

N. Wasserman, *Most Probably. Epistemic Modality in Old Babylonian*. Languages of the Ancient Near East. Vol. 3. Winona Lake IN: Eisenbrauns, 2012. xiv + 245 p.

1. This monograph enumerates and discusses the linguistic means that are attested in Old Babylonian for the expression of epistemic modality.<sup>1</sup> Epistemic modality is concerned with how the speaker indicates the measure of (un)certainly he feels about the reality or the truthfulness of the event or the situation he is speaking about. As such it is opposed to deontic modality, which comprises directives (expressions used to get something done) and commissives (expressions used to commit oneself to doing something). In Akkadian, deontic modality is mainly expressed by grammatical means, namely the verbal categories of imperative, precative, prohibitive and vetitive. Epistemic modality, however, is grammatically expressed by means of a set of invariable adverbs, a few enclitic particles, and an occasional stereotyped phrase. Wasserman employs the term “modal particles” as a convenient cover term. It is these modal particles that are the subject of this book.

An introductory chapter deals with modality in general and with the nature of the corpus, which consists mainly of letters and literary texts, with the letters strongly predominant. This is due to the fact that modal particles typically occur in natural conversation (dialogue), which is mainly found in these two genres in Akkadian. There is a large corpus of Old Babylonian letters, which Wasserman divides into four subcorpora: South Babylonian, texts from the Diyala region, Mari letters, and the letters from Shemshāra and Tell-Rimāh. According to Wasserman (p. 15), the Mari letters represent “the nearest we will get to what might cautiously be called “colloquial” OB Akkadian.” To what extent this statement is justified is a moot question, but there can be no doubt that the Mari corpus is the richest source by far for the study of epistemic modality in Akkadian.<sup>2</sup>

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<sup>1</sup> I am grateful to Jan Gerrit Dercksen for permission to quote from two Old Assyrian letters he is preparing for publication: kt c/k 261 (section 9) and kt c/k 266 (section 14).

<sup>2</sup> In the rest of this review, I will—for simplicity’s sake—distinguish between “Northern Babylonian,” which comprises the letters from Mari, Shemshāra and Tell-Rimāh, and “Southern Babylonian” for the rest of the corpus.



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The main part of the book consists of nine chapters, each of which discusses in detail one of the modal particles that express epistemic modality in Old Babylonian. Each modal particle is illustrated by means of a generous selection of examples and judged on a number of parameters: previous studies, attestations, spellings and geographic distribution, its semantic and functional definition, syntactic profile, etymology and what Wasserman calls its “grammaticalization.”

The syntactic profile describes the syntactic and semantic properties that are relevant to establishing the meaning and use of a modal particle. It comprises first of all the discourse domain (locutory, allocutory and delocutory depending on whether the utterance relates to the sphere of the speaker, the addressee or a third person, respectively), and the parameter of perspective (also called vantage point or referential center), which refers to the degree in which the speaker presents himself or someone else as authority for the validity of the statement: in the former case, the modal particle is subjectifying, in the latter case it is perspectivizing (pp. 29–30).

Further ingredients of the syntactic profile are the position of the modal particle in the clause and its co-occurrence with specific tenses and negations (*ul* or *la*). As Wasserman rightly emphasizes, the syntactic profile is of prime importance for establishing the actual meaning of a modal particle, in addition to the context.

The chapters are usually concluded with a section headed “grammaticalization,” in which Wasserman speculates about the etymology of the modal particle under discussion and its development into an epistemic particle.

2. One only needs to take a quick look at the list of modal particles in the table of contents (*pīqat*, *midde*, “*wuddi*” (see section 6 for the double quotes), *anna*, *lū ʾittum*, *tuša*, *-man*, *kīša*, *assurre* and *-mī*) to admire Wasserman for his courage to devote a monograph to these words, which belong to the most difficult ones of Akkadian and which most Assyriologists probably do not relish finding on their path too often. Almost all of them have generated a certain amount of controversy and are assigned different and even contradictory meanings in dictionaries and handbooks.

This is not surprising, since the meaning and use of expressions for epistemic modality tend to be notoriously elusive because of the variability of their meaning, which strongly depends on the context and the situation, on the one hand, and the background and the hierarchy of the speaker and his audience on the other, and because of the involvement of irony

and sarcasm, features that are difficult to recognize in texts from alien cultures, especially in written texts, as Wasserman is well aware (p. 144).

Thus the interpretation of modal particles is strongly dependent on the availability of transparent contexts. In this respect the epistolary nature of the corpus raises a further problem: many letters, especially those classified in this review as “Southern Babylonian” (see note 2), most of which are edited in the AbB series, are isolated documents for which we have little context apart from what can be reconstruct from the letter itself. Also for letters that belong to an archive and are therefore embedded in a wider context, such as most of the Mari letters, the historical background is usually imperfectly known, and the detailed issues discussed in them are often elusive. In addition, the understanding of many letters is hampered by their poor state of preservation: more often than not, parts of the text are missing or damaged.

All in all, these problems are daunting and we should be grateful to the author that they have not deterred him from addressing this subject in a comprehensive manner and from producing a pioneering book. The fact that his results are open to criticism on several points, as I will argue in the course of this review, does not detract from this.

Basically, I disagree with Wasserman on some issues of detail and on a few important ones. The latter include the form and meaning of “*wuddi*,” the semantic analysis of *assurre* (although not its actual meaning), his claims about the existence of a “system of modal particles,” and what he calls the “grammaticalization” of the modal particles. I will formulate my comments roughly per chapter, and discuss *pīqat* (Chapter 1) more extensively as an example of Wasserman’s procedure.

3. The description of *pīqat* starts with its geographical distribution (about 100 instances, of which two-thirds in Mari texts), its spelling, and a survey of previous literature, in which two conflicting opinions on the meaning of *pīqat* are found which come down to ‘perhaps’ or ‘certainly.’ Wasserman argues convincingly for the former: in general, *pīqat* is ‘weak doubter,’ with which the speaker expresses that he has no or only limited knowledge concerning the situation at hand and is not able (or does not want) to commit himself to the truthfulness of his utterance. Thus *pīqat* belongs to the class of evidentials, which express the speaker’s estimation concerning a particular state of affairs based on the (usually limited) knowledge available to him, and to the class of speculatives, assessments of reality that are not based on any deduction from previous knowledge

(p. 19). As an evidential, it forms a quartet with *midde*, “*wuddi*” and *anna*, which are also evidentials but higher on the scale from doubt to certainty.

Furthermore, *pīqat* shows a number of more specialized uses in specific contexts: it may be disjunctive: *pīqat* A *pīqat* B ‘perhaps A, perhaps B (is the case),’ hence ‘either A or B,’ and “semiconditional” in contexts where also *šumma* may be used: ‘perhaps so-and-so is the case: in that case ...,’ hence ‘if ...’

However, *pīqat* is also used in contexts where “weak doubt” seems inappropriate and a translation ‘certainly, surely’ fits better than ‘perhaps’ (hence the conflicting views in earlier literature). Wasserman argues (p. 23) that this is for pragmatic reasons: it occurs when the writer of a letter addresses a superior and sees fit to mitigate his formulation: although he does not feel doubt about his statement, he presents it with *pīqat* in order to avoid offending or shocking the addressee, so as not to transgress the power relations between them. In other words, ‘certainly’ is not a basic meaning of *pīqat* but arises in a specific pragmatic situation (a similar phenomenon applies to *assurre*, see pp. 170–172).

Finally, under the heading “Vox populi” Wasserman distinguishes a few instances in which *pīqat* introduces statements heard among the people which are detrimental to the writer, who reports them in order to defend himself.<sup>3</sup>

After this exposé of the semantics of *pīqat*, illustrated by means of lengthy text quotations and extensive comments, its syntactic profile is described (pp. 26–37), which is basically its co-occurrence with other categories. This firstly comprises the “discourse domain” (see above): that of *pīqat* is predominantly delocutive: it mostly introduces statements concerning a third party that do not involve speaker or addressee; more rarely, the statement concerns both the addressee and a third party, or only the addressee (allocutive). This implies that *pīqat* is mainly perspectivizing.

In terms of co-occurrence with other forms, *pīqat* is only found with non-modal verb forms: since it expresses epistemic modality, it is incompatible with deontic categories of imperative, the precative, the prohibitive and the vetitive. It can go with all tenses, but prefers the present. The negation is always *ul*.<sup>4</sup> As to its position in the clause, *pīqat* is usually at the head of the

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<sup>3</sup> The passage that Wasserman refers to in note 37 (ARM 2, 40:4–18) as a further instance of this category(?) actually does not belong here, but is an “ordinary” case of *pīqat* ‘perhaps.’

<sup>4</sup> Wasserman explains the exclusive use of *ul* with the statement that it “conforms to the finding that *pīqat* does not govern relative but only main clauses”

clause it governs, but it may be preceded by a topicalized phrase. It does not take *-ma* or *-man* (except one occurrence in a Standard Babylonian proverb discussed on pp. 36–37) but does co-occur with other modal particles.

Finally, Wasserman discusses the etymology and the “grammaticalization” of *pīqat* (pp. 37–41).

4. Hopefully, this summary is sufficient to illustrate the essence of Wasserman’s method, although it cannot (and is not meant) to show the full extent of his argumentation, which includes a copious use of examples and an in-depth discussion of theoretical issues.

There is little to comment on Wasserman’s account of the meaning of *pīqat*. He clearly shows that *pīqat* is consistent in its meaning and use, in spite of earlier disagreement.<sup>5</sup> It is convenient to distinguish different functions (as I have summarized in section 2), but in fact they all represent a single meaning in different contexts, and the boundaries are diffuse.<sup>6</sup> For instance, the “disjunctive” and the “semi-conditional” uses of *pīqat* (pp. 20–23) are a natural extension of the basic meaning “perhaps” (cf. *midde*).<sup>7</sup>

Of particular interest is the fact that Wasserman alerts us to the importance of pragmatics in the interpretation of modal particles: their meaning may vary according to the (hierarchical) relationship between sender and addressee, see especially the discussion on pp. 23–25.

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(p. 32). This may be true, but a more important reason is that in Babylonian main clauses *ul* (or its extended—and original—form *ulā*) is the only negation available for negating facts, whereas *lā* is only used with the prohibitive, i. e. with deontic modality. This is the reason why also the other “evidential” modal particles only use *ul(ā)*.

<sup>5</sup> However, several difficult cases remain, such as ARM 26/2, 302:9–15 (p. 28, heavily restored, and Wasserman’s translation does not agree with the restoration, see Heimpel 2003:289); AbB 9, 78:20–23 (p. 28); ARM 26/1, 242:6–14 (p. 29, see also the next note); ARM 4, 54:8–14 (p. 33); Kienast 1978 II 156:16–24 (p. 34); ARM 1, 1 rev. 10’–12’ (p. 36).

<sup>6</sup> Accordingly, several instances of *pīqat* discussed under the headings “Weak Doubter” (pp. 18–20) might as well be classified as “disjunctive” or “semi-conditional”: FM 6, 25:22–29; AbB 6, 125:16–25 and the literary text quoted on p. 16 (as Wasserman himself points out on p. 23). Also ARM 26/1, 242:6–14 quoted on p. 29 may contain a “semiconditional” *pīqat*. Cf. also *midde*, which raises the same problem.

<sup>7</sup> Traugott (1985:290–291) mentions “words for modality, especially epistemic modality (...) and optative modality” as a major lexical source of conditional markers.

A small flaw in the presentation is that the terminology is sometimes a bit overwhelming. About *pīqat*, for instance, the reader is told that it belongs to a group of “inferentials” (p. 16); that it is a “weak doubter,” belonging to the category of “potentials” (p. 18) and to that of “speculatives” (p. 19); that it is “optative” (p. 20),<sup>8</sup> and “semiconditional” (p. 22).<sup>9</sup> A similar list could be drawn up for several other modal particles. At times, this obscures rather than illuminates the question of what is the “essence” of the particle.

The final section of the chapter describes the “grammaticalization” of *pīqat*: what is its etymology, how did it become a modal particle, and which consequences (if any) does this have for its syntactic behaviour. Before addressing this issue in relation to *pīqat*, I would like to offer a few general considerations.

First of all, there is a problem with terminology. In linguistic literature, there is some inconsistency in the use of the terms grammaticalization and lexicalization, so that what one scholar calls grammaticalization can be branded lexicalization by another one. Broadly speaking, however, there is a tendency among linguists to apply the former term to processes that lead to the emergence of grammatical categories and the latter to processes that lead to the emergence of individual lexical items (Himmelmann 2004; Brinton–Traugott 2005:18–31; Fisher 2007:227–229). From this angle, the development of the modal particles in Old Babylonian are typical examples of lexicalization, which Fisher (2007: 227) defines as involving “a single token or group of tokens, which, through frequent use or semantic specialization, become a more integrated but at the same time less transparent whole.” This fits the modal particles perfectly.

A second and more fundamental point I would like to make concerns the usefulness of speculating about the etymological background of a word. If the etymology and the historical development of a modal particle can be determined with a reasonable degree of credibility, this knowledge may clarify semantic aspects of the modal particle itself, especially in the case of semantically complex words, which the modal particles un-

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<sup>8</sup> This term is not explained but apparently means that *pīqat* introduces an option, i. e. it seems to be equivalent to “disjunctive.” Actually, this is a very un-canonical use of the term “optative,” which normally refers to verbal categories expressing a wish, such as the optative mood in Latin and Greek.

<sup>9</sup> Which is replaced by “quasiconditional” in the discussion of *midde* (p. 52), a better term because it is hard to envisage what “half-conditional” could mean.

doubtedly are. However, if this condition is not fulfilled, and the etymology is speculatively deduced from its actual use, it contributes little to our understanding of the word and tends to lead to fruitless speculation. Also, incorrect ideas about background may lead to incorrect interpretations. Wasserman (p. 155) mentions Moshe Held's interpretation of *assurrē* as an example, and my discussion of "*wuddi*" in sections 6–9 may be another one.

The reason why I am stating these truisms is that I find several of Wasserman's proposals concerning the background of the modal particles unconvincing, sometimes definitely implausible, even though I rarely have anything better to offer.<sup>10</sup> The situation is not very promising: the modal particles are relatively short words with a complex and highly abstract meaning, and their connections with other words tend to be semantically tenuous, formally problematic, or both. There are only two modal particles that can plausibly be connected with another Akkadian word on the basis of their form *and* meaning, namely *midde* and "*wuddi*." In all other cases, the etymology is problematic. In this respect, too, *pīqat* offers a good illustration.

With *pīqat*, we have the advantage that there seems to be only one possible source, namely the very rare verb *pīāqum* 'to be(come) narrow' and its corresponding adjective *pīqum* 'narrow' (Assyrian *pāqum*). Accordingly, Wasserman (pp. 37–38) starts from this derivation.<sup>11</sup> The obvious problem is: what is the semantic relationship between *pīāqum* and *pīqat*? Because *pīāqum* is often said of the eyes: 'to screw up, to squint,' Wasserman argues that it is a 3sf stative with *īnum* 'eye' to be understood as subject: 'the eye is squinting,' hence 'the eye is examining, surveying,' hence 'it seems that ..., 'apparently,' 'lo and behold' (p. 38).

This seems implausible to me: the semantic development presupposed by this etymology is far-fetched,<sup>12</sup> and it is a poor match with the actual

<sup>10</sup> Wasserman wisely does not attempt to elucidate the etymology of the enclitic particles *-man* and *-mi*: the shorter a linguistic element is, the harder it is to trace its historic relationship to other elements, and since there is no obvious relative available for *-man* and *-mi*, it is fruitless to speculate about their etymology.

<sup>11</sup> He refers to AHW. 861b s. v. *pīāqum*, where *pīqat* is mentioned among the derivations of this verb. However, the lemma *pīqat* itself (AHw. 864–865) does not contain a reference to *pīāqum*, only to the Standard Babylonian adverb *pīqa/pīqu* 'einmal (wohl).' In earlier publications, von Soden expresses some hesitation about the derivation of *pīqat* from *pīāqum* for semantic reasons (1949:387; but GAG § 121e: "(eingeengt<sup>2</sup> =) vielleicht").

<sup>12</sup> Wasserman points to German *augenscheinlich* as a parallel, but this is misleading because the function of "eyes" in this word differs radically from that in

meaning of *pīqat* as a “weak doubter.” One could also start from the meaning ‘to be narrow,’ and assume a metaphorical extension from *narrow* to *difficult*, for which one could compare *pašāqum* ‘to be(come) narrow’ with its derivations *pašqum* ‘narrow, difficult’ (CAD P 257–258) and *pušqum* ‘hardship, distress.’ Hence something like ‘it is difficult (to know/to say)’ > ‘it is uncertain’ > ‘possibly, perhaps.’ Since the other instances of the verb *piāqum* or the adjective *pīqum/pāqum* do not show any clear tendency to be used in this metaphorical sense (see CAD P ss. vv.),<sup>13</sup> this claim is just as speculative as Wasserman’s, but it seems semantically simpler and more straightforward. Still, the strongest argument in favour of deriving *pīqat* from *piāqum* is that there does not seem to be any other root in Akkadian vocabulary with the right radicals.

5. As an introduction to the description of *pīqat* (p. 16) and again as a link between *pīqat* and *midde* (p. 43), Wasserman argues that *pīqat*, *midde*, “*wuddi*,” and *anna* form a scalar quartet expressing a set of gradations from possibility (*pīqat*) to probability or predictability (*midde*) to certainty (“*wuddi*” and *anna*). I will come back to this in section 17.

In many respects, *midde* is strikingly similar to *pīqat*: the traditional interpretations fluctuate between ‘certainly’ and ‘perhaps, possibly’; it can be disjunctive and “quasi-conditional”; and its syntactic profile is identical to that of *pīqat* in all important respects (pp. 54–60): it is mostly allocutory and delocutory; it goes with indicative tenses, more often with present-future than with past; the negation is *ul*, and it is usually positioned at the beginning of the clause.

Semantically, however, *midde* is more problematic and controversial than *pīqat*, as is clear from Wasserman’s account of earlier views on pp. 45–47. According to Wasserman, *midde* is an inferential modal particle just like *pīqat*, but higher on the range of certitude: whereas *pīqat* denotes nothing more than potentiality (a “weak doubter” according to Chapter 1, a “doubter” according to p. 47), *midde* fluctuates between doubt and partial certitude (p. 47). The higher the speaker’s confidence, the more *midde* approaches ‘no doubt’ and is deductive; the lower the speaker’s confidence, the more *midde* is close to ‘probably’ and specula-

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*pīqat* according to the proposed etymology. It is true that Akkadian *īnum* is used metaphorically in expressions such as *ina īnika* ‘in your eyes,’ but that seems to be a quite different matter.

<sup>13</sup> However, CAD P 394 s. v. *pīqu* n. gives ‘distress, difficulty’ for this verbal noun derived from *piāqum*.

tive. Thus it is a “scalar particle”: instead of having a fixed semantic value, its meaning can range along a continuum (p. 48).

To clarify the difference between *pīqat* and *midde*, Wasserman introduces the concepts “unilateral” versus “bilateral” possibility: the former is objective (i. e., independent of the speaker’s commitment), the latter is subjective (i. e., inferential and entirely personal) probability, and it is scalar. It is not easy to find one’s way through the dense thicket of terminology, but if I understand him correctly, he analyzes *midde* as a bilateral scalar modal particle, with subjective and inferential characteristics, ranging from likelihood to certainty, whereas its counterpart for unilateral possibility is *pīqat* (p. 49). The context decides whether *midde* means ‘probably’ or ‘no doubt,’ but the latter meaning typically applies if followed by an instruction or an order to the addressee; without this, *midde* is closer to ‘probably.’

With due allowance for the semantic complexity of *midde*, it seems to me that this distinction is difficult to infer from the actual examples. The chapter on *pīqat* makes no mention of the claim that *pīqat* indicates “unilateral possibility,” and nothing in the discussion and the examples in that chapter suggests that the meaning of *pīqat* can be so narrowly defined.

Most importantly, the passages which Wasserman adduces as examples of *midde* as a certifier (“probably” or “no doubt”) also make good sense (or even better sense) if we interpret *midde* as “perhaps.” Let us take the letter quoted as Dossin 1970, 105:23–27 (pp. 51–52) as an example. The speaker, a Mari official, decides to search a boat and motivates this by writing: *mi-de-e tuppātīm ayyēšma ušetteqū* “*mi-de-e* they transfer letters to somewhere.” Wasserman argues that the writer “considered it very likely that some secret letters were hidden in the commercial shipment” and translates *midde* as “no doubt.” It is not clear to me, however, what this claim is based on and I see no reason why “perhaps” would be less appropriate; at least, it is more neutral and cautious.

This also applies to the rather similar situations in AbB 10, 15:25–32 (p. 50) and AbB 1, 39:6–15 (p. 51), which can best be assigned to “quasi-conditional” cases of *midde* discussed on pp. 52–53, and also to ShA 1 35: 33–40 (p. 59) and AbB 10, 166:6–12 (p. 60).

Perhaps an even more telling example where Wasserman translates *midde* as “no doubt” but where “perhaps” seems far more appropriate is FM 2, 55:21–26, discussed on p. 56. It concerns a passage from a letter of a provincial governor to the king of Mari, in which the governor writes: *mi-id-de bēli šārūm išū*. Wasserman translates: “no doubt it has totally es-

caped my lord that ...” In a letter to the king, this seems presumptuous: even though the writer feels no doubt at all, it seems unlikely that in a letter to the king he would express such a feeling without restraint: a cautious and more polite “perhaps” may reflect the intended nuance much better (cf. similar cases with *pīqat* discussed on pp. 23–25).<sup>14</sup>

A second argument against taking *midde* as a certifier in some contexts is its etymology. It is generally assumed that *midde* originates from a clause such as “who knows?” (*mannum īde*) or “what do I know?” (*mīnam īde*), of which the latter is formally closer to *midde* and therefore generally preferred, although only the former is actually attested in its pristine form *mannum lū īde*, see Wasserman’s discussion on pp. 61–62.<sup>15</sup> This is a plausible source for a modal particle with the meaning “perhaps,” but it seems to preclude a development in the direction of a certifier. One might argue that such a development is possible after the association with the original form has been lost. However, it is typical of processes of grammaticalization and lexicalization that restrictions imposed by the original use of the elements involved are tenacious and maintain their influence during and after the completion of the process; Hopper (1991:28–30) calls this “persistence.”

Admittedly, there is at least one instance where we probably need a stronger certifier than “perhaps”: the famous verse from the Old Babylonian Gilgamesh Epic “*mi-in-de*, Gilgamesh, one like yourself was born in the wild and the upland reared him” (George 2003:172 i 17–19). These words are spoken by Gilgamesh’s mother Ninsun when asked to explain Gilgamesh’s dream. Many different translations of *pīqat* have been given (pp. 43–44). In his recent authoritative edition George opts for “for sure,” and this is followed by Wasserman (p. 56). It seems that here “perhaps” is not quite in keeping with the status and reputation of Ninsun as a wise old woman: one would expect her to speak with more confidence

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<sup>14</sup> Some other relevant passages discussed by Wasserman are damaged or ill-understood: AbB 1, 37:8–10 (p. 50: the entire sequel is lost, so that it is difficult to assess the nuance of *midde*); AbB 1, 119 rev. 11’–17’ (p. 51: we do not know what the “earlier matter” the writer refers to is, so it is hard to determine the semantic nuance carried by *midde*); ShA 1, 55:5–23 (pp. 58–59: the clause following *midde* is problematic, see note 61 on p. 59).

<sup>15</sup> The phrase *mannum lū īde* co-occurs with *midde* in FM 1, 128:23–25, referred to in note 73 on p. 62 and fully quoted on the same page. On p. 61, Wasserman writes that *mannum lū īde* “is attested in OB letters without and with *midde*,” referring in a footnote (70) to ShA 1 11:16–22 and MARI 8, 446:16’, where indeed *mannum lū īde* is found, but not *midde*. Note, however, that *mannum lū īde* also co-occurs with *pīqat* (p. 18).

and authority than is expressed by a tame “perhaps.” This would suggest “for sure” or something like “clearly,” or at least “apparently.” If this is indeed the best option, it has no clear parallels in Old Babylonian letters and stands isolated for the time being.<sup>16</sup>

My conclusion is that the difference between *pīqat* and *midde* as formulated by Wasserman remains to be proven. I prefer to take a more cautious stance and limit myself to stating that *pīqat* and *midde* are both “doubters,” whether weak or otherwise, and may as well be more or less synonymous in many contexts. Perhaps it is also relevant here to note that in Northern Babylonian *pīqat* is more common than *midde*, whereas in Southern Babylonian *midde* is more common.<sup>17</sup>

6. Chapter 4 deals with “*wuddi*” and *anna*. Unlike *pīqat* and *midde*, there is a broad scholarly consensus—shared by Wasserman (p. 66)—that “*wuddi*” is a certifier with the meaning ‘surely, certainly, definitely’ and the like. However, I find myself in disagreement with both Wasserman and the earlier views with respect to the form and the meaning of this modal particle. Let us first look at the form.

“*Wuddi*” is always spelled *wa-di* (p. 65). This means that neither the vowel *u* of the first syllable nor the geminate *-dd-* is supported by orthographic evidence. Since we have some 45 instances of *wa-di* (cf. pp. 80–81), it is very unlikely that this word really has a geminate *-dd-*, since we would expect to find at least some instances with an explicit spelling. An instructive parallel is provided by *midde*, which in Mari texts is almost always spelled *mi-id-de* (p. 44 with notes 8 to 10).<sup>18</sup>

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<sup>16</sup> Wasserman (p. 56) points to a parallel in the Standard Babylonian version of Gilgamesh (X 13 = George 2003:678, 13), where *mindēma* occurs in a context where “clearly, evidently” seems the best option (George: “for sure”). It is hard to determine to what extent this is relevant to Old Babylonian *midde*.

<sup>17</sup> A count of the list of instances on pp. 41–42 (*pīqat*) and 63 (*midde*) leads to the following results: *pīqat* (94 occurrences): North 57, South 37; *midde* (45 occurrences): North 16, South 29. There is obviously not a neat distribution: see p. 35 for *midde* and *pīqat* in the same letter (AbB 1, 135), unfortunately, the letter is fragmentary and cannot lead to a reliable conclusion about the difference between them, *pace* Wasserman. The fact that speakers use both *pīqat* and *midde* does not necessarily imply that they were clearly differentiated in meaning.

<sup>18</sup> With regard to the etymology of *tu-ša(-ma)*, where the same problem of single or geminate *š* exists (see section 12), Wasserman observes that “even if explicit spelling of doubled consonants is not too common in Old Babylonian, one nevertheless expects at least occasional instances of plene writings of this sort” (p. 95). Why then not with “*wuddi*,” which is almost twice as frequent as *tu-ša(-ma)*?

Furthermore, the polysemy of the sign PI = /wa/, /wi/, and /wu/ means that there is no direct evidence for the quality of the vowel in the first syllable. The choice for *u* is based on the assumed etymology of the word. The form *wuddi* was first proposed by W. von Soden (1949:395–397) on the basis of the assumption that it is a stative D of *wuddûm* ‘to make known,’ hence also ‘to mark, to indicate, to inform, to recognize, to identify,’ etc., see CAD I/J 30–33 s. v. *idû* v. 4. However, this is clearly impossible: with *i* in the final syllable it can only be an imperative (PuRRiS), not a stative, which has *u* in the second syllable (PuRRuS). Accordingly, later scholars, including Wasserman, adopted von Soden’s form *wuddi* but changed the label: they assume that it is a masculine singular imperative of *wuddûm*; hence Wasserman posits ‘make it known that ...,’ ‘recognize that ...’ (p. 79).

In my view, this ruins the explanation of WA-*di* as a derivation of *wuddûm*. It seems implausible that an original ‘make it known that ...’ would develop into a certifier “certainly, definitely” or the like, since it expresses the wrong kind of appeal or command to the addressee. What we would expect is “know that ...!” or “it is (well) known that ...” In this respect, von Soden’s intuition that we need a stative is right. The best candidate is a stative of the G-stem, and this is precisely what *wadi* (as I propose to interpret the spelling WA-*di*) is: it is the regular 3sm stative of the corresponding G-stem *idārum* ‘to know,’ which comes from the root *wd*<sup>s</sup> (hence *w-* in the D-stem). The G-stem forms *īde*, *tīde*, etc., go back to *\*yīwda*<sup>s</sup>, *\*tīwda*<sup>s</sup>, etc. The relationship between *īde* and a stative *wadi* (or a verbal adjective *\*wadium*) is the same as in the adjectival I/w verbs, such as *watārum* ‘to be(come) extra, additional’ and *warāqum* ‘to be(come) green or yellow’: *īde* relates to *wadi* or *\*wadium* as *ittir* to *watrum* and *irriq* to *warqum*.<sup>19</sup> If I am correct, then, *wadi* originally means ‘it is known.’ Thus, in the rest of this review I will take *wadi* as citation form.

The second point is the meaning of *wadi*. As stated above, there is little controversy about the general meaning of *wadi*, which mainly occurs in Northern Babylonian, and in line with earlier views, Wasserman defines its basic meaning as denoting “assurance and past certainty on the part of the speaker” (p. 66), hence, “surely,” “definitely,” “certainly,” etc.

According to Wasserman, *wadi* is an inferential modal particle expressing a strong personal commitment on the part of the speaker. By

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<sup>19</sup> The only difference is the infinitive *idārum* as opposed to *watārum* and *warāqum*. This suggests that *idārum* is a secondary replacement of *\*wadārum* under the influence of the finite forms with initial *ī*.

means of *wadi*, the speaker tries to impose his point of view on his interlocutor and thus to create a favourable starting point for the continuation of the conversation. The value of this pragmatic approach is that the event anchoring the continuation of the conversation cannot be questioned or refuted" (p. 67). This is particularly relevant if the speaker has reasons to assume that his statement will be challenged by his interlocutor.

In my view, this may apply to the fairly rare cases of *wadi* referring to the present or the future. Far more frequently, however, *wadi* refers to events or situations in the past: in about 40 of the almost 50 instances of his corpus (pp. 65 and 74). This includes clauses with a preterite, a perfect and a resultative stative (which is often hard to distinguish from a past event). In these cases, there are strong indications that *wadi* is not an epistemic particle but a temporal adverb "already." This fits in perfectly with almost all instances and even imposes itself so strongly in several ones that adding "already" between brackets to the translation can hardly be avoided even if one interprets *wadi* as a certifier, see ARM 1, 52:36–41 and ARM 4, 59:5–12 quoted in section 7.

The evidence for *wadi* 'already' is based on the following arguments. First, a considerable part of the instances of *wadi* + past tense occur in clauses with a multiplicative number (p. 67). Typical examples are *wa-di-ma 1 šu-ši-šu aqbêkkum* 'I have told you already 60 times' (ARM 18, 8:6) and *aššum agālim kīma 1-šu wa-di 5-šu aštaprakkum* 'about the *agālum*-donkey I have written to you once, (or rather) already five times' (FM 6, 52:5–6) and other instances quoted on pp. 66–67. Similar are clauses where *wadi* goes together with *ina panītim* 'already before,' 'already earlier,' e. g. *wa-di ina panītimma ašpurakkum* 'I wrote to you already before' (ARM 4, 26:4–8; also OBTR 2:3–5; ARM 1, 10:10–11; 2, 29:13–14).

Even better evidence for *wadi* 'already' is provided by passages in which the speaker refers to the time of year or the season, invariably with the aim of urging the addressee into action: [*w*]a-di kuššum iktāšdam 'winter has already arrived' (ARM 4, 62 rev. 3' according to LAPO 17, 560 note 63); *ebūrum wa-di iṭṭahīam* 'harvest time has already come near' (ShA 1, 59:23–24); and *ša-mu-um wa-di iṭṭahūnim ina GN* 'the grazing season has already come near here in GN' (ibid. 15–16) (all quoted on pp. 67–68). In such contexts, a "certifier" makes little sense. As Wasserman explains, *wadi* is "reactive" (p. 70): it accompanies statements that challenge an explicit or implicit assumption of the addressee, and a speaker uses it to anticipate a possible objection of his interlocutor and to make sure that the latter shares some basic relevant facts with him so that there is common

ground for the continuation of the conversation (p. 67). This implies that *wadi* is inappropriate when reference is made to events or situations that are so evidently true that it makes no sense (or may be taken as positively insulting) to assume that someone will challenge them. Wasserman is aware of this problem and argues that “they appear precisely because of their *noninformative, nondisputable* character: by accompanying *wuddi* they form a basis for the continuation of the dialogue” (p. 68). However, they do not accompany *wadi* but *wadi* accompanies them and can hardly be argued to challenge an explicit or implicit assumption of the addressee. What is at stake in these passages is that quick action is necessary and that time is pressing.

7. It is clearly impossible to discuss all 40 instances of *wadi* with a past tense, but a few noteworthy ones in which the superiority of “already” as against “surely” or the like is manifest are the following: (Wasserman’s translation with *wadi* as a certifier is followed by my interpretation (K.) with *wadi* ‘already’):

- Ellis 1972:66, No. 66:4–12 (p. 68) (is it nice when those from here and those from there get irrigation and (only) my field they cause to perish?) *wa-di šaddagdim ina irtika e-ru-úr-ma* (W.: ‘surely last year, in front of you, it (also) was dry(?)’; K.: ‘last year already it was dry on your side(?)’);
- ShA 1, 1:4–5 (p. 71) *wa-[d]i nukurti* PN LÚ *Aḫza-a-ji tešme* (W.: ‘surely, you have heard about the enmity of PN’; K.: ‘have you heard about ... yet?’);
- AbB 14, 63:4–11 (p. 79) (the barley of the town of GN proved to be 840 kor) *ù wa-di še-am 5 šu-ši GUR ana āḫ nārim uštēši* (W.: ‘And, *nota bene*, I have now moved out to the bank of the river an amount of 300 kor of barley’; K.: ‘I have already moved out ...’);
- ShA 1, 63:67–70 (p. 75) (... you must get ready and set off. But have grain brought in advance! Please (make) haste! Do not tarry!) *šābum wa-di qurrub* (W.: ‘Surely (you know that the arrival of) the army is imminent!’; K.: ‘the army is already close!’);
- ARM 1, 22:9–11 (p. 76) (besides that, everything is well) *ù ša māt GN wa-di šullum* (W.: ‘and as for the land of GN, surely, it is well’; K.: ‘it has already turned out well (again)’);
- ARM 28, 179:31–41 (p. 72) (Perhaps you will say: “he tried but got tired. (His) units do not carry provisions, not even for a day.” Had

they carried many provisions) *wa-di-ma-an* ITI.1.KAM *ina libbi ka-ṣī-im at-t[a-a]l-[l]a-ak* (W.: ‘it is certain that I could have walked continuously for one month in the midst of the steppe’; K.: ‘I would already have been walking in the steppe for a whole month!’);

- ARM 1, 52:36–41 (p. 69) *wa-di inūmi Ti-[ri-im] awātam annūtam mahrika aškun* (W.: ‘Surely, in the (month of) Tirum, I have (already) presented the matter before you’) (my translation is the same, but without “surely” and no brackets for “already”);
- ARM 4, 59:5–12 (p. 76) *awātum ša innepšu wa-di itētiq* (W.: ‘What happened has surely passed (already)’) (my translation is the same, but without “surely” and no brackets for “already”).

8. Two problems remain: what does *wadi* mean in combination with a present tense, and how to explain the semantic change from “it is (well) known” to “already.” Of the almost 50 instances of the corpus, eight refer to the present or future according to Wasserman’s count (p. 74, note 28). On closer scrutiny, however, only four of these remain: four other instances are to be discounted, because the signs are partly broken and a restoration of *wadi* is not certain,<sup>20</sup> and in one instance *wadi* is actually followed by a preterite (ARM 28, 155:6–12 quoted on p. 67). To the remaining three, one instance from a literary text should be added: Westenholz 1997:62 i 10–14.

This leaves us with the following four passages, all of them more or less problematic:

- ARM 1, 72:4–5 (p. 74, a letter from king Samsi-Addu to his son Yasmaḥ-Addu) *wa-di ana GN ul tallak tattakla*  
W.: ‘surely you will not go to GN, (since) you were occupied,’ which closely follows Durand’s translation (1997–2000 I 594–595). This phrase is the opening statement of the letter and seems unconnected with the following topic, so that we have hardly any clues about what Samsi-Addu means. Moreover, *ul tallak* is difficult: it is not an order (which would be *lā tallak*) but states a fact about the present or the future. Wasserman and Durand opt for a fact in the future: ‘you will not go to GN’; ‘tu n’iras pas à GN,’ but what is this supposed to mean? It seems more likely to me that *ul tallak* refers to the present and that Samsi-Addu states a fact about Yasmaḥ-Addu present behaviour

<sup>20</sup> This applies to ARM 28, 53:6–15 ([*wa-d*]i i-na-di-na-kum, rather [*mi-d*]e<sup>2</sup> see copy p. 299); ARM 28, 154:8–11; ARM 26/1, 206:5–12; and FM 9, 41:6’–8’ ([*wa*-di).

(about which he is apparently annoyed, as he usually is in his correspondence with his son): ‘you have already been detained/delayed/stopped, so that you are not on your way to GN.’ If that is correct, *wadi* belongs to the perfect *tattakla* and has its usual meaning in past contexts;

- ARM 26/2, 380:10'–16' (p. 71) *wa-dí inannāma balum bēliya NINDA ina BI-ri-ku-nu napištam a-da-ak*  
‘surely, now, (even) without the knowledge of my lord, I will spare no life and let you hunger for bread’ (tr. Wasserman pp. 71–72);<sup>21</sup>
- Syria 33, 66–67:19–21 (= A.1314) [*w*]-*di RN* (...) *zērētīm u parkātīm i-ta-na-ap-pa-la-an-ni*  
‘*wadi*, RN keeps answering me with hostile words and lies’ (tr. CAD P 185b s. v. *pariktu* B, not including *wadi*);
- Westenholz 1997, 62 i 10–14 (p. 64) (Now the hero speaks: “return to your body your jewelry, your appendage”) *wa-di atta ša ʔe-ʔmi*  
‘surely, you are a (man) of reason’ (tr. Wasserman p. 64; Westenholz: ‘certainly’).

Wasserman calls these instances of *wadi* “promissory” (p. 71) and claims that “the certitude of the speaker regarding the event that will take place derives from the fact that the action will be performed by the speaker himself” (p. 72). This is contradicted by the fact that only one of them has a first person subject.

In the last three cases, “surely” may be a plausible translation, supported by the etymology of *wadi*. However, to gain certainty about the meaning of *wadi* + present or future, further study seems to be required. A general problem here is that a certifier reflects the attitude of the speaker towards the utterance but does not affect the contents of the utterance itself. This makes it difficult to find discriminating evidence disproving that *wadi* means “surely.”

This brings us to the second problem: if “it is known” is the original meaning of *wadi*, its use as a temporal adverb is a secondary offshoot of this: how likely is the development from “it is known” to “already”? Semantically, this development is not straightforward, yet it does not seem

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<sup>21</sup> But see the different interpretation of M. Birot in ARM 27, p. 119, note 1, who reads the numeral “four” instead of NINDA: ‘four among you.’ This avoids interpreting *ina BI-ri-ku-nu* as the infinitive of *berūm* ‘to be(come) hungry,’ which is syntactically and semantically dubious.

implausible. Past certainty implies that the event in question has really happened, and represents a small shift in focus from the (epistemic) reality to temporal reality: what has happened certainly implies that it is past and has already happened. However, I am not aware of an exact parallel.<sup>22</sup>

9. A noteworthy aspect of *wadi* is that it also occurs in Old Assyrian.<sup>23</sup> Here it is spelled *wa-dí(-i)* and *ú-dí(-i)* (see CAD U/W 409 s. v. *wuddi* a for examples). Since “*wuddi*” would regularly appear as *waddi* in Assyrian, and since Old Assyrian orthography leaves geminate consonants unexpressed, the Old Assyrian spelling offers no evidence on the issue of a single or geminate *d*. The alternation of initial *wa-* and *u-* is regular for words starting with *wa-* (*wardum* and *urdum* ‘slave,’ *warkatam* and *urkatam* ‘later,’ etc., see GKT § 12a). Thus nothing in Old Assyrian militates against *wadi/wadī*.

In Old Assyrian, too, *wadi* more often refers to the past than to the present or future, although the difference in quantity is less marked. The Old Assyrian evidence fully confirms the claim that in past contexts it is a temporal adverb. The best evidence comes from the unpublished letter kt c/k 261 from the *waklum*, who for all practical purposes may be called the “king of Assur” in this context, to the *kārum* Kaniš. It deals with a payment of six minas of silver which the trader Alāḫum has to pay to the king out of the proceeds of an *ellutum*, a commercial enterprise that Alāḫum has organized and in which the king had apparently invested. The king distinguishes two possible scenarios by means of a disjunctive conditional clause (24–31): ‘if they have not (yet) paid the silver and its interest, make his *ellutum* pay it, seal it and send it to me.’ (However,) *šumma Alāḫum wa-dí kaspam ište ellitīšu ilqe* ‘if Alāḫum has *already* received the silver from his *ellutum* (make *him* pay it, seal it and send it to me)’ (kt c/k 261:32–34). Here, “already” is the meaning that imposes itself for *wadi*, whereas “certainly,” “definitely,” “surely” or the like makes any sense.

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<sup>22</sup> Perhaps German *schon* offers a partial parallel: originally an adverb of *schön* ‘beautiful,’ it evolved from ‘in a beautiful way’ towards ‘in an appropriate, correct way,’ hence ‘completely,’ which could be understood temporally as ‘already’ (Pfeiffer 1989 III 1563a). A common source of words for ‘already’ consists of expressions for completeness and for being finished (Heine–Kuteva 2002:134).

<sup>23</sup> Thus it may be added to the list of words that are shared by Northern Old Babylonian and Old Assyrian as against Southern Babylonian mentioned by Kogan (2006:213), together with *assurrē* (if we disregard the sporadic instances of both modal particles in letters from more southern places).

Some other illustrative instances concern *wadi* with a resultative stative. In CCT 3, 20, Lamassi, the wife of the well-known trader Pūšu-kēn, replies to a letter from her husband (not preserved) in which he has instructed her to provide for beer bread (*bappirum*). She writes (CCT 3, 20: 36–37): *aššumi bappiri ša tašpuranni bappirum wa-dī epiš šaklul* ‘concerning the beer bread you wrote me about, the beer bread has already been made and completed (i. e. completely made).’

In CCT 4, 6e, the son of the same trader, who has apparently been sent abroad to learn to read and write, writes to his father (CCT 4, 6e:4–5): *tupšarruttam wa-dī lamdāni e-pá-da-am ana ummiānā šu-bi-lam* ‘we have already learned the scribal art, (so) send me an *epādum*-garment for my teacher.’

In both passages, a certifier is awkward, since nothing in the context indicates that these statements are a reaction to doubts or misgivings that Pūšu-kēn may have expressed about the realization of the event at some point in the past, which would call for and justify the use of a certifier (obviously, our knowledge about the background of these letters is totally inadequate to be certain). However, “already” fits perfectly.<sup>24</sup>

In Old Assyrian, instances of *wadi* in present and future contexts are relatively more frequent than in Old Babylonian, but hardly less problematic. An extensive discussion would be required which far exceeds the scope of this review. Generally speaking, a meaning “surely, definitely” fits the context but raises the above-mentioned problem that it contributes little to the meaning of the clause and is difficult to disprove.

10. Wasserman also includes *anna* among the modal particles and discusses it in the same chapter as *wadi*. In a recent article, I have discussed the meaning and background of *anna* from a different perspective (Kouwenberg 2012).<sup>25</sup> I argue that *anna* is related to the demonstrative pronoun *annūm* ‘this’ and locational adverbs such as *anniš(am)* ‘here,’ *annikīam* ‘here,’ and *annānum* ‘(from) here.’ All these words come from the deictic base *ann-*, which indicates a location near the speaker (as opposed to the bases *anumm-* and *ull-*, which indicate a location near the

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<sup>24</sup> Note that CAD L 55b s. v. *lamādu* 2 and CAD U/W 409a s. v. *wuddi* a give a wrong interpretation of the stative *lamdāni* (‘we are learning’): the stative of a stative/inchoative verb such as *lamādum* ‘to learn, to become acquainted with’ is primarily resultative, so *lamid* means ‘he has learned (and thus now knows),’ see Kouwenberg 2010:172–173 and Loesov 2012:117.

<sup>25</sup> Wasserman does not discuss the etymology or the “grammaticalization” of *anna*, as he does for all other modal particles.

addressee and “elsewhere,” respectively). Accordingly, *anna* has a strong association with the first person and is often followed by an emphatic or contrastive *anāku* ‘I.’ It is originally a presentative particle followed by a subject noun ‘here is ...,’ ‘here you see ...,’ ‘voici ...,’ etc., but is in Old Babylonian predominantly used to introduce a clause in which the speaker focuses on himself, in particular to highlight his commitment or his veracity. We may paraphrase it with something like ‘I can assure you that ...,’ hence more neutrally and more generally ‘surely, really, indeed’ (see Kouwenberg 2012:38–41).

This largely concurs with Wasserman’s account of *anna* (pp. 69–71), especially as regards the close association between *anna* and the first person, and the focus on the actions and the intentions of the speaker. However, the comparison between *anna* and *wadi* which Wasserman emphasizes and tries to illustrate extensively should be reconsidered if we interpret *wadi* in past contexts as a temporal adverb.

Moreover, it seems to me that *anna* has preserved at least part of its original deictic force, especially in contexts of arriving, such as ARM 1, 52:36–37 *anna ana GN akaššad tuḫpātīm (...) ušabbalakkum* ‘*anna*, I will arrive at GN and bring you the tablets’ (quoted on p. 69), where *anna*, originally “look (here),” points forward to the arrival of the sender of the letter and invites the addressee to visualize their meeting. Wasserman calls this use of *anna* “promissory” (p. 69) but I think that that misses the point. *Anna* is a borderline case between a deictic presentative particle and a modal particle with epistemic force.<sup>26</sup>

11. After the quartet of *pīqat*, *midde*, *wadi* and *anna*, Wasserman continues with the phrase *lū ittum*, a stranger amidst the expressions for epistemic modality, which for the rest comprises words and enclitic particles. *Lū ittum* occurs twenty times in the corpus (p. 93) and always goes with a past

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<sup>26</sup> Significant in this respect is ARM 1, 52:36–41 (p. 69, also partly quoted above in section 7 of this review) where *wadi* and *anna* occur side by side: “*Anna* I will arrive at GN and bring you the letters about which I spoke to you, so that you can hear them. *Wadi* in the month of Tirum I presented the matter before you ...” Wasserman translates *anna* as “indeed” and “*wuddi*” as “surely” (but inserts “already” between brackets: “I have (already) presented ...”!) In my interpretation, *anna* anticipates the future meeting of the interlocutors: “look!”, hence “as you will see” or the like, whereas *wadi* with the preterite *aškun* is a clear instance of “already.”

tense.<sup>27</sup> Its meaning is unproblematic: it is a “deductive expressing past certainty” (p. 83): by using this phrase, the speaker commits himself to the fact that a past event occurred and tries to draw the addressee to his own perspective. It creates a basis for conversation agreed upon by the interlocutors and eases the way for less pleasant things that follow: it forms a “conversational bond” between them (p. 85). Accordingly, *lū ittum* is strongly subjectifying (p. 87).

The meaning of *lū ittum* was established earlier by van Soldt (1992), who translates “let me remind you that ...” Since this translation nicely reflects its subjectifying force, it may be preferable to Wasserman’s translation “mark that” or “notice that.”<sup>28</sup>

In Wasserman’s system of epistemic modality (on which see section 17), *lū ittum* is semantically akin to *wadi*: they are both used by the speaker to create a common ground for the conversation by committing himself to the truth of a past event. If we interpret *wadi* as ‘already,’ the situation becomes rather different insofar as *lū ittum* no longer competes with *wadi* but is the only expression for this particular aspect of epistemic modality. Since *lū ittum* is a transparent combination of *lū* and the noun *ittum*, its “grammaticalization,” discussed on pp. 89–93, is also relatively straightforward.<sup>29</sup>

12. After the set of epistemic modal particles that are certifiers, Wasserman turns to a group of modal particles that express counterfactuality and irrealis, starting with the particle *tuša*. He defines the function of *tuša* as refutation: “assuming A but in fact B” (p. 94), and extensively discusses a large part of the 27 instances in his corpus, carefully distinguishing it

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<sup>27</sup> The suggestion on p. 82 that *lū ittum* also occurs in Old Assyrian is to be corrected: the letter kt 90/k 360, to which Wasserman refers with “Michel 2010:72,” although found in Kültepe, is written in Old Babylonian.

<sup>28</sup> I wonder whether the alleged interrogative variant *kī ittum* in M.5389 (Ziegler 1999, 56–57:10), quoted on p. 93, should not rather be interpreted as an unusual plene spelling of *kīttum*: *ki-i-it-tum-ma annītam aqbi* ‘is it true that I said ...?’ See CAD K 472b s. v. *kīttum* A 2d, e. g. *ki-it-tum-ma šābum ana libbi ālim ul īterub* ‘it is the truth that the army has not entered the town’ (*BaM* 2, 57 ii 29).

<sup>29</sup> However, Wasserman’s account of the etymology of *ittum* is contradictory. On p. 83 we read: “Whether *lū ittum* derives from the epistemic verb (...) *idûm*/*wadûm* is far from certain.” In note 26 on p. 90, it is correctly stated that it is difficult to associate *ittum* with the verb *idûm* ‘to know’ because *ittum* shows no trace of the final weak radical of the verb, but on p. 91 we read “*lū ittum*—which, we should not forget, is also derived from the knowledge verb *edûm*!” I cannot reconcile these statements.

from the general irrealis particle *-man*: whereas *-man* expresses non-reality of events, *tuša* expresses presuppositions about (non-)reality (pp. 97–99). When *tuša* refers to the speaker or the addressee, a good translation is usually “I/you assume ... but in fact ...”; when it refers to the third person, “it is/was as if ...” (p. 100). Wasserman’s discussion clarifies many problematic aspects of *tuša* and sheds light on several difficult passages, and I fully subscribe to his conclusions.

The only problem I have concerns the etymology of *tuša*. Starting with W. von Soden (1950:90; GAG § 121f), *tuša* has generally been associated with *tuššum* ‘hostile, malicious talk, slander.’ Wasserman deems this “very plausible” (p. 113). I think that this explanation is very unlikely. First, *tuša(-ma)* is never spelled with a geminate *š* (p. 95). Second, nothing in the actual use of *tu-ša(-ma)* points to an association with “hostile, malicious talk” or “slander”: the point of *tu-ša(-ma)* is just that a certain assumption someone holds is proved to be incorrect. Conversely, nothing in the use of *tuššum* as it is described (see especially CAD T 496–497 s. v.) suggests an association with the notions of irrealis and counterfactuality. In sum, any semantic association between *tuššum* and *tu-ša(-ma)* is tenuous in the extreme, not to say non-existing. The only argument in favour of *tuššum* is a superficial similarity in form, which is far too small a basis for a credible etymology. In many respects, *tu-ša(-ma)* resembles *pīqat* in terms of their “grammaticalization”: in both cases the main attraction of the traditional etymology is the absence of a straightforward candidate, but for *pīqat* we are in a slightly more favourable position since there is one source which is not completely implausible, whereas for *tu-ša(-ma)* there is nothing.

13. Chapter 6 offers a detailed and very welcome discussion of the irrealis particle *-man* and a few marginal other means to express an irrealis (*ībašši*, *lu*, and *ašar* (p. 115)).<sup>30</sup> I have little to comment on this.<sup>31</sup>

14. Chapter 7 discusses *kīša*, a fairly rare modal particle (about ten instances according to p. 143), which is problematic, not to say perplexing.

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<sup>30</sup> However, there is no Old Assyrian counterpart to the use of *ašar* to express irrealis: *ašar* can serve as a conditional conjunction similar to *šumma*, but not for counterfactual conditions, see, provisionally, CAD A<sub>2</sub> 415a s. v. *ašar* 3. Thus the only Babylonian instance Wasserman adduces (OBTA 43:12) remains isolated.

<sup>31</sup> It is not clear to me why Wasserman discusses the marginal use of *lū* as an irrealis particle in this chapter, but never mentions its more common “asseverative” function, which ranges *lū* among the certifiers of the first four chapters.

Wasserman starts with carefully distinguishing it from *kīma ša* “just as” and “as if,” which occasionally takes the form *kī ša*, either as a by-form or perhaps as a substandard or incorrect spelling.<sup>32</sup> This is a conjunction and thus introduces a subordinate clause, unlike the modal particle *kīša*.

The small number of instances, the fact that they tend to occur in highly complex and/or partly broken contexts, and their manifest association with irony and sarcasm make it difficult to find an all-encompassing definition of its meaning. A remarkable feature of *kīša* is that in striking contrast to all other modal particles *kīša* as a modal particle is almost unattested in the Mari corpus, and where it occurs it is problematic (see below). If we start with those Southern Babylonian instances that occur in relatively transparent contexts, they turn out to be relatively uniform and clear: *ki-ša* denotes an ironic or even sarcastic affirmation in reaction to a statement or an act of the interlocutor. This is Wasserman’s “*kīša* Denoting Irony and Sarcastic Objection” (pp. 144–146). A concrete translation might be something like: “(it looks) as if ...,” hence “apparently (you think that) ... (but in reality it is quite different).”<sup>33</sup>

Actually, one of the most telling examples is the only Old Assyrian instance attested so far, which is as follows: (I wrote you several times as follows) *ki-ša-ma amtam ša kēnātīm ina maḥrīa tēzib* ‘you definitely left a real slave girl in my presence’ (kt c/k 266:25–26), where the sequel leaves no doubt about the sarcastic meaning of *kīša*: “the slave girl quarrels with me and when I tell her: “grind 5 *silā* of grain!”, she won’t do it and even as few as two *silā* of grain she refuses to grind for me.”

Wasserman argues that in Southern Babylonian *kīša* is also used as a certifier without any ironic shading, but the two instances he quotes are both problematic: Goetze 1958:69, No. 44:5–15 and Goetze 1958:42, No. 19:5–10 (pp. 146–147). The former is unclear because it contains a sequence of signs that seems incomprehensible without some kind of emen-

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<sup>32</sup> In ShA 1, 4:11–12 quoted on p. 140 (and also on p. 8), read probably: *i-na ša li-il-lu u ʾēmšū maqtu* ‘as a result of the fact that he is crazy (with *lillu* 3sm stative subjunctive) and out of his mind.’ *Ina ša* occurs a few times in Mari texts in the form *iš-ša-a* (CAD I/J 262a s. v. *išša*) and is also attested in Old Assyrian (CCT 4, 8a:23).

<sup>33</sup> Additional instances in Southern Babylonian letters are difficult to judge, since they are heavily restored (AbB 6, 63:5’–7’ quoted on p. 151 and AbB 1, 6:16 in broken context, not discussed). Also in AbB 14, 182:8–15 discussed on p. 146 a crucial word is uncertain.

dation, although an ironic shading cannot be ruled out.<sup>34</sup> In Goetze 1958: 42, No. 19:5–10 (p. 146) the damaged signs in the crucial line 5 make any interpretation dubious; however, since the letter contains an appeal of the writer to the addressee, it is unlikely that he would be sarcastic.<sup>35</sup> It seems that we have to wait for additional instances in transparent contexts to be sure about the exact meaning of *ki-ša(-ma)*.

It is possible that for *kīša*—just as for *pīqat*—the relationship between writer and addressee is important: you cannot afford to be sarcastic when writing to a superior. This is also suggested by the Middle Babylonian instance EA 7:69–70, a letter from king Burnaburiaš to the pharaoh, discussed on p. 141: “*ki-ša* my brother did not check the previous (shipment of) gold; (it was only) a deputy of my brother who checked the gold.” By means of *ki-ša* the king tactfully offers the pharaoh an escape route from the embarrassment of having to admit that he sent B. gold of a very poor quality. Here, *ki-ša* seems to have weakened to “apparently” or even “perhaps.” In any case, sarcasm seems inappropriate in this diplomatic letter.

The very few instances of *ki-ša* in Mari letters that Wasserman mentions are perplexing, especially the unpublished passage quoted on p. 147, where it stands in a context which normally has *wadi*: *ki-ša* 1-šu 2-šu ù 3-šu [*ana bēlīy*]a *ašpuram* (see section 6 above). In FM 9, 56:3–15 quoted on pp. 150–151, *ki-ša* seems to replace *tuša* (“*ki-ša* he went to X, but (in fact) he came to me”).

As to the etymology of *ki-ša* (cf. pp. 141–143), Wasserman plausibly argues that the first syllable contains some reflex of the element *kī-* also present in *kīma* and *kīam*, etc. It is possible that the second syllable contains the determiner *ša*, as Wasserman suggests, but it seems hazardous to fill in more details. The claim that *ki-ša* directly comes from *kī(ma) ša* ‘as if’ is contradicted by the absence of a subjunctive after *ki-ša(-ma)*, and

<sup>34</sup> Goetze 1958:69, No. 44:10–11: (you did not give me a slave girl) *ki-ša-ma ina īnika a-na a-ni-iš-ba ibāšši* “evidently, in your eyes it/she is ...” Wasserman: “surely, your mind doesn’t go in my direction.” This accords with the interpretation given in CAD A<sub>2</sub> 133b s. v. *annīš* b “[though] you are not interested in me’ (apart from “though”).

<sup>35</sup> Goetze 1958:42, No. 19:5–10: *a[ššu]m PN ki-ša-ma l[a(-) x (x) -um gimillam eliš[u š]ukun aššumīya wuššeršu*, where the editor, CAD K 445b s. v. a and Wasserman restore *l[a ku]-ú-um*: ‘concerning PN, *ki-ša-ma* he does not belong to you. Do him a favour and release him for my sake!’ (according to the copy, KU seems plausible but Ú seems unlikely). Wasserman translates ‘surely, he does not belong to you!’ This is possible but conjectural, since we do not know anything about the background of the letter and the persons involved.

grammaticalization of a conjunction to an adverb is unusual: the normal development is the opposite: adverb (or adverbial phrase) > conjunction, as can be illustrated by numerous instances from Akkadian.<sup>36</sup>

15. Chapter 8 deals with *assurrē*, the most common modal particle by far, amounting to more than 200 instances in Wasserman's corpus. Since almost all instances come from Northern Babylonian, it forms an isogloss of Mari Old Babylonian and Old Assyrian similar to *wadi*.<sup>37</sup> There is a lot of controversy about its meaning (pp. 155–156), which, I think, is largely resolved by Wasserman's discussion.

Wasserman argues that *assurrē* is volitive, i. e., it expresses hopes and fears of the speaker, and that it is closely associated with "something unwanted," an idea that is lacking in some of the earlier accounts (summarized on pp. 155–156), such as that in CAD S 412a s. v. *surri* lex. section: 'definitely, certainly.' It is therefore strongly subjectifying and mainly accompanied by tense forms referring to present or future (p. 163).

Wasserman provides a relatively simple and useful rule of thumb on the basis of its co-occurrence with a specific negation:

- (1) *assurrē* by itself: 'I am afraid that sth unwanted might happen';
- (2) *assurrē* ... *ul*: 'I am afraid that sth wanted might not happen';
- (3) *assurrē* ... *lā*: 'I hope that sth unwanted will not happen';
- (4) *assurrē* ... *ay*: 'would only that sth unwanted not happen.'

The remaining possibility ("it is to be hoped that sth wanted will happen") is expressed by the precativ, not with *assurrē* (p. 160).

Especially noteworthy is Wasserman's observation on pp. 170–172 about the meaning of *assurrē* in royal letters, where the relationship between sender and recipient imparts a rather different nuance (as with *pīqat*, see section 3): when the king writes to a servant "I am afraid that you will ...," he may actually mean 'make sure that you do not ...' In this context, *assurrē* may become a subtle way to express an urgent recommendation or even a veiled threat.

However, certain aspects of *assurrē* do not get all the attention they deserve. One is the huge difference in frequency between the four configura-

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<sup>36</sup> E. g. *aššum* 'concerning the fact that, in order that, because,' *inūmi* 'when,' *ullānum* 'as soon as, apart from the fact that' (CAD U/W 77b s. v.; Kouwenberg 2012:57).

<sup>37</sup> Wasserman only mentions three instances from "Southern Old Babylonian" (p. 175–178): three from AbB and Held 1961:8 iii 11–15. One could add a few others, such as AbB 11, 42:20 and 156:15 (UZ-*sū-ur-re-e-ma*, presumably with UZ = AZ<sub>2</sub>) and Goetze 1958:14, No. 1:41.

configurations. Wasserman only states that *assurrē ... ay* is very unusual (only two instances). I made a superficial count of the 47 instances of *assurrē* in ARM 26 according to the list on pp. 176–177: it reveals one instance of *assurrē ... ul* (ARM 26/2:318 discussed on p. 158) and two of *assurrē ... lā* (76:17–35 and 411:62–67). On the assumption that this is representative, *assurrē* with a negation is a fairly marginal use, especially with the “factual” negation *ul*.

A more important omission is an explanation of the correlation between the nuance conveyed by *assurrē* and the meaning of an accompanying negation. The examples of *assurre ... ul* that Wasserman discusses on pp. 157–158,<sup>38</sup> demonstrate that *assurrē ... ul* is related to *assurrē ... lā* in the same way as *ul* to *lā* without *assurrē*, i. e. as a realis with future reference (*ul illakam* ‘he will not come’) to a deontic “prohibitive” (*la illakam* ‘may he not come, he should not come, let him not come’), see especially the two passages with *ul* discussed on p. 158: FM 2, p. 328, No. 35:23–31 and ARM 26/2, 318:26–32.

This enables us to make a clear distinction between a “modal” *assurrē* (configurations 3 and 4 in the “rule of thumb” presented above) and an “indicative” *assurrē* (configurations 1 and 2). In the former, the “modal” meaning is basically situated in the verb form (prohibitive or vetitive) and *assurrē* serves to strengthen it, presumably (also) by adding a nuance of apprehension concerning the realization of the event, e. g., both *assurrē bēlī lā iqabbi* and *assurrē bēlī ay iqbi* mean ‘may my lord not say’ (with a nuance of apprehension). Without *assurrē*, these phrases have a similar meaning, though possibly less emphatic and more neutral. In this respect, the interpretation of *assurrē* + negation as “by no means,” etc., in earlier accounts such as that of CAD S quoted above is basically correct.

In the “indicative” *assurrē*, on the other hand, the particle has its own meaning, independent of any form of negation, and expresses the fear of the speaker that something is (not) going to happen: *assurrē bēlī iqabbi* ‘I am afraid my lord will say,’ and *assurrē bēlī ul iqabbi* ‘I am afraid my lord will not say.’

This results in the curious contrast between *assurrē ... ul*, which is semantically equivalent to a double negation, and *assurrē ... lā*, which is a single (strengthened) negation: *assurrē bēlī ul iqabbi* ‘I am afraid my lord

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<sup>38</sup> See also Wasserman 1994:328–330 for *assurrē ... ul* (although in several passages quoted in this article *assurrē* does not modify the verb with *ul* but with a subsequent verb, in accordance with the “phrasal arrangement” described on pp. 167–170).

will not say,’ hence ‘I hope my lord will say,’ versus *assurrē bēlī lā iqabbi*, which amounts to ‘I hope my lord will not say.’

Likewise, the difference between *lā* and *ay* after *assurrē* corresponds to the difference between *lā* and *ay* without *assurrē*, i. e., to the difference between the prohibitive and the vetitive in general. This explains why *assurrē* + vetitive is so rare in the corpus: in Old Babylonian letters, the vetitive by itself is also rare and mostly restricted to formulaic expressions of politeness. It expresses wishes and (negative) exhortations but hardly ever concrete negative commands, which is the exclusive domain of the prohibitive (Kouwenberg 2010:218–219). So I cannot agree with Wasserman’s formulation (p. 159) that the difference between *assurrē ... lā* and *assurrē ... ay* is that of an expression of a wish versus an exclamation “would only that ...”

These considerations lead to the following slightly revised “rule of thumb”:

- (1) *assurrē* by itself: ‘I am afraid that sth will happen’;
- (2) *assurrē ... ul*: ‘I am afraid that sth will not happen’;
- (3) *assurrē ... lā*: ‘may sth definitely not happen’ (+ nuance of apprehension);
- (4) *assurrē ... ay*: ‘may sth definitely not happen’ (+ nuance of apprehension).<sup>39</sup>

Here seems to lie the answer to the question that Wasserman discusses on pp. 160–162, whether *assurrē* does not express deontic rather than epistemic modality: *assurrē* and *assurrē ... ul* belong to epistemic modality and *assurrē ... lā* and *assurrē ... ay* to deontic modality. However, in specific contexts epistemic expressions can take on deontic meaning, as Wasserman argues (p. 162) by means of FM 2, p. 326, No. 32:59’–61’: when Samsi-Addu writes to his son Yasmaḥ-Addu *as-sū-ur-re kīma ina tuḫḫiya šatru tašapparšu* ‘I am afraid that you will write to him (exactly) as is written in my tablet,’ *assurrē* by itself is epistemic but the pragmatic status of Samsi-Addu’s statement is clearly deontic: ‘don’t write to him ...’

In Old Assyrian, *assurrē* is also fairly common but only in combination with a vetitive (which is quite common in Old Assyrian letters, in marked contrast to Old Babylonian letters). It reinforces the vetitive, hence ‘by no means, in no way,’ see CAD S 411b s. v. *surri* c-3’ a’ for examples. This raises the interesting question of the historical relationship between “indicative” *assurrē* and “modal” *assurrē*: has Old Assyrian lost the former and retained only the latter, or is “indicative” *assurrē* an innovation of (mainly) Northern Babylonian which did not spread to Old Assyrian? It

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<sup>39</sup> I find it difficult to hit upon a satisfactory English expression for this complex meaning.

might have been possible to answer this question, if we had any idea of the etymology of *assurrē*. However, we do not. Wasserman offers a detailed account of the fruitless speculation that has been going on and concludes, quite rightly, that for the time being the question must remain unanswered (pp. 172–174).

16. The enclitic particle *-mi* discussed in Chapter 9 concludes Wasserman's discussion of epistemic modality in Old Babylonian. Wasserman demonstrates that *-mi* is not simply the marker of reported direct speech which it is generally considered to be, but that it does belong to the expressions of epistemic modality: in Old Babylonian letters, it denotes "the noncommitment of the speaker to his words," i. e., it indicates that the speaker does not vouch for the truth of the words of other people he quotes. Wasserman calls it a "spacer," a means for distancing oneself from the contents of quoted words. Thus *-mi* expresses strong perspectivization (pp. 184–185).

However, *-mi* only shows this meaning in letters. In literary texts, where it is also common (Wasserman reports about 40 instances), *-mi* indicates an apostrophe, a direct address to a person who is present in the situation, which interrupts the narrative or alternates with it (pp. 188–189).

Study of *-mi* in Sargonic Akkadian texts (royal inscriptions and letters) reveals that the function of *-mi* in Old Babylonian letters is an innovation. Originally, then, *-mi* is an additional, strengthening marker of direct speech (which is optional) without any modal meaning. The change is presumably related to the grammaticalization process of *umma*, which establishes itself in the Old Babylonian period as the unmarked way of introducing direct speech. This made *-mi* available for the more specific function of spacer. In literary texts, *umma* is hardly ever used so that *-mi* could keep its original function.

17. The final Chapter 10 wraps up the conclusions of the preceding nine chapters, after a short list of other words which may also have to do with epistemic modality but are too uncertain or too infrequent to be sure. The modal particles are compared from several points of view, such as their syntactic profile, their co-occurrence with specific tenses and negations, their position in the clause, their frequency, their geographical distribution, and their reflexes in the literary tradition (pp. 208–215). This culminates in an outline of what Wasserman calls the "system of epistemic modality in Old Babylonian" (p. 215). He locates the modal particles on four conceptual axes:

- (1) Possibility → certainty, expressing the speaker's assessment of the veracity of his words. In Old Babylonian, *pīqat*, *midde*, "*wuddi*," and *anna* form a "scalar quadrad" denoting a set of gradations from possibility (*pīqat*) to probability or predictability (*midde*) to certainty ("*wuddi*" and *anna*) (p. 215).
- (2) Refutation ↔ affirmation: asseveration of confirmation of a particular event ("*wuddi*," *lū ittum*, *anna*, and to some extent also *kīša*) versus refutation or counter-assertion of a particular event (*tuša*).
- (3) Nonrealization ↔ realization: improbability (mainly for future events) and counter-factuality, all broadly speaking denoting irrealis (*-man*, *lū*, *ibašši*, *ašar*).
- (4) Subjectification → perspectivization: concerns the gradual degree of participation of the speaker in the state of events he refers to, or the level of identification of the speaker with the "I" embedded in his account (see section 1). Subjectification characterizes *assurrē* and *lū ittum*, to a lesser extent also "*wuddi*"/*anna* and *kīša*; perspectivization applies especially to *-mi*, and to a lesser extent also to *pīqat* and *midde*.

In numerous places, Wasserman employs the term "the system of epistemic modality." The term "system" suggests that there is a similarity between the modal particles and other areas of the grammar that are commonly considered to be a system, such as the verbal system that expresses tense, aspect and mood distinctions, and—on a smaller scale—the system of locational adverbs, which I have described in a recent article (Kouwenberg 2012:51–68). These systems are characterized by a tight structure, in which the entire domain is exhaustively covered and partitioned in such a way that a specific form predictably serves a specific function, with a regular relationship between form and meaning. The locational adverbs, for instance, consist of a base and a suffix, each of which has a consistent meaning, so that the meaning of each member of the system is predictable, and the entire conceptual domain of referring to a location by means of an adverb is covered and neatly partitioned.

The modal particles discussed in this book, however, show none of these features. Formally, they show no relationship at all, and each has its own individual form with its own (mostly obscure) etymological background. Nor is there much of a semantic structure detectable in the epistemic particles, especially if we omit *wadi* insofar as it refers to the past. The picture is more that of a number of partly overlapping unrelated particles that partition the domain of epistemic modality in a haphazard

way. Their epistemic meaning looks like the outcome of individual processes of lexicalization starting from disparate linguistic elements. If we want to capture them graphically, it is rather a picture of circles in a field that overlap in some areas but leave other parts of the field uncovered.

In this respect, the modal particles are like other kinds of adverbs, such as adverbs of time or manner, or like prepositions: they share a syntactic function and a certain semantic similarity (e. g. for prepositions: goal, source, manner, location in space or time, etc.), and some of them even share formal properties such as a common base or a common suffix. The modal particles do not even have that kind of common feature. What they share is their epistemic function, which is by itself a sufficient reason to discuss them together and in their relationship to each other. There is indeed a conceptual system reflected in those four axes but in Old Babylonian the formal realization of this system is haphazard, diverse and thus unsystematic.

18. A final question that intrigues me is: how does one say “most probably” in Akkadian (or at least in Old Babylonian)? Wasserman does not answer it explicitly, and among the modal particles he describes there is no obvious candidate. Most probably, he would push forward *midde*, but that seems unlikely to me, as I argued in section 5. Generally speaking, I doubt whether the speakers of Akkadian possessed distinct lexical means for the subtle epistemic nuances expressed in modern languages by terms such as ‘perhaps,’ ‘probably,’ ‘presumably,’ ‘undoubtedly,’ and ‘most probably.’ This part of our vocabulary belongs to, or at least originates in, a kind of intellectual discourse that did not yet exist in ancient Mesopotamia. This does not mean that the Babylonians were not able to express these nuances in a very precise way, but alongside lexical items there are other ways (linguistic and otherwise) to make one’s views clear to one’s speech partner which are not visible in the written documents we have.

I have left many aspects of this important monograph untouched, and in keeping with the purpose of a (critical) review I have given more focus and space to points on which I disagree with the author than to the many things with which I heartily agree. This should not conceal the fact that Wasserman has produced a rich and pioneering book, that is an indispensable guide for anyone who is confronted with one of the modal particles discussed and lays a solid foundation for the future debate it will undoubtedly generate.

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Ilya Arkhipov, *Le vocabulaire de la métallurgie et la nomenclature des objets en métal dans les textes de Mari*. Matériaux pour le Dictionnaire de Babylonien de Paris. Tome III (= Archives royales de Mari XXXII). Leuven: Peeters, 2012. 538 pp.

The book under review is a study of the terminology of metallurgy and of words for or associated with metal objects that occur in Old Babylonian texts from the palace archives at Mari. This is the third volume in the important series *Matériaux pour le Dictionnaire de Babylonien de Paris*. The first volume, *La nomenclature des habits et des textiles dans les textes de Mari* (= ARM XXX), was published by Jean-Marie Durand in 2009, and the second volume, *La vaisselle de luxe des rois de Mari* (= ARM XXXI), by Michaël Guichard, appeared in 2005. As indicated by the name of the series and stated by Durand in the preface to *Tome II*, its primary aim is to provide a list of the technical vocabulary contained in the Mari texts. This is achieved by studying letters and administrative documents that deal with aspects of material culture, such as the various textiles of wool and linen in *Tome I*, luxury containers (often of metal) in *Tome II*, and metal objects and their metallurgical treatment in the present volume. A fourth volume, dealing with wooden objects, has been announced. All volumes share a common structure, which consists of an introduction and discussion of the words arranged according to subject matter, and a presentation of the documentary evidence in chronological order. This evidence consists of texts edited before, but now presented with improved readings based upon collations, and previously unpublished or partially published material. In view of the substantial amount of administrative documents, these text corpora take up nearly twice the number of pages devoted to the introduction and study in *Tomes I* and *III*. Even so, the corpus may be incomplete because some texts were edited in another volume or were not included for other reasons.

After a brief introduction in which the principles of administrative documentation of metal at Mari are elucidated, there follows the heart of the book, the *Glossaire* (pages 7–175) with 294 entries. This lexical part is divided into twelve sections: I. Metals: lead, tin, gold, silver, iron (*parzillum*), copper and the alloy bronze; II. Ingots: *kakkar(t)um*, *kaniktum*, *kubdum*, *lêrum*, *ruqqum*, *sankuttum*, *šibirtum*; III. Metallurgical terminology: *balālum*, *bill(at)um*,

*marāqum*, *mesûm*, *patāqum*, *pitqum*, *sekêrum*, *šādum*, *šarāpum*, *šinipêtum*; IV. Precious stones and stone-like substances (22 entries); V. Terminology for beads (45 entries); VI. Decorative techniques (18 entries); VII. Jewellery and seals and parts thereof (46 entries); VIII. Weapons and sceptres (46 entries); IX. Tools (37 entries); X. Vehicles (types of vehicle: 5; componentparts: 21); XI. Containers (except for those listed in *Tome II*; 9); XII. Varia (21 entries).

The context in which these terms occur is presented in the following chapter, *Textes* (pages 177–490), which contains transliterations of 114 “new” texts, 531 re-edited texts (including many joined fragments), and 95 quoted texts. It does not deal with documents in which metals occur as a means of payment or as objects of trade, nor does it include texts from the *Šakkanakku*-period or letters. The user-friendly consecutive numbering of the evidence in XXXI has, regrettably, not been maintained. This corpus is followed by a list of the edited texts and their relevant page number, and by indices of toponyms, personal names and names of deities, of seal inscriptions, and of words discussed. There is no bibliography.

This book is important for archaeologists and art historians as well as for specialists of cuneiform culture because it offers a comprehensive overview of the artefacts made from the various metals with the evidence of their fabrication and their weight whenever available. This ranges from mass-produced items such as nails, pins and sickles to elaborate and costly jewellery, the Akkadian terminology of which is often difficult to translate. References to K. Reiter (1997), P. R. S. Moorey (1994), as well as some other pertinent publications place the discussions in a wider (Mesopotamian) perspective. Little use appears to have been made of archaeological publications about Mari. The book by G. Nicolini (2010) would have been a good companion study, but it appeared too late for the author to discuss its findings in this book. Comparative lexical details mainly come from entries in the Akkadian dictionaries (AHw., CAD). The volume is well edited.

Metal arrived at the Mari workshops (see below) either in the form of finished objects or as ingots ranging from raw metal to metal of high purity. Some of the metal was bought from merchants and others, but often it was part of diplomatic gift-exchange. The terminology used in these texts therefore refers to melting, refining and casting, and any subsequent working of the objects. Iron (*parzillum*) forms an exception in that it was not melted or cast (see Guichard 2005:128), and as such was classified between metals and precious stones. There appear to be no references to

meteoric iron, which is called *amutum*, *ašium*, KÛ-AN in Old Assyrian. The logogram KÛ-AN-N[A] occurs in XXIV, 216:2 and it is translated “fer météorique” in XXX, p. 553, but the author regards it as a variant for AN-NA “tin.”

The author discusses the verbs for melting and refining in section III. For the benefit of the reader I add comparable evidence from Old Assyrian texts.

gold: *sekērum*, *šādum* D; OA: *bašālum* Š, *šarāpum*, “to bring into the fire”;  
 silver: *mesûm*; OA: *mesûm*, *šādum* D, *šarāpum*; adj. *šarrupum*, *ammurum* (but never \**šaʔudum*);  
 copper: *mesûm*; OA: *mesûm*;  
 iron: (not attested); OA: *šarāpum* (of meteoric iron).

The verb “to wash” (*mesûm*) is used with copper and silver, “to heat” (*sekērum*) with gold (in a furnace lasting several days; perhaps cementation), *šādum* D is used with gold and silver (in a furnace; perhaps cementation), and “to fire” (*šarāpum*) with gold, silver, and meteoric iron. All these verbs imply the use of fire to melt the metal in order to remove unwanted impurities either as slag or by means of evaporation or oxidation. The author is hesitant to render *šarpum* by “refined” when it refers to silver, noting that the verb *šarāpum* is not attested in this meaning in Mari; where the context demands a translation he uses *nettoyer* instead. The verb does, however, occur in OA, see Larsen 2010:147 VI-a, No. 74:29 (KÛ-BABAR *lu-ša-ri-ip-ma*). To the section on silver can be added the logogram KÛ-BABAR UD-A in the letter I 28:24; Durand translated it “argent blanc” (LAPO 16, p. 65), which is difficult in the absence of any “white silver” in Mari texts (see p. 12). It is more likely that the logogram UD-A has to be rendered *šarpu*. Interestingly, this logogram occurs without KÛ-BABAR in an Old Assyrian letter (kt c/k 737:8, 9) where the context demands the meaning “money.”

The author notes on p. 26 in his discussion of losses resulting from the refining of silver (on average 4%), that these losses are much higher than in Cappadocia. But I have demonstrated earlier (see Dercksen 2005:24), the loss of refining silver in Kanesh is on average 4.3%, whereas the refining in Assur (in fact another refining) of silver arriving from Anatolia resulted in a loss of on average about 0.8%. It was the different degrees of purity of silver circulating in Anatolia that made it necessary for the merchants there to express the value of debts and bullion silver by using the qualification *kaspum šarrupum* “refined silver.” In fact the losses in Mari are close to those occurring in Kanesh inasmuch as they concern cases in which unrefined silver had been obtained. As for the only exam-

ple of secondary refining in Mari this is the same (at 0.8%) as the losses caused by the secondary refining in Assur. Naturally specific losses in Mari and in Kanesh and Assur vary within the rather limited corpus of relevant texts.

## Gold

To the evidence of qualifications of gold on p.10 can be added KÛ-GI *i-ša-um*, XXXI 178 (= XXV 498):2; this is the equivalent of KÛ-GI SI-SÁ “of ordinary quality” in Ur III terminology.<sup>1</sup> The evidence collected on p. 10 demonstrates that KÛ-GI BABAR (*pešû*, *pušû*) and KÛ-GI SU<sub>13</sub>-A (previously translated *or en feuille*) are the qualities of gold that occur most frequently in the Mari texts. The author translates the first as “white gold” and the other as “red gold,” considering it as the equivalent of Akkadian *sāmu* and synonymous with *širpu* “(or) de couleur intense.” These colour designations were earlier discussed by Waetzoldt, who argued that the best quality was called 𒁺-𒊕 in Sumerian Ur III documents, and in Akkadian *sāmu* “red”; both have the highest prices in silver. He concluded that pure gold was “etwas Goldgelb-Glänzendes” to the Sumerians, whereas the Akkadians might have expressed the “ganz leicht rötlichen Schimmer des reinen Goldes” by *sāmu* “red.”

Nicolini also comments on the colours, but he started from the gold artefacts excavated in Mari. These can be broadly categorised into two groups, “light coloured” and “yellow.” As far as the chemical composition of these objects could be analysed, the first category consists of *jaune clair* (“yellow gold slightly lighter than fine gold” and a natural gold) with 8–12% silver and less than 1% copper, and electrum and *l’or clair ou très clair* with 18–50% or more silver, 0.5–12% (sometimes more) copper. The second category consists of *or jaune*, a natural gold with 8% silver or less, and 1% copper or less; *or jaune soutenu* (no analyses available, but probably with a copper content of 5–7%); and *or rose* (modern *or rose* contains 6% silver, 19% copper), which is more like a *jaune rosé* gold at Mari. Nicolini identifies the *or jaune soutenu* and *or rose* with the “red” gold of the Mari texts. He remarks (p. 19) that gold should be malleable when used for plating or for working gold foil. Such gold necessarily contains copper, which may give it a deeper colour. Nicolini adds that many artefacts have been made from this deep yellow gold (i. e. “red gold”), which is either a natural gold or results from intentionally alloying it with copper; the type

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<sup>1</sup> Waetzoldt 1985:2.

of gold used is sometimes unrelated to the physical properties most suited to the artefact, which suggests that Mesopotamians valued gold in this hue.

The quality of the gold is only rarely indicated in the textual evidence for gold foil used for plating (*iḥzu*) listed on p. 61. When it is indicated, “white” gold is used in two cases (M.8703:1; M.11699) and “red” gold in at least seven other cases; once *pitqu* is used (M.10550:1). From the three X-ray fluorescence analyses of gold foils from Mari listed in Hauptmann–Pernicka 2004:149, Nos. 2597–2599 we see that these contain 18.7%, 21.1% and 21% of silver respectively (with ca. 99% gold and silver together). So according to Nicolini’s definition these pieces of gold foil are “white.”

The Old Assyrian terminology similarly distinguishes between “white” and “red” gold, but the “red” gold was not always of the greatest purity as comparing the two pertinent texts demonstrates. Kayseri 69:56–57 distinguishes between SIG<sub>5</sub> “good” and *ša šabšulim* “to be ‘boiled’,” which in all likelihood means the quality is such that it needs subsequent refining. The latter expression occurs in WAG 48–1462:16–17 (Larsen 1978:114), KÙ-GI *sà-ma-am ša ša-áb-šu-lim* “red gold that needs refining.”

The word for refined gold (KÙ-GI LUḤ-ḪA) is first attested in an Old Babylonian text from Uruk.<sup>2</sup> The refining may be achieved by means of cupellation, which involves the addition of lead and is a method to separate silver from gold. Cementation can be used to refine gold by the addition of salt. A combination of cupellation and cementation for gold refining is also possible, but the Mari texts dealing with gold refining that are available to us do not seem to refer to the use of lead or salt. Note that a well-preserved vessel (Pec III-56) with two mouthpieces (one for the tuyère, the other as the exhaust) was found in a tomb in Mari (Tombe Pec III T-3) dated to the 29th century B. C., which Nicolini suggests was perhaps used for the cupellation of gold (Nicolini 2010:419; photo p. 412, pl. 708). In view of the lack of evidence for gold refining before 2000 B. C. (see also Nicolini 2010:46), this vessel may rather have been used for the refining of silver. The verb commonly used with gold in Mari is *sekērum*; *šādum* D is used in only one text (IX 266). The proposal by L. Marti to interpret the last verb as “to cupel” is rejected by the author, who favours the process of cementation and proposes that this technique was used to

<sup>2</sup> Sanati-Müller 1990:138, No. 89.

obtain “red gold” from “white gold,” implying that it was possible to separate the silver from the gold.

“Red” gold also occurs in VIII 6, a letter sent by Mukannišum to Zimri-Lim, in which he describes in detail how gold was assayed. This text unfortunately is not included in the corpus of texts. J.-M. Durand studied the letter in *MARI* 2:129–130 and gave a translation in LAPO 16, No. 108. The text has also been studied by Th. Sturm 1995:494–495, in an article not considered by the author. According to Durand this text describes the testing of the quality of gold ingots by means of the cupellation of the gold in a furnace. This was done by removing some of the gold from the ingots and “put that into the furnace.” There was a loss of 25/180, and the goldsmiths declared that the gold was not *sām* “red” (containing copper) and therefore not suitable for the purpose.

Durand’s interpretation was challenged by H. Waetzoldt (1985:9), who argued for the opposite. Assaying by means of cupellation would separate the copper from the gold and what remained would be a “hell-oder blassgelbes Gold” containing silver. He continues, “Er konnte mit seinem Ausspruch folglich nur gemeint haben, das gelieferte Gold war nicht —wie erwartet— rein, sondern mit Kupfer ‘gefärbt’.”

## Bronze

The Mari texts contain two remarkable pieces of information about bronze technology: the *Protocole des fondeurs*, published as XXV 714 (p. 227) and dated to ZL2; and the so-called “two-thirds” (*šinipêtum*) concerned with the loss of tin in the process. The Protocol gives the accepted losses when alloying copper and tin of different qualities and when casting the bronze that results. It allows for a loss of  $\frac{1}{120}$  when good quality copper and tin are alloyed, and a loss of  $\frac{1}{60}$  in case both are of poor quality. Casting also causes losses:  $\frac{1}{120}$  with good bronze, and  $\frac{1}{60}$  with bronze of poor quality. The texts from daily practice do not refer to the addition of any substance to the melt, such as the enigmatic SU<sub>13</sub>-GAN known from Babylonian texts (which counts for one-third of the quantity of the tin in the Uruk text (published as Sanati-Müller 1990:198, No. 139).

Several texts mentioning the amounts of copper and tin used to make bronze contain the word “two-thirds” (pp. 29–30). It refers to the amount of tin that remained in the alloy, often two-thirds, but sometimes a different proportion. The author rightly remarks that this must derive from empirical observations. Apart from the use of impure materials as already indicated by the Protocol, one might add that the loss of tin can also be

caused by heating the melt too much and longer than needed. What is then the meaning of XXIV 174+ (p. 198), where the amounts of tin are not included at all in the weight of the bronze objects to be made? The totals at the end of the text list the amounts of copper and tin and the silver necessary to buy that tin (at 1:10).

The term “cows’ ear” (*ú-zu-un ÁB-ĦI-A*) suggests a crucible.<sup>3</sup> It occurs in two similar passages in which the coppersmith Ili-šamši receives materials to make three bronze tubes (GI) for (*ša/ana*) “cows’ ear” and three *na-ap-pa-hi* (pp. 171–172; XXV, 320:18–22 on p. 380 and XXIV, 278:6’–8’). It remains unclear what function these objects fulfilled. Moulds were used in casting (*patāqu* with preterite G in *u* for Babylonian *i*) many objects but few references exist to these moulds or the parts of them. The word *rātu* is used (p. 142), but only twice in this corpus, in the context of oil issued to prepare the stone mould for casting; it clogged any pores. A mould for two arrowheads was found in a context dating to the *Šakkanakku*-period.<sup>4</sup> Another word (not mentioned in this book) might be *milītu* in XIII, 19:14, 16, 23, which Durand rendered “the act of filling a mould” (*fait d’emplir*) in his edition of this difficult and damaged letter in LAPO 16, p. 241, and which one can “open” (*mi-le-te-šu ip-te*). This might refer to the use of a two-piece mould. By means of an internal core a hollow portion could be obtained, for example as a shaft-hole for axes and similar tools (cf. Müller-Karpe 1994:15). Apparently the author had a shaft-hole in mind when interpreting XXI 269, which records the receipt of “10 shekels of emery (*šammu*) for the piercing of (*ana palāš*) *marri mahlaši*.” He noted in his commentary to *marru* “spade” (p. 136) that this text demonstrates a spade had a shaft-hole. However, the archaeological evidence does not suggest that the spade-blade was attached to the shaft by means of a shaft-hole (see Stol 2011:628–629). In his discussion of the metal tools from Tell Sifr,<sup>5</sup> Moorey noted the absence of shaft-holes from the spade-blades; instead there are two holes in which rivets were fixed. This makes it more likely that the drilling in the spades and *mahlašu*-tools of XXI 269 aimed at creating holes for the rivets. There are two Akkadian words as possible candidate for rivet, *sikkatum* (see Stol 2011:626b, § 5) and *maršatu* (which Guichard regards as pl. fem. of *maršu*). The latter word occurs in XXII 197: “50 shekels of copper *ana marša-at* of 2 spades”; for this the reader is referred to Guichard, XXXI, p. 135

<sup>3</sup> This seems preferable to taking it as the Mari equivalent of a later word which is translated “ox-ear” and denotes a plant, see CAD U/W 368.

<sup>4</sup> Margueron 2004:404, fig. 396.

<sup>5</sup> Moorey 1971.

(*attaches en cuivre pour des outils*). For the drilling of metal, see Müller-Karpe 1994:174f.; see further Coghlan 1975:103, who states that, “From the Neolithic onwards, another method of drilling was in use for the perforator of circular holes in hard stone artefact, and later, in the Bronze Age, of metal object. This method consisted of the rotation, combined with a downward pressure, of a hollow cylinder of wood or metal fed with sand or emery, upon the work to be drilled. ... the operation is really a grinding one and that if one tries to drill a hole in copper using a copper tube failure will result. ... In the case of the perforation of copper, the carrier may be a tube of wood or bone.”

The amounts of gold and silver are usually carefully weighed. If the available stone weights did not give an exact weight because they were heavier than the object, it was necessary to qualify the weight given, first by mentioning the weightstones that had been used, and then the weight that had been subtracted from this, a method described by F. Joannès (1989). Apart from this system there was another one which involved the verbal form *ubbal*. The author (p. 223) refrains from translating it and comments that it must be related to the meaning “to cost” for the verb *wabālu*; for previous interpretations, cf. Kupper 1983:616 (“valoir”), Limet 1986:278, and Reiter 1997:425. This expression occurs in several texts: XXII 237 (p. 222): 1 *ma-na* 2 ½ SU KÙ-GI *a-na* KÙ-GI *ub-ba-al* KI-LÁ-BI 24 *in-ša-ba-tim*; XXIV 132 (p. 324) : [x] SU KÙ-GI SU<sub>13</sub>-A *a-na* KÙ-GI *ub-ba-al i-na* NA<sub>4</sub>-ĦI-A NÌ-ŠU LUGAL *a-na* 1 AŠ<sub>5</sub>-ME KÙ-GI; XXV 169: 1 ⅓ *ma-na* 1 GÍN KÙ-GI *a-na* KÙ-GI *ub-ba-al i-na* NA<sub>4</sub>-ĦI-A NÌ-ŠU LUGAL; XXV, 286:4: ½ *ma-na* 10 ŠE KÙ-GI *a-na* KÙ-GI *ub-ba-al*; XXV, 206 (p. 394): 2 *ma-na* [KÙ-BABAR] *i-na* NA<sub>4</sub> *a-ba-r*[i N]i-ŠU LUGAL *a-na* KÙ-BABAR *ub-ba-al*. XXV 196 (cf. Joannès 1989:118) is also informative: (1) 25 ⅓ *ma-na* KÙ-BABAR *pí-it-qú*, (2) *a-na* KÙ-BABAR *ub-ba-al*, (3) *i-na* 10 *ma-na* 5 *ma-na* *ša a-ba-ri-im*, (4) NA<sub>4</sub> 5 *ma-na* NA<sub>4</sub> 3 *ma-na*, (5) NA<sub>4</sub> 2 *ma-na* ù ⅓ *ma-na* NÌ-ŠU LUGAL. This passage is duplicated in XXV, 384 rev. 2–8 and demonstrates that the nominal weight is the same as that of the added weights. Without claiming to understand this expression, I want to draw attention to XXV, 448:9' (p. 357): 14 SU {x x} KÙ-[GI] KI-LÁ-BI 10 *ku-nu-ka*-[*tim*] *a-na* NA<sub>4</sub> *ub-ba-al*, where “to the weightstone” replaces “to the gold/silver” in the other texts. It seems to denote that there is a slight difference in weight between the stones in one scale and the gold/silver in the other pan of the balance.

The word *zamratum* (*zamrâtum*), p. 129, is traditionally regarded as a nail, but the author interprets it as the head of a javelin; it is made of

bronze and weighed between 5 and 15 shekels. As a consequence, the Old Assyrian occurrences of this word (conventionally read *samrutum*) denote objects of a standard weight shaped like the head of a javelin, which were used as a means of payment in the Jazirah. Large quantities occur in the unpublished letter Kt c/k 288 (7100 z.) and in Larsen 2010:255, No. 144:19–20 (600 z.). Interestingly, 86 of these 600 are distinguished from the rest because they are *warqu* (*wa-ar-qá-tum*) “yellow, green,” a word that may be compared to ZABAR *wa-ar-qú-tim* (plural oblique) in the Mari text M.6099:1, translated “bronze *des réserves*” on p. 220. The particular colour may be due to a different composition. The interpretation of *zamratum* as part of a weapon also solves the otherwise enigmatic occurrence of this object among the items robbed from a statue of divine Aššur in his temple in the Uršu colony; according to SUP 7 this involved the golden sun-emblem on his chest (*šamšam ša ħurāšim ša irti Aššur*), his dagger (*patram*), and the justice-emblem (*mēšarum*), “...s” (*kalupū*), javelin-heads (*zamruātum*), and a *katappu* (p. 113 *une sorte de hache*).

### The metalworkers of Mari

This book is an important source for understanding metalworking in Mari and provides a good starting point for further research. The author, like previous specialists working with Mari texts, comments on individual smiths and describes the techniques they employed, but a comprehensive study of the Mari palace metalworkers remains a desideratum. What do we know about the metalworkers in the service of the royal palace and who are those mentioned in the texts? How many of these artisans were employed and how were they organized and what constituted a workshop?

The palace archives have left us with administrative documents about materials delivered to metalworkers or finished products received from them, some letters in which metalworkers and their work are mentioned, and inspection texts and other lists. These texts are rich in detail, which is unique for the Old Babylonian period. The only other comparable archive from this period, that from the Sîn-kāšid palace at Uruk, is much smaller in size. The documents use the logograms SIMUG (written DÉ-A), KÛ-DÍM, and TIBIRA. The work of a SIMUG or “coppersmith” is usually associated with copper, tin and bronze, whereas the materials worked by a KÛ-DÍM “goldsmith” are gold and silver but also stones and occasionally the metals used by a SIMUG. Two “ironworkers” (*ša BAR-ZIL*) are listed as TIBIRA in XXII 12. The way in which these logograms are used is not al-

ways clear and sometimes known goldsmiths are called SIMUG whereas others are called TIBIRA. The largest number of metalworkers attested is 33; it consists of a group of 18 SIMUG and 15 others (where 5 are SIMUG, 2 TIBIRA, and 2 KÛ-DÍM); they occur among 145 persons who took an oath by the god in Guru-il in the year ZL5 (XXIII 235). This list does not, however, include all metalworkers known to have been active in Mari at that time since craftsmen such as Ana'iš, Iddatum, Iddin-Hubur, Ilakšūqir, Yanšib-Dagan, Yantin-Addu and Yašub-Nar are not listed; they may have taken the oath at a different moment. On the other hand, many of the names of the group of 18 SIMUG do not appear to occur elsewhere in the Mari corpus and may have been active in another town.

The obverse of XXII 14 (ZL, n. d.) lists over 290 craftsmen (DUMU-MEŠ *um-me-ni*, rev. i); the metalworkers are mentioned in col. ii, which contains three preserved sections, summarized as “20 LÚ-SIMUG-MEŠ *piqitti Ilakšu[q]ir*” followed by 9 LÚ-SIMUG-MEŠ *ša qāt Ibbi-Ea*. A similar but smaller list is XXII 12 (ZL, n. d.), listing artisans and their workers, summarized as “191 men, 11 women, 42 boys, 1 girl—the inspection of the artisans managed by Mukannišum (SI-LÁ DUMU-MEŠ *um-me-ni* [NĪ]-ŠU M.).” The beginning of the preserved text on the reverse has the summary “38 men, 11 boys, 1 woman, metalworkers and *servants* (LÚ-TIBIRA *ù mu-sa-ru*)” followed by an uncertain section and a number of other known metalworkers (Qeriban, Zillip-nawar).

Some of the artisans are connected to a specific city quarter (*bābtu*) according to XXII 13 (ZL, n. d.). If the interpretation that this refers to the location of their house (or domicile), or even to their workshop within the town of Mari, is correct, this means that they did not live in the palace itself. In all 13 SIMUG and 12 TIBIRA are listed as belonging to someone's *bābtu* in this document. Interestingly, many of these individuals are hardly known as metalworkers. Another list of personnel contains 7 goldsmiths and 7 SIMUG (XXI 401, n. d.), whereas the fragmentary VII 181 (n. d.) has 6 TIBIRA and at least 4 others. The largest number of metalworkers mentioned in a single text recording deficits of metal is 14 (M.6696).

The numbers of men mentioned in all these texts should not be taken at face value. Some texts only mention master craftsmen as the persons responsible to the palace, while other texts may include other personnel. Over twenty master metalworkers are attested during ZL2, among whom were at least 7 coppersmiths, 7 goldsmiths and 4 TIBIRA. This is a significant number of metalworkers, but it has to be compared to other evi-

dence. The craft archive from Ur (late third millennium), for example, contains lists enumerating the craftsmen of the institution. The section with metalworkers in UET III, 1475 (IS 11) lists 1 TIBIRA and 9 goldsmiths; the corresponding section in UET III, 1496 (IS 12) lists 1 TIBIRA, 8 goldsmiths, 1 coppersmith and 1 AN-DÍM-DÍM. The high number of goldsmiths is due to the fact that the institution mainly produced luxury objects (see Neumann 1987:69), and this distinguishes it from the situation in Mari, where in addition to goldsmiths for the luxury objects, coppersmiths were needed to produce tools and weapons. Documents recording the transfer of metal (unworked metal and finished work) from the Šîn-kāšid palace at Uruk identify three persons by name,<sup>6</sup> who are accompanied by “the goldsmiths” (KÛ-DÍM-ME-EŠ), which may refer to three master goldsmiths and their assistants. The palace of Uruk also employed an unknown number of SIMUG (SIMUG-ME-EŠ, Sanati-Müller 1996:378, No. 228) supervised by an UGULA (who had his own set of stone weights, NA<sub>4</sub>-UGULA-SIMUG, e. g., in Sanati-Müller 1996:378, No. 160). Ration lists from the palace of Chagar Bazar contain only two metalworkers who are identified as SIMUG.<sup>7</sup> The impression one gains from this uneven comparative evidence is that the number of goldsmiths attested for the palace of Mari may be higher than that of those employed in Uruk (and certainly in Chagar Bazar) but is similar to that in Ur, and this may reflect a period of royal wealth in Mari.

The *intendant* Mukannišum controlled the availability of raw materials and planned the scheme for producing the objects (cf. Lafont 2002:374). He executed the direct orders from the king, especially with regard to luxury items. Mukannišum was also in charge of the artisans employed by the palace, as some of the lists with personnel demonstrate. Most of the textual evidence in fact comes from his administration.

The texts naturally focus on work performed for the palace in the capital, in Mari itself. The bronzeworking assigned (ÁŠ-GÀR) to the local ‘palace’ of Terqa and to Saggaratum (see FM III, p. 100 and No. 10 [colations in XXXI 111 and XXXII, p. 322]) will have involved local metalworkers who are not mentioned among frequently recurring names of artisans in documents from Mari. Some metalworkers from Mari accompanied the king when on a journey. For example, four goldsmiths were

<sup>6</sup> Mar-Bulalum, Iddin-lib... and Ibluṭam, see Sanati-Müller 1990:148, fn. 1.

<sup>7</sup> Šazum-šarri and Ibaya; the first is identified as **simug** only in Talon-Hamade 1997:42, No. 12 ii 2.

in the royal company when Zimri-Lim went to Terqa (cf. XXV 184 from 17-xii-ZL10, one day before the visit of the tomb of Yarim-Lim).

The origin of the metalworkers is rarely indicated. There is a group of coppersmiths from Nurrugum, deported to Mari after Samsi-Addu's conquest of that town in the eponymate of Adad-bāni. The group received 400 *qa* of barley per month according to XXII, 284:14–15, which amounts to rations for about six persons. A coppersmith from (*ša*) Karana, Binima-ahu, received oil according to *MARI* 3, p. 94, No. 75 (7-vii-Adad-bāni). He may be the same person as the Binma-ahu occurring in XXXI 211 (ZL13). Occasionally individual artisans received deportees to perform unspecified work, as in XXII 63 (ZL3), rev. 11'f. where a woman from among the booty of the towns of Raqqu and Mišlān is assigned to Iddatum and Rimši-El.

The time-span covered by the texts documenting the activities of metalworkers ranges from the reign of Yahdun-Lim till the end of the reign of Zimri-Lim (ZL13). It is possible that Ilakšuqir (a rare name), who first occurs in Sumu-Yamam No. 7 and finally in ZL5, a period of over two decades, is the longest serving metalworker documented; he is followed by Yašub-Ašar, first attested in Aššur-malik and finally in ZL12 (18 years). Ili-iddinam (a common name) is mentioned in Sumu-Yamam, No. 4 and ZL7–8. Many metalworkers worked for Yasmah-Addu and his successor Zimri-Lim (e. g., Ahi-lablaṭ, Iddin-Hubur, Iddin-Ištar, Qišti-Mamma, Rimši-El, Yar'ip-Abba, Yašub-Dagan). The activity of others seems to begin under Zimri-Lim (e. g., Ana'iš, Belšunu, Erissumatum, Iddatum, Iddin-Mamma, Lipit-Ea, Qeriban, Sîn-ibni, Yanšib-Dagan, Yantin-Addu, Yašub-Nar).

In some cases we find a father working as a metalworker with his son, such as Šamaš-nāṣir and his son Sîn-iddinam (XXII 12). Lipit-Ea son of Ilakšuqir is a debtor in VII 32 (ZL8) and this may be another example.

Where was the metal worked? According to the texts, metals and other materials were transferred to and from the craftsmen at various places, mostly within the palace compound. The latter includes the *bīt mayyāli* (Durand 1987:50, section 4'), and the É-UZU and the *bīt tērtim*, together forming the *nakkamtum* (Durand 1987:50, section 5–5'). Another location is the so-called house of the craftsmen (*bīt ummēnī*), which is mentioned in texts dating to ZL2 (XXV 185) and ZL12 (XXV 202); a "new" house of the craftsmen occurs in ZL13 (two texts on p. 411). Its function is unknown; some of the metalworkers may have lived there, as at Terqa, where the palace artisans were living in one building according to XXVI 179. It is likely that the actual work was performed in workshops (*kiškattû*,

but *bīt kiškattî* in XXV 255) outside of the palace (with Durand 1987:77). The casting of lead ingots in the temple of Ištar and in the *bīt tērtim* (XXV 314, p. 229) is rare, but note that copper and tin were alloyed to bronze in the É-UZU according to XXV 708 (p. 297).<sup>8</sup>

In a number of documents individual craftsmen are grouped “under the responsibility of PN” (NĪ-ŠU/ša qāt PN), the person responsible being a well-known metalworker. Such groups apparently represent a master craftsman and those working under his technical and administrative supervision, including other skilled smiths, apprentices and one or more helpers. In view of the number of people involved in these groups, it is possible that such a group constitutes the personnel of the workshop of the master smith. The master is included in the unit in XXII 14,<sup>9</sup> but not in XXII 12, a text which also uses the designation ‘houses’ in the case of two coppersmiths (É *Qeriban* and É *Zillip-nawar*). The number of people working for a master varies; Ibbi-Ea: 9 coppersmiths (XXII 14; including 1 old man); Erišsumatum: 5 men, 1 boy (XXII 12); Rimši-El: 5 men, 1 boy (XXII 12); Ilakšuqir: 5 men (XXII 14, possibly including Ilakšuqir himself); Iddatum: 4 men (XXII 12); Lipit-Ea: 4 men [...] (XXII 284 ŠE-BA); Yašub-Ašar: 4 goldsmiths (XXII 284 ŠE-BA); Lahwi-bahli: 3 men, 5 boys (XXII 12); Ana’iš: 3 men, 1 boy (XXII 12); Arzapan: 3 men (XXII 14); Hanun-El: 2 men, 1 boy (XXII 14); Šilli-Kubi: 4 boys (XXII 284 ŠE-BA); the ‘house’ of Qeriban: 5 men (incl. Q.), 2 women (XXII 12); the ‘house’ of Zillip-nawar: 4 men (incl. Z.), 3 women, 1 girl (XXII 12). The excavations at Tell Hariri/Mari did not lead to the discovery of any workshop from this period.<sup>10</sup> A *kiškattû* where bronze was alloyed is attested for each of the following coppersmiths: Belšunu (XXV 691 and 721), Iddatum (TIBIRA) (XXII 203+), Ilakšuqir (XXV 690), and Lipit-Ea (XXI, 274 and 285; XXV 696). Gold and silver were transferred to Mukannišum in the *kiškattûs* of Yar’ip-Abba (a SIMUG) (M.7196) and of the goldsmiths Rimši-El (XXIV 123 and 125; XXV 255, M.12111) and Yašub-Ašar (XXIV 133; XXV 211 and 235). Occasionally a smith used the facilities of a colleague; Ibbi-Dagan made bronze in the workshops of Lipit-Ea and Ilakšuqir.

<sup>8</sup> The temperature needed to melt lead is 327°C, for bronze 850–1000°C is required.

<sup>9</sup> This is also the case in the two texts from UET III mentioned above, where the UGULA of a group of goldsmiths is a goldsmith himself and is listed first as part of the group. See also Neumann 1987:51.

<sup>10</sup> For important discoveries of metal workshops in several parts of Ville I (early third millennium), see Margueron 2004:93 (*chantier Pec*), 108.

XXIII, 561:10–11 may refer to two payments (1 shekel of silver each) for the use of a *kiškattû* by another goldsmith.

What was the status of the smiths? The inclusion in lists with palace personnel and the food rations (XXII 284; XXIII 245) that some received suggests they were palace dependants, who did not receive payment for the work they performed. This does not exclude that some could also work in a private capacity; otherwise it is difficult to explain how Ahi-liblaṭ was able to sell an amount of tin to the palace (XXV 698, p. 239).<sup>11</sup> The king knew the prominent craftsmen well. Some received presents; the goldsmith Ili-iddinam received 120 *qa* of bread as ‘a gift’ from Mut-ramêṃ (possibly the supervisor of a *bābtu* with that name) according to XXIII 365 and 366. On the other hand, metalworkers were obliged to take an oath (see above) and some had to present the king with a metal object as a gift during a religious festival (XXXI 47). These metal objects may be further evidence of private activity, unrelated to work for the palace.

The available documentation is centered on the responsibility of the palace functionary Mukannišum and others. A text such as XXIII 561 seems a rare survivor of a smith’s own administration. No single document gives an overview of the dues of one particular craftsman, such as the Ur III balanced accounts dealing with one DAM-GÀR.

Most of the documents about metalworking record the transfer of the materials needed to produce an artefact, principally the metal and precious stones with a description of their form and weight. Other texts record the delivery of additional necessary substances to the craftsmen, such as glue, oil, emery, animal skins and textiles. There seems to be no documentation about the issue of fuel (firewood, reeds, with the possible exception of XXIII 514, see Reiter 1997:327) and wax.

The glue *šimtum* (ŠE-GIN<sub>7</sub>) given to metalworkers (e. g., in XXIII 176; KUŠ-ŠE-GIN<sub>7</sub> in 175) may have been used to glue silver or gold foil onto a surface. A group of six goldsmiths received glue on 22-vii-ZL3 (XXIII 182) and in all 24 sheepskins “for their work” six days later (XXI 300). The sheepskins may have been used for the pot-bellows (see below). Goldsmiths receive TÚG-BAR-KAR-RA textiles “for their work” according to XXII 159 (= XXX, p. 551) and XXX, p. 254, M.6654+.

One *qa* of oil (i-GIŠ) was issued to Lipit-Ea and also to Belšunu for their casting work (FM III, No. 112 // 125:14’–17’), perhaps to oil the

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<sup>11</sup> Assuming he is to be identified with the smith with that name.

pot-bellows (KUŠ.nappahātum, as in XXIII, 481<sup>+</sup>:5: ½ qa Ì-GIŠ “for the oiling of the pot-bellows at the time they refined 1 talent of copper ... and cast (*iptu* <*qu*>)”; FM III, p. 227, No. 56: ⅓ qa Ì-GIŠ ana pašāš 2 KUŠ-UDU-ḪI-A ša ana nappahā[*tim*]). Oil was also used to prepare a mould before casting (see above, and p. 142 *rātu*). The oil listed among losses and expenses of metalworking in UET III, 752 rev. I, may have served the same purpose, but note that Limet thought that it was added as a deoxygenizing substance (cf. Limet 1960:23).

Sheep fat (Ì-UDU) was used in connection with the casting of part of a wagon (*ana patāq halli*) according to XXIII 413; Yar’ip-Abba and Qeriban each received half a mina. In his discussion of the texts about fat, B. Lafont (XXIII, p. 303) suggested that fat may have been used during lost-wax casting.

The mineral *lurpiānu* was issued to goldsmiths according to XXV 313 and 734; the first text mentions that it was “for the work on gold for the throne of Šamaš.” Reiter (1997:403) gives two possible explanations: either to remove silver from gold by cementation or to treat the surface of the gold. I suggest that *lurpiānu* should be regarded as a copper salt which was used as solder in granulation work; evidence for this technique was found in a gold artefact from Mari (Nicolini 2010:74).

Emery (*šammu*) was provided to metalworkers to work stone according to XXIII 380, 527, 529; TIBIRA working on stelae are mentioned in two letters to Zimri-Lim (FM VIII, Nos. 38 and 47). XXIII 68 (see p. 442) is an informative record detailing the requirements of metalworkers for one year for emery, lead and copper, all of which were required to work stone. Providing a reference to the article by Heimpel et al. (1988:195–210) would have been appropriate, since there *šammu* is identified with emery and it is suggested that pieces of emery were fixed in lead.

Large or complex assignments were often given to several smiths, especially in the case of mass-produced (cast) bronze objects. The manufacture of bronze sickles in the beginning of ZL2 involved at least four coppersmiths, who had received the materials two to 17 days earlier. XXV 562 (= p. 216) dated 24-i-ZL2 lists the weight of incoming sickles made from bronze belonging to various temples (the scribe simply calls the material URUDU instead of ZABAR). Part of this bronze was issued 2 days before to Lipit-Ea, Belšunu and Ahi-liblaṭ for 40 sickles (XXV 322); 5 days before to Lipit-Ea (53 sickles) and Belšunu (31 sickles) (XXII 193); 12 days before (XXV 713); and 17 days before to Qeriban (67+46 sickles) (XXV 371).

Silver rings were also a mass-produced object. Text XXII 244 (1-vii-ZL2) records the issue of silver for rings of 2 shekels each; 10 minas of silver to the goldsmiths Yašub-Ašar, Rimši-El and Ana'iš for 300 rings, and another 10 minas of silver to Yar'ip-Abba, Iddin-Mamma and Yanšib-Dagan for 300 rings, and of 1 mina 18 ½ shekels of silver to Sin-ibni for 39 rings. Apparently the goldsmiths are expected to incur no material losses, for only the last delivery is half a shekel more than needed. Yašub-Ašar received another order on the same day (XXV 185, see XXX, p. 227). More research will undoubtedly lead to a better understanding of the time the Mari metalworkers needed to produce these and other artefacts.

These detailed remarks are intended to show the wealth of information embodied in this book. There is of course more which could have been discussed. The author deserves our gratitude for this excellent publication and for stimulating further study into the rich archives of Mari.

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