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EDITORIAL

It came as quite a surprise when I was filling in the Volume number on the heading for this issue of *Balnearia* to realise that the Association was now in its fifth year and still going strong. It is never easy to carry a new enterprise over the first flush of enthusiasm, and I would like to register my appreciation to all the Regional Representatives who have built up and sustained our membership (now standing at well over 150 in 18 countries), and to all who have contributed items large and small to the Newsletter over the last five years.

As further confirmation that IASAB is here to stay, the President, Inge Nielsen, has recently received acceptance of our continuing relationship with the Associazione Internazionale di Archeologia Classica from its new president Prof. J. Rasmus Brandt. The next International Congress of Classical Archaeology, organised under the auspices of AIAC, will be held in Amsterdam, July 12-17 1998. The theme of the conference is "Classical Archaeology towards the third millennium: reflections and perspectives", with papers organised under 7 sections including Architecture and Urban Space, Social, Economic and Political Issues, and Iconography and Iconology, all of which could attract papers of interest to IASAB members. Anyone interested who has not received any advance publicity from AIAC should contact Dr R.F. Docter, Allard Pierson Museum, Oude Turfmarkt 127, 1012 GC Amsterdam, The Netherlands, tel. 31 20 5252552, fax 31 20 5252561; abstracts are requested by 1 January 1998.

Preparations are also in progress for IASAB's

third international conference on ancient baths, to be held in Zaragoza in Spain in 1999. The conference, organised by Prof. M. Martín-Bueno, will be based in the Department de Ciencias de la Antigüedad at the University of Zaragoza and supported by the Institución Fernando el Católico, the most prestigious cultural institution in the Aragonese region. More details will be available in the New Year.

Next issue brings as usual a further bibliographic supplement, as well as articles on baths at Chianciano Terme in Italy and a survey and attempted classification of the subterranean regions of major bath buildings such as the imperial thermae of Rome. With luck the next issue will be rather more on time than this! My apologies.

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Baths of the Hisma Desert¹

In the desert, water is a precious commodity. It is both hard to find and hard to keep. When a substantial, seasonably renewable supply of water is located, a settlement will form around it. If the settlers can further increase the quantity of water they receive, for example by tapping distant springs with aqueducts, the community will have access to a volume of water which exceeds the needs of human and livestock consumption and of agriculture. Once the community has a surplus supply of water, this once precious commodity can be used "not only for drinking, but also for bathing and other such activities people luxuriate in when they have far more water than they need".²

The Hisma desert in southern Jordan is a very inhospitable environment. Except in the vicinity of springs, the desert naturally supports little vegetation except scrub. Rainfall averages 95 mm a year (40 mm in dry years),³ well below the minimum of 250 mm necessary to support drought farming of grain. The desert can, however, be made more hospitable if systems are developed to collect the meagre water and direct it to planting areas or settlement centres. The ancient Nabataeans were experts at such water-harvesting methods.

Between the fourth century BC and the first century AC, the Nabataeans controlled a territory which encompassed the Hisma, the Negev, parts of the Sinai Peninsula, the northern Hegaz, the Moab, and the southern Hauran at least as far north as Busra. In the late fourth or third century BC the Nabataeans were characterized as wandering pastoralists and traders whose customs precluded the building of houses.⁴ By the first century BC, however, it is reported that many Nabataeans lived in costly stone houses in unwall settlements.⁵ Clearly there had been a radical change in Nabataean lifestyle, one that some modern scholars attribute to a deliberate policy of sedentarization fostered by the Nabataean kings.⁶

The settlement of Hawar (modern Humeima) seems to be a result of this official sedentarization programme. According to Ouranios' *Arabika*, the settlement was founded in the early first century BC by the Nabataean king Aretas III (reigned c. 87-62 BC).⁷ The presence of an important caravan route and an excellent natural water-catchment field made this an attractive location in which to establish a permanent settlement, but it was the addition of man-made water systems which made this desert settlement viable. In the first century BC or AC, dozens of cisterns, two large reservoirs, a wadi dam, and a 27 km aqueduct were built at Hawar to provide the new community with a year-round plentiful supply of water.⁸ Given the magnitude of the effort to construct Hawar's water-supply system, it was probably organized by the reigning monarch.

Hawar is one of the two largest Nabataean

settlements in the Hisma. The other, located at Wadi Ramm, has often been equated with Aramaua listed by Ptolemy⁹ and with Islamic Iram.¹⁰ With the exception of a Nabataean temple excavated in the 1930s and 1960s,¹¹ the settlement at Ramm has received little attention. Visual inspection of the ruins suggests the settlement was quite large, encompassing c. 0.25 sq. km. The incentive to build a permanent settlement here was no doubt the promise of year-round water provided by the 13 springs located around the settlement. As at Hawar, however, the springs are located high above the valley floor. In order to make their water accessible, the Nabataeans constructed aqueducts to transport the water down the mountainside, and reservoirs in which to store it.¹² Thanks to their man-made water supply systems, both the settlements at Hawar and Wadi Ramm could access more than enough water to support their populations. Following a pattern observed throughout the ancient Mediterranean, some of the excess water was used to supply bath-houses.

The bath-house at Humeima was excavated in 1989 by J. P. Oleson as part of a regional survey of ancient hydraulic structures in the Humeima region. Additional theoretical consideration of the structure was carried out by M. B. Reeves,¹³ and new probes were excavated in July 1996 by Oleson and Reeves.

Humeima's bath-house (see Fig. 1) is a small (150 sq. m.) structure with a simple plan designed to be parsimonious with water. It was apparently built as an adjunct to a Roman auxiliary fort which was built in the first half of the first century AD, immediately after the Nabataean kingdom became part of the Roman province of Arabia. The bath is located 150 m to the SW of the SW corner of the Roman fort, on the edge of the Nabataean settlement, and adjacent to an aqueduct-fed reservoir which had been built by the Nabataeans. The bath itself was built on the foundations of an earlier Nabataean structure whose plan was substantially altered for the construction of the bath. In its first phase, the bath consisted of only the rooms deemed most essential by its architect: an *apodyterium* (Room B), an indirectly-heated *tepidarium* (Room E), a sweat room (Room D), a *calidarium* (Room A), and a furnace (Room C). In the Late Byzantine period the bath was renovated by installing a new, larger, *apodyterium* (Room F), filling in the hypocaust under Room E (which now became a *frigidarium*), and repairing the heating systems in the other rooms. Finally, in a last stage, a poorly constructed external room (Room G) was added, perhaps to hold fuel or to house a latrine.

As is the norm in this region, the walls of the structure were constructed of mortared rubble with a stone facing. The interior walls and floors were coated in plaster and, appropriately for an auxiliary unit's bath-house, there were no mosaics

or wall frescoes. Rectangular grooves in the north and south walls of the *calidarium* and of the sweat room held flue pipes, and box flues also lined the south wall of the *calidarium*. The hypocaust *pilae* (beneath Rooms E, D, and A) were constructed from tiles; circular tiles were used in the phase 1 construction and square tiles in the phase 2 construction. Fixtures in the rooms consisted of *klinai* (plaster benches with built-on pillows) for lounging in the *apodyteria*,¹⁴ and a bench for sitting in the sweat room. The *tepidarium*/*frigidarium* and the *calidarium* contained splash basins rather than immersion pools, as befits the bath's placement in a water-poor region.

The other known bath in the Hisma desert is located on a small hill above Ramm's ancient settlement. The bath forms part of a large complex located to the east of a Nabataean temple. Given the proximity of the temple, the shared placement of these buildings on a hill, and the fine construction and decoration of this "Eastern Complex", it is likely that the complex served, in part, some official function.

Information about the Eastern Complex and its bath-house is just starting to become available. Although this structure was partially cleared out in the 1960s by the Jordanian Department of Antiquities, no records of that excavation remain. In August 1996, a new investigation of the Eastern Complex was begun by M. B. Reeves & D. Dudley with Reeves directing work on the bath.¹⁵ It is now apparent that the bath-house contained 5-6 central bathing rooms, plus another 6 service or ancillary rooms. In 1996 excavation was carried out in the bath's finely-constructed circular room (D = 3.40 m). Contrary to our expectations, there was no indication that this room had been heated, or that it had been finished in hydraulic plaster. The function of this room is still uncertain, but given its location in the building it is possible that it served as an *unctorium*. Excavation in 1996 also concentrated on the *calidarium* of the baths which contained a large (internal size = 2.01 x 0.76 m) built-in plastered basin, flue pipes in its walls, and a plaster floor. The floor plaster was laid in 6 layers which rested on top of large flat stone slabs (c.0.13 m thick) which in turn rested on hypocaust *pilae* made of sandstone. These stone *pilae* are very different from the tile ones employed at Roman Humeima and are reminiscent of the stone *pilae* of Herodian bath-houses¹⁶ with which this Nabataean bath is roughly contemporaneous. The excavation of Ramm's bath will continue in the summer of 1997 when rooms hypothesized to be a *frigidarium*, a sweat room, and a small *apodyterium* will be targeted for study.

Until excavations reveal more about the bath at Wadi Ramm, a full comparison of the two Hisma baths will have to wait. At the present, however, there is one feature of these baths which should be stressed. The baths in the Hisma desert are exam-

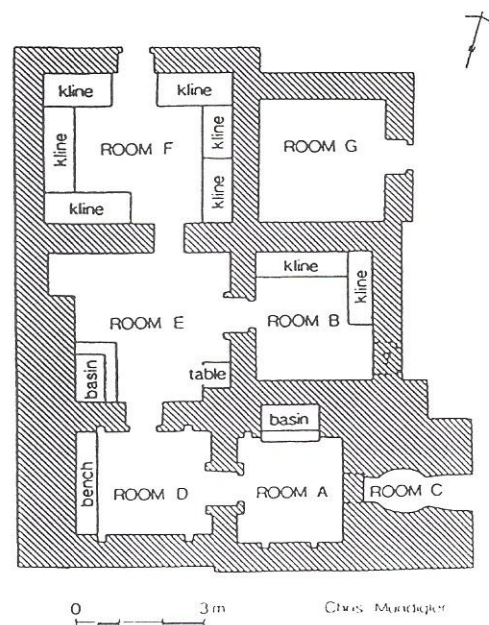


Fig 1: Humeima - Baths Stage III

ples of structures which were common throughout the Hellenistic-Roman world. The placement of such baths in midst of the desert, however, seems almost hubristic. The hypocausted bath could not operate without copious supplies of water and fuel. In the desert both of these supplies are scarce. In both Wadi Ramm and Humeima bath-water was imported by aqueduct, and at Humeima much of the furnace-fuel was probably imported as well. The hypocausted bath is the epitome of bathing luxury. The construction of such baths in the desert seems a bold statement of independence from the limitations of the natural environment.

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Notes:

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² trans. of Procopius *Aed.* 5.2.3f.

³ J.W. Eadie & J.P. Oleson, "The water-supply systems of Nabataean and Roman Humayma," *BASOR* 262 (1986) 49-76, p. 54-55.

⁴ Diodorus Siculus 19.94, probably based on Hieronymos of Cardia

⁵ Strabo 16.4.26

⁶ e.g. G. W. Bowersock, *Roman Arabia* (Cambridge, MA1983) 64.

⁷ *FGrHist* 675 F1b

⁸ J.P. Oleson, "Nabataean and Roman water use in Edom: The Humayma hydraulic survey, 1987," *EchCl* 32 (1988) 117-29.

⁹ *Geog.* 6.7.27

¹⁰ e.g. A. Musil, *The Northern Hegâz*, vol. 2. (New York 1926) 273. Other possible identifications for Iram are Damascus in Syria (A. J. Wensinck, "IRAM DHAT AL-`IMAD," in M. Th. Houtsma et al. (eds.), *E. J. Brill's First Encyclopaedia of Islam 1913-1936.*, Leiden 1987) III.519-20 and Ubar in Oman (Nicholas Clapp (producer, director) & George R. Hedges (producer). *NOVA: Lost city of Arabia* [Film]. Boston1996).

¹¹ R. Savignac & G. Horsfield, "Le Temple de Ramm," *RBibl* 44 (1935) 245-78; D. V. Kirkbride, "Le temple Nabatéen de Ramm: Son évolution architecturale," *RBibl* 67 (1960) 65-92.

¹² A.S. Kirkbride & L. Harding, "Hasma," *PEQ* 79 (1947) 7-26, see p. 13; R. Savignac, "Notes de voyage - Le sanctuaire d'Allat à Iram," *RBibl* 41 (1932) 581-97.

¹³ J.P. Oleson, "The Humeima hydraulic survey, 1989: Preliminary field report," *EchCl* 34 (1990) 145-63.

¹⁴ M.B. Reeves, *The Roman Bath-house at Humeima in its Architectural and Social Context*. M.A. thesis, University of Victoria, 1996.

¹⁵ The *klinai* suggest reclining, perhaps while drinking and eating, was an established part of the bathing sequence at Hawar. Similar plastered benches are present in the recently excavated bath associated with the early Islamic Qasr on the Amman Citadel (Jordan) and in the bath at Beth Yerah (Israel) (B. Maisler, M. Stekelis & M. Avi-Yonah, "The excavations at Beth Yerah (Khirbet el-Kerak) 1944-1946," *IEJ* 2 (1952) 218-22).

¹⁶ For a fuller report see D. Dudley & M.B. Reeves, "The Wadi Ramm Recovery Project: Preliminary Report of the 1996 Season," *EchCl*, XLII n.s. 16 (1997), in press.

¹⁷ e.g. Y. Yadin, "The excavation of Masada—1963/64: Preliminary report," *IEJ* 15 (1965) 1-120; esp. 29-36.

Baths on the Internet

Has anyone tried the new Ancient Baths Resource Site on the Internet, advertised in the last issue of *Balnearia*? I visited it recently, and while it is clear that there is still much work in progress, the prospects look good. The "Museum" section is still far from complete, but allows you to visit a small number of sites, notably the Baths of Julia Memmia at Bulla Regia, while there is also a link to an analysis of the *mansio* baths at Valesia in Italy. Most useful is the glossary of bath terms; as yet just in English, but very useful for teaching purposes. There is also a short bibliography, which further refers users to the standard bibliography of Manderscheid and to the *Balnearia* supplements.

Anyone with an existing web page on a relevant topic who would like to establish a link with this resource, or is otherwise interested in contributing, can visit the site at <http://squash.la.psu.edu/cams/baths/baths.htm> or contact Garrett Fagan directly at Penn State University, email gjf2@psu.edu.

A Roman Republican Bath in Valentia, Spain

Valentia lies 4 m under the present city of Valencia, mid-way along the Mediterranean coast of Spain. It was founded in 138 BC, probably as a Latin colony. Excavation carried out in the city centre has uncovered a Roman Republican quarter of the late 2nd century BC. The main buildings are a bath building (II) and a *horreum* (I), separated by a street. The bath is the most ancient and complete example of its type in *Hispania* and possibly in the western Mediterranean, retaining its original design. Indeed it had only a short life, being destroyed in 75 BC during the Civil Wars at the same time as the town. At present four consecutive rooms running from south to north have been uncovered, although not completely. A *praefurnium* and *caldarium* have been identified securely, while the others are less certainly a *tepidarium* and *apodyterium*. The west facade was formed by a row of *tabernae*. There is no evidence for a hypocaust, otherwise a normal feature in ancient baths. The *alveus* is in fact intact, and lies close to the furnace of the *praefurnium* but without any direct under-floor connection. Presumably the water was heated in a basin over the furnace and then poured into the nearby bathtub. The floor consists of brick tiles.

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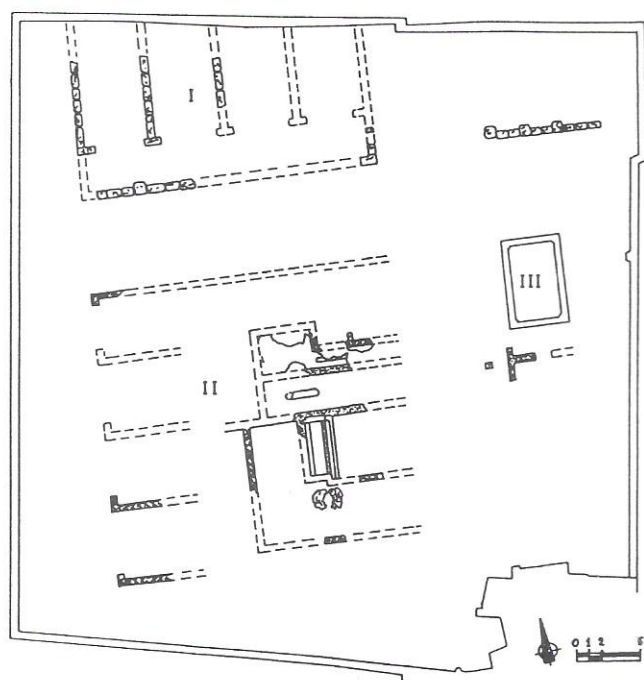


Fig. 1: Valentia. Republican quarter with baths

Ein Schutzbau für die Großen Thermen der Colonia Ulpia Traiana

Die um 125 n. Chr. errichteten, öffentlichen Thermen der Colonia Ulpia Traiana (Xanten/D) nehmen eine Gesamtfläche von knapp 11.000 m² ein, von denen ca. 5.900 m² auf umbauten Raum entfallen (Abb. 1). Sieht man von den großen Thermen-Gymnasien-Komplexen des griechischen Ostens ab, gehören sie damit zu den größten Badegebäuden, die zwischen flavischer und antoninischer Zeit im Römischen Reich errichtet wurden.

Die nachantike Geschichte des Baukomplexes war wechselhaft. Erste Sondagen fanden bereits vor 120 Jahren statt, doch danach blieb der Befund lange sich selbst überlassen. Zwischen 1957 und 1963 mußten dann großflächige Notgrabungen unternommen werden: Die Stadt Xanten hatte das Areal als Gewerbegebiet ausgewiesen und das Thermengelände für die Ansiedlung einer Stahlbeton-Fertigteile-Fabrik freigegeben. Bald danach waren die Thermen unter den Produktionshallen der Fabrik verschwunden. Nachdem 1977 die ersten Schritte zur Realisierung des Archäologischen Parks Xanten erfolgt waren, wurde man auf das Schicksal dieses antiken Großbaus aufmerksam. 1984 veranlaßte das Land Nordrhein-Westfalen mit großem finanziellen Aufwand die Verlagerung der Fabrik. Wenig später begann die dritte Freilegung der Thermen, die 1993 abgeschlossen wurde.

Im Gegensatz zu vielen anderen Bauten der Colonia Ulpia Traiana, die dem mittelalterlichen Steinraub zum Opfer fielen, sind die Baubefunde der Thermen hervorragend erhalten: Mauerfundamente, Ofenanlagen, geringe Reste des Frigidariumsbodens, Teile der Fußböden des Heizgeschosses, Badebecken u.a.m. Dieser gute Erhaltungszustand bot große Chancen, das besucherorientierte Präsentationskonzept des Archäologischen Parks inhaltlich zu erweitern: Neben die Rekonstruktionen tritt ein authentischer Befund; seine weitgehende Vollständigkeit und damit Anschaulichkeit kann

- die Lücke zwischen den sonst vielfach rudimentären, von Nichtfachleuten kaum ablesbaren Grabungsbefunden einerseits, den Rekonstruktionen andererseits schließen,
- ein informatives Bild antiker Monumentalarchitektur und ihrer Bautechnik vermitteln,
- ergänzend zur Rekonstruktion der Herbergsthermen die Betriebstechnik einer Thermenanlage und die zentrale Bedeutung des Badewesens für die römische Kultur verdeutlichen.

Um diese Vermittlungsziele zu erreichen, mußten zuallererst Maßnahmen zum Schutz der

antiken Baureste getroffen werden. Eine provisorische Sicherung - Bedeckung der Fußböden mit Sand, hölzerne Schutzdächer über den Befunden - erfolgte unmittelbar nach Abschluß der Grabungen. Erste Überlegungen zu einer dauerhaften Überdachung waren bereits zwei Jahre zuvor auf einem Kolloquium vorgestellt und diskutiert worden, welches das Land Nordrhein-Westfalen veranlaßt hatte. Sie mündeten in die Empfehlung, in den Thermenschutzbau einen Museumsbereich zur Präsentation originaler Funde zu integrieren, also das in der Stadt befindliche Regionalmuseum in diesen Bau aufzunehmen. Dieser Gedanke wurde in einem Ideenwettbewerb konkretisiert; die für eine museale Präsentation unabdingbaren bautechnischen Standards und die entsprechend anspruchsvollen Lösungsvorschläge waren jedoch mit den zur Verfügung stehenden finanziellen Mitteln nicht zu realisieren. Ein zweites Kolloquium, das 1993 stattfand, empfahl daher, dieses Konzept zu modifizieren und in einem ersten Schritt zunächst nur die Sicherung der Befunde anzugehen. Auf dieser Basis wurden neue Ansätze entwickelt und diskutiert; sie mündeten schließlich in einen Entwurf, dessen bauliche Umsetzung im Frühjahr 1997 begonnen hat.

Philosophie des künftigen Gebäudes ist es, nicht allein den Schutz der Befunde zu gewährleisten, sondern darüber hinaus dem Besucher auch die Dachformen, die Raumabfolgen und -volumina des antiken Baus zu veranschaulichen (Abb. 2). Der Gedanke an eine dem Befund in jedem Detail folgende und materialgerechte Rekonstruktion wurde dabei von vornherein verworfen. Stattdessen soll der Thermenschutzbau zwar den ursprünglichen Baukörper in seinen Dimensionen annähernd nachzeichnen, sich aber als moderne Stahl-Glas-

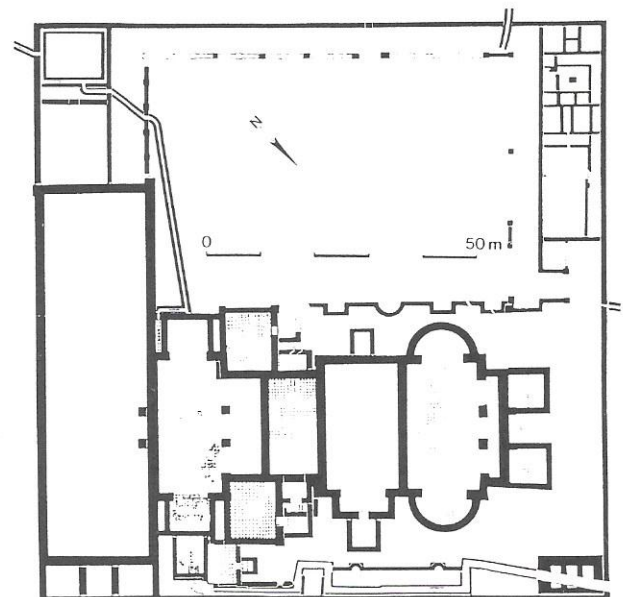


Abb. 1: Colonia Ulpia Traiana, Große Thermen, Grundriß.

Konstruktion deutlich von den originalen Resten absetzen, ohne diese zu erdrücken; er soll Einblicke von außen in das Gebäudeinnere erlauben und den Besucher neugierig machen, gleichzeitig aber auch als architektonisch geschlossenes Ganzes wirken. Dieses nicht einfache Anforderungsprofil wurde in enger Abstimmung zwischen den Wissenschaftlern vor Ort und den planenden Architekten (Ingenieurbüro Polonyi & Partner Köln) schrittweise konkretisiert.

Der Schutzbau beschränkt sich auf die Baderäume im engeren Sinne (Frigidarium, Tepidarien, Sudatorien, Caldarium und Heizeinrichtungen), überspannt damit aber immer noch eine Fläche von rund 40 x 70 Metern. Die große, vorgelagerte basilica thermarum mit ihren fast 1.400 m² bleibt ebenso ausgespart wie die Randbebauung der Thermen, die die Palaestra auf drei Seiten einfaßt: Die Option auf eine spätere Unterbringung museal zu nutzender Ausstellungsbereiche in diesem Baukomplex wird damit offen gehalten. Das stählerne Stützensystem sitzt auf den antiken Fundamenten und paßt sich damit in den ursprünglichen Grundriß ein; wenige notwendige Auskreuzungen zwischen den Stützen folgen dem Mauerverlauf und liegen damit in ehemaligen Wandbereichen. Die Verbindungen der Stützen unter den Dachflächen orientieren sich in ihrer Form und Linienführung an den anzunehmenden Formen der originalen oberen Raumabschlüsse: Sie bilden Tonnen und Kreuzgratgewölbe, bei den Nebenräumen Pult- und Satteldächer. Auf diese Weise sollen das Raumgefüge und der antike Raumeindruck für den Besucher ablesbar werden. Darüber hinaus wird er das Gebäude auf einem großzügig ausgelegten Stegsystem durchschreiten können, das ihn nahe an die am besten erhaltenen Befunde heranführt. Der Wunsch, den Besuchern Ein- und Ausblicke zu ermöglichen und zugleich den äußeren optischen Zusammenhalt des Baus

gewährleisten, führte zu einer Lösung, die diesen widersprüchlichen Anforderungen gerecht zu werden versucht: Die durchgehenden Glasflächen der Fassade sind mit einem Punktraster in einem lichten Grauton bedruckt; dieses Raster schließt die Flächen für den entfernten Betrachter zusammen, erlaubt aber bei näherem Herantreten, in den Bau hineinzusehen. 1998 soll der Thermen-schutzbau für die Besucher zugänglich sein.

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English Summary

The public baths of Colonia Ulpia Traiana (Xanten/D), built about 125 AD, cover an area of nearly 11,000 m² in total, the bathing rooms and their subsidiaries covering 5,900 m² (Fig. 1). It is thus one of the largest bath complexes erected in the western part of the Roman empire between the Flavians and the Antonines. The baths were discovered a century ago, and then studied in a superficial manner following a rescue excavation in the 1950s. At that time the local community planned to erect a factory on the site, which was in fact built over the baths not much later. In association with the development of the Archaeological Park at Xanten and with the extensive financial support of the region of North-Rhine/Westphalia, the factory was removed in 1984 to a position beyond the remains of the Roman town. Excavations were started for the third time in 1988, and were finished in 1993.

For the most part, the foundation walls of the baths, the hypocaust floors, basins and furnaces are well-preserved. This is quite different from many other sites in the CUT where a lot of stone, even from foundations, was robbed during late Antiquity and the Middle Ages. Due to the good

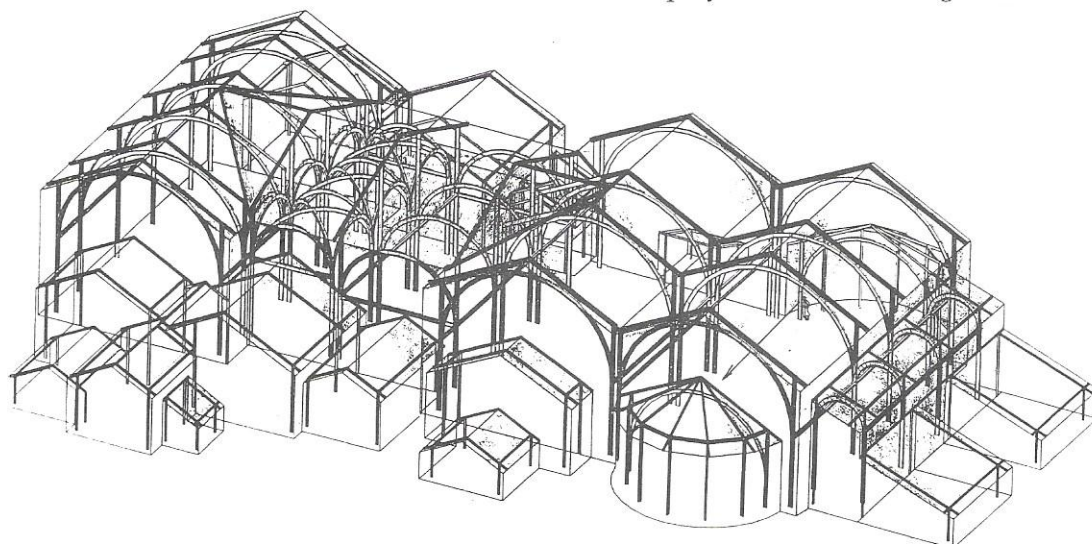


Abb. 2: Colonia Ulpia Traiana, isometrische Ansicht des Schutzbaus über den Großen Thermen.

preservation of the bath building, it was possible to extend the concept of the Archaeological Park.

The fact that the site is so readily intelligible means that it can

- fill the gap between excavated, scattered traces (which are often hard for visitors to understand) and the reconstructed buildings in the Archaeological Park

- give an impressive picture of monumental Roman architecture and building techniques

- together with the smaller reconstructed bath building, make clear the water supply and heating techniques of Roman baths, and the great significance of bathing in Roman culture.

With these possibilities in view, a protective building was projected which was begun in February 1997. The building, which covers only the actual bathing rooms and the furnaces, measures c. 40 x 70 m. At the moment the large basilica thermarum on the south side (1,400 m²) and the colonnaded halls which surround the palaestra on three sides will not be integrated into the museum. There is however the possibility for future extension, and for the museum itself, which is now located in the town of Xanten, being moved into the basilica and other rooms mentioned above.

The protective building is not a reconstruction, but a modern, steel-and-glass structure. It will not just protect the excavated remains, but will also show the volume of the ancient rooms and the structure of the roofs with their different heights and shapes (Fig. 2). Inside, gangways will make it possible for the visitor to look at the most interesting parts of the baths more closely. The building will be open to the public from the summer of 1998.

Les thermes privés et publics en Gaule Narbonnaise¹

La littérature sur les thermes est abondante et depuis une quinzaine d'années plusieurs synthèses ayant pour cadre l'Empire romain ont été publiées. Dès lors, un travail sur la Gaule Narbonnaise s'imposait-il? La réponse est donnée par ces travaux eux-mêmes. En effet, on se rend compte que les conclusions auxquelles ont abouti les auteurs ne reposent que sur un nombre restreint de bâtiments dans chaque province romaine. Les édifices pris en compte sont toujours les mêmes (thermes de Glanum à Saint-Rémy-de-Provence, Thermes de Constantin en Arles pour la Gaule Narbonnaise par exemple); il s'agit pour la plupart de découvertes anciennes, souvent mal datées. Etudier les thermes à l'intérieur d'une aire géographique relativement restreinte permet de reprendre à la base l'ensemble de la documentation sans se contenter des publications, en la

complétant éventuellement par de nouvelles fouilles archéologiques. Choisir comme cadre géographique une province romaine ne part pas de *l'a priori* que les monuments y sont spécifiques, mais permet simplement d'avoir l'assurance d'une histoire politique globalement commune, malgré quelques modifications locales de frontières.

Cette recherche s'appuie sur un catalogue de 212 notices regroupées par communes, prenant en compte tous les types de témoignages (littéraires, épigraphiques, archéologiques). Ces derniers sont évidemment les plus nombreux. Chaque découverte est classée dans une catégorie: thermes publics, à vocation curative ou non, thermes de *domus*, thermes de *villa*. Nous nous sommes attaché autant que cela a été possible - de façon presque obsessionnelle pourrait on dire - à une description et une datation par état de chaque bâtiment. En cas de difficulté d'interprétation, un paragraphe "discussion" permet d'envisager les différentes hypothèses et comparaisons susceptibles d'apporter tous éclaircissements sur l'édifice étudié. Chaque description par état est accompagnée d'un plan au 1:250. L'uniformisation de l'ensemble des plans en facilite la lecture et rend les comparaisons plus aisées.

La synthèse s'organise en trois parties:

I - Les plans de pièces et leur répartition géographique; étude de l'itinéraire du baigneur.

II - Le fonctionnement des thermes à travers la maîtrise de l'eau et du feu.

III - Les thermes en tant que révélateur de la vie quotidienne individuelle et sociale.

L'étude planimétrique a permis de mettre en évidence à la fois la diversité et la simplicité des plans des édifices thermaux. Diversité des plans des pièces chaudes et froides, mais aussi pérennité de certains d'entre eux, tel celui de la *cella soliaris* pompéienne comprenant à une extrémité un *solium* à l'opposé une abside recevant le labrum. Le fait est dû à l'importance des influences italiques anciennes. On note également, à une échelle locale ou régionale, la présence de plans identiques, telle la *cella soliaris* à *solium* quadrangulaire et murs latéraux ornés de niches semi-circulaires et rectangulaires, qu'on retrouve plusieurs fois à Vaison-la-Romaine ou, au niveau régional, à Toulouse et Saint-Bertrand-de-Comminges. Quant à la simplicité des plans, elle se retrouve dans le nombre limité de bassins et l'importance des formes rectilignes - les plus anciennes - par rapport aux courbes. On retrouve toutefois des bassins absidiaux dès une date haute (Ier s. ap. J.-C.) dans le nord de la Narbonnaise, tant à Vandoeuves qu'à Vienne.

La simplicité se retrouve encore dans la forme des pièces, la plupart du temps quadrangulaire, l'octogone et le cercle étant extrêmement rares et datées de l'Antiquité tardive.

La Gaule Narbonnaise n'a évidemment pas

échappé aux grandes tendances se développant dans les autres régions, telle la réduction, durant l'Antiquité tardive, du secteur chauffé au profit du froid ou la mise en place de bassins chauffés dans les *tepidaria*.

En ce qui concerne le plan de la pièce de bains, la région a une grande préférence pour les plans à itinéraire rétrograde, les plans circulaires ayant eu par contre coup peu de succès; ces derniers sont toujours le fruit de remaniements. Le nombre de pièces intermédiaires entre *frigidarium* et *cella soliaris* est peu élevé, une (*tepidarium* ou *laconicum*) ou deux (*tepidarium* et *laconicum*). Les seuls bâtiments à trois pièces se situent à l'extrémité nord-orientale de la Narbonnaise. Les plans symétriques ont connu un développement très peu important et peu durable, les rares édifices construits ayant rapidement perdu leur spécificité originelle.

Il se dessine donc une image des thermes qui oscille entre tradition et nouveauté. L'entité géographique n'est donc pas monolithique. En effet, on note sur ses marges une multitude d'influences qui ne se sont pas exercées ailleurs, tant du point de vue des édifices à plan symétrique (Vienne, par exemple, comprend le plus grand édifice de ce type et le seul exemple probable de plan semi-symétrique) qu'en ce qui concerne les bâtiments les plus développés à trois pièces intermédiaires.

On a donc l'impression que la Narbonnaise a conservé des traits de son lointain passé thermal qui remonte à la fin du II^e s. et au I^{er} s. av. J.-C. Les grandes nouveautés, celles qui marquent de leur empreinte l'architecture de certaines provinces, n'ont fait qu'effleurer la province.

Dans une deuxième partie, nous nous sommes attaché à étudier les thermes à travers les deux éléments nécessaires à leur fonctionnement, l'eau et le feu.

L'étude de l'alimentation en eau et de sa circulation montre que les plans des bâtiments, qu'ils soient alimentés en eau courante par un puits ou une citerne, ne diffèrent pas beaucoup les uns des autres. L'importance des bassins est relativement constante, proportionnelle à la taille de l'édifice. Les différences, peu visibles au niveau de l'architecture, se discernent plutôt dans la gestion de l'eau à l'intérieur du bâtiment. Il existait vraisemblablement une grande disparité entre un édifice public urbain desservi par un aqueduc et un bâtiment alimenté par un puits, comme les thermes des Bouvettes à Tavel, ou, pire encore, par une citerne comme à Saint-Vincent de Gaujac.

L'eau, une fois amenée dans les bassins, n'est pas rejetée directement après utilisation, mais au contraire réutilisée de façon échelonnée selon son plus ou moins grand état de souillure (*pediluve*, nettoyage des sols) avant de disparaître dans les égouts où elle entraîne les déjections des latrines.

Ce travail a donc permis de montrer que l'absence d'eau courante ou l'insuffisance de l'alimentation n'était pas considérée comme un obstacle insurmontable pour une ville ou une communauté, la présence de l'édifice de bains, témoignage irréfutable d'un certain mode de vie, ayant plus d'importance que la nature ou la qualité du bain que l'on pouvait y pratiquer.

Autre élément indispensable au fonctionnement des thermes: le feu. Les architectes se sont ingéniés à multiplier les aménagements permettant une conservation maximale de la chaleur, tant au niveau de la chambre de chaleur qu'à celui des pièces elles-mêmes (portes, fenêtres). Ces aménagements sont plus ou moins fréquents selon les régions, parfois très nombreux dans telle zone, plus rares ailleurs. Le recouvrement des parois et/ou de l'area de la chambre de chaleur par des éléments de terre cuite - déjà mentionné par Vitruve - est particulièrement mis en oeuvre dans la partie septentrionale de la Narbonnaise, avant d'être adopté durant l'Antiquité tardive dans quelques thermes privés. On note également une certaine uniformité dans l'édification des pilettes (qui tranche avec ce que l'on connaît dans les régions septentrionales). Les types locaux - telles les pilettes monolithes rencontrées autour de Saint-Bernard-de-Comminges ou les hypocaustes à arcs de la côte provençale - ne sont pourtant pas absents.

L'hypocauste ne s'est toutefois pas répandu partout et on retrouve encore sous l'Empire quelques salles ne devant leur chauffage qu'à un brasero, à l'instar de ce qui était courant avant son apparition. Ce mode de chauffage rustique donne une image peu courante et tout à fait saisissante du niveau de certains petits édifices thermaux.

Dans une troisième partie, nous avons enfin envisagé les thermes comme le révélateur de la vie quotidienne et sociale en étudiant dans un premier temps les instruments nécessaires au baigneur lors de son cheminement dans l'édifice, qu'il s'agisse des strigiles, des patères de bains ou des socques de bois lui évitant de se brûler les pieds.

La pratique sportive a également été prise en compte, à travers les cheminements spécifiques dans l'établissement (pièces chauffées ou non réservées aux sportifs) ou les accessoires indispensables à celle-ci (haltères).

Nous avons ensuite considéré les thermes en eux-mêmes, en étudiant la rapport existant entre sanctuaires et thermes à vocation non curative. La proximité des deux types d'édifice s'explique par la nécessaire purification des desservants du culte.

La présence de plusieurs édifices thermaux publics ou privés juxtaposés permet de s'interroger sur leur fonction réciproque. Ceux de la première catégorie attestent d'une séparation des baigneurs par sexe, pratique bien connue en Campanie avant le milieu du I^{er} s. ap. J.-C. Il en était peut-être de

même dans les villae, à moins qu'il ne s'agisse de bâtiments utilisés saisonnièrement. On a en outre la preuve que certains d'entre eux étaient réservés à la domesticité, témoignage de la multiplicité des pratiques balnéaires au moins à partir du II^e s. ap. J.-C.

Nous avons enfin tenté une synthèse générale des thermes, depuis la conquête romaine à la fin du II^e s. av. J.-C. jusqu'au VI^e s. ap. J.-C. Si l'on ne possède pas de preuve d'une tradition indigène du bain, il y a lieu de constater que la conquête romaine n'a apporté que peu de changements puisque les quelques édifices thermaux construits à cette époque sont mis en place dans des sites très particuliers: Antibes ancienne fondation massaliète ou Lascours, site minier occupé exclusivement par des Italiens. Le développement des thermes se produit à partir du milieu du I^{er} s. av. J.C. mais la construction d'édifices monumentaux n'a lieu qu'entre les années 50 ap. J.-C. et la fin du II^e s. ap. J.-C. Le III^e s. connaît une raréfaction importante du réseau thermal tant privé que public, avant qu'un certain renouveau se produise au IV^e s. ap. J.-C. La grande nouveauté au V^e s. est la construction d'édifices de bains à proximité de baptistères, marquant la progression du christianisme. Le VI^e s. voit la disparition des derniers témoignages de la pratique thermale en Gaule Narbonnaise.

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Notes

¹ Une thèse Nouveau Régime intitulée "Les thermes privés et publics en Gaule Narbonnaise", dirigée par Ph. Leveau, a été soutenue le 12 juin 1996 à l'Université de Provence d'Aix-en-Provence (France). Le jury, composé de P. Aupert, P. Gros, X. Lafon, Ph. Leveau, J.-M. Paillet, lui a attribué la mention Très honorable et ses félicitations. Un manuscrit de publication est en préparation pour 1997.

Members Offer

The Editor is pleased to announce the imminent publication of J. DeLaine, *The Baths of Caracalla: a study in the design, construction and economics of large-scale public buildings in imperial Rome*, JRA Supplement 25, Portsmouth Rhode Island 1997. A special discount rate has been arranged with the editor of the *Journal of Roman Archaeology* for members of IASAB interested in purchasing this volume. Further details in the next issue of *Balnearia*.

Cura Aquarum in Campania Proceedings of the Ninth International Congress on the History of Water Management and Hydraulic Engineering in the Mediterranean Region (BABesch Suppl. 4) N. de Haan and G.C.M. Jansen (eds), Leiden 1996. ISBN 90-6831-844-6.

This is one of those volumes whose title, "Cura Aquarum in Campania", suggests rather less than it actually has to offer. While problems of water supply in Pompeii and Campania do occupy the greater part of the volume (17 papers out of 26), there are also sections on Greek (2 papers) and Roman (5 papers) water systems outside this area, as well as two scientific studies of water deposits and building technology. As it is not possible in a short review to do justice to all the papers, I intend to concentrate here on those of particular relevance and interest to balneologists.

The first section of the volume is devoted to the water supply of Pompeii, which, from its relative completeness in conjunction with the rich evidence for public and private baths in the town, has always been of particular interest. The operation of the aqueduct system has also often been a source of great controversy, not in the least over the supply to the public baths, to which the papers by Hodge and Ohlig on the functioning of the castellum aquae, and by Wiggers and Peleg on the distribution network and water towers, each make their contribution. Oleson, on the other hand, examines the use of water lifting wheels to supply the Stabian and Forum Baths before the aqueduct, and compares these with examples from elsewhere in Italy and Egypt; his final comments on the different investment levels represented by different levels of technology even within this type of system have wider implications. The paper which gives most food for thought, however, is Nappo's account of recent excavations along the pavements of Pompeii's major streets in advance of the laying of modern services. The discovery of both interrupted or bypassed water pipes near the surface and deep trenches filled with lapilli has led Nappo to argue that at the time of the eruption Pompeii was in the process of major water works, involving the laying of deep mains presumably to replace the pre-existing system of more surface pipes. Material from these deep trenches indicates that they were of recent creation and had not simply been left over since the AD 62 earthquake. This has important implications for the continuing (or otherwise) operation of the public baths in the critical years between AD 62 and 79.

Another group of papers relating to Pompeii looks more at the uses of water in the city rather than at supply. De Haan examines the water usage in the private baths in the town. She divides the 30

examples into three groups based on size and complexity, with the majority (22 examples) consisting of only two rooms (heated *apodyterium*/*tepidarium* and *caldarium* with tub and *labrum*) while there are only 6 examples of more substantial complexes with several rooms including an outdoor *piscina*. Some simple calculations show up the vast difference in water requirements between the two groups, as much as 40 times more required for the larger complexes. The paper also examines the questions of water disposal, generally arranged to suit the location of the bath complex within the house, and of water heating, placing the latter in the context also of the ancient sources, particularly Faventinus and Palladius. The paper thus provides a very useful introduction to the topic which also serves to underline the pragmatic nature of most domestic bath installations and their relatively modest water requirements. The paper by Jansen on taps and stopcocks in houses, which shows that each outlet within a house had its own means of closure has ramifications also for the supply to domestic baths, while Koloski-Ostrow's discussion on public latrines, which sees them more as Romanising elements built for political advantage rather than as intended to improve sanitary conditions may also make us question some of our assumptions about their role in relation to public baths.

The second section of the volume devoted to Campania is largely concerned with aqueducts, particularly the Serino aqueduct, but also includes a stimulating paper by Manderscheid on luxury water appointments in baths in the Vesuvian region and elsewhere. Manderscheid argues that by the Flavian period there was a basic standard of expectation throughout the empire in terms of architecture, equipment and technology which also included the use of water. Beyond this he identifies certain elements such as the large *nymphaeum* displays of the imperial *thermae* as representing an exceptional extra investment by the benefactor which moved these buildings beyond the standard into the luxury class. In particular he draws together the evidence for heated swimming pools as an example of this trend. Examples are identified by the existence of a "samovar", a central heat-exchange element functioning in the same way as a *testudo* in a normal hot pool; of the 8 fairly certain examples, 3 are in the Vesuvian region, and M. suggests that this area played an important role in the development of this luxury. Although M. does not make specific reference to them, surely the existence of natural hot pools on the Bay of Naples (like that which can still be enjoyed at Bacoli) and in north-western Italy where two other examples of artificially heated pools have been found (at Massaciucoli and La Spezia) makes this most likely. These were clearly not standard items, but rather, as M. suggests, the "non plus ultra" of

Roman bathing.

None of the papers in the remaining three sections are devoted to baths, but all contain items of interest. Romanists who are inclined to see complex water management systems as a particularly Roman speciality will find Crouch's paper on the water supply of Hellenistic Priene quite an eye-opener. Rinne's paper gives a rapid survey of Rome's water supply over time, and heralds a welcome contribution to our understanding of the whole complex question of historic water use in the city: a new *Aquae Urbis Romae*, a multi-period map showing topography and hydrology as well as monuments. Finally there are five technical papers: three on *castella aquarum* and water control in Israel, France and North Africa provide useful comparative material for the better-known Pompeian system, and similarly have implications for the supply of water to public baths, while the final two are concerned with lime deposits in water channels and with building materials and techniques.

Altogether this is an informative set of papers, and the editors are to be congratulated on structuring the potentially disparate contributions into a meaningful whole. Only one paper, on road tunnels in Campania, sits uncomfortably in the context of *Cura aquarum*. Specialists in other fields may feel introductory material in some papers to be superfluous, but in the context of a truly interdisciplinary colloquium it is only to be expected. If anything, this material increases the potential value of the volume, for example in undergraduate teaching, and is above all one of the best ways to facilitate the kind of understanding between disciplines which is at the heart of much exciting new research.

ED.

Call for papers

Cura Aquarum in Sicilia: Tenth International Conference on the History of Water Management and Hydraulic Engineering, Syracuse - Sicily, May 16-22, 1998

The aim of these conferences is to stimulate an interdisciplinary debate about water supply in antiquity. The participation of archaeologists, historians, civil engineers, hydraulic engineers, town planners and geologists ensures a regular exchange of the latest findings and insights in the different disciplines. The conferences will be organised by the Departments of Classical Archaeology and Ancient History of the University of Nijmegen (Netherlands) in collaboration with the Soprintendenza Archeologica di Siracusa.

The conference consists of three days of lectures followed by visits to archaeological sites. The lecture programme is grouped around central themes, focusing on innovative research and new directions within the disciplines involved. Contributions are sought on the following themes:

1) Aqueduct research into the Third Millennium.

The conference is looking for people who are carrying out large-scale projects like the recent study of the aqueduct of Köln, or the interdisciplinary project on the aqueduct of Nîmes, and who are willing to lecture on the advantages and disadvantages of such a project.

2) Shortage and Surplus

This section seeks scholars investigating such questions as: Did the Greeks and Romans make any effort to save water by building reservoirs as buffers, or by inventing and using devices for turning off the water supply? Are there any signs that (local) authorities were especially concerned with the water supply of common people, or did they favour the elite or industrial processes? Can one talk about a conscious policy in any respect? After the introduction of an aqueduct, were traditional sources such as rainwater and wells neglected? Did rural inhabitants suffer from a scarcity of water or did agriculture benefit from the construction of an urban aqueduct?

3) Water and Baths

The availability of large quantities of water was a prior condition to both public and private baths in the Graeco-Roman world. Water from springs was usually transported to cities by means of aqueducts, which sometimes supplied other buildings, even private houses. Inscriptions and literary sources suggest that there was a direct link between the building of aqueducts and of baths, not only in Rome but in other cities as well.

This is a general but simplified picture. Water for the baths did not only come from springs but could also be obtained from wells and rivers, even collected rainwater was used. There is however a lack of knowledge - or rather of research - in this field. Furthermore, since hydro-geological and climatological conditions differed from place to place, we may expect different adjustments to these environmental circumstances. This is quite clear when we look at the thermo-mineral baths, but how about the ordinary baths and *thermae* in the various regions? To what extent did local adaptations influence their design and use? Can we retrace variations in the layout of the baths to variations in the availability of water? Or are we rather dealing with the constants, prescribed and fixed by the functional needs of the baths?

The distribution of water within baths, the heating and use of water remain for a large part *terra incognita*, although recently important work has been done by G. Garbrecht and H. Manderscheid. They have provided a framework

that can be filled in, amplified or challenged by new excavations, site reports or the study of documentation of earlier excavations. An overview for Greek baths is still lacking.

We invite people to reflect upon this theme and to present evidence from both public and private baths in antiquity that can help answer the questions above, or to set goals and further directions for this kind of research.

4) Hygiene in the Roman World

Archaeologists, historians, engineers and hygienists are asked to present concrete evidence of hygienic and unhygienic lifestyle in the Roman world. The definition of hygiene which will be used is "public and private measures or actions taken to prevent diseases and to stay healthy". This could apply to baths, latrines, and domestic water supply.

Those interested in participating are asked to send a 250 word abstract, preferably in English or German, promptly to:

Cura Aquarum in Sicilia, Department of Classical Archaeology: N. de Haan (email n.dehaan@let.kun.nl) and G. Jansen, or Department of Ancient History: G. de Kleijn (email g.dekleijn@let.kun.nl or fax ~31 243 612807), at the University of Nijmegen, PO Box 9103, NL-6500 HD Nijmegen, The Netherlands.

Contributions for *Balnearia*

The Newsletter is only as good as its contributors make it. Short items of news gleaned from whatever sources, and brief reports of recent discoveries pending a fuller account elsewhere, are of great interest to all of us, and help to disseminate what might otherwise remain only local knowledge.

Short items for the next issue of *Balnearia* should be sent to the Editor to arrive before 31 December 1997, with the exception of bibliographic items which should be sent directly to Hubertus Manderscheid, C/o DAI, via Sardegna 79, I-00187 Roma, Italy. Longer items are also sought for the June 1998 issue; these should reach the Editor by 31 May 1998. All except very short items should if possible be on disk (IBM WordPerfect or Macintosh Word for preference). Please leave formatting to a minimum; avoid headers and footers, do not use tabs, use endnotes rather than footnotes. Include bibliographic references in footnotes or use the Harvard reference system and supply a bibliography.

Thank you.

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