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ANCIENT MESOPOTAMIAN AGRICULTURE

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The casual reader of "economic histories" and "histories of agriculture" must often lay aside his book with the impression that ancient Mesopotamian agriculture constitutes a subject either obscure or unimportant, a subject incapable or undeserving of the extensive treatment accorded the story of agriculture in Egypt or the Mediterranean lands.¹ In reality, agriculture was a major activity in old Mesopotamia; its development in the Land of the Two Rivers affected the history of other regions in the Near East, and its influence reached ultimately to the Greeks and Romans. Moreover the mists which surround the history of agriculture in Mesopotamia are not impenetrable: source materials of many kinds are abundant and rival in quantity the papyri and archaeological remains which have been used to reconstruct the agricultural history of ancient Egypt.

It would be quite incorrect to say that the history of ancient Mesopotamian agriculture has not been studied. The distinguished scholar Fritz M. Heichelheim is the author of the best available synthesis of Mesopotamian economics, and the extensive literature which he cites shows the subject to have been anything but neglected.² There are chapters on agriculture in histories of Babylonia and Assyria;³ there are monographs and articles on special phases,⁴ and there are allusions to things agricultural in works dealing with other

aspects of Mesopotamian life and history.⁵ The sheer bulk of this secondary material is impressive, and it is amazing that so little of the accumulated knowledge which it represents has found its way into more general treatments of economic and agricultural history. The most probable explanation for this phenomenon is that the material is scattered and not easy to find; much of it has appeared in publications consulted almost exclusively by orientalists. It is a price we pay for overspecialization.

We are concerned in this paper with opportunities for research in agricultural history. Great opportunities exist in the ancient Mesopotamian field. The good work already done in many instances excites the utmost admiration, but it also has its limitations. In the first place, it has not reached the wider field for which it ought to have been intended. Secondly, most of the work has been done by philologists or linguists who have not always examined the evidence for information which a specialist in agricultural history or agricultural economics might think essential.

The final and most serious criticism of the earlier work, however, must be this: too often it has been customary to approach the subject as if the history of Mesopotamia from 3000 to 300 B.C. could be treated as an entity. This concept is erroneous. Mesopotamian history has not one, but several, chapters. A number of distinct historical periods and situations are involved. In three millennia there were bound to be many changes in land tenure; new crops were introduced; the area under cultivation expanded and contracted; there was a change from a barter to a money economy.

Tom B. Jones, "By the Rivers of Babylon Sat We Down," *Agricultural History*, 25: 1-9 (1951), and other items cited below.

⁵ See Heichelheim, *Wirtschaftsgeschichte*, 1: 106-198; A. Salonen, "Die Wasserfahrzeuge in Babylonien," *Studia Orientalia* 8.4 (Helsingfors, 1939); C. H. W. Johns, *An Assyrian Doomsday Book* (Leipzig, 1901); T. Fish, "The Sumerian City of Nippur in the Period of the Third Dynasty of Ur," *Iraq*, 5: 157-179 (1938); Wilhelm Kohler and Arthur Ungnad, *Hammurabi's Gesetz* (Leipzig, 1904-1911); Josef Kohler and Arthur Ungnad, *Assyrische Rechtsurkunden* (Leipzig, 1913).

¹ This article was presented at the session of the Agricultural History Society with the American Historical Association at New York City on Dec. 29, 1951.

² Fritz M. Heichelheim, *Wirtschaftsgeschichte des Altertums* (2 vols., Leiden, 1938) 2: 934-986.

³ As in Bruno Meissner, *Babylonien und Assyrien* (2 vols., Heidelberg, 1920-25); Louis Delaporte, *Mesopotamien* (trans. by V. Gordon Childe, New York, 1925); *Cambridge Ancient History*, 1 (New York, 1923).

⁴ See Heichelheim's bibliography as well as Walter Schwenzner, "Das geschäftliche Leben im alten Babylonien," *Der Alte Orient* 16: 1-32 (Leipzig, 1916); Friedrich Delitzsch, *Handel und Wandel in Altbabylonien* (Stuttgart, 1910); Friedrich Hrozný, "Das Getreide im alten Babylonien," *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien (Philosophisch-Historische Klasse)* 173.1: 1-215 (Wien, 1913);

Furthermore, our sources of information for this long period do not maintain a constant level of abundance or quality. Instead, there are high peaks and deep valleys: we have good sources for the time of Urukagina (*c.* 2400 B.C.); there is a superabundance of material for the Third Dynasty of Ur, especially for about a generation beginning around 2100; in the late eighteenth and early seventeenth centuries B.C. the Age of Hammurabi is well documented, and the Kassite period which follows is fair; finally, a much later age beginning with the Assyrian Empire in the second half of the eighth century and running down through Neo-Babylonian and Persian times rivals the Third Dynasty of Ur in the richness of its source materials.

These are the peaks, but between them are the valleys—long periods about which we can learn virtually nothing because of the poverty of the sources. Contemplation of these gaps in our knowledge will show the weakness of the method which I have been criticizing. The application of this treatment to a specific subject may sometimes be useful or admissible, but its disadvantages should never be forgotten.

The research undertaken thus far which appears most successful and likely to be of permanent value is that which has confined itself to single periods or aspects of those periods. The divisions of Mesopotamian history already exploited in this way to some extent are the Age of Urukagina almost at the beginning of the time scale;⁶ the Hammurabi period (in the middle);⁷ and the Assyrian, Neo-Babylonian, and Persian epochs at the end.⁸ One of the most promising eras, that of the Sumerian Third Dynasty of Ur, has scarcely

⁶ Anna Schneider, *Die Anfänge der Kulturwirtschaft: die sumerische Tempelstadt* (Essen, 1920); Anton Deimel, "Sumerische Tempelwirtschaft zur Zeit Urukaginas und seiner Vorgänger," *Orientalia* (Series 1), 1, 2, 4-7, 14-17, 20-21, 26, 28, 32, 34-35, 43-44 (Rome, 1920-30); Anton Deimel, "Sumerische Tempelwirtschaft," *Analecta Orientalia*, 2 (Rome, 1931).

⁷ See Heichelheim, *Wirtschaftsgeschichte*, for bibliography, also Jones, in *Agricultural History*, and Schwenzner, in *Der Alte Orient*, 16: 1-32.

⁸ The bibliography here is very extensive. Again, see Heichelheim, *Wirtschaftsgeschichte*. A. Leo Oppenheim (Oriental Institute, Chicago) has prepared a manuscript entitled, "The Material Culture of the Neo-Babylonian Period on the Basis of its Documents" which presumably will be published in the near future.

been touched, and we shall have occasion to consider its possibilities in some detail.

First, however, something should be said about the sources as a whole. The sources for ancient Mesopotamian agriculture fall into two main classes: the material remains and the written records. The first class includes not only the tools, implements, seeds, storage pits and granaries discovered in the course of archaeological excavation, but also the graphic representations of plants, tools, and agricultural scenes which occur in relief sculpture or on the seals.⁹ The Mesopotamian plow with its seeder tube, to cite only a single example, would be difficult to reconstruct if we did not have it pictured for us on seals or in sculpture.

Among the sources of the second class may be listed relevant passages in the law codes—Sumerian, Old Babylonian, Assyrian—and the references to agriculture in the royal inscriptions of all periods. There are also numerous letters, both official and private, which are equally useful. Moreover, one of the most spectacular of the recent discoveries is the so-called "farmer's almanac" which contains detailed instructions for Sumerian farmers in the period just before Hammurabi.¹⁰

The bulk of our information, however, comes from thousands of inscribed clay tablets, the actual "business records" of the several periods which I have enumerated. Written in the various cuneiform scripts and languages of succeeding ages, these documents are the lists, ledgers, contracts, receipts, and work records of kings, priests, bureaucrats, traders, artisans, and farmers. Whole archives relating to the activities of a single group or individual are known. Here, as in the case of Egypt and its papyri, the historian finds himself embarrassed by the wealth, rather than the poverty, of his evidence.

Turning specifically to the case of the Third Dynasty of Ur, we encounter an overwhelming mass of material. More than 10,000 texts have been "published"; that is to say, not translated, but reproduced in "autograph copies" or line drawings with indexes and summaries of the general purport

⁹ Much of this material is conveniently shown in Bruno Meissner, "Grundzüge der babylonisch-assyrischen Plastik," *Der Alte Orient*, 15: 1-156 (Leipzig, 1915), and Paul Leser, *Entstehung und Verbreitung des Pfluges* (Münster, 1931), 241-249.

¹⁰ Samuel N. Kramer, "Sumerian 'Farmer's Almanac,'" *Scientific American*, 185(5): 54-55 (November 1951).

of each tablet.¹¹ Occasionally, transliterations of the texts are provided, and brief commentaries; but full scale discussions are generally avoided. Many thousands more of the texts are known to be in the possession of museums, libraries, and private persons. These still await publication, while hundreds of new texts are unearthed by the archaeologists every year.

Not all the texts relate to agricultural affairs, of course, but there are enough to provide a very good picture of Sumerian agriculture on the great temple estates and the small individual holdings of the twenty-first century B.C. Do we want to follow the farmer through his annual round of activities? Do we want to know how he prepared the soil, how he sowed his crops, how much seed he used, the extent of his yield, how crops were harvested and stored, the size of fields and gardens, how farm labor was employed? These questions may be answered by anyone who will take the trouble to read the texts and analyze the information which they provide.

The principal field crops mentioned in the texts of the Third Dynasty of Ur are barley, wheat, emmer, sesame, onions, peas, and beans. Dates, pomegranates, and figs are prominent in the lists of products coming from the smaller plots called "gardens." Of all these, barley and dates were by far the most important in their respective categories. The quantities of wheat and emmer produced were insignificant in comparison to the annual yield of barley. Of more than 150 texts from Ur, only 17 mention wheat or emmer, while the rest are concerned with barley. This is a typical situation. Barley provided food for man and beast, and it figured prominently in the flourishing Sumerian beer industry.¹² Barley was easier to grow than wheat, its yield was superior, and it was more adaptable to the primitive milling methods then in vogue. The date, too, was prized

¹¹ A good example of this type of publication is George Hackman, *Temple Documents of the Third Dynasty of Ur from Umma* (New Haven, 1937). For a good bibliography of the published Third Dynasty texts and as an example of a useful type of publication, see A. Leo Oppenheim, "Catalogue of the Cuneiform Tablets of the Wilberforce Eames Babylonian Collection," *American Oriental Series* (New Haven, 1948), 32.

¹² Louis F. Hartman and A. Leo Oppenheim, "On Beer and Brewing Techniques in Ancient Mesopotamia," *Journal American Oriental Society*, Supplement 10 (1950).

for its versatility and its ease of cultivation. Like barley, dates were a source of food and drink; in addition, the wood of the date palm was important in a country which had few other trees.

The texts abound with information about the sizes of fields, but a careful survey and analysis of this material has yet to be made. It is not meaningful to report, as some people have done, that the smallest field known was of such and such a size, or that the largest known field contained so many acres. It would be preferable to determine whether most of the fields were large, or most of them small; we should know the average size of the large and the small fields. Sumerian fields were surveyed frequently; not only the areas but also the dimensions of the individual fields were sometimes reported. In addition, fields and sections of fields were classified as good, hard to work, irrigated, at the inundation level, too high for irrigation, enclosed, and containing clay or salt.¹³ Actual sketches of fields were drawn on some tablets.¹⁴

The appearance of a preliminary translation of the so-called "farmer's almanac" found two years ago at Nippur may be of some assistance in a reconstruction of the Sumerian methods of field preparation, sowing, and harvesting.¹⁵ It is clear from the published photographs that on palaeographic grounds the text must be dated about the time of Hammurabi, yet the language is Sumerian rather than Akkadian. This suggests an earlier date for the original composition of the "almanac"; that is to say, the text we now possess may be a "new edition." Assuming that this text does describe the agricultural methods of the Sumerian period, it can to some extent be combined with the other evidence which we have. The "almanac" and the texts of the Third Dynasty are not in complete agreement, but the apparent contradictions may be removed or explained by further study.

Although the crops were not planted until November, the first preparation of the fields began right after the harvest in June and before the hot, dry summer set in. The fields were cleared with

¹³ Representative texts may be seen in George A. Barton, *Haverford Library Collection of Cuneiform Tablets*, 3, no. 373 (New Haven, 1918); and Mary Inda Hussey, *Sumerian Tablets in the Harvard Semitic Museum*, no. 27 (Cambridge, 1915).

¹⁴ See *Orientalia*, 49, plates 136-137 (1930).

¹⁵ Kramer, in *Scientific American*, 185(5): 54-55 (November 1951).

pickaxes, the stubble was pulled up and removed, and the area was smoothed by dragging it with a heavy beam.¹⁶ In late September and October, the field work was renewed: the larger fields were plowed and harrowed, while smaller plots were prepared with picks and spades.¹⁷ When all was in readiness for planting, the furrow was drawn with a special plow which was often equipped with a seeder tube.¹⁸ Seed was dropped in the furrow by hand on occasion,¹⁹ and may have been sown broadcast in the case of the fallow fields.²⁰

The texts uniformly show that the Sumerians were anything but generous with their seed. The usual amount of seed allotted for barley was 450 *silà* (c. 10½ bu.) per *bùr* (15.75 acres), or 2.8 pecks per acre.²¹ Wheat was sown at about 2 pecks per acre.²²

This amazingly small amount of seed can be explained only by the arid condition of the lower valley which necessitated much irrigation of the crops and a resultant wide spacing of the furrows. As a matter of fact, the "almanac" has some information on this point. Kramer's interpretation of the text is that 1 shekel-weight of grain was used as seed for each *gar* (a strip of 19½ feet). Assuming as he does, that there were 8 furrows to a *sar* (1 square *gar*) and that the shekel equalled one ounce, this would amount to 900 pounds of seed per *bùr* (1800 *sar*), or at least 15 bushels.²³ Now, the word *gin*, which denotes a shekel-weight, is also used for a measure of capacity equivalent to one-sixtieth of a *silà*. If a field were seeded at 450 *silà* per *bùr*, this would amount to 27,000 *gin*;

¹⁶ *Ibid.*, and Oppenheim, in *American Oriental Series*, B7 on page 16.

¹⁷ For example: Barton, in *Haverford Library Collection*, 2, no. 97, a total of 15 oxen are recorded as having been assigned to the harrows and 5 to plows for the ninth day of the sixth month (late October-early November). See also Oppenheim, in *American Oriental Series*, Noor I on pages 160-161.

¹⁸ *Ibid.*, Noor I on page 162.

¹⁹ Suggested by the "almanac" and also in Hussey, *Sumerian Tablets*, no. 28, where the fields worked by farmers without oxen employ a larger amount of seed.

²⁰ The word *bal-e* as used in Edward Chiera, *Selected Temple Accounts from Telloh, Yokha, and Drehem* (Princeton, 1922), no. 28, suggests a "pouring" of seed.

²¹ There are many instances: Chiera, *Selected Temple Accounts*, no. 28; Hussey, *Sumerian Tablets*, no. 28; Barton, in *Haverford Library Collection*, 3, no. 241.

²² Chiera, *Selected Temple Accounts*, no. 28.

²³ Kramer, in *Scientific American*, 54.

dividing this by 1800 we would arrive at a figure of 15 *gin* per *sar*. At one *gin* per strip of one *gar* length, it would appear that there were 15 furrows in each *sar*, and the distance between each furrow would be 15 inches instead of the 27 inches implicit in Kramer's theory.

The problem of the yield is even more thorny than that of the amount of seed employed. With the special kind of agriculture which we find the Sumerians employing, the yield was likely to be high, but figures of 80 and 100-fold yields must be viewed with doubt.²⁴ The 36-fold yield of the Neo-Babylonian period is much more credible,²⁵ and an average rental of seven bushels per *iku* (⅞ acre)²⁶ would suggest, at the rate of 20 to 30 percent of the crop, a reasonable yield of 35 bushels per *iku* although even this would amount to a 50-fold return.²⁷

The Third Dynasty texts provide little definite information about irrigation during the growing season, but the "almanac" recommends four periods of irrigation while warning that a rust (the *samanu* disease) may appear about the time of the third irrigation. Texts dated in the later months of the year and referring to plowing, harrowing, and spading may indicate some cultivation of the growing grain although it is more likely that they record work on the fallow fields.²⁸

At harvest time vast numbers of workers were called to the fields. One text from Umma speaks of 8400 men employed over a period of three months in harvesting and preparing the fields after the harvest was over.²⁹ Reaping was done with sickles. The "almanac" and the texts agree that the workers were organized in three-man teams: one man reaped, another piled up (or raked?) the grain,

²⁴ See "Ackerbau" in *Reallexikon der Assyriologie* 1: 16-20 (Berlin, 1935).

²⁵ *Ibid.*, 1: 20; also Hugo Prinz, "Babyloniens Landwirtschaft einst und jetzt," *Weltwirtschaftliches Archiv* 8: 1-28 (1916).

²⁶ *Reallexikon der Assyriologie*, 1: 19.

²⁷ In Hackman, *Temple Documents*, no. 277 there is an account of the rental from two fields. One field of nearly 13 *bùr* would have required about 20 *gur* of seed. Its rental amounted to 130 *gur*. Multiplying this by 4 we should then have a 24-fold yield. The other field of about 10 *bùr* would have needed 15 *gur* of seed. Its rental was about 163 *gur*, possibly representing a 40-fold return.

²⁸ For example, Hackman, *Temple Documents*, no. 270.

²⁹ *Ibid.*, no. 272.

while a third tied the grain in bundles.³⁰ At a threshing floor, the grain was trodden by animals,³¹ beaten with sticks or spades,³² or a cart might be driven over it.³³ In later times a sledge was used,³⁴ but there is no certain evidence of this contrivance in the Sumerian period.

After the harvest and the threshing came the work of transporting the grain to a place of storage. This next step is well illustrated by a tablet from Umma³⁵ which records that 18 men spent three days loading 1500 bushels of barley on a ship.³⁶ Then came a four-day trip by canal and river to the granary at Umma with 19 men towing the vessel at least a part of the way. Four more days were consumed in unloading (literally, "digging out and pouring out the grain") and depositing the cargo in the granary.

Although the torrid summer was a slack period in the fields, there were still the dates in the gardens to be cared for. The groves must be irrigated, and then there was the date harvest which came in October. We have abundant information in the texts about this date culture. There are lists which give the number of trees in each grove. Further, the trees were classified according to yield. A few trees produced as much as 60 *sila* (over a bushel) of dates, while others as little as 3 *sila* (about 2 quarts).³⁷ The average per grove was in the neighborhood of 10 quarts a tree. Careful analysis of the statistical material from the texts would reveal

³⁰ The "almanac" and Leon Legrain, *Business Documents of the Third Dynasty of Ur* (2 vols., London, 1937-47), no. 1346 where workmen are recorded as harvesting (*še-kin-a*), raking or piling up (*SUM-tab-ba*), and bundling or tying (*še-pa-ga*) the grain. Oppenheim in *American Oriental Series*, 38, thinks *SUM-tab-ba* indicates some kind of work on the irrigation system, but having seen the "almanac" he may be inclined to abandon this view.

³¹ *Hammurabi Code*, sections 268-270. For a new and easily accessible translation, see *Ancient Near Eastern Texts* (ed. James B. Pritchard, Princeton, 1950).

³² Oppenheim, in *American Oriental Series*, G21 on p. 72.

³³ The "almanac" suggests this.

³⁴ Meissner, *Babylonien und Assyrien*, 1: 196.

³⁵ Hackman, *Temple Documents*, no. 242.

³⁶ Since 220 *gur* of grain are involved in this operation, it is probable that more than one vessel was used. Some vessels are known with a capacity of 120 *gur*, but the ordinary ones were of 60 *gur* capacity and less.

³⁷ Vincent Scheil, "L'exploitation des dattiers dans l'ancienne Babylonie," *Revue d'Assyriologie*, 10: 1-9 (Paris, 1913).

the details of the management of the groves; the age of the trees, the proportion of young trees to old, and the like.

Enough has been said, I think, to indicate that Sumerian agriculture is a subject of some importance in itself. It is also a field in which there is much to be done. Finally, there is another aspect of this matter which should be interesting to historians in general: the implications of Sumerian agriculture for the reconstruction of early Mesopotamian history.

The methods of the Sumerian farmer indicate that the land of Sumer and Akkad in the third millennium B. C. was plagued by the same aridity which exists in southern Iraq today. The country was virtually uninhabitable without a highly organized and carefully directed agricultural system involving the control of labor, the development of irrigation, and the invention of special tools and methods for cultivation. We now know that agriculture began in this part of the Near East, not in the river valleys, but in the hills where dry farming was possible.³⁸ Later, farming people moved down into ancient Assyria where the rainfall was sufficient for them to carry on the type of agriculture which they had already developed in the hills.³⁹ Still later, probably, the Sumerians occupied the swampy area at the head of the Persian Gulf where again there was sufficient water for the only kind of farming they had known. As the years passed, however, the Sumerians began to develop the new methods and the organization which enabled them to advance upriver from the swamps to the dry, but fertile, plain. With every new acre brought under cultivation, there was an increase in the food supply and automatically in the population. Thus Sumer grew.

If this is the true story, we can reject the older interpretations of Mesopotamian history which postulated a fierce struggle between Semites and Sumerians for the early control of the valley.⁴⁰

³⁸ Robert J. Braidwood, *Prehistoric Men*, Chicago Natural History Museum, Popular Series, Anthropology, no. 37 (Chicago, 1948), 86-99; Carleton S. Coon, *Cave Explorations in Iran 1949* (Museum Monographs, The University Museum, University of Pennsylvania, Philadelphia, 1951).

³⁹ Ann Perkins, *Comparative Archaeology of Early Mesopotamia* (Chicago, 1949).

⁴⁰ Thorkild Jacobsen, "The Assumed Conflict between Sumerians and Semites in Early Mesopotamian History," *Journal American Oriental Society*, 59: 485-495 (1939), has challenged the old theory on other grounds.

Before the introduction of Sumerian technology, the upper valley (Akkad) could have supported only feeble groups of nomads or a few villagers huddled on the river banks. It is significant that Sargon of Akkad, the first Semitic ruler of importance, flourished about 2350 B. C., five hundred years after the first appearance of a rich and brilliant civilization at Sumerian Ur.

Appendix.—Since the Third Dynasty texts cited in the body of this paper have been selected for illustrative purposes only, it seems advisable to append a list of all texts actually consulted for this study. The list is not complete for the period by any means, but it will give some idea of the abundance of the material. It may be guessed that there are 500 or more published texts which refer to agricultural affairs; only about 140 are listed here.

SOURCE	SUBJECT				
	<i>Surveys and field sizes</i>	<i>Field preparation</i>	<i>Seed and sowing</i>	<i>Field work</i>	<i>Harvest</i>
Barton ⁴¹	1:193; 2:27, 67; 3:361, 373	2:97; 3:150, 282, 316, 320, 336, 386	1:393; 2:110; 3:177, 201, 241, 263	3:350	2:55
Contenau ⁴²	100	61, 81		80	
Chiera ⁴³		33	28		
Hackman ⁴⁴		221, 267, 268, 269, 270, 271		218, 219, 220, 231, 235, 237, 239, 240, 241, 243, 249, 250, 259, 260, 261, 262, 264, 265, 342	217, 233, 236, 252, 272
Hussey ⁴⁵	27		28, 29		
Keiser ⁴⁶		210, 288		225	92, 242
Keiser ⁴⁷		113, 115, 116		124, 129	112, 120, 125
Lau ⁴⁸		172	106, 256		
Legrain ⁴⁹			374, 377	378	
Legrain ⁵⁰	1353, 1355, 1363, 1367, 1369, 1372	1335	1331, 1334, 1357, 1364	1342, 1349, 1354, 1360	1338, 1346, 1370, 1407, 1429
Lutz ⁵¹	1:100	1:87		2:3	1:6, 84; 2:41
Oppenheim ⁵²		B7, E20, E22, 15, Noor I	I34	H21	G21, N16
Pinches ⁵³			22		
AO-1 ⁵⁴	49	76, 166		73, 74, 77, 84, 90, 141, 146	75, 161, 193, 213, 303
AO-7 ⁵⁵		215, 239, 284	339	204, 229, 237, 300	302
Orient. ⁵⁶		394		265, 365, 502	222

⁴¹ Barton, in *Haverford Library Collection*.
⁴² George Contenau, *Contributions à l'histoire économique d'Umma* (Paris, 1915).
⁴³ Chiera, *Selected Temple Accounts*.
⁴⁴ Hackman, *Temple Documents*.
⁴⁵ Hussey, *Sumerian Tablets*.
⁴⁶ Clarence E. Keiser, *Selected Temple Documents of the Ur Dynasty* (New Haven, 1919).
⁴⁷ Clarence E. Keiser, *Cuneiform Bullae of the Third Millennium B. C.* (New York, 1914).
⁴⁸ Robert J. Lau, *Old Babylonian Temple Records* (New York, 1906).
⁴⁹ Leon Legrain, *Le Temps des Rois d'Ur* (Paris, 1912).
⁵⁰ Legrain, *Business Documents*.

⁵¹ Henry F. Lutz, "Sumerian Temple Records of the Late Ur Dynasty," *University of California Publications in Semitic Philology*, 9: 117-268 (1928).
⁵² Oppenheim, in *American Oriental Series*.
⁵³ Theophilus G. Pinches, *Babylonian Tablets of the Berens Collection* (London, 1915).
⁵⁴ Nikolaus Schneider, "Die Drehem und Djoḥa Urkunden der Strassburger Universitäts- und Landesbibliothek," *Analecta Orientalia*, 1 (Rome, 1931).
⁵⁵ Nikolaus Schneider, "Die Drehem und Djoḥa-Texte im Kloster Montserrat," *Analecta Orientalia*, 7 (Rome, 1932).
⁵⁶ Nikolaus Schneider, "Die Geschäftsurkunden aus Drehem und Djoḥa in den staatlichen Museen (VAT) zu Berlin," *Orientalia*, 47-49 (Rome, 1930).