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"UP TO THE EARS" IN HORSES' NECKS (B.M. 108a): ON SASANIAN AGRICULTURAL POLICY AND PRIVATE "EMINENT DOMAIN"

YAAKOV ELMAN*

To Richard T. White, a friend indeed (Prov 27:10)

Jews and Persians lived in close proximity in Babylonia for over twelve centuries at least, and for nearly all that time one or another Iranian dynasty ruled the country as a province of its empire. For nearly the entire amoraic period, Babylonia was ruled by the Sasanian dynasty (224-651). Given

* Bernard Revel Graduate School, Yeshiva University.

Preparation of this study involved visits to libraries other than Yeshiva University's Gottesman and Pollack Libraries, as well as an inordinate number of requests for interlibrary loans. I would like to thank the staffs of Bobst Library of New York University, the Institute of Fine Arts, Butler Library of Columbia University, and that of the Jewish Theological Seminary of America, as well as those of the aforementioned Yeshiva University Libraries, and, in particular, Mary Ann Linahan, interlibrary loan librarian *extraordinaire*, as well as Zalman Alpert and Zvi Erenyi, for their help and courtesy. My thanks to my students Shai Secunda and Adina Gluckman for their comments and corrections. This study was prepared without the help of any Iranist, but its revision was accompanied by the help and encouragement of many. I must express my profound thanks to Prof. Maria Macuch of the Freie Universität zu Berlin, who not only graciously welcomed the foray of an outsider into her field, but also provided me with pertinent comments on it, especially during a very enjoyable meeting in Ravenna on October 9, 2003.

Since the preparation of this paper, I have benefited hugely from the help and encouragement of Prof. P. Oktor Skjærvø of Harvard University, who has fostered my work in every way possible. Indeed, the revision of this paper has taken place within the congenial environment of the Department of Near Eastern Languages and Cultures of which he is chair. The friendly reception that these Iranists, and others, tendered to an outsider serves me as an example of academic collegiality at its best. My thanks therefore go to Mr. Yuhan Vevaina of Harvard University, Prof. Mahmoud Jaafari-Dehaghi, and more recently Dr. Vera Moreen, Profs. Shaul Shaked, Almut Hinze,

those two undoubted facts, an examination of the Bavli for traces of the interaction of those two cultures would seem likely to yield useful results, and this paper is yet another call for talmudists to sit up and take heed, on the one hand, and for cooperation between talmudists and Iranists, on the other.

The study of Jewish-Iranian contacts in talmudic times may have been a victim of its early success; Alexander Kohut's *Aruch Completum* is full of Persian etymologies of Babylonian Aramaic words, as is Jacob Levy's *Wörterbuch über die Talmudim und Midraschim*; Kohut early on published a comparative study of Jewish and Iranian angelology and demonology. Such work continued into the thirties of this century, but was increasingly restricted to the purely philological aspects of that relationship.[1] Success in these areas diverted attention from deeper, perhaps more meaningful, cultural contacts. Unfortunately, when, in 1937 in Bombay, S. J. Bulsara published his edition of the "Sasanian Law Book," *The Laws of the Ancient Persians,*[2] Jewish scholars had other things on their minds.

In 1968 Daniel Sperber addressed a plea to Iranists (in a journal of Iranian studies) to aid in the more precise understanding of a talmudic geographical datum. To my knowledge, no response has appeared in the interim, perhaps because the problem is currently insoluble.[3] Most important, in an article published posthumously in 1982, E. S. Rosenthal called for talmudists to study Middle Persian language and texts not as an occasional ancillary but as a necessary preparation for their studies; at the same time he provided a

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Carlo Cereti, Bodil Hjerrild, and Alberto Cantera. For reasons that will be obvious to both, I would also like to thank Prof. James R. Russell and Dr. Dan Shapira. In my own field of Jewish studies, I cannot forbear to thank Prof. Jay M. Harris of the Center for Jewish Studies at Harvard for his help and encouragement in this endeavor, as well as that of Prof. James Kugel. Closer to home, my thanks go to Profs. Arthur Hyman and Haym Soloveitchik, and to my student Rafi Jacobs for scanning the diagram that appears on p. 125 below.

[1] Alexander Kohut, *Aruch Completum,* repr. Jerusalem: Maqor, 1969/70 (9 vols.), Jacob Levy, *Wörterbuch über die Talmudim und Midraschim,* 2nd ed., Berlin: B. Harz, 1924, repr. Darmstadt: Wissenschaftliche Buchgesellschaft, 1963 (4 vols.), and Alexander Kohut, *Über die jüdische Angelologie und Dämonologie in ihrer Abhängigkeit vom Parsismus,* repr. Nendeln, Liechtenstein: Kraus, 1966.

[2] Jacob Neusner, A *History of the Jews in Babylonia, IV. The Age of Shapur II*, Leiden: E. J. Brill, 1969, p. 432.

[3] "Bab Nahara," *Iranica Antiqua* 8 (1968), pp. 70-73.

model for such work.[4] While a number of historians of the talmudic period have related Babylonian rabbinic sources to their Iranian background, in particular Moshe Beer, Jacob Neusner, M. D. Herr and Isaiah Gafni, Rosenthal's plea seems to have been fulfilled more in the breach than in the observance among talmudists and those specializing in the study of Jewish law.

Nevertheless, such studies have to a certain extent enjoined something of a renaissance with the work of Shaul Shaked, who, along with his more purely Iranist output (if *any* Middle Persian studies can be devoid of interest to scholars of Babylonian Judaism), has published a long series of articles devoted to the subject of "Irano-Judaica." And though law cannot be studied in a vacuum, the study of Sasanian law seems to have attracted few Iranists, and no talmudists. Thus, the one area that is potentially one of the most fruitful, has somehow not caught on.

A generation ago Jacob Neusner wondered why the study of comparative law that involves the Babylonian Talmud had not included within its purview "the *Mātigān Hazār Dātistān,* [which would be] at least as interesting for comparative purposes as Justinian's Code." Though he acknowledged the difficulties of using Bulsara's "unscientific edition and translation," he added that this shortcoming would soon be rectified with the publication of A. G. Perikhanian's edition.[5] In the interim, however, despite the appearance of that edition and an even more useful one, that of Maria Macuch, the situation does not seem to have improved appreciably in regard to comparative law, or talmudic studies.

And so, in 1993, when Jacob Neusner published his *Judaism and Zoroastrianism at the Dusk of Late Antiquity: How Two Ancient Faiths Wrote Down Their Great Traditions,* a "documentary" comparison of the Babylonian Talmud and two ninth-century Middle Persian works, the *Pahlavi Rivāyat of Āturfarnbag* and the *Pahlavi Rivāyat Accompanying the Dādestān ī Dēnig*, he did not study the *Mādayān.*[6] He himself notes that he chose these texts because they were available as a whole in an accessible Western language, included questions dealing with both law and theology, and covered topics important to the Bavli. However, these works belong

[4] See his "La-Milon ha-Talmudi: Talmudica Iranica," in Shaul Shaked, ed., *Irano-Judaica*, Jerusalem: Makhon Ben-Zvi, 1982, pp. 38-131, p. 38.
[5] See Jacob Neusner, *A History of the Jews in Babylonia*, vol. 4, Leiden: E. J. Brill, 1969, p. 432.
[6] Atlanta, GA: Scholars Press, 1993. See his comments on pp. 9-11.

more to the genre of *responsa* literature than they resemble the Bavli's discursive/dialectal style.

The reason for this omission may be found in a revealing footnote in a work published three years before, where he explains why he did not study the *Mādayān* when it became available. "Nearly thirty years ago (for three years between 1960 and 1964) I studied Pahlavi with the intention of working on the comparison of talmudic and Iranian law codes and laws, but at that time the definition of the task, if it were to involve anything more than the collecting and arranging of essentially uninterrupted 'parallels' eluded me. I now know how the work is to be done, but without a systemic study of the counterparts on the Iranian side, it still seems to me not an entirely promising inquiry. Before we can compare, we have to know what we are comparing, and not only what we are encompassing but also omitting."[7] I hope that this paper, and the ones that accompany it, will demonstrate that something less than ideal preconditions will still yield useful results.[8]

Indeed, the Sasanian law book that constitutes one of the centers of the following study, the *Mādayān ī Hazār Dādestān,* the "Book of a Thousand Decisions," though it is the most complete presentation available, is hardly a complete statement of Sasanian law, even on the topics it covers. But it certainly is sufficient for meaningful study of the two neighboring legal systems. Neusner's stated reason for his rejection of the *Mādayān* as the basis for comparative study is that it was not yet completely available in a Western language, since only part II of Macuch's work had yet appeared. When Neusner revisited the issue of "comparing religions through law," in a book by that name published six years later, it was in collaboration with Tamara Sonn, and the religion was Islam.[9]

Some of this neglect may be due to the fact that Perikhanian wrote in Russian, and provided very few comments—some 75 short notes for the entire volume.[10] However, in 1981 and 1993, Maria Macuch published two

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[7] See Jacob Neusner, *The Economics of the Mishnah*, Chicago: University of Chicago Press, 1990, p. 159, n. 3.

[8] In particular, see my "Marriage and Marital Property in Rabbinic and Sasanian Law," in Catherine Hezser, *Rabbinic Law in its Roman and Near Eastern Context,* Tübingen: Mohr-Siebeck, 2003, pp. 227-276.

[9] Jacob Neusner and Tamara Sonn, *Comparing Religions through Law*, London and New York: Routledge, 1999.

[10] For Bulsara, see Beer, pp. 71-72, n. 134.

volumes of a thoroughly-annotated German edition, while an English version of Perikhanian's book appeared in 1997.[11] In 1990 Isaiah Gafni cited Perikhanian's edition of the *Mādayān* in an important context in his *Yehudei Bavel bi-Tqufat ha-Talmud,*[12] and Macuch herself published a model article on some Persian legal terminology that appears in the Babylonian Talmud. Despite this, little more seems to have been done, apart from the studies that Shaked himself publishes in *Irano-Judaica* and his important monograph, *Dualism in Transformation: Varieties of Religion in Sasanian Iran*, which includes important observations for talmudists.[13] More recently, Geoffrey Herman, a graduate student at Hebrew University, has begun to work in this field, and several of his studies are in various stages of preparation and publication, and some Iranists are also turning to this area, or, indeed, have been doing unsung work for years. Among those are some of the contributors to the volumes of *Irano-Judaica*, particularly James Russell. Almut Hinze has also become interested in this interesting cultural intersection.

As noted, historians of the Babylonian Jewish community of Late Antiquity are an exception to this neglect, and, indeed, Moshe Beer in the

[11] See Maria Macuch, *Das sasanidische Rechtsbuch "Mātakdān i Hazār Dātistān" (Teil II)*, Deutsche Morgenländische Gesellschaft/Kommissionsverlag Franz Steiner, Wiesbaden, 1981 (hereafter: Macuch II), and *idem*, *Rechtskasuistik und Gerichtspraxis zu Beginn des siebenten Jahrhunderts in Iran: Die Rechtssammlung des Farrohmard i Wahrāmān*, Wiesbaden: Harrassowitz, 1993 (hereafter: Macuch I), and Anahit Perikhanian, *The Book of a Thousand Judgements*, trans. Nina Garsoian, Mazda Publishers in association with Bibliotheca Persica, 1997. The unique manuscript of the *Mādayān* was divided into two parts, which were published separately; they are usually abbreviated as MHD and MHDA (=MHD Anklesaria). The second deals with family law in the main, and was published by Macuch as a separate volume ("Teil II"), which was, however, published first.

[12] In his excellent appendix on "Iranian and Roman Influence on Family Life: The Attitude towards Marriage among Babylonian Jews," pp. 266-273. This appendix repays prolonged and careful study, as does the entire book.

[13] Maria Macuch, "Iranian Legal Terminology in the Babylonian Talmud in the Light of Sasanian Jurisprudence," in *Irano-Judaica* IV, Jerusalem: Makhon Ben-Zvi, 1999, pp. 91-101; see also Shaul Shaked's study, "Irano-Aramaica: On some legal, administrative and economic terms," in R. E. Emmerick and Dieter Weber, eds., *Corolla Iranica: Papers in honour of Prof. Dr. David Neil MacKenzie on the occasion of his 65th Birthday on April 8, 1991*, Frankfurt am Main: Peter Lang, 1991, pp. 167-175.

early sixties had made use of Bulsara's edition in his study of the economic activities of the Babylonian rabbinic authorities.[14] And recently, four scholars have produced works of cultural history that have attempted to integrate Zoroastrian material into their work: Michael L. Satlow's *Jewish Marriage in Antiquity,*[15] Adiel Schremer's *Zakhar u-Neqevah Bera'am: Ha-Nissu'in be-Shilhei yemei ha-Bayit ha-Sheni uvi-Tequfat ha-Mishnah ve-ha-Talmud,*[16] as well as a more recent, unpublished dissertation by Eliyahou Ahdut, *Ma^c amad ha-Ishah ha-Yehudiyah be-Bavel bi-Tqufat ha-Talmud* (The Status of the Jewish Woman in Babylonia in the Talmudic Era), and Geoffrey Herman of Hebrew University, who is working on a dissertation in this field and is beginning to publish the fruits of his efforts.[17] As welcome as the appearance of these works is, it should be noted that Satlow cites Mansour Shaki's article on Sasanian marriage rather than Macuch's edition of the *Mādayān,*[18] and Schremer still cites Bulsara's edition. Ahdut cites a much wider range of Zoroastrian literature, and has clearly consulted the *Mādayān* directly and consistently. Hopefully, his work, together with those of Satlow, Schremer, and Herman, as well as some studies of my own,[19] will serve to usher in a new era of comparative studies.

Undoubtedly much of this neglect is due to the feeling among talmudists

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[14] See Moshe Beer, *Amora'ei Bavel: Peraqim be-Hayei Kalkalah*, Ramat Gan: Bar Ilan UP, 1974 (hereafter: Beer), pp. 64, n. 18, 71-72, n. 134. In his study, Beer cites a wide variety of Mesopotamian and Persian sources. An early form of this monograph, *Ma^c amadam ha-Kalkali veha-Hevrati shel Amora'ei Bavel* (Ramat Gan: Bar Ilan UP), appeared in 1963. Neusner observes of that latter that it "provides a singularly thorough account of the economic positions of the 'Amora'im throughout the Talmudic period" (*History of the Jews in Babylonia*, vol. II. *The Early Sasanian Period*, Leiden: E. J. Brill, 1966, p. 14, n. 2, and the same is true of its successor.

[15] Princeton UP, 2001.

[16] Jerusalem: Machon Zalman Shazar, 2003.

[17] Dissertations, Hebrew University, August 1999,.

[18] Because of the ambiguities and vagaries of the Pahlavi script, *mātiyān* has been normalized in various ways: *mātagān, mātigān, mātayān, mātakdān*, and *mādayān*. In this, as matters of normalization in general, the example of D. N. MacKenzie's *Concise Pahlavi Dictionary* (London: Oxford UP, 1971), based on his article, "Notes on the transcription of Pahlavi", *Bulletin of the Schools of Oriental and African Studies* 30/1 (1967), pp. 17-29, will be followed.

[19] My "Marriage and Marital Property in Rabbinic and Sasanian Law" in Catherine Hezser, ed., *Rabbinic Law in Its Roman and Near Eastern Context* (see fn. 9), and "Returnable Gifts in Rabbinic and Sasanian Law" in *Irano-Judaica VI* (forthcoming).

that Sasanian law exercised little influence on the Babylonian Talmud. Macuch herself quotes a respected and erudite talmudist, Robert Brody, to the effect that since the two terms she studied "are used in the Talmud in a context dealing with non-Jews, this could indicate that Sasanian legal terminology was only applied in these cases, but not adapted by the rabbis."[20] Macuch's suggestion that a definite judgment is premature is certainly on the mark. If the parallel pointed out in this study is accepted, it would seem that such terminology—and the rule it embodied, *was* used internally as well, with the Middle Persian origins of the term well-hidden. Indeed, this is as one would have expected in the light of the rule laid down by the third-century authority Samuel that "the [civil] law of the government is the law."[21]

Though the immediate purpose of this paper is to shed light on a talmudic passage that refers directly to a Persian practice, and for which there exists a parallel in the *Mādayān,* its broader purpose is to call for renewed attention to this text whose importance to talmudists is potentially very great. The parallels between the two compilations extend beyond the verbal and explicit, but also to institutions, problems, and habits of mind that betray the results of twelve hundred years of close contact between Babylonian Jews and Iranians.[22]

Thus, the rabbinic institution of the "rebellious wife," the *moredet,*[23] finds it exact counterpart in *atarsagāyīh, "*insubordination," to which an entire chapter of the *Mādayān* is devoted, with similar definitions (refusal of marital relations and "work") and penalties.[24] In this case, as in others, the differences are sometimes as illuminating as the similarities, and historians of Jewish law ignore them at their peril.[25] The rabbinic concept of *ona'ah, "*overreaching" in sales, may be paralleled by MHD 37:2-10, with the same three-day period stipulated, but with a quarter rather than a sixth of the price.[26] Or the institution of *me'un* ("refusal"), whereby a underage girl

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[20] Macuch, "Iranian Legal Terminology," p. 97, n. 24.
[21] Nedarim 28a, Gittin 10b, Bava Qamma 113a, and especially Bava Batra 54b.
[22] In this regard Macuch's introductory comment in the above-mentioned article is well worth contemplation by methodologically-minded talmudists.
[23] See Ketubot 63a-b.
[24] See Perikhanian, pp. 252-259, Macuch, vol. II, pp. 25-29, 97-120.
[25] See my "Marital Property in Roman, Rabbinic and Sasanian Law."
[26] See Bava Metziᶜa 49b-51a, unless the markup rather than the market price is the norm, in which case the quarter must be compared to the rabbinic allowance of a third,

could be married off by her mother or brothers, but could, upon reaching her majority, leave her husband;[27] for the parallel, see MHD 89:15-17. Examples could be multiplied, and the reader is referred to the studies referred to above.

Some of these involve matters with which every legal system must deal, and do not necessarily involve influence in one direction or the other. Similar conditions—economic, social, and religious—will produce similar results, or at least similar concerns, especially when the two legal systems are in intimate contact. Studying each in isolation prevents us from gaining a complete picture of the conditions under which each system developed, and the way that each responded to common problems. Could it not be, for example, that both the rabbis and the Iranian jurisconsults were faced with a rash of fraudulent land-sales, where people claiming to own land they did not own, as evidenced by Bava Metzi^c^a 14a-b and MHDA 8:13-9:5?[28] Given the hunger for arable land, is this not a likely form of fraud for both Jewish Babylonia (because of the density of population) and Iran (because of the arid conditions of its plateaus and mountains), quite apart from the fact that Babylonia was an Iranian province and thus subject to the same general economic malaise as the rest of the empire?

The following essay will deal with a case in which the Babylonian Talmud explicitly refers to Persian practice, but which, for some reason, has not been noted by either historians or talmudists, to my knowledge. Because of its dual nature, I beg the indulgence of both Iranists and talmudists when I at times rehearse facts well-known to one or the other, but not necessarily known to both.

I

According to the Babylonian Talmud, riverbanks were reserved for certain public uses. Porters pulling boats upstream by ropes were to be allowed sufficient space on the banks so as to prevent their falling into the river.[29] Planting was not permitted within four cubits of the river so as not to

for which see Bava Metzi^c^a 69a.

[27] See Mishnah Yevamot 13:1, 4, 7, and the related talmudic discussions at Yevamot 107af.

[28] See Perikhanian, pp. 260-261, and Macuch, vol. II, pp. 29-30, 121 and p. 127 n. 8.

[29] Bava Metz^c^ia 107b; R. Yehuda advises that surveyors allow sufficent space alongside the river; see Rashi *ad loc.*.s.v. *mele kattafei*.

undermine the riverbank.[30] This would have been particularly important on the Euphrates, which was either higher than or more or less level with its surrounding territory; the Tigris had dug its bed sufficiently deep so as to make such a prohibition less necessary, and, not incidentally, irrigation much more difficult.[31] It has been estimated that the Euphrates provided the overwhelming majority of the irrigation in Babylonia, even though the Tigris could theoretically provide more than twice as much water as did the Euphrates.[32]

Again, riverbanks and canal banks were used to unload cargo from waterborne traffic.[33] According to Rashi (1040-1105), this was also a recognized public use of the land.[34] Furthermore, agricultural land was at a premium in Babylonia, both because of the density of population,[35] and the silting up of irrigation canals that had been a problem as far back as Old Babylonian times, two thousand years before.[36] Indeed, the so-called Code of Hammurapi makes maintenance of the riverbank or canal bank the responsibility of the owner of the abutting field.[37]

It is in this context that we must understand a report regarding Sasanian rules on land tenure preserved in the Babylonian Talmud. The statement is

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[30] Ibid., and see Rashi *ad loc.*, s.v. *arba^c amot de-anigra*. Note Rashi's description: "so that the bank (*sefatah*) not be undermined (*titqalqel*)". For the problem of dealing with the soft mud of the Euphrates, see R. J. Forbes, *Studies in Ancient Technology*, vol. II, Leiden: E.J. Brill, 1965, pp. 23-24 on the "yielding and soft nature of the soil" as reported by Strabo. It would seem that planting deeply rooted grasses on the banks so as to hold the soil was not possible; it is difficult to believe that some Babylonian could not have come upon that solution to a millennia-old problem if it were possible.

[31] So R. Yudan reports; see Genesis Rabba 16:3, ed. Theodor-Albeck, p. 145-6, and see Jacob Obermeyer, *Das Landschaft Babyloniens im Zeitalter des Talmuds und des Gaonats*, Frankfurt am Main: I. Kaufmann, 1929, pp. 55-56.

[32] Forbes, vol. 2, p. 18. The same problem occurred in the upper reaches of the Euphrates in Babylonia; see Beer, p. 31.

[33] Bava Metzi^ca 23b.

[34] Bava Metzi^ca 108a, s.v. *hai man*.

[35] See Beer, p. 50.

[36] Forbes, vol. I, p. 25. See also the remarks of Joseph Wiesehöfer, *Ancient Persia from 550 BC to 650 AD*, transl. Azizeh Azoudi, London: I. B. Taurus, 2001, p. 203 s.v. 2. on agriculture, and the literature cited there.

[37] See Code of Hammurapi, pars. 53-54; see G. R. Driver and John C. Miles, eds., *The Babylonian Laws*, Oxford: Clarendon Press, 1968, vol. II, pp. 30-31, and the commentary in vol. I, pp. 150-153.

transmitted in the name of Samuel, a Babylonian Jewish authority (d. 254) who is reported by the Babylonian Talmud to have been on close terms with Shapur I (241-270), a not unreasonable report given what we know of that monarch's religious interests, his protection of Mani, and Samuel's conciliatory policy regarding the new regime.[38]

> אמר שמואל האי מאן דאחזיק ברקתא דנהרא חציפא הוי סלוקי לא מסלקינן ליה.
> והאידנא דקא כתבי פרסאי קני לך עד מלי צוארי סוסיא מיא סלוקי נמי מסלקינן ליה.

> Samuel said: That one who took possession of [land on a] riverbank is an impudent person,[39] but we certainly cannot remove him.
> But nowadays that the Persian write [in a title], 'It [=a field on a river] is acquired by you as far as the depth of the water[40] reaching up to the horse's neck, we certainly remove him.'

Before proceeding, we should dispose of a variant found in MS Escorial G-I-3 of Bava Metzi[c]a.

> אמ' שמואל האי מאן דאחזיק ברקתא דנהרא חציפא הוי סלוקי לא מסלקינן והאידנא דקא כתבי פרסאי קני לך עד מלי צואר סוסיא במיא סלוקי מסלקינן ליה. לקוחה היא בידי ואמ' דאי לא מסלקינן ליה אתי לאחזוקי ביה.

> Samuel said: That one who took possession of [land on a] riverbank is an impudent person, but we certainly cannot remove him.

[38] The passage in Sanhedrin 98a, which reports an exchange between Samuel and Shapur I, reads more coherently if read as having a Middle Persian phrase interspersed: *xar hazar gone it lakh*? "Do you have a donkey of a thousand colors?" See Shaul Shaked, "Bagdana, King of the Demons, and Other Iranian Terms in Babylonian Aramaic Magic," *Acta Iranica* 24 (Boyce Festschrift), Leiden: E. J. Brill, 1985, pp. 511-525, esp. p. 514, n. 16. And see *Ammianus Marcellinus*, translated by John C. Rolfe, Cambridge: Harvard UP, 1952, II, xxiii.6.80, pp. 396-397, on the resplendent attire of the Persian army in the field, with "clothes gleaming with many shimmering colors." Could the Messiah do less?

Along the same lines, see E. S. Rosenthal, "La-Milon ha-Talmudi," Addendum 4. Qabutar, on pp. 48-50, which illustrates Rav and R. Kahana's familiarity with Persian to the point of making visual puns in it.

[39] MS Florence has: *miqari hatzifa*, "is called an impudent one."

[40] Tosafot ha-Rosh quotes the word as *ba-mayim*, "in the water" rather than *maya*, "water." The meaning is the same.

But nowadays that the Persians write [in a title], 'It [=a field on a river] is acquired by you as far as the depth *in* the water reaching up to the horse's neck, we certainly remove him, *for if we do not remove him he will come to take possession of it and say: It is in my possession.*[41]

Aside from the excess verbiage ("we do not remove him"), this addition does not explain why the interloper's taking possession of the riverbank *before* the Persian's new custom/decree was not equally nefarious to native or common rights, since even without the newly-minted rights to the riverbed, he would certainly have had rights to the riverbank, were he allowed to assert his possession. This was added by someone who wanted to explain the exact nature of the difference before and after the new dispensation, and its relation to the question of how the rabbis decided to deal with this interloper. Similarly, the explanation of this change in MS Florence II I 7-9—that it was a result of the law of an abutter (*bar metzra*), if it is not simply a scribal error based on its use in the next passage, is due to a similar attempt, and fails for a similar reason; it does not explain how the new Persian practice changed the abutter's rights. If the law of an abutter was in force in Samuel's time, as it certainly was, why did he not employ it? Why did it require the change in Iranian practice to put this into effect?

Modern interpretations of this passage simply follow Rashi, and it is thus worthwhile to quote his explanation of our passage:

האי מאן דאחזיק ברקתא דנהרא - בשני הפרסיים היה הקרקע מופקר לכל הקודם להחזיק בו ולפרוע למלך טסקא דהוא מס של קרקע, ואם בא אחד ומחזיק על שפת הנהר, מקום שהספינות עולות לנמל, וצריך מקום פנוי הרבה לפורקי משאות לספינות ולטוענין מתוכן ומוציאין, וזה החזיק לבנות שם בנין או לחרוש ולזרוע.

This person who took possession of the riverbank: In the days of the Persians the land was [deemed as] ownerless for anyone who came first to take possession of it and pay the *tasqa*, that is, the land-tax, to the king. If someone came and took possession [of land] on the riverbank, the place on which the boats are brought ashore (lit.: rise)

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[41] MSS Hamburg 165 and Vatican 115 represent the same version as the printed editions, as does MS Munich 95 with a few scribal errors, מרא for מיא, במי for נמי.

> for wharfage, and a large empty space is needed to unload cargo for ships and porters [who remove the cargo] from them and take them out, and this one took possession in order to build a structure there or to plow and plant.

Jacob Neusner enlarged somewhat on Rashi's interpretation in his history of Babylonian Jewry.

> Samuel said, He who takes possession of the wharfage of a river is an impudent person but he cannot be legally removed. [Under Iranian law, the person who paid the land tax could take possession of the land. A large space on the river bank was originally left open for unloading. No one had claim to it, and revenue suffered. The Persians apparently accepted payment of taxes in exchange for title of formerly common land.] But nowadays that the Persian authorities write [in a title], 'Possess it [the field on a river bank] as far as the depth of the water reaching up to the horses neck,' he is removed [though the owners fence off their field at some distance from the water's edge, the land belongs to them and none can legally seize it.][42]

We should note that Samuel resided and taught in Neharde^{c}a, a town at the confluence of the Euphrates and Nehar Malka canal, east of the former and north of the latter. Assuming that Samuel's statement referred first and foremost to land in the vicinity of Neharde^{c}a, the incident (or general rule)

[42] Jacob Neusner, *A History of the Jews in Babylonia*, II. The Early Sasanian Period, Leiden: E. J. Brill, 1966, pp. 116-117. See also J. Newman, *The Agricultural Life of Jews in Babylonia, between the years 200 C.E. and 500 C.E.* London: Oxford UP, 1932, pp. 194-195, which is a reprise of Rashi's interpreation. On the usefulness of the talmudic evidence, see Robert McC. Adams' discussion of Neusner's skepticism in *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates*, Chicago: University of Chicago Press, 1981, pp. 202-203. He characterizes Neusner as "too pessimistic." But he concedes that "if I find Newman's contribution more useful than [Neusner] seems to suggest is possible for the Talmud as a source, it is of course because Neusner's objectives are not the same as those of [my] study. The purpose here is not a detailed reconstruction of institutions and a flow of historic events, but merely a sketch of enduring features of routine agricultural life that can complement the fiscal and martial preoccupations of the crown and the mute ruins of towns and canal levees" (Heartland, p. 202).

presumably involved land on one or the other. This would explain the need for wharfage in this urban area, whose location would have made it a natural entrepot on the Euphrates. There is no compelling need for such facilities in the middle of an agricultural area. Moreover, land in an urban area would have been more heavily taxed by the Sasanians than land in more rural areas, and thus this issue would have given the government a larger stake in that ownership.[43]

Thus, locating the venue of Samuel's decision in the vicinity of his hometown, Neharde[c]a, adjacent to both a major river and a major canal provides scope for both sides of Rashi's interpretation: the interloper could have had plans to irrigate and plant, or to provide a quay for unloading cargo. The first possibility may be supported by another passage, which transmits the advice given by R. Yehudah, a disciple of Samuel's, who at the end of the third century advised a surveyor not "to take surveying lightly, for each bit of land is fit for planting garden saffron," advice admirably suited for densely-populated southern Babylonia.[44]

However, if Samuel's ruling referred to a particular location at which wharfage was need, the ruling loses its general nature. It would not apply to most places along the riverbank. The expression *hai man de-...,* "the one who...." occurs over 200 times in the Babylonian Talmud, and mostly refers to general statements rather than individual cases. It was presumably for this reason that Rashi allowed for two possibilities: use of the riverbank to plant *or* to unload. Planting would have taken place in rural areas, unloading in urban ones.

This possibility dates back to high antiquity. It may be that unspecified riparian rights accompanied possession of the riverbank and riverbed—perhaps to open a canal from the river, or to build a quay wall or mooring place. As regards the latter, it should be noted that the Code of Hammurapi specifies that a man must reinforce the "embankment of his field."[45] Moreover, the same Akkadian word, *karu*, is used to refer to a "mooring place" or "harbor"—on a river.[46] Aside from the riverbank, this provision of Persian contracts would have enabled the riverbank owner to build a quay

[43] Franz Altheim and Ruth Stiehl, *Finanzgeschichte der Spätantike*, Frankfurt am Main: Vittorio Klostermann, 1957, p. 12.
[44] Bava Metzi[c]a 107b.
[45] Code of Hammurapi 53:8.
[46] See the many attestations in the *Chicago Assyrian Dictionary*, vol. 8 (K), Chicago: Oriental Institute, 1971, s.v. *karu* A, 1c., pp. 232-233.

alongside his land, and exploit it for commercial purposes. This is all the more likely given the location, with, as noted above, a major river and a major canal in the vicinity.

Nevertheless, such activity as suggested by Rashi involves the interloper in conflicts with the local prohibition of planting on the riverbank noted above. Perhaps that prohibition applied primarily to the banks of irrigation canals rather than major rivers. It is clear that this measure varied according to locality; while four cubits width of riverbank had to be clear of cultivation, R. Nathan b. Hosha^{c}ah ordered clearance to a width of sixteen cubits near the town of Mashrunia, near Mahoza. Though the extent of such clearance was the object of protests, his decision indicates that the four-cubit rule was not universal.[47] Still, if we may assume that the four-cubit rule helps define the general size of a riverbank, the restriction of wharfage, according to Rashi, to that amount makes sense in the context of Babylonian Jewish land hunger.[48]

The Tosafists suggest still another use for those four cubits of riverbank: space to allow for irrigating the adjacent fields.[49] Presumably such activity would be carried out by means of a shadoof or a water wheel.[50] This too, as we shall see, conforms to governmental policy as manifested in Sasanian sources.

Thus, quite apart from a direct interest in taxes, the Persian government may have been concerned with encouraging trade and perhaps to encourage the more intensive exploitation of the irrigation potential of both the Euphrates and Nehar Malka. The latter concern was attributed to various Persian dynasties in ancient times.[51] Other talmudic reports support such activities on the part of the Sasanian government, as we will see in section III below.

As noted in passing above, Samuel seems to have welcomed the change in regime far more than his colleague Rav, and apparently developed cordial relations with Shapur I, again unlike his colleague Rav, who had close relations with Artavan V. Moreover, it was Samuel who proclaimed that "the [civil] law of the government is the law"—a statement that would have had particular importance at that time, since the Sasanians were insistent on

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[47] Bava Metzi^{c}a 107b.

[48] See Beer, pp. 38-59.

[49] Bava Metzi^{c}a 107b, s.v. *arba^{c}*.

[50] See Forbes, vol. I, pp. 32-49, "Methods of Raising Water."

[51] See Jacob Obermeyer, pp. 54-55.

curbing minority self-government, which the Arsacids had allowed pretty much unfettered. The Babylonian Talmud reports that the new regime had taken away from Jewish courts the right to levy the death penalty.[52]

Neusner follows Rashi in assuming that *Parsa'ei*, "the Persians" in our passage refers to the Persian authorities, and not to a generic Persian practice in writing deeds. Having brought the Persian government into the picture, the desire to increase the land tax collected thus becomes a factor. However, given the legitimate public benefits of the original policy of reserving the riverbanks for public use, we may wonder what impelled the authorities shortsightedly to forego those benefits (to trade, for one thing, and irrigation for another) in order to increase tax revenue. Four cubits, at 1.5-2 ft per cubit, on either bank would yield 20,000 sq. ft. of land for every mile of riverbank, or about half an acre at most. The advantages in trade and irrigation would seem to outweigh that benefit.

Neusner, following Rashi, assumes that abutting landowners had to leave a "large space" along the river available for unloading cargo, and therefore there was room to "build a structure," as Rashi put it. Newman in his discussion of this passage in the context of his study of agricultural life in Jewish Babylonia suggests that this was originally "compelled" by the Persian government, but neither the text nor Rashi's comment necessarily implies compulsion (but see Rabbenu Tam's interpretation below). Of course, four cubits seems a bit narrow for wharfage, and Newman perhaps assumes that farmers would not allow a larger strip to remain fallow unless they were compelled by government order. But then one might legitimately wonder why the government would find it necessary to force farmers *all along the riverbank* not to plant across a wide strip. As noted above, the need for wharfs or quays is intimately connected with urban areas. If our suggestion above, that the case Samuel was asked to adjudicate occured in the vicinity of his center of authority, Neharde[c]a, an urban area, the need for wharfage is obvious.

Again, the "impudent [interloper]" was most likely *not* the one who owned the adjacent land; otherwise, why would Samuel have called him "impudent" if he was merely taking possession of the riverbank adjacent to his own fields? Nevertheless, it is possible that impinging on land intended for common use might also have been considered "impudence," and the

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[52] The latter is plain from Bava Qamma 117a; see E. S. Rosenthal, "La-Milon ha-Talmudi," esp. 54-58, Appendix. 7. For the rest, see Neusner, vol. II, pp. 64-72.

conjunction of this case and the one following, which concerns someone who by taking possession of a field interposes between fields held by brothers or partners, and who is also called "impudent," supports the assumption that Samuel's case also involved an "outsider"/interloper of this sort. Still, even an adjoining neighbor who comes between brothers or partners might have been considered an "impudent" interloper. On the whole, however, though the specific facts of the case are not certain, the general import is: the interloper is either infringing on the rights of the adjoining landowner or on rights to common use of the land.

Rabbenu Tam (Rabbi Jacob Tam, c1100-1171), Rashi's grandson and arguably the greatest of the Tosafists, suggests that the "impudence" is on the other foot, so to speak. The reason that the interloper is removed, according to Rabbenu Tam, is that "since the king wrote thus to him [that he now owns the margin of the riverbed—Y.E.], he would be impudent to take possession [only] until the water, and therefore we fine him and remove him from the whole [piece of] land [if he does not take possession of the whole parcel including the submerged portion]."[53] According to this interpretation, the interloper was impudent not because he opposed local custom, but because he had not carried out his obligations to the government.

According to Rashi, the new government enactment allows the *original abutter* the ownership of the riverbank and the margin of the riverbed; according to Rabbenu Tam, the government enactment gives the *interloper* this ownership. Tosafot ha-Rosh suggests that this is the plain sense of the passage, presumably because no change of subject is indicated in the text. The same "he" who is the interloper in the first part of the passage is the "he" who by government enactment owns the riverbank and the margin of the riverbed in the second part. We should note in passing that the interloper would seem to have been a Jew, and the issue seems to have been an internal Jewish one, since the passage makes no reference to his ethnic identity, as the Bavli does in other cases.[54]

Again, according to Rashi, the Persian government eventually supported the ancient rights of the abutters, as the second part of the passage indicates; according to Rabbenu Tam, the rights of the interloper would have been upheld, so long as he accepted responsibility for the parcel—presumably, to

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[53] See Moshe Hershler and Yehoshua Dov Grodetzki, *Tosafot ha-Rosh al Masekhet Bava Metz^cia*, Jerusalem: Hayyim Gitler, 1959/60, p. 261a-b.

[54] See for example Bava Metzi^ca 49b, 107b, Shevu^cot 6b, Avodah Zarah 33b, 61b.

develop it economically and to pay taxes on it. As noted above, this interest on the part of the Sasanians to develop Babylonian agriculture and the Babylonian economy is relatively well attested. This would seem to accord with Rabbenu Tam's interpretation.

Nevertheless, we have not yet articulated all the problems that Rashi's interpretation of this passage raises. Why, according to Rashi's interpretation, would the farmer be any more willing to take on the taxes of the adjacent riverbank and riverbed than he had been before the interloper came on the scene? Why would the abutter take responsibility for the taxes of land on which he himself could not plant, since local custom debarred him from planting his crops on the riverbank, so as not to undermine it and to allow the porters sufficient space to work? What advantage would he gain by taking possession of a long narrow field four cubits wide, which amounted at most to a quarter acre of arable land per mile of length? The interloper, as an outsider bent on economic exploitation of the riverbank might accept such a burden; why would the original owner, who was presumably interested in farming the land behind the riverbank, but not in commercial exploitation?

Furthermore, whether we accept either Rabbenu Tam's interpretation or that of his grandfather, why would anyone wish to increase his tax-obligation to include not only the riverbank, but also the submerged property of the riverbed to a depth of a horse's neck? And if the motive was creating wharfage, what would have been the point of constructing a structure three cubits wide and several hundred feet (let us say) long?

In the case of the riverbed, presumably that of the Euphrates, the probable locale of Samuel's decision, the slope of the riverbank and adjacent riverbed determines the amount of submerged land for which the interloper is responsible. The very fact that the law concerned itself with ownership of the marginal riverbed indicates that the slope was not vertical or precipitous; there would have been no point in stipulating such a regulation when only a neglible area of the riverbed was in question! On the other hand, a more gentle slope of the riverbed would have added a good deal to the *tasqa* the new owner would have had to pay. The question then becomes: What benefit would the would-be owner gain by such ownership of underwater property?

An inspection of the courses of both the Tigris and the Euphrates indicates their meandering nature, and the traces of earlier channels of both rivers demonstrate that this aspect of their regime has not changed in

thousands of years. Thus, the geomorphology of meandering rivers produces two facts important for the proper understanding of our passage: the course of both rivers are constantly changing, and they change in predictable ways; by means of deposition on the inner bank ("silting" or "sedimentation"), and erosion on the outer bank. The radius of the meander tends to increase, until the river forms an ox-bow lake, after which it may cut through the narrow part and change its channel. In the interim, the rivers form point bars on the inner bank where erosion takes place. Thus, the very geomorphology of meandering streams produces a topography in which exploitation of the riverbed becomes possible, and even desirable.[55] C. Baeteman identified two "fossil meanders as point bar deposits" in the vicinity of Tell ed-Der, thus indicating, if such proof is necessary, that these well known processes would have prevailed in earlier times.[56]

Because of the meanders, and because of the soil that it deposits during its flood stages, the Euphrates has changed its course countless times in recorded history, and many towns and villages that were once on its banks are now far from them. Intense irrigation weakened the river's flow, and now, as in ancient times, it enters and loses its way in a region of swampland as it approaches the Tigris. The slower flow results in a more gently sloping inner side of the riverbed, where the amount of deposition correspondingly increases. "Continuously, between one point bar and another, that is, through the reach, there lies a broad, low, flattish accumulation of sediment...."[57] While the slope varies from region to region and from time to

[55] For a relatively non-technical introduction to the geomorphology of rivers, see Marie Marisawa, *Streams: their dynamics and morphology*, New York; McGraw-Hill, 1968, pp. 80-94, 137-146. For a more recent study of the Mesopotamian flood plain, see Hermann Gasche and Michel Tanret, *Changing Watercourses in Babylonia: Towards a Reconstruction of the Ancient Environment in Lower Mesopotamia*, vol. I (Mesopotamian History and Development, Series II, Memoirs V), University of Ghent and the Oriental Institute of the University of Chicago, 1998, and esp. K. Verhoeven, "Geomorphological Research in the Mesopotamian Flood Plain," pp. 149-239. Section 6 of this paper ("The Meandering River Flood Plain of the Euphrates and Tigris," pp. 203-217) and Section 7 ("The Study Area and Transect Description, pp. 218-240) are of particular interest; see n. 173 on pp. 214-215 on the increase of deposition downstream from irrigation canals and transverse canals (those canals which join the two rivers, see below), and the literature on river system and flood plain morphology on p. 224, n. 197, and see the lower diagram of Fig. 15 on p. 225.

[56] See the report of her work on pp. 221-223.

[57] C. H. Crickma, *The Work of the River: A Critical Study of the Central Aspects of*

time, surveys taken in the last century indicate slopes of 9 degrees within 2.5 meters of the riverbank (at the "River Euphrates Tail") to 7 degrees within 5.5 meters (at Gurmat Umm Nakhlah) to nearly horizontal at Gurmat Beni Said in January 1927 to close to vertical in June 1931.[58] We need not take these figures, which relate to the situation in the 1920's and 1930's, as givens for the entire history of the Euphrates. As noted above, and as Robert McC. Adams notes in the introduction to his *Heartland of Cities,* silting (a geomorphologist's "deposition" or "sedimentation") has changed the course of the Euphrates to such an extent that this once famously fertile part of Iraq "now lies beyond the frontiers of cultivation, a region of empty desolation."[59] The figures do, however, provide a range. Moreover, the geology of old rivers, with their meanders and oxbow lakes, is the same for the modern Euphrates as it was two millennia ago. Thus, most of the time, and in most places, it would seem that the slope of the riverbed is rather gentle, and the submerged land would add a rather substantial amount to the riverfront owner's property.

Some elementary geometric data will help at this point. A slope of 45° to the depth of a horses' neck (or ears)—that is, as we shall see below, to somewhat more than four feet, would add about five-and-a-half feet of riverbed to the interloper's property, which would then end four feet into the river. If we assume a (legally defined) width of four cubits for the riverbank, somewhere between six to eight feet, the interloper's riverbed property would add 70% to his holdings, if we accept the larger figure for the cubit, or even almost double his holdings, calculating on the basis of the shorter cubit. Presumably his land taxes would increase proportionately. A more gentle slope, of say to 20° to $30^{o,}$ would increase his property by somewhat more, about 4.2 ft. at a 20 degree slope, and about 4.6 ft. for 30 degrees. In any case, the submerged riverbed is likely to increase his property by half or two-thirds, depending on the size of the cubit. If the slope was closer to what Ionides' figures indicate, the riverbed would be his until the real channel descends as far as 10 meters out from the shore! This makes the question of

Geomorphology, New York: American Elsevier Publishing Co., 1974, p. 47.

[58] See Ionides' cross sections of the Lower Euphrates on pp. 105 and 106, and contrast these with the cross sections of the Lower Tigris (below Baghdad to the Persian Gulf) on pp. 120 and 186, one bank of which is much steeper than anything the Euphrates has to offer. Note that the slope cannot be evaluated by eye, because the vertical and horizontal scales differ significantly.

[59] Robert McC. Adams, *Heartland of Cities*, p. xvii.

the use to which such “land” be put more urgent.

However, we must not lose sight of the fact that the height and scour of the Euphrates constantly changes, both with the season and with the year.[60] The depth of the water and the slope of the riverbed are therefore not constant. What was the purpose of allowing a varying amount of riverbed to be owned by the one who controlled the riverbank?

The answer to most of these questions lies, it would seem, in the Sasanians’ interest in, and encouragement of, agricultural and economic development (i.e., trade). Before the interloper arrived he had assumed that no one would bother to take possession of such marginal property. Now it was open for use in irrigation, more intensive cultivation, or for building a quay on and alongside the riverbank. Another possibility, though speculative, is that the riverbed, where the slope was gentle, may have been used for rice cultivation. We shall return to this last possibility towards the end of section II.

We should also note another question, which will be taken up below in section II. Which part of the horse’s neck was intended as the measure? It is most likely either the top or the bottom, since some intermediate point would not be specific enough (precision is another matter!). As we shall see, the Persian parallel would indicate that it was the top of the neck, adjacent to the ears that were intended.

Finally, we must consider the semantic range of *nahara,* which may refer both to rivers and canals—that is, rivers that could be navigable and canals, whose primary use was for irrigation, even though the larger ones were potentially navigable.[61] Thus it is reported that the people of Harmah, whose

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[60] For an account of these changes both in terms of month and year, see the very useful account of M.G. Ionides, *The Regime of the Rivers Euphrates and Tigris*, London: E. & E. N. Spon, Ltd., 1937, especially chapters 2 (on climate), 5 (on the lower reaches of the Euphrates) and chapter 7 (on the lower reaches of the Tigris), as well as chapter 8, “River-Bed Instability and Silt.” See also below. However, Adams’ *Heartland of Cities*, which deals with these matters from an historical/archaeological point of view, must be closely studied on any matter pertaining to irrigation and settlement patterns in Sasanian Mesopotamia.

[61] See Peter Christensen, *The Decline of Iranshahr: Irrigation and Environments in the History of the Middle East 500 B.C. to A.D. 1500*, Copenhagen: Museum Tusculanum Press-University of Copenhagen, 1993, p. 57, who quotes Herodotus to the effect that “the greatest of these [transverse] canals is navigable, flows toward the southeast and goes from the Euphrates to another river, the Tigris” (Herodotus I.193). As we shall see, if one of them was navigable in Herodotus’ time, this was all the

fields were watered by the *nahara de-shanawata,* the northernmost of the five canals which joined the Tigris and the Euphrates, changed its course by adding a bend in it in order to increase its usefulness as a source for watering their fields. This bend retarded the flow upstream, and caused flooding. In the end, Abaye forced them to change the canal's course back to its original bed.[62] Under these circumstances, navigation along even the larger canals would have been difficult.

On the other hand, *nahara,* cognate to Hebrew *nahar,* may also refer to rivers. Of the 108 attestations of the word in the Babylonian Talmud, some 54 may refer to either, or are ambiguous.[63] Of the remaining 54, 15 refer to the town of Pum Nahara.[64] Finally, some 11 most likely refer to rivers,[65] and some 28 to canals.[66] Thus Samuel may have referred to either.

According to the Babylonian Talmud, there are at least three types of such canals, categorized according to size: *nahara, anigra* and *ama'.*[67] *Nahara* may indeed refer to a river; the *anigra* is a major canal dug from the river from which smaller canals or irrigation ditches (*amot*) distribute water to the fields. The latter were one or two cubits wide, with either bank or depth of two cubits.[68] The question naturally arises as to whether the Persian

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more the case after the massive Sasanian investment in irrigation; see below, section III.

[62] Gittin 60b.

[63] Berakhot 25a, 51a, 58a (twice), Shabbat 66b (five times), 110a, Eruvin 55b, 60a, Rosh Hashanah 30a, Sukkah 18a, Bezah 7b, Ta^{c}anit 19a (twice), 20b (twice), Mo^{c}ed Qatan 6b, Ketubot 62b, Nedarim 41a, 62a, Sotah 21b, Gittin 45b, Bava Qamma 42a, 117b, Bava Metzi^{c}a 23b (twice), 81b, 103a (twice), 107b (twice), 108a (twice), Sanhedrin 72b (twice), Makkot 4a, Avodah Zarah 6b, 26a, 37b, 39a, 49b, Horayot 12a, Hullin 7a, 53b (twice), 105b (twice), Bekhorot 55a, Arakhin 29a, Niddah 10b.

[64] Berakhot 31a, Eruvin 24b (twice), Mo^{c}ed Qatan 27b, Yevamot 16b, 17b (twice), Sukkah 46b, Qiddushin 13a, 72b, 81b, Bava Batra 22a, 36b, 88a, and Hullin 95b.

[65] See Berakhot 65b (=Nedarim 40a = Bekorot 55b), Megillah 6a, Ketubot 85a, Gittin 27a, Qiddushin 73b, Bava Qamma 29a, Bava Metzi^{c}a 77a (twice), 109b, and Bava Batra 24a.

[66] Eruvin 24b (twice), Megillah 16a, Mo^{c}ed Qatan 4b (twice), Gittin 60b (three times), 69b, 73b, Qiddushin 81a, Bava Qamma 117a, Bava Metzi^{c}a 18a, 20a, 103b, 107b (twice), 198a, Bava Batra 13a, 21a, Sanhedrin 25b (twice), 72a, 93a, Hullin 18b (twice), and 57a (twice).

[67] Other terms are sometimes used: *arita de-dala'i*, or *nahara rabba* and *nahara zuta*; see Beer, p. 66 n. 120. All relate to the relative sizes of the canals.

[68] See Bava Batra 99b, and see the commentaries of Rashbam and Tosafot s.v. *ve-*

government's ruling referred only to rivers, or also to canals.

As noted above, since Neharde^ca was located on the confluence of the Euphrates and Nehar Malka, the "riverbank" could refer to either a river or canal. Rashi suggests that the riverbank could have been used for either commercial or agricultural purposes; the question is whether Nehar Malka canal was used for transport. If so, *raqta de-nahara* could refer to either. Indeed, Nehar Malka canal was certainly deep enough to carry river traffic, as Obermeyer shows.[69] In this case, the new Sasanian policy could apply to both rivers and canals. If this is so, the Sasanian rules we shall examine below would seem to have applied to rivers as well as the canals that were the ostensible object of the regulations. But the existence of Sasanian dams and reports of the large-scale diversion of rivers indicates that—not surprisingly—their interest in the water supply extended to both sources of water.

Upkeep of irrigation canals and the proper distribution of water were a constant source of concern to the rabbis as it was to the government. The rabbis for their part allowed dredging and clearing operations even on the intermediate days of a festival. Conversely, R. Yehudah ruled in one case that the "downstreamers" must help the upstreamers dredge an irrigation canal, but not the reverse, since the danger of the dimunition of the water supply for the downstreamers was greater than that of flooding for the upstreamers.[70]

Whatever the exact circumstances, it is plain from the first part of the passage that the interloper was not removed by Samuel, but that later on Persian policy would have countenanced such removal. If the interloper represents more intensive economic and/or agricultural exploitation of the riverbank, why would his removal have met with government approval? All in all, it would seem that Rabbenu Tam's interpretation of the incident fits the historical facts somewhat more closely, since it explains the government's stake in the interloper's activities.

Still, it is possible that the first part of the passage does not actually represent the workings of government policy at all. It may be that this incident dates from the very beginning of Sasanian rule, when Samuel

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amah; and see Samuel Krauss, *Talmudische Archaeologie*, repr. Hildesheim: Georg Olms, 1966, vol. II, p. 165, n. 126, and see Newman, p. 83.

[69] See Obermeyer, pp. 245-246.

[70] Bava Metzi^ca 108a-109b; see Newman, pp. 82-87 on irrigation arrangements, and see Krauss, vol. II, pp. 165-166.

himself was unsure of what the government policy would be. Not wishing to antagonize the new authorities, he declined to remove the usurper. This assumption would relieve us of the necessity of explaining the seemingly wrongheaded policy of taxing riverbanks and riverbeds, and opposing local custom on the use of those river- and canalbanks. It also presents us with a context for Rashi's explanation.

It is thus possible that the issue of taxation may have been quite secondary. The interloper saw a business opportunity in the vicinity of Neharde^ca, and took possession of land that had been hitherto used in common by the neighborhood, and built a quay. That made the land taxable, and, given his willingness to pay the land tax, he was assured of his rights to the parcel, despite his new neighbors' objection. Later on, perhaps after the tax and administrative reforms of Xusro I Anosakruwan ("of great soul") (531-579), when a tax census of every piece of income producing property was made—down to palm trees—the margins of the riverbeds were also assessed for their profitability, and he would have had to pay the land tax on that as well. As Rabbenu Tam put it, if he refused, he would lose the entire parcel, riverbank and riverbed.

At this point, then, we cannot eliminate any of the possibilities raised by Rashi. The interloper may have wished to plant on the land, as in the use of the a marginal area for saffron, as suggested by R. Yehudah (Bava Metzi^ca 107b), though he was not referring to a riverbank, or perhaps he may have wished to provide wharfage for shipping along the river, perhaps in the form of a quay. If the one taking possession of the riverbank owned land adjacent to it, he may have planned an irrigation canal. Or perhaps he may have intended to turn this land to rice planting, at least where the riverbed was gently sloping. This latter possibility must remain speculative, since I have not been able to find any evidence that this was or is done. Presumably, the government would have been in favor of any commercial or agricultural development, and the subsequent or consequent increase in taxation.

However, all of this would have been all the more the case in the wake of Xusro I's tax reform noted above, though we need not assume that the "now" of our passage refers to those reforms. The question is whether there was a change in the wording of the deed was in consonance with government policy in these respects, and why the redactors would conclude that this change allowed a Jewish court to remove the interloper. Did this reflect Sasanian policy, or was this a rabbinical *interpretation* or *exploitation* of that policy in order to preserve local autonomy in matters of land tenure?

In the next section we will examine an Iranian parallel to "to the depth of water of a horse's neck" and its legal consequences and governmental intent.

II

We are the fortunate possession of a Sasanian ruling on a related matter, one which, in tandem with other Sasanian rulings and talmudic sources, will shed light on Sasanian agricultural policy, certainly for the latter half of the Sasanian period and possibly before, and thus also on our talmudic passage.[71] In the so-called Sasanian Lawbook, the *Mādayān ī Hazār Dādistān,* the "Book of a Thousand Decisions," which dates to the early seventh century as a compilation, but which includes a good deal of earlier material,[72] we have the following decision on the joint construction of a canal by two partners.

> *kahas ī mard pad zamīg ī xwēš ayāb pad zamīg ī hambaragān kunēd ka-š gōš bālāy kand ka-š pērāmōn hamag zamīg ī kasān ēg-iš awēšān kē ān zamīg xwēš nindar dašt mizd ī ān kahas bē pad xunsandīh ud bērōn dašt mizd ī ān kahas bē pad abēziyānīh ōy kē kahas xwēš enyā kahas kand(an) nē pādixšāy.*[73]
>
> An irrigation canal that a man makes on his own land or to *hambaragān*-land (=land belonging to partners who share in the profits), which he has dug to the depth (lit., "height") of "an ear," (and) when around it (=this land) there is land belonging to others, then those people who are the owners of the land inside the field are not allowed to dig canals on their own land without the agreement (of the partners) (without) payment for that canal, and outside the field they are not allowed to dig another canal except without damaging

[71] Beer, p. 69, referred to Bulsara's edition of the *Mādayān (The Laws of the Ancient Persians)*, and related chapter 22 on canals to his examination of irrigation among the Jews of Babylonia in a general way, but did not relate Bava Metzi^ca 108a to MHD 85:8-11, as we shall do below.

[72] On this point see the introductions to the respective editions referred to immediately below.

[73] MHD 85:8-11. The text is found in Perikhanian, pp. 200-202, and Macuch, vol. II, pp. 549, 552, and see nn. 1-2 on pp. 555-557.

the land (of those) to whom the canal belongs.[74]

Before proceeding, let us consider the chronology. As noted above, Samuel, in whose name the first part of the talmudic passage examined above is transmitted, lived and worked in the first half of the third century. The appended comment regarding conditions "nowadays the Persians write..." is certainly later, most likely redactional. If it is redactional, it may refer to conditions as late as the fifth or perhaps even the sixth century. This brings us down to the time of Farroxmard i Wahraman's sources for the *Mādayān,* Xusro's tax reform. The *Mādayān* itself has been dated fairly securely to the first part of the seventh century, based on the Persian kings mentioned therein.[75] However, this section of the *Mādayān* could also relate to an earlier governmental policy; in general Farroxmard does include precedents from earlier times. Certainly, the governmental policies of encouraging agricultural and economic development as manifested in investment in irrigation, water-supply and urbanization date back to early Sasanian times and even to Parthian times, as the surveys of Robert McC. Adams and Robert John Wenke have demonstrated.[76]

Thus, the second part of our talmudic passage and the *Mādayān* relate roughly to the same period of time. Moreover, as we shall see below, this chapter of the *Mādayān* may be as applicable to Babylonia as to Iran. If so, the two sources are parallel or overlapping, and may thus supplement each other. In this case the Talmud itself attributes the rule to the "Persians" who "write." Thus, the Iranian phrase "up to the ears" used in the *Mādayān* would refer specifically to *horses'* ears, and the talmudic phrase "up to the neck" refers specifically to the *top* of the neck, that is, to the ears. Each source provides a piece of information lacking in the other.[77]

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[74] This translation reflects the helpful comments of Prof. Macuch in a pleasant meeting in Ravenna on October 9, 2003. My thanks to her for her help in this matter and many others; the responsibility for any errors remains mine.

[75] See Macuch, vol I, pp. 9-10.

[76] See Robert John Wenke, *Imperial Investments and Agricultural Developments in Parthian and Sassanian Khuzestan: 150 B.C. to A. D. 640,* University of Michigan, 1975, esp. the surveys of Sasanian settlement patterns, pp. 253-270.

[77] Whether *gōš bālāy*, which in Pahlavi could as easily be read *dōš bālāy,* "the depth of a shoulder," should be read that way I leave to Iranists, since Christian Bartholomae traced it back to Avestan; see *Altiranisches Wörterbuch*, Strassbourg, 1904, sec. ed., Berlin, p. 486b.

It may be argued that while there was a need to encourage extension of the water supply in Iran because of its generally arid climate, this was not the case in Babylonia. However, as has long been known, the silting up of the canals "by salts (notably gypsum) carried down the mountains with the silt made agriculture impossible in certain flooded districts in the south and ...prompted peasants to move north." This silting up, or sedimentation, was an ancient problem that needed constant attention, and even that attention was not always successful. Any responsible central government would promote conditions that encouraged the maintenance of the irrigation system, or would do so itself.[78] Moreover, ample evidence exists of the Sasanian government's investment in canals and dams, and its encouragement of agriculture in general, and in Babylonia in particular.[79] Additional talmudic evidence for this policy will be adduced in section III below.

To return to this section of the *Mādayān:* I have deliberately made the translation as literal as possible, in order to point up the difficulties of the syntax, and make the different decisions of the two editors understandable. Several points emerge.

1. *hambaragān* is taken by Perikhanian to refer to "common (=public)" land, while Macuch renders it as land of an "Ertragsgesellschaft." The distinction is far from trivial, for it relates to the amount of government involvement in the partners' project. It also raises the question of whether the Sasanians recognized a category of land that was not private but which was not state-owned, but that could be utilized for private profit. Since the theory which underlay taxation policy was that all land belonged to the state, and the payment of the land tax, *tasqa*, allowed the owner of the land to have usufruct of it, unless the privilege of exemption was paid for, this is

[78] See R. J. Forbes, *Studies in Ancient Technology*, vol. II, Leiden: E. J. Brill, 1965, pp. 18-25, esp. pp. 24-25. The quote is from p. 25. For a thorough and comprehensive review of this problem the numerous publications of Robert McC. Adams should be consulted, perhaps beginning with his *Heartland of Cities*.

[79] See Robert McC. Adams, "Agriculture and Urban Life in Early Southwestern Iran," *Science* 136, no. 3511, pp. 109-122. In around 240 C.E. Roman prisoners were employed in building "bridges over the Dez and Karun rivers, as well as canals and roads..." (Wenke, p. 254). As we shall see in sect. III, the talmudic evidence for large irrigation investment in southern Babylonia tallies very well with these efforts both in time and place.

unlikely.[80] Macuch's interpretation is more to the point: the canal is dug on either the land of one of the partners or on land owned jointly (*hambaragān*). It should be remembered that the chapter title, which appears immediately before our passage, is: *dar ī hambagīh ī dō ud kahas ud xwāstag ī pad 2 mardōmān,* "chapter of partnership of a canal, and/or property of two men." Macuch's interpretation of *hambaragān* as partnership land conforms to the use of the term elsewhere in the *Mādayān.*

In Perikhanian's essay "Iranian Society and Law"[81] in the *Cambridge History of Iran,* she distinguishes among seven types of land ownership, and none is "public."[82] The *Mādayān* is concerned primarily with the private estates of landowners, and peripherally with the royal estates and religious endowments, which, however, remain under the control of the endower.[83] While the king and royal family owned considerable estate land of their

[80] Newman, p. 161.

[81] Ehsan Y. Sharter, ed., *Cambridge History of Iran*, vol. 3 (2), Cambridge: Cambridge UP, 1983, pp. 627-680. The section on types of property appears on pp. 657-669.

[82] I briefly considered that the English term might have originated as a mistranslation from the Russian, or a slip of the pen. However, consulting with Mr. Alexander Ratnovsky of Yeshiva University's Pollack Library, a native-speaker of Russian, it is clear that this was not the case.

However, it may be that Perikhanian intended to counterpose "public land" with community land, that is, what used to be called "the commons" in English. Perhaps as a government reaction to the communistic ideology of the Mazdakite "heresy," after the revolt was put down, land tenure was privatized to a greater extent than before; see Patricia Crone, "Kavad's Heresy and Mazdak's Revolt," *Iran* 19 (1991), pp. 21-42, and see literature cited in n. 1, and her own discussion of the "communist" program of Kavad, Mazdak, or Zaradusht, on pp. 29-30.

Indeed, Crone refers to a sort of "Soviet school" of Pigulevskaja, Klíma and Nomani, who interpreted the revolt "as a response to the break-up of the old commune in which land was held in collective ownership, the break-up being effected by landlords representing the forces of feudalism; to non-Marxists, "the complete lack of evidence for the existence of such communes in Iran precludes acceptance of the thesis..." (p. 33).

It is interesting, however, to note that Samuel would certainly have preferred to remove the interloper in the interest of the locals who used the riverbank as common land.

[83] Beer points to an exchange between the late fourth- and early fifth- century amoraim R. Ashi and Ravina in Bava Metzi[c]a 110a that there was a category of land that was exempt from *tasqa*, but the Talmud does not further define it; see Beer, p. 228.

own, which was provided with its own administration, and whose rents were their private property (ōs*tān*),[84] the king also controlled "state land" and its rents, that is, the various taxes and imposts. Again, it should not be forgotten that the Sasanian system was basically feudal.[85] State land was Crown land, as Maria deJ. Ellis observed in remarking on Newman's use of the term "property of the Crown."[86]

The word *hambaragān* appears several times in the *Mādayān,* and in no case does it refer unambiguously to public land. In MHD 19:6, such land is referred to in the context of determining the exact meaning of various phrases denoting the transference of the possession of houses and plots of land—*xānag ē(w)* or *zamīg ī hambaragān zamīg ī kasān.* Perikhanian renders the latter as "a plot ("land") joined to the plots of other persons,"[87] while Macuch consistently renders *hambaragān* as a noun, "*wenn das Land weder Ertragsgesellschaftern noch (anderen) Personen (gehört)*."[88] The other attestation in the *Mādayān* 78:12 deals with the ownership of a fire-temple, "which belongs jointly to the persons who drew [the document] up and in which each one's share is set out," as Perikhanian renders it.[89] Again, Macuch renders it as a noun—the fire-temple "(ist) den Ertragsteilhabern (*hambaragān*) eigen."[90] In none of these cases does Perikhanian take the term as referring to "public land." While the ownership of temples for private profit may sound strange to Western ears, many contemporary parallels can be adduced, even in the West. In any case, it is abundantly clear, as we shall see, that our passage deals with a large, profit-making enterprise devoted to providing water to the surrounding fields—even, or perhaps especially, those belonging to other landowners.

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[84] See Perikhanian, "Iranian Society and Law," p. 669.

[85] For a general view, see Geo Widengren, "Iran, der grosse Gegner Roms: Königsgewalt, Feudalismus, Militärwesen," in H. Temporini and W. Haase, *Aufstieg und Niedergang der römischen Welt*, II./9.1, Berlin: Walter de Gruyter, 1976, pp. 219-306, and see Altheim and Stiehl, *Ein asiatischer Staat: Feudalismus unter den Sasaniden und ihren Nachbarn*, Wiesbaden: Liemes Verlag, 1954.

[86] Ellis, *Agriculture and the State in Ancient Mesopotamia An Introduction to Problems of Land Tenure*, Philadelphia: Occasional Publications of the Babylonian Fund, 1, 1976, p. 173, n. 21.

[87] Perikhanian, pp. 64-65.

[88] Macuch, vol. I, p. 159; the transliteration: *zmyk y hmbrk'n' zmyk y 'YS'n* is on p. 154.

[89] Perikhanian, p. 191.

[90] See Macuch, vol. I, p. 520, and the text on pp. 517-18.

2. The clause "which all around the land of others" lacks a verb, which must be supplied. Perikhanian suggests that the one digging the canal "(has laid it) all around the entire land of other persons," while Macuch suggests that "*wenn ringsherum alles Land (anderen) Personen (gehört)*." In either case, however, we must determine the position of the canal *vis à vis* the fields of the partners and the abutters. We cannot take Perikhanian's rendering literally, since the partners would hardly dig a canal along the entire length of border of their fields, though they might, as did the inhabitants of Harmah noted above, have dug it loop-fashion around two or three borders (of a rectangular field or fields). The case seems to involve a canal that at least for part of its length demarcates the border between the partners' field and that of the abutters. The abutters wish to share in the water by digging another canal that would be fed by the partners', and it is for this that they must pay compensation. The exact nature of the compensation, and the exact location of the canals, depends on our next question regarding the use of the phrases *mizd kahas…pad xunsandīh* and *mizd ī ān kahas...pad apēziyanīh,* which we will deal with immediately below.

Another important implication of Macuch's interpretation is that the law clearly supported those who initiated a canal on their *own* land, or land held *jointly*—and not, as we have seen in the last section, by outside "interlopers." This may have been another consequence of the phenomenon to which Isaiah Gafni has applied the term "Lokalpatriotism," which, indeed, is a common cultural trait that even a centralizing government would do well to heed.[91] Indeed, this entire chapter seems to be a result of a government policy encouraging such local initiative.

3. Macuch repeats the predicate "*nicht befugt*" (*nē pādixšāy*) in her translation, even thought it appears only once in the original. By doing so she emphasizes that two conditions are laid down for extending the canal into the surrounding field(s): *xunsandīhs,* "satisfaction, agreement," and *apēziyānīh,* "compensation," as well as the drafter's concern with work within the field (*nindar dašt*) and outside the field (*bērōn dašt*). In the first instance, *mizd ī ān kahas …pad xunsandīh* is required, while in the latter, it is *mizd ī ān kahas …pad apēziyānīh.*

[91] See Isaiah M. Gafni, "Expressions and Types of 'Local Patriotism' among the Jews of Sasanian Babylonia," in Shaul Shaked and Amnon Netzer, eds., *Irano-Judaica II: Studies Relating to Jewish Contacts with Persian Culture Throughout the Ages*, Jerusalem: Makhon Ben Zvi, 1990, pp. 52-62.

The question of whose field is the referrent for “inside” and “outside” must briefly be considered. Both editors agree that the referrent is not to the canal builder(s)’ field, but to that of the abutting landowner(s) who wish to tap into the canal. If they dig “outside” their own field(s), that is, within the field of the canal builders, compensation for damage caused to the field(s) of those canal diggers must be paid. If the partners’ would-be “customers” dig *within* their own field(s), the payment is made as a condition of the *agreement* of the partners, which must be gained, since they are then being deprived of some of their water supply. The use of the word *apēziyānīh* implies that damage has been done to their field(s), while *xunsandīh, “*agreement,” seems to refer to the dimunition of the water supply. If this is the case, our passage deals with both cases: the partners’ canal is either located along the border of their field(s) or within its/their own territory.

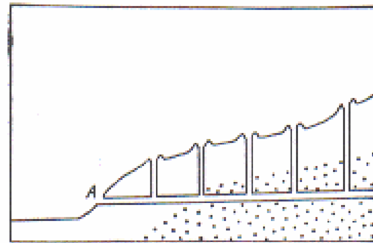
4. A related question is the nature of the *kahas,* which since J. P. de Menasce’s 1966 article on this chapter has generally been understood as referring to the famous Iranian *qanāt,* the subterranean water tunnels supplied by ground-water that provide so many Iranian towns and fields.[92] It is worthwhile pausing for a moment to review the *realia* involved.

*Qanāt*s draw on ground-water in the alluvial fans in the mountains, and bring it to settled areas by means of subterranean water tunnels far below the ground. Every 90 ft or so a shaft is dug from the surface to the tunnel to allow for some light and air to get down to the moles who are digging far below, and to allow for later inspection of the tunnel.[93] The tunnel can go on

[92] See J. P. de Menasce, “Textes Pehlevis sur les Qanats,” *Acta Orientalia* 30 (1966), pp. 167-175. Up till then the word was understood as meaning “canal”; see Antonino Pagliaro, “Pahlavi *Katas ‘Canale’ Gr. KA-Δ-O-E*,” in *Rivista degli Studi Orientali* 17 (1938), pp. 72-83. As de Menasce notes, his attention was drawn to this possibility by a French engineer, Henri Goblot, on which see the next note.

[93] For a description of the technology involved, complete with photographs and diagrams, see Henri Goblot, *Les Qanats: Une Technique d’Acquisition de l’Eau* (Industrie et artisanat 9), Paris: Mouton Editeur, 1969, especially plates 2 and 3 after p. 48, and Michael E. Bonine, “From *Qanat* to *Kort*: Traditional Irrigation Terminology and Practices in Central Iran,” *Iran: Journal of the British Institute of Persian Studies* 20 (1982), pp. 145-159. More recently, Fereydoun Rahimi-Laridjani, *Die Entwicklung der Bewässerungslandwirtschaft im Iran bis in sasanidisch-frühislamische Zeit*, Wiesbaden: Dr. Ludwig Reichert Verlag, 1988, provides an exhaustive examination of *qanāt* canal construction during the pre-Islamic period. For *qanāt* construction during the Parthian and Sasanian periods, see pp. 453-468, but the interested reader will find a wealth of information on agriculture as well throughout

for many miles, since these *qanāt*s begin high in the mountains, and slowly slope *down* to the surface. For the convenience of the reader, a picture of a *qanāt* is reproduced below.[94]



this work.

[94] The illustration is taken from R. J. Forbes, vol. I, p. 157, Fig. 32 (my thanks to Brill Academic Publishers for permitting me reproduce it). Cf. also Fig. 2 of Henri Goblot's book (see the preceding note).

Once the *qanāt* reaches the surface, a network of canals and ditches distributes the water to the town and countryside. Thus, fields are watered by canals, and not directly by *qanāt*s—by definition, since the *qanāt*s are below ground level. In sum, therefore, as important as *qanāt*s are, they are irrelevant to our passage. The partners may or may not be involved in constructing a *qanāt;* what is certain is that they are adding to the network of irrigation canals which originate either in a *qanāt*—or a river such as the Euphrates or Tigris. The law—the law of the Persian Empire—could as easily have pertained to the river and canals of Mesopotamia as to the *qanāt*s and canals of the dry Iranian plateau. This rule is concerned not with the *origin* of the water, but with its distribution and the *extension* of the water supply.

Though Teheran with its large and complex system of *qanāt*s is a relatively young city, having been made the capital by the Safavids in 1788, the technology of *qanāt* construction is far older, and, indeed, precedes the Sasanaians by more than a thousand years. Though Sasanian *qanāts* may not have been so elaborate, the description of Teheran's *qanāts* will give us some idea of what constructing *qanāt*s entailed.

> Undoubtedly the most extraordinary works of ancient man for collecting ground water are the kanats of the Persians. The kanats connect the bottom of shafts, conspicuous over all the high central valleys of Persia, and they are dug by human moles working over long periods of time.
> Thirty-six of these tunnels supply Teheran (population 275,000) and the highly cultivated tributary agricultural area. The kanats of this system are 8 to 16 miles long and reach a maximum [p. 13] of 500 ft. below the ground surface. One tunnel supplying a suburb of Teheran passes 200 ft. below the city.[95]

Moreover,

> This water was distributed over a coherent net of open ditches. The houses were connected with the ditches by conduits. Each qanat had

[95] C. F. Tolman, *Ground Water*, New York: McGraw Hill, 1937, pp. 12-13, and quoting M. A. Butler, "Irrigation in Persia by Kanats," *Civil Eng.,* vol. 3, no. 2, pp. 69-73, February, 1933.

> its own supply district, over which the water was distributed in a certain rotation. This distribution was connected to the social structure of the city. The upper classes resided in the north of Teheran near the openings of the qanats, whereas the poorer inhabitants tended to congregate more and more in the southern part of the city, where the water pollution continued to rise as the quantity supplied continued to fall. The distribution of the population shows the pattern of the illness caused by water pollution.[96]

As noted, these subterranean tunnels originated in the alluvial fans of the mountains, miles away. They tap into the groundwater of the mountains, and bring it to where it is wanted. The subterranean tunnels not only serve as conduits, but also limit loss due to evaporation. In the end, though, the water has to be brought to the surface to be of use. The *qanāt*s themselves can be hundreds of feet beneath the surface; whatever the exact length of *gōš bālāy,* it is a very small fraction of the depth of the shafts that were dug every 90 ft. or so, as noted above.

Thus, Macuch rightly notes that "*es scheint allerdings fraglich zu sein, ob damit tatsächlich der unterirdische Kanal, der qanāt, gemeint sein soll, der weit unter die Erde reicht, nicht nur bis zur 'Höhe des Ohrs' (oder ist mit dieser Bezeichnung die qanāts-Mündung gemeint?)*"[97] Whatever the source of the water, our passage deals with the digging of a canal, not a qanāt; the canal may issue from the mouth of a *qanāt*, a river, or another canal. The scale of the enterprise is different, although, as we shall see below, our partners are not involved in such a limited enterprise as digging a well.

This brings us back to the question of the legal force of "up to the ears." What purpose is served by having dug down to that point? Apparently, if the partners have not yet dug that far, they cannot demand compensation or satisfaction. But that cannot be all, since if they are digging *within* their fields, why should the abutters be permitted to dig a canal that would have to traverse the partners' land in order to hook up with their (the partners') canal?

Let us for the moment examine the easier case, where the partners dig

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[96] Cornel Braun, *Teheran, Marrakesch und Madrid: Ihre Wasserversorgung mit Hilfe von Qanaten, Eine stadtgeographische Konvergenz auf kulturhistorischer Grundlage (Bonner Geographische Abhandlungen 52)*, Bonn: Ferd. Duemmlers Verlag, 1974, p. 113.

[97] Macuch, vol. I, p. 556.

along the borders of their own field and those of the abutter(s)'. Even if they dig totally within their own property, they will be undermining the abutter's field(s) along the borders, and thus causing damage to the abutters' fields. Why is this permitted?

Clearly, it is permitted because the partners, by digging a new canal, are providing a public service that the government would otherwise have to finance. But the digging must be useful to be authorized, and so the minimum of *gōš bālāy* was set. Once they dig to the depth of "ears' height," they gain a sort of right of eminent domain, and gain the advantage over their neighbors' rights not to have their fields undermined at the border. But that is not sufficient to allow the abutter(s) to draw off another canal from the partners' canal; they must pay for that privilege, and the water. By opening the canal, the partners have the right to both sides of it, that is, including the side that directly touches the abutter's fields.

In the talmudic case with which we opened our analysis, after the time that "the Persians write," the riverbank and part of the riverbed to the depth of a "horse's neck" belongs to the abutter. Below that depth, the riverbed belongs to the owner of the river, which presumably belongs to the king, that is, the government. Here, once the partners dig to below the depth of an "ear," the canal is theirs by right of opening the canal. They become, as it were, the possessors of what might in other systems be public property, a canal.

This would explain the fact that *Mādayān* employs the measure of *gōš bālāy* to reward the active opening of a canal, while the Babylonian Talmud refers to something that at first glance appears more passive: the extension of the riverbank owner's rights into the riverbed to a depth of *gōš bālāy,* even without much effort on his part. The verb Samuel employs, *ahaziq,* "took possession," refers to a symbolic act that represents the new owner's rights to make changes in the property so acquired. The classic illustration of *hazaqah* is given by Rashi as follows: בחזקה - רפק ביה פורתא או דיש אמצרי או נעל או פרץ כל שהוא: "He hoes in it a bit, or treads on its boundary or locks or makes a breach of any amount."[98] By this act, he demonstrates his rights to the property and thus to make improvements on it.[99] In our case, by hoeing

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[98] Rashi, Qiddushin 26a, s.v. *ba-hazaqah.*

[99] This symbolic act of acquisition seems to have gone back to Neo-Babylonian times; see CAD R, p. 150 s.v. *rapāqu*, sub a, and in particular the citation from PBS 8/2 246:10: *eqlam kīma eqlim ikkal irappiq*, "he will hoe and have usufruct of the field as (he would of any) field," and see *JESHO* 10, p. 187. The Akkadian could be translated

on the riverbank he gains the rights to the riverbed to the depth of *gōš bālāy,* but not more. If Samuel's case occurred on a canal issuing from Nehar Malka, rather than the Euphrates, the slope would not be as gentle, and canal bank owner's rights to the canal would be correspondingly curtailed; however, as noted above, since deposition below the confluence of the Euphrates and Nehar Malka canal would have been correspondingly greater, such gentle slopes and point bars would have been built up just south of this point. In all probability, then, this incident occurred just south of Neharde[c]a, along the Euphrates, and across from Nehar Malka.

Who then owned the canal of whose edge the "impudent one" had taken possession? In this case, it would have been the partners. If so, the shoe is on the other foot; the riverbank/canal edge owner could not make use of the canal's waters without paying the partners. He is thus "removed"—in Samuel's word—from the riverbank/canal edge of which he had taken possession. Once the canal is more than a *gōš bālāy* deep, it cannot be automatically exploited by the abutter. This implies that before that point, where the canal is shallower, it could. In our case, the partners would not have had the right of compensation, and the abutter could draw from the canal. The Bavli represents the view of the abutter, as it were, and the *Mādayān* that of the diggers, or the interloper(s).

How then is the abutter removed? It would seem that a riverbank owner had the responsibility, under Persian law, of improving his riveredge property; this would justify his having taken possession of what had been common land. If he did not, apparently he could be removed, as Rabbenu Tam suggested. The redactional comment thus means: the onus is now on

into Babylonian Aramaic without further ado: רפק ביה פורתא. See also Ellis, *Agriculture and the State in Ancient Mesopotamia*, p. 17: "The actual process of [field] assignment included the driving of a peg (*sikkatum maḫāṣu*) in to the field; the peg was to be shown to the assignees. The person in charge of this activity, which served to locate the field, and to symbolize the transfer of the rights to the produce of the field, was the *sassuku* (ŠAG.DU). He operated with a measuring rope, *ašlu*... There is some question whether the assignment was valid unless it had been made in the beneficiary's presence." This of course refers to the assignment of state land to artisans and workers, but the ceremony, carried out by the new owner, could presumably have been carried out by him when state lands and state service were not at issue. See CAD S, p. 248 s.v. *sikkatu* A, sub 1c, and the citations cited there (esp. MDP 28: "he will....the pegs (?) of the field and cultivate the field"), with the exception of the last. The peg was not a boundary marker, as CAD has it (though with a question mark), but a means of symbolic acquisition.

him and if he does not improve the waterfront property, either by building a quay, or planting a taxable crop on it, he can be removed by his neighbors, and the riverbank reverts to its previous common use, for boat haulers and the like.

As noted above, the Iranian *gōš bālāy, "*the height of an ear" and the talmudic report of the Persians who write *ᶜad melo' tzavarei susya maya, "*to the depth (lit., "fullness") of a horse's neck (in) water" are equivalent. A horse's ears are situated on top of his neck; thus the talmudic reference viewed in conjunction with the Iranian source informs us that the ear in question is a horse's ear, and the length of the measure has accordingly to be adjusted, depending on the height of Sasanian horses. From horse burials, archaeologists have reported that the Sarmatian breed, reported on by Strabo and apparently used by the Romans and Parthians, could reach a height of 15 hands (152 cm) and more, and Ann Hyland, an experienced horse breeder and trainer, in her book on the horse in the Roman world reports that a "robust" horse would reach that height, which was "the approximate maximum height of most Roman horses." Parthian horses were somewhat taller, growing to 16 hands (163 cm).[100] One would suppose that Sasanian

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[100] Ann Hyland, *Equus: The Horse in the Roman World*, New Haven: Yale University Press, 1990, p. 10. Her discussion of horse burials appears on pp. 22-23, and is taken from S. I. Rudenko, *The Frozen Tombs of Siberia*, J. M. Dent, 1970 and T. Sulimirski, *The Sarmatians*, London: Thames & Hudson, 1970. She then adds the following:

> Strabo comments on the Parthian horses as being the largest [Strabo, *Geog.* 7.4.8--Y.E.]. We do not know the exact height of Parthian horses but from the bone evidence in the early Pazyryk burials, where some Sarmatian horses were in excess of 15 hands (152 cm), the Parthian horses must have been between 15 and 16 hands (152-163 cm) in order to be described as 'large'. They may have grown even taller due to the good grazing on th Median plains. A 14 to 14.2 hand (142-147 cm) animal would seem small to Strabo in comparison, particularly if he was in lean condition from foraging for himself while constantly on the move--a 14 hand animal in heavy flesh from good stable care and high feeding will seem large in comparison with the same sized but lean animal of nomadic peoples. A certain size would have been required to carry the rider plus the typical Sarmatian war gear of body armour, plus its own protective trappings for which we have pictorial though somewhat exaggerated proof in Trajan's column. Since Tacitus tells us that the protective body armor worn by Sarmatians was restricted to the chieftains and nobles (*Hist.* 1.79), and presumably their horses, we can assume that their horses would need to be bigger than those carrying unarmored warriors. This would tie in with the two sizes of animal found in the Pazyryk burials, and also gives a hint that

horses were not that different from Parthian ones, but there is no reason to think that *gōš bālāy* referred to the tallest military horses; an estimated height of four feet, or slightly more, should suffice for legal purposes.

The Babylonian Talmud ascribes this to the “Persians who [now] write”—either in their deeds, and/or, in their law books. The former is of course more likely. Though the Babylonian Talmud is shot through with Persian loanwords, and Rosenthal and Shaked have between them demonstrated that such prominent second-century authorities as Rav and Samuel, and also R. Kahana, spoke Middle Persian, to the extent of exchanging visual puns in that language, I am not about to suggest that they could read Pahlavi.[101] In any case, it is reasonably certain that the two sources refer to the same measure. Thus, *gōš bālāy,* “the depth of an ear” would refer to a “horse’s ear.” The owner of the Babylonian riverbank would gain possession of a considerable extent of riverbed, depending on its slope.

Once again we must consider the question of the interloper’s intentions as well as the Persian authorities’ policy regarding economic exploitation of the riverbed. Adams suggests that rice became a commercial crop is

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the Persian habit of the best stock going to the nobility carried through to the Sarmatians.

In an earlier book on the ancient Greek horse John Kinloch Anderson reports that Persian horses of the Greek era were known as more powerful than the Greek horses, but somewhat smaller; see J. K. Anderson, *Ancient Greek Horsemanship*, Berkeley: University of California Press, 1961, p. 46, but this work was done before the reports of the Siberian burials were published, and deals with Achaemidean horses in any case.

Valentin Horn, *Das Pferd im Alten Orient: Das Streitwagenpferd der Frühzeit in seiner Umwelt, im Training und im Vergleich zum neuzeitlichen Distanz-, Reit- und Fahrpferd,* Hildesheim: Olms Presse, 1995, pp. 21-21, gives similar figures for finds published in the late eighties and early nineties in northern Kazakastan, at least for the largest fifth of some a sampling of 10,000 bones out of a find of 133,000. Though these finds long antedate our period, the near identity of the horses’ heights gives us reason to suppose that Hylan’s figures are correct for our period.

[101] While knowledge of the language was probably common, there is little reason to suppose that the rabbis would have bothered with the script; on the pervasive orality of rabbinic Jewish culture, see my “Orality and the Redaction of the Babylonian Talmud,” *Oral Tradition* 14/1 (1999), pp. 52-99, and see bGit 19b, from which it is clear that R. Papa, while understanding a Persian document read to him, could not read it for himself.

Sasanian times; one wonders whether, indeed, rice cultivation could have been possible for some part of these submerged lands. However, such cultivation over the riverbank, rather than in paddies, would seem to be a hazardous enterprise. As we shall see, however, rice was one of the crops that was taxed, which suggests it was valuable, and a valuable crop will be planted as much as possible.

Thus, if, as was the case after Xusro's reform, the land was taxed according to its productivity, we must wonder whether the point of the whole exercise was to increase tax collections, since what could this submerged land produce? According to Tabari, a land survey for tax purposes was ordered at the end of his reign by Kavad I (presumably during his second term of kingship, 499-531) and concluded under Xusro I. As a consequence of that survey, a registry of date palms and olive trees was made, with date palms trees classified as either "Persian" or "non-Persian." Groves of four Persian palms were taxed at the same rate as six non-Persian, and isolated palms were not taxed at all. Likewise, only wheat, barley, rice, grapes, alfalfa, date palms and olive trees were taxed; other crops were not.[102] Could this land have been utilized for rice cultivation?[103] Though rice is a summer crop, and thus the riverbed at Gurmat Beni Said in the summer is nearly vertical, elsewhere such cultivation may have been possible, especially at Gurmat Umm Nakhlah, where there seems to have been a small parallel watercourse, somewhat like a paddy, in January 1927.[104]

The essential point of the reform was to allow a stable and steady collection of taxes; assessment was according to productivity rather than actual produce. As Joseph Wiesehöfer points out, "it is true that the owner of the land now bore the risk of fluctuating harvests [and not the government], but for the ripe standing corn to be left to wither until the arrival of the tax

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[102] "All other crop yields... were left tax-free, so that people might be well nourished" (Wieshöfer, p. 190). Whether pre-reform policy was so "liberal" is not known, of course.

[103] See Beer, pp. 24-25, n. 18, and the literature cited there, and see Rahimi-Laridjani, p. 126 and the literature cited there, and, in particular, author's justified astonishment that A. M. Watson (in his *Agricultural Innovation in the Early Islamic World: The Diffusion of Crops and Farming Techniques*, Cambridge, Cambridge UP, 1983, p. 15, n. 11) downplays the expansion of rice cultivation in Sasanian times. Rice is still cultivated in Iraq; see S. Horowitz, *Ha-haqla'ut ba-Mizrah ha-ᶜAravi*, Tel Aviv: Hakibbutz Hameuchad, 1966, p. 65.

[104] See also Beer, p. 82.

assessor had been no less an evil previously."[105] Moreover, in this way the government had revenue on hand to deal with crises before they erupted, rather than having to levy a tax only after the need for money arose.[106] However, both pre- and post-reform tax policy seem to have been based in one way or another on the productivity of the land taxed; there was no point in taxing land that was not productive.

Again, there were two types of land taxes levied in Sasanian Babylonia, the *taqsa* and the *manta de-malka.* The former was levied *pars quanta,* the latter, *pars quota.*[107] There was no point in taxing unproductive land or for the interloper to take possession of land, half or more of which was submerged and the rest of dubious value. Even land that was exempt from *taqsa* was nevertheless liable to *manta de-malka!*

Likewise, if the height of a Sasanian horse's neck runs to around four feet, as noted above, this is much deeper than the ordinary irrigation channel or ditch in Babylonia, which seems to have run to about ten handbreadths or less, something less than four feet deep.[108] The land allotted within the

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[105] Wieshöfer, p. 191. See p. 190, for al-Tabari's report, and pp. 190-191 for a summary of the Sasanian tax policy; likewise, Franz Altheim, *Utopie und Wirtschaft: Eine geschichtlicher Betrachtung*, Frankfurt am Main: Vittorio Klostermann, 1957, pp. 88-95 for a clear exposition of the political dimensions of the new policy.

[106] According to al-Tabari, this was Xusro's explicitly expressed aim; see Wiesehöfer, p. 190, Altheim, *Utopie*, p. 89.

[107] In addition to Altheim and Stiehl's discussions referred to above, see the brief discussion in Arthur Christensen, *L'Iran sous les Sassanides*[2] (1944), repr. Osnabrück: Otto Zeller, 1971, pp. 122-126 and Newman's much fuller chapters on taxation, pp. 161-186. Compare Beer, pp. 227-231, which is based primarily on I. Hahn, "Sasanidische und spätrömische Besteuerung," *Acta Antiqua* 7 (1959), pp. 149-160, and "Theodoretus Cyrus und die frühbyzantinische Besteurung," *Acta Antiqua* 10 (1962), pp. 124-130.

[108] See Bava Qamma 50b. Among the measures of depth known from Pahlavi literature, it should be noted that the epitomy of the lost Sakatom Nask of the Avesta given in the Pahlavi *Dēnkard* VIII employs finger's-breadths (*angust*), "the middle of the (fore-)leg" (*tā mayān ī padištān*), and "down to the knee" (*tā šnūg*); see D. N. MacKenzie, "Finding's Keeping," in Ph. Gignoux and A. Tafazzoli, *Memorial Jean de Menasce*, Louvain: Imprimerie Orientaliste, 1974, pp. 273-280, esp. p. 278. Perhaps more pertinent, the text continues with measures for goods found under water, with measures such as mid-thigh, crotch deep, navel or mouth deep (MacKenzie, pp. 278-279). Since *gōš bālāy* is originally Avestan, the measures of depth given in the *Dēnkard* presumably belong to the same layer of the language. In the absence of other data, these presumably refer to human and not equine dimensions; but the inclusion of

riverbed was thus quite a bit deeper, and this allows for Rashi's interpretation of the river of *raqta de-nahara* as referring to river-going craft with cargos. It also indicates that the canal opened by the partners was not small—not less than an *anigra*, and perhaps as much as a major canal such as Nehar Malka, a major project indeed, and one that would seem to have been dug as an entrepreneurial enterprise intended not only to irrigate the partners' field(s) but also to provide water to surrounding fields—at a price. Or, perhaps, taking possession of the underwater property was in preparation for building a quay for wharfage.

This would also account for the use of a measure of depth that would yield variable amounts of riverbed, depending on slope and flood. First of all, the Sasanians could hardly avoid using such a measure, since they could not calculate height above sea level as a more uniform measure.[109] But the consequences were uniform even if the measure was not. Once the builder built his quay or dug his canal to the point of *gōš bālāy at the time of the construction,* the canal or quay was his for commercial exploitation, and, of course, for taxation purposes as well.

Other provisions of this chapter indicate that commercial exploitation was indeed most likely the intent. Moreover, it would seem that the government's policy was to encourage endeavors of this sort. Of course, Zoroastrianism encourages economic endeavors, and agricultural activities in particular.[110] But it was also good economic, political and social policy, especially for a government continually involved in wars and strapped for cash. As we shall see below in section III, early "oriental despotisms" all over the world arose to manage irrigation systems.

Again, as we shall see, some of the provisions that we shall examine reflect a government's attempt to come to terms with certain deeply-held attitudes for which we have ample evidence in the Babylonian Talmud. Here is the next section (MHD 85:11-86:2).

ān ī aban widarag, "at a ford," which may be equivalent to *gōš bālāy*, requires further investigation.

[109] Or, as Ionides reports, the "G.T.S.," the "Great Trigonometric Survey," which relates water gauges to the sea level at Fao; see Ionides, p. 14.

[110] See the selection of texts in Beer, pp. 49-52, and see O. Klíma, *Mazdak: Geschichte eine sozialen Bewegung im Sassanidischen Persien*, Prague: Ceskoslovenske Akademie Ved, 1957, p. 28, and M.N. Dhalla, *Zoroastrian Civilization from the Earliest Times to the Downfall of the Last Zoroastrian Empire, 651 A.D.*, New York: Oxford UP, 1922, pp. 140f., 177f.

kahas pad 2 mard kand tā spurr bawēd hame ka ēwak kanēd ān ī did nē pādixšay bē ka kanēd ayāb abzān bahr ī xwēš abar ōy ī did bē hilēd.

Two men dig a canal; until the completion, whenever one digs, the other is not authorized (to refrain from) digging, otherwise he yields his own share (of the income) to the other.

kahas-e(w) 2 mard pad āgenēn kanēnd ud bē rayenēnd ud ēwak pahikārēd kū āb abzāyēm. bud kē guft kū ān ī did nē pādixšāy bē ka pad abzūdan andar ēstēd ayāb abzōn pad xwēšīh abar ōy ī did bē hilēd.

The canal of two men, dug jointly and operated, and one begins a quarrel that water should be increased. There is he who says, "Let us increase the water." There is one (jurisconsult) who says that the other (partner) is (required) to continue to increase, otherwise he yields his own share (of the income) to the other.

gyāg-ē nibišt kū kahas-ē(w) 2 mard pad āgenēn rayanīd ēstēd ud ēwak nē mad ēstēd ud an ī did jud az āgāhīh ī ōy ī nē mad ēstēd āb abzayīd [pādixšāy ka] hame abzāyīd ud tā uzēnag abāz dad abzōn bahr ī ōy ī nē mad ēstēd pad grab dāštan pādixšāy.

It is written in one place: the canal is operated by two men, and one does not appear (lit., "come") and the other increases (lit., "adds") the water without the knowledge of the one who did not appear. He is always (*hame*) (authorized) to increase (the water) until his expenditure is repaid. He is authorized to keep as security the share of the profits of the one who did not appear.

From the foregoing, and much else in the *Mādayān,* it would seem that Sasanian feudalism was, as to be expected, capitalistic in nature; family-based estates established and ran enterprises that in other systems of government would be done by the government. The canal is operated as a profit-making enterprise, and *the partner who wishes to increase the supply of water has the law on his side;* it is government policy to encourage the

construction of irrigation systems under private control, and to encourage those private entrepreneurs who wish to increase their profits by increasing the water supply.

However, if the partners were not necessarily involved in the construction of *qanāt*s, the question arises as to how they would "increase the water." The truth is, the same question arises even assuming they *had* constructed a *qanāt.* Once the *qanāt* is in place, it supplies water at whatever rate natural conditions allow; short of constructing another one, they cannot increase that supply. In this, as in basin irrigation systems, such as that of Mesopotamia,[111] water is stored and released by means of dams and reservoirs in any case. Perikhanian, in glossing the word "increase," suggests two alternatives: increase "in level, or, in the number of times the water is turned on." The latter conforms exactly to the reports of water distribution that the Babylonian Talmud provides, where the canal is dammed in order to water the fields downstream.[112] Robert Adams notes that "there is every reason to believe that there were weirs, sluice gates [and other control works as well]."[113] However, these were almost certainly the result of government, and not private, investment.

The Iranian jurisconsults were well aware, as the Babylonian (Jewish?) saying has it, that "the pot of partners is neither hot nor cold"[114]—that partnerships tend to compromise and end up "neither here nor there." Indeed, in one of its uses in the Babylonian Talmud (Eruvin 3a), it is employed by Rava of Farsaug,[115] an early fifth- century authority, to distinguish between private and public needs. The latter tend to be neglected, in his opinion.[116]

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[111] See R. J. Forbes, vol. II, sec. ed., Leiden: E. J. Brill, 1965, pp. 2-4.
[112] See Gittin 60b and Bava Metzi^ca 103a, and Newman, pp. 85-86.
[113] *Heartland of Cities*, p. 213.
[114] See Eruvin 3b and Bava Batra 24b.
[115] A district near Baghdad; see Obermeyer, p. 269.
[116] Unfortunately, this proverb is embedded in a discussion that has been transmitted in two opposing versions. The discussion earlier quotes this same authority to the opposite effect, and without the proverb.
The issue concerns a decision reported in the name of the third-generation amora, Rabbah (early fourth century) regarding two ritual constructions--a *sukkah* (a ritual hut used during the festival of Tabernacles) and a *qorah* (a beam used to permit carrying within the entrance to a courtyard on the Sabbath), both of which must *ab initio* be not higher than twenty cubits. Rabbah's decision concerns the question of what to do when these constructions exceeds this height limit in part--the temporary roof of the

These are not the only cases in which the developer of water resources had the upper hand. In MHD 106:12-107:2, we have the following three cases.

> *ud anī kū ka pad āb ī xwēš abar zamīg ī kasān āsyāb kunēd ud mord nisānēd āb appār nē bawēd.*
>
> And also another [thing]: If he has built a mill and planted a myrtle (?)[117] on his own water and land of others, the water shall not be taken away from him.
>
> *abāg ānī guft kū ka pad hamdādestānīh ōy kē kahas xwēš pad āb ī az ān kahas āsyāb kunēd ud dār ud draxt nisānēd ēg-iš pad ābwarīh appār bē manēd ān kē kahas xwēš ān āb ān ī pad āsyāb andar abāyēd abāz kard nē ud ān ī pad dār ud draxt ud ābwarīh andar abāyēd az kard pādixšāy.*

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first and the beam of the second are both above and below this height. One version of Rabbah's decision is in the first case the *sukkah* is invalid, while the beam is valid, while the reverse is reported in the name of the third- and fourth-generation authority, R. Adda b. Mattanah. According to the anonymous, presumably redactional, analysis of the first version, the difference between the two inheres in the fact that the *sukkah* is a personal, and not a community, responsibility; in the latter case, someone will notice the defect and notify others, and it will therefore be repaired. The validity of the individually owned *sukkah* depends on the owner noticing the defect--no one is likely to notice it and call his attention to it.

In the discussion of R. Adda b. Mattanah's version, Rava of Farsaug suggests the reverse: the publicly erected beam will not be repaired, because each inhabitant relies on the others, and no one person is directly responsible, while in the case of the individually owned *sukkah*, the owner is responsible. In support of this position Rava of Farsaug is reported as having quoted this proverb.

It is clear that Rava of Farsaug could not have held both views at the same time, but for our purposes the important point is that the proverb is quoted only in support of the second version, and thus is likely to reflect public sentiment in either late fourth- and fifth-century Babylonia, if the use of the proverb by Rava of Farsaug is authentic, or that of the late fifth or sixth century if it is redactional. In either case, it may well reflect public sentiment at the time of Farroxmard's sources, or even of his own time.

[117] So Macuch following Pagliaro; see her n. 12 on p. 656. Perikhanian suggests, also with a question-mark: "and established a dam (?)."

> It is also said that if he builds a mill with the consent of the person owning the canal, and with the water of the canal builds a mill,[118] or plants a grove or trees, or [a grove or trees] on a watercourse are willed to him, then the person who owns the canal is not authorized to withhold the water indispensable for the watercourse, but he is authorized to withhold [the water] needed for the grove and the trees.[119]

> *ud abāg ānī čašt ēstēd kū ka rāh ī kasān pad āb ī xwēš kunēd ēg-iš āb appār nē bawēd ud ka rāh ī kasān xwēš pad āb kasān girēd ēg-iš rāh appār bawēd.*

> And with this teaching it is said that if he takes their road[120] for his own water [course], then he does not lose [possession of] the water. But if he makes his own road for their water, then he loses [possession of] the road.[121]

Why he should lose the rights to his own water in the second case is obscure. It is presumably for this reason that Macuch renders the passage as follows:

> *Und zusammen mit jenem (Satz), der gelehrt worden ist: Wenn jemand den (Wasser)weg Dritter für die (Leitung) des eigenen Wassers verwendet, dann geht ihm das Wasser nicht verloren. Und wenn er den Weg, der anderen eigen (ist), für (die Leitung) des*

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[118] Perikhanian: "or (if) he detains (water) for an aqueduct (?)."

[119] Perikhanian's rendering (p. 239) differs in several respects, but for our purposes, the two renderings make the same point, as will become clear. Perikhanian has:
It is also said, that if he builds a mill on the water of a canal with the consent of the person owning the canal, and he also plants trees, or (if) he detains (water) for an aqueduct (?); the person who owns the canal is not entitled to withhold ("retain, take away") the water indispensable for the mill, but he is entitled to withhold (the water) needed for the trees and the aqueduct (?).

[120] Perikhanian takes *rāh ī kasān* as "road of them," and interprets the entire clause (*rāh ī kasān pad āb ī xwēš kunēd*) as "if he lays a people's road (=a public road--A.P.) over his own watercourse," while Macuch takes it as referring to "*Wenn jemand den (Wasser)weg Dritter für die (Leitung) des eigenen Wassers verwendet.*" Once again, however, Perikhanian's "public" is not really present in the text.

[121] See Perikhanian, p. 238-239, Macuch, vol. I, pp. 642, 649, and p. 656, nn. 12-13.

> *Wassers von Dritten verwendet, dann geht ihm (die Benutzung) des (Wasser)wegs verloren.*

Unfortunately, however, while this interpretation is more legally compelling, it involves an inconsistent use of the terms referring to the various parties. *kasān, "*they," is taken as "Dritter" but also "anderen," and *xwēš* is taken to refer to both the "*jemand*" and "*anderen*." Again, why should the watercourse ("Wasserweg") be referred to as *rāh* and *āb* in the same passage? While each refers to a different watercourse and a different owner, such nicety of distinction is contradicted by the inconsistent use of *kasān* and *xwēš.* Moreover, the same nuance could have been expressed by the contrasting use of *āb ī kasān* and *āb ī xwēš,* not to mention employing *kahas.*

Rather, as Prof. Macuch explained to me, the three terms refer to three aspects of the water supplied by the irrigation system. The word *kahas* of course refers to the *channel* of the canal, *āb*, as to be expected, refers to the water supplied by the canal, and *rāh* refers to the *branch* of the canal bringing water to the field, and thus presumably equivalent to the Babylonian Aramaic *amah*, discussed above.

It is clear that this section deals with roads or watercourses that provide some public benefit. And so, once again, public policy requires that a private individual filling a public need with his own property, in this case a mill, trees or a road, may not be hindered. The point of the last case, however, seems to deal with a kindred case. It specifies that one who gives up his rights to part of his water may do so in favor of another person. There is a public policy aspect to this, inasmuch as he is thereby increasing the distribution of the water supply.

It is interesting to note that Rava, the great mid-fourth century authority of Mahoza, directly across the river from Ctesiphon, the Persian capital, also gave the more active partner the greater rights.

> ואמר רבא הני בי תרי דעבדי עיסקא בהדי הדדי ורווח ואמר ליה חד לחבריה תא ליפלוג, אי אמר ליה אידך נרווח טפי דינא הוא דמעכב ואי אמר ליה הב לי פלגא דרווחא אמר ליה רווחא לקרנא משתעבד ואי אמר ליה הב לי פלגא רווחא ופלגא קרנא אמר ליה עיסקא להדדי משועבד ואי אמר ליה נפלוג רווחא ונפלוג קרנא ואי מטי לך פסידא דרינא בהדך אמר ליה לא מזלא דבי תרי עדיף.

Rava also said: If two men accept an ᶜ*isqa*[122] and make a profit, and one says to the other: "Come, let us divide now" [before the time for winding up]: then if the other objects [saying]: "Let us earn more profits," he can legally restrain him [from closing the transaction]. [For] if he claims, "Give me half the profits," he can reply, "The profit is mortgaged for the principal [in case there are subsequent loses]. If he proposes, "Give me half the profits and half of the principal," he can answer, "[The parts of the] ᶜ*isqa* are interdependent." If he proposes, "Let us divide the profit and the principal and should you incur a loss I will bear it with you, he can answer, "No. The luck of two is better than that of one."[123]

III

This brings us to a political-historical question. The case law on canals preserved in *Mādayān* indicates that at least some canals in the Sasanian Empire were dug by private initiative, and the individuals or estates concerned were rewarded for their efforts by having a legally protected share in the profits. It has been a given for a generation, ever since the publication of Karl Wittfogel's *Oriental Despotism,*[124] that the primary factor in the rise of such despotisms was the need to maintain the irrigation system in the great river valleys of the world. Sasanian taxes, like those of the Romans, were high enough to induce peasants to flee their lands, or at least to consider that option. Why then did they not receive their *quid pro quo* in government activity in this extending the irrigation system?

The question can be sharpened. As described above, the financial and bureaucratic basis of the Sasanian state underwent a total overhaul and renewal under Xusro I after the disarray caused by the Mazdakite revolution. Among other accomplishments, Xusro restored, and to a large measure reconstituted the aristocracy, which had been decimated during the revolution, and centralized the administration to a greater extent than it had

[122] ᶜ*Isqa* (lit., 'occupation', 'business', 'merchandise') as a business arrangement by which one invests money with a trader, who trades with it on the joint behalf of both partners. To avoid the prohibition of usury, the investor took a greater ahare of the risk than of the profit, e.g., he received either half of the profit but bore two-thirds of the loss, or a third of the profit but bore half of the loss (see Bava Metziᶜa 69a).
[123] Bava Metziᶜa 105a.
[124] Karl August Wittfogel, *Oriental Despotism: A Comparative Study of Total Power*, New Haven: Yale UP, 1957.

ever been before. In this, the previous weakening of the aristocracy would have been a boon to the monarchy. Two aspects of Xusro’s administrative reform are recorded in the *Mādayān.*[125] Farroxmard is vague on his sources in this chapter, which may mean that they were old—most of his named sources seem to date from the second half of the Sasanian era. These provisions may thus date from before Xusro’s reforms. Nevertheless, the rules regarding canals continued in force, since Farroxmard gave them a place in his compilation, without stipulating, as he does elsewhere, that the rules had changed.[126]

Unfortunately, much of what we know of these matters come to us from the Arab historians, especially al-Tabari, and little is known of these matters before Xusro; talmudic reports are a major source for this period. It seems that despite the early Sasanians insistence on centralization *vis* à *vis* the more easy-going Arsacid policy, much more remained to be done in this line. According to Altheim and Stiehl, Ardahshir I considered only the receipts on royal estates as state income, and allowed his vassals to retain their own income, more or less; it is only with Xusro that tax-receipts were all funneled to the central government.[127] What we are to make of Neusner’s

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[125] MHD 78:2-11; see Perikhanian, pp. 190-191, and Macuch, vol. II, pp. 516, 520. and MHD 93:4-9, Perikhanian, pp. 214-215, and Macuch, vol. II, pp. 593, 597. For the increasing centralization, see V. G. Lukonin, “Political, Social and Administrative Institutions, Taxes and Trade,” in *Cambridge History of Iran* 3(2), pp. 681-746, esp. pp. 729-732; the process was completed only with the reforms of Xusro I. See also the summary of Sasanian trade relations by Richard Frye in *Encyclopedia Iranica* VI, s.v. Commerce, The Sasanian Period, pp. 62-64. Frye’s summary on p. 62b is as accurate as it is succinct:

> From the Syriac law books and the Pahlavi *Mādayān ī hazār dādestān* it can be inferred that under the Sasanians trade was largely in the hands of associations, companies, or families of merchants and that the laws and regulations governing the purchase and sale of products were complex and sophisticated....Common possession of goods, land, and houses seems to have been more prevalent than single ownership. In Middle Persian the term *hambayīh* “partnership” referred not only to trade relations but also to other partnerships, as for constructing irrigation canals and the like.

[126] See MHD 1:2-4, regarding the change in the determination of the offspring of a mixed slave-non-slave marriage during the reign of one of the Bahrams.

[127] For a general view, see Geo Widengren, “Iran, der grosse Gegner Roms: Königsgewalt, Feudalismus, Militärwesen,” in H. Temporini and W. Haase, *Aufstieg und Niedergang der römischen Welt*, II./9.1, pp. 219-306, esp. pp. 249-251, 261-263,

explanation of Samuel's case—that the ability of an interloper to gain possession of riverbank land hitherto held in common by paying the taxes on it is thus unclear. But that land may have been part of the royal demesne for all we know, or the taxes may have gone to a local grandee in Samuel's time.

We must remember that nearly *all* the talmudic reports—and there are a fair number of reports and discussions of taxation, all of which point to the severity and burden of Sasanian taxation, date from *before* Xusro's reforms. Xusro may have reformed the tax system, but he presumably built on long-established foundations.

There is another possibility. Despite Xusro's reforms, the Sasanian state remained chronically short of cash to carry on the almost continous wars that marked its last two centuries. Most peace-treaties with Rome were accompanied by cash payments by the Romans. The Persian government may simply have been financially unable to extend the irrigation system.

It should also be remembered that Sasanian Iran was always, but especially after Xusro, a centralized *feudal* society, with the aristocracy, down to the village level (the *dehkan*s) holding their lands, at least in theory, by the grace of the king of kings. That this system broke down from time to time, with the nobles seizing the predominant share of power, does not negate this fact; such shifts are an "occupational hazard" of feudal kings. The protection of land-owners was certainly one of the main objects of both the Sasanian as it was of the Roman legal system. In a sense, therefore, the actions of land owners would have been looked upon as an extension of government action. It is doubtful that the Iranian or Babylonian peasant, Jewish or not, would have noticed the difference.

This brings us to another talmudic report of Persian efforts to improve the Babylonian irrigation system. According to the Mishnah, one who sees various natural phenomena, including the "great sea" (the Mediterranean), must recite certain blessings. To this the Babylonian Talmud adds that a blessing is to recited upon seeing the Tigris or the Euphrates, but it adds an interesting proviso.

> Rami b. Abba said...in the name of R. Isaac: If one sees the

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266-268, though Widengren does not deal with the economic aspects of the feudal system. More pertinently, see Altheim and Stiehl, *Ein asiatischer Staat*, pp. 131-142. esp. pp. 132-135, and idem, *Finanzgeschichte der Spätantike*, pp. 35-49.

> Euphrates River by the Bridge of Babylon, he says: Blessed be He Who has made the work of creation.
> And now that the Persians have changed it, [he recites the blessing] only from Weh Shapur and upwards. R Joseph says: From Ihi de-Qira and upwards.
> Rami b. Abba also said: If one sees the Tigris by the Bridge of Shabistana, he says: Blessed be He Who has made the work of creation.

Again we have recourse to Rashi.

> “By the Bridge of Babylon, he says: Blessed be He Who has made the work of creation.” It was clear to them that the Euphrates had not changed its course by human effort (*ᶜal yedei adam*) from there and above, but from there and below people caused it to loop (*hessibuhu*) in a different course.
> “And now that the Persians have changed it.” Above the Bridge one recites the blessing ‘Who makes the work of creation’ over it, [but] only from Ihi de-Qira and above. Ihi de-Qira is a district on the Euphrates.[128]

Rashi *ad loc.* explains that the blessing is not recited where the Persians have made alterations in the river’s course, changing it from its pristine form as at Creation. In the case of the Euphrates, this refers to the stretch between the Bridge of Babylon to Hit (Ihi de-Qira). Thus, according to the Babylonian Talmud, the courses of both rivers, the Tigris and the Euphrates, were altered by the Sasanian government. According to one opinion, perhaps that of Rami b. Abba, the Euphrates’ course was altered from “the bridge of Babel” north to Weh-Shapur, across the Euphrates from Pumbedita, or, according to R. Joseph, to Hit. The Tigris’ course was altered from the bridge of Shabistana far to the south and (presumably) northwards as well.[129]

The network of large canals linking the Tigris and Euphrates—Nehar Sura, Nehar Kuta, Nehar Malka, Nehar Sarsar, and Nehar Shanwata—though based on the work of the Assyrians and Babylonians, was completed

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[128] Berakhot 59b.
[129] See Obermeyer, pp. 52-66.

by the Persians, and had so changed circumstances as to make the blessing no longer applicable.

The redactional phrase, "and now (*ve-ha'idana*) that the Persians have changed it," serves to introduce and *explain* the comments of R. Isaac and R. Joseph. Unlike the redactional comment in Bava Metzi^ca 108a, which *contrasts* the current situation from that in Samuel's day, this one is explanatory only and reports on late third and early fourth century Sasanian activities. It is then that the course of Euphrates was diverted. Again, Rami b. Abba regarding the Tigris indicates a similar situation for that river by the same time period—Rami b. Abba was a contemporary of R. Joseph. The entire passage thus reports that the early Sasanians made major investments in Mesopotamia's irrigation system in the century before the dam constructed in southern Babylonia either by Kavad (490-531) or Vahram V (417-438), as reported by the Arab geographers. And all this activity predated Xusro I by one or two centuries.[130]

Evidence for intensive Sasanian investment in extending the irrigation network of canals to include the Tigris, which up to Parthian times had hardly been touched for that purpose, has been gathered by Robert Adams through archaeological and aerial surveys. Up till then the Tigris was almost completely untamed.

> Why were all but two or three of the known historic towns of any importance before Hellenistic times distributed along branches of the Euphrates rather than the Tigris if the timing of the flood on the latter was certainly not inferior to that on the former and perhaps slightly

[130] See Obermeyer's summary of these reports, p. 55, and Beer, p. 24 and n. 17, and the literature cited there. See also Wenke, esp. the surveys of Sasanian settlement patterns, pp. 253-270. He suggests that "it is possible that the intense exploitation of the Middle and Terminal Parthian periods depleted the soil to the extent that it could no longer produce the surpluses required to maintain high population densities. The impressive canals and dams built by the Sassanian kings, then, might have been attempts to recapture the productivity of previous years" (p. 264). Though his study applies to Khuzestan, in southwest Iran, this area is directly adjacent to southern Babylonia; in any case, the same policies must have been in force, given the intense centralization of the Sasanian's empire. However, Robert McC. Adams' later *Heartland of Cities* is more inclusive.
Wenke subsequently published his findings in *Mesopotamia* 10-11 (1975-1976), pp. 31-221, but I have not seen that version.

> more favorable? Two factors contribute to an answer. First, the greater size of the Tigris was more of a danger than an attraction to societies with limited technical means. More dependent on rainfall in its watershed, it therefore also floods more rapidly and destructively after winter and spring storms.[131]

Sasanian exploitation of the Tigris watershed was the most intensive up to that time. But it had its drawbacks, according to Adams.

> On the one hand, [features of the Sasanian system] reflect the development of increasingly complex integrative mechanisms, and on the other hand, they show a new dependence on those mechanisms that was not smoothly reversible....Not merely [the irrigation layout's] initial design but its continuing repair and operation depended on knowledge and resources that simply could not be supplied by autarkic local villagers in the event of a breakdown.

Adams concludes that "accompanying the whole program of agragrian expansion was an increased dependence on central coordination and control."[132]

Integrating this report with that of the provision of MHD 85:4-86:2, which indicates that room was left for local initiative and private enterprise, there seem to be two major possibilities, depending on whether the rules of the *Mādayān* applied to the earlier period or not. Either there was a change in policy, whereby the later Sasanian government encouraged private enterprise where at first it had not, perhaps because of financial pressure, or there had always been a division between public and private activities. The government undertook major improvements, while private initiative undertook more minor ones. Once these major improvements were in place, the larger outlet canals (*anigra*) and smaller canals to water the fields (*ama*) were left to private, local initiative. This modification of the scenario that Adams lays out, proceeds from evidence laid out above which he had not considered.

Zoroastrian approval of agricultural activities has long been noted. Of the

[131] *Heartland of Cities*, p. 6.
[132] Ibid.

many passages that might be cited,[133] here is *Dēnkard* VI, C83a, from Shaked's edition:

> This too is manifest: in the same way as the earth is the abode of water, and water is the ornament of husbandry, and husbandry is the furtherance of the world, and the fruit which derives from it is the maintenance of the climes—so is knowledge the home of goodness, and goodness the body of wisdom, and wisdom the furtherer of the world.[134]

From the reports of disputes regarding water rights preserved in the Babylonian Talmud, all from the early Sasanian period, or at least before Xusro's reforms, it would seem that the irrigation systems of the Persian Empire operated through the combination of government action, traditional practice, and local intervention, not excluding, in the case of the Jewish settlements of southern Babylonia, rabbinic adjudication. Despite the centralization of the tax system, the evidence of the *Mādayān,* along with the (redactional) talmudic parallel, suggests that reliance on local initiative continued.[135]

Having set out some of the possible applications of MHD 85:4-7, we return to Samuel and our talmudic passage. Why did Samuel feel unable to remove an outsider who seized possession of a riverbank in the early third century, but later (i.e., any time from the late third to the late fifth or sixth century) the rabbis would remove him on the basis of the *gōš bālāy* regulation, either because the original abutter (according to Rashi) now had the rights to the riverfront property (riverbank and riverbed), or because the

[133] See Beer, pp.49-50.

[134] Shaul Shaked, *The Wisdom of the Sasanian Sages (Dēnkard VI) by Āturpat-i Ēmētān* (Persian Heritage Series no. 34), Boulder, Co, 1979, p. 173.

[135] See Shaul Shaked, "Administrative Functions of Priests in th Sasanian Period," in Gherardo Gnoli and Antonio Panaino, *Proceedings of the First European Conference of Iranian Studies*, Part I, Old and Middle Iranian Studies, Rome: Istituto Italiano per il Medio ed Estremo Oriente, 1990, pp. 261-273, and note his discussion of MHDA 36:7 and 39:11-17 on pp. 269-270. See also P. G. Kreyenbroek, "The Zoroastrian Priesthood After the Fall of the Sasanian Empire," in *Transition Periods in Iranian History: Actes du Symposium de Fribourg-en-Brisgau (22-24 Mai 1985)*, Leuven (Belgique): Association pour l'avancement des études Iraniennes, 1987, pp. 151-166, esp. pp. 151-153, where he summarizes the Sasanian situation.

interloper did not fulfill his obligations to the government (Rabbenu Tam)?

It should be noted that the passage does not explicitly attribute Samuel's decision to reasons rooted in Sasanian legal institutions, and Samuel's decision may have been motivated by his hesitancy in this regard in the early years of Sasanian rule, as suggested above. Not knowing what the new government's policy would be, he was reluctant to act and remove the interloper. If that is so, the redactional intervention, that "now that the Persians write..." may still refer to the early years of Sasanian rule, but sometime after Samuel's hesitancy, when, perhaps, government policy in favor of local initiative became clear.

Alternately, Samuel's decision was not based on hesitancy, but on knowledge that the government would support the interloper's economic initiative, no matter what it was: wharfage, the opening of a canal, or some marginal (rice?) planting. The question that now presents itself is what was the intended economic effect of the change in land tenure. We may suppose that before the change in policy land tenure did not apply to the riverbed at all, since the passage implies that this "riverbed policy" was an innovation ("now that the Persians write....").

The change in policy signaled by "and now" may be related to the reports by R. Isaac and R. Joseph regarding the Persian government's massive investment in irrigation and agriculture. The authorities then would have known that the interloper's activities would be, or were, sanctioned by the government in its desire to encourage investment in trade and agriculture, and that he would gain control of not only the riverbank, but also part of the riverbed, perhaps to build a quay.

There is another possibility, this suggested by the rulings preserved in the *Mādayān.* First of all, giving the owner of the riverbank ownership of part of the riverbed also gave him control of at least part of a watercourse. Moreover, as we have seen, it gave him a form of "eminent domain" over the riverbank, and thus enabled him to open a new canal, either for himself directly, or in order to sell the water to others—or both. With that intention he was authorized to prevent others from utilizing his canal without payment.

However, once ownership of the riverbank gave the owner riparian rights to the adjacent riverbed as well, a Jewish court (perhaps even Samuel's court) could not remove the interloper with the claim that the riverbank and riverbed belonged to the original farmer, and not the interloper. The local farmer who already controlled the land adjacent to the riverbank would have

been permitted to take possession of the bank and the margins of the river or canal bed and either opened another canal or built a quay, in consonance with the government's desire for agricultural or commercial improvements, but apparently he had not, either because of local custom or innate conservatism.[136]

This brings us to the question of who was to be removed in the wake of this change in policy. Was it the original owner of the adjacent property, or the interloper? Rashi assumed that it was the latter, his grandson Rabbenu Tam the former, unless the interloper refused to work on the improvements. If government policy was in favor of economic development, it would certainly have been the interloper who represented a greater possibility of economic development and an increase in taxes for the government; the abutter would have been bound by ancient custom and would not have made intensive use of the parcel. Given what we may gather of Sasanian agricultural policy, it would seem to that Rabbenu Tam's interpretation is in accord with it. Though tempting, it is not necessary to connect the "and now" remark with Xusro I's tax reforms—but that reform could certainly have been the venue for the Talmud's report of the "later" Persian policy.

However, if we take Rashi's view of the matter, the rabbis' reliance on the new Persian policy was but a means of removing the interloper, based on the regulation which at least *pro forma* gave the owner of the riverbank rights to the riverbed. In order to remove the interloper, the claim on behalf of the abutter would have been that he was entitled to the land because he was well situated to develop it, since he owned the adjacent land. Whether in the end he did so, or used the claim to rid himself and his neighbors of the would-be interloper, depends on the efficiency of the government in ensuring that its economic policies were in fact carried out.

A scenario exactly parallel to the situation described by the *Mādayān* can easily be envisaged. The abutter claims that he will open an *ama* from the *anigra,* or an *anigra* from the *nahara,* and thus gains eminent domain so as to remove the interloper from the property. If he does not, the interloper has the right to remove *him* once he has dug to below the depth of a *gōš bālāy.* The abutting farmer would then have to pay the interloper if he wanted to

[136] See Lukonin*,* pp. 738-74, which unfortunately deals only with trade, and international trade at that, but not domestic commercial development. Adams observed that the Sasanian period witnessed "the establishment of major, semi-industrial, craft specializations, such as silk manufacture. However, the *Mādayān* does not seem to provide evidence of such policies.

draw water from the new canal.

In sum, then, the rule of *gōš bālāy* gives would-be developers a right of eminent domain in order to ensure that they profit by their investments. In Samuel's case, the "impudent" interloper was permitted to overturn local impediments to his development of the bank and bed of the river or canal in the vicinity of Neharde^ca. In the *Mādayān,* the developers, or even the more active partner, was permitted to determine the course of the development, and make the more hesitant partner follow his lead, whether it took the form of greater investment or greater water supply, similar to the decisions transmitted in the Bavli in the name of Rava, which give the more active partner of an *^cisqa* the upper hand in making decisions regarding the disposition of the business.

The details of these two sources—Bava Metzi^ca 108a and MHD 85:8-11 mesh in minor details as well, with the "ears" of MHD thus referring to the *horses'* ears of Bava Metzi^ca, and the "neck" of Bava Metzi^ca corresponding to the "ears" of MHD. The basic underlying issue of both relates to the government's encouragement of economic incentives rather than simply wishing to increase the tax base, though that was a consideration, certainly by the time of Kavad and his land-registry. Samuel's hesitation was most likely political in nature, and not halakhic, and a more likely interpretation of the redactional note ("now that the Persians write") is that the onus is on the "impudent" entrepeneur (as per Rabbenu Tam) rather than the abutting farmer (as per Rashi). The two sources, which, while not exactly contemporary, certainly overlap in time, are thus seen as complementary, with each contributing its part in providing us with a more complete view of both the legal systems and cultural background of these two documents.