was linked to the construction of the temple of ʿEzbet Rushdi at the beginning of Str. K, and the conquest of Avaris by Ahmose at the end of Str. D/2. These two datum-lines were the main anchor points for the stratigraphy of the site and the 11 archaeological strata in between were evenly distributed, resulting in approximately 30 years per stratum.[5]

Recent decades have seen increasing use of radiocarbon dating and application of Bayesian statistics in order to refine radiocarbon results. The Oxford project "Radiocarbon Dating and the Egyptian Historical Chronology" for the first time

used a Bayesian probability approach for testing the historical chronology against radiocarbon dating.[6] The results show that radiocarbon dating is in agreement with the historical high chronology of the Middle Kingdom, as well as with the high chronology proposed by Kenneth Kitchen for the New Kingdom, although a slightly higher start of the New Kingdom (c. 1570 BCE) would be possible as well.[7] It is important to stress that the historical chronologies of Egypt are in principal in agreement with radiocarbon dating. At the same time, a comprehensive radiocarbon sequence for Tell el-Dabᶜa was published by Walter Kutschera, Manfred Bietak, and other colleagues. The results were found to be in gross conflict with the dates suggested by the excavator and implied significant (c. 120 years) higher dates for the Tell el-Dabᶜa stratigraphy.[8] Since radiocarbon data from Tell el-Dabᶜa itself challenges the absolute dates according to the datum-lines, dates for the Middle Bronze Age Levant also have to be reassessed.

In this paper, we will review four transitions in Middle Bronze Age southern Levantine chronology: the beginning of Middle Bronze I, the transition to Middle Bronze II, the transition to Middle Bronze III, and the transition to the Late Bronze Age. For each of these four transitional periods, we will review absolute calendrical dates and synchronization with Egypt as suggested by the Traditional Chronology,[9] the Low Chronology,[10] and the Radiocarbon Chronology, based on several published radiocarbon sequences.[11] There is a growing body of radiocarbon dates for Middle Bronze Age sites in the southern Levant and Egypt that includes Tell el-Dabᶜa (Egypt), Tell el-ᶜAjjul (Gaza Strip), Tel Ifshar and Tel Kabri (Israel), Jericho (Palestine), Tell el-Hayyat (Jordan), and Tell el-Burak (Lebanon), and circumstantial evidence from Santorini (Greece).

For this study, we use published radiocarbon dates and site-specific Bayesian models. Bayesian analysis allows taking additional information into account, such as the temporal sequence of samples based on archaeological stratigraphy. This information is termed "prior information" as it is derived from sources other than, and prior to, radiocarbon analysis in the laboratory.[12] Based on the prior information and the radiocarbon determinations, a "posterior probability" is calculated for each sample and any additional event entered into the model, such as transitions between archaeological phases. Calibration and modelling was done using OxCal 4.2 and the INTCAL13 calibration curve.[13]

Generally, it is assumed that short-lived samples should be more or less representative for a given period or phase. However, in practice, residual short-lived material can be present in any given archaeological context, especially when one has to deal with material that does not come from sealed contexts, such as storage jars in a destruction horizon. In order not to exclude samples according to a potential biased personal estimate, we employed the "Outlier Analysis" function of OxCal, using the "Charcoal" model for charcoal dates and the "General" model for short-lived dates. This function detects which samples are in agreement with the prior information and the general model and incrementally reduces the impact of non-consistent results to the overall model outputs, meaning that outliers (or residual samples) have a very limited to non-existent impact on the posterior probabilities.[14]

The Start of the Middle Bronze Age

Traditional Chronology

The beginning of the Middle Bronze Age was traditionally dated to around 2000 BCE, but this date was based on the very general assumption that the Early Bronze IV period coincides with the First Intermediate Period in Egypt, and thus the beginning of the Middle Bronze I should be contemporary with the start of the Egyptian Middle Kingdom and the 12th Dynasty.[15]

Low Chronology

Manfred Bietak argued that the beginning of Middle Bronze I can be linked to the depictions of socket spearheads and a duckbill axe in the tomb of Khnumhotep II at Beni Hassan, dateable to the 6th year of Senwosret II. Earlier tombs at Beni Hassan, dateable to the time of Senwosret I and Amenemhet I, still show fenestrated axes, usually associated with the Early Bronze IV.[16] Based on this argument, Bietak argued that the start of the Middle Bronze I "is likely to have happened between approx. 1908 and 1873 B.C."[17] James Weinstein also accepted a c. 1900 BCE date for the beginning of the Middle Bronze Age.[18]

Radiocarbon Chronology

So far, Tell el-Hayyat in the Jordan Valley is the only site that covers the transition from the Early to the Middle Bronze Age. At this site, Phase 6 was dated to the Early Bronze IV and Phase 5 to the Middle Bronze I.[19] Based on the radiocarbon dates and the stratigraphic sequence presented by Steve Falconer

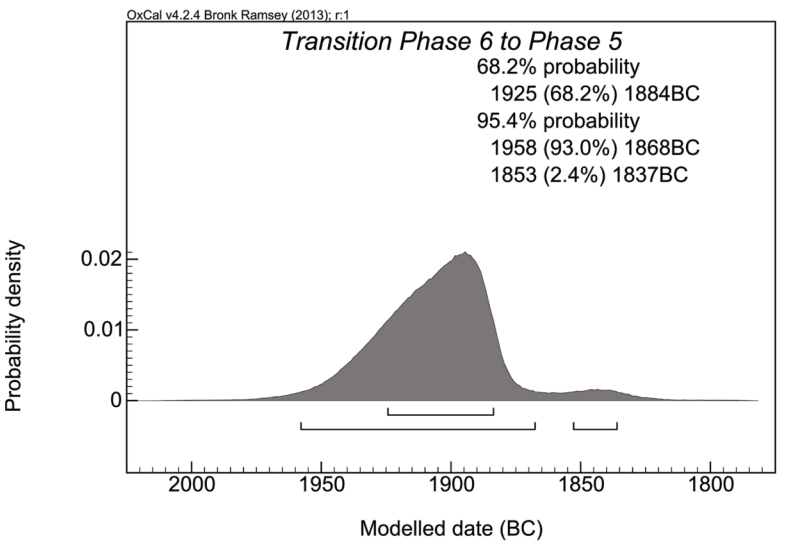

Figure 1: Tell el-Hayyat: Calculated date range for transition from Phase 6 (Early Bronze IV) to Phase 5 (Middle Bronze I).

and Patricia Fall in this volume, this transition can be dated to around 1900 BCE (Fig. 1).[20]

A recently published sequence for the Early Bronze IV site Tell Abu en-Niʿaj ends around 2000 BCE, and based on this sequence, it was recently argued by Falconer and Fall that the Middle Bronze Age might begin around 2000 BCE.[21] However, as the authors point out in their contribution to this volume, the latest Early Bronze IV pottery types might not be represented in Tell Abu en-Niʿaj.[22]

Conclusion

Currently, Tell el-Hayyat provides the only radiocarbon sequence for the transition from Early Bronze IV to Middle Bronze I. Based on this admittedly limited evidence, the beginning of the Middle Bronze Age seems to fall around 1900 BCE and would thus be in agreement with the proposed Low Chronology. A c. 2000 BCE date as originally suggested based on Tell Abu en-Niʿaj would rather be in agreement with the Traditional Chronology. However, as long as there is only a single radiocarbon sequence for the transition from Early Bronze IV to Middle Bronze I at our disposal, future data might change this picture or add regional differentiations.

Transition from Middle Bronze I to Middle Bronze II

Traditional Chronology

The transition from Middle Bronze I to Middle Bronze II was dated traditionally to c. 1800/1750 BCE and was equated by William Dever with the transition from the 12th to the 13th Dynasty, which was found to be "a convenient starting point."[23] James Weinstein on the other hand, cautiously followed Bietak regarding an overlap of Middle Bronze I and the 13th Dynasty (see below) and argued for a slightly later transition date around 1725 BCE, "because that does not require a major compression of the later MB II levels in the Levant."[24]

Low Chronology

The transition from Middle Bronze I to Middle Bronze II was linked to Tell Dabʿa Str. F. The preceding Str. G/1–3 is characterized by Middle Bronze I pottery and bronzes. In Str. F, the earliest Middle Bronze II pottery and bronzes appear, while at the same time Middle Bronze I bronzes went out of use. In Str. E/3, only Middle Bronze II bronzes appear and no Middle Bronze I pottery types are found. Str. F was dated to c. 1710–1680 BCE.[25]

Radiocarbon Chronology

Radiocarbon data for the transition from Middle Bronze I to Middle Bronze II is available from Tell el-Dabʿa, Tel Ifshar, Tell el-Hayyat, and Tell el-Burak.

At Tell el-Dabʿa, Str. F is dated to the Middle Bronze I/II transition. Based on the radiocarbon sequence published by Walter Kutschera, Manfred Bietak, and other colleagues, Tell el-Dabʿa Str. F starts in the mid-19th century and ends around 1800 BCE, latest in the early 18th century BCE (Fig. 2).[26]

At Tel Ifshar, Phase H has been dated to the transition from Middle Bronze I to Middle Bronze II. Based on the radiocarbon dates and the stratigraphic information as outlined by Ezra Marcus, the transition from Phase G (late Middle Bronze I) to Phase H (Middle Bronze I/II transitional) falls to the late 19th or early 18th century BCE (Fig. 3).[27]

For the radiocarbon sequence of Tel Ifshar, it is also possible to use an additional constraint: In Phase C (Middle Bronze I), an imported Egyptian Marl A3 jar was found that was dated typologically to the

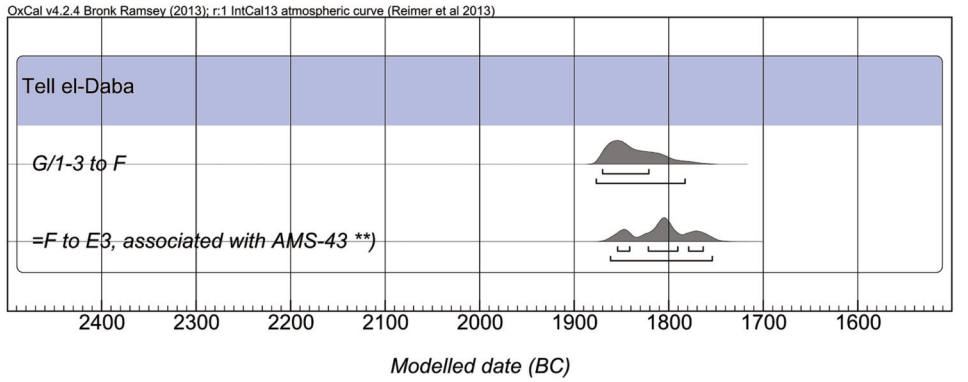

Figure 2: Tell el-Dabʿa: Calculated date ranges for transition from Str. G/1–3 (Middle Bronze I) to Str. F (Middle Bronze I/II transition) and from Str. F (Middle Bronze I/II transition) to Str. E/3 (Middle Bronze II).

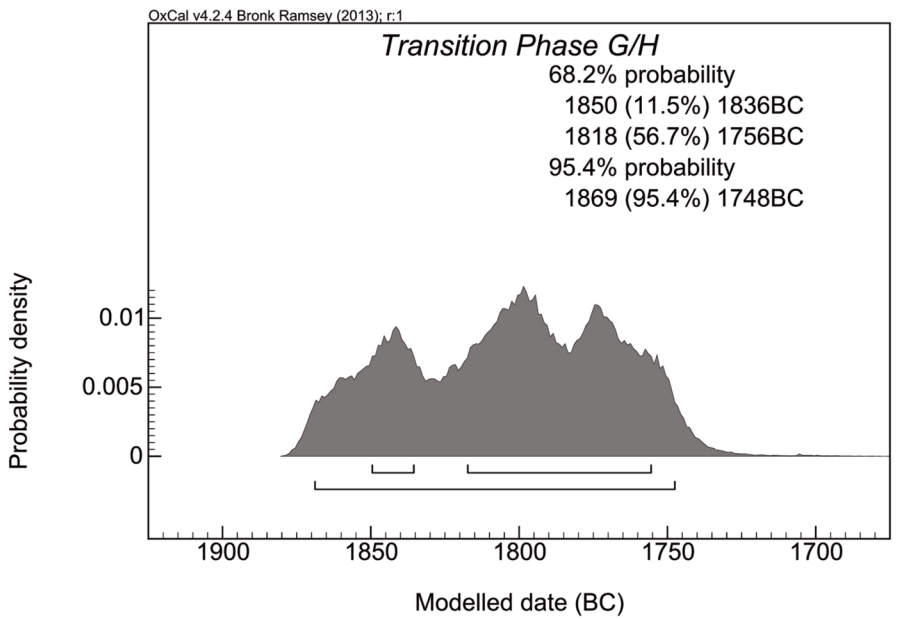

Figure 3: Tel Ifshar: Calculated date range for the transition from Phase G (late Middle Bronze I) to Phase H (Middle Bronze I/II transitional).

first half of the 12th Dynasty, i.e. before the reign of Senwosret III.[28] According to the Middle Kingdom chronology of Kenneth Kitchen (which is now also backed by radiocarbon evidence),[29] the first year of Senwosret III falls to 1853 BCE and has been used by Ezra Marcus as a *terminus ante quem* for Phase C. Applying this additional constraint, the transition from Phase G (late Middle Bronze I) to Phase H (Middle Bronze I/II transitional), falls to the mid-19th century BCE (Fig. 4).

At Tell el-Hayyat, the transition from Middle Bronze I to Middle Bronze II falls into Phase 3 based on the pottery study by Steven Falconer and Ilya Berelov.[30] Based on the radiocarbon model outlined by Steven Falconer and Patricia Fall in this volume, the date for the transition from Phase 4 (Middle Bronze I) to Phase 3 (Middle Bronze I/II) falls to the mid–late 19th century BCE, while the transition from Phase 3 (Middle Bronze I/II) to Phase 2 (Middle Bronze II/III) falls to around 1800 BCE or the early/mid-18th century BCE (Fig. 5).[31]

At Tell el-Burak, the monumental mud-brick building is dated to the late Middle Bronze I period. Numerous fragments of ridged-neck pithoi have been found in the building and are also known from other late Middle Bronze I contexts, such as the Moat Deposit from Ashkelon and Tell el-Dabʿa Str. G/1-3. Based on the radiocarbon dates, the end of the Middle Bronze Age monumental building, and thus a point late in Middle Bronze I, can be dated to the 19th or early 18th century BCE (Fig. 6).[32]

Conclusions

Currently, we have radiocarbon data for the transition from Middle Bronze I to Middle Bronze II from four different sites, Tell el-Dabʿa, Tel Ifshar, Tell el-Hayyat, and Tell el-Burak. All ^{14}C-data points consistently to a considerable higher date for the transition than that provided by the traditional or low chronology. Based on the evidence presented above, the transition from Middle Bronze I to Middle

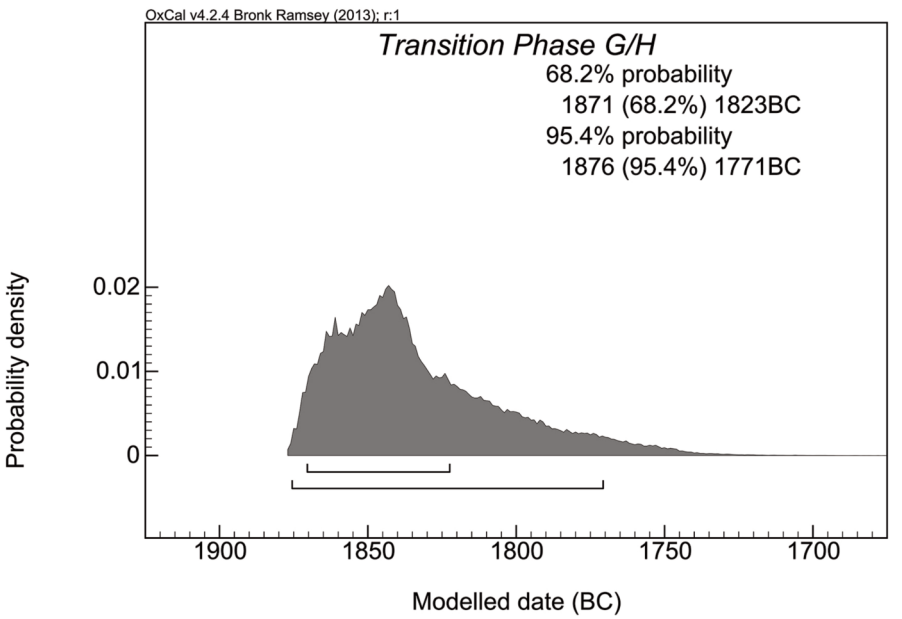

Figure 4: Tel Ifshar: Calculated date range for transition from Phase G (late Middle Bronze I) to Phase H (Middle Bronze I/II transitional) using the additional constraint as outlined in the text.

Bronze II can be dated to sometime in the second half of the 19th century BC, i.e. c. 1850/1800 BCE. This date is about 50 years higher than the Traditional Chronology and about 100–150 years higher than the Low Chronology. Based on radiocarbon data, the transition would have happened during the late 12th Dynasty in Egypt.

Transition from Middle Bronze II to Middle Bronze III

Traditional Chronology

The transition from Middle Bronze II to Middle Bronze III was traditionally dated to c. 1650 BCE and was assumed to be "exactly equivalent to the climax of the Hyksos or Asiatic occupation of Egypt and the rise of Semitic rulers to power under Dynasty 15."[33]

Low Chronology

The beginning of Middle Bronze III is equated with the early Str. D/3 at Tell el-Dabᶜa. The transition from Str. E/1 (Middle Bronze II) to Str. D/3 (transition to Middle Bronze III) was dated around 1590 BCE, i.e., in terms of the Egyptian historical chronology, the mid-15th Dynasty.[34]

Radiocarbon Chronology

Currently, radiocarbon data for the transition from Middle Bronze II to Middle Bronze III is available from Tell el-Dabᶜa, Tel Kabri, and Tell el-Hayyat.

In Tell el-Dabᶜa, the transition to Middle Bronze III is equated with the beginning of Str. D/3. Based on the radiocarbon data and stratigraphic information published by Walter Kutschera, Manfred Bietak, and other colleagues, the transition from Str. E/1 to Str. D/3 falls to the second half of the 18th century BCE, most likely to around 1700 BCE (Fig. 7).[35]

At Tell el-Hayyat, the transition from Middle Bronze II to Middle Bronze III occurred during Phase 2 according to the pottery analysis by Steven Falconer and Ilya Berelov.[36] Based on the radiocarbon data and stratigraphic information presented by Steven Falconer and Patricia Fall in this volume, Phase 2 begins sometime in the first half of

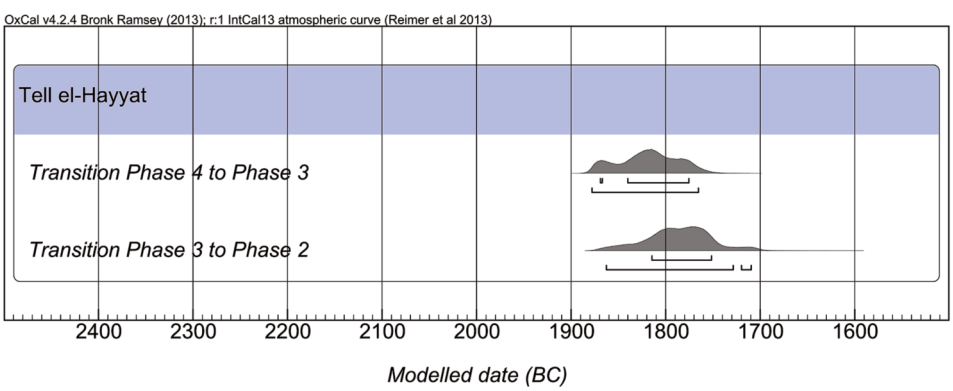

Figure 5: Tell el-Hayyat: Calculated date ranges for the transitions from Phase 4 (Middle Bronze I) to Phase 3 (Middle Bronze I/II) and from Phase 3 (Middle Bronze I/II) to Phase 2 (Middle Bronze II/III).

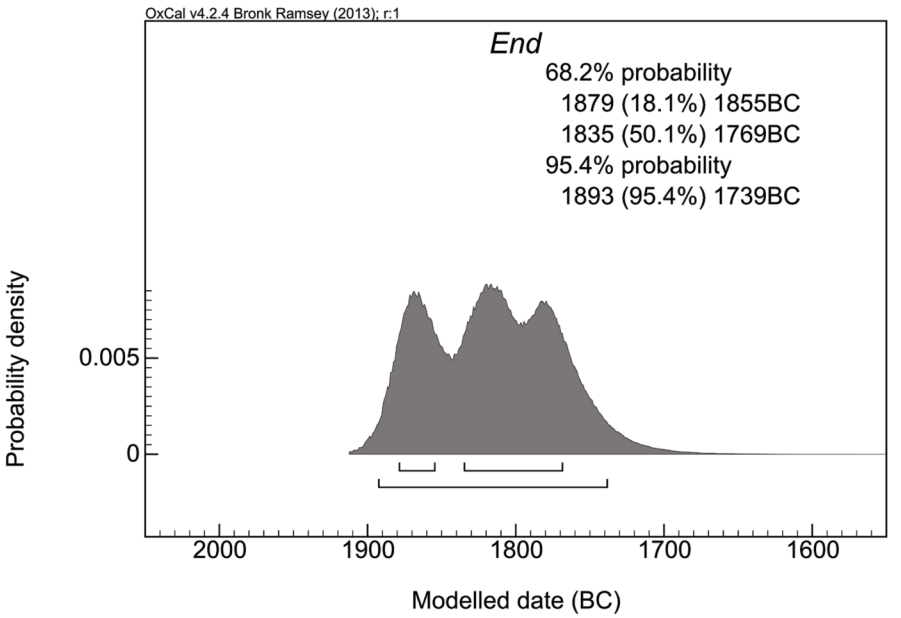

Figure 6: Tell el-Burak: Calculated date range for the end of the Middle Bronze Age I monumental building at Tell el-Burak.

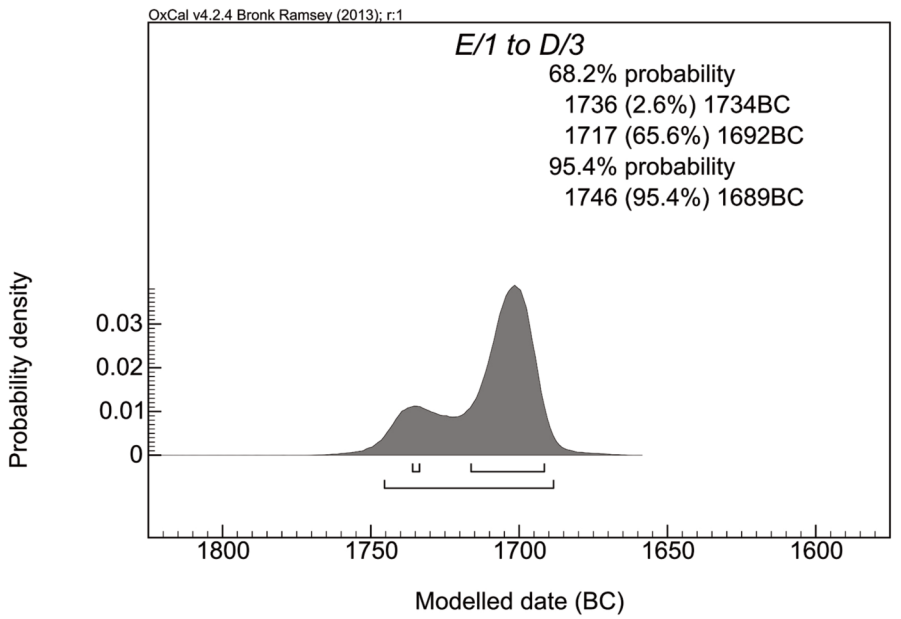

Figure 7: Tell el-Dabʿa: Calculated date range for transition from Str. E/1 (Middle Bronze II) to Str. D/3 (beginning of Middle Bronze III).

the 18th century BCE and ends sometime in the second half or around 1700 BCE. These data suggest a transition to Middle Bronze III sometime in the 18th century BCE. However, one has to note that the later phases at Tell el-Hayyat are only represented by a few dates: While Phases 5 and 4 are represented with at least 6 samples each, Phases 3–1 are only represented with one sample each. One has to keep in mind that additional samples from the later phases might very well change the date ranges for the phases' transitions (Fig. 8).

At Tel Kabri, Phase III of the palatial building (Area D) was dated to the end of the Middle Bronze II period, and also defines the end of the stratigraphic sequence in Area D. Middle Bronze III remains are not present in this area.[37] According to the radiocarbon data and stratigraphic information discussed by the the author, Assaf Yasur-Landau, Eric Cline, and others, the end of Tel Kabri Area D Phase III (end of Middle Bronze II) can be dated to around 1700 BCE (Fig. 9).[38]

Conclusion

Currently, for the transition from Middle Bronze II to Middle Bronze III, we have radiocarbon evidence from three sites, Tell el-Dabʿa, Tell el-Hayyat, and Tel Kabri. The ^{14}C results for these sites are consistent and suggest significantly higher dates than according to the Traditional or Low Chronologies. Based on this evidence the transition from Middle Bronze II to Middle Bronze III occurs at c. 1700 BCE. The radiocarbon model from Tell el-Hayyat would allow for an even higher date sometime in the 18th century BCE, but we noted that in fact the later (more recent) stratigraphic phases of Tell el-Hayyat are underrepresented in the model and most likely subject to change once additional samples from these phases have been measured and integrated into the

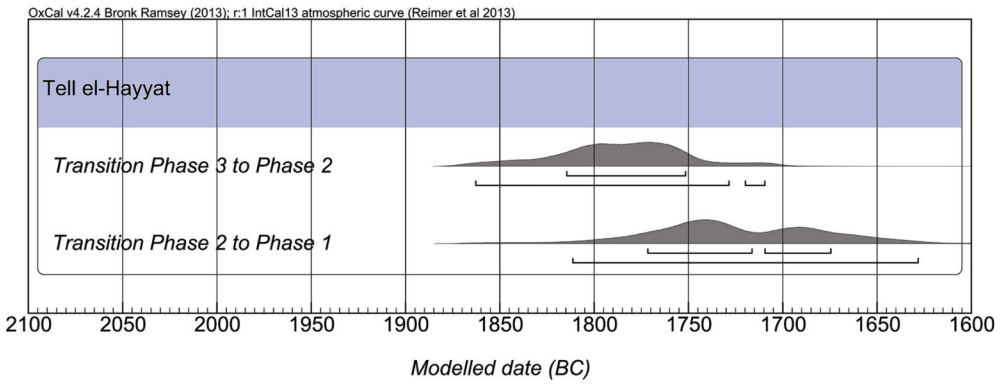

Figure 8: Tell el-Hayyat: Calculated date ranges for the transitions from Phase 3 (Middle Bronze I/II) to Phase 2 (Middle Bronze II/III) and from Phase 2 (Middle Bronze II/III) to Phase 1 (Middle Bronze III).

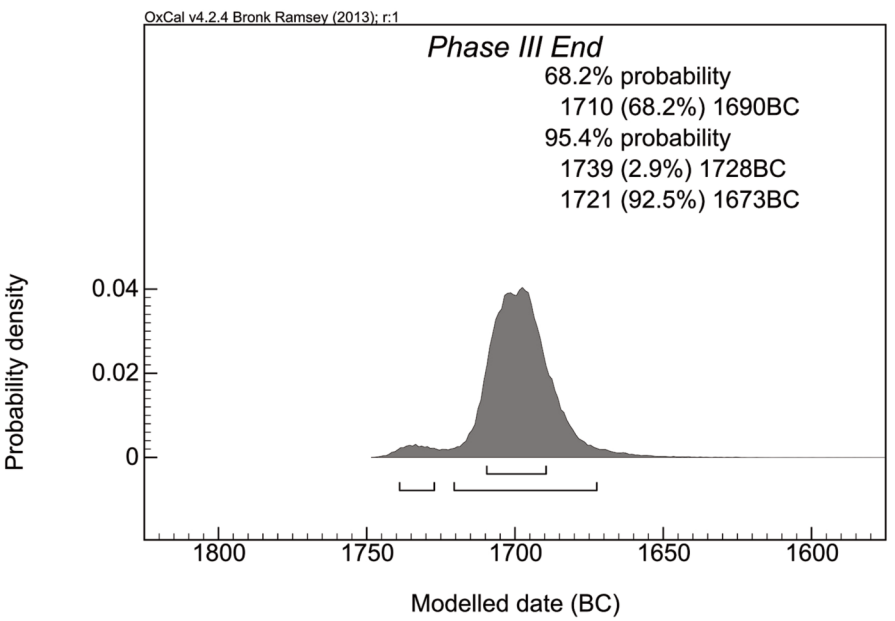

Figure 9: Tel Kabri: Calculated date range for the end of Area D Phase III (end of Middle Bronze II).

current model. A c. 1700 BCE date for the transition from Middle Bronze II to Middle Bronze III is about 50 years earlier than proposed by the Traditional Chronology and about 100 years earlier than proposed by the Low Chronology and would place the beginning of Middle Bronze III in the mid-13th Dynasty in terms of the Egyptian historical chronology, although it should be noted that currently we are lacking a sound radiocarbon sequence for the Second Intermediate Period.

Start of the Late Bronze Age

Traditional Chronology

The end of the Middle Bronze III period has been equated "with the Egyptian campaigns in Asia that were the apparent cause of at least partial destruction of nearly every site," beginning under Kamose and continuing into the 18th Dynasty.[39] Thus, the transition to the Late Bronze Age has been traditionally linked to the start of the Egyptian 18th Dynasty and the New Kingdom, but allowing for a certain overlap of the end of the Middle Bronze Age and the early New Kingdom. To what extent we can actually demonstrate any kind of Egyptian military involvement in the southern Levant prior to Thutmose III is a discussion on its own and not of primary concern here.[40] The traditional chronology proposed a c. 1500 BCE date for the beginning of the Late Bronze Age.[41]

Low Chronology

The beginning of the Late Bronze Age according to the Low Chronology is dated c. 1500/1450 BCE and linked to the appearance of Cypriot White Slip I and Base Ring I imports found in Tell el-Dabʿa Str. C/3 onwards. The beginning of the Late Bronze Age is thus equated with the early 18th Dynasty down to approximately Thutmose III.[42]

Radiocarbon Chronology

Currently, we lack robust radiocarbon sequences that cover the transition from the Middle to the Late Bronze Age in the southern Levant. However,

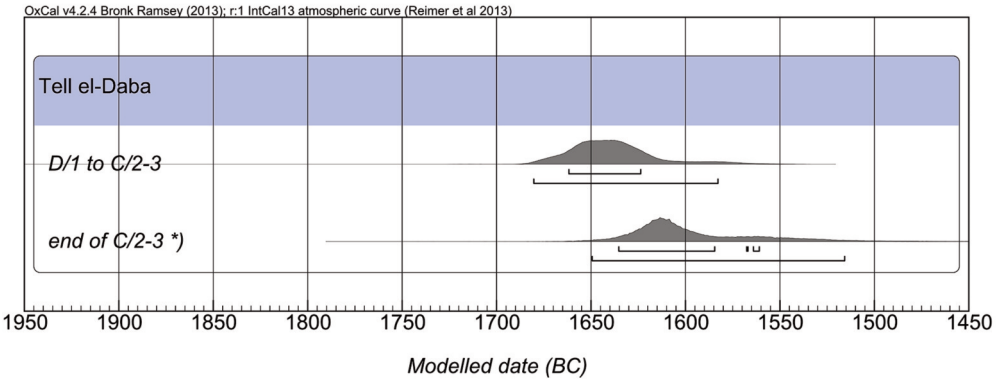

Figure 10: Tell el-Dabᶜa: Calculated date ranges for the transitions from Str. D/1 (Middle Bronze III) to Str. C/3-2 (transition to the Late Bronze Age).

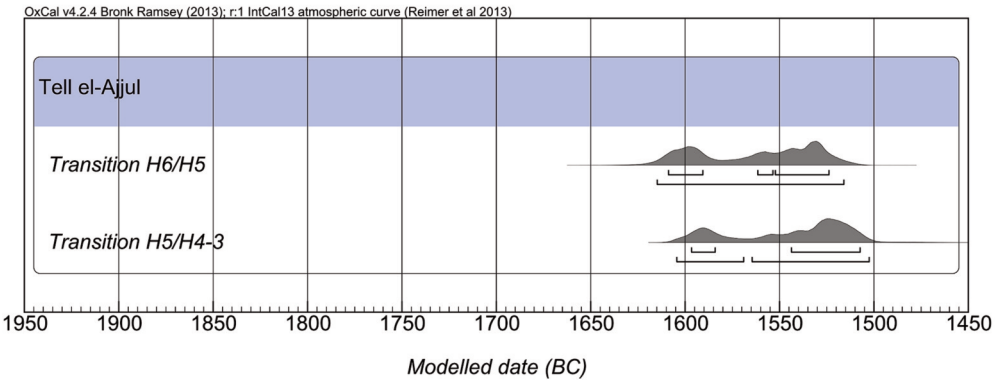

Figure 11: Tell el-ᶜAjjul: Calculated date ranges for the transitions from Horizon 6 (Middle Bronze III) to Horizon 5 (Middle Bronze III/Late Bronze IA transition) and from Horizon 5 (Middle Bronze III/Late Bronze IA transition) to Horizons 4–3 (Late Bronze IA).

preliminary radiocarbon evidence comes from Tell el-Dabᶜa, Tell el-ᶜAjjul, Tell el-Hayyat, and Jericho, and there is also circumstantial evidence from Santorini.

At Tell el-Dabᶜa, the start of the Late Bronze Age is linked to Str. C/3, when Cypriot White Slip I and Base Ring I imports start to appear.[43] Based on the radiocarbon data and stratigraphic information outlined by Walter Kutschera, Manfred Bietak, and colleagues, the transition from Str. D/1 (Middle Bronze III) to Str. C/3-2 (transition to Late Bronze Age) falls to around 1650 BCE or a little later. The end of Str. C/3-2 dates to the very late 17th century BCE, just before 1600 BCE (Fig. 10).[44] Thus, the start of the Late Bronze Age at Tell el-Dabᶜa in radiocarbon terms would date to the second half/late 17th century BCE. One should also note that pumice from the Minoan eruption of Santorini (Thera) has been found in Str. C/2 (see also below).[45]

At Tell el-ᶜAjjul, Horizons 7–6 are dated to the Middle Bronze III, Horizon 5 to the transition from Middle Bronze III to Late Bronze Age I and Horizons 4–3 solely to Late Bronze Age I. Horizon 5 also sees the first imports of White Slip I and Base Ring I (cf. Str. C/3 at Tell el-Dabᶜa), and the presence of Minoan pumice from the Santorini eruption (cf. Str. C/2 at Tell el-Dabᶜa).[46] So far, there are only a few radiocarbon dates available and the respective calculated transition date ranges cover most of the 16th century BCE. Based on the current radiocarbon evidence from the site, the Late Bronze Age at Tell el-ᶜAjjul begins somewhere between c. 1600 BCE and the late 16th century BCE (Fig. 11).[47]

At Tell el-Hayyat, Phase 1 is dated to the Middle Bronze III based on the pottery analysis by Steven Falconer and Ilya Berelov.[48] There is no Late Bronze I present on the site. Based on the radiocarbon data and the stratigraphic evidence discussed by Steven Falconer and Patricia Fall in this volume, the end of Phase 1 (Middle Bronze III) at Tell el-Hayyat falls to the 17th century BCE or the very late 18th century BCE (Fig. 12).[49] However, as noted above, the end of the sequence for Tell el-Hayyat is represented only by a few dates and most likely susceptible to change once additional measurements for the later (more recent) phases become available.

For Jericho, Hendrik Bruins and Johannes van der Plicht published several radiocarbon dates for samples that belong to the end of the Middle Bronze Age from Kathleen Kenyon's excavations.[50] For this paper, it was assumed with Bruins and van der Plicht that short-lived samples are representative for

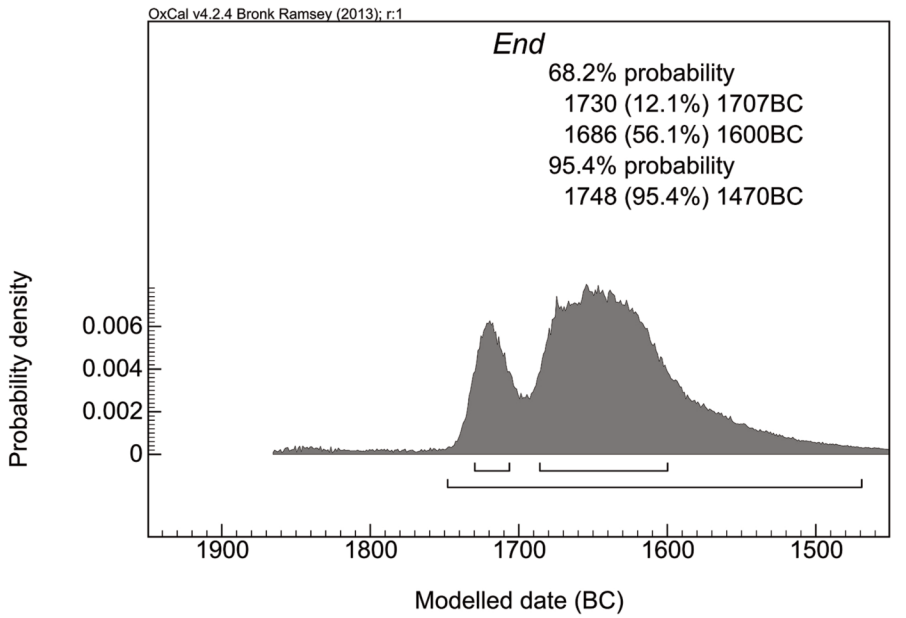

Figure 12: Tell el-Hayyat: Calculated date range for the end of Phase 1 (Middle Bronze III).

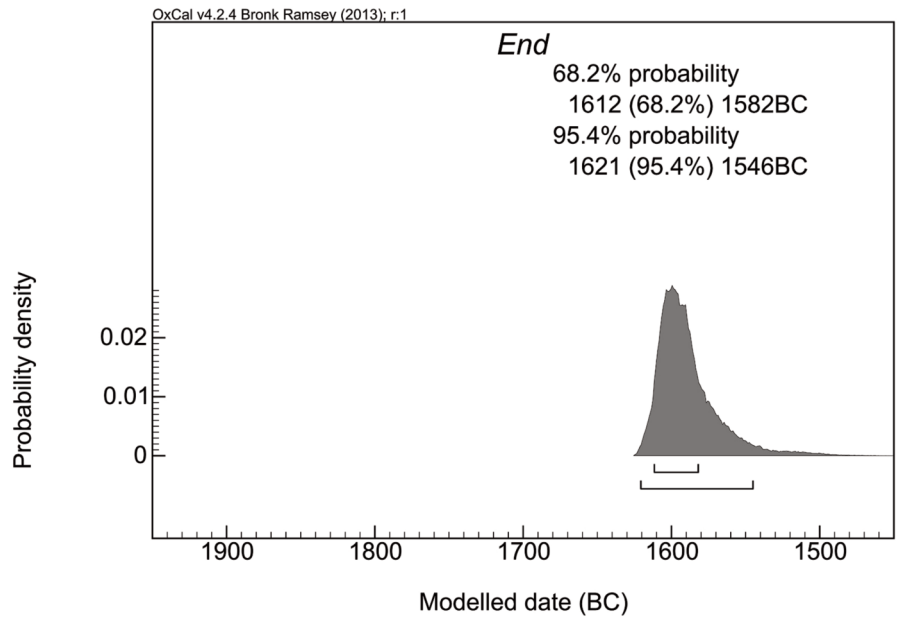

Figure 13: Jericho: Calculated date range for the end of the Middle Bronze Age.

the end of the Middle Bronze Age, but instead of being averaged, all samples were grouped together in a Phase (being a normally distributed unordered group of events). According to this model, the end of the Middle Bronze Age at Jericho falls to around 1600 BCE (Fig. 13).

Circumstantial evidence that can shed further light on the beginning of the Late Bronze Age, comes from the mid-second millennium BCE volcanic eruption of Santorini (Thera), dateable to late Late Minoan IA.[51] Cypriot White Slip I ware, a marker for the Late Bronze Age in the southern Levant and present in Tell el-Dabᶜa from Str. C/3 onwards, was most likely present on Santorini before the eruption,[52] and pumice from the Minoan eruption has been found *inter alia* in Tell el-Dabᶜa Str. C/2.[53] Thus, one could argue that the date for the eruption of Santorini should not be too far away from the start of the Late Bronze Age in the southern Levant. Based on a dendrochronological wiggle-match of a branch of an olive tree believed to have been killed by the fallout of the eruption and found in the respective pumice layer on Santorini, the eruption can be dated to the late 17th century BCE, just before 1600 BCE, and an almost identical date can be obtained from short-lived samples from the settlement of Akrotiri, which was buried by the fallout of the eruption (Figs. 14 and 15).[54]

Conclusions

So far, radiocarbon data for the transition from the Middle to the Late Bronze Age is not yet as consistent as for previous periods, which can be explained by the lack of comprehensive radiocarbon sequences that cover the transition in question. However, the data at hand allow at least some preliminary observations and conclusions (that should be corroborated in the future). Data from Tell el-Dabᶜa and Jericho favor a late 17th century BCE

or a c. 1600 BCE date for the transition to the Late Bronze Age. The last Middle Bronze III phase (Phase 1) at Tell el-Hayyat could be earlier (sometime in the 17th century BCE) but is based on only few radiocarbon dates; nevertheless, also Tell el-Hayyat would be consistent with a late 17th century BCE date for the end of the Middle Bronze Age. Data from Tell el-ʿAjjul seems to be somewhat younger. Based on current radiocarbon data, Horizon 5, which covers the transition to the Late Bronze Age, can date anywhere throughout the 16th century BCE. Circumstantial evidence comes from the eruption of Santorini, radiocarbon dated to the very late 17th century BCE. Given that White Slip I was already present on the island before the eruption and Minoan pumice was found in contexts closely associated with the early Late Bronze Age, such as Tell el-Dabʿa Str. C/2 and Tell el-ʿAjjul Horizon 5, radiocarbon dates for this event should not be too far away from the actual start of the Late Bronze Age in the Levant. Based on this evidence, we argue for a c. 1600 BCE start of the Late Bronze Age, about 100 years earlier than the Traditional Chronology after William Dever and 100 to 150 years earlier than the Low Chronology after Manfred Bietak. In terms of Egyptian historical chronology, this date would fall to the late Second Intermediate Period. However, one should note that, based on radiocarbon dating, the start of the Egyptian New Kingdom could be as early as c. 1570 BCE, a date also already favored by Wente and van Siclen in the 1970s.[55]

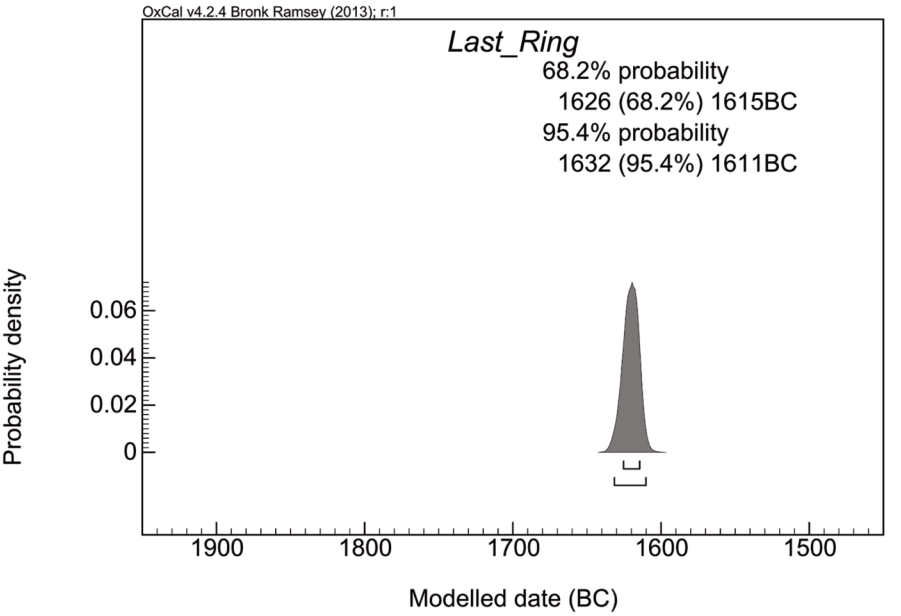

Figure 14: Santorini: Calculated date range for last ring of olive tree killed by the eruption.

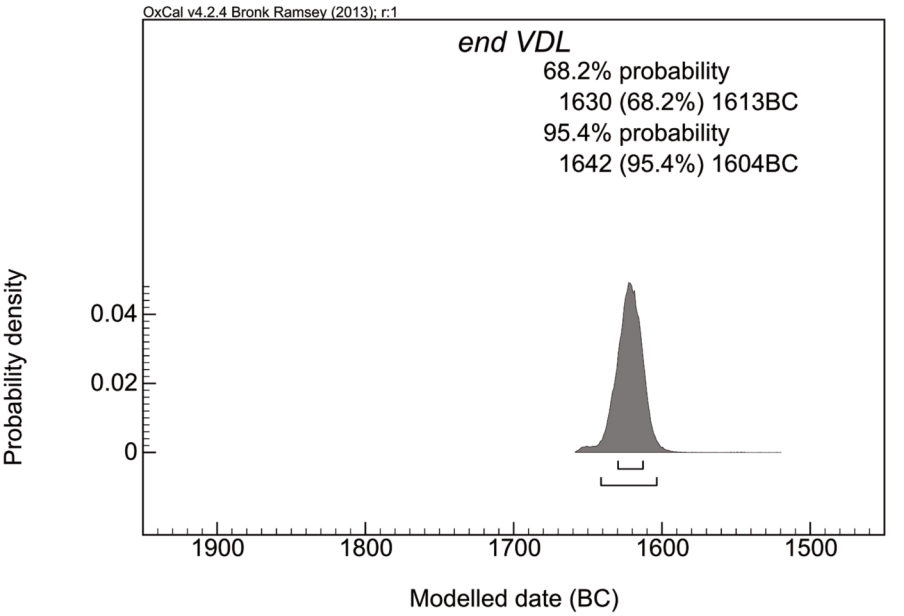

Figure 15: Santorini: Calculated date range for end of settlement at Akrotiri.

Conclusions

In this paper, we presented a thorough review of current radiocarbon data for the Middle Bronze southern Levant. Based on the evidence outlined above we argue for the following absolute dates:

Start Middle Bronze I:	c. 2000/1900 BCE	late 11th/early 12th Dynasty
Transition Middle Bronze I/II	c. 1850/1800 BCE	mid-/late 12th Dynasty
Transition Middle Bronze II/III	c. 1700 BCE	mid-13th Dynasty
Start Late Bronze Age	c. 1600 BCE	mid-/late 15th Dynasty

These dates should be understood as rough approximations. More data is needed for corroboration and for tracing regional differences. Such a rise in southern Levantine chronology compared to the Egyptian historical chronology of course also calls for a thorough reassessment of Egyptian-Levantine relations based on the Radiocarbon Chronology. Based on the radiocarbon chronology, the Middle Bronze Age would start approximately around the beginning of the 12th Dynasty, the transition from Middle Bronze I to Middle Bronze II would occur sometime during the reign of Senwosret III or Amenemhet III (instead of the mid-13th Dynasty), the transition from Middle Bronze II to Middle Bronze III would occur in the mid-13th Dynasty (instead of the mid-15th Dynasty), and the beginning of the Late Bronze Age would still fall into the late Second Intermediate Period.

The first implications of this reassessment are presented in this volume by Susan Cohen, Katharina Streit, and Eric Cline et al.. Although from our point of view the radiocarbon data seems solid and offers a possibility to create the first independent chronological framework throughout the ancient Near East, the discussion in the field has in fact only begun.

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