The Tower of Babel: archaeology, history and cuneiform texts[1]

By A. R. George (London)

Such is the fame of the myth of the Tower of Babel related in Genesis 11 that the publication of a new monograph on the building generally thought to have inspired the myth is an important event. It is necessarily an occasion for the academic disciplines that deal with the ancient Near East — archaeology, ancient history and Assyriology — to present their subject to the wider world. Stemming from the author's excavations on the structure's core and foundations in 1962, Schmid's magnificent book on the ziqqurrat or temple-tower of Babylon is consequently much more than a final report of the kind conventional in Near Eastern archaeology. Based on the evidence of texts as well as the results of excavation, it is a history of the study and representation of the building in all its aspects, from biblical myth to mediaeval fantasy to archaeological problem.

The first chapter presents myth and fantasy, discussing the classical and biblical traditions of the tower, the reports of early European travellers in Mesopotamia, the imaginative depictions of mediaeval and Renaissance European painters and engravers, and the history of modern enquiry into the ruined temple towers of Assyria and Babylonia up to the first scientific excavations (for the impact of the tower on mediaeval and later artists see now Albrecht 1999).

Chapter 2 turns to more reliable evidence, presenting the E-sangil Tablet, a famous cuneiform document copied out by a scribal apprentice called Anu-bēlšunu in 229 BC, and quoting from Friedrich Wetzel's preliminary accounts of his excavations of the foundations of Babylon's ziqqurrat in 1913. It then examines in detail the reconstructions of the ziqqurrat of Babylon put forward on the basis of this evidence by subsequent scholars, from Koldewey and Dombart to Martiny and Busink. A turning point was the publication in 1938 of Wetzel's final report of the excavations, supplemented by F. H. Weissbach's authoritative edition of the E-sangil Tablet (Wetzel and Weissbach 1938). This generated a rash of further reconstructions, from von Soden to Siegler; at the same time archaeological investigation of ziqqurrats at other Mesopotamian sites increased modern understanding of the historical development of these buildings across three millennia. At the end of the chapter Schmid observes how little modern scholars agreed on such vital matters as the date of the ruined building excavated by Wetzel and the date of composition of the text later copied by Anu-bēlšunu. Worse was the failure of some reconstructions even to keep to the known dimensions.

In Chapter 3 Schmid turns to his own place in the history of this extraordinary building, describing the excavations of 1962 and presenting their results in every possible detail. This account supersedes his much cited preliminary reports (Schmid 1981, 1990, n.d.). Though the building had been levelled in antiquity, the first excavators had recognized two structures: the baked-brick mantle and the mud-brick core. Koldewey

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[1] Review article of **Hansjörg Schmid**, D e r T e m p e l t u r m E t e m e n a n k i i n B a b y l o n. ix, 154 pp., 42 pls., 18 plans, 1 folded insert. Mainz am Rhein, 1995 (= Baghdader Forschungen 17).

and Wetzel identified the mantle as the work of Nabopolassar and Nebuchadnezzar II, and the core as the work of Esarhaddon or a previous builder. Careful survey and measurement of the ruined infrastructure led Schmid to identify the remains of three successive buildings, not two. The oldest structure was a tower of mud brick measuring about 65 m square at its base, which had suffered heavy damage. Superimposed on this core was a mantle of more mud brick anchored into the older structure with timber beams and measuring about 73 m square at its base. The brickwork of this mantle and the older core had later been cut back below ground to about 60 m square; the residual shelf of compressed mud brick (the so-called 'Tonbettung') then served as a partial platform for a more durable mantle of baked brick measuring about 91 m square at its base. Completely new was the discovery of later ruins on the levelled core, including the infrastructure of a large secular building separated from the mud bricks of the tower by a shallow aggregate of destruction debris. Schmid considers this building to be contemporary probably with the Parthian-period dwelling houses excavated in 1900 some 150 m to the south, on the northern flank of the mound Amran ibn Ali. In 1967-8 further exploration of the ziqqurrat's core and immediate surroundings added more detail to this picture (Schmidt 1973: 165).

The dimensions of the tower's baked-brick mantle, mostly robbed but still traceable, are generally supposed to confirm the identity of the ruined edifice in its last rebuilding with the tower described in Anu-bēlšunu's tablet, for the measurements of the base given there are a close match for the 91 m square revealed by excavation (see further below). But Schmid's meticulous survey of the mantle also threw up a way to reconcile conflicting data concerning the stairways. The dimensions and angles of these, as established by excavation, did not seem to coincide with landings at the same height as the terrace-levels reported by the tablet. Schmid's solution lies in supposing that the heights of the stages given by the E-sangil Tablet include (a) a parapet wall that matches in height the comparable wall either side of the stairways, and (b), for the first stage only, the buried infrastructure of the mantle, i.e. the depth that it extended below the bottom of the stairways. He notes also the implication that the cuneiform text is not a description of an actual building but an outline in words of an architect's intentions (*Entwurfsbeschreibung*). In support Schmid calls attention to ancient examples of clay plans held to depict ziqqurrats in both horizontal and vertical planes, which may also be instances of architectural design. One of these is actually used by Schmid (1995: 86-7) as a corroboration of his 73 m square tower, following its identification as Marduk's ziqqurrat by Liane Jakob-Rost (1984: 59: ᵉ*siq-ra-te/ti šá* ᵈAMAR.UTU 'ziqqurrat of Marduk'). Some years ago I collated the epigraph that led to this identification and found this reading of what are very difficult traces to be unlikely, though I did not alight on an alternative decipherment. The diagram is, in any case, clearly schematic, and even if it represents a ziqqurrat (which is by no means certain), it is best not adduced as evidence for any real structure.

Chapter 4 presents a brief history of the ziqqurrat of Babylon, quoting extensively from the inscriptions of Assyrian and Babylonian kings, and continues with a discussion of the Neo-Babylonian rebuilding and the ziqqurrat's subsequent decay and destruction.

Schmid's thesis is that the baked-brick mantle of 91 m square represents the work of King Nabopolassar of Babylon, finished by his son, Nebuchadnezzar II (so already Koldewey and Wetzel); the mud-brick mantle of 73 m square is the edifice constructed by King Esarhaddon of Assyria and his son, Ashurbanipal; and the mud-brick core represents the damaged remnants of an earlier tower that Esarhaddon's father, Sennacherib, demolished during his sack of Babylon in 689 BC. The validity of this thesis will be examined below.

The subject of Chapter 5 is the question of raised temples and the means of reaching them, with especial attention paid to the location of the stairways in the ruined ziqqurrat of Ur. This background informs a detailed discussion of Schmid's own reconstruction of the ziqqurrat of Babylon in Chapter 6. As before, the essential source for his reconstruction is the E-sangil Tablet, which not only presents ideal dimensions of the tower's base (§§4-5) and terraces (§7), but also gives lengths and breadths of chambers of the temple that sat on the tower's summit (§6). And, as before, the assumption is that the structure described in the E-sangil Tablet actually became a reality. The volume is concluded with a short summary and copious illustrations and plans.

Schmid's book is in many ways a model report of an archaeological excavation, giving a full account of relevant scholarship and previous research in neighbouring disciplines as well as western Asiatic archaeology, and addressing with considerable insight and ingenuity the potential of a building ruined to its foundations nevertheless to yield important clues for the reconstruction of its superstructure. In using ancient documentary evidence, however, the author has sometimes relied on out-of-date scholarship, and this undermines some of his hypotheses concerning, especially, the building's history. The rest of this article will survey the documentary evidence, as it now stands, for the temple tower of Babylon, and reconsider its history and archaeology in the light of this evidence.

The evidence for the ziqqurrat of Babylon in cuneiform texts
Before 1876, when George Smith made the first translation of the E-sangil Tablet, the principal documentary evidence for the details of construction of Babylon's ziqqurrat was the account of the tower of eight storeys in Herodotus's *Babylônios logos*. Herodotus's description of Babylon is still taken seriously by some, although the growing volume of cuneiform texts that relate to Babylon shows his account to be shot through with inaccuracies that can be put down to hearsay and even fantasy (Rollinger 1993, 1998; scholarly reaction to Rollinger's work, mostly favourable, is summarized by Oelsner 1999-2000: 377-8 with fn. 40). As far as the ziqqurrat is concerned, Herodotus's report, whether based on a personal inspection or not, is for this reason inadmissible as evidence of first resort, in spite of the many attempts to reconcile it with other sources.[2] It must

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[2] For example, several proposals have been put forward to explain Herodotus's eight storeys in terms of a seven-staged tower, chiefly by (a) arguing from the cuneiform evidence that the shrine forming the seventh stage itself comprised two storeys (Heinrich 1982: 308; George 1992: 431-3), (b) supposing that the ziqqurrat's superstructure was so ruinous that it gave onlookers the impression of numbering eight stages instead of seven (Böhl 1962: 113; Schmid 1981: 134), and (c) referring to the Greek habit of

give way to the evidence of cuneiform texts, as too must secondhand references to the tower in later classical writers, the report of a 'tower whose top may reach unto heaven' in Genesis 11, and elaborations on this in biblical scholia and the pseudepigrapha.

The decipherment of the E-sangil Tablet confirmed most commentators in the view that the mythical Tower of Babel was a memory of a real building, a staged temple-tower that the Babylonians knew by the Sumerian ceremonial name of E-temen-anki 'House of the Foundation Platform of Heaven and Underworld' (for a critique of this assumption see Uehlinger 1990). Apart from the E-sangil Tablet, the cuneiform evidence for E-temen-anki under this name comprises the inscriptions of royal builders, a mention in the poem of Erra, appearance in the litany of temple names of Babylon and other cities that regularly occurs in first-millennium copies of liturgical texts, and entries in scholarly lists of temples, temple gates and other sacred locations (George 1992: 298-300, 1993a: 149, gazetteer entry 1088). To these must be added (a) the reference to Marduk and Zarpanītu of é.te.me.en.an.ki (var. é.te.me.na.an.ki) in Late Babylonian copies of a cultic calendar (BRM IV 25 // SBH VII, ed. Unger 1931: 260-1) and (b) an entry in the list of seven seats of Marduk collected in one of the scholarly compendia of heptads: *šu-bat* ^{d}*bēl*(en) *šá* é.te.me.[en.an.ki] 'seat of Bēl in E-temen-[anki]' (Lambert 1997: 75, 15). Some of these texts will be cited below in discussing the ziqqurrat's history.

Here I add first some comments on the E-sangil Tablet. In writing up his book, Schmid was evidently unable to consult the most recent edition of this document, where the text is improved in some instances by the discovery of a second manuscript, a scribal exercise tablet from Babylon (MS B in the edition of George 1992: 109-19 no. 13). There he would also have found a brief introduction which characterizes the text on formal grounds as belonging to the mathematical tradition and suspects it of containing hypothetical dimensions, not actual measurements. Philology thus agrees with archaeology: the E-sangil Tablet presents an ideal of how the tower was meant to look, and does not constitute a physical survey of a built structure.

In my view, however, the text's formal mathematical nature precludes it from being quite what Schmid thinks it is, a practical document of architectural planning (Schmid 1995: 61-3). The use of language from academic arithmetic,[3] the interest in the combined area of two courtyards of the neighbouring temple E-sangil as material for a mathematical exercise (§§1-3), the presence in the same document of linear

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counting ground-level as the first storey (see MacGinnis 1986: 71-2). This last explanation has been resurrected by von Soden (1996: 84): 'die Griechen beim Zählen der Stockwerke eines Großbauwerkes die (vor allem beim Lehmuntergrund, wie zumeist in Babylonien) notwendigerweise sehr starke und über die Unterkante des Bauwerks waagerecht hinausragende Grundplatte mitzählten'. Leaving aside the problematical issue of whether Herodotus's account can really be interpreted to mean a seven-storey tower standing on a 'Grundplatte' § he writes explicitly of eight super-imposed 'towers' (*pyrgoi*) § there is no archaeological evidence that E-temen-anki did actually rest on a structure that might be described in such terms. By Herodotus's time the ziqqurrat's footings and the 'Tonbettung' on which they rested were in any case deep below the surface and certainly invisible to him or his informant (on the stratigraphy see below). Proposal (a) is the solution that rests least on unwarranted assumption.

[3] E.g. ll. 16 and 20: *mimdāti kigalli* é.te.me.en.an.ki *šiddu u pūtu ana amārī*[*ka*] 'the dimensions of the base of E-temen-anki, length and breadth, for [you] to find the result', i.e. the area.

measurements based on different cubit-standards, and the presentation of the dimensions of the base of E-temen-anki as examples of how such measurements can be variously converted into area expressed in the respective capacity-surface systems, all these features indicate that the text is still more abstract and academic than an architect's plan. The suspicion must be that as an extrapolation of arithmetical and geometric problems taking as its subject idealized dimensions of Marduk's temple precinct and ziqqurrat, the text of the E-sangil Tablet originated as a compilation of training exercises in mathematics for would-be surveyors.

The text may have come to have other significance. Glassner (2002) has found in it a more profound purpose, observing a cosmological allusion in the matching size of the ziqqurrat and the ark of Ūta-napišti in SB Gilgameš XI, both having bases of one *ikû* and both subdivided on the vertical plane into seven storeys. As he notes, the *ikû* is also the key dimension in the first section of the E-sangil Tablet, being the notional area of the Grand Court (*kisalmaḫ*). But there is more to it than that, for the *ikû* was also held to be visible in the night sky, where it was the great square of Pegasus, the celestial counterpart of both E-sangil and Babylon (George 1992: 244).[4] The fact that measurements given in the text are quoted in a Late Babylonian commentary (George 1992 no. 62) shows that its subject matter was known to learned scholars and used in the exposition of difficult contexts outside mathematics. Clearly there was much speculation about the deeper significance of the dimensions of the ziqqurrat that was transmitted orally and is lost to us.

At this point it is useful to consider the date of the text inscribed on the E-sangil Tablet. Not all of it has to have been written at the same time; what concern us here are the sections that report the measurement of the tower's base (§§4, 5, 7). Some have followed Koldewey in maintaining that the text describes a building more or less contemporary with Anu-bēlšunu, i.e. a Seleucid rebuilding (see Downey 1988: 12). There is no archaeological evidence for a Seleucid ziqqurrat, however. The internal evidence of the text speaks for a much earlier date of composition. Believing as he does (a) that the text derives from those responsible for planning the ziqqurrat's rebuilding, and (b) that the measurement it gives for the base of the ziqqurrat matches the dimensions of the baked-brick mantle he identifies as no older than Nabopolassar, Schmid (1995: 84) necessarily dates the text to the reign of this late-seventh-century king.

The best hard evidence for the date of the composition of the E-sangil Tablet is its metrology. Powell describes it as a 'Seleucid copy of older material going back to late Kassite or early NB' (Powell 1989: 468). In my edition I assert that the text, with its incongruous use of both long and standard cubits, was probably a product of the 'late eighth or early seventh century' (George 1992: 110). This statement rests on Powell's findings that (a) the longer cubit standard first appears under Nazimaruttaš (1307-1282)

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[4] In a highly original and thought-provoking study, Allinger-Csollich (1998: 280-3) has presented a case for interpreting the area of the main building of E-sangil as also one *ikû*, thus translating the ancient symbolism into reality. However, his argument is undermined by the metrology: to achieve the required area, he is forced to include part (but only part) of the temple's eastern annexe.

and is last attested in the time of Merodach-baladan II (721-710), which explains why he calls it the Kassite-early Neo-Babylonian system, and (b) the Neo-Babylonian reed-based system first occurs under Šamaš-šuma-ukīn (667-648) (Powell 1982: 112). Exercises in architectural planning at the end of the seventh century would not sensibly have used the antiquated cubit-standard of a bygone era. This is not just a hunch. It so happens that we have a fragment of a survey of the walls of Babylon that dates securely to the period between Nabopolassar's strengthening of the city's defences and Nebuchadnezzar's continuation of that work (George 1992 no. 15, 1993b: 743-6). In so far as it is preserved, the text uses only the Neo-Babylonian cubit-standard equivalent to approximately 50 cm, with no reference to the longer cubit employed alongside the shorter unit in the E-sangil Tablet.

It is doubtful that the older cubit-standard was of any practical use by the time of Nabopolassar. Nevertheless, if the structure with a base of 91 m could be proved to be no older than Nabopolassar, as Schmid supposes, one would have to accept that his reign was indeed the *terminus post quem* for the compilation of the E-sangil Tablet. However, we shall see in the next section that the ziqqurrat with base of 91 m was at least as old as Esarhaddon. If the E-sangil Tablet is to be associated with an actual rebuilding, then the reign of this early seventh-century king, being nearer the last-known attestation of the longer cubit in a practical context, stands out as a more possible occasion for its drafting.

On the other hand, if the text's primary context was one of academic training rather than practical architecture, the date of the its original compilation need not necessarily be tied to any historical event such as a rebuilding. The survival of the E-sangil Tablet in Late Babylonian Babylon and Seleucid Uruk demonstrates that the longer cubit-standard was understood and used as a pedagogical tool in academic circles long after it fell out of use in practical surveying. There is other evidence that Late Babylonian schooling included familiarization with antique metrology (Powell 1989: 482-3). In the end, a date of compilation of the E-sangil Tablet after the early seventh century cannot be dismissed out of hand, even if it strikes one as highly improbable.

The newly published manuscript from Babylon helps to correct false understandings that derive from Anu-bēlšunu's copy in the section on the *nuḫar*, the temple that crowned the ziqqurrat (Ā6; for details see George 1992: 428-9). Other documentary evidence published at the same time can be brought to bear on the temple. Schmid's architectural reconstruction of the tower is broadly conventional, with the temple building sitting on the terrace of the sixth stage and thereby forming its seventh stage (Schmid 1995: pls. 40-2). Schmid's temple has four exterior gates, one in each faąde. This lay-our reflects the wording of Nebuchadnezzar II's cliff inscriptions at Wadi Brisa, where the four gates of the ziqqurrat are summarized as *bābātīšu šadlāti itāt* é.teme[n.an.ki] 'the ziqqurrat's massive gates, around E-temen-[anki]' (George 1992: 89). A list of the same four gates surviving in a Late Babylonian copy renders Schmid's arrangement of gates unlikely, however, for the explanatory comments it appends to each name in turn do not suggest four gates on the same level:

Ka-nun-abzu   = the gate of the upper bronze door;

Ka-nun-ḫegal   = the gate of the lower bronze door;
Ka-unir   = the gate of the ziqqurrat temple that opens southward;
Ka-E-temen-anki   = the gate of the ziqqurrat temple that opens westward:
Total: four gates of the ziqqurrat temple.

George 1992 no. 6, 9-13; cf. Allinger-Csollich 1998: 283-8

My understanding of the list's descriptions of these gates is that only the last two are entrance gates giving access into the temple from the top terrace; the two others are gates at different points ('upper' and 'lower') on the stairways (George 1992: 89-90; cf. Allinger-Csollich 1998: 288). Only Ka-nun-abzu is attested elsewhere, in a fragmentary ritual that describes cultic rites in E-sangil and *bīt ziqrat* 'the ziqqurrat temple' (George 1992: 227 no. 40).

The most important evidence for the superstructure of the tower is certainly the newest: a broken Neo-Babylonian stele now in the SchḤyen Collection. Though it is not yet properly published, a photograph has been available for some time on an internet website (SchḤyen 2003). The stele depicts a king standing before a seven-storey ziqqurrat drawn in outline and labelled [é].tem[en].an.≤ki≥ [z]*i-qú-ra-at bābili*(ká.dingir.ra)^{ki} 'E-temen-anki, ziqqurrat of Babylon'. The tower is as high as it is wide. Accompanying the relief are two fragmentary ground-plans, one of them no doubt a plan of the temple that crowned the tower, and a fragmentary text, part of which is very reminiscent of Nebuchadnezzar II's foundation cylinders of E-temen-anki. How this extraordinary monument further impacts on our understanding of §§4-7 of the E-sangil Tablet must await the eventual scientific publication of the stele.

The ziqqurrat of Babylon from Sennacherib to Nebuchadnezzar II

The cuneiform texts that bear most nearly on the history of E-temen-anki are inscriptions of the seventh and sixth centuries left by three successive Sargonid kings of Assyria, Sennacherib, Esarhaddon and Ashurbanipal (together 704-627 BC), and by Nabopolassar and Nebuchadnezzar II, the first two kings of the last native dynasty of Babylon (together 625-562). A history of the building that seeks to match royal inscriptions with archaeological reality must necessarily begin with this era. Only when the structural remains and the texts are placed in the correct association can one turn to the more problematic history of the ziqqurrat before Sennacherib and after Nebuchadnezzar.

Sennacherib claimed to have torn down *ziq-qur-rat libitti*(sig₄) *u eperī*(saḫar)^{ḫá} 'a ziqqurrat of brick and earth' along with other sanctuaries during his sack of Babylon in 689 BC (III R 14, 51, ed. Luckenbill 1924: 84; cf. Frahm 1997: 151-4 'Die Bavian-Inschriften'). The debris was dumped in the river. For lack of hard evidence of another ziqqurrat in Babylon Sennacherib's phrase is universally taken to refer to E-temen-anki.[5]

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[5] The only evidence for another tower occurs in the list of gates of E-sangil and its precinct published in George 1992 no. 6, where a Ka-unir 'Gate of the Ziqqurrat' is booked as one of the ceremonial entrances of E-tur-kalamma, the temple of Ištar as Lady of Babylon (George 1992: 94-5, l. 22; 397). Allinger-Csollich (1998: 288) thinks Ištar's Ka-unir might be the same as the south gate of the ziqqurrat

How much of its superstructure was really demolished is obscured by the hyperbole conventional in reporting triumph; it is safe to assume that, at the very least, Sennacherib's wreckers rendered the tower unusable but it seems improbable that they went so far as to level it completely. Esarhaddon began the task of its reconstruction following his accession nine years later (Borger 1956: 24 Ep. 34), work that is also reported in several letters informing the king of progress made in rebuilding Babylon's various monuments (Cole and Machinist 1998 nos. 161-70, 173-80). These and other letters relating to the return of cult-statues to the rebuilt sanctuaries of Babylon give a glimpse of the historical and political setting of Esarhaddon's project to restore Babylon (Streck 2002). Both Esarhaddon and Ashurbanipal commemorated their work on E-temen-anki on bricks that may once have been part of the tower's structure (or at least were intended as such), though found in secondary contexts (Frame 1995 nos. B.6.31.4-9, B.6.32.8, 10 and 11). Cylinder inscriptions of Nabopolassar and his successor describe their construction of the tower seemingly from its base to the temple that stood on its top (Nbp 1, Nbk 17, ed. Weissbach 1938: 41-8).[6] Other texts that report details of Nebuchadnezzar's completion of the tower include bricks intended for its structure (Weissbach 1938: 48-9), the fragmentary Wadi Brisa inscriptions (Nbk 19, Weissbach 1906: 13-34) and a similar text on a clay tablet (George 1988: 139-50).

Attestations of E-temen-anki in other texts, i.e. the poem of Erra, liturgical texts and lists, do not add certain knowledge of the tower's history, because while we know these texts from Neo-Assyrian and later copies, the dates of their original composition are uncertain. Some are likely to predate Sennacherib by many centuries, so that they speak for E-temen-anki's existence in the second millennium. They are discussed in the next session. The poem of Erra probably dates to the ninth century, when the long reigns of Nabû-apla-iddina and his son Marduk-zākir-šumi I offered respite from the anarchy and civil war and gave grounds for optimism over Babylonia's future power, but this remains to be proved.[7]

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temple, entered at l. 11 of the same list, and that all the gates of the list in the intervening lines are to be associated with E-temen-anki and its surrounding courtyard. These include gates of the temples of Ea and Madānu, as well as Ištar. All these temples were indeed located near E-sangil but not, so far as we can tell on present evidence, on the courtyard of the ziqqurrat. The E-kar-zaginna of Ea was situated in a garden near the river (George 1992: 303), E-tur-kalamma probably in the southern part of the great temple complex, for its south gate adjoined a residential area (George 1992: 307). Today this area of Babylon lies deep beneath the ruin-mound named after the shrine of Amran ibn Ali that sits on top of it; the presence of a ruined small-scale ziqqurrat in this enormous tell is fully possible, but cannot be confirmed either.

[6] For improvements on Weissbach's edition of Nbp 1 see below. Our knowledge of the text of Nbk 17 has been slightly improved by the recent discovery of a ninth fragment, Babylon no. 105A. The lines at the end of col. ii of this exemplar plug at least part of the third lacuna in Weissbach's edition, adding to the list of places that provided Nebuchadnezzar's workforce (cuneiform given by Al-Rawi n.d.: 24): $^{ii\ 1'}$ [^{kur}]*ú-ga-* [*ar-*^{d} . . .] $^{2'}$ *na-ap-ḫa-ar* x[x x x] / *ša-ap-li-tim* $^{3'}$ *iš-tu re-e-ši-ša* $^{4'}$ *a-di iš-di-ša* $^{5'}$ nibru^{ki} *ì-si-in*^{ki} [^{iii} . . .

[7] See generally Cagni 1969: 37-45. In favour of Nabû-apla-iddina's reign as the likely date of composition are Lambert 1957-8: 396-400, Brinkman 1968: 191. The case for Marduk-zākir-šumi is presented by Bottéro 1985: 254-61. A dissenting view is that of von Soden (1971: 255-6, 1987: 67-9), who argues for a date in the eighth century. For the line that mentions E-temen-anki see George 1992: 271.

As noted above, Schmid interprets the archaeological evidence to witness a history of three successive structures, (a) the mud-brick core with base of 65 m square, (b) a mud-brick mantle with base of 73 m square, and (c) a baked-brick mantle with base of 91 m square (Schmid 1981: 116-17; 1995: 69-74). These he identifies with (a) the tower destroyed by Sennacherib, (b) the rebuilding of Esarhaddon and Ashurbanipal, and (c) a comprehensive reconstruction by Nabopolassar and Nebuchadnezzar (Schmid 1995: 78, n.d.: 46). Identification (c) is the position that Koldewey and Wetzel took, more by default than on hard evidence. Identifications (a) and (b) are very much open to question.

Schmid himself acknowledges a problem with identification (b), for Esarhaddon already cites the dimensions of the sides of the base of E-temen-anki as *ašlu ṣuppān* 'a rope and a half' (Borger 1956: 24 Ep. 34), i.e. 180 cubits each. As Weissbach observed long ago, this is exactly the equivalent of the figure given in three different styles in the E-sangil Tablet: 3 *ṣuppān* by the *aslu*-standard (§4) = 10 *nindan* by the *arû*-standard (§5) = 15 *nindan* [by the Neo-Babylonian standard] (§7), all of which approximate to 90 m (Powell 1982: 109-10, George 1992: 111-12). On this evidence Esarhaddon's ziqqurrat occupied the same base area as the building in its final version, with base 91 m square, and cannot have been the mud-brick tower of 73 m square.

Schmid revives Koldewey's response to this difficulty, asserting the existence of a special cubit-standard of approximately 40 cm alongside the normal standard of approximately 50 cm, so that Esarhaddon's *ašlu ṣuppān* approximates not 90 m but 72 m, conveniently close to the base dimension of structure (b). There are two objections that stand in the way of this solution. First, the putative short cubit-standard is a mirage. In Assyria its existence rests on a hypothetical understanding of the significance of the walls of Khorsabad and the brick-standard used there. The modern authority on ancient Mesopotamian metrology dismisses this 40 cm cubit as resting on assumptions that are 'doubtful (and some untenable)' (Powell 1989: 474). The Neo-Babylonian cubit of 24 fingers (*ubānu*) also offers no solution, for it was not shorter than the Old Babylonian 50 cm cubit of 30 fingers; it was evidently the finger whose length was variable (Powell 1989: 469-70, contra CAD A/II 75). Second, immediately after stating the dimensions of the base of E-temen-anki as *ašlu ṣuppān* 'a rope and a half', Esarhaddon uses the *ašlu* as a unit of linear measure in reporting the dimensions of another monument of Babylon: the city's walls (Borger 1956: 25 Ep. 35 vi 35). With regard to the walls Esarhaddon's *ašlu* is certainly one that accords with the Neo-Babylonian cubit-standard of 50 cm (George 1992: 135-6). It is most unlikely that his inscription would employ two different cubit-standards in adjacent sentences without explicitly differentiating between them, and Koldewey's hypothesis must be rejected on this count too. Both objections have already been pointed out in a more prompt review of Schmid's book (Miglus 1996: 299).

A further objection to Schmid's identification (b) seems to have escaped attention, probably because it is hidden in translation and arises only with a reading of the Babylonian texts. Schmid attributes to Esarhaddon and Ashurbanipal a tower of mud brick. As already mentioned, the work of both kings on E-temen-anki is known from inscriptions stamped on baked bricks. In these inscriptions both kings report explicitly

that the work was carried out with *a-gur-ri* 'baked brick' not with *libittu* 'mud brick'. Schmid relies on Weissbach (1938: 39-40), who misleadingly rendered *agurru* as 'Ziegel' instead of 'Backstein'. Correction of this error corroborates the conclusion drawn from the metrology, that if the mud-brick structure of 73 m square hidden beneath the mantle of baked brick was a finished structure, it must represent some building older than Esarhaddon's reign. The history of the tower with a base of 91 m square is thus more complex than Schmid supposes.

At this point it is worth considering the state of the structure as it stood before Nabopolassar started work. His inscription reports only that *ullānū'a unnušat šuqūpat* 'before my day it was very weak and badly buckled' (Nbp 1 i 32-3; the text is given more fully below). Schmid supposes that the ziqqurrat begun by Esarhaddon had been completed by Ashurbanipal: 'Etemenanki ..., dessen Wiederaufbau wohl Assurbanipal vollendete' (Schmid 1995: 84). This is a commonly held belief, propagated especially by Dombart (1930: 21) and Unger (1931: 191, 1932: 365). Unger goes so far as to give the date of completion as 668 BC, Ashurbanipal's first full regnal year. This is the date only of the completion of E-sangil, however. Heinrich (1982: 307) reports completion in 652, the year Ashurbanipal lost control of Babylon to his brother, Šamaš-šuma-ukīn. None of this is supported by any cuneiform evidence. Nor is Unger's further claim that the tower was again demolished when Babylon fell to the Assyrians in 648 BC, after the suppression of Šamaš-šuma-ukīn's revolt. In both matters Unger was followed unquestioningly by Parrot (1949: 70), but more modern commentators have not usually concurred. One authority, Evelyn Klengel-Brandt (1982: 89), notes only that it is difficult to prove that Ashurbanipal really finished the tower. Others, such as the late Wolfram von Soden (1996: 82) and Peter Miglus (1999: 282), do not dwell on the point but clearly read the evidence to mean that he did not. An historical enquiry is in order.

According to the extant building inscriptions the main effort of the Assyrians was directed towards (a) repairing the city's defences and (b) rebuilding and equipping the great temples of Babylon — first and foremost Marduk's huge cult-centre, E-sangil, in preparation for the return of the god's statue in 669-668 BC, but also the adjacent sanctuaries of Ea and Ishtar as Lady of Babylon, and temples of the Mother Goddess and Gula elsewhere in the city. The letters of Urad-aḫḫēšu and others who reported to Esarhaddon on construction work in Babylon give the impression that in this regard E-sangil and other temples took precedence over E-temen-anki. The ziqqurrat is mentioned only once, in a letter where the writer asks the king to release Didî from his duties overseeing the construction of E-sangil so that he can help with work on the ziqqurrat's foundations (Cole and Machinist 1998 no. 161 obv. 12'-rev. 11, Streck 2002: 225). The implication is that work on other structures was already well advanced when the king and his architects turned their minds to beginning work on the tower. It seems that the colossal structure of E-temen-anki was not the highest priority; there may not have been much time to do more than start on its restoration before Esarhaddon died, twelve years after his accession.

Ashurbanipal's work on E-sangil was commemorated not only on bricks and foundation inscriptions from Babylon. Numerous inscriptions of his from elsewhere

mention with obvious pride how he completed Marduk's temple. If he had really completed the huge task of finishing E-temen-anki too we might expect to read about it somewhere, for the conclusion of work on Marduk's ziqqurrat would have been a similarly major achievement. As it is, all we have to assert Ashurbanipal's claim to have worked on the ziqqurrat are the few baked bricks cited above. These bear his name and standard phrases, speaking only of construction work using baked bricks (*agurrī ušalbin*) and general rebuilding (*eššiš ušēpiš*). Indeed, a sceptic would understand these bricks as evidence only of an intention to continue Esarhaddon's work on E-temen-anki: we have no proof that they were put to that use and not another, for bricks were sometimes diverted from one building site to another, according to need.

The suspicion is that Ashurbanipal's near silence as regards work on the ziqqurrat means his reign saw comparatively little progress on the construction of E-temen-anki. Thus, when his army took Babylon in 648 BC, the tower was unfinished and did not present a prominent target for would-be desecrators; in any case it seems that while the victors looted Šamaš-šuma-ukīn's palace with great thoroughness, on this occasion so far from damaging the city's religious buildings the Assyrians set about restoring their purity and income (V R 4 41-96, ed. Borger 1996: 43-5, etc; Frame 1992: 156). The proper functioning of many temples had been interrupted by the terrible famine that decimated the city's population during two long years of siege, and the buildings themselves stood polluted by the deadly plague that fed on the corpses of the unburied dead. Mindful that early in his reign he himself had invested much in the restoration of Babylon's cult-centres, as Sennacherib had not, Ashurbanipal drew back from repeating the savage desecration inflicted on the city by his grandfather.

It was left to later kings to complete the work that Esarhaddon had begun and his son had left unfinished. By the time of Nabopolassar's accession in 626 BC a residual stump of mud brick was partly clad in a mantle of baked brick. Neither part would have been in the best condition. Water penetrating the exposed core would have caused the exterior mantle of baked bricks to bulge here and there, just as Nabopolassar's inscription observes, necessitating repair, perhaps below ground-level as well as above. The effects of weather erosion on an unfinished ziqqurrat are more fully described in the inscription on foundation cylinders deposited by Nebuchadnezzar in the ziqqurrat of Borsippa, where rainstorms are identified as the cause of major damage to mud brick and baked brick alike (I R 51 no. 1 i 27-ii 4, ed. Langdon 1912: 20-1 Nbk 11). It is just such an eroded state that that Nabopolassar's phrases describe.

In his understanding of the building's history, Schmid supposes that Nabopolassar wrapped what remained of the old core and mantle of mud brick with a baked-brick mantle that enlarged the ziqqurat's base dimensions by some 18 m. The baked-brick mantle was therefore completely new, from the foundations up, though on its inside edge it rested on the 'Tonbettung', a deep subterranean ledge left when the old mud-brick mantle was cut back by the trench dug for the new mantle. Seeking corroboration Schmid cites Nabopolassar's claim to have anchored his building *ina irat kigalle* 'on the breast of the *kigallu*' and the reiteration of this statement by Nebuchadnezzar. Like others before him, he asserts that this and similar phrases mean Nabopolassar must have rebuilt

the ziqqurrat from its very base, starting with the foundations (Schmid 1981: 121, 1995: 85). However, Esarhaddon's mantle was already 91 m and was already baked brick. Accordingly it is necessary to re-open the question of whether the phraseology of Nabopolassar's E-temen-anki inscription necessarily demands to be understood in this way.

Having reported the decayed state of the ziqqurrat at Babylon, Nabopolassar's text goes on to relate how Marduk commissioned him *išissa ina irat kigalle ana šuršudi rēšīša šamāmī ana šitnuni* 'to ground its bottom on the breast of the "Great Place" (i.e. the netherworld), to make its top vie with the heavens' (Nbp 1 i 34-7). This is a common cliché: many great buildings are said to bridge the gap between the lowermost and uppermost levels of the cosmos (George 1992: 318-19, Edzard 1987). The text's use of these phrases does not signify that Nabopolassar himself brought this about, only that its author was well versed in the traditional imagery of temple building.

Next the inscription tells in great detail how in the king's great wisdom the building work was preceded by consultation with learned scholars and by careful survey (ii 12-32). The object of both exercises was to establish the proper, divinely determined dimensions of the tower and the actual measurements of the structure on the ground; the information so gained was checked for truth with the gods by extispicy (ii 33-41). Only then was the entire site ritually purified by exorcism to re-establish its sacred status (ii 42-6). We are left in little doubt that Nabopolassar sought to establish that what had gone before was correct and pure, and suitable for a using as a base for his own work.

It is then that Nabopolassar's inscription turns to the matter of the ziqqurrat's foundations (ii 47-61). It does not report the clearing away of brickwork (*dekû*) or the reaching of groundwater (*šupul mê*), as some Neo-Babylonian building inscriptions do. What the text says is that he 'made firm its *temmēnu* on the *kigallu rēštû* and laid out' various precious materials 'in its foundations', pouring libations of oil and resin 'under the brickwork'; a canephorous figurine or stele representing the king as builder was then placed in the *temmēnu* (ii 47-61). The most difficult word is *temmēnu*, because it can signify a range of things. Its Sumerian antecedent, *temen*, has been attributed meanings including 'area marked out with pegs and cord', 'foundation peg', 'foundation deposit' and 'foundation'.[8] This last meaning is more exactly 'foundation platform', for it developed from signifying a rectangular or square plot marked out for excavation, to denoting a platform of mud brick or other material built thereon as the base of a monumental building.[9] The corners and other key points of such a platform were marked by foundation deposits incorporated within the structure. These deposits once

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[8] See in detail Dunham 1986, who documents the use of Sum. *temen* in Ur III field plans, and sets out the connection between surveyors' pegs and foundations.

[9] Dunham's explanation of this development is that 'from the Uruk period onward there was a custom to make foundations which contained rooms and spaces repeating the ground plan of the temple above. Now, if this subterranean ground plan was the *temen*, which the *temen*-pegs fastened down or marked out, as it were, it was also the foundation terrace or platform of the temple' (Dunham 1986: 61); but she does not quite alight on 'foundation platform' as a translation of *temen*. For that we defer to Falkenstein 1966: 236-9; for the composition of such a platform and the verbs that describe its construction, repair and decay, see the evidence presented in the discussion of Akk. *temmēnu* by Baumgartner 1925: 247-53.

comprised, among other objects, metal pegs symbolic of an original connection with plot-survey, land-ownership or both. By the first millennium inscribed clay cylinders, prisms and barrels were the norm, built into the superstructure as well as the foundations; these too were *temmēnu* (Ellis 1968: 149-50).

The platform, the area that it occupied, the deposits and inscribed objects that defined that area and established its ownership: all these could be signified by the word *temmēnu*. The presence of a *temmēnu* does not by definition exclude the existence of a deeper structure (e.g. *tamlû* 'layer of fill'). And according to Nabopolassar a deeper structure there was indeed: the *kigallu rēštû*. This phrase can denote the primordial netherworld, as *kigallu* certainly does in i 34, but it can also signify the ancient infrastructure of the ziqqurrat, for the same word is used by the E-sangil Tablet to denote the bottom of the tower's first storey. If the reference is to the netherworld, it is again a cliché; if it is to part of the ziqqurrat, it means that Nabopolassar built on a pre-existing structure.

The phrases 'in the ziqqurrat's foundations' (ii 51 *ina uššīša*) and 'under the brickwork' (ii 55 *šaplān libnāti*) describe more exactly the location within the tower's structure of Nabopolassar's foundation deposits and the ritual libations that accompanied them. The deposition of inscribed objects and precious substances, such as gold, silver and perfumed oil, was a traditional and probably obligatory practice in building religious structures. The two adverbial phrases just cited indicate that, on starting the task of building the tower, Nabopolassar placed the valuable materials in question in the depths of the old brickwork and made libations that seeped into the lowest courses of bricks. This need have entailed only a very limited penetration to ground-level or below.

Two such places of penetration were evidently located low in the baked-brick mantle, for both of Nabopolassar's extant foundation cylinders came to light in the 1880s as a result of the demolition of the subterranean mantle by people mining for bricks. There were certainly others. Weissbach reports the recollection of local inhabitants in 1901, that four cylinders had been found in the 1880s, one in the middle of each side (Weissbach 1938: 41). The insertion of foundation cylinders into old brickwork accords with the custom of royal builders and renovators. The practice can unquestionably be documented for Babylon's ziqqurrat in the time of Nabopolassar's successor. We know that Nebuchadnezzar II's cylinders were also introduced into existing brickwork, for at least two of them came to light in the lower courses of the baked-brick mantle, one found by local people, and so probably dug out in the 1880s, the other overlooked at that time and eventually excavated by the German expedition at the structure's north-east corner, in the trench where the mantle had been (Wetzel and Weissbach 1938: 33, 44-5, Exemplars A and C; Bergamini 1977: 141). There has never been any question of any construction of the lower parts of the mantle in Nebuchadnezzar's reign. His cylinders can only have been inserted at this depth by cutting into the brickwork laid by a predecessor, just as I have proposed was done for Nabopolassar's cylinders and other foundation deposits.

Having discussed in detail the implications of Nabopolassar's phraseology, it may be useful to give here in full and in modernized transliteration the relevant portion of his inscription, together with a new translation (line numbers from Exemplar A = BE I 84):

^{i 30} *ì-nu-mi-šu* é.temen.an.ki ³¹ *zi-iq-qú-ra-at* (B *-ret*) ká.dingir.ra^{ki 32} *ša ul-la-nu-ú-a* ³³ *un-nu-ša-tu šu-qú-pa-at* ³⁴ *išid*(suḫuš)*-sà i-na i-ra-at kigalle*(ki.gal)^{e 35} *a-na šu-úr-šu-dam* ³⁶ *re-e-ší-ša ša-ma-mi* ³⁷ *a-na ši-it-nu-ni* (B *ší-it-nu-nì*) ^{38 d}*marduk*(amar.utu) *be-lam ia-a-ši iq-bí-a* ^{39 giš}*allī*(al)^{meš giš}*marrī*(mar)^{meš} *ù* ^{giš}*nalbanāti*(ù.šub)^{meš 40} *i-na šinni*(zú) *pīri*(am.si) (A am.su) ^{giš}*ušî*(esi) *ù* ^{41 giš}*musukkanni*(mes.má.gan.na) ⁴² *lu ab-ni-ma* ⁴³ *um-ma-nim sa-ad-li-a-tim* ⁴⁴ *di-ku-ut māti*(ma.da)*-ia* ⁴⁵ *lu ú-ša-aš-ši-im* ^{ii 1} *al-mi-in lu ú-sa-al-bi-in* ² *li-bi-in-tim* ³ *ú-ša-ap-ti-iq* (B *ú-sa-a[p-ti-i]q*) ⁴ *agurra*(sig₄.al.ùr.ra) ⁵ *ki-ma ti-ik sa-me-e* (B *sa-we-e*) ⁶ *la ma-nu-tim* ⁷ *ki-ma mi-li-im* ⁸ *ka-aš-ši-im* ⁹ *kupra*(esir.UD.DU.a) *ù iṭṭâ*(esir) ^{10 íd}*a-ra-aḫ-tim* ¹¹ *lu ú-sa-az-bi-il*

¹² *i-na me-re-šu ša* ^d*é-a* ¹³ *i-na* (B *a-na*) *igigallu*(igi.gál)*-ú-tu ša* ^d*marduk*(amar.utu) ¹⁴ *i-na ne-me-qu ša* ^d*na-bi-um* ¹⁵ *ù* ^d*nissaba* ¹⁶ *i-na li-ib-bi-im* ¹⁷ *šu-un-du-lu* (B om.) ¹⁸ *ša ilu*(dingir) *ba-ni-ia* ¹⁹ *ú-ša-ar-sa-an-ni* ²⁰ *i-na pa-ak-ki-ia ra-bí-im* (B *-ù*) ²¹ *ú-ša-ta-ad-di-im-ma* (i.e. *uštaddinma*) ²² *mārī*(dumu)^{meš} *ummâni*(um.me.a) ²³ *e-em-qú-tim* ²⁴ *ú-wa-'-er₄-ma* ²⁵ *a-ba-aš-lam i-na ginindanakki*(gi.nínda.na)^{kum 26} *ú-ma-an-di-da* ²⁷ *mi-in-di-a-tam* ^{28 lú}*šitimgallē*(šitim.gal)^{e 29} *iš-ta-ad-dú-um* ³⁰ *eb-le-e* ³¹ *ú-ki-in-nu-um* (B *[ú-ki]-in-nu*) ³² *ki-su-úr-ri-im* ³³ *wa-ar-ka-at* ^d*šamaš*(utu) ^{34 d}*adad*(iškur) *ù* ^d*marduk*(amar.utu) ³⁵ *ap-ru-us-ma* ³⁶ *e-ma li-ib-ba-am* ³⁷ *ú-uš-ta-ad-di-nu* ³⁸ *ú-ka-ṣi-pu mi-in-di-a-tim* ³⁹ *ilū*(dingir) (B dingir.dingir) *rabûtu*(gal.gal) *i-na pa-ra-si* ⁴⁰ *wa-ar-ka-tim* ⁴¹ *ú-ad-du-nim* ⁴² *i-na ši-pí-ir* ⁴³ *kakungallu*(ka.kù.gál)*-ú-te* (B *-tu*) ⁴⁴ *ne-me-qá* ^d*é-a ù* ^d*marduk*(amar.utu) ⁴⁵ *à-aš-ri-im ša-a-te* (B *-tim*) ⁴⁶ *ú-ul-li-il-ma* ⁴⁷ *i-na kigallē*(ki.gal)^e *re-eš-ti-im* ⁴⁸ *ú-ki-in te-me-en-ša* (B *te-en-šu*) ⁴⁹ *ḫurāṣa*(kù.sig₁₇) *kaspa*(kù.babbar) *abnāti*(na₄.na₄) *sa-dú-i* ⁵⁰ *ù ti-à-am-te* ⁵¹ *i-na uš-ši-ša* (B *-šu*) ⁵² *lu ú-wa-aṣ-ṣi-im* (B *ú-ma-aṣ-ṣi-im*) ⁵³ *ṣa-ap-šum na-we-ru-tim* ⁵⁴ *šamna*(ì) *ṭāba*(dùg.ga) *riqqī*(šim)^{ḫá} *ù da'mata*(im.sig₇.sig₇) ⁵⁵ *ša-ap-la-nim libnāti*(sig₄.sig₄) ⁵⁶ *lu aš-tap-pá-ak* ⁵⁷ *ṣalam*(alam) *šar-ru₄-ti-ia* (B *-ru-ti-ia*) ⁵⁸ *ba-bi-il tu-up-ši-kam* ⁵⁹ *lu ab-ni-ma* ⁶⁰ *i-na te-me-en-na* ⁶¹ *lu aš-ta-ak-ka-an*

⁶² *a-na* ^d*marduk*(amar.utu) *be-lí-ia* ⁶³ *ki-ša-dam lu ú-ka-an-ni-iš* ⁶⁴ *lu-ba-ra-am te-di-iq* ⁶⁵ *šar-ru₄-ti-ia* ^{iii 1} *lu-ú* (B *lu*) *ak-nu-un-ma* ² *libnāti*(sig₄.sig₄) *ù ṭi-iṭ-ṭam* ³ *i-na qá-qá-di-ia* ⁴ *lu-ú* (B *lu*) *az-bi-il* ⁵ *tu-up-ši-ka-a-te* (B *-tim*) *ḫurāsi*(kù.sig₁₇) *ù kaspi*(kù.babbar) (B om.) ⁶ *lu ú-si₄/su₄-pí-iš-ma* ^{10 7 d}*na-bi-um-ku-du-úr-ra-*⁸*ú-ṣu-úr* (B *-ri-ú-ṣu-úr*) ⁹ *bu-uk-ra-am* (B *-ra*) ¹⁰ *re-eš-tu-ù* ¹¹ *na-ra-am li-ib-bi-ia* ¹² *ṭi-iṭ-ṭam bi-il-la-at* ¹³ *karāni*(geštin) *šamni*(ì.giš) *ù ḫi-bi-iš-tim* ¹⁴ *it-ti um-ma-na-ti-ia* ¹⁵ *lu ú-ša-az-bil* (B *-bi-il*) ^{16 d}*na-bi-um-šu-ma-am-li-ši-ir* (B *-šu-li-ši-ir*) ¹⁷ *ta-li-im-šu* ¹⁸ *še-er-ra-am ṣí-it libbi*(šà)*-ia* (B *-bi-ia*) ¹⁹ *dú-up-pu-su-um* ²⁰ *da-du-ú-a* ^{21 giš}*alla*(al) ^{giš}*marra*(mar) *lu ú-ša-aš-bi-it* ²² *tu-up-ši-kam* ²³ *ḫurāṣi*(kù.sig₁₇) *ù kaspi*(kù.babbar) ²⁴ *lu e-mi-id-ma* ²⁵ *a-na* ^d*marduk*(amar.utu) *be-lí-ia* ²⁶ *a-na ši-ri-ik-tim* ²⁷ *lu aš-ru-uk-šum*

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¹⁰ In justification of this decipherment see the appendix below.

^{28} *bīta*(é) *meḫret*(gaba.ri) é.šár.ra ^{29} *i-na ul-ṣi-im* ^{30} *ù ri-ší-a-te* (B *-tim*) ^{31} *lu e-pú-uš-ma* (B *-pu-uš-ma*) *ki-ma sa-dú-im* ^{32} *re-e-ší-šu* ^{33} *lu ú-ul-li-im* (B *-lu-im*) ^{34} *a-na* ^{d}*marduk*(amar.utu) *be-lí-ia* ^{35} *ki-i* (B *ki-ma*) *ša u$_4$-um ú-ul-lu-tim* ^{36} *a-na ta-ab-ri-a-tim* (B *-ra-a-tim*) ^{37} *lu ú-ša-as-ší-im-šu*

Nbp 1 i 30-iii 37

At that time my lord Marduk told me in regard to E-temen-anki, the ziqqurrat of Babylon, which before my day was (already) very weak and badly buckled, to ground its bottom on the breast of the netherworld, to make its top vie with the heavens. I fashioned mattocks, spades and brick-moulds from ivory, ebony and *musukkannu*-wood, and set them in the hands of a vast workforce levied from my land. I had them shape mud bricks without number and mould baked bricks like countless raindrops. I had the River Araḫtu bear asphalt and bitumen like a mighty flood.

Through the sagacity of Ea, through the intelligence of Marduk, through the wisdom of Nabû and Nissaba, by means of the vast mind that the god who created me let me possess, I deliberated with my great intellect, I commissioned the wisest experts and the surveyor established the dimensions with the twelve-cubit rule. The master-builders drew taut the measuring cords, they determined the limits. I sought confirmation by consulting Šamaš, Adad and Marduk and, whenever my mind deliberated (and) I pondered (unsure of) the dimensions, the great gods made (the truth) known to me by the procedure of (oracular) confirmation. Through the craft of exorcism, the wisdom of Ea and Marduk, I purified that place and made firm its foundation platform on its ancient base. In its foundations I laid out gold, silver, gemstones from mountain and sea. Under the brickwork I set heaps of shining *ṣapšu*, sweet-scented oil, aromatics and red earth. I fashioned representations of my royal likeness bearing a soil-basket, and positioned (them) variously[11] in the foundation platform.

I bowed my neck to my lord Marduk. I rolled up my garment, my kingly robe, and carried on my head bricks and earth (i.e. mud bricks). I had soil-baskets made of gold and silver and made Nebuchadnezzar, my firstborn son, beloved of my heart, carry alongside my workmen earth mixed with wine, oil and resin-chips. I made Nabû-šumī-līšir, his brother, a boy, issue of my body, my darling younger son, take up mattock and spade. I burdened him with a soil-basket of gold and silver and bestowed him on my lord Marduk as a gift.

I constructed the building, the replica of E-šarra, in joy and jubilation and raised its top as high as a mountain. For my lord Marduk I made it an object fitting for wonder, just as it was in former times.

To summarize the preceding discussion, nothing in Nabopolassar's inscription suggests anything other than the consolidation of the pre-existing structure of the ziqqurrat with a platform of brick (*temmēnu*), accompanied by proper ritual, in

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[11] The verb *aštakkan* is I/3 of serial action (*GAG*^{3} Ā91f), so there must have been more than one canephorous *ṣalmu*.

preparation for building on top. This probably entailed the removal of the eroded surfaces of the core and mud-brick mantle and what of the baked-brick mantle was damaged by water penetration, but we are not led to suppose that Nabopolassar built the entire mantle from ground level. Nebuchadnezzar's reports of his father's work on the ziqqurrat are more concise. In the fullest account the clause *ina irat kigalli ukinnu temmēnša* (Nbk 17 C ii 1-2) 'on the breast of the "Great Place" he fixed its *temmēnu*' echoes Nabopolassar's cylinder but stands this time bereft of any mention of a ritual of deposit. Again, the adverbial phrase is a cliché, but in the absence of other detail it is open to reinterpretation as signifying a foundation *ex novo*. That may have been the intention. Kings' inscriptions were routinely couched in terms that sought to give the most grandiose and favourable impression of royal good works. Where this is suspected we do not have to take their language at face value.

In short, the cuneiform evidence is best interpreted to mean that (a) the start of Nabopolassar's reign found the ziqqurrat far from finished, and (b) he did not dismantle it but repaired the existing baked-brick mantle and mud-brick core as necessary and used them as a platform for his own brickwork.

Before going on we must note the evidence of stratigraphy. In discussing previous studies on the ziqqurrat of Babylon Schmid (1981: 123, 1995: 46) cites Giovanni Bergamini's view that what the excavators found was much older than they thought, perhaps even the work of Hammurapi. On examining the city's stratigraphy as reported by Koldewey, his assistants and later excavators, Bergamini made much of a well-known fact, that the excavated remains of the ziqqurrat were substantially below seventh-century ground levels (Bergamini 1977: 139-50). The whole area around the tower had been raised frequently, presumably to promote good drainage, so that by the time of Nebuchadnezzar II the platform that supported the ziqqurrat's superstructure was more than seven metres lower than the thresholds of the gates of the enclosure wall. By the sixth century nothing of the structure that was excavated could have been above ground level. Bergamini followed Koldewey, Wetzel and others in supposing that the base of the stairways marked the ground-level of the ziqqurrat with the baked-brick mantle. He did not accept that the tower could sensibly have sat in a depression that could not be drained, so for him the stratigraphy meant essentially that the excavated structure was much older than the seventh century, maybe by a thousand years.

A factor that certainly bears on the ziqqurrat's archaeology and may affect the stratigraphical problem is subsidence. The tower was a solid structure of mud brick and baked brick. Schmid (1995: 92) estimates that the entire building comprised at least thirty-two million bricks, and others reckon on more: Vicari (Vicari and Bruschweiler 1985: 56) proposes 36 million, and is followed by Bielinski (1985: 61) and Sauvage (1998: 83). Oddly, Schmid's lower estimate is based on reconstructing a tower of 90 m height, according to the conventional understanding of the E-sangil Tablet, while Vicari's higher figure presupposes a tower of only $11^{1}/_{2}$ *nindan*, about 69 m. Multiplication of the figures calculated by Allinger-Csollich (1998: 306-7) for the lengths and heights of the stages in terms of numbers of bricks produces a total in excess of 45 million. However that may be, the number of bricks was certainly colossal, and the

finished building would have weighed several hundred thousand tons.[12] A structure of that weight sitting on waterlogged alluvium must have settled slightly over time, with the result that its original horizon of contact with the surface of the surrounding courtyard, however far up the mantle it was, would soon have no longer coincided with that level. Subsidence, then, can be assumed to have exaggerated the structure's apparent age, by causing it to settle into older levels.

Schmid's response to the stratigraphical problem posed by Bergamini did not take this direction, however. Instead he argued that Nabopolassar sunk the baked-brick mantle deep below contemporaneous ground-level, so that part of the first storey of the tower was subterranean, like the mud-brick core that it enclosed (Schmid 1981: 108-11, 1995: 55-6). The general point is fully credible, that a proportion of the mantle was always subterranean, but, as we have seen, it is not necessary to imagine Nabopolassar's builders working at this depth. His inscription indicates that he built his ziqqurrat on *kigalli rēštî* 'an ancient base'. What Wetzel and Schmid found were not sixth-century remains but this older infrastructure. J. Schmidt (1973: 166) argued that the baked-brick mantle was Esarhaddon's work, a position strengthened by the letter of Urad-aḫḫēšu mentioned above, in which he advises the Assyrian king that time is ripe to begin work on the ziqqurrat's foundations (*uššu*) (Cole and Machinist 1998 no. 161). But the deepest courses of the mantle may have been older still, for as we shall see, it is unlikely that Esarhaddon was the first to build a tower of base 91 m square. He, too, may have laid his brickwork on what remained of an older baked-brick mantle. However, Bergamini's suggestion that all the excavated remains could be Old Babylonian, including the baked-brick mantle, is ruled out as anachronistic, for on metrological grounds a tower of base one *ikû* in the large cubit-standard belongs to the Kassite or early Neo-Babylonian period and not before (see further below).

As Nebuchadnezzar's inscription makes clear, Nabopolassar did not complete the building project, for he raised the tower's baked-brick mantle by a height of only thirty cubits, about 15 m (Nbk 17 c 20, Weissbach 1906: 15, George 1988: 145, 28'). The passages are worded to suggest that Nabopolassar's work began at ground level but, as we have seen, this was not actually the case. Nebuchadnezzar did not wish to give credit to any builder but his father and himself, so his inscriptions glossed over the reality. It was left to him to complete the higher stages. He mobilized an enormous workforce from all over his empire and raised the structure by adding *tamlâ zaqri* "a lofty infill" of another thirty cubits (Nbk 17 d 39-40). Then he built as of old the temple that sat on the summit (*kiṣṣu elû*), clad it in blue-glazed brick and equipped it.

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[12] The average weight of excavated bricks from the tower is not known to me but the baked bricks of comparable size used to build Nebuchadnezzar II's Median wall (Habl as Sahr) weighed about 13 kg (Sauvage 1998: 308 sub 2161). Old Babylonian mathematical texts show that the ideal weight of a square two-third cubit brick of the size used to build the ziqqurrat varied according to whether the brick was fresh, dried or baked: $33^1/_3$, $26^2/_3$ and $22^2/_9$ minas respectively (see Robson 1999: 72, Table 4.9 Type 8). These figures are the approximate equivalents of 17, 13.5 and 11.5 kgs. The ziqqurrat certainly contained more dried bricks than baked, but even allowing an average weight of 12 kgs per brick, 32 million bricks give an aggregate of 384,000 tons.

The two figures of thirty cubits in Nebuchadnezzar's inscription have long been a problem, for the written tradition passed down by the E-sangil Tablet is that the ziqqurrat was ten old *nindan* high, i.e. 180 Neo-Babylonian cubits (90 m), of which the temple on top accounted for only $2^1/_2$ new *nindan*, i.e. thirty Neo-Babylonian cubits (George 1992: 117). If Nabopolassar raised the ziqqurrat's structure to a height of thirty cubits, and Nebuchadnezzar added another thirty cubits before building the shrine of thirty cubits on top, making ninety cubits in all, where were the missing ninety cubits needed to match the total given in the E-sangil Tablet? Schmid's solution is to point out that the two sets of dimensions cited by Nebuchadnezzar were not contiguous: Nabopolassar's thirty cubits were the height by which he raised the baked-brick mantle above the ground, and his own thirty cubits were the height by which he raised the mud-brick core (Schmid 1981: 127-8, 1995: 81-3).

Schmid's interpretation is surely right but two uncertainties still bear on the problem. First, Nabopolassar's building work did not start from ground level but rested on an older stump of unknown height, so that his thirty cubits (15 m) of baked brick raised the structure to a height of something more than that. If, say, the stump was already ninety cubits (45 m) high and the two kings built on it to a height of a further ninety cubits, the figures would add up to the total given in the E-sangil Tablet. Second, and more to the point, we cannot be sure that Nebuchadnezzar actually built a ziqqurrat that truly realized the dimensional scheme given in the E-sangil Tablet. It is generally supposed that the tower's height matched the dimensions of its base on the horizontal plane, because that is what the E-sangil Tablet states as the ideal configuration. Something similar is reported by Strabo, who writes of a square pyramid with base and height measuring one *stadion* each, but by his time the structure was only a memory that may have been contaminated by a similarly neat idealism. Maybe the finished structure fell some way short of 90 m. If so, all the modern efforts at drawing reconstructions and making scale-models of the Tower of Babel, predicated as they are on some historical realization of the E-sangil Tablet, seek to replicate a building that never quite was.

With the completion of E-temen-anki by Nebuchadnezzar II we arrive at a history of the ziqqurrat of Babylon in the Sargonid and Neo-Babylonian periods that is much less busy than Schmid's. Following Sennacherib's sack of Babylon the tower took nearly a century to rebuild, from *ca* 680 to *ca* 590, and in doing so was a drain on the resources of four of the most powerful rulers in antiquity.[13] If it is supposed that this is an inordinate

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[13] An apocryphal tradition that the Tower of Babel took 43 years to build is recorded in the Book of Jubilees X 21: 'Forty-three years they were building it. Its width was two hundred and three bricks. And the height of a brick was one third its length. Five thousand, four hundred and thirty-three cubits and two palms its height rose up. And thirteen stades (was its wall)' (transl. Wintermute 1985: 77; cf. Unger 1931: 200 fn. 1, Uehlinger 1990: 105). The period of 43 years exactly matches the length of Nebuchadnezzar's reign, and may be an echo of it, but it has no historical value. The other figures in this passage of Jubilees bear no relation to the dimensions of E-temen-anki (contra Schmid 1981: 132, n.d.: 46) and also have no value as useful evidence (so already Uehlinger 1990: 105 fn. 290).

time to spend on the construction of a single building, one may reflect that many mediaeval European cathedrals took comparable periods of time to finish.[14]

Since the structure begun by Esarhaddon and Ashurbanipal but finished by Nabopolassar and Nebuchadnezzar was already 91 m square at the base, it follows that the 73 m tower hidden within — if indeed it represents a finished stage in the building's evolution — is an older structure. Perhaps it represents the building that Sennacherib damaged during his sack of Babylon, but perhaps not. If one recalls how careful Esarhaddon was to rebuild the neighbouring E-sangil exactly to its former measurements (George 1992: 122-3), one might have expected him also to have set about building E-temen-anki with similarly faithful adherence to the dimensions of the previous structure. Indeed, the phrases he uses in connection with the rebuilding of the tower are *kīma maḫrîmma* 'as before' and *ašar maškanīšu maḫrî* (written *a-šar maš-kán-šú maḫ-ri*, Borger 1956: 24, 32) 'in its previous location', which can both be interpreted to signify exactly that. Moreover, the tower of 91 m, with its symbolic base area of one *ikû*, the image of the constellation Pegasus, the celestial Babylon, displays in its dimensions a metrology that belongs to the Kassite and early Neo-Babylonian period. This, too, points to a date earlier than the seventh century (so too Uehlinger 1990: 220 fn. 88). Schmid's careful identification of two smaller structures enclosed within the last ziqqurrat points to a succession of towers of much greater combined history than sometimes envisaged.

The ziqqurrat of Babylon before Sennacherib

The history of E-temen-anki in the second millennium is a history of almost total silence. The lack of documentary evidence for the ziqqurrat of Babylon in this era is often noted. One reason for this lack is surely a circumstance that applies also to other ziqqurrats, that the foundation inscriptions of early builders remain inaccessible. As already noted, Nabopolassar's two foundation cylinders came on to the antiquities' market in the 1880s, being found by local people digging out the remains of the baked-brick mantle for reuse in building. Those of Nebuchadnezzar's several E-temen-anki cylinders that were excavated in Babylon were found in secondary or disturbed contexts; one came from the trench left when local people removed the baked-brick mantle at the the north-east corner of the tower's base, another from the rubble removed in antiquity to Homera, and two fragments from rubbish dumped on Qasr, the palace mound (Weissbach 1938: 44-5, 86, Berger 1973: 295-7). The fragment discovered in more recent Iraqi excavations evidently also came from a secondary context (Al-Rawi n.d.: 23 no. 105A). The inscriptions buried as foundation deposits by earlier builders surely lie hidden deeper in the older structures, amid almost a hectare of mud brick.

While such inscriptions remain undiscovered the entries in the temple lists and liturgical texts are the only extant references from this era that name E-temen-anki. These texts survive only in first-millennium copies and cannot be dated securely. The temple

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[14] Bielinski (1985) rejects exactly this comparison and, drawing on Assyrian accounts of the construction of Dūr-Šarrukēn by Sargon II, comes to a reasoned conclusion that the tower of Babylon was built by 2,000 workmen in the space of 15 months, or by 1,650 workmen in 34 months. Nowhere does he attempt to ground his argument in a factual history of Babylon.

list of Babylon (*Tintir* IV) originates perhaps in the time of Nebuchadnezzar I (1125-1104) or shortly afterwards (George 1992: 6-7); another list may even derive from the Kassite period (George 1993: 45-9 no. 4). The reference to a ziqqurrat at Babylon in the Creation Epic (*Enūma eliš* VI 63: George 1992: 301-2) is more solid evidence, however, for a Middle Assyrian piece of this poem survives to prove the long-held theory that it existed already in the second millennium BC.[15] There is no reason to doubt that this ziqqurrat, described as *ziqqurrat apsî elīte* 'the upper ziqqurrat of the Apsû', was E-temen-anki.[16]

In the absence of any hard evidence Schmid proposes very reasonably that a ziqqurrat was first built by a king of Hammurapi's dynasty (1894-1595), because it is unimaginable that Hammurapi himself could have built a temple tower at nearby Kiš leaving Babylon without one. However, having determined to his own satisfaction that the oldest archaeologically identifiable structure, the mud-brick core of 65 m square, represented the tower torn down by Sennacherib, Schmid does not probe further into the early history of the ziqqurrat. But, as we have seen, the tower was probably already 91 m square when Sennacherib intervened. Who, then, might originally have been responsible for this ziqqurrat of base one *ikû* in the large cubit-standard? And who, before that, might have built the mud-brick towers of bases 73 m and 65 m square?

Von Soden developed a hypothesis that Nebuchadnezzar I (1125-1104) was the only Babylonian king between the end of the Old Babylonian period and the seventh century who could have planned and begun the construction (or reconstruction) of a ziqqurrat on the scale of E-temen-anki (von Soden 1971: 258-9). The dearth of inscriptions from the reigns of Nebuchadnezzar's predecessors and successors confirmed him in this view (von Soden 1996: 80-8). Certainly this king's patronage of Marduk's cult and sanctuary is well attested, but can it really be that in eight long centuries there was no other ruler of Babylonia who commanded resources enough to build a ziqqurrat at Babylon? The number of surviving inscriptions, king by king, is not a sure guide, for those that we have are mainly chance discoveries and hardly likely to yield a true picture of the whole history of royal construction work in Babylonia. In particular, almost no original building inscriptions have yet been recovered from pre-Sargonid Babylon, not because disproportionately few were written but because the structures in whose foundations they were deposited lie mostly inaccessible beneath the water table.

The scarcity of second-millennium foundation inscriptions from Babylon means that construction work carried out there by Hammurapi and his dynasty is documented only by year-names and by a solitary building inscription surviving in a later copy. Original copies of foundation inscriptions from this dynasty have been excavated in ample

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[15] KAR 317, whose date was identified palaeographically by S. M. Maul during his work on the Aššur tablets and kindly communicated privately: 'terminus *post quem non* ist sicherlich die Wende vom 2. zum 1. Jt. v. Ch.'

[16] Von Soden supposed that the ziqqurrat of *Enūma eliš* VI 63 could not have been E-temen-anki, 'wegen des anderen Namens' (von Soden 1983: 92), and so must have been a tower located elsewhere. However, the expression *ziqqurrat apsî elīte* is not truly a name, for ziqqurrats had Sumerian names. Instead it is an Akkadian epithet and as such can refer without difficulty to the building otherwise known by the ceremonial name E-temen-anki; on the exegesis of the epithet see George 1992: 301-2.

numbers at sites such as Sippar and Kiš, where Old Babylonian levels have been much more fully explored than has been possible at Babylon. If we had no year-names, would we then presume that Hammurapi, Samsuiluna and others neglected Babylon, their royal seat, while lavishing resources on other cities?

The post-Old Babylonian periods at Babylon are characterized until the late eighth century by a still more profound absence of documentation for royal building works, for the practice of reckoning the passage of time by year-names was discontinued shortly after the fall of Babylon to the Hittite king Mursili I, when it gave way to regnal years. Instead we have to draw on later tradition and on circumstantial evidence. Alongside Nebuchadnezzar I several other kings stand out as rulers who may well have had the time, power and inclination to build or rebuild a ziqqurrat for Marduk at Babylon. An early candidate is a fourteenth-century Kassite king, the indefatigable builder Kurigalzu I, whose good works are recorded at no less than eleven Babylonian cities (Clayden 1996, Sassmannshausen 2004: 68). Later tradition reported monumental building work at Babylon by another Kassite king, Adad-šuma-uṣur (1216-1187), though it is not clear whether it involved a temple or temples, or the city wall, or both (Grayson 1975: 72). Among the other kings of Nebuchadnezzar's dynasty, Marduk-šāpik-zēri (1081-1069) and Adad-apla-iddina (1068-1047) stand out as active builders in Babylon, for fragments of original inscriptions survive to show that both worked on the city wall (George 1992: 344, Frame 1995: 45-6 B.2.7.1, 51 B.2.8.1, 62-3 B.2.8.1001). Adad-apla-iddina was also a patron of Marduk's temple, having dedicated an agate bead to Marduk (Frame 1995: 52-3 B.2.8.3). No building inscriptions at all survive from the ninth-century kings, Nabû-apla-iddina and Marduk-zākir-šumi I, but we know that between them they brought sixty years of stability to Babylonia in the aftermath of the Sutian invasions and were able to turn their attention to matters of cult at Sippar and Babylon (Brinkman 1968: 182-205).

At all events, whether the originator of the 91 m tower reigned in the fourteenth, twelfth, eleventh or ninth century, its smaller precursors recede into the mid-second millennium, perhaps even into the Old Babylonian period, the time when Schmid surmises that a ziqqurrat was first built in Babylon. Our chief source for the history of religious buildings in the Old Babylonian period, the year-names, are mute on the subject of the construction of a temple tower in Babylon, but they necessarily pass on only an abbreviated record of selected events. Their silence is not grounds for discounting the existence of a ziqqurrat already in the early second millennium. When Sabium's eleventh year-name reports his construction of E-sangil, can we really be sure that this work did not also include the building (or rebuilding) of Marduk's ziqqurrat?

Von Soden thought it might, but only if the ziqqurrat was at that time situated much nearer the temple and not located as a separate structure 200 m north (von Soden 1971: 254-5). He did not recall that much later E-kar-zaginna, a riverside sanctuary of Ea that lay somewhere west and south of E-sangil proper, was defined in a stele of Ashurbanipal as ⸢bīt⸣ [d]⸢é⸣-[a] šá qé-reb é.sag.íl 'the temple of Ea in E-sangil' (Frame 1995: 201, 66). Other pertinent evidence is the use in the astronomical diaries and other late documents of the gate name 'Ka-dumu-nunna of E-sangil', with reference to a gate of E-tur-

kalamma, the temple of Ishtar as Lady of Babylon, a building separate from E-sangil but nevertheless firmly part of the central quarter of Babylon (George 1992: 397, Hauser 1999: 225-6). These descriptions speak for a dual use of the name E-sangil as (a) specifically the sanctuary of Marduk proper and (b) the wider cluster of religious buildings that made up the religious centre of Babylon (George 1992: 303). As will be shown below, cuneiform sources that report the removal of the 'debris of E-sangil' in the Hellenistic period very probably describe the final demolition of the dilapidated ruin of E-temen-anki, and witness the survival of usage (b) into the last centuries of the first millennium. There is no reason why this less specific usage should not already have been coined in the early second millennium. Accordingly, it is possible that in reporting a building of E-sangil, Sabium's year-name included under that name a ziqqurrat in the same location as the well-known excavated remains. If so, the ziqqurrat's invisibility in the historical record outside the seventh and sixth centuries is further explained.

The ziqqurrat of Babylon after Nebuchadnezzar II

A piece of evidence for the later history of E-temen-anki that Schmid was unable to use is a broken clay tablet, until 2001 published only in cuneiform, containing the text of a building inscription of Nabonidus.[17] In obv. 28 of this tablet occurs the phrase *siḫirti E-temen-anki* 'the precinct of E-temen-anki', but the immediate context is broken and its significance remains uncertain. To my eyes a plausible reading of the passage is as follows:

^{27} [é.sag.í]l* *a-na* <*šu*>*-ul-lu-mi ì-lí* [*u* ^{d}15] ^{28} [*a-na na-ṣa-ri*? *i-gar*] *si-ḫi-ir-ti* é.temen.an.ki *eš**-[*šiš*] ^{29} [*e-pu-uš* . . .

<div align="right">CT 51 75 obv. 27-9, coll.[18]</div>

In order to safeguard E-sangil and [*protect*] the gods [and goddesses (therein) I built] anew [the wall of] the precinct of E-temen-anki.

The overall gist of the introduction preceding these lines is that Nabonidus was assiduous in discharging his responsibilities towards the great cult-centres of Babylon and Borsippa: in obv. 23 I read [*a-na za-na-a*]*n*? é*.sag*.íl* *u** é.zi.da *na-šá-an-ni lìb-bi* 'I desired [to *provision*] E-sagil and E-zida'.[19] The bulk of the part of the text that gave

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[17] CT 51 75, noted as mentioning E-temen-anki by George 1992: 299, and booked by Beaulieu 1989: 40 as Nbn G. It is now edited by Schaudig 2001: 474-5.

[18] Asterisks mark readings that differ from Schaudig's transliteration. A similar passage, though longer, occurs in Nabonidus' cylinder from Borsippa (copy by Schaudig 1995: 248) i 23-7: *e-nu-ma ši-pí-ir* é.zi.da *a-na šu-ul-lu-mu aš-te-'-ú i-ga-ra-ti si-ḫi-ir-ti* é.ur₄.me.imin.an.ki *uš-ši ad-di-ma ú-kin te-me-en-ši-in e-eš-šiš e-pú-uš-ma a-na ta-na-da-a-ti aš-ták-kan* 'When I sought to bring to a safe conclusion the construction of E-zida (by building) the walls around the precinct of E-ur-me-imin-anki [the ziqqurrat], I set (their) foundations in place and made firm their foundation platform. I built (them) anew and made (them) the object of permanent fame'.

[19] The infinitive might alternatively be read as *za-na-n*]*a*; Schaudig restores *ud-du-š*]*ú* 'renovate'; *e-pe-š*]*ú* 'build' is also a candidate, as in inscriptions of Nebuchadnezzar II, but when Nabonidus uses the expression *našânni libbī* elsewhere it is in the context of maintaining the cult, not building temples (CT 36 23 ii 14-15): *ana ma-ḫaz ilī*(dingir.dingir) *rabûti*(gal.gal) *ka-li-šu-nu za-na-nu na-ša-an-ni lìb-bi* 'I desired

details of the particular building work commemorated by the inscription is broken away, however. Nevertheless, one cannot discount it elaborating on the text's earlier report of a restoration by the last independent ruler of Babylon of the wall or other structures of the ziqqurrat precinct. In this regard note the archaeological evidence for successive raisings of the precinct's wall in the sixth century, as proved by the heights of the respective thresholds of the gates that pierce it (Bergamini 1977: 141-5, Heinrich 1982: 309).

Nabonidus is known to have spent heavily on the fortifications of Babylon. He built a new quay wall that ran the length of the eastern river bank and thus parallel with the western stretch of the wall that enclosed the ziqqurrat's precinct (Bergamini 1977: 128-30, Beaulieu 1989: 39), and he reinforced the city wall, Imgur-Enlil itself (Beaulieu 1989: 38, Al-Rawi 1991: 5-6). If the passage quoted above is correctly restored it reveals that the purpose of Nabonidus's work, to protect the shrines of the gods in E-sangil, was broadly part of the same project. Evidently the wall around E-temen-anki was part of a larger circuit that also enclosed E-sangil, and probably other adjacent sanctuaries too. A little is known of the precinct wall of E-sangil, though nothing has been excavated: its main gate was Ka-sikilla, east of E-sangil (George 1992: 422), and its north section had been completed a few years earlier, as documented by Neriglissar's foundation cylinder (CT 36 17-20). The enclosure of the ziqqurrat, E-sangil and other temples by a set of linked walls helps to explain how the complex of religious buildings at Babylon's heart was referred to collectively as E-sangil, the name of the most important sanctuary of all.

Schmid's history of the tower ends with an account of its destruction. His excavation of the stump found archaeological evidence for the deliberate demolition of the south stairways, concomitant damage to the adjoining mantle and exposure of the mud-brick interior, evidently some time before the ziqqurrat was levelled (Schmid 1981: 97, 103-4, 117; 1995: 75). He declares responsible the Persian Xerxes I (485-465), on the grounds generally that late classical historians attribute to that king the destruction Babylonian temples, among them the 'tomb' (Strabo) or 'temple' (Arrian) of Belos in Babylon, and drawing attention in particular to (a) the fact that Herodotus fails to mention the great southern stairway of the ziqqurrat, so that it must have already been destroyed at the time of his visit, and (b) the Greek tradition handed down by Ctesias and Aelian that recalled how Xerxes broke into the 'tomb' of Belos (Schmid 1981: 135-6, 1995: 93). Schmid follows Böhl (1962) in identifying the occasion as the aftermath of Babylonian revolts in 484 and 482 BC.

It now seems certain that the two revolts both took place in 484 BC, Xerxes' second year (Waerzeggers 2003-4). But there is a more serious point of contention. The accounts of Xerxes' treatment of Babylon by classical historians have been exposed as tendentious and without local corroboration (e.g. Kuhrt and Sherwin-White 1987, Rollinger 1998), so that several scholars have already taken Schmid to task for perpetuating Greek propaganda (Rollinger 1993: 63-4 fn. 185, Miglus 1996: 300-1, Wiesehöfer 1999: 180-1 fn. 49). In doing so they did not put forward an alternative explanation for Schmid's evidence of massive damage to the ziqqurrat long before its final demolition, and failed to

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to provision all the cult-centres of the great gods'. One further collated reading in CT 51 75 is obv. 14: ^{d}utu u $^{d}en*-l\acute{\imath}l*$.

take account of another awkward archaeological fact that supports his reading of the building's history.

While there is plentiful evidence that E-sangil and many other temples of Babylon continued in use for many centuries, and thus could not have been destroyed by Xerxes, the ziqqurrat certainly had a shorter life. As we shall see, by the early third century its superstructure had been removed to another part of the city, leaving a flat site that was eventually redeveloped late in the Parthian period. References to E-temen-anki in Late Babylonian copies of texts from the scribal tradition do not speak for the ziqqurrat's continuing existence as a sacred location in the Hellenistic and Parthian periods (contra Wetzel 1938: 84, Downey 1988: 10-13). They attest only to the durability of cuneiform scholarship, which continued to produce new copies of ancient texts deep into the first century BC (Oelsner 1986: 201-14; 2002: 12 fn. 27).

In regard to the date of the ziqqurrat's demise as a functioning building, it is interesting to note that one of the foundation cylinders recording Nebuchadnezzar II's completion of E-temen-anki was found at Susa during the first seasons of excavation on the Acropole (Scheil 1900: 123-5, Weissbach 1938: 44, Berger 1973: 295-7 Exemplar 2). Other monuments of Nebuchadnezzar II, specifically a vase and a stone block, were also found at Susa (Langdon 1905-6). At least one other item labelled with the name of Nebuchadnezzar later turned up in the Persepolis treasury, where it was part of a small collection of votive beads, eye-stones, cylinder seals and other objects from seventh and sixth-century Babylonia (Schmidt 1957: 57-63). The deities to whom were dedicated the objects found at Persepolis demonstrate that they came from Borsippa (Nabû, Tašmētu, Sutītu) and Sippar (Šamaš, Aya), as well as Babylon (Zarpanītu). They were surely removed from Babylonian temples by one or more of the great kings of Persia and taken home as booty, as in an earlier age Šutruk-Naḫḫunte of Elam had robbed Babylonian temples of many famous monuments (Harper 1992). Among the later material, however, the cylinder inscription of Nebuchadnezzar II found at Susa stands out as a foundation document among what are otherwise votive objects. It was intended not for pious display but for encasing in the fabric of E-temen-anki. How did it fall into Persian hands?

Because foundation cylinders were almost always embedded in the structure of buildings that were not the subject of their text, there is a high probability that Nebuchadnezzar's foundation cylinder of E-temen-anki unearthed at Susa came originally from the ziqqurrat. As noted above, Schmid found that the baked-brick stairways had been destroyed and the mantle broken open on the south side before the tower was levelled, and attributed this damage to enemy action in reprisal for revolt against Xerxes. It seems to me a very possible scenario that a foundation cylinder would have emerged from the mantle's brickwork when the ziqqurrat's stairways were demolished, and that the later discovery of one on the acropolis mound of Susa can best be explained by its removal there as booty by an Achaemenid king, perhaps as proof that demolition had been effected. The cylinder found at Susa is therefore important evidence

that speaks in favour of the demolition of the stairways being carried out under the Persian dominion.[20]

At this point we might revisit Aelian's account of Xerxes and the 'tomb of Belos' at Babylon. There is no doubt that this 'tomb' (*taphos*), described by Strabo as a 'square pyramid' (*pyramis tetragônos*, 16.1.5), is a misconceived reference to the ziqqurrat of Marduk, who was chiefly known in the late period as Bēl. In his *Varia historia* Aelian wrote as follows (after Dombart 1915: 54 and König 1972: 70 fn. 1):

Xerxes, the son of Darius, broke open the tomb of the venerable Belos and discovered a crystal sarcophagus, in which lay a corpse placed in oil. The sarcophagus was not full, but fell short of brimming by four fingerwidths. Next to the sarcophagus was a short stele, on which was written, "May ill fortune befall the one who opens the tomb and does not refill the sarcophagus!" When Xerxes learned this, he was afraid and ordered oil to be poured in as fast as possible, but it did not become full.

An earlier version of Aelian's story was known to Ctesias, who reports in his *Persika* how Xerxes visited the 'tomb of Belitanas' in Babylon and tried in vain to fill the sarcophagus with oil (König 1972: 10 Ā21, Briant 1992: 11), but Aelian offers more detail and must have had other sources. The persistence of this story among the Greeks and Romans explains how they came to believe that the ziqqurrat of Babylon was a tomb, like an Egyptian pyramid. Schmid considers the story to have a kernel of truth, ultimately descending from an account of an historical event, when Xerxes' men made a hole in the ziqqurrat's mantle while demolishing the stairways (Schmid 1981: 136, 1995: 93). In fact, there is more to be said. The 'sarcophagus' containing a 'body' covered in oil and associated with a monumental inscription calling on posterity to re-anoint it: this sounds very Mesopotamian. We know that corpses of kings were laid in oil when placed in their coffins, for this detail is reported in a Neo-Assyrian text about a royal burial (MacGinnis 1987: 1, 8-9).

No real corpse would have been found in Babylon's ziqqurrat during this period, of course. But it did contain human images. Nabopolassar himself tells us that he placed within the ziqqurrat's brickwork representations of his royal self (see above). Some foundation inscriptions required future builders to anoint with oil the stele and foundation deposits of their predecessors. Good examples come from Babylon: for example, the marble stele depicting Ashurbanipal in canephorous pose and inscribed with text commemorating the renovation of E-kar-zaginna, which enjoins a future ruler as follows: *ṣalam šarrūtīya līmur šamna lipšuš* 'May he find my royal likeness and anoint it with oil' (Frame 1995: 199-202 B.6.32.2); and a foundation cylinder recording the same king's work on E-sangil, which states similarly: *musarû'a līmurma šamna lipšuš* 'May he find my inscription and anoint it with oil' (Frame 1995: 206-8 B.6.32.6). Foundation cylinders were usually placed cavities in the brickwork or in boxes made of mud bricks, Arabic *libn* (Ellis 1968: 110-12), sometimes in the company of cylinders deposited by

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[20] The argument put forward in the preceding paragraph is elaborated more fully in George forthcoming.

earlier kings, as with the cylinders of Nabopolassar and Nabonidus excavated in 1978 in the city wall of Babylon near the Ištar Gate (Abdul-Razak 1979: 116, Al-Rawi 1985: 2 and pl. 1, n.d.). The discovery of a simple cavity or a *libn* box would not easily give rise to a story about a coffin. Something more distinctive is at issue.

None of the extant canephorous steles of Aššurbanipal and Šamaš-šuma-ukīn found at Babylon and Borsippa was embedded in a brick structure, though their inscriptions make it plain that such interment was their intended destiny. However, we know that stone monuments of this period were placed in terracotta boxes before interment. Part of the elaborate foundation deposit found at Sippar by Hormuzd Rassam in 1881 was Nabû-apla-iddina's famous stone Sun God tablet (*BBSt* 36, Walker and Collon 1980: 102-3), which was enclosed in a trough-like lidded terracotta container together with clay squeezes of the tablet made by Nabopolassar (King 1912: pls. 98-102). Reade refers to the container as a 'foundation box' (1986: xxiii) and rightly so, for Nabonidus had it buried along with its contents in the foundations of the temple of Šamaš, under a brick-lined cavity containing another stone deposit, the Cruciform Monument, and his own inscribed cylinders (Powell 1991: 21). Lidded boxes for stone inscriptions were known in Akkadian as *tupšennu* (Walker 1981: 192) and could be made of stone or fragrant wood (cedar in SB Gilg. I 24), as well as clay.

Seen in this new light Aelian's story reads as a garbled account of the discovery of a Babylonian foundation deposit, including a stele depicting the royal image, resting in a lidded box and still glistening with oil, and accompanied by an inscription that concluded with blessings for a discoverer who conducted the proper ritual and curses for one who did not. Injunctions to anoint foundation stele and other inscribed objects with oil are typical of Assyrian inscriptions. The occasion that gave rise to the story was then not the discovery in the mantle of the cylinder of Nebuchadnezzar that was taken to Susa, for Nebuchadnezzar's inscription does not end with blessings and curses addressed to its discoverer; nor does Nabopolassar's. More probably what was discovered was a composite foundation deposit left in the ziqqurrat's mantle by Esarhaddon or Ashurbanipal. Aelian's story has a greater kernel of truth than Schmid observes.

If Aelian's story retains authentic detail in the manner of the components and message of an ancient Mesopotamian foundation deposit, it may well be that it is also correct in other detail, for example in identifying the occasion of the discovery as a forced entry by the Persian king. The additional information gleaned from Aelian supports Schmid's view that the story is an embroidered account of the smashing of the ziqqurrat's stairways and mantle and, combined with the Susan provenance of one of Nebuchadnezzar's cylinders, lends credence to the tradition of Xerxes' vandalism passed down among classical writers. Of course, the name Xerxes may disguise another Persian king but, all in all, it now seems unwise to exonerate the Persians from hastening the building's decline. The fifth-century uprisings in support of Bēl-šimânni and Šamaš-erība, whether they occurred under Darius or Xerxes, again provide a probable historical context for violent reprisal against Babylon's most prominent religious symbol.

Following the demolition of the stairways and the damage to its mantle, the tower was no longer usable as a cultic location and must steadily have decayed, its collapse

hastened by regular exposure of the mud-brick interior to the flood waters of the Euphrates (Schmid 1981: 136). Eventually most of its brickwork was cleared away and dumped very prominently more than one kilometre to the north-east, just inside the city wall. This final act in the building's history seems to have occurred some century and a half after Xerxes. Strabo and Arrian report a levelling of Marduk's sanctuary by Alexander the Great, in preparation for a rebuilding. According to the details given by Strabo ten thousand men spent two months clearing the ruin mound of the ziqqurrat, which he identifies as a square pyramid (see above). However, we cannot be sure beyond doubt that the event is correctly attributed to the reign of Alexander rather than one of his successors.

Cuneiform sources speak of a major effort at this time to refurbish Marduk's cult-centre, for between 327 and 281 an astronomical diary, a chronicle and other impartial records report intermittently the clearance of the debris of E-sangil by Alexander and his immediate successors, Philip III Arrhidaeus (who dumped it across the river in the western half of the city), Alexander IV and Seleucus I Nicator (Oelsner 1999-2000: 377 fn. 39).[21] Among the Seleucid rulers Antiochus I Soter stands out as the figure most willing to spend revenue on perpetuating the sacred buildings of Babylon, as witnessed by an astronomical diary that records the making of bricks for E-sangil in 274 BC and by his own cylinder inscription that speaks of the renovation of the same temple some time before 267 (Kuhrt and Sherwin-White 1991, Horowitz 1991). Antiochus's work on the cult-centre of Marduk was no cosmetic exercise. An unpublished chronicle of the period 300-292, when Antiochus was still crown prince, records for posterity that he mobilized a workforce of men and elephants, and *eperī*(saḫar)$^{\text{ḫá}}$ *šá* é.sa[g].g[íl *i*]*d-de-ku-ú* 'they removed the "earth" of E-sangil' (van der Spek and Finkel forthcoming: no. 2 obv. 8').[22] This is a standard phrase used in reference to clearing away debris accumulated in and around a decaying mud-brick building, and it may be that E-sangil was at this time still in serious disrepair. At the same time, one cannot help wondering whether the debris whose removal could best be effected by elephants was actually the decayed superstructure of the neighbouring ziqqurrat.

Even without knowledge of this new evidence Oelsner already assumed nearly two decades ago that the cuneiform sources cited at the beginning of the previous paragraph, though referring to the removal of 'debris from E-sangil', nevertheless corroborate Strabo's report concerning the levelling of the ziqqurrat (Oelsner 1986: 379). This is also the view of van der Spek, who in discussing more recently a mention of the same activity in the astronomical diary of Philip III's second year states that 'it was already known from the chronicles and a few account tablets that the removal of debris of Etemenanki, started by Alexander the Great, continued after his death' (van der Spek 1993: 96). Other evidence that the name E-sangil was used by cuneiform scribes of the first millennium to refer generally to the buildings that formed the religious centre of Babylon has already been noted. It seems that the dilapidated tower was included among them.

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[21] A broken fragment that may also bear witness to such activity is BM 36613, ed. Sachs 1977: 146-7 (reigns of Darius III Arses and Alexander), on which see further Kuhrt 1987: 148, 1990: 126.

[22] I am indebted to Bert van der Spek for this quotation.

It may be that we should interpret the cuneiform evidence to witness a demolition of the ziqqurrat that proceeded fitfully over several decades, as and when manpower and other resources became available. In any event, early in the Seleucid era one of the huge mounds of ziqqurrat rubble dumped in the eastern city was put to use as an artificial hillside on which was created the tiered seating of a Greek-style theatre. This functioned, among other things, as the place of assembly of the *politai*, i.e. citizenry of Macedonian origin (van der Spek 2001).

The history of the site after the ziqqurrat's demolition is preserved in a patchy archaeological record. Over the Neo-Babylonian precinct wall, probably long ruined, a new wall was erected some time in the Seleucid era, perhaps for defensive purposes (Wetzel et al. 1957: 30, Klengel 1962: 47). It did not make the full circuit of its predecessor, for no trace of it was discovered during later excavations in the south (Schmidt 1973: 165). In 1962 Schmid (1981: 105-6, 1995: 76-7) found that the levelled stump of the ziqqurrat served, after an interval, as a low platform for later buildings. The stump was further explored later in the same decade, when traces emerged of what must have been an important and prominent edifice of the early Islamic period, later split up into domestic dwelling houses (Schmidt 1973: 165). More recently Stefan Hauser (1999: 222) has given another account of these remains, noting the presence on the 'Zikkuratstumpf' of late Parthian remains beneath the two Islamic building levels. In due course these early mediaeval buildings collapsed and their decayed remains hid from view the mighty square of the ziqqurrat's footings. The focus of attention of those who thereafter sought to confirm the biblical tradition of the Tower of Babel and the accounts of Herodotus and other classical authors shifted from Babylon to better-preserved remains, at Birs Nimrud 'the Tower of Nimrod' and at Aqarquf.

Concluding remarks

No detailed history of the ziqqurrat of Babylon informed by the latest research has been written for over seventy years; it is hoped that this review article has met a need for a modern treatment of the subject. In particular, progress has been made in the following points.

1. The issue of how to square the account of the building work given in Nabopolassar's cylinder inscription with the archaeological record has been resolved by a close reading of his language. Some improvements in the understanding of the text arose during the process.

2. The baked-brick tower of base 91 m square has been identified as at least as old as Esarhaddon, and modelled on an even older earlier structure of the same base area. The mud-brick mantle and core enclosed within it are thus older still.

3. Ashurbanipal did not finish Esarhaddon's construction project, but left a stump which Nabopolassar used as base for his own building.

4. New evidence has been adduced for work on the tower or its perimeter in the reign of Nabonidus, circumstantially for the building's deliberate disabling in the Persian period, and for the removal of the superstructure by Antiochus.

5. The silence of the earlier and later sources with explicit regard to E-temen-anki has been explained partly by the archaeological situation and partly by the usage of the name E-sangil in reference to the entire religious centre of Babylon.

6. The E-sangil Tablet, formerly understood as offering an accurate physical description of Babylon's ziqqurrat, has been characterized as a document more interested in abstract ideas than real buildings, and in consequence the question has been raised as to whether a ziqqurrat like the one described by it was ever really built.

Appendix: Additional corrections to Weissbach's edition of Nabopolassar's E-temen-anki inscription

Nabopolassar's E-temen-anki inscription is known from two duplicating cylinders (Berger 1973: 142-3 Nbp Zyl. III, 1). Weissbach's transliteration (1938: 41-4) of the combined text represented a considerable improvement on the previous attempt by Langdon (1912: 60-5 Nbp 1) but it is now also out of date. Some corrections were noted by von Soden (1939) and Meissner (1940) soon after Weissbach published, and these inform the translation by Hecker (1988), the source used by Schmid. In addition the following improvements can be made (line numbering from BE I 84 = MS A).

i 24   for ^{iš}*kakku qanū dannu* (^{giš}tukul gi *da-núm*; Hecker 1988: 491 translates 'der Waffe, dem mächtigen Rohr(pfeil)') read ^{giš}*kakki*(tukul)^{ki} *danni* 'mighty weapon'. The spelling is pseudo-third millennium, like the script. Collation shows that MS B agrees with MS A, despite the misleading copy (Strassmaier 1889: 130 i 26)

i 42, ii 59   for *lu ap-tíq-ma* read *lu ab-ni-ma* (so already CAD Ṣ 81, N/1 201, etc., Uehlinger 1990: 222)

ii 12   for *šip-ri-šu* read *me-re-šu* 'wisdom' (so too CAD M/2 26)

iii 6   for the etymologically troublesome *ú-dar-rik-ma* (Meissner 1940: 10-11: *ú-dar-rig-ma*; von Soden 1939: 80-1: *ú-la!-bi-iš-ma* or *ú-tár-rik* 'beschlug ich', so also Hecker 1988: 492) read instead *u-si₄-pí-iš* = *ušēpiš* or *ú-su₄-pí-iš-ma* = *ušūpiš* 'I had made', spellings reminiscent of third-millennium practice, the latter at the same time emulating literary Old Babylonian style.[23] Other examples of /šV/ indicated with a sign from the sV range, as in Old Akkadian, are i 27 *su-ba-ru-um* for *šubarû*, i 36 *re-e-si-ša*, i 37 *si-it-nu-ni* (MS B only), i 43 *sa-ad-li-a-tim* for *šadlāti*, ii 1 *ú-sa-al-bi-in*, ii 3 *ú-sa-ap-ti-iq* (MS B only), ii 5 *sa-me-e* // *sa-we-e*, ii 11 *ú-sa-az-bi-il*, ii 19 *ú-ša-ar-sa-an-ni*, ii 49 *sa-dú-i* for *šadî*, iii 30 *ri-si-a-te* for *rīšāti*, iii 31 *sa-dú-im* for *šadî*, iii 32 *re-e-si-šu*, iii 54 *ri-se-e-tim* for *rīšāti*.

A modernized transliteration of the bulk of the inscription (i 30-iii 37) has been given above. Weissbach's transliteration needs correcting in the following particulars too: i 17 for *zu-ru-uš-šu* read *ṣú-ru-uš-šu*, iii 48 for *as-si-a-tim* read *aṣ-ṣi-a-tim*, iii 56 for *qí-ri-ib-ka* read *qé-re-éb-ka*.

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[23] The sign SI₄ is collated on MS B; Strassmaier's copy (1889: 133 ii 113) is misleading. For III/1 preterite *ušupris* with verbs I-' in OB see GAG^3 §97d*, Lambert 1987: 198.

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