

# **Why the Sciences of the Ancient World Matter**

Volume 4

## **Series Editors**

Karine Chemla, Laboratoire SPHERE UMR 7219, Université Paris 7—CNRS,  
Paris, France

Agathe Keller, Laboratoire SPHERE UMR 7219, Université Paris 7—CNRS,  
Paris, France

Christine Proust, Laboratoire SPHERE UMR 7219, Université Paris 7—CNRS,  
Paris, France

The book series provides a platform for the publication of studies on sciences in the ancient worlds that bring innovative methods into play and address new theoretical issues. It is predicated on the conviction that the history of ancient sciences raises theoretical questions and requires new methodologies in a way that can inspire many other fields. For instance, with the help of innovative methods, ancient mathematical documents allow us to shed a unique light on the manuscript cultures, in the context of which they were composed. Such research is essential to offer new ways of interpreting our sources. Ancient mathematical documents also offer new types of evidence allowing historians of ancient economies to develop new forms of analysis and tread new ground. Ancient mathematical sources from all parts of the world compel us to rethink notions such as quantities, numbers, and measurement units, in ways that reopen these questions for the History and Philosophy of Science at large. More generally, the book series aims to show how ancient science can be a vector pollinating research in anthropology, linguistics, science education, and other fields in the humanities.

This book series thus intends to publish books that contribute to building bridges between the history of sciences in the ancient worlds and other fields, and highlight how ancient sciences offer resources to raise new questions, and develop new methods in other domains. Such new methods invite critical reflection not only on past historical research, which the book series also intends to promote, but also vis-à-vis present-day uses of ancient science in various forums.

More information about this series at <http://www.springer.com/series/15657>

Robert Middeke-Conlin

# The Making of a Scribe

Errors, Mistakes and Rounding Numbers  
in the Old Babylonian Kingdom of Larsa

Robert Middeke-Conlin  
Berlin Center for the History of Knowledge  
Max Planck Institute for the History  
of Science  
Berlin, Germany

Why the Sciences of the Ancient World Matter  
ISBN 978-3-030-35950-8      ISBN 978-3-030-35951-5 (eBook)  
<https://doi.org/10.1007/978-3-030-35951-5>

© Springer Nature Switzerland AG 2020

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG  
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

*To all my teachers,  
past, present and future*

# Acknowledgements

The impetus for this book<sup>1</sup> came while I pursued my master's degree, when I found myself unable to explain discrepancies in some texts. I wondered whether there might be some reason behind these discrepancies. At the time I could do little other than note the discrepancies and move on in my research. I was training in Assyriology, fascinated by ancient industries and economics and certainly not a historian of mathematics. It would not be until 2011, when the project Mathematical Sciences in the Ancient World (SAW), headed by Karine Chemla and co-directed by Agathe Keller and Christine Proust, put out a call for pre- and post-doctoral fellowships. This project, which was funded by a grant from the European Research Council, had as one of its axes of research state finance administrations and a focus on mathematics in Mesopotamia. The project I imagined focused on rounding numbers as a means to address discrepancies in these texts, in particular, rounding in connection with errors and mistakes. I wanted to explore whether the Old Babylonian scribes intentionally produced deviant values. With the support of my generous wife, I applied for this grant. She has always been my biggest supporter, during and since my Ph.D. work. I owe everything to her.

My project was accepted, and in November 2011 I travelled to Paris to work as a member of the SAW project under the direction of Christine Proust, my advisor. I was quickly counseled to take on a co-advisor, Cécile Michel—I readily agreed. Both were instrumental in guiding my work. I owe much to them. Any fault in this work is my own, any success is truly theirs.

The academic environment fostered by the SAW Project was quite remarkable. In addition to Assyriologists, I worked with Sinologists such as the project's head Karine Chemla, Indologists such as one of the co-directors, Agathe Keller, scholars of Medieval Islamic thought and mathematics, ancient Greek astronomy, modern

---

<sup>1</sup>The dissertation leading to this work was submitted as part of the SAW project and was made possible through funding from the European Research Council under the European Union's Seventh Framework Program (FP7/2007–2013)/ERC Grant agreement no. 269804. Research since then has been carried out under a fellowship from the Berlin Center for the History of Knowledge, through the Max Planck Institute for the History of Science.

researchers focusing on textual analysis and many others. This interdisciplinary approach to scholarship offered insights into research that necessarily guides my work even if it can be difficult to recognize exactly how.

This work required travel; each available tablet needed collation to witness that a discrepancy was the result of an ancient scribe's work and not a modern mistake, misrepresentation, misinterpretation, etc. In this regard, I would like to thank Christine Desse, the secretary of the Department of Antiquities at the Louvre, Nora Belkebla, the assistant secretary who allowed me to visit and view tablets at the Louvre and especially Norbeil Aouici, the artwork registrar who accompanied me through the Louvre and prepared tablets for my inspection. Thanks are also owed to Dr. Paul Collins, curator of the Ashmolean Museum's Ancient Near East collection, who allowed me access to the collection and even sat with me while I worked with and viewed texts from the Ashmolean Museum. At Leiden University, I would like especially to thank Drs. T. J. H. Krispijn, docent of the de Liagre Bohll collection, who kindly allowed me access to the collection and even took me to lunch. Finally, at Yale's Babylonian Collection where I visited several times, I must thank Prof. Benjamin Foster, curator of the collection, for granting me access to the texts and the rights to publish several texts. In addition, Ulla Kasten, the former associate curator and Dr. Elizabeth Payne, the collection's conservator at the time, as well as Dr. Agnete Lassen, the current associate curator, deserve my gratitude. They prepared tablets for my use and answered my questions. My work could not have been completed without my visits to these collections. These individuals and the institutions they work with were vital to the successful completion of this volume.

I defended my dissertation in June 2015, but following general advice given to me by Prof. Benjamin Foster years ago (before I even began pursuing my Ph.D.), I delayed publishing this work after defending. As he says, it is better to let things sit for a while and then return with fresh eyes and new evidence. In this publish-or-perish academic world, that may seem a bit anachronistic. However, I do believe this advice to be prudent. Problems were solved between my original dissertation and this renewed work. Several important texts have come to light, such as YBC 12273 presented in Chap. 8. The book is far better than it would have been had I rushed to publish. For this reason, I finally completed this book at the Max Planck Institute for the History of Science and I am deeply grateful to this institution for affording me the time to finish this work as the beginning of a new project on scribal numeracy. This book must be credited to many individuals who guided me in my work, allowed me access to vital resources, assisted me along my way and gave judicious advice when needed. Thank you to all who were there to help and guide me.

Robert Middeke-Conlin

# Contents

<b>1</b>	<b>Introduction</b> . . . . .	1
1.1	The Book Structure and Technical Notes . . . . .	3
1.2	An Overview of the Kingdom of Larsa, Past and Present . . . . .	7
1.2.1	The Trouble with Chronology . . . . .	8
1.2.2	The City of Larsa, Its Environs and Modern Archaeology . . . . .	9
1.3	Current Trends in Assyriology . . . . .	10
1.3.1	Archival Studies . . . . .	10
1.3.2	Unity Out of Variety . . . . .	12
1.3.3	Archives and the Parameters of Study . . . . .	16
1.4	Mistakes and Errors—Preliminary Remarks . . . . .	16
<b>2</b>	<b>The Early Scribal Education</b> . . . . .	21
2.1	Systems of Quantification . . . . .	22
2.1.1	Measurement Systems . . . . .	23
2.1.2	Bridges and Other Connections Between Metrological Systems . . . . .	27
2.1.3	Numerical Systems . . . . .	28
2.2	Elementary Education in the Old Babylonian Period . . . . .	34
2.2.1	Tablet Types . . . . .	35
2.2.2	Metrological Lists and Tables in the Scribal Curriculum . . . . .	41
2.2.3	Numerical Tables and Elementary Education . . . . .	52
2.3	Conclusions . . . . .	57
<b>3</b>	<b>Text Types and Archival Practices in the Kingdom of Larsa</b> . . . . .	59
3.1	Text Layout and Structure . . . . .	62
3.1.1	Tabular and Prosaic Layout . . . . .	62
3.1.2	Single Transactions . . . . .	65



3.1.3	Lists	67
3.1.4	Balanced Accounts	74
3.2	Conclusions	79
<b>4</b>	<b>Archives, Bureaus and Management Systems in the Kingdom of Larsa</b>	<b>81</b>
4.1	The Grain Storage Bureau	84
4.2	The Bureau of Irrigation and Excavation	92
4.3	Grain Harvest Archive	97
4.4	Grain Production Archive(s)	97
4.5	Conclusions	98
<b>5</b>	<b>Metrology and Sexagesimal Place Value Notation in Economic Texts</b>	<b>101</b>
5.1	The Transparency of Economic Texts	103
5.2	Possible Sexagesimal Place Value Notation Basis for Calculations	107
5.3	Explicit Statements of Sexagesimal Place Value Notation	114
5.4	Conclusions	117
<b>6</b>	<b>Errors, Mistakes and Evidence for a Counting Device</b>	<b>121</b>
6.1	The Nature of Discrepancies	123
6.2	An Abacus?	125
6.2.1	Carrying in Other Texts	126
6.2.2	Evidence for Addition in Mathematical Texts	128
6.2.3	Abacus and Administrative Practice	130
6.3	Conclusions	134
<b>7</b>	<b>Observation and the Limits of Numeracy</b>	<b>139</b>
7.1	Breakdown of Trust and the Practice of Oversight	141
7.1.1	The Uniformity of Measurements and Measurement Values	143
7.1.2	Standard Variation	144
7.1.3	Changing Standards and Value Assessments	150
7.2	Measurement Inconsistency and Grain Transit	155
7.3	Production and Conception of Value	162
7.3.1	Below the Lower Limit: The Expert	164
7.3.2	Below the Lower Limit: The Novice	168
7.4	On Measurement Theory and Practice	169
7.5	Conclusions	171
<b>8</b>	<b>Multiplication and Estimation</b>	<b>177</b>
8.1	Revenue Rates	178
8.2	Equivalencies	185

8.2.1	Do Equivalencies Reflect a Calculation? . . . . .	186
8.2.2	Equivalencies in the Mathematical Tradition . . . . .	189
8.2.3	Equivalencies and Discrepancies . . . . .	191
8.3	Estimation, Observation and Labor . . . . .	199
8.3.1	Volume, Labor and Wages in Economic Texts . . . . .	200
8.3.2	Volume, Labor and Wages in the Mathematical Tradition . . . . .	201
8.3.3	Sexagesimal Place Value Notation, Volume and Labor . . . . .	204
8.3.4	Sexagesimal Place Value Notation, Volume and Scribal Practice . . . . .	208
8.3.5	Volume as an Observation of Labor . . . . .	211
8.3.6	Labor as a Statement of Wages . . . . .	215
8.4	Tabular Layout and Economization of Practice . . . . .	221
8.5	Conclusions . . . . .	224
<b>9</b>	<b>Rounding in Mathematical and Economic Texts</b> . . . . .	<b>229</b>
9.1	Truncation of Measured and Calculated Values in Administrative Texts . . . . .	234
9.2	Other Examples of Rounding Down in the Economic Texts . . . . .	236
9.3	Rounding up in the Economic Texts . . . . .	238
9.4	Rounding and Multiplication . . . . .	241
9.5	Rate Approximations and the Uncertainty of Interpretation . . . . .	242
9.6	Conclusions . . . . .	245
<b>10</b>	<b>Conclusion: On Errors, Rounding and Education   in the Kingdom of Larsa</b> . . . . .	<b>249</b>
	<b>Appendix 1: Texts</b> . . . . .	<b>259</b>
	<b>Appendix 2: Numeracy by Scribe</b> . . . . .	<b>349</b>
	<b>Appendix 3: Metrological and Numerical List and Table Catalogue</b> . . . . .	<b>391</b>
	<b>Appendix 4: Price and Wage Index and Charts</b> . . . . .	<b>407</b>
	<b>Appendix 5: Discrepancy Index</b> . . . . .	<b>427</b>
	<b>Bibliography</b> . . . . .	<b>441</b>
	<b>Indexes to the Text Editions</b> . . . . .	<b>453</b>
	Part I Akkadian and Sumerian Word Index . . . . .	455
	Part II Name Index . . . . .	469
	Part III Economic Text Index . . . . .	475
	Part IV Mathematical Text Index . . . . .	479
	<b>Subject Index</b> . . . . .	<b>481</b>

# Abbreviations

This list is largely populated by museum and collection numbers. However, three works are so ubiquitous under their glosses that, while it may seem odd to the outsider, it would have led to greater confusion if they were listed under any other name but their abbreviation: the CAD produced by the Oriental Institute of the University of Chicago, the ePSD produced by the Babylonian section of the University of Pennsylvania and finally, the VIM published by the Joint Committee for Guides in Metrology. In addition, some works, such as the Ur Excavation Texts, are best referred to by their publication number and not museum number because these are not always available.

AO	Museum siglum, Louvre, Antiquités orientales, Paris
Ashm	Museum siglum, Ashmolean Museum, Oxford
AUAM	Tablets in the collection of the Andrews University Archaeological Museum
BM	Museum siglum of the British Museum, London
CAD	The Assyrian Dictionary of the Oriental Institute of the University of Chicago <a href="https://oi.uchicago.edu/research/publications/assyrian-dictionary-oriental-institute-university-chicago-cad">https://oi.uchicago.edu/research/publications/assyrian-dictionary-oriental-institute-university-chicago-cad</a>
CAM	Tablets from the collection of the Cincinnati Art Museum, Cincinnati
CBS	Museum siglum of the University Museum in Philadelphia
CDLI	Cuneiform Digital Library Initiative ( <a href="https://cdli.ucla.edu/">https://cdli.ucla.edu/</a> )
ePSD	Electronic Pennsylvania Sumerian Dictionary, Babylonian Section, University of Pennsylvania Museum of Anthropology and Archaeology <a href="http://psd.museum.upenn.edu/epsd1/index.html">http://psd.museum.upenn.edu/epsd1/index.html</a>
Erm	Museum siglum, State Hermitage Museum, St. Petersburg
HE	Tablets from the collection of the École Pratique des Hautes Études, Paris
HS	Tablet siglum of the Hilprecht Collection, Jena
IM	Museum siglum of the Iraq Museum, Baghdad
LB	Tablets in the Liagre Bohrl Collection, Leiden

M	Collection siglum, John F. Lewis Collection, Free Library of Philadelphia
MAH	Museum siglum, Musée d'Art et d'Histoire, Geneva
MHC	Tablets from the collection of the Mount Holyoke College
MLC	Collection siglum, Morgan Library Collection, Yale Babylonian Collection, New Haven
MS	Collection siglum, Martin Schøyen Collection, Oslo
N	Museum siglum, University Museum, Philadelphia
N-T	Field numbers of tablets excavated at Nippur, in Chicago and Baghdad
NBC	Museum siglum, Nies Babylonian Collection
NI	Museum siglum, Archaeological Museum, Istanbul
PTS	Tablet siglum, Princeton Theological Seminary, Princeton
UET 5	Figulla and Martin 1953
UET 6/2	Gadd and Kramer 1966
UET 7	Gurney 1974
UM	Tablet siglum, University Museum, Philadelphia
VAT	Museum siglum, Vorderasiatisches Museum, Berlin
VIM	Joint Committee for Guides in Metrology. 2012 International Vocabulary of Metrology—Basic and General Concepts and Associated Terms, 3rd edition
YBC	Museum siglum, Yale Babylonian Collection

# Glosses for Assyriology

Publication glosses are added here for the benefit of the Assyriologist who may be familiar with each text, but under its publication gloss rather than its museum number.

Alexander 1943: BIN 07  
Dalley 2005: OECT 15  
Dossin 1933: TCL 17  
Dossin 1934: TCL 18  
Grice 1919: YOS 5  
Faust 1941: YOS 8  
Feigin 1979: YOS 12  
Jean 1926: TCL 10  
Klengel 1973: VAS 18  
Leemans 1964: TLB 1  
Neugebauer 1935-1937: MKT I-III  
Neugebauer and Sachs 1945: MCT  
Riftin 1937: SVD or SVJAD  
Sigrist 1990: AUCT 4  
Simmons 1978: YOS 14  
Thureau-Dangin 1938: TMB  
Von Soden 1985: AHw  
Walters 1970: YNER 4

# List of Figures

Fig. 8.1	Canal dredging project, YBC 12273, lines 2–3 (not to scale).....	206
Fig. 8.2	Canal dredging project, YBC 12273, lines 5 and 6 (not to scale).....	207

# List of Tables

Table 1.1	Rulers of Larsa. . . . .	8
Table 2.1	Examples of texts with capacity measurement values. . . . .	24
Table 2.2	Examples of texts with weight measurement values. . . . .	25
Table 2.3	Examples of texts with area or volume measurement values. . . . .	26
Table 2.4	Comparison of normalized and non-normalized numbers. . . . .	29
Table 2.5	Measurement units and associated whole numbers. . . . .	30
Table 2.6	Fraction signs. . . . .	30
Table 2.7	Courses 1 and 2 at Larsa . . . . .	36
Table 2.8	Type III tablets by course at Larsa. . . . .	38
Table 2.9	Comparison of HS 235 (left), and Ashm 1923-410 (right). . . . .	43
Table 2.10	Measurement values and cycle shifts from Nippur. . . . .	45
Table 2.11	Capacity compared between scribal centers . . . . .	47
Table 2.12	Weight compared between scribal centers . . . . .	47
Table 2.13	Area and volume compared between scribal centers. . . . .	48
Table 2.14	Length compared between scribal centers. . . . .	48
Table 2.15	Height compared between scribal centers. . . . .	49
Table 2.16	Numerical tables by provenance. . . . .	54
Table 2.17	Reciprocal tables and head number alignment (in translation) . . . . .	56
Table 3.1	Formal tables . . . . .	63
Table 3.2	Tabular lists . . . . .	64
Table 3.3	Single transactions . . . . .	65
Table 3.4	Simple lists. . . . .	71
Table 3.5	Silver lists and grain lists . . . . .	71
Table 3.6	Silver delivery lists. . . . .	73
Table 3.7	Silver recipient lists . . . . .	74
Table 3.8	Silver balanced accounts . . . . .	75
Table 3.9	Grain balanced accounts. . . . .	75
Table 3.10	Grain shipment texts . . . . .	76

Table 4.1	Texts and actors in the grain storage bureau . . . . .	85
Table 4.2	Bureau during the reigns of <i>Rīm-Sîn</i> and <i>Hammurābi</i> . . . . .	94
Table 5.1	Calculation for YBC 06216, expected total and actual total . . . . .	104
Table 5.2	Possible equivalency calculation for AUAM 73.2672 . . . . .	104
Table 5.3	Four texts with unstated but implied totals. . . . .	105
Table 5.4	Comparison of calculations between LB 1074 and LB 1078 . . . . .	106
Table 5.5	The Old Babylonian reciprocal table . . . . .	108
Table 5.6	Mentioned equivalency rate accounts . . . . .	109
Table 5.7	Texts that mention wage rates . . . . .	110
Table 5.8	Comparison of rate between AO 08464 and AO 08463. . . . .	112
Table 5.9	Reciprocal pairs suggested in AO 08464 . . . . .	113
Table 5.10	Documents with partial-sexagesimal place value notation . . . .	115
Table 5.11	Documents with sexagesimal place value notation in calculations . . . . .	116
Table 6.1	Addition of sesame values in YBC 04224. . . . .	122
Table 6.2	Addition of silver values in YBC 04224 . . . . .	123
Table 6.3	Subtraction in YBC 04224. . . . .	125
Table 6.4	Addition and expected addition in YBC 04224: 35–52 . . . . .	125
Table 6.5	Addition and expected addition in YBC 04224: 35–52 . . . . .	126
Table 6.6	Additions by <i>gin</i> and fraction of <i>mana</i> measurement values in YBC 04224. . . . .	126
Table 6.7	Additions of the number of <i>mana</i> in YBC 04224 . . . . .	127
Table 6.8	Calculation by addition in LB 1074. . . . .	127
Table 6.9	Stated and expected addition in LB 1074. . . . .	128
Table 6.10	Partial-sexagesimal place value notation for capacity system . . . . .	131
Table 6.11	Addition of grain in column 7 of Ashm 1923-340. . . . .	132
Table 6.12	Addition of grain in column 3 of Ashm 1923-340. . . . .	133
Table 6.13	Addition in two parts for Ashm 1922-277 . . . . .	135
Table 6.14	Addition in two parts for Ashm 1923-340 . . . . .	135
Table 6.15	Potential layout of counting device for weight. . . . .	136
Table 6.16	Addition in two parts as shown in YBC 04224 . . . . .	137
Table 7.1	Capacity measures in YBC 04669 by problem. . . . .	144
Table 7.2	Capacity standard vessels by archive . . . . .	146
Table 7.3	Syrian weights in grave LG/23. . . . .	148
Table 7.4	Mesopotamian weights in grave LG/45 . . . . .	149
Table 7.5	Proposed standard conversion calculation in YBC 04265. . . . .	153
Table 7.6	Calculation by addition/subtraction in YBC 06231 . . . . .	158
Table 7.7	Measurement error in the grain storage bureau. . . . .	159



Table 7.8	Truncation and error in the grain storage bureau . . . . .	160
Table 7.9	Fractions in YBC 04607, problems 1–5 . . . . .	165
Table 7.10	Construction of fractions in YBC 04607, problems 1–5 . . . . .	167
Table 7.11	Transformation of fractional construction in YBC 04607, problems 1–5 . . . . .	167
Table 7.12	Fractions in type IV tablets from Nippur . . . . .	169
Table 8.1	Texts showing equivalency rates . . . . .	186
Table 8.2	Interpretation of MS 2830 § 2a . . . . .	190
Table 8.3	Equivalency in YBC 07744 lines 7–8 . . . . .	191
Table 8.4	Equivalency in AO 06760, lines 18–19 . . . . .	192
Table 8.5	Equivalency in YBC 04224, lines 26–27 . . . . .	193
Table 8.6	Equivalency of expected total sesame values in YBC 04224, lines 26–27 . . . . .	193
Table 8.7	Equivalency in NBC 08014, lines 1–3 . . . . .	194
Table 8.8	Equivalency in YBC 07473, lines 13–14 . . . . .	196
Table 8.9	Equivalency calculations for YBC 07473, lines 1–11 . . . . .	198
Table 8.10	Differences between stated and expected volume in NBC 06763 . . . . .	202
Table 8.11	UET 6/2 233 interpretation . . . . .	203
Table 8.12	Calculation in YBC 04663, problem 1 . . . . .	203
Table 8.13	Addition in YBC 12273 . . . . .	205
Table 8.14	Expected calculation of columns 1–3 in YBC 12273 . . . . .	205
Table 8.15	Calculation of columns 1–3 in YBC 12273 . . . . .	206
Table 8.16	Calculation of labor in YBC 12273 . . . . .	207
Table 8.17	Calculation in BM 085238 . . . . .	210
Table 8.18	Calculation for problem 7 of YBC 04663 . . . . .	213
Table 8.19	Stated and proposed addition in NBC 06763 . . . . .	214
Table 8.20	Differences between stated and expected volume in Ashm 1922-290 . . . . .	215
Table 8.21	Wage calculation in Riftin 1937: no. 116 . . . . .	217
Table 8.22	Wage calculation in Ashm 1922-281 . . . . .	218
Table 8.23	Summary of wage calculations in LB 1074 . . . . .	219
Table 8.24	Wage rate calculation in Ashm 1923-315 . . . . .	220
Table 8.25	Wage rate calculation in AO 08461 . . . . .	220
Table 8.26	Hypothetical tabular layout to calculate VAT 08521, problem 1 . . . . .	223
Table 9.1	YBC 04698, statement 14, proposed solution . . . . .	232
Table 9.2	Truncation and difference of added values . . . . .	235
Table 9.3	Rounding to lower value after addition or subtraction . . . . .	236
Table 9.4	Values rounded down in sexagesimal place value notation . . . . .	237

Table 9.5	Texts dealing with volume or bricage in the <i>Lu-igisa</i> archive . . . . .	238
Table 9.6	Rounding to higher value after addition or subtraction. . . . .	239
Table 9.7	Rounding in, or as a result of, multiplication . . . . .	241
Table 9.8	Computed field size and expected field sizes for LB 1097. . . . .	243