

FEEDING HELLENISTIC SELEUCIA ON THE TIGRIS AND BABYLON

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Introduction

The city of Babylon had long been a large city. It was the capital of the Old Babylonian empire in the 18th century BC, but the Babylon we best know is the Babylon (re)built by Nebuchadnezzar II (604 – 562), the king who created the Neo-Babylonian empire. The palace, the walls and the temple tower are mainly his work.

Babylon was a city built on both sides of the Euphrates (though the main buildings, palace and temple of the supreme deity Marduk, are on the east bank). It was really a big city according to ancient, and more so according to mediaeval and early modern standards. It consisted of a rectangular inner city of 400 hectares and on the east bank it was extended with an extra outer wall, which made the total area 975 ha. Some scholars have estimated the number of inhabitants as a few hundred thousand. Archaeologists and historians of the Near East often reckon with a rule of thumb of 200 persons per urban hectare, a rule very often questioned. However that may be, it would give Babylon in its heydays nearly 200,000 inhabitants. This figure is probably too high since most of the outer city was probably uninhabited. If we stick to the inner city, we arrive at 80,000 people, but certainly with a large range of error.

It is perhaps good to make comparisons with other cities. The city of Athens in the classical age comprised ca. 215 hectares, of which 150 ha. was built-up with private houses and had a population of ca. 50,000 people according to a conservative calculation (Kolb 1984: 80-81). The city of Rome witnessed a steady growth from its start. Between AD 272 and 282 a city wall was built encompassing 1373 ha (Kolb 1984: 162). If the widely accepted, but also contested, number one million inhabitants lived in this area it would mean that it had a density of 728 inhabitants per hectare, a lot more than the Near Eastern rule of thumb, which is partly explained by the existence of the blocks of flats in Rome, partly by the fact that people also lived outside the walls, partly by the assumption that one million is too high an estimate. The difficulty of estimating numbers of inhabitants on the basis of archaeological remains is nicely exemplified by the city of Amsterdam. The old inner city comprises 825 ha., of which 487 ha. is inhabited by ca. 80,000 people (in 1993). In the eighteenth century it was inhabited by 200,000 people.

The even more difficult question is how many people lived in Babylon in the Hellenistic period. It is generally assumed that Babylon declined after the conquest of it by the Persians and fell into decay rapidly after the conquest of Alexander the Great until it was finally deserted in the first century AD. This assumption is mainly based on classical authors of the beginning of our era, like Pausanias (1.16.3), Strabo (16.1.5), Diodorus (2.9.9), Appian, *Syriaca* (58) and Pliny, *NH*, 6.30.122). They assumed that Babylon declined after the destruction of the temple by Xerxes, and by the fact that Alexander's plan to make Babylon the royal residence of his empire was given up by Seleucus I, who founded Seleucia on the Tigris. He is supposed to have removed the entire population of Babylon to the new capital except the priests of the temple of Bel. The growing corpus of published cuneiform texts, however, exhibits another picture. The city was a centre of Babylonian religion, science (astronomy) and the palace was regularly visited by kings and officials.

This does not mean that nothing happened. When the Persians conquered Babylonia, the land was for the first time ruled by a nation that had its political centre outside Mesopotamia. Since

in ancient economies large cities often only can survive if they are the centres of an empire, so that surpluses of vast territories can flow towards the centre, a decline may be expected. The fall of Assyria brought about the decline or disappearance of the main Assyrian capitals, like Nineveh and Calah, though Assur experienced a revival in the Parthian period.

Babylon, however, did not disappear after the Persian conquest. The city was not destroyed and the Persian kings used the palace of Nebuchadnezzar as a summer palace. The destruction of the temple attributed to later classical authors to Xerxes, was certainly not as definitive as is often thought. When Alexander entered the city it was apparently still a big city and Alexander would not have chosen this city as his capital had it been a negligible entity. Seleucus appraised it as a worthy prize to fight for and his satrapy of Babylonia was the basis of his empire.

In addition, south Iraq had been highly urbanized since the end of the fourth millennium. The city of Uruk had a surface area of ca. 494 ha. (!) in 2800 BC and occupation outside the walls was likely (Van de Mieroop 1997: 37). The city of Uruk still existed in the Hellenistic the area within the wall encompassed 300 ha. and surveys suggest that 2/3 of the area was inhabited, which makes a population estimate of 40,000 acceptable, the more so, where impressive building activity took place on the temple of the sky god Anu. The Urukian governor Anu-uballit, whose second name was Nikarchos, rebuilt the temple tower, which was the largest ever built in Mesopotamia, larger than Nebuchadnezzar's tower of Babel. Other Mesopotamian cities flourished as well, like Nippur, Borsippa, Cuthah and other cities, which produce cuneiform evidence. Not all cities fared well simultaneously. The city of Ur seems to have been abandoned in the early Hellenistic period, while the city of Nippur witnessed a steady growth until ca. A.D. 800. But this phenomenon was not uncommon in Mesopotamian history. Due to salinization of the soil or the change of river courses some cities declined, while others grew.

In addition, Alexander and the Seleucid kings promulgated an active policy of colonization and city building. Alexandria in Egypt was Alexander's most famous success, as a matter of fact brought about by the Ptolemaic kings who made it the capital of Egypt. When Seleucus reconquered Babylon in 311 BC, after a stay of 4 years at Ptolemy's court, he must have pondered on a similar project: the foundation of Seleucia on the Tigris.

Seleucus must have had a grand design in founding Seleucia. It was located on the Tigris on the confluence with the King's Canal, which connected the city with the Euphrates. The walled area comprised 550 ha. and was destined to rival Alexandria, which it actually did. It was the new "city of kingship" as it is characterized in the cuneiform sources. It was one of the residences of the Seleucids and the residence of the satrap of Babylonia. It grew into a major city, which according to the estimate of Pliny (6.122) had 600,000 inhabitants in his days. This estimate is probably too high, since it would mean a density per hectare of nearly 1,100 people. What the figure does indicate is, that the foundation must have been a success. Many people were settled there or moved into it. It attracted Macedonians, Greeks, Babylonians, Jews, and Syrians. It is not for no reason that the Parthian conquerors founded their royal residence Ctesiphon opposite Seleucia on the other side of the Tigris.

Estimates of the number of people remain hazardous. 90% of the city is not excavated and so the estimates for the Seleucid period range from 20,000 by Yeivin on the basis of 200 blocks with 100 persons each to 80,000 people (Jacobsen) on the basis of a surface area of 400 hectares, as given by the earliest excavators.

City and countryside.

The central question of the conference is how to feed cities like these. As the Babylonian economy was (like the ancient economy in general) of an agrarian nature, it is necessary to

look at the countryside. Ancient cities needed an agricultural basis to survive. Only few cities depended on large imports of grain. Cities like Rome, and classical Athens to a lesser extent, are exceptions rather than the rule. Was Babylonia able to feed the new big city Seleucia and the still populous city of Babylon? Could it accept vast immigration?

In this respect it is useful to study the results of extensive surveys in several regions of south Iraq by Robert McCormick Adams and others in the 1950s, 60s and 70s. Three regions are intensively surveyed: the Diyala region (East of the Tigris near Seleucia) (Adams 1965), the Uruk countryside (Adams 1972) and the middle Euphrates plain (the region between Uruk and Nippur (=100 km) + 45 km to the north and 35 – 45 km east of it east of it) (Adams 1982). The city and area of Kish is surveyed by McGuire Gibson (1972), which covers part of Northern Babylonia. Unfortunately, the region right around the city of Babylon and the region on the west bank of the Tigris around Seleucia are not surveyed. Nevertheless, the results of the surveys exhibit interesting common traits, which may be extrapolated to other regions as well.

The results may be summarized as follows.

All regions experience a growth in occupation from the Achaemenid period onwards. I shall limit myself to the Diyala region (relevant for Seleucia), the Middle Euphrates area (more or less relevant for Babylon). Both regions exhibit a marked growth in settled area. The number of sites increases as well as the total settled area. Adams distinguished between what he called “urban” settlements (= larger than 10 ha.) and “nonurban” settlements. The growth is summarized in the following table:

Hectares settlement (percentage “urban”) (Adams 1981: 194, table 19)

	Diyala	Central Euphrates
Ur III (2100 BC)	602 (35%)	2725 (75%)
NB-Ach. (700-330 BC)	134 (7%)	1769 (51%)
Seleucid/Parth (330 BC-AD 224)	1857 (69%)	3201 (55%)
Sasanian (224-651)	3489 (75%)	3792 (58%)

In number of settlements for the central Euphrates region: Middle-Bab. – Neo-Bab/Ach. – Sel.Parth: urban: 6 – 30 (21 newly founded) – 55 (28 newly founded); non-urban 128 – 227 – 360 settlements.

Especially the Diyala region exhibits a marked growth. As Adams observes, the resurgence in the Diyala plain resurgence even more substantial and rapid than on the central Euphrates floodplain (see table 16, p. 179). The settlement numbers for this region are in the same three periods: Urban: 0 – 0 – 26; non-urban: 34 – 81 – 179. Adams assumes for both regions state initiated schemes of urbanization and agricultural expansion (Adams 1981: 176, 179).

All these data point to growth and development instead of decline, a process started in the Achaemenid period, but accelerated in the Hellenistic period. A concomitant development is the rise of the economic position of the Tigris region over the Euphrates in the Hellenistic period. This is also reflected in the new canalisation networks directed from the Euphrates towards the Tigris and the employing the Tigris as an irrigation source already in the Achaemenid period (Adams 1981: 190, 192). In the Diyala region hardly anything happened in the Achaemenid period. This must have been the work of the Seleucids.

The feeding of Seleucia and Babylon.

Was the agricultural production of the surrounding territory of Babylon and Seleucia sufficient to feed large cities as these, or was import of grain necessary?

Let us start with the agricultural production in Ancient Babylonia of the Neo-Babylonian and Achaemenid period. It is well known that Babylonia was a rich agricultural country with high yields. These yields are not the result of a particular fertile soil. The soil had a bad structure and continuous irrigation caused salinization in many regions all over the Mesopotamian history (Potts 1997: 14-5; Jacobsen 1982, but see the critique of Powell 1985, who assumes that the Mesopotamians were able to cope with the problem of salinization). The high yields were made possible by the flooding of the rivers (esp. the Euphrates, but in later times, as we have seen, also the Tigris) and by careful irrigation. An ingenious system of dykes, canals, reservoirs and the application of four irrigations after the seed was sown in April, made successful agriculture possible. But even more important was the use of the seeder plough, which was a great advantage over broadcast sowing as was used elsewhere in Antiquity. The work was done by the great institutions, temple and palace, with teams of one plough, 4 oxen and two labourers per 25 kor = 33.75 ha. of land. "When, in the nineteenth century, the seeding plough was introduced for the first time in Britain, it is estimated to have resulted in a 50 percent saving on expenditure of seed as compared to broadcast sowing by hand over a ploughed field (Potts 1997: 80 quoting Halstead 1990: 87).

Especially the sowing rates in the 3rd millennium were very low: 46 l. of barley per hectare. Yields were 50 fold and more. Yield of 3493 l. p. ha. are recorded (Powell 1985:25ff). The seeding rates in later Babylonia grew to 133.33 litre per ha. It is Powell's assumption that half of this amount was destined for the draught oxen. In that case the seeding rate only grew to 66 $\frac{2}{3}$ litres of barley per ha. Whatever the case: the Romans used 5 modii per iugerum = 175 litres p. ha. (Spurr 1986: 56, n. 54). The yields are estimated on the basis of rent contracts of the Achaemenid period as fifteen fold (the rent is in most contracts 10-11 fold the amount of seed given to the lessee). If one assumes a $\frac{2}{3}$ share for the lessor, the seed – yield ration would be 1:15, which amounts to a yield of nearly 2,000 litres per ha. = 1,240 kg. Modern data (1950s and 60s) for the Diyala region vary between 800 and 1400 kg p. ha. But ... in modern times the seeder plough is not used anymore. In addition one might assume that the Babylonian large estates worked more efficient than modern smallholders.

At present the Diyala region comprises 800,000 ha. of which 537,000 ha. is irrigated area. In the Hellenistic period this was probably more, but we will stick to the conservative side. 537,000 ha. is thus able to produce 1,074,000,000 litres of barley = 665,880 ton. If one takes the grain equivalent of 250 kg. of grain as subsistence rate per person per year, the Diyala region could feed 2,663,520 people. This means that even if Pliny were right that 600,000 lived in Seleucia and in the Diyala countryside lived on the inhabited area (1857 x 200 =) 371,400 people (which is obviously too much), Seleucia could easily be fed by its own hinterland, especially so when we consider that we did not take the arable land of the West Bank into account. It leaves plenty room for the growing of other agrarian products and the raising of animals. Seleucia was not dependent on imports.

The situation of Babylon probably was not different, although we know hardly anything of its countryside (Adams 1981: 190). Though we have no archaeological evidence, we have very important evidence from the cuneiform sources, especially the so-called Astronomical Diaries. These documents contain monthly records of prices of food and wool "paid in the streets of Babylon", which gives us an unrivalled data set of several thousand commodity prices over the entire Hellenistic period (Editions: Slotsky 1997, Vargyas 2001, but cf. Van der Spek & Mandemakers 2003). I shall not speak much about these prices, as I have done this elsewhere (see bibliography). A few conclusions I shall present here succinctly. 1. The prices are characterized by a marked volatility. That means that the Babylonian grain production did not belong to an integrated market. In a situation of an integrated market high

prices tend to fall thanks to imports, low prices will rise due to the profitability of export. Apparently the Babylonians could not import in times of hunger and could not export in times of affluence. This means that they also had no grain market in Seleucia. Seleucia could feed itself, and if the grain harvest failed in Seleucia, it probably also failed in Babylon. 2. The prices in the Seleucid period are comparatively low. They were very high in the years of Alexander and his early successors, and were high again in the Parthian period, a period characterized by a lot of local warfare and political unrest. I have calculated (Van der Spek, *St. Bertrand*) that in the Seleucid period (ca. 300 – 141 BC) at least in 60% of the time the majority of the population of Babylon, including the lower classes, could be fed. Babylon could also be fed by its own hinterland.

Conclusions

1. Middle Iraq, especially the Middle Tigris and Diyala regions, experienced a period of intensification of settlement, irrigation and agricultural production in the Seleucid period. The notion of “decline” must be discarded.
2. Seleucia and Babylon could be fed by their own hinterlands. Imports of food were unnecessary, even if we accept the highest population estimates.

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