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## CHRONOLOGICAL PROBLEMS AND SPECIAL FEATURES IN THE STRUCTURE OF THE CIVILIAN CITY OF AQUINCUM

IN MEMORIAM PROF. A. MÓCSY

A review of the history of the city will reveal that the basic and definitive changes, which must have been reflected in the settlement structure and the outlook of the city, may be more-or-less dated to the turn of the centuries.

A few decades after the formation of the city, Aquincum became the seat of the province at the turn of the 1st and 2nd centuries. Later, having become a municipium, the village features gradually changed into those of a real city.

At the turn of the 2nd and 3rd centuries it was granted the rank of colonia and this century, similarly to the whole province, marks a flourishing period. This was also reflected in its appearance: the greatest construction works in the city and in the surrounding villa districts took place at this time.

The turn of the 3rd and 4th centuries brought about negative changes. Aquincum ceased to be a civilian provincial seat. The 4th century was a late, declining era of the city marked by fewer constructions and a poorer quality of building material, probably owing to the above change in status and also partly to the warfare of the 330's.

### Settlement history

Research has shown and it has later been further demonstrated that there was no prior La Tène foundation in the civilian city (NAGY L. 1942, 373; NAGY T. 1971, 65; *ibid.* 1973, 113). The earliest finds from the civil city are from the end of the 1st century,<sup>1</sup> when the limes road must have functioned as a later northern-southern main road in the city (Fig.1). Beside it, the outlines of a small settlement with pit houses, a vicus, have been detected. Its structure is, unfortunately, not known, since earlier excavations could rarely produce clear layers from the 1st century. No ground plans have been published of the habitations, although houses dug into the soil have been described from the area of the later forum (PÓCZY-HAJNÓCZY 1971, 26), a tannery has also been noted as functioning from the Flavian period to the 90's in the place of the so-called basilica (NAGY T. 1964, 10). Pits yielding material from the end of the Traian period were observed in the area of the later macellum (KABA

1963, 30). The area of the collegium centonariorum was inhabited as early as the end of the 1st century, according to excavation observations (NAGY L. 1941, 191). Similarly, layers and finds from the 1st century were found on the western side of the road (NAGY T. 1964, 302; *ibid.* 1973, 113).

On the basis of the few data available it can be stated that settlement traces from the 1st century can be found along the north-south main road, the limes road of the later city, or its predecessor. This early settlement, lacking durable building materials, may have occupied an area running in a north-east direction which is more-or-less identical with that of later stone constructions. Toward the west, the settlement was bordered by cremation burials along Aranyárok which began in the Vespasian period (NAGY L. 1937, 265). It is not only the rite and the grave goods that indicate the presence of Roman customs in an early settlement lacking the rank of city but also its location outside the habitation area, along the road.

The beginning of the 2nd century was marked by a basic change: the early settlement turned both legally and in its outlook into a city. Some of its constructions did not lose their functions, as for example the aqueductus which was built parallel to the above mentioned earlier main road and provided both the military camp and the civil town with water. These two technical constructions may well have been the landmarks to which the road system and the city walls were adjusted. Nevertheless, we cannot say more about this stone construction than about the vicus,<sup>2</sup> namely that no systematic ground plan is known and only a few details have been published. Nothing certain can be said concerning the extent of the town either, since it is dubious what area the contemporary city wall enclosed.<sup>3</sup> Walls east of the aquaeductus have been investigated several times. Their construction has been dated to the beginning of the 2nd century (NAGY L. 1941, 185; NAGY T. 1943, 384; SZILÁGYI 1943, 357). Investigation on the western side has yielded the same results (NAGY L. 1937, 262), even if some differences could be observed in the constructions on the two sides, as e.g.: the wall on the western side was divided more-or-less every 60 m by square-shaped towers, while

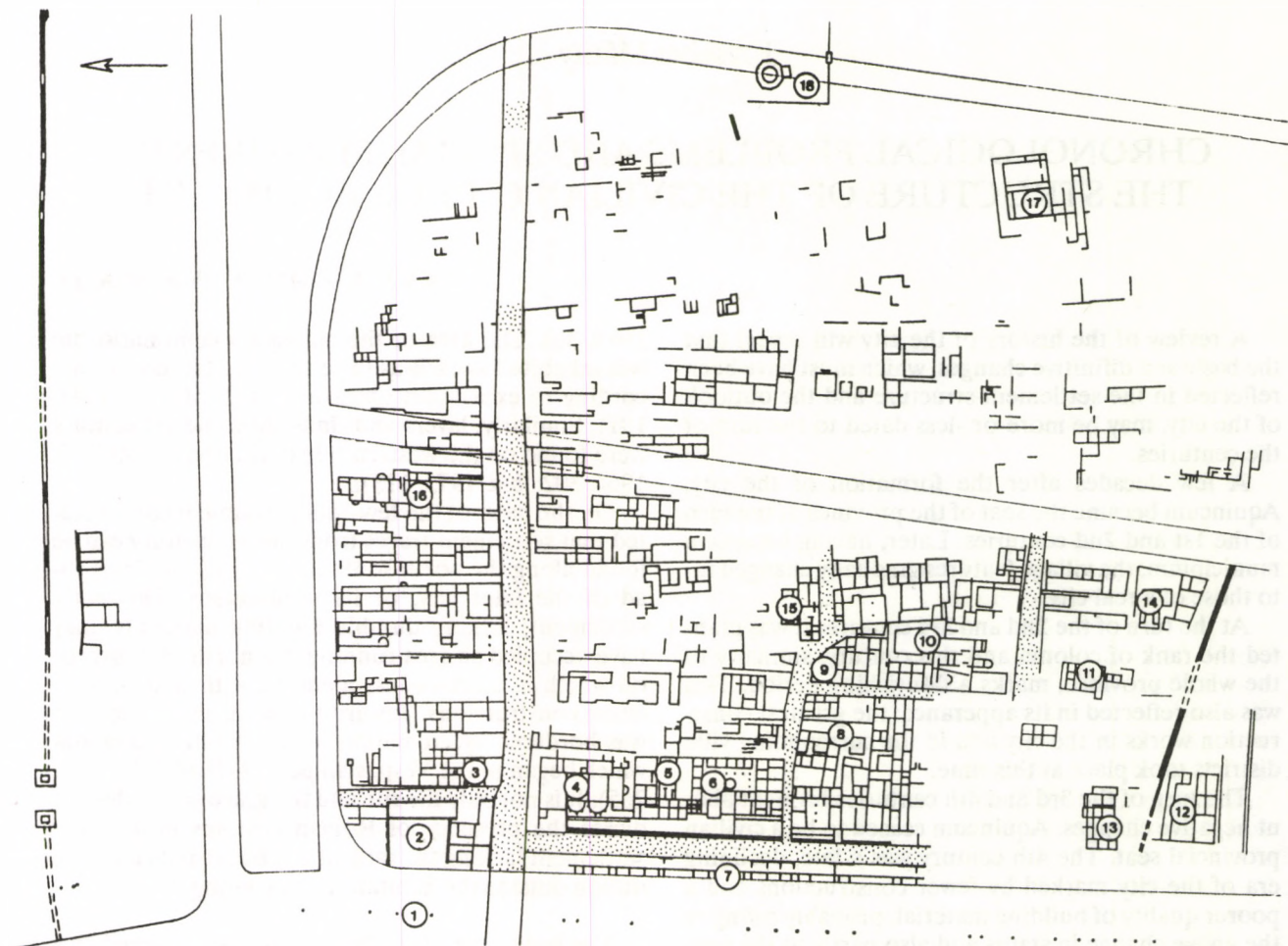


Fig. 1. Aquincum. The buildings of the town.

1. aquaeductus, 2. so-called palaestra or forum, 3. so-called basilica, 4. therma maiores, 5. sanctuary, 6. macellum, 7. shops, 8. dwelling houses, 9. double bath, 10. so-called big dwelling house, 11. so-called painters house, 12. deversorium, 13. so-called collegium centonarium, 14. mithraeum (Symphorus), 15. mithraeum (Marcus Antonius Victorinus), 16. bath, 17. early Christian Basilica, 18. round sanctuary

there was only on similar tower on the eastern side. The number of the moats also differed. Finally, the fact that in the west the wall does not have a regular square-shape but is trapezoid proving difficult to join to the next section at the southern gate of the city wall, suggests that the town walls on the two parts of

the aquaeductus were built in different periods. The whole area was probably not inhabited at the same time.

The investigation of the structures inside the walls must follow the accumulation and publication of data collected during current excavations and verification

excavations carried out in connection with the reconstruction of the monument.

As concerns structures outside and around the town, the system of settling industrial centres outside the town was used in Aquincum. The first potter's workshop, which produced *lucernae* and handled cups with relief ornamentation between the 100's and 140's, was unearthed outside the western wall of the town (NAGY L. 1937, 265). Another potter's workshop functioned south of the town. Its ovens were destroyed during the Markomann wars (NAGY L. 1937, 270). The greatest industrial centre connected to the civil town was built on a broad strip running towards the Danube. Approximately 40 ovens were found there. These ovens must have functioned between 160 and 180 (KUZSINSZKY 1932, ZSIDI 1984, 367-392).

The cemeteries were also placed outside the town. The cemetery at Aranyárok was later used towards the west as attested to by scattered cremation burials from the 2nd century (KABA 1984, 467). Other cremation burials were found along the road leaving the town towards the south (NAGY L. 1942, 469). In the east, the later Roman cemetery also contained finds from the 2nd century attesting to its use in an earlier 2nd century period (SZILÁGYI 1943, 445).

Finally, the country roads which ran out from the gates of the town connecting it with other settlements should also be mentioned. Some sections of the roads leading westward to Brigetio (GARÁDY 1936, 183-187, PÓCZY 1976, 33) and to *Ulcisia Castra* from the northern gate (PÓCZY 1977, 21; *ibid.* 1984, 473) have been found and investigated.

Basic changes happened in the settlement structure at the end of the 2nd and the beginning of the 3rd century. Excavation observations suggest a general town organization, setting up of an *insula* system and a road system inside the town wall, which, by this time, enclosed a trapezoidal area.

The detectable traces of subsequent application of measurements and proportions reflect a general concept. The ruling principles were the theory of symmetry and 1:3 and 2:3 proportions with the exception of the 1:2 proportion of the area bordered by the city wall. The length of the trapezoid-shaped city was cca 700 m long in one direction and 350 m in the other. The part of the *cardo* north of the *decumanus* must have lain at the same distance from the western and the eastern wall, although this latter has not yet been found. The amphitheatre, in the northwestern part of the town, was halfway between the northern gate of the town and the western corner tower. This balanced symmetrical arrangement divided north-south running aqueductus into eastern and western sections in a proportion of two thirds to one third. The same ratio is characteristic of the *insula* system. The groundplan of the town shows the rhythmic regularity of the streets and most probably, similarly

to other towns, Aquincum also had a rectangularly planned *insula* system (fig. 2).

The breadth of the *insula* comprising the great bath and the *macellum* (J3) measures ca 35 m. The same distance has been noted between the aqueductus and the *insula*. A similar pattern of cca 35 m can be detected in the long houses standing along the northern side of the east-west running main road. Halving the distance between the east-west main road and the northern town wall we get cca 105-105 m. Measuring the 105 m towards the south we arrive at street E while the next 105 m leads to street D. All these result in a network system sketched out in the attached figure. The problem is that the borders of the network and the streets do not always fit. Still, the fact that such a network could be drawn attests to the existence of a town planning programme which, however, due to the already standing edifices, could not be as consequent as with planned towns. Streets of various breadths ran from this or that square which are the causes, in addition to the orientation divergences characteristic of various building phases, of the inconsequencies. In some places two *insulae* had obviously been joined and built together as, for example (jk4) and (lm4). This phenomenon, however, is restricted to only one part of the town. The reason again lies in the influence of earlier periods on town planning.<sup>4</sup> The only item that does not fit this measurement system is the *insula* of the forum, the breadth of which surpasses that of other *insulae*. The same phenomenon, however, may be found in other towns as well.

A better way of illustrating the town planning concept might be by looking at the proportions. The measurement of an *insula* is 35 m x 105 m, that is, a ratio of 1:3. When two *insulae* were united by building several buildings close to one another, the ratio of the sides is 2:3. Concerning the groundplan of the whole town, 5 *insula* rows were set up in a north-south direction in the area east of the aqueductus. The ratio of their numbers is 2:3 (2 in the northern sector, 3 in the southern). In an east-west direction, 12 *insulae* could be located east of the aqueductus and 8 west of it.

The above theoretical reconstruction still needs to be confirmed by further excavations.

In the 2nd century, the town wall provided the framework for building, while in the 3rd century the settlement system changed, since, due to economic prosperity, the town grew over its own limits and buildings extended beyond the walls (NAGY L. 1942, 370; PÓCZY 1976, 425; PETŐ 1984, 276).

The third great change in this period was related to the formation of villa farming systems. It is at this time when a buildup of villas took place in the hills around Aquincum. This process got under way as early as the end of the 2nd century following the Markomann wars when the numbers of slaves grew providing enough hands for the land. Still, it was only in the 3rd century that this process was at its height. Although nothing is

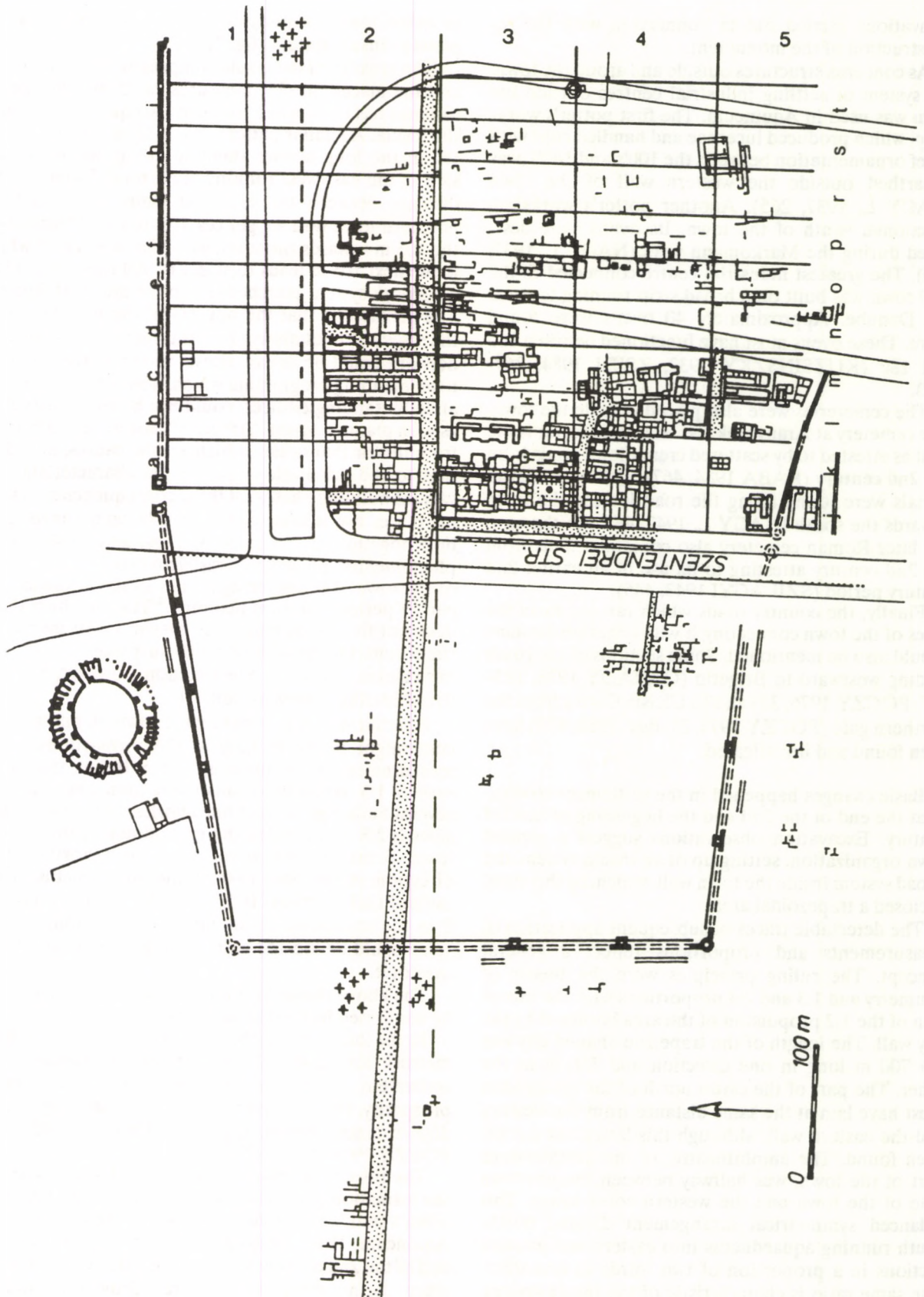


Fig. 2. Aquincum. Hypothetical insula-system.

known of the size and production of the villas at Budakalász (NAGY T. 1948, 112), Békásmegyér (PÓCZY 1971, 85–102), Csúcshegy (NAGY L. 1937, 25–60), Testvérhegy (GARÁDY 1936, 88–96), Mocsáros dűlő (MÁRITY 1988, 43), Csikós utca (ZSIDI 1991, 143–179), their central buildings have been excavated and, in some cases, their economic buildings are also known.

Industrial centres were planned outside the town in this period as well. A torch producing workshop is known to have operated on the eastern border of the town from the end of the 3rd and the beginning of the 4th century (TÖMÖRKÉNYI 1913, 282).

At that time, burial ground lay on the eastern side, on the territory of the present Gas Works (SZILÁGYI 1955, 409, WELLNER 1964, 303) although a stone sarcophagus and brick graves have also been found on the southern side of the town (NAGY L. 1937, 265).

No data exist to suggest that new long-distance roads were built. Road reconstructions took place in the district of Aquincum in the 230's. In *Ulcisia Castra*, the road leading towards the present *Üröm* was reconstructed as attested to by mile stones (NAGY L. 1942, 379–380).

In the first half of the 4th century, there were no basic structural changes inside the town walls even if there were construction works at several points in the town (see later), sometimes using inferior quality building materials. This involved the reconstruction of earlier buildings, alterations within the existing *insula* system and the functioning street framework. At the end of the century the habit of burying the dead next to the town wall or sometimes within the town itself, characteristic of the Late Roman period, also appeared in Aquincum. The disturbances at the border and the insecure condition led to a decrease in population and a shrinking of the town. The late graves drew up close to the western wall (NAGY L. 1942, 469) and the results from recent excavations (ZSIDI 1991, 163) demonstrate that the town retreated into an ever smaller area. At the time of the settlement, the territory east of the aquaeductus played a decisive role, while during the final period of the town the western side was of greater importance.

Although the majority of the villa buildings revealed alterations and enlargements from the 4th century, no data have as yet been found which attest to a change in the land system related to them.

Burials took place on the eastern side of the town where a group of graves came to light around a small graveyard shrine. These have been dated to a few decades in the middle of the 4th century (NAGY L. 1942, 769).

#### *Building history*

In the following, the data published to date by archaeologists concerning the history of the construc-

tion periods will be listed in chronological order. These data are the ones on which research into urbanism may be based.<sup>5</sup> Their low numbers reflect the limitations of this type of research.

#### *2nd century*

Stone construction began at the beginning of the 2nd century. The town walls were built from stone (NAGY L. 1937, 262 *ibid.*, 1941, 191). The so-called basilica (NAGY T. 1964, 9–54), the arcades (NAGY L. 1937, 263; NAGY T. 1964, 30; NÉMETH-HAJNÓCZY 1976, 423) and the bath in street C were built (HAMPEL 1890, 51–74; SZILÁGYI 1950, 320). This latter in itself supposes the existence of the aquaeductus. At the time of the construction of the so-called basilica, in 110–120, a well with stone rings in the area was filled in (NAGY T. 1963, 28), since after the setting up of the water system it was no longer needed. The so-called painter's house (NAGY T. 1943, 378), the habitation on the northern side of street D (PÓCZY-HAJNÓCZY 1970, 23), the so-called hall-house on the northern side of the street (NAGY T. 1943, 389), a private building (NAGY T. 1943, 383) and habitations were built along the northern wall of the town (SZILÁGYI 1950, 311). An inscription reveals that the amphitheatre of the civil town must have been in existence in 162 (KUZSINSZKY 1891, CIL III 10441). The collegium centonariorum began functioning around 150–160 in a building erected in the middle of the century (NAGY L. 1941, 191). Later, in the middle of the 2nd century the bath in street C was rebuilt (HAMPEL 1890, 51–74). The same happened to the shop row (NAGY T. 1964, 302, NÉMETH-HAJNÓCZY 1976, 423) and the bath in street B (SZILÁGYI 1950, 318) at the end of the century. The mithraeum was also built (Marcus Antonius Victorinus) at that time (KUZSINSZKY 1889, 78). Around 180, the potter's workshop in the area of the Gas Works stopped functioning (KUZSINSZKY 1932, SZENTLÉLEKY 1959, 173).

#### *3rd century*

At the beginning of the 3rd century, the amphitheatre was rebuilt (PÓCZY-HAJNÓCZY 1971, 26) and a box of honour and new overpasses were added. In 214, the Nemesis shrine was reconstructed (KUZSINSZKY 1891, 114).

The so-called palaestra was once more rebuilt (PÓCZY 1963, 29; PÓCZY-HAJNÓCZY 1971, 26) in just the same way as the so-called basilica (NAGY T. 1964, 9–54) and the shop row (NÉMETH-HAJNÓCZY 1976, 423). Streets C and E took their final shape (NAGY L. 1942, 374). It was also at this time that the round Celtic shrine got its form recognised today (NAGY L. 1942, 580). The second period of the mithraeum (Symphorus) also dates to this time period (NAGY T. 1943, 384). The macellum was built in the middle of the century (NAGY L. 1942, 374). The collegium centonariorum perished in a fire (NAGY L.

1941, 191) while the painter's house was demolished (NAGY T. 1958, 149).

#### 4th century

The so-called hall-building displays evidence of rebuilding in the 3rd and 4th centuries (NAGY T. 1943, 389). The bath west of the aquaeductus was rebuilt several times during the 3rd and 4th centuries (ZSIDI 1984, 461). The earlier building was replaced by new structures in the so-called palaestra or shrine at the beginning of the 4th century (PÓCZY-HAJNÓCZY 1971, 26). It was observed that the habitation at the corner of streets E and F might have been used during the 4th century (PÓCZY 1984, 461). A torch producing workshop was active at the end of the 3rd century and the beginning of the 4th century in the area where later the gas workers' houses stood (SZENTLÉLEKY 1959, 184). Thin-walled daub houses were erected above the potter's workshop south of the macellum at the end of the 3rd century, the beginning of the 4th century (NAGY L. 1945, 173). A smaller group of graves was discovered around a little graveyard shrine dated from a few decades in the middle of the 4th century, not far from the double ancient Christian basilica dated from the second half of the 4th century (NAGY L. 1942, 376, 769). The northern ditch was filled in and a northwest-southeast directed drainage canal was constructed above it in the last part of the 4th century (PÓCZY 1976, 424). The excavations revealed that the mithraeum (Marcus Antonius Victorinus) was no longer in use by 375 (KUZSINSZKY 1889, 85).

#### *Connection between historical and architectural history data*

The historical background to the development of the town is provided by the events in Aquincum in the 70's and 80's. The inscription, found in Óbuda, demonstrated the existence of an ala camp from the Vespasian period dated to 73 (TÓTH-VÉKONY 1970, 133–161; NAGY T. 1973, 113; AnÉp 1985, NÉMETH-KÉRDŐ 1986, 384–388). Later, at the end of the 80's, a legion camp was built at modern day Flórián square (NAGY L. 1942, 364).

The few finds from the civil town also come from this time at the earliest.<sup>6</sup> These are brick-coloured sherds from the early Imperial period (NAGY T. 1963, 28, *ibid.*, 1971, 59–81), a motted jug (NAGY T. 1964, 9–54), early samien ware fragments (NAGY L. 1941, 206) and Roman coins (NAGY L. 1941, 194; NAGY T. 1964, 34).

There are no traces of ceramics from the Po valley area, the only North-Italian wares being Drag 35–36 type barbotine ornamented dishes (GABLER 1977, 147).

The first stone buildings are related to the events which took place at the beginning of the 2nd century. Aquincum became the seat of the divided dominion

where Hadrian, the later emperor became the proconsul of Pannonia in the rank of praetor in 107. He awarded the rank of municipium to the town in 124. The water system constructed for the military town may also have helped in the development of the town. In the beginning, the army also may have taken part in the construction work. This idea is supported by the discovery of stamped bricks of the 2nd adiutrix found in the bath in street C (HAMPEL 1890, 68), in the bath in street B (SZILÁGYI 1950, 318) and in the habitation next to the bath (KUZSINSZKY 1891, 137). A stamp with a circular frame of the 2nd adiutrix was recovered in the building standing on the southern side of street D (NAGY T. 1943, 383).

The destruction of the potter's workshop in the area of the Gas Works must be connected with the devastations of the Markomann wars (perhaps the same holds true for the early Celtic shrine). The burnt layer from 170 in the bath in street B and the rebuilding of the shop row and the bath in street C must be related to the same event.

At the beginning of the 3rd century, an overall town reform can be observed in the public buildings in the town centre while the amphitheatre was also rebuilt. Several explanations can be considered. With the renovation of the buildings damaged during the Markomann wars, the town wanted to match its appearance with the colonia rank which was awarded it in 194. A visit by Septimus Severus may also have influenced construction.

The destruction of the so-called painter's house may be connected with German raids in the middle of the 3rd century. The collegium centonariorum also may have perished in the fires of the war. Several coin hoards hidden in the civil town date to this period. A coin find containing 16 pieces (Elagabalus-Salonina) was found in the so-called large habitation (KUZSINSZKY 1889, 132), 18 antique coins (middle of the 2nd – middle of the 3rd cc.) were found in the great bath in street C (HAMPEL 1890) and a coin find containing 29 pieces (Septimus Severus – Claudius I.) were uncovered in the bath in street B (SZILÁGYI 1950, 318). Several buildings needed to be reconstructed at the beginning of the 4th century probably owing to the Sarmatian war.

The town must have been raided once more in the 370's as attested to by a coin find containing 80 pieces (Constantinus II. – Gratianus) hidden in the mithraeum (Marcus Antonius Victorinus) (KUZSINSZKY 1889, 85, 166).

#### *Number of the population*

There are no data concerning the size of the population of the civil town in Aquincum, although it can be calculated in several ways. One possibility is to compare the area of the military camp and of the civil town. The camp in the 2nd-3rd centuries was the residence of 6000 soldiers and occupied an area of cca 24

ha. The civil town at the end of the 2nd and beginning of the 3rd century lay on an area of cca 28 ha. Accordingly, the population density must have been 250 persons/ha in the camp and 214 persons/ha in the civil town. This is in harmony with the theory that the camp was always crowded, and the use of space was more economical than in towns (LAVEDAN 1966, 350). Seventy percent of the camp's area was occupied by public buildings and only the remaining thirty percent was occupied by barracks. This ratio may be applied with certainty even if the whole camp has not yet been excavated since the ground plan has been defined to such a great extent already that analogues can predict where public buildings can be expected (PÓCZY-NÉMETH-SZIRMAI-KOCSIS 1986). In the civil town, the buildings have only been excavated in a limited area so it is more difficult to predict the ratio of the public and private buildings. Still, if the area between the aqueduct, Keled street, Sujtás street, Záhony street, i.e. the present area of the ruins, is examined this comprises nearly one third of the town and also the best excavated part the following distribution may be observed: Approximately 80% of the territory is occupied by dwellings while only 20% of the area contains public buildings. What is more, this is the centre of the town where probably there were more public buildings than in the outer districts.

Thus, it appears to be a fact that the army of 6000 soldiers lived crammed within a small living area as the largest part of the camp was occupied by public buildings. In the civil town, occupying a larger area, the population estimated at 5–6000 persons, lived more spaciouly in larger houses with fewer public buildings.

Another comparison can be made between the floor plans of the forum square and principia square as well. It was in the latter that the 6000 soldiers lined up for a parade or other occasions. The forum of the civil town has not yet been absolutely identified, but a circa 30x30 m large square has been found at the crossing of the two main roads. As far as we know this was

the largest square in the town. The size of the principia in Aquincum is 30 x 35 m (SZIRMAI 1976, 98). The ratio is thus similar as in the previous example.

A similar result can be achieved by comparing the area of the amphitheatres.<sup>7</sup> In the military amphitheatre, 13 000 people could attend as calculated on an area of 11 000 m<sup>2</sup> (SZILÁGYI 1956, 16). The amphitheatre of the civil town covers a territory more than of 5000 m<sup>2</sup>. Being half as large as the military structure it would have permitted only 5000–6000 people to enter. To compare the amphitheatre at Caerleon should be mentioned. This structure occupied a space of cca 5500 m<sup>2</sup> and held 6000 people (COLLINGWOOD 1930, 104).<sup>8</sup>

There is yet another point of comparison. Bath habits of the soldiers and the civil population must have been similar even if not identical. The bath of the camp in Aquincum occupied 10 000 m<sup>2</sup> without the palaestra and served 6000 people. The total area of the three public baths excavated so far in the civil town is 4000 m<sup>2</sup>. The existence of two other baths is known (NAGY L. 1937, 263, 1942, 552, ZSIDI 1984, 461). Estimating their groundplan to be 1000 m<sup>2</sup> each, the total area may have been as much as 6000 m<sup>2</sup>. In several military camps (Lambaesis, Novaesium, Caerleon etc.) (PETRIKOVITS 1975, 227) there no such large bath existed. Considering that only one third of the civil town has been excavated to date and that even so five public buildings have been identified, the discovery of further ones can be expected.

All these data suggest that a population of 5–6000 persons can be estimated for the civil town in the 3rd century.<sup>9</sup>

Through the collection of data on the history of the settlement and the architecture it is intended to eliminate the gap in the description of the history of research on the town caused by the scattered publication of excavation data through the last hundred years. This summary was also meant to provide a basis for further urban research. Only the most evident conclusions were drawn here from the data.

## Notes

This paper is a part of a doctoral dissertation with a similar title. I owe my thanks to Prof. A. Mócsy for the topic. I would also like to thank Vera Lányi and Sándor Soproni for their help. I would also express my gratitude to Endre Tóth for his useful advice.

1 Tibor Nagy dates the initial period of the settlement to the Flavian period. Based on his excavations at the basilica, he differentiates two periods at the vicus: the Flavian and the Traian-Hadrian (NAGY T. 1971, 66).

2 Stone building does not necessarily mean edifices made of stone. Often a clay wall was erected on stone foundation. Other types of mixed walls may also be imagined such as, for example, wood constructions (KUZSINSZKY 1892, 87).

2 Stone building does not necessarily mean edifices made of stone. Often a clay wall was erected on stone foundation. Other types of mixed walls may also be imagined such as, for example, wood constructions (KUZSINSZKY 1892, 87).

3 In her recently published paper, Paula Zsidi related the following concerning the town wall: "Due to the lack of detailed analysis of the find material, only cautious statements can be made concerning the extent and structure of this town wall." (ZSIDI 1991, 161). She does not venture to differentiate the 2nd and 3rd periods but discusses them together leaving open some of the questions mentioned in this article.

4 In this part of the town, such precedents must be expected.

- ed, different altogether from the other parts of the town. These may have influenced even the later ground plan.
5. We did not aim to make bibliographical comparisons. The reference contains only those publications where the excavators could date the edifices they had unearthed.
  6. As it can be seen in the first part of the chapter on settlement history, very few early settlement features have been observed in the civil town. Even these have not always been published. Actually, the find materials of only two excavations could be used (NAGY L. 1941, 182–231; NAGY T. 1964, 9–54).
  7. According to Károly Torma, the first excavator of the amphitheatre of the civil town (TORMA 1881), 3000 seats have been placed in the edifice. The same data were published by Lajos Nagy (NAGY L. 1942, 566).
  8. Not only can the total floor plans be compared but also the size of the auditorium (where seats have also been preserved) in the better preserved amphitheatres.
  9. The size of the population can also be estimated from the number of graves in the cemeteries. The cemeteries belonging to the civil town, however, have not all been excavated and are thus inappropriate for such an estimation.

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