

SAW Seminar History of Mathematics, History of Economic and Financial Practices

January 20, 2012

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Prices, interest, and tax calculation by the Old Assyrian merchants (19th century BC)

Abstract

The Old Assyrian trade in Anatolia is very well-documented by the Assyrian merchants archives (22 500 cuneiform tablets), mostly dated to the XIXth century BC and discovered at Kaniš, near Kayseri, in Turkey.

Assyrians used an additive decimal system to count objects, but the metals they traded were measured according to the classical sexagesimal weight system in talents, minas, shekels and grains (1t = 60m, 1m = 60s, 1s = 180g). In Anatolia, copper was weighted in hundreds of minas, in a system ignoring the talent, perhaps influenced by the local decimal system. Merchants preferred to use fractions of the superior unit that integers of the inferior unit, they better used $\frac{1}{3}$ of minas than 20 shekels. They used the existing cuneiform symbols for $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$ and $\frac{5}{6}$ and invented special signs for $\frac{1}{4}$ and $\frac{1}{6}$, but they lacked $\frac{1}{5}$, and most of the errors are found in the samples where this fraction is needed.

With the silver acquired in Kaniš, merchants made purchases in Aššur to organize new caravans; they had to calculate the prices in silver of various goods, thus making conversions. Several school texts show samples of conversions. In Aššur, on the way and at the arrival in Kaniš, Assyrians had to pay many taxes on their caravans which were proportional to the value of the transported goods, mainly tin and textiles; they had to calculate the percentages of taxes imposed on each owner of merchandise. Many loan contracts attest of a default interest; the interest fixed by the trading post office amounted to 30% per year. When a guarantor was appointed, he had to make sure that the debtor respected the due date for the payment or had to pay himself the debt. He could borrow silver with interest at the house of a creditor in order to pay it, and he could perform “an interest over the interest” to the debtor. The calculations of the various interests implied a succession of golden rules.

Intermediary calculations are never written on tablets, and we suppose that these merchants were using a computing tool. An identification of such a tool is proposed; its use still needs to be explained. The Old Assyrian school exercises fit perfectly well the knowledge

needed by the merchants and thus correspond to a professional formation with clear practical applications.