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Motív „Zázračného dažďa“ zo stĺpa Marka Aurélia v Ríme. V okienku: Detail osthotechu z Keseciku, Turecko (Foto: A. Baldiran).

Motif of the „Miracle rain“ from the column of Marcus Aurelius in Rome. In the window: Detail of the osthotech from Kesecik, Turkey (Photo: A. Baldiran).

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An Essay on the Heating Costs in Roman Baths

Coşkun Daşbacak

Keywords: Roman Bath, Heating Cost

Abstract: One of the major reasons to take the baths under the direction of state is the high costs for heating. Two thirds of the incomes from public baths were expended for fuel. Fuel were directly bought from fuel traders or from land owners by municipality and given to the director of bath. Fuel of some baths were derived by forest belonging to state. Someone who makes a donation for bath has no other financial responsibility than building expenses. Care, repair and expense of the bath were controlled and provided the same way as the other public buildings.

In the early Hellenistic Age, building and running baths require the permission of the local managers. The baths give a specific percentage of their income as tax. Similar arrangement is applicable for Roman period, too. The managers belonging to Royal and aristocratic class have baths build in Rome or provinces to their names as a reward to the public¹. The people use these baths, which is under the conduct of the state, sometimes without paying any money and sometimes for a little money. Agrippa left the baths which carried his name, to the usage of Roman people for free in twelve B.C.

That the huge baths are built in Rome or provinces and they are free for everyone is one of the important and popular applications of the state program. Necessary funds for this generosity are used sometimes from the private estate of the emperor and sometimes from national treasury. Rich donors, present in the environment with the aim of meeting the maintenance, operating and staff charges of the baths, and the shop incomes within the bath complex are also transferred to these funds. A bath manager, *balneatori*, is appointed to the bath by taking it under the conduct of the state. *Balneatori* conducts the business in exchange for specific money. According to Diocletian period prices on the north wall of Karia Stratonikeia Bouletherion², maintenance fee of *balneatori* per capita is two denarions (Fig. 1, 2). We come across a similar inscription in the price list founded in Aezani³. An entrance fee called *balneaticum* is paid as an entrance fee. It is one fourth of as in other word one quadrans for male and half "as" for female⁴. Empire slaves, soldiers and court or slaves of their relatives bath for free⁵.

Two thirds of the incomes gained in public baths meets the fuel charges. Considering that between 166-188 litrae wheat is equal to one ton fuel in some parts of the Rome Empire⁶, the high price of wood is understood. According to Diocletian period prices: one wagon load wood (1200 kg) is sold by 150 denarius; one camel load wood (400 kg) is sold by 50 denarius; one mule load wood (300 kg) is sold by 30 denarius⁷. This means one tone wood equals to 125 denarius. As one fourth of as fee is taken from male clients, forty male clients equals to one denarius. In order to meet one tone wood charge, 500 male clients have to pay entrance fee to the baths.

¹ Yegül 2006, 33.

² Sögüt 2009, 267.

³ Crawford and Reynolds 1977, 130.

⁴ Seneca Epistulae 86, 9.

⁵ Gruben and Krause 1965, 3060; Blyth 1999, 90.

⁶ Blyth 1999, 87.

⁷ Blyth 1999, 95.



Fig. 1. Stratonikeia Bouleuterion.

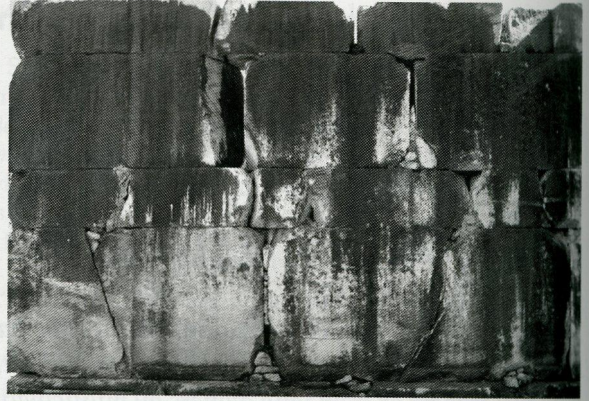


Fig. 2. Diocletian's Price List in the Stratonikeia Bouleuterion.

The same calculations are valid for female clients, too. As half as fee is taken from female, 2500 female clients meet only one tone wood charge.

According to the researches and calculation in Stabian bath in Pompei, it is stated that 35 kg wood are fired for 7 kcal an hour⁸. The fired wood had to bring the temperature of *sudatorium* and *caldarium*, of the hottest places of the bath, to 48 degrees, and the temperature of *tepidarium* to 28 degrees⁹. It is known that the baths are open about 15 hours from the sunrise till the second hour 9 at night. If 41.16 kg an hour wood are fired, 617.4 kg woods had to be fired for the bath and hottest rooms to warm up. According to these calculations, daily fuel cost of the bath is about 61 denarius. 2440 male client or 1220 female client met this cost. The wood that the bath fire a month is 18.510 kg and 222.120 kg a year. Annual fuel cost of the bath is 21.960 denarius. To meet this cost, 878.400 male clients and 439.200 female clients a year have to use the bath.

Considering that the male uses the bath about seven hours from midday till the second hour at night; this means average 348 people per hour. These calculations show that about 6 minutes could be spent per capita. In such a short time, the fact that a person goes out just after bathing without having any activity and leaves his place to a new circulation is impossible. Now that the fee is not taken from children, soldiers, court members etc., it is rather difficult to meet this fuel cost from the clients and other costs of the bath. As the fuel costs are so high, it is inevitable to apply subsidization to the baths for the state. One example of this subsidization can be seen in the records of re-arrangement presented by Augustus and made by Germanicus in the midst first A.D.¹⁰

The bath manager has to keep thirty days fuel in stock. The fuel is bought directly by the municipality from a fuel trader or territorial owner and is given to the bath manager. The fuel of some baths is financed from the forests belonging to the state. The person who donated to municipality for the bath did not have to pay anything only except for building charge¹¹. According to an inscription belonging to second century A.D. in Misenum in Italy, 400 car-wood in good quality is mentioned of donating in order to heat the baths¹². A donator from Altinum gives 800.000 "sesterce" for the restoration of Sergium and Putinum baths. He allocates four hundred thousand sesterces of this amount as a permanent fund in order to heat the baths¹³.

⁸ Joria 1979, 167-89; Başaran-İlksen 1998, 1-11.

⁹ Ashae 1953, 247.

¹⁰ Blyth 1999, 88.

¹¹ Blyth 1999, 87-90.

¹² Yegül 2006, 34.

¹³ Yegül 2006, 34, footnote 107.

It is not easy to provide ne necessary wood for the baths. The wood sent to the big baths in Rome come by passing through a series of complex money system by other cities and corporations. Indeed, the frequency of the donation made for the restoration of the baths. For this reason, the maintenance, restoration and expenditures of the public baths are financed and controlled like other public buildings. As the officers made these controls, so did the emperors by themselves. Emperor Hadrian mentions to have controlled the expenditures in baths and other public buildings by himself¹⁴.

Staff and daily oil costs are financed from the donations to the baths as well as the heating costs. It is mentioned of various commercial activities in an inscription belonging to Hadrian period in Magnesia Maendrum in order to meet the heating costs and necessary oil for baths and related gymnasium. At the beginning of the inscription, it is complained about inadequacy of the oil provided by the local bath manager and Gerosia Council is required to control the oil¹⁵. We come across the donations of the oil for the use of people in the inscriptions found in Lagina Hekate Sanctuary and Stratonikeia excavations. Every year on the thirtieth day of a certain month, in other words on the time of fullmoon, ceremonies had been held to celebrate the birth of the goddess and in these ceremonies. Money, perfume and olive oil had been given to the people¹⁶. In an inscription found in the sanctuary these aids are recorded as follows: "the daughter of Myonides, Apphia, also known as Polynike and everyone in their family are honoured for giving every person three drakhme, and two drakhme to many guests and people living nearby, and for handing out ladles of olive oil and perfume and putting aside for the ones absent in the Birthday Festival together with other festivals in honour of the biggest and the most famous goddess Hecate". Other inscription the daughter of Philetos, with the nun Hedinna Apphia, have distributed olive oil cost fourty drakhme throughout the festival"¹⁷. In an inscription found in the Stratonikeia: "...Phaidros, Leontis and Aeneas Phaidros are dedicated women bath to Stratonikeia and giving every person ten drakhme..."¹⁸.

The unclosed budget deficits have been financed by the state with the incomes gained from entrance fee of the baths, donations and shop rents. Thus, the state of Rome enabled everyone to make use of the baths equally by undertaking the conservative role over the citizens.

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¹⁴ Yourcenar 1992, 103.

¹⁵ Yegül 2006, 35.

¹⁶ Daşbacak 2008, 145.

¹⁷ Şahin 1997, 91-2.

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