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ON AN OPERATIONAL DEVICE IN MESOPOTAMIAN BUREAUCRACY[1]

A. LEO OPPENHEIM

THE tells of the Kirkuk area have yielded a bountiful harvest. With their nearly four thousand tablets—of which about three-fourths are published by now—they represent a site of unique importance for our knowledge of Mesopotamian civilization. These tablets are available to Assyriologists in an impressive series of volumes, JEN I–VI, HSS V, IX, XIII–XVI, with texts bearing on the city of Nuzi of the period of the middle of the second millennium, and HSS X bearing on the earlier city of the Old Akkadian period, named Gasur, and containing a small group of Old Assyrian texts.

We Assyriologists owe a special debt of gratitude to Dr. E. R. Lacheman who has published five (JEN V, HSS XIII–XVI) of the twelve volumes in which the American Schools of Oriental Research and Harvard University have offered us this rich material. Dr. Lacheman has kept up his interest for the texts from Nuzi for twenty years, while nearly all the scholars who previously studied them have either died or abandoned this field of research for other, more fashionable, topics.

Not very much has been achieved towards the understanding of the text material from Nuzi as a source of direct information on Mesopotamia in a crucial and quite obscure period. There was a flurry of hectic interest in the personal names of these texts, because many of them are Hurrian and contribute considerably to the investigation of that language. However, we are still without any up-to-date glossary of the numerous and rather important foreign terms that appear in the texts from Nuzi. Then there were, inevitably, the scholars looking for materials to be related to the Old Testament. Their zeal in comparing words, legal and social practices, etc., brought about a rush of articles that has now subsided—with one exception: the eternal Ḫabiru's are still *facile princeps* in popularity, although the results of these recurrent investigations hardly warrant the number of pages dedicated to this knotty and unrewarding problem. The "sale adoption" texts have attracted much interest, as have some smaller groups of tablets referring to certain credit transactions and to proceedings in court, but the legal documents from Nuzi are still awaiting further investigation of a scope that their variety and, above all, their position in time and area deserve. They shed light on a region and on a period of Mesopotamian civilization that otherwise would remain completely beyond our ken. Finally there are a number of factual gleanings that Assyriologists have more or less accidentally gathered from this vast material; they bear in several instances on the history of the period and offer certain provincial spellings that shed light on the reading of Akkadian words, etc.

What remains virtually a *terra incognita* is the wide array of administrative documents that reflect the extensive dealings in the administration of a palace

[1] A review article based on Ernest R. Lacheman, *Economic and Social Documents* (=*Excavations at Nuzi*, Vol. VII = "Harvard Semitic Series," Vol. XVI). Cambridge: Harvard University Press, 1958. Pp. xii +139 +2 pls. $5.50.

and, to a much lesser degree, in that of a sanctuary. Here, good fortune has provided us with a unique opportunity to study the archives of a royal administrative center that surpasses in certain respects the text material that has come from other finds of this type—such as

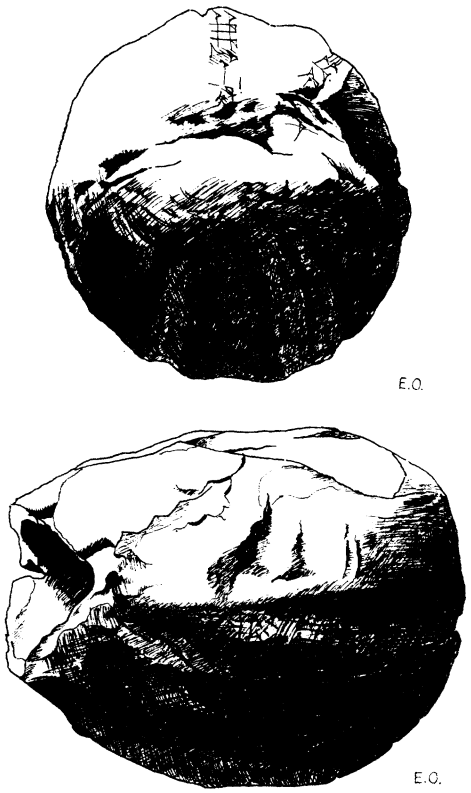

FIG. 1

the archives of the palace administration of Old Babylonian Mari and of Nippur in the Kassite period—and certain groups of texts from Alalakh, Calah, and Nineveh.

The present volume of Nuzi texts nearly exclusively contains such documents, for the apparent insignificance of which the author considers an explanation, if not an excuse, necessary. Of course, it is impossible to make any sense of the lists of rations, animals, etc., when one reads them as they are presented here and in other volumes of Nuzi texts. They have to be organized in type groups according to their form and content. Then they will yield quite interesting insights into the functioning of the administrative mechanism, into the workings of the bureaucracy, the functions and responsibilities of the officials, etc. A pattern is bound to develop that can and should be compared with others evolved by other administrations in and outside of Mesopotamia.

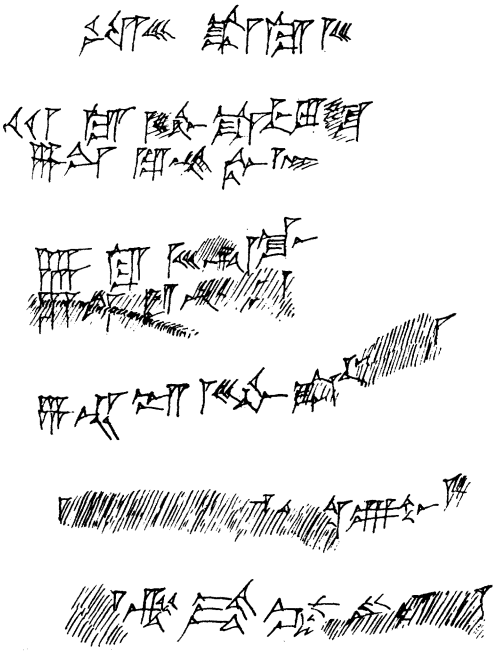

FIG. 2

No startling results can be expected from material that is as dry, concise, and stereotyped as administrative documents of this type. Still, their investigation can be as rewarding as that of omen or religious texts, where one likewise chances only here and there upon a nugget of essential information in the wastelands of monotonous wordiness.

A case in point is the text No. 449 published in transliteration in the volume under review, HSS XVI. The transliteration is provided with the following footnote that immediately aroused my curiosity: "This 'egg-shaped' tablet is hollow and when found contained 48 little stones." I asked Mr. Lacheman for a photograph of this object, as well as for any pertinent information at his disposal. He was kind enough to send me a latex mold, which was more revealing than a photograph could have been, and wrote that he had found the above quoted note on a slip of paper attached to the tablet and that he knew nothing about the whereabouts of the little stones mentioned.

The drawing on page 122 (Fig. 1) was made by Mrs. Elizabeth Oppenheim from a plaster cast produced by the latex mold. The ovoid is there represented in its original dimensions; the eight lines of the inscription have been copied by myself. The seal impression has not been reproduced.

Here is a translation of the text (Fig. 2): "Stones (referring) to sheep and goats: 21 ewes that have given birth, 6 female lambs, 8 full grown rams, 4 male(!) lambs, 6 she-goats that have given birth, 1 h[e-goat(!), 2] female kids—seal of Ziqarru."

Since the number of the animals listed adds up (for the offered corrections and restoration cf. below page 127) to 48, it is quite clear that it is no accident that it corresponds to the number of stones originally contained in this clay egg. Consequently, we must have to deal here with some kind of operational device for bureaucratic purposes that makes specific use of pebbles as counters, markers, or something of the sort. Thus it seems rather important to discover the function of the carrier of the pebbles and that of its extraordinary contents.

There is one explanation for the "egg-shaped tablet" and its pebbles that first comes to mind. It seems to be a simple device to control the transfer of animals entrusted to illiterate shepherds, to whom the number of pebbles was meant to suggest tangibly the number of sheep and goats in their care. Such pebbles, inclosed (and sealed) in their container, would serve well to protect the shepherd, no less than the officials who handed out or received the animals, against fraud or error.

Mr. P. Delougaz, of the Oriental Institute, whom I have to thank for the preparation of the plaster replica of our object, remembered, when we discussed its content, an incident that took place during the 1928–29 expedition to Nuzi, while he was visiting there, and which has a bearing on our topic. A servant of the expedition was sent to market to buy chickens. On his return, owing to some accident, the chickens he had bought in town mingled with those kept in the court yard of the expedition house. Since the servant's arithmetic was somewhat insufficient it seemed for a moment impossible to settle the accounts of the money he was given for his purchases. But he produced a number of pebbles which he had put aside, one for each chicken he had bought and established in this "operational" way his claim for payment.

Mr. Delougaz likewise remembers that the staff of the expedition was particularly interested in that incident because at that time, or on an earlier campaign, a clay object containing pebbles had been found which seemed to have served exactly the same purpose. This is undoubtedly our "egg-shaped tablet," and Mr. Delougaz's recollection of the incident enables us to establish the year 1928/29 as a *terminus ante quem* for its discovery.

A number of reasons, however, speak against the proposed interpretation of the

object under discussion, ingratiating as it is in its simplicity.

One would, for instance, expect salient differences in the appearance or sizes of the stones, so as to communicate the nature, age brackets, sex and other economically relevant features of the animals. It is true that the stones are lost, but one has to assume that the necessarily obvious differences in form, color or size would hardly have escaped the attention of the archeologist who found them or of any other scholar handling these objects. This especially since the find is quite unique and must have attracted attention. We thus have to proceed in our investigation under the assumption that the pebbles were uniform and functioned solely as counters.

There is another argument against the proposed interpretation. The object under discussion is the only one discovered in Nuzi. Notwithstanding all accidents of preservation and discovery, one would have every right to expect a much larger number of such clay containers with pebbles if the device had actually been used simply for checking the number of sheep and goats handed over to and received by the numerous shepherds of the palace administration. It is, of course, admissible to assume that the stone counters were normally kept in cloth or leather bags that have not survived and that, in an excavation, loose pebbles, however numerous, are not likely to attract the attention of even the most attentive field archeologist. However, we have to realize that the transfer of stone counters that cannot communicate the nature, etc., of the animals represents a very ineffective way of checking, for the shepherd can easily substitute younger and economically less desirable animals in order to obtain the number indicated by the stones. Hence, the inscription on our clay object is to be considered as essential as the pebbles it contained. And this means, consequently, that even the cloth or leather bags that could normally have held the stone counters must have been closed and sealed with clay bullae on which the specifications of the animals were indicated in writing. Such bullae, however, have not been found in Nuzi.

Two features of our "tablet" still have to be pointed out, because they may possibly contain indications as to the function of the object, its contents and its inscription. There is first the fact that the stone counters were protected by sealings against tampering with their number, and, secondly, that the detailed accounting of the animals listed in the inscription is not followed by a summing up, as is customary in such lists. If the stones were meant solely to convey the total of animals transferred in a communication technique designed for illiterate herdsmen, then the listing on their container that does not mention that total must be interpreted as conveying additional information in another medium, that of writing. If, therefore, these two techniques were meant to supplement each other, one has to realize that such a combination, cumbersome by any reasonable standards, cannot possibly have been the function of our object.

One further possibility likewise has to be dismissed. We know of the use of stone counters (Latin *calculi*) on counting boards from Classical and later sources, and it is not excluded that similar devices were used in the ancient Near East for addition, subtraction, etc. It may even be that the entries giš.ŠID.ma = *iṣ-ṣi minu-ti* and giš.níg.ŠID = MIN *nik-kás-si* of Hh. IV 16f. refer to such counting boards although no indications concerning the use of this technique can be found in cuneiform mathematical texts or elsewhere.

However, if the stone counters in our object had been used for such or similar purposes, there would have been no reason to send them carefully sealed, or, as a matter of fact, to transfer them at all.

At this point we have to turn to philological evidence, that is, to the uses and the meanings of the word *abnu*, "stone," that is mentioned at the beginning of the inscription. And this leads us to a substantial group of economic texts, in fact, lists of animals, from Nuzi in which *abnu* occurs in a number of phrases that can be translated literally but have failed to make any sense to me up to now. By connecting this philological evidence with the archeological problem of our object and its puzzling contents, we are in a position to shed light on both and thus to illustrate again the old adage: *sine philologiae lumine archaeologia caecitur.*

The references to stones in Nuzi texts appear as short administrative remarks. The word for "stone" is always in the plural, and the verbs of these phrases always in the stative, which means that the phrases refer to activities performed with the stones. We shall discuss the references in four groups according to their verbs.

We begin with the most common type of phrase—that which contains the verb *nadû*, "to deposit." In HSS XVI 315, a list enumerating sheep and lambs given out for a variety of purposes, we find an item provided with the following remark: *annûtu* UDU.MEŠ *ina muḫḫi* PN *aš-bumi* NA4.MEŠ *la nadû*, "these sheep are with PN, the (pertinent) stones have not been deposited." A slightly different formulation is shown in all other references for the verb *nadû*. Cf. HSS XVI 267, where a number of sheep are characterized as *muddušu ša* PN *ina* NA4.MEŠ-*ti la nadû*, "the share of PN, they (i.e., the stone counters referring to these animals) are not deposited among the stones." Note also HSS XVI 282, "60 sheep . . . *annûtu ša nadnu ina* NA4.MEŠ-*ti la nadû*, these have been handed over (but their stones) have not been deposited among the stones," and HSS XIII 280, "three lambs, two young he-goats, the share of PN, *ina muḫḫišu šaknu ina* NA4.MEŠ-*ti la nadû*, they are charged to his account (but) not deposited among the stones." Then there are quite similar passages in HSS XIII 280:7, 478:5 f., HSS XIV 556:9, HSS XVI 258:13 f., 267:6, 274:6 f., 281:2, and 289:5. In HSS XVI 304:21 and 23, we find the formulation *ina abanāti ša* PN *la nadû*, "not deposited among the stones of PN," all referring to sheep and goats. *AASOR* XVI 98:9 is exceptional inasmuch as the stones refer to horses. It should also be mentioned that the atypical formulation in HSS XVI 272:7 f., *ša ina* NA4.MEŠ-*ti ša nadû*, could well be discarded as an obvious mistake (*ša* for *la*) of the scribe.

We turn now to references of the much rarer second type; they contain the verb *šūlû*, "to remove, take out." In HSS XVI 249 we repeatedly find such phrases as: *1* UDU.SAL *ša* PN *ša* NA4-*šu la šūlû*, "one ewe belonging to PN, its (the ewe's) stone has not been removed," in line 1. These animals are added up in lines 10 ff., "all together 16 sheep and goats, *ša* NA4.MEŠ-*šu-nu ša* PN *la ušēlû*, whose stones PN has not (yet) removed." Note further HSS XIV 505:3, NA4. MEŠ-*ti-šu-nu šūlû*, and passim in this text.

The third and fourth types are represented by one reference each. After an enumeration of sheep and goats in HSS XIV 508 we find the following remark in line 10: "all together 23 sheep of Šilwa-Tešup, PN brought [. . .] NA4.MEŠ-*šu-nu la šu-bal-ki-tum*, their stones have not been transferred." And finally, we read

in HSS XIV 596:22, [x SAL.Ù].TU *ša la* NA$_4$.MEŠ-*ti ša* PN, "x ewes that have lambed, without (pertaining) stones, belonging to PN."

On the basis of these passages one can evolve a picture of how these "stones" moved around, i.e., were "deposited" in, "transferred" to, and "taken out" of a series of receptacles for the purpose of reflecting the movements of the animals they referred to. Whenever animals changed hands or spheres of authority, a corresponding number of stones changed receptacles. On a purely operational level, all bureaucratic transactions were in this way faithfully recorded. In a central office, the movements of the animals between pasture, plucking places, folds, and their ultimate destinations were reflected in the contents of a series of receptacles in which the number of stones changed from day to day but which could be easily counted and checked against the number of animals to which they referred. All this could be done without any written records; in fact, it could be done much better and more effectively without keeping written records; all one would have had to do to take stock would be simply to count the pebbles which indicated how many animals the official was actually responsible for, but if written records were kept, the scribe would have had to look up in the archives all tablets that recorded the number of animals that had been handed over to the official after the last settling of accounts, as well as those which dealt with the animals that the official himself had transferred to somebody else or disposed of in some other way. Afterwards, the scribe would have had to draw up a new document, a balance sheet. Clearly, the operational method was preferable as quicker when stock had to be taken and spot checks made at frequent intervals.

An important question comes up here. How was it technically possible to record by means of pebbles and pots the complex movements of a number of specific breeds of domestic animals according to a substantial set of age brackets, such as newborn, yearlings, male and female two-year-olds, mature, those which have had young, old animals, and according to a wide variety of economical, religious and technical destinations—such as food, sacrifice, transhumance, separation of young animals from their mothers, shearing, plucking, etc.?

Proof that such diversified operational "bookkeeping" is perfectly feasible comes from cultural anthropology. In 1932, M. J. Herskovits published in *Human Biology*, IV, 252 ff. an article on "Population Statistics in the Kingdom of Dahomey" that appeared, somewhat reworked, as Chapter XXV of his book *Dahomey, an Ancient West African Kingdom* (New York, 1938) titled "Wars, Conquests, and the Census." He describes there a fascinating, purely operational technique of census taking that was applied in the eighteenth and early nineteenth century kingdom of Dahomey by means of pebbles and sacks. An elaborate system of periodic reporting kept the numerous sacks *à jour*, which contained pebbles indicating the number of persons according to sex and age groups living in certain administrative units. Cases of death and birth were recorded in the same way in order to keep a close check on the actual population figures at a given moment. A simple but ingenious system of transfers annually took account of the progress of time that moves boys into the bracket of warriors, etc. Still more surprising is the practice of starting these records all over again either annually or at certain important occasions such as the death of a king while storing the final tallies of the preced-

ing period, thus adding a diachronic dimension to this perfect system of synchronic statistics.

Our "egg-shaped tablet" and the references to stone counters found in the texts from Nuzi give us every right to imagine one or more offices in the palace of this city in which the statistics of the royal herds were recorded in a similar way. In a series of pots or reed baskets that were marked, with appropriate symbols or by their very arrangement, as containing stones representing lambs, kids, yearlings, grown-up male and female animals, etc., the accounts of these flocks were kept. When animals died, were stolen, given out for food or sacrifice, transferred for plucking or shearing, for transhumance, etc., an appropriate number of stones was deposited (*nadû ina abanāti*), removed (*šūlû*) or transferred (*šubalkutu*). When the young ones were born, stones were added to the containers labeled "male or female lambs or kids" and, annually, the entire contents of the lower age group containers were moved to the corresponding higher brackets. Thus, the numerical distribution of animals within the flock was kept constantly in evidence without a written record.

We realize now that the purpose of our clay container could not have been other than to send counters into another accounting department. The transferred stones were accompanied by written instructions on how to distribute them; that is, the inscription (cf. the translation above on page 123) was meant to tell the official to deposit 21 of the stones in the pot for "ewes that have given birth," 6 in the pot for "female lambs," etc. This is the reason why no sum total is indicated on the inscription and why the stone counters must have been uniform and had to be protected against tampering. The entire procedure may well represent an exceptional case, which would explain why only one such "egg-shaped tablet" has been found in Nuzi.

This becomes quite clear when one looks at the tablet No. 311 likewise published (in transliteration only) in the volume under review. The text of that tablet allows us to correct certain errors of the scribe found on our "egg-shaped tablet." It runs as follows: "21 ewes that have given birth, 6 female lambs, 8 full grown rams, 4 male lambs, 6 she-goats that have given birth, one he-goat, [x] female kids, together 48 (text 49) sheep and goats belonging to Puhišenni, son of Mušapu, that have been handed over to the shepherd Ziqarru, son of Šallija; seal impression of Puhišenni; 8 (of the) ewes are shorn" (cf. for this my note in *JA*, CCXXX, 655). There cannot be any doubt that, in spite of minute differences, both tablet (No. 311) and clay object (No. 449) refer to the same transaction and thus illustrate tellingly the parallel methods of "bookkeeping."

There remains a difficulty that should not be passed over without notice. Why was a physical transfer of the pebbles necessary instead of an instruction simply to add a number of pebbles to the respective containers? One could think that the pebbles were somehow marked for their specific use and that it was not permissible to use other stones for the purpose. Of course, this cannot be substantiated, since the pebbles are lost. It is very likely that the pebbles were not allowed to pass between offices except under seal. However, here we are completely in the dark and can hardly offer more than guesses.

The obvious question to ask at this point is as to the relation of the written records to the described operational device. Of course, writing was well known in Nuzi, and there exists no scarcity of

long lists enumerating sheep and goats and other animals, handed out, received, etc. However, in these very lists appear the references to stone counters that have been of so much assistance to us in our investigation of the "egg-shaped tablet."

To begin with these references, attention has to be drawn to the fact that nearly all of them represent exceptional cases, because they all point to instances in which the stones referring to the mentioned animals have *not* been deposited, or *not* been removed, or *not* been transferred, etc., in short, only atypical occurrences are mentioned. We would have to assume, consequently, that the accounting was done simultaneously on two levels, in writing and by means of stones, as is confirmed by our texts No. 311 and No. 449.

This, however, need not necessarily be correct for all transactions with flocks. It is quite possible that in specific administrative contexts or levels, both, and in others, only one of the two media of recording, were used. After all, bureaucratic administration, like any other field of human endeavor, is never homogeneous but a multifaceted accumulation that reflects numerous levels of outside influence as well as those of its own complex history at any given moment, as faithfully as, let us say, religion does. It should suffice to mention here that the British exchequer used the hoary device of tally sticks for accounting until the first third of the nineteenth century beside bookkeeping with pen and ink on paper (*Archaeologia*, LXII [1911], 367 ff., also K. Menninger, *Zahlwort und Ziffer*, pp. 179 ff.).

Still, the coexistence of two different techniques invites speculation. Does this glimpse of the administrative methods of the sheepfold of the palace in Nuzi entitle us to suggest that these two techniques reflect two separate traditions? One tradition would be that of native or even foreign—here one is tempted to say "Hurrian"—cattle breeders without a system of writing who kept track of their flocks by means of pebbles, and one taken over from the alluvium, with its scribal practices, which recorded such matters on clay tablets. However, such oversimplifications, alluring as they are, should be used solely to illustrate a point.

If the "egg-shaped tablet" has succeeded in illustrating the complexity of even the tritest aspect of Mesopotamian civilization—and lists of sheep and goats certainly deserve such a qualification—then it has deserved the somewhat disproportionate importance this essay has given it.

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