

## Fishing in the Desert

Bearing in mind the world evoked by the title of an earlier Festschrift in his honour, I offer this short note to Ihor Ševčenko on his 80th birthday, by starting with a statement contained in a text that he is editing, the *Vita Basilii* (*Theophanes Cont.*, Bonn ed. p. 338), namely that Heraclius had filled a number of cisterns, some inside the Great Palace, because it was predicted that he would die by water. The cisterns in the palace had fish in them "for the pleasure and fishing [lit. 'hunting' or 'catch'] of the emperors." Another passage in *Theophanes Continuatus* (447) — stating that Constantine VII beautified the harbour of Boukoleon and made a *vivarium* there — suggests that the pleasure had been missed in the interim. Centuries earlier, Oppian opened his *Halieutica* (1.56) with an address to another emperor, Antoninus (Marcus Aurelius) saying "Yet not bereft of pleasure art thou, if pleasure thou desirest, but sweet is the royal sport," describing briefly a royal marine fish preserve — '*en to vivario*' according to a scholion — with its "infinite tribes of feasting fishes which thy servants ever tend, fattening them with abundant food, a ready choir of spoil for thee."

My short note comments on a recent aquatic (possibly piscatorial) discovery — ultimately relating to these texts — made far from both old and new Rome. To view it requires departing from the centre through the Golden Gate to the eastern periphery. The discovery occurred on the edge of the Syrian desert near the Roman/Byzantine frontier where archaeological teams are currently working at Androna (fig. 1), a large *kome* endowed with certain urban features<sup>1</sup>.

The prosperity of Androna in the period prior to the Arab conquest is well attested by the standing and excavated remains which include over 50 Greek inscriptions of the early Byzantine period; a styliote's column may have stood just outside. The large site, nearly a mile across and situated on the Palmyra-Chalcis road, is surrounded by two sets of circuit walls which enclose a dozen churches in addition to a public bath and a *kastron* (fig. 2). The lavish materials (imported marble, glass mosaics, etc.) used to decorate these two buildings attest to local affluence. As no official titles, lay or ecclesiastical, are given in their inscriptions, one must conclude that their builder Thomas acted on his own initiative. It is too early to identify the precise source of funds used for these and other projects. Official funding elsewhere at the site may eventually be revealed epigraphically. Otherwise, agriculture is one possibility, industry and trade are others. According to a pre-Islamic Arab source, Androna produced a well-known wine<sup>2</sup>. Our

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<sup>1</sup> The British team from Oxford is collaborating with Syrian and German (Heidelberg) teams in this international project. For the German work see C. Strube and M. Mundell Mango, "Excavations at Andarin/Androna," *La Syrie moyenne de la mer à la steppe* (Damascus, in press). For Oxford's work see M. Mundell Mango, "Oxford Excavations at Andarin (Androna): September 1998" with contributions by M. Decker, C. Mango, N. Pollard, C. Salter and A. Wilson, *Annales Archéologiques Arabes Syriennes* (in press); eadem, "Excavations and Survey at Androna, Syria: The Oxford Team 1999," *Dumbarton Oaks Papers* 56 (2003), 303-310.

<sup>2</sup> 'Amr Ibn Kulthum, *Mu'allaga*. See E. Honigsmann, "Syria," *RE*, 1562.5.

archaeological work to date has found evidence for the production of olive oil (olive mills) and wheat (grains recovered). Local animal husbandry will be illuminated by the wide variety of excavated animal bones now being identified. There is some evidence being studied for metal and glass working. The exact nature and scale of these various enterprises is as yet unclear<sup>3</sup>.

Some of the water sources that made these activities possible have been identified. The Oxford team of archaeologists is concentrating on the supply and use of water at the site lying in a zone of 250-300 mm of annual rainfall, namely by excavation of the public bath (built ca. 560) and study of the site's ancient agricultural exploitation. The bath was supplied by a well and a cistern. Androna's fields were irrigated by large reservoirs fed by qanat or foggara systems<sup>4</sup>. Industrial activities may have been sited near these or supplied by wells. Excavation of the reservoir situated to the southeast of the site was undertaken in 2001 in an attempt to date it and provide a *terminus ante quem* for its qanat. Both reservoir and qanat required considerable funding and we need to establish whether this was Roman or Byzantine, state or private. The subject of this note came to light during this excavation.

The reservoirs to the southeast and northeast of the site both measure 61 x 61 meters<sup>5</sup>. In 1905 H.C. Butler attributed the southeast reservoir to the second century A.D. and estimated that it had a depth of 8 m<sup>6</sup>; he was unaware of the other reservoir. His reconstruction of the reservoir walls showed a series of niches and engaged pilasters, both then obscured by sediment. Our excavation concentrated on the best preserved corner and the outlet side opposite the inflow from the qanat. The 2001 excavation confirmed what earlier sondages in 1998 and 1999 revealed (see note 4 supra): that the reservoir is only about 3 m deep. Its limestone walls are composed of massive masonry somewhat different from that shown in Butler's drawing and it has a solid cobbled floor at least 0.60 m thick (fig. 3). Butler also published descriptions of large reservoirs at Bostra (164 x 126 m) and at Umm idj-Djemal (40 x 30 m) constructed of draughted masonry<sup>7</sup>. He dated both to the Roman period (second-third century). Both were fed by aqueducts and supplied the sites within which they lay. That at Bostra supplied the South Baths. Although Butler gives no figures, both reservoirs were apparently deep (Bostra's walls had more than 15 courses), and were therefore in type like the reservoirs of Constantinople<sup>8</sup>. Those at Androna more closely resemble the shallow reservoir near Qdeym to the south<sup>9</sup>. The outlet excavated on one side at Androna confirms that the reservoir water

<sup>3</sup> For the mills see M. Decker in Mundell Mango, "Androna 1998"; the grains were identified by Dr. Mark Robinson of the University Museum of Natural History, Oxford. The bones are being studied by Priscilla Lange at Oxford. For industrial activity see C. Salter in Mundell Mango, "Androna 1998" and eadem, "Androna 1999", 310; Prof. J. Henderson is examining our glass samples.

<sup>4</sup> On the agriculture and irrigation see M. Decker and A. Wilson in Mundell Mango, "Androna 1998" and summary in eadem, "Androna 1999", 309-310. On the bath's well and cistern see *ibid.*, 305, 308.

<sup>5</sup> A. Wilson in Mundell Mango, "Androna 1998."

<sup>6</sup> H.C. Butler, "Architecture, Section B, Northern Syria," *Syria: Publications of the Princeton University Archaeological Expeditions to Syria in 1904-1905 and 1909* (Leiden, 1920), 63 and ill. 63.

<sup>7</sup> *Ibid.*, 159, 229.

<sup>8</sup> K. Çeçen, *The Longest Roman Water Supply Line* (Istanbul, 1996), 29.

<sup>9</sup> R. Mousterde and A. Poidebard, *Le limes de Chalcis: Organisation de la steppe en haute Syrie romaine* (Paris, 1945), 109-113, 120-126, plans IV-V; see A. Wilson in Mundell Mango, "Androna 1998."

was used for irrigation and was not conveyed to the site itself<sup>10</sup>. A sample of mortar from its floor, now undergoing radiocarbon dating at Oxford, will decide whether the reservoir was built in or near the second or fourth or sixth century.

While continued work in 2002 will further elucidate the means of entry and exit of water from the reservoir, two features encountered in the excavation deserve speculative comment here. These features are unusual in an irrigation reservoir in the countryside (fig. 3). One is the relatively lavish masonry that includes the massive niches, engaged columns and elaborate architectural sculpture found loose in the excavation (small columns with spiral fluting, imbricated patterns, or guilloche bands). The second feature is a series of rectangular recesses about a foot deep at the base of the reservoir walls (arrow on fig. 3). Both features suggest secondary uses for the reservoir — the attractive masonry and sculpture could suggest that the reservoir was used for aquatic spectacles, while the recesses indicate that it was also used as a *vivarium* for fish breeding<sup>11</sup>, another possible industry at Androna (see below).

*Fish breeding: catfish.* The recesses can be identified as the cells described by Columella in *De Re Rustica* (8.1.3, 17.1-6) as an essential part of the fish pond (*ichthyotropheia*) or *vivarium*. They were inserted around the pool's walls as refuges to protect the fish from the heat of the sun. Although he does not say so, the recesses may also have aided in breeding. Columella furthermore states that the pool or pond required circulating water. In his *Res Rusticae* (3.3.5-10; 3.17.2-9) Varro describes *vivaria* as being of two types — those of fresh water (*dulcium*), used by the common man, and those of sea water (*salsarum*) used by the nobility, similar to that of Marcus Aurelius and the Boukoleon harbour. The sea water *vivaria* were expensively created, near the sea where channels were cut to allow sea water to circulate directly into the pools. Separate pools could be created for different types of fish. The two types of *vivaria* were stocked with fresh and sea water fish, respectively. Archaeologically recovered examples of the sea water type exist at Sperlonga and Timgad, while fresh water pools of the Byzantine period have been excavated in Israel, at Caesarea (4 x 4 x 2.5 m) and smaller sites. While water from a city aqueduct circulated in that at Caesarea, the pool found at Khirbet Sabiya (9.5 x 5 m) lacked circulating water. In that case the excavator postulated that the fish were put in the pool after breeding and the recesses provided a type of individual territory required of a fish such as tilapia. At both these sites, the recesses were provided by a series of ceramic storage jars set horizontally into the walls: ca.60 at Caesarea and ca.300 arranged in three rows at Khirbet Sabiya<sup>12</sup>.

<sup>10</sup> Cf. R. Jaubert, F. Debaine, J. Besançon, M. al-Dbiyat, B. Geyer, G. Gintzburger, M. Traboulsi, *The Arid Margins of Syria. Land Use and Vegetation Cover. Semi-arid and Arid Areas of Aleppo and Hama Provinces (Syria)* (Lyon, 1999), 34 which assumes the opposite.

<sup>11</sup> I owe this identification of the recesses to Andrew Wilson. Before excavation revealed them, Amanda Claridge thought that the reservoir niches could have been put to this use.

<sup>12</sup> E. Ayalon, "The jar installation of Khirbet Sabiya," *Israel Exploration Journal* 29 (1979), 175-81; S. Gibson, B. Ibbs, A. Kloner, "The Sataf Project of Landscape Archaeology in the Judean Hills: a Preliminary Report on Four Seasons of Survey and Excavation (1987-89)", *Levant* 23 (1991), 41.

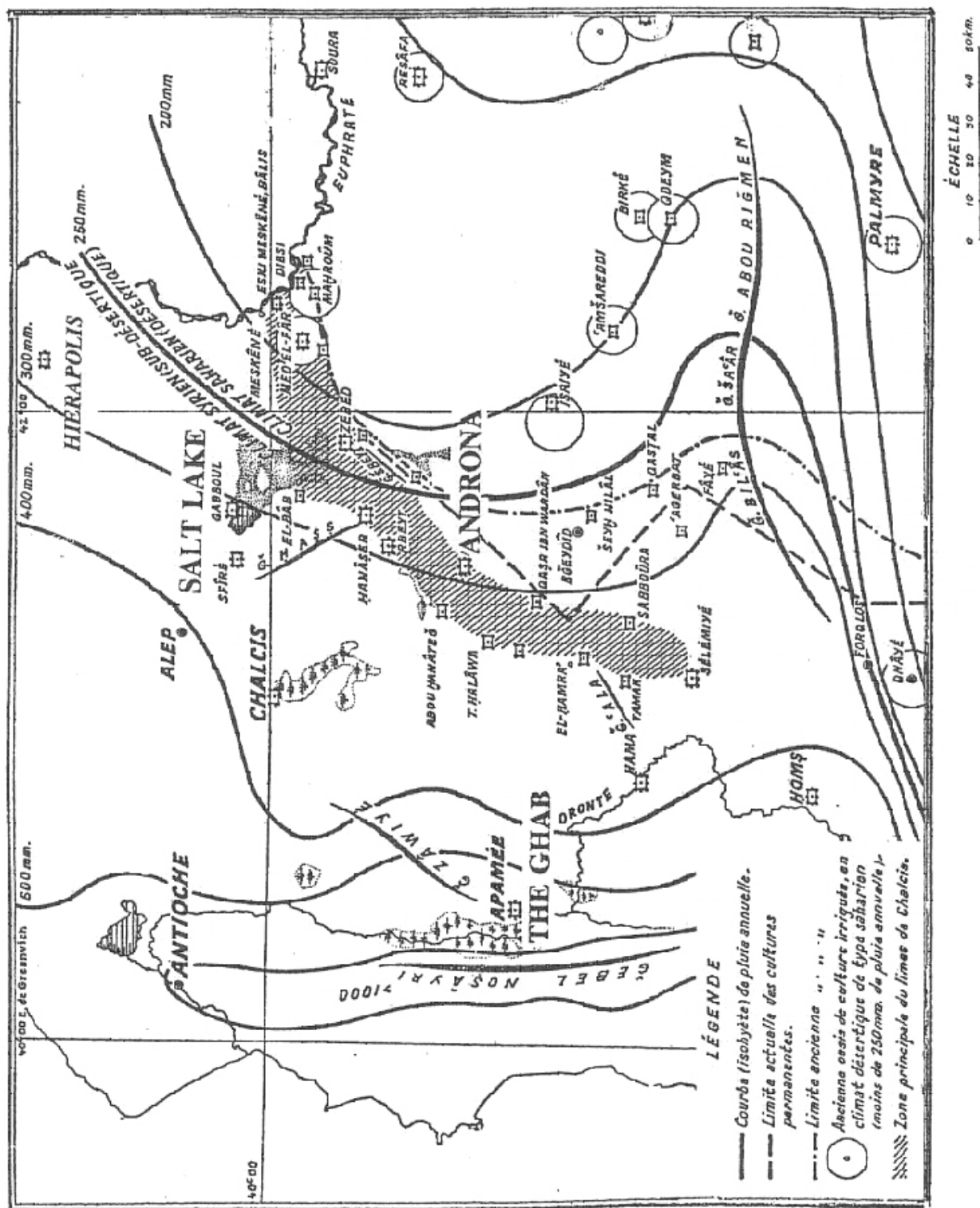


Fig. 1. Map of north central Syria showing Androna, Lake Gabbula and the Ghab.  
After R. Mouterde and A. Poidebard, *Le limes de Chalcis...*, map 2; annotated.

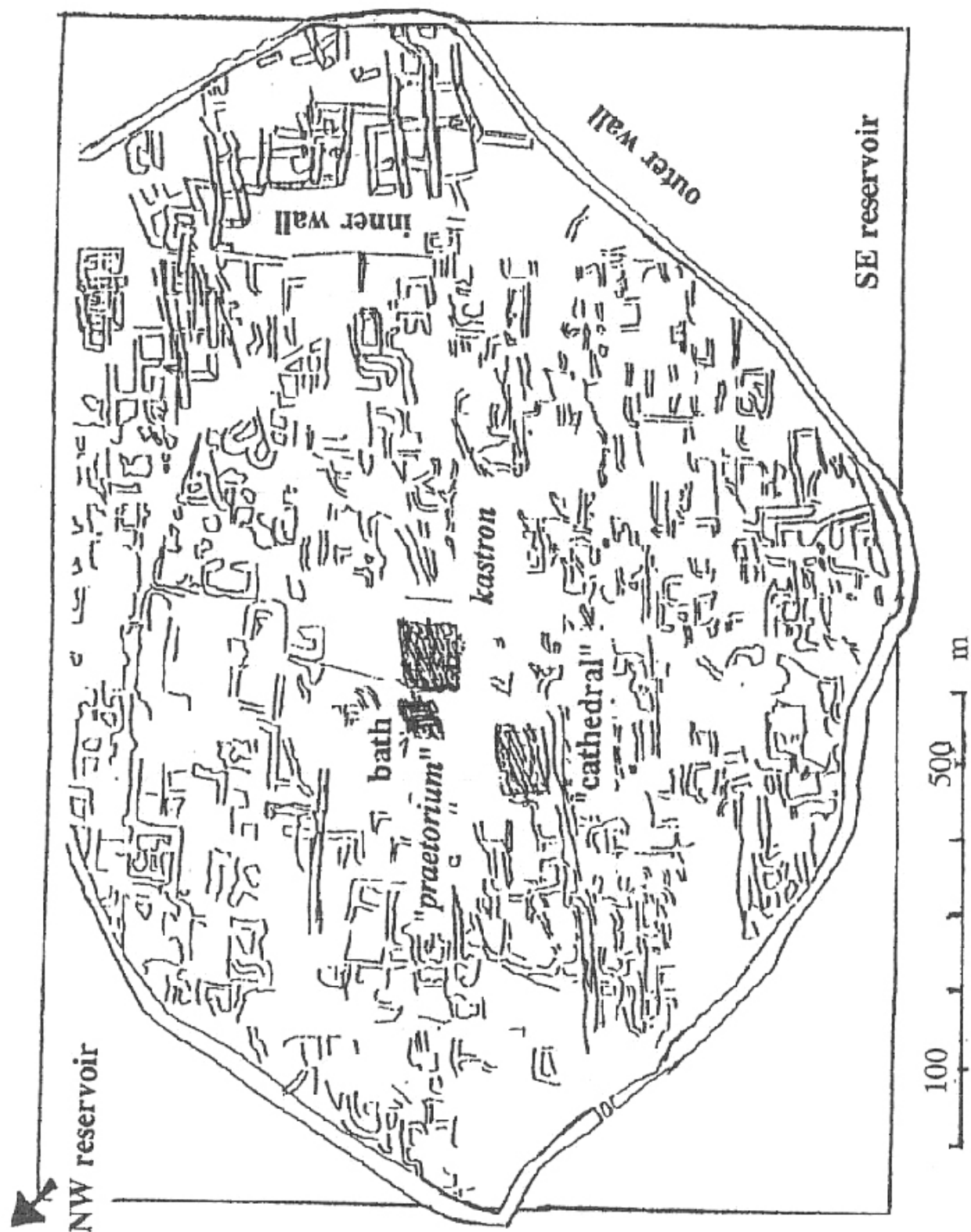


Fig. 2. Computerized plan of Androna. After A. Wickham, 1977, from an aerial photograph in R. Mouterde and A. Poidebard, *Le limes de Chalcis...*, pl. CXI.



Fig. 3. Androna, reservoir southeast of the site, south end of the southeast wall, as excavated in 2001. In centre are the remains of one pilaster with base of engaged column now missing and, to the right, a niche. Arrow points to recesses at base of wall. Photo M. Mango.

*Vivaria* are attested as late Byzantium: the Lavra monastery on Mt. Athos had 60 and its *paroikoi*, 374. The Asomatoi church at Salonica also owned some<sup>13</sup>. The reservoir at Androna may have 220 recesses and had ample space to contain a large number of fish. The qanat provided circulating water. These fresh water fish could have been consumed fresh locally. They may also have been bred, raised and salted at least in part as an export industry, to produce the *piscis salsus* of Diocletian's *Edict* (5.5). The manufacture of *garum* is another possibility. It is tempting to consider the salt available locally from the salt lake at Gabbula just to the north of Androna (fig. 1) as a necessary ingredient that may have inspired this operation. An inscription of 553 at Rouhhweyb southwest of the lake refers to a church built by Theodoulos, *endoxotatos*, apparently "entrepreneur of the exploitation of the froth of salt."<sup>14</sup> Greece, the Black Sea, Bithynia and south Spain were all large centres of the salt fish industry in the Greek and Roman periods. André lists the sea water fish used for salting (alose, castagneau, lacertus, mackerel, etc.), as cited in ancient sources, but says that the only fresh water fish cited was the *Silurus* or catfish (Apicius, Pliny)<sup>15</sup>. Catfish has been identified among fish bones excavated in the Androna bath<sup>16</sup>. Catfish bones were also excavated at Dehes where they had been sharpened for use<sup>17</sup>. The marshes of the Ghab by the Orontes River (fig. 1) which today produce abundant amounts of *Silurus* may have been the source for fish bred at Androna in late antiquity. Unlike the 'great *Silurus*' of the Moselle called by Ausonius both "a dolphin of the river (*amnicolam delphina*)" and "the gentle whale (*mitis ballena*),"<sup>18</sup> the *Silurus* of the Ghab (*Silurus glanis* L. and *Clarias Orontis Günth*) measures only 30-50 cm in length<sup>19</sup>. At Belzoni, Mississippi today, a 10-acre pond can hold 65,000 catfish of about this size<sup>20</sup>. On this scale, the two Androna reservoirs could hold about 10,000.

A further point to consider concerning catfish at Androna is that being bottom feeders they may have been introduced into the reservoir with a view to keeping it cleaned of the silt deposited by the qanat. Palladius suggests putting eels and river fish in cisterns to create a current in the water<sup>21</sup>.

*Sacred fish: carp.* Belonging to the same family (*cyprinus*) as catfish is carp (*Cyprinus carpio*). It too is a bottom feeder, partial to localities possessing soft, muddy bottoms. It was also held as a sacred fish in northern Syria and Asia Minor, particularly

<sup>13</sup> G. Dagron, "Poissons, pêcheurs et poissonniers de Constantinople," *Constantinople and its Hinterland*, ed. C. Mango and G. Dagron (Aldershot, 1995), 59.

<sup>14</sup> Mouterde and Poidebard, *Limes*, 190-1. This reading and interpretation of the inscription is to be challenged by D. Feissel; see P.-L. Gatier, "'Grande' ou 'Petite Syrie Seconde'? Pour une géographie historique de la Syrie intérieure protobyzantine," *Conquête de la steppe et appropriation des terres sur les marges arides du Croissant fertile*, ed. B. Geyer (Lyon, 2001), 98 note 37.

<sup>15</sup> J. André, *L'Alimentation et la cuisine à Rome* (Paris, 1981) 109-113. On the *Silurus* see D. W. Thompson, *A Glossary of Greek Fishes* (London, 1947), 233-237.

<sup>16</sup> Identification made by Prof. Keith Thomson and passed on by Dr. Robinson.

<sup>17</sup> J.-P. Sodini, G. Tate, B. and S. Bavant, J.-L. Biscop, D. Orssaud, "Déhès (Syrie du Nord), Campagnes I-III (1976-1978). Recherches sur l'habitat rural," *Syria* 57 (1980), 303.

<sup>18</sup> Ausonius, *Mosella*, 135-149.

<sup>19</sup> J. Weulersse, *L'Oronte. Étude de Fleuve* (Tours, 1940), 60.

<sup>20</sup> *The Times* (26 July 2002), p. 14.

<sup>21</sup> Palladius, *Opus agriculturae*, 1.17.2. I thank Michael Decker for bringing this statement to my attention.

at Hierapolis, Edessa and Pessinus. The pagan cult experienced a Christian adaptation at Germia<sup>22</sup>. Although the Androna reservoir may have contained sacred carp, the periodic near emptying of the water may have interfered with maintaining a permanent population of large fish.

*Water spectacles: the Maiuma.* The ornate decoration of the Androna reservoir suggests that it had a public use that called for a monumental prestige setting. The maintenance of sacred fish is one possibility, just considered. Another is the celebration of a water festival such as the Maiuma, still attested in the east (Antioch, probably Edessa, Gerasa, Tyre, as well as in Asia Minor at Aphrodisias and Nicaea<sup>23</sup>) during the early Byzantine period. At Gerasa, a reference to the continued celebration of the Maiuma was inscribed in 535 on the gate leading to a large second-century pool (43.5 x 88.5 m) which probably played a part in the festival<sup>24</sup>. Like the Androna reservoir, this pool which was a reservoir serving Gerasa, was about 3 m deep.

Whatever the ultimate interpretation given the evidence uncovered in the Androna reservoir, one can say that archaeological fishing in the desert provides both pleasure and enlightenment.

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<sup>22</sup> C. Mango, "St. Michael and Attis," *Deltion tes Christianikes Archaialogikes Hetaireias* 12 (1986), 39-62.

<sup>23</sup> G. Greatrex and J.W. Watt, "One, Two or Three Feasts? The Brytae, the Maiuma and the May Festival at Edessa," *Oriens Christianus* 83 (1999), 1-21.

<sup>24</sup> C.C. McCown, "The festival theatre at the Birketein," C.H. Kraeling, ed., *Gerasa City of the Decapolis* (New Haven, 1938), 159-167.