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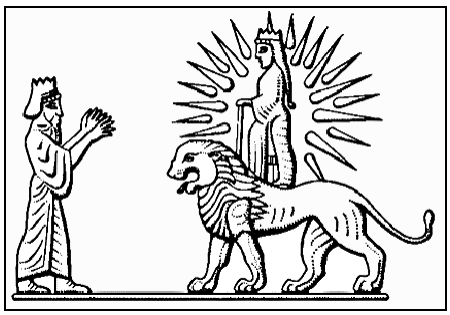

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"Modern Ancients"

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MODERN ANCIENTS

Morris Silver

Ancient man was quite peculiar. His economic "ethics" were different from our own. However, the peculiarities of ancient man reflect adaptations that made economic man workable. I refer to the entire complex of ancient institutions and practices, most notably emphasis on the sacred[1], that limited transaction costs—that is, the resources used up in exchanging ownership powers, including costs of communication, acquiring and disseminating information, and designing and enforcing contracts—and thereby enlarged the social space within which markets and economic motivations and, consequently, economic analysis might function. Hence, my title "Modern Ancients".

Classical scholars such as Finley and Cartledge (1998: 7) are quite wrong in believing that "the categories of neoclassical economic analysis" have "no useful application to 'the ancient economy'." Near Eastern scholars such as Garfinkle (2000: 254) are simply misinformed when they assert: "The differences in the relationship among the available mechanisms of exchange (redistribution, reciprocity, and the market) between the ancient and the modern worlds decisively rules out the application of modern economic theory to the study of the ancient world."

This paper surveys some of the space occupied by the ancient economy. The first part gives attention to the role of supply and demand in the markets for goods and loans. The second part is intended to show that ancient economies were capable of making "efficient" adaptations to economic forces. By "efficiency" the economist means maximization of output/result for a given input of resources or, the other side of the same coin, minimization of resource cost for a given output/result. Illustrations are chosen from different places and times. The third part of the paper considers an "inefficient" adaptation to government regulation in Nuzi's loan market. Finally, several examples of economic misconceptions in the literature are discussed. The aim here is not to criticize individual scholars but to show that even rudimentary knowledge of modern economic analysis is capable of enhancing our understanding of ancient societies.

1 The important role for the sacred in the making of contracts; the performance of magical technology; the substitution of memory, recitation, and symbolic gestures for general literacy; the emphasis on professional standards and maintaining a good name; the prominence of women in entrepreneurial roles; and, more generally, the elevation or extension of familial ties and other departures from impersonal economics in the markets for both consumer goods and productive factors must be understood as major structural adaptations permitting advanced cooperation in ancient economic life. These peculiar behavior patterns of ancient economic man must be understood not as social constraints on an otherwise autonomous economy, but as facilitators of economic growth and well-being in a world of otherwise high transaction costs.

1. Response of Prices to Changes in Supply and Demand

A. Goods

1. Letters from Nippur dated to the mid-eighth century provide indications of market-influenced values. A few examples should suffice:

a. “Offer me (an amount of wheat worth) four and one-half minas according to the rate of exchange there and send (it)” (Cole 1996: 128)

b. “Give wheat to PN and let him sell to the house which he prefers. (But) who will offer a higher price than the market place? (*mannu kīma machīri ishaqqâ*, literally “Who will be high like the market place?”) (Cole 1996: 106).

c. “Concerning the property of my Lord – in terms of silver it has gone up in value” (*anu muchhi kaspi elû*) (Cole 1996: 140).

2. Changes in supply conditions due to political disorder or the initiation or lifting of sieges might be accompanied by steep changes in grain prices. A famous reflection of this fact is found in 2 Kings 7. 1, wherein the ninth-century prophet Elisha announces that a Syrian siege will be lifted, and “tomorrow about this time a measure of *soleth* (fine wheat flour) shall be sold for one shekel, and two measures of barley for a shekel in the gates of Samaria.” Earlier, in 2 Kings 6.25, it is reported that the head of a donkey sold for 80 shekels and “one-quarter *kab*” of “doves' dung” for 5 shekels. In short, Elisha recognizes that an increase in the quantity of grain supplied will lower market prices (in terms of precious metals).

In Sumerian Ur III times, there is an indication of destabilization of the grain market during an invasion by the Mardu. The royal agent Ishbi-Erra, who had already purchased some 72,000 bushels of grain, complains to his ruler Ibbi-Sin (2028-2004) that “The market price of grain has reached one gar (per shekel)” (translation of Michalowski cited by Frayne 1997: 367). Similarly, a Sumerian literary text of as early as 2000 called “The Curse of Agade” causally links exorbitant prices of grain, oil, wool, and fish with the breakdown of land and sea communications and drought and adds that the latter commodities were sought like “good words.”

To digress somewhat, the meaning of “*good words*,” I believe, also reflects concern with economic conditions. It emerges from 1 Kings 12, wherein the Israelites ask King Rehoboam to lighten the “heavy yoke” and “grievous service” that had been imposed on them by his father Solomon (v. 4) whereupon Rehoboam's advisers urge him to “speak good words to them, then they will be your servants forever” (v. 7) (see Weinfeld 1982). To speak “good words” to the Israelites was to release them from corvée. Similarly, in Greece, Rose (1959: 184) explains, the time of “good words” was a time when “no work must be done, not only by human inhabitants of the farm but the draught-cattle enjoying a holiday.”

In the “Tomb Robbery Papyri of the twelfth century,” an Egyptian woman cross-examined by the court concerning gold found in her home explains, “We got it by selling barley during the year of the hyenas, when people were hungry” (Montet 1981: 74-75). Evidently she enriched herself by selling when grain prices were unusually high.

3. The ancient Near East is known to have experienced periods of steep price inflation. Of special interest in the present connection is Egypt's inflation under Rameses VII (1149-1142) (Černý 1954: 911, 921; Janssen 1975: 551-52). The price data, covering some 150 years, is distilled with difficulty from papyri and ostraca found at Deir el-Medina. During the later Ramesside era the availability of gold, silver, and copper increased as a result of the looting of temples and tombs. At the very least this is a suggestive coincidence of events. Let us not forget that a rise in commodity prices in the face of an increase in the supply of precious metals would be consistent with the existence of price-making markets (compare Bleiberg 1995: 1376). This topic needs additional research.

4. Climatic conditions were well understood to impact supply and hence price. In a partially preserved stele of the eighth-century from Aksaray in the Anatolian plateau, one Kiyakiya expresses his gratitude for the low price of barley. This expression is prefaced by the statement "and m[uch] came down from the sky, and much came up from the earth" (Hawkins 2000: 124).

A prominent priest assured the Assyrian ruler Esarhaddon (680-669) of good climatic conditions and "good prices." Assurbanipal boasted .

> [The god] Adad sent down his rains for me, [the god] Ea opened his fountains for me. Grain grew 5 cubits in its furrow, the ear was $^{5}/_{6}$ cubits long. … In my reign there was prosperity aplenty, in my years there was fullness to overflowing: 12 homers of barley, 2 homers of wine, 2 *sātī* of oil, 1 talent of wool. Throughout my land the rate of exchange was excellent, (these items) were bought for one shekel of silver. (Fales 1996: 23)

Similarly, the king of Uruk wrote in the mid-nineteenth century about the low prices during his reign: "verily in the market (-price/place) of his (the king's) land, 1 shekel of silver bought 3 gur of barley [instead of the usual 1 gur], or 12 minas of wool, or 10 minas of copper, or 3 ban of sesame oil! May (all) his years be years of abundance!" The point of these examples is not that these prices are historical.

5. There is evidence of seasonal variation in grain prices in Mesopotamia and, possibly, in Egypt. The Babylonian price data show that the price of grain rose before the harvest and declined after the harvest. This pattern of prices is, of course, the result of upward-and-to-the-left shifts in the supply curve of grain in periods after the harvest, due to positive storage and interest costs of holding grain.

B. Interest Rates

In an unregulated loan market the seasonal decline in the price of grain would cause the interest rate on barley to exceed the rate charged on silver. Indeed, *if* the seasonal decline in price were 0.10 and the interest rate on silver were 20 percent, we would expect a barley interest rate of $33^{1}/_{3}$ percent. It is, of course, well known that in late third- to early second-millennium Mesopotamian loan contracts the interest rate on grain loans ($33^{1}/_{3}$ percent) is $13^{1}/_{3}$ percentage points higher than on loans of silver. There are, however difficulties with respect to the estimate

of the seasonal decline in price.[2]

This evidence does indicate that the ancient loan market responded in the usual way to the usual economic forces of supply and demand. Or perhaps I should be more cautious and say only the ancient economy was capable of responding in the usual way. In southern Mesopotamia in *ca*. 1870 there reportedly was an unexplained decline in the barley interest rate from $33^1/_3$ percent to 20 percent while the silver interest rate remained at 20 percent. It seems doubtful that this can be explained by some environmental factor, say a change in the south of the seasonal decline in the price of barley. If it were, on the other hand, the result of regulation of the loan market by southern rulers, we would expect grain loans to become quite rare.

Admittedly, there is little evidence demonstrating the role of changes in the demand for or supply of loanable funds in the determination of the rate of interest. Skaist, indeed, denies that market forces played any role in the determination of interest rates. Basing himself on a thorough study of Old Babylonian interest rates, Skaist (1994: 140-41) concludes:

Consideration of the loan rates *per se* disproves the view of interest as the price of a loan set by the market. The interest rate on silver loans remained constant at 20% from the early Ur III period, c. 2100 B.C.E., through the reign of Hammurapi, who died in 1750 B.C.E., a period of over three hundred years… There is a similar constancy in the rate of interest on barley loans. In the North the rate of $33^1/_3$ goes back to Ur III times and remains in use through the reign of Hammurapi… In the South the rate of 20% remains constant from c. 1870 B.C.E.

2 More concretely, assume an interest rate of 20 percent on silver, set the price of one unit of barley at sowing time at one unit of silver, and let X be the seasonal fractional decline in the price of barley. Then a loan of one unit of silver would (upon repayment) increase the lender's command over barley by $100[(^{1.20}/_{1-X}) - 1]$ *percent.* If X equals 0.10 a silver loan at 20 percent would increase the lender's command over barley by $33^1/_3$ percent. To do as well, the lender would have to charge $13^1/_3$ percentage points of interest more on a barley loan than on silver.

The problem here lies in the 0.10 estimate of the seasonal decline in grain prices. It is not totally unreasonable to judge by an eighteenth-century-B.C.E. Babylonian seasonal price change cited by Leemans (1950b: 28-9; 1954: 32-3) or, for that matter, by seventeenth-century C.E. price changes in England and Belgium (McCloskey and Nash 1984: 182). Leemans (1950b: 29) calculates the post-harvest price decline by subtracting the post-harvest price from the pre-harvest price. The pre- and post-harvest prices are taken from account texts, albeit *for two different years*. The post-harvest price decline is equal either to 16.6 percent or to 5.7 percent. (This difference results from alternative readings of a number in the pre-harvest text). However, Farber (1974: 36, 118-19l 1978: 18-21) presents Old Babylonian data suggesting post-harvest price declines of 20 percent, 40 percent, or even 47 percent. Price declines of these magnitudes would call for the interest rate on barley loans to exceed the 20 percent rate on silver by much more than the $13^1/_3$ percentage points observed in antiquity. However, Farber's post-harvest prices must be regarded as suspect because, unlike Leemans', they are not actual prices paid from account texts. *Instead, Farber's "prices" are estimates of prices paid made from difficult to understand credit sale and loan contracts*. Given the present state of the evidence, I prefer Leemans' estimate to Farber's.

through the early years of Samsuiluna, a period of approximately 150 years. Such constancy seems inconsistent with a market system.

It does make one wonder if royal decree or custom set interest rates. However, it is well to remember that market forces might be active and even potent without generating a *long-term trend* in interest rates. Such a trend might manifest itself if the marginal propensity to consume out of current income continued to rise or fall over time. Or, alternatively, if the marginal productivity of investment continued to rise or fall over time. However, in the absence of such trends there is little reason to expect a trend in interest rates, especially in "real" interest rates (adjusted for the rate of inflation). In this very connection, Sidney Homer long ago noted the stability of interest rates over several centuries even in the United States (Homer and Sylla 1996: 58-9).

I would agree with Skaist (1994: 141) that it is quite reasonable to expect some intermediate term trends when, for example, profitable new markets arose or existing ones disappeared. Changing risk levels might also generate a trend of this kind. One might also expect shorter- term fluctuations in the interest rate, especially in the "money" rate of interest due to inflation or deflation of prices. Let us consider some evidence for the money rate of interest.

To begin with note should be taken of the fact that in many loan documents the payment of interest is understood by the inclusion of the terms *ur$_5$-ra* or, later on, *mas gi-na* (Sumerian) and *(c)hubullum* (Akkadian) but the numerical rate of interest is not stated (see Garfinkle 2000: 66ff). Is the reason for this omission to achieve an "economy of writing" (Garfinkle 2000: 77) in a milieu where interest rates were fixed by custom and therefore commonly known? Or is it that they might be variable and subject to individual negotiation? Was the aim, perhaps, to conceal the actual interest rate from the palace? Presumably it would have been a costly matter to check on the agreed interest rate with the witnesses to loan transactions. The answers are not obvious to me. It is known, however, that rulers reviewed loan tablets in enforcing their *mīsharum*-edicts.

There are Ur III barley loan interest rates of $30^1/_3$, 25, and 20 percent. During the reign of Ammiditana (1683-1647), one of Hammurapi's successors, there is a barley loan bearing an interest rate of 100 percent (YOS 13, 436). Also within Skaist's time frame but from outside Mesopotamia proper we find interest rates of 15, 30, and 40 percent in the Old Assyrian texts from Cappadocia. Consistently, with the operation of market forces the *bīt kārim* charges the relatively low 15 percent Old Assyrian rate to larger, credit worthier merchants. Apparently, ancient creditors took differences in risk levels into account in setting interest rates. Yet we see uninformed denials that such calculations were made on the ground that "This was the Bronze Age, not modern Wall Street or the City of London"! Interest rates of 25 percent are found in Syria at Alalakh during the eighteenth century (Wiseman 1953: 3). So, within Skaist's approximate time frame we do find evidence of variations in interest rates.

At Nuzi, in eastern Assyria, loan documents reveal that the interest rate (strangely) on both silver and grain was usually 50 percent (Owen cited by Jordan 1990: 83). In a few cases there is a 30 percent interest rate on barley loans. Data

provided by Jordan (1990) make it possible to estimate an upper limit for the interest rate implicit in Nuzi's *tidennūtu* contract. Jordan (1990: 79-80) reports that the average loan is 15.05 silver shekels annually and the average gross income from the land is 37.02 silver shekels annually. Obviously, at the very least, cultivation expenses would have to be deducted from the gross income to better approximate the unknown rental value of the field. However, if we use the average loan figure and the average gross income to estimate average rental value, the upper limit for the interest rate is, very crudely, a healthy 146 percent.[3]

Much later, in Neo-Babylonian times, the usual interest rate on silver remained 20 percent. This rate was expressed as "every month one shekel of silver will be added to one mina" where twelve shekels equal one fifth of a mina. However, despite the traditional Babylonian formulation and metrics there are examples of rates ranging from 5 to 240 percent (Petchow cited by Jursa 2002: 198).

Van De Mieroop (1995: 359; 2002: 85) has raised a basic issue that is relevant with respect to observed fluctuations in the interest rate. He notes that among all our numerous Old Babylonian loan texts there is no indication at all that the amounts of interest stated were annual, and that the debtor needed to pay only a fraction of the amount if the duration of the loan was less than a year. The contracts merely state the amount of interest to be added. Different formulae appear. For instance: "Ten shekels of silver, an interest of two shekels is to be added", or "Seven shekels of silver bearing interest, the interest is one fifth".

In short, the contracts do not state an interest rate but only the absolute amount of interest that will be added to the principal. (Garfinkle [2000: 83-4] agrees with Van De Mieroop and suggests that his conclusion also applies to the Ur III period.) Thus, if Van De Mieroop were correct, the actual interest rate would *vary* with the period of the loan. The many loans made for periods of less than one year would have (annual) rates higher, perhaps much higher, than 20 or $33^1/_3$. "A ten-day loan at 20 percent, not unusual in the documentary record [for the Old Babylonian period], would amount to an annualized 720 percent in our reckoning, not even taking compound interest into account" (Van De Mieroop 2002: 85). Van De Mieroop (1995: 362) suggests that interest rates might be extremely high for consumption loans taken out immediately before the harvest.

Jursa (2002: 199) offers support for Van De Mieroop's suggestion by noting that in Neo-Babylonian times the interest rate on barley might be 20 percent "but often it was not 20 percent *per annum*, but a flat 20 percent rate, irrespective of the 'life' of the loan". On the other hand, Vargyas (2000: 1102), argues that the Babylonians were well able to compute interest on a monthly basis and he concludes that Babylonian interest rates "were calculated on a yearly basis, just as today." Here I must leave this question.

Interest rates do exhibit variation and there is room for market determination.

3 Jordan (1990: 84), utilizing the (some 101) *individual* Nuzi land-field *tidennūtu* contracts, calculates an average annual interest rate of 327 percent. The median value for the 101 observations on the interest rate is 251 percent. Again, recall that agricultural expenses have not been deducted from the gross income from the land.

However, I have been able to find only one case in which a textual source explicitly indicates a role for supply and demand. I refer in this connection to a decree of the later fifth century B.C.E. in which Plotheia, a district in Attica, makes available a considerable sum of money and calls for it to be *lent out to the borrowers offering the highest interest rate* (ll. 15-18; see Millett 1991: 173-74). Given the decree's open-ended stipulation regarding the interest rate, I find it difficult to follow, Millett's (1991: 176) conclusion that "the deme leased and lent how and when it suited them best and were not responsive to changing patterns of demand, even from their own demesmen."

I should append to this discussion that I have not found any evidence, textual or otherwise, attesting to the *nonoccurrence* of market forces in the determination of interest rates.

2. Economically Efficient Adaptations in the Ancient Economy

A. Deposit Banking in the ANE and Greece

In connection with deposit banking, in the ANE Oppenheim (1969) calls attention to cuneiform sources of the first half of the second millennium and the seventh to sixth centuries that refer to sealed bags of silver *(kaspum kankum)* deposited with persons who used the silver in various transactions. Excerpts from Old Assyrian letters are revealing in this respect: "seal and give the x minas of silver and the interest on it to PN"; "two minas of refined silver and the interest on it for ten years"; and "for thirteen years the silver has been accumulating interest with you" [CAD S/1a 158-9 s.v. *sibtu*]. There is some evidence suggesting that in the later Neo-Babylonian period, promissory notes were employed to transfer money from third parties to a lending house (the Egibi).

The productive use of deposits of money would have been advantageous to both the depositor and the depositee. I find it difficult to believe that, in an economic system with the sophisticated credit instruments and techniques known in the ANE, depositors invariably would have insisted not upon the return of equal value, but upon the same *physical* ingot (or coin) they had deposited. Ancient businesspersons were not shy about pursuing gain. Therefore, absent evidence to the contrary, it is reasonable to assume that deposits were employed productively.

Dandamayev (1999: 374), however, states unequivocally that the Egibi and other Neo-Babylonian business houses "did not use the money entrusted to them on deposit as a means of credit but worked with their own resources." He does not explain how he knows this to be the case. No doubt Dandamayev means that no textual source directly attests to this practice. It is true that sometimes the Egibi received deposits in leather sacks and returned them with intact seals. Wunsch (2002: 247) maintains: "There is no evidence that the Egibis borrowed money to lend at a higher interest rate so as to achieve a profit from the margin." Did the Egibis, on the other hand, use deposits to make investments in wholesale commodity trade, food processing, land, and slaves? Wunsch (2002: 248) notes in tantalizing fashion that when an Egibi "used a deposit or part of it for his own purposes,

he had to pay interest on it (e.g., Nbn 44)."

A significant clue in favor of deposit banking is provided by the use in the Old Babylonian period of the verb *qiāpu* to mean both "to lend" and "to deposit" (see CAD Q/A 3-4 95-7 s.v. *qâpu*). Westbrook (1991: 121) has observed, citing Szlechter, that this pairing of meanings is consistent with the existence of the "*depositum irregulare,* that is, the transfer of generic goods of which the transferee becomes the owner, with an obligation to restore not the same goods but the same quantity of like goods at a later date." The "irregular" or "non-sealed" deposits were a significant asset of the Roman *argentarii* "deposit banks" (Andreau 1999: 40). Westbrook's hypothesis finds support in an Old Babylonian text: "even if he (the partner) entrusts (the silver) for trade or lends it (to a third party), the creditor will not accept (that as an excuse), he (the partner) has to pay the silver to the holder of his note" (CAD Q/ A 3b 96 s.v. *qâpu*). Under the specified circumstances "the partner" cannot pay out the same physical silver that was entrusted to him by "the creditor".

Further, with respect to the possible productive use of deposits, note should be taken of the rather imprecise maxim of the Egyptian scribe named Any at the beginning of the first millennium or, perhaps, as early as the middle of the second millennium: "If wealth is placed where it bears interest it comes back to you redoubled" (Lichtheim 1976: 11: 135). Literally: "Possession should be placed on its place of interest, so that it may come back to you enlarged" (Joachim Quack, personal correspondence dated February 15, 2002).

Another lead, again difficult to pin down, is provided in the *Odyssey* (3.365-68), wherein the disguised goddess Athena announces that she will go to the Kaukônas, apparently in the Pylos area, "where a debt owed to me has been piling up, it is not a new thing nor a small one" (Lattimore 1965; West 1988: 183). For Athens in the fourth century B.C.E., we have direct evidence that one large banker unquestionably lent out his deposits. A speech of Demosthenes reveals that more than 20 percent of the banker Pasiôn's loans came from deposits (Millett 1991: 203). Unfortunately, with the exception of Pasiôn, there are no balance sheets offering explicit testimony to the extent that deposits were commingled with the assets of banker-lenders. However, additional nonquantitative examples of commingling may be cited. For example, Demosthenes (36.11) also suggests that a judgment against the banker Phormiôn would result in losses to depositors in his bank. As Cohen (1992: 65, 176, n.268) points out, this argument would make no sense unless Phormiôn had commingled his assets with those of his depositors (cf. Andreau 1999: 39-41). These examples demonstrate that deposit banking was practiced in the second half of the fourth century B.C.E. and probably much earlier. Given that: (1) Demosthenes expresses no surprise or disbelief in mentioning the above cases and (2) that the state-of-the-art in monetary technology surely made money fungible and (3) a modicum of rationality, we may assume that deposit banking was commonplace (compare Millett 1991: 8-9). Indeed, to the best of my knowledge, the orators do not provide even a fleeting example of a *trapezitēs* "banker" who denies or refuses to make productive use of deposits.

Why did Greeks make deposits in banks? Obviously, they did so to keep their

money safe or to conceal it from the tax collectors. But this is not the whole story. Cohen (1992: 112) demonstrates that in some cases *trapezitai* offered depositors a direct monetary return and in others they provided benefits in the form of banking services and access to business opportunities (such as participation in maritime loans).

B. Adaptations to New Economic Opportunities: The Case of Babylonian Agriculture[4]

Changes in agricultural land usage and settlement patterns in the ancient world may reflect changing opportunities for trade rather than, as usually believed environmental or ethnic variables. This section illustrates the kinds of profound economic transformations that often accompany the opening of new markets for new agricultural products.

Paleobotanical and textual evidence strongly suggests that by the end of the third millennium, southern Babylonian agriculture had experienced a drastic reorientation, away from the cultivation of wheat and into that of barley. Wheat declined to 2 percent of the crop and then disappeared in the first half of the second millennium.[5] (Possibly southern Babylonia became a net importer of wheat during the Old Babylonian era.) This change has been interpreted as a reaction to soil salinization due to widespread irrigation agriculture, with barley being more salt tolerant than wheat (see especially Jacobsen 1982: 9-11, 16, 57-60, 67; Powell 1985).

On the other hand, although agricultural documents of this period are abundant, they do not, in contrast to those of the third millennium, refer to soil salinity. Note in this connection the term *ki-mun* "ground of salt." Moreover, as Adams (1981: 149-52) explains, agriculturalists would, in any event, have cultivated more barley to provide fodder for their enlarged herds of sheep. Texts from Ur III Sumer frequently mention barley-fed sheep. There is indeed evidence of a revival in the export of woolen garments to Tilmun (often identified with Bahrain). Butz thinks it possible that Tilmunites were actually settled near Eridu and the Hor (al Hammar), where Ur's Nanna and Ningal temples had pastures (cited by Howard-Carter 1987: 89). These locations would have permitted Tilmunite merchants to monitor the packing of the wool they purchased, as in thirteenth-century England (Silver 1984: 113), or even to participate directly in wool production. [6]

4 This section is adapted from Silver (1995: 189-91).

5 Adams (1981: 151-52) and Jacobsen (1982: 39) present data indicating that grain yields declined from ca. 2400 to ca. 2100 and, perhaps, to ca. 1700. But, aside from the intrinsic measurement problems, such changes need not be due to deterioration in soil quality. If, for good economic reasons, cultivators decided to increase the intensity of land use (relative to labor) in the cultivation of grain, the result, other things equal, would be lower yields per unit of land (see Pettinato and Waetzoldt 1975 and Silver 1983b: 641-2). Less frequent fallowing of land would operate to reduce its yield.

6 Sources for concentration of land ownership, trade, and sheep herds: Adams (1981: 149-50); Hallo (1965); Leemans (1950a: 65-66; 1960a: 18-22; 1960b: 13, 36, 54, 117; 1968: 178-79; 1975: 139-40; 1983: 93-94); Potts (1983: 128); Stone (1977: 284).

A variety of qualitative indicators and quantitative data on real wages (in terms of silver and barley) suggest that in the earlier second millennium Babylonia enjoyed significant prosperity if not, as some believe, a "golden age" (see, e.g., Farber 1978: 38-40; Leemans 1950a: 113). Indirect evidence of increased meat consumption is provided by Oppenheim's (1967: 44-45) observation that "references to fishing and the role of fish as a staple diet begin to become rare in the second half of the Hammurabi Dynasty," suggesting that another "protein-rich source of food came newly within reach." Indeed, a nineteenth-century text from Larsa shows "fat-tailed sheep" being consumed, apparently as part of the remuneration of canal-diggers (Crawford 1973: 232-34; Gelb 1973: 82-83).

These considerations open the possibility that specialization in stockbreeding and land consolidation may have been triggered by increased external demand for wool and textiles, combined with an increased demand for meat in response to higher incomes.

An economic change explanation of the shift from barley to wheat is also strengthened by the fact that salinization is by no means inevitable. It can, as Adams (1981: 149-52) points out, be controlled by appropriate land use and irrigation practices. That this fact was understood at the time is hinted at by the recommendation of a fallow system and elementary forms of drainage in a Sumerian "agricultural manual," actually a literary text inscribed in ca. 1700 B.C.E. Indeed, texts from Girsu in Lagash show us as early as the twenty-fourth century the effort to combat soil salinity by means of a weed fallow system to dry the soil deep down. Powell (1985: 37-38) has brought together additional evidence of measures to control salinization.

The evidence is consistent with the perspective that the decision by ancient agriculturalists to channel scarce investment resources into building up flocks and converting fields into pastures instead of investing in antisalinization projects (weed fallows, application of irrigation water in excess of immediate crop needs, intensive drainage systems) was a rational (in cost-benefit terms) response to newly emerging market opportunities.

Note further that the rising trend in stockraising, a relatively land-intensive production activity, may well have contributed to a decreasing trend in the population in the former heartland of southern Mesopotamia (Brinkman 1984: 172-74). Predictably this change in economic specialization would also have caused an increase in the importance of the extended family relative to the nuclear family organization. Lemche (1985: 193) comments that documents gathered by Liverani "seem to indicate that the extended family dominated Mesopotamian society around 2000".

C. Geographic Concentration of Trades

Marketplaces—the geographic concentration of transactions—are a predictable and easily implemented adaptation to high information and transportation costs. In a world without daily newspapers, the location of similar trades in a compact area would have reduced the cost to consumers of acquiring information

about prices and product characteristics. The benefits to consumers were not forgone. There is ample evidence for marketplaces in antiquity. [7]

Several of Jerusalem's gates appear to have specialized in particular kinds of merchandise: the "Fish Gate" (Zephaniah 1.10; 2 Chronicles 33.14; Nehemiah 3.3), the "Sheep Gate" (Nehemiah 3.1, 32; 12.39), and the "Pottery Gate" (Jeremiah 19.2). That Egypt was also familiar with specialized marketplaces emerges from Montet's (1964: 97) observation that in "the scenes depicting the various arts and crafts they are almost always shown in groups on tombs of all periods." Indeed, Old Kingdom Egyptian tombs depict several sellers of the same product extolling their wares to buyers (Müller-Wollerman 1985: 142). A text of the Fifth Dynasty places an *areret nehep* "gate of potters" at the solar-temple of Neferikare. An indication of pronounced locational specialization is found at Athens in the inclination of Athenian writers to identify places in the Agora with the goods sold there (wine, olive oil, pots, garlic, fish, perfume, clothes). Rome of the early Empire had a number of markets specializing in different types of slaves.

D. Urban Real Estate Market in Old Babylonian Sippir

With respect to the urban real estate market there is evidence that in Old Babylonian Sippir "roofed areas" were generally more expensive than "open areas," including unbuilt lots, courtyards, and unimproved land (see Van De Mieroop 1999: 270-1). This differential is as expected. However, Van De Mieroop (1999: 274) adds "It seems rare that someone moved into a neighborhood and bought himself a house as we do today." This probabilistic statement seems to go far beyond the evidence. The texts do not disclose whether the buyer of a house is or is not a total stranger. Kozyreva's (1999) findings are of interest in this connection. In some 1,200 private urban real estate transactions in southern Mesopotamia dating to the early Old Babylonian period, the god most frequently mentioned in the seal inscriptions was the West Semitic deity Amurru. Therefore, "It seems logical to conclude that a considerable proportion of urban real estate buyers were the people who had moved into the cities rather recently, i.e., newcomers or their descendants" (Kozyreva 1999: 356). Van De Mieroop's rebuttal to the modernistic implications of Kozyreva's logic does not convince me. More basically, there is ample evidence of an urban real estate market including the sale and rental of houses or parts of houses (see e.g. Greengus 2001: 260-2).

3. Nuzi's Loan Market: An Inefficient Adaptation to Palace Regulation

Nuzi's *tidennūtu* contracts were in all likelihood ingenious subterfuges or creative options designed to overcome legal obstacles to lending transactions viewed by the palace as "exploitative". The adaptations were economically inefficient (relative to an unregulated loan market) because they raised the cost of making loans and consequently reduced the availability of credit.

7 The discussion of marketplaces is adapted and revised from Silver (1995: 153-6).

Note that government intervention in the economic sphere is reflected by the inclusion in many contracts, among them sale-adoption and *tidennūtu* contracts, of a *shūdūtu* clause: "This tablet was written in Nuzi after the proclamation" (see, e.g., Müller 1971: 56-58: Zaccagnini 1975: 197, 200). The *shūdūtu* clause itself appears in the contracts only after a certain point in time. Further, several texts refer to "the new proclamation." In one legal text, an individual is accused of having violated the *shūdūtu*. A trial document hints vaguely at control over grain prices (or interest rates) by local governments. The dispute involves the advance of a shekel of gold, to be repaid; it appears, after the harvest in barley at the going market price. But in his defense the borrower successfully refers to a statement by the "elders(?)" of Tupshani(ni) that the lender must take barley "according to our price" (after Müller 1981: 446).

Basically speaking, in the land-field *tidennūtu* contract the landowner (debtor) surrenders the use of his field to a creditor in return for the loan of cash. When, after a definite or contractually unspecified period, the landowner returned the creditor's cash he regained control over his field. To illustrate, assume that the landowner receives a loan of 100 silver shekels and turns over to the creditor for one year a field with an annual rental of 150 silver shekels. Then the *implicit* annual rate of interest is 50 percent (see Ellickson and Thorland 1995: 395). The economic result of the transaction is the same as an ordinary loan contract specifying repayment of 150 shekels or 150 shekel's worth of agricultural produce or specifying an annual interest rate of 50 percent. (Ordinary loan contracts were well known in Nuzi [Jordan 1990: 83].) However, the *tidennūtu* form of loan contract had three salient advantages over a straightforward loan:

1. The *tidennūtu* form concealed the interest rate charged from persons uncertain about the rental value of the field, most importantly legal authorities seeking to enforce a ceiling on interest rates (cf. Silver 1983a: 238-9).

2. Direct working of the field by the creditor concealed from the legal authorities that the *tidennūtu* is a loan transaction. Hence the creditor did not run the risk of default when the legal authorities, as they were wont to do, issued a proclamation canceling repayment of ordinary loans.

3. In the event of default on an ordinary loan the creditor might seize the assets of the debtor or his person. The protection of the creditor was reduced when, as was probably the case at Nuzi, the legal authorities erected obstacles to the alienation of fields. In this legal context the creditor in a *tidennūtu* contract reduced default risk by keeping the produce from the field (compare Ellickson and Thorland 1995: 396-99).

With respect to the *tidennūtu* and *mārūtu* transactions, the main lesson is that when ancient governments sought to stamp out economic exploitation, ancient men and women sought in their economic interests to find legal expedients by means of which they might continue to exploit or be exploited.

4. Economic Principles and Economic Misunderstandings

The aim of this discussion is to make a plea for improved understanding of basic economics not to criticize outstanding scholars. Mistakes are inevitable when scholars work outside their fields.

A. Role of Speculators

Van Driel (1999: 33, n.21) believes that "The (private) hoarder [of grain] exacerbates the shortage and profits from it. Joseph in Egypt is an excellent example." This is economically naïve and completely misunderstands the crucial role that speculation plays in a market system. The point to remember is that speculators not only buy, they sell.

Private speculation serves to even out the consumption of grain over time. Grain prices fall after the harvest as farmers put their grain on the market. The decline in prices encourages consumers to purchase and consume more grain, including for feeding it to livestock. This is of course good for consumers. But what will happen tomorrow when the harvest has been mostly sold and consumed? The answer is that prices will rise and some consumption needs will not be fulfilled.

The role of the *speculator* is to purchase grain after the harvest and store it. This grain storage limits the immediate decline in price, which is bad for consumers. Some consumption needs must go unfilled. On the other hand, the speculator sells grain later in the year, which limits the rise in price. This is good for consumers.

The speculator profits to the extent that he correctly anticipates the level of storage costs and of future grain prices. To the extent that he anticipates accurately the speculator also performs a useful social function that was no part of his intention. Of course, competition among speculators reduces their profit and increases the benefit to consumers. When speculative activity is monopolized, including by the palace, the balance of benefits is shifted away from consumers towards the speculator. The fact remains, however, that to make a profit "Joseph" must sell grain.

B. Transport Costs and Trade in Staples

Despite evidence of various kinds to the contrary, some scholars of antiquity seek to demonstrate that due to high transport costs overland trade in staples was seldom undertaken. Hopkins (1983: 102-5), for example, is justly skeptical of the extent to which Diocletian's Edict provides a reliable guide to actual transport costs. His criticisms are somewhat exaggerated, however. For example, in disputing the estimate that overland transport of wheat for 300 miles roughly no more than doubled its cost, Hopkins (1983: 105) reasons as follows:

To judge from scattered Roman evidence and comparative data, twice the normal price was common in famines. [Then] wheat could have been sent overland to relieve a local famine within a radius of 300 Roman miles (444 km.). But during a serious famine at Antioch in AD 362/3 this did not happen, or not until

the emperor Julian intervened personally to secure large quantities of wheat from towns only 50 and 100 km. distant by land from Antioch.

Hopkins, like Finley (1973: 127; 1985, 245, n.8), does not take into account that, despite the enlightened protests of Libanius and others, Julian had responded to rising grain prices caused by a severe and prolonged drought at Antioch with an edict of maximum prices and the sale of imported grain at prices below the market-clearing level. These well-meant but counterproductive measures served mainly to misallocate the available stock of grain (see Downey 1951: 315-19; de Jonge 1948). The available grain simply went elsewhere. The problem here was not transport costs but a much more significant problem: Failure to understand the economic facts of life.

C. Productive Nature of Exchange

Assertions in the literature that only the lender profited from Nuzi's *tidennūtu* contract (and discussions about whether the adopter or adoptee instigated *mārūtu* transactions) are economically naive. An uncoerced exchange benefits both parties. Unless each contractor views his postexchange position to be superior to his preexchange position, exchange will not take place. Contrary to the Marxist perspective, exchange is *productive*. Specifically, trade rearranges *an existing stock of goods* in a way that enables each participant to become better off as measured relative to his own values at the time of deciding to trade. The creative nature of trade is little appreciated by scholars untrained in basic economic principles. [8]

Moreover, assertions about which party to the exchange benefited more are not very helpful. The gains from trade are *subjective* and cannot be calculated by comparing the number or value of oranges and apples exchanged. Any attempt to compare subjective gains raises the thorny problem of interpersonal comparisons of utility/satisfaction. Even if we ignore this difficulty the results may be surprising. Thus, based upon seemingly unbalanced terms of trade, it is usually assumed that a wealthy industrial nation which imports (say) bananas gains more than the poor, less developed country which produces them. For example, although the assumptions of "unequal exchange" hardly seem to apply in this case, King and Stager (2001: 190) speak of Phoenicia "exploiting" Judah. This reasoning ignores the "law" of diminishing marginal utility of income. That is, *because they are poor* the citizens of the poor country may gain more utility/satisfaction from consuming their export proceeds than the citizens of the rich country gain from consuming their bananas. [9]

8 The services of the middleman in "making markets" are also productive. In many cases it is less costly for some individuals to specialize in acquiring information about preferences and costs than for all traders to do so. Garfinkle (2000: 218-19) suggests "In the modern economy we require mediation between buyers and sellers far less frequently than was the case in the ancient world, and this is in part because more of the population is in a position to engage in economizing choices." This is an interesting suggestion. On the one hand, information is much more widely diffused today than in antiquity. This would reduce the need for the middleman. On the other hand, we are more specialized today, which would increase the need for intermediation.

9 Note in this connection Stager (2001: 629): "Asymmetrical relations of economic advantage

D. Technological Progress and Efficiency

Why, to take a favorite primitivist example, did Rome persist in using animal-powered mills in its bakeries long after the invention of water-powered milling? The reasonable explanation is that to relocate bakeries to sites with sufficient water and then to transport the bread over longer distances to consumers was simply not cost-effective (see Greene 1990: 215).

It is of some importance to offer some clarification here concerning the meaning of productivity and efficiency. According to Eyre (1999: 34), a distinguished Egyptologist:

There is no evidence for efficient water-raising devices in the [Egyptian] Pharaonic period. The *saqia* (water-wheel) and the Archimedean screw are not attested until well into the Ptolemaic period. The *shaduf* [lever-and-bucket], is not efficient.

The requirement for a productive method or process to be *economically* efficient is that, given the costs of the participating inputs/factors of production, it minimizes the total factor cost of producing a given output/result or maximizes the output/result from a given total factor cost. Economic efficiency is always measured relative to available technologies and prevailing factor prices. That later times may have known superior water-raising technologies does not mean that the *shaduf* was not "efficient" in Pharaonic times.

E. Opportunism and Shirking versus Exploitation

Marxist and other scholars often find exploitative motives behind actions that are simply adaptations to the costs of making and enforcing contracts in a world in which individuals behave opportunistically. To take an example with biblical implications, note the preference among contemporary nomadic peoples for employing family members as herdsmen rather than strangers (Jamieson 1985: 423-25). Among the market-oriented Komachi nomads of southern Iran, hired herdsmen are permitted to run their own animals with their customer's herd but are contractually denied the right to own female breeding stock.

Bradburd (1980), an anthropologist, interprets this prohibition in a sinister light: The employing class seeks to alienate its proletariat from the means of production.[10] More reasonable than the "Marxist" conspiracy-theory is that the denial of female breeding stock prevents theft of newly born animals and disputes over their ownership.

Herdsmen in the ancient Near East typically received a share of the newborn animals as payment. A Babylonian contract of the early second millennium calls

can be seen almost from the start because of the system of exchange which operated from the larger underdeveloped hinterland to the major commercial center, the Mediterranean seaport, the command center of information and decision making which translated into real economic power." This certainly sounds rather ominous. It is another question, however, whether Stager's "model' of "port power" tells us something overlooked by standard models of economic development that stress entrepreneurship and adaptations to market incentives.

10 Bradburd's article is cited with approval by Lemche (1999: 93, n. 7) in his discussion of the relevance of class in ancient Israelite society.

for the shepherd to keep 20 percent of the increase (Finkelstein 1968: 33). For herding Laban's flock, Jacob was to receive the newly born "brown" sheep and variegated color goats (Genesis 30.32-33). Jacob explained that under this innovative arrangement, when Laban came to look over his herd "every one that is not speckled and spotted among the goats, and dark among the sheep ... shall be counted as stolen." Again, Hammurapi's Code (Paragraphs 263-67) and herding contracts of his era show that a variety of precautions were taken by owners to prevent thefts of livestock or shirking by shepherds (Postgate 1975: 6-7).[11]

F. Monopoly Power and the Villager

Generally speaking monopolists increase their wealth by reducing quantities offered for sale and raising prices. There is little information on which to base estimates of the importance of monopoly power in the ancient Near Eastern economy. Sumerian texts of about the middle of the third millennium hint that it may not have been great. The seller is "he who gives, who delivers, who *eats* the purchase price," and the buyer is "he who measures out the purchase price for good X" *(lu*.X.*sa)* or "he who makes or fixes the purchase price" *(lu.sa.ak)* (see Malul 1985). This terminology probably implies that the seller is typically a price-taker, not that the buyer is typically a price-maker.[12]

On the other hand, there is evidence that Old Assyrian Assur sought to monopolize the production of woolen cloth for the Anatolian market. Larsen (1982: 41) explains that at one point the Anatolians started the production of a type of textile, which somehow could replace the most common type of import from Assur. Obviously this constituted a major threat, and when Assyrian traders began to conduct trade in these local products, the reaction of the city-assembly was swift and harsh. We have a letter that tells us the assembly had considered the matter and had prohibited Assyrian trade in local Anatolian textiles. The traders who had already engaged in such activities were fined very severely, one of them 10 pounds of silver, which even then was a lot of money.

Of course, we do not know whether the guilty Assyrian traders were **spoiling the market** by passing off the (lower quality?) Anatolian cloth as having been made in Assur or Babylonia.

In any event, it is not difficult to see that Renger's (1984: 73) belief that "certainly the [Mesopotamian] villager had not much choice. He had to pay any 'price' if he needed ... [a] hoe for survival" rests on a fundamental misunderstanding of elementary economics. Even if the villager's demand curve for hoes was perfectly inelastic with respect to price (i.e., vertical) because he "needed the hoe

11 The Hudson's Bay Company faced a related problem in the eighteenth century. The right of employees to engage in private trapping led to the substitution of low-quality Indian furs for the Company's high-quality furs. Private trapping was finally declared illegal in 1770 (Carlos and Nicholas 1990: 866-67).

12 We may find an indication of superior bargaining power in a Sumerian proverb dated to the Isin-Larsa period (SP 18.6 = SP 26 rev. i 2 [restored]): "He who pays with strong silver (valid) silver can buy with a strong mouth" (Alster 1996: 5). I would take this to mean that the buyer who pays cash can obtain a better price from the seller.

for survival," the market equilibrium market price of hoes might be "low" (relative to the villager's total income) provided that there were a number of competing (noncolluding) sources of supply. Indeed, even if the palace monopolized the sale of hoes the villager nevertheless might manage to retain some of his income by making the hoe himself. Along similar lines, Van De Mieroop (1995: 362) believes that many of the loans we find attested in the Old Babylonian sources were obtained in times of dire need. In the last month before the harvest a farmer who could not feed his family any longer, needed to borrow grain. The creditor could set his terms, as he or she knew that the borrower had no other choice.

It may be true that the interest rates paid before a harvest were relatively high. However, Van De Mieroop's economic analysis is simplistic. Supply must be considered as well as demand in determining price. The creditor could "set his terms" only in the absence of competing lenders. Van De Mieroop presents no evidence that the Old Babylonian loan market was monopolized.

Garfinkle (2000: 38) maintains that in Ur III times "creditors not only took advantage of the opportunities available in town but also profited from the needs of the agrarian poor, who were extraordinarily exposed to the risks of crop failure, etc." The other side of this coin of exchange is, of course, that the "agrarian poor" took advantage of the "need" of urban (and rural) creditors to make profitable use of their capital! (Elsewhere Garfinkle [2000: 75] correctly notes that the collection of interest was in the self-interest of the lender.) No evidence is presented by Garfinkle that the Ur III credit market was monopolized. However, given the documented importance of the palace in the Ur III period, I would not exclude this possibility.

Concluding Remark

The fact that the ancients did not formulate a body of abstract economic principles does not mean that, if only by means of trial and error and imitation, they did not conform to economic laws. Calculation, after all, is costly and more exact calculation is more costly. To carry calculation beyond the point at which its marginal benefit equals its marginal cost is economically irrational. Economic actors who simply ignore or misunderstand changes in costs, returns, tastes, and the like, are less likely to flourish and leave their mark on the economy than those actors who, however imperfectly, heed trends in economic variables. Economic actors who refuse to imitate successful economic actors or are incapable even of discerning them are more likely to fail. As Alchian explained in a seminal article first published in 1950.

> Like the biologist, the economist predicts the effects of environmental changes on the surviving class of living organisms; the economist need not assume that each participant is aware of, or acts according to, his cost and demand situation. These are concepts for the economist's use and not necessarily for the individual participant's, who may have other analytic or customary devices, which, while of interest to the economist, serve as data and not as analytic meth-

ods. (Alchian 1977: 34)

To attain a more balanced view of the ancient economy it must be recognized that economic theory is concerned primarily with prediction of the *direction* of changes in economic behavior and in orders of magnitude.

It is inappropriate for Polanyist scholars to seek to delegitimize or preempt the research of professional economists by maintaining that the ancient sources are insufficiently available in transliteration and translation (see e.g., Renger 2001: 414). This is simply false and, in fact, the Internet has opened a treasure of resources for nonlinguistic scholars. Sadly, it is true, however, that only a mere handful of professional economists have so far chosen to immerse themselves in the study of ancient economies. The full participation of professional linguists and historians in this enterprise is therefore essential and welcome. Assyriologist Johannes Renger (2001: 414) suggests, "we have to take the burden of being our own, self-made, economic historians". I would agree with Renger provided that his "burden" includes taking an introductory course in economics or simply reading a principles text before issuing authoritative pronouncements about economics.

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