7 Summary

As there are few written documents existing about the Parthian and Roman time in the north of Mesopotamia, the anthropological and chemical analyses of 691 skeletons found in a Parthian-Roman cemetery (ca. 200 BC until 250 AD) in Magdala (North-Eastern Syria) contribute to our knowledge about the biological, social and economic constellation of a population. They also improve our knowledge about the burial customs and the living conditions in the historical north of Mesopotamia.

The anthropological study of the skeletons was used to characterize the demographical structures of the population. Because these skeletons fulfilled the representation criteria, the demographic reconstruction could be used to make predications about the historical population.

The highest mortality rate was found in the mature age class (29.0 %) followed by the adult class (22.7 %). The relatively low mortality of children (25.8 %) and the high mortality in the mature age class as well as the - for ancient populations - relatively high mortality rate of the senile age class (6.7 %) suggest that good living conditions prevailed in the Parthian-Roman Magdala.

The children mortality within this population can be ascribed to infectious diseases such as malaria, illnesses due to parasites and to the reduced medical standards typical for the time. Isotopes analyses show that breast milk was the main nutritional source for children up to an age of three years. As a result, diseases due to a lack of proteins can be excluded for this group. In the age group up to twelve years, the highest mortality rate occurred within the first year after birth (35.4 %) followed by the 1- to 2-year-olds (18.4 %). A lower mortality rate within the group in which the weaning process was progressively reduced and stopped - three years - leads to the conclusion that this process posed less of a death risk. The higher mortality rate during the first two years of life resulted from the immune system which had not yet completely adapted to living conditions and deficient hygienic conditions in connection with animal milk which, in small quantities, supplemented the diet of children older than 6 months.

Juvenile mortality was 5.2 %. This rate is slightly higher than the 4.9 % calculated for the age group infans II and can be attributed to the higher mortality of young males entering adulthood between the age of 14 and 15 and to young females over 17 years who were confronted with pregnancy and childbirth risks.

Adult female mortality is also high and could be based on pregnancy and childbirth stress. Males demonstrate a higher mortality rate at mature age. Due to a relatively high mortality rate among the mature and senile women, as well as a minimal difference in the life expectancies of men and women older than 25 years, it can be assumed that similar living conditions existed for men and women in Magdala. The balanced masculinity index (97.7) implies a stable population.

The life expectancy at birth was 33.5 years and upon reaching 20 years of age 25.4 years - relatively high for ancient times.

The members of the Parthian-Roman community are predominantly buried in brick graves (53.4 %), followed by earth graves (31.8 %), pot graves (9.1 %) and then sarcophagi (4.9 %). Only two individuals were burned. Juveniles and adults were usually buried in brick graves, while children were sepultured in earth graves, preferably in pot graves. The supine position (52.5 %) prevailed over the crouched position (25.3 %). Small children were more likely to be buried in a crouched position than juveniles and adults. Neither the grave form nor the type of burial was determined by the sex of the deceased, nor could differences derived from social status be found in the grave form.

The analysis of isotopes and trace elements of the selected skeletal individuals should have served as a basis for the reconstruction of the diet of the Parthian-Roman community, but the moderate, sometimes even bad condition of the bones, prohibited an evaluation of the elements strontium and barium. These elements are indicators for the consumed diet. Those concentrations of barium and strontium which were identified, point to diagenetic modifications of the bone hydroxylapatite as a result of the circumjacent environment.

Collagen could only be isolated from 12 % of the bone samples. A reconstruction of the dietary behaviour based on the $\delta^{13}C$- and $\delta^{15}N$-values of the collagen was, as a result, only possible in a very reduced manor. The largest amounts of collagen was extracted from skeletal individuals found in undisturbed earth graves. Ultimately, the $\delta^{13}C$- and the $\delta^{18}O$-values of the isolated bone carbonate were used to reconstruct the dietary resources, the nutritional situation of small children, the migrational behaviour and the human-environment relationship. Using these isotope analyses, the existence of an artificial irrigation system could be affirmed for this region. In addition, the abandonment of the settlement as a direct result of the changed environment conditions - for example through overgrazing of the vegetation - could be substantiated.

The chemical analyses revealed an omnivorous nutrition for the Parthian-Roman population of Magdala which included a high amount of animal proteins. This nutrition

does not suggest a livelihood based primarily on an agricultural economy but on an economy based largely on stock-breeding and trade. The communities protein consumption was guaranteed by sheep, goats, and occasionally cattle and pork. Due to an overlap of the biogenous signals, the consumption of freshwater fish could neither be verified nor falsified.

The identification of the dietary resources within subgroups of the population proved to be difficult because few individuals were found where collagen could be successfully extracted. Larger diversity in the diets of members of the adult age class in comparison to the mature and senile age class, are conjecturable. Moreover, there were no significantly different feeding strategies between women and men, individuals with or without burial objects, and individuals buried in different forms of graves and positions.

The δ^{18}O-values of the human samples indicate a predominatly homogenous population in the Parthian-Roman epoch of Magdala. Because of similar δ^{18}O-values of the individuals of the Achaemenian and Parthian-Roman period, it can be assumed that environmental, cultural and behaviour-based impacts occurred analog within the time periods.

A larger variation in the δ^{18}O-values among individuals within the adult age class in the Parthian-Roman population concludes a trade and marriage oriented mobility, and increased physical stress resulting from work and pregnancy.

The ascertained results reflect a predominantly stable and homogenous community with good living conditions for children and elderly people as well as a good dietary situation with an adequate proportion of animal proteins and an immune system that was well adapted to the environment.

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