



GLASS OF ANTIQUITY
IN THE MIMARA MUSEUM



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GLASS OF ANTIQUITY IN THE MIMARA MUSEUM

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INTRODUCTION





In a very diverse private collection ... among a great number of glass vessels from the Roman era there are a few well-preserved pieces of high quality, and my fervent desire to present them in this publication has been granted in a friendly fashion.

Otto von Falke

Antike Gläser, Pantheon, vol. 8
(August 1940, T. Bruckmann
Verlag, München, p. 196)*

*Otto von Falke (1862-1942), art historian, founder of the Kunstgewerbemuseum in Cologne, organizer of the Schlossmuseum in Berlin, successor of Wilhelm von Bode as director of the Museums of Berlin, used the above words to describe Ante Topić Mimara's collection of glass of antiquity in the journal *Pantheon*, which he founded in 1928.





The Mimara Museum Glass Collection is among the very few glass collections in the world that contain and illustrate almost all the elements of glassmaking as a field of applied art with a very long history – from the first mastering of the use of a new material in the second millennium B. C. to the creative and technological accomplishments of the 19th century. This collection, with its 600 preserved specimens and 450 fragments, is organized so as to explicitly reconstruct different periods in the development of glassmaking. For this reason, its impressive encompassing of the history of glassmaking can be viewed as a solid resource for a study of all aspects of glassmaking – its history, technologies, aesthetic conceptions, changes of style, diversity of forms, and interpenetrating influences between different regions. One of the most important characteristics of this collection is its comprehensive presentation of glassmaking, whether it be Renaissance Venetian glass, European Baroque glass, or 19th century Czech work. It is no wonder then that even the “introductory chapter” in the history of glassmaking, the legacy of Antiquity, is presented in the Mimara Museum Glass Collection in all the breadth of its accomplishment, revealing the foundations and all the building blocks of this complex field of applied art. The glass objects, 96 of them, as well as the fragments, are presented in this catalogue in view of logical groupings and chronological order. They include the glassmaking work of ancient Egypt and Greece, the lavish production of Alexandria, and the prolific glass production from the vast territories of the Roman Empire. I would like to take this opportunity to thank everyone who helped in the making of this catalogue, and especially the professors Ivo Fadić and Robert Matijašić, who reviewed it.

L. R. B.





GLASS OF
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EGYPT AND GREECE

2nd millenium B. C. to 3rd Century B. C.

The beginnings of using and shaping glass material go far back to the 3rd millenium B. C., emerging in Mesopotamia and Egypt in a small range of shapes and styles. While evidence of glassmaking activity in Mesopotamia comes mainly from inscriptions on clay tablets, findings from Egyptian tombs provide graphic evidence of all aspects of making and using glass.¹ Some fragments from the tomb of Amenemhat III, from the 12th dynasty (2050-2000 B. C.), a green bead bearing the name of Amenophis I, which confirms that there was a custom in Thebes in the period from the 15th to the 10th century B. C. of putting the ruler's name on glass objects, a find with more than 1000 fragments of small vessels made of blue and green glass in the tomb of Amenophis III (1400 B. C.), and the finds from El-Amarna from the time of Akhenaton (1450-1400 B. C.), all illustrate the fundamental properties of glass objects and glassmaking of the period.²

These technological and formal properties will not change for centuries, and they will be adopted by a growing number of workshops in Egypt, as well as elsewhere around the Mediterranean – both by indigenous workshops that sprung up or those featuring Egyptian glassmakers. One can rightly state that the widespread uniformity of forms and glassmaking techniques characterized the production of glass from the 2nd millenium B. C. up to the emergence of Alexandrian workshops at the end of the 4th century B. C. Throughout this period glass was considered an exceptionally valuable material (especially in Egypt), almost equal to precious and semiprecious stones. Only the pharaohs, the clergy and high-ranking officials could own it. It was produced in small quantities, and used for the making of amulets, pendants, pearls, and, from the beginning of the 2nd millenium B. C., small vessels called balsamariums, used for storing perfumes, essential oils and unguents. In addition, glass was used for the making of appliques and inlays placed on furniture, wood and stone tablets.

What was then this early material like, how was it made, and what techniques were used with it? Rock crystal and obsidian (volcanic glass), shaped by the same tools that were used in the making of stone objects, were at some point replaced by a paste-like, opaque glass material. While some experts believe this glass paste was first produced in Mesopotamia in the 2nd millenium B. C., others believe that the same thing happened in Egypt around the same time, but ultimately all agree that Egypt, thanks to either its autochthonous traditions or a splendid combination of outside influences and home-grown ex-

¹ The inscriptions suggest that glass was used as imitation of precious and semiprecious stones, and that glassmakers used almost the same tools as stonecutters. I wrote on this subject in a study entitled "The Dawn of Glassmaking" ("Budenje staklarstva"), in which I presented a group of 10 objects from the Mimara Museum collection, coming from Egypt, Greece and Alexandria in the period from the 2nd millenium B. C. to the 1st century A. D. See L. Ratković-Bukovčan, "Budenje staklarstva", (*Studije Muzeja Mimara* no. 14; Muzej Mimara, Zagreb, 2001) pp. 7, 27.

² See Frederic Neuburg, *Glass in Antiquity* (Bristol: Rankin Brothers Limited, 1949), pp. 8-10.





expertise, became the most important high-quality glassmaking region as early as the 2nd millennium B. C.³ It is also commonly held that the production of glass paste imitated (and derived from) the techniques of the making of faience objects and of the glazing of vessels (the purpose of which was to harden the objects and to make them suitable for holding liquids).⁴ As early as the 2nd millennium B. C. the primary ingredients of glass material were known and the techniques of manufacturing glass objects were invented. Glass was obtained by melting together sodium carbonate (soda), calcium oxide (lime) and silicon dioxide (silica) into a thick soft paste whose colour came from adding different metal oxides.⁵ Cobalt was added for blue, copper for turquoise, manganese for violet, silver for yellow, and the content of iron dioxide or some admixture from the other primary ingredients could also have an effect on the final colour of the glass. Sometimes the mix included an addition of pulverized semiprecious stones, especially malachite, the imitation of which along with the imitation of lapis lazuli was a dominant feature of early Egyptian glassmaking. In the production of amulets, pendants and plaques the glass paste would be pressed into a mould that imparted a desired shape to the glass. In the making of beads layers of glass of differently coloured glass were combined together, with the brightness of colour being emphasized by sharply cut, often slanted edges.

The jug (no. ATM 1337, *ill. 1*, 2nd millennium B. C.) and the bead (no. ATM 1336, 15th century B. C. *ill. 2*) from the Mimara Museum collection are examples of high-quality early Egyptian glassmaking. The jug (h. 9.8 cm, w. 4.3 cm, rim d. 0.5 cm) was made of blue glass paste which contained fragments of orange and yellowish glass. It was made by using a mould, and then finished by cutting and "polishing." The oval body with a flattened bottom continues into a long neck. The slender handle, made from the same material, stretches from the top of the belly of the jug to the upper part of the neck. The rim of the lip is flat and fairly pronounced. From the lip inside the jug there extends a tubular cavity 0.5 cm in diameter. The jug is a gracious summary of the main characteristics of early glassmaking in terms of colour and technique. An almost identical blue jug found in the tomb of Amenophis II in Maherpra (15th/14th century B. C.) and described by Fredric Neuburg confirms the dating of this jug, and allows us to rank it among the very rare products from the 2nd millennium B. C.⁶ The pearl (l. 5.4 cm, h. 4.2 cm) is another striking example of a harmonious relationship between impressive dimensions and precision of

³ In "Budenje staklarstva" I pointed to hypotheses by some reputable scholars (Paul T. Nicholson, Julian Henderson) that speak to the importance of Egyptian glassmaking. See "Budenje staklarstva", pp. 7, 28.

⁴ See Neuburg, *Glass in Antiquity*, pp. 8-9, and Nicholson and Henderson, *Ancient Egyptian Materials and Technology*. Cambridge: Cambridge University Press, 2000, p. 195.

⁵ Soda glass or "soft" glass was prevalent in the Mediterranean workshops throughout antiquity. Potassium glass or "hard" glass became dominant in the interior of Europe since the early middle ages. It was made from fern, oak or beech ash (therefore for example the French name for medieval glass-*verre de fougere* or fern glass, and the German name *Waldglas* or forest glass).

⁶ See Neuburg, *Glass in Antiquity*, pp. 9-10.



workmanship. It was made by wrapping layers of glass around a solid core. Layers of red, white, and blue glass paste were thus first shaped into a tube, which was then cut into pieces and polygonally shaped by further cutting and polishing. The edges of the bead are slanted so that they make possible an interplay of the coloured layers among which the dominant one is a thin white layer forming a zig-zag pattern. This bead belongs to the so-called "aggry" type, and its dimensions suggest that it might have been a central element of a string.⁷

Small balsamariums, which originated in the 2nd millennium B. C., suggest a highly perfected level of workmanship. Over a period of 15 centuries a harmonious style in the making of this class of object developed and spread across the Mediterranean region. The Egyptian glassmakers made small alabastri, amphoriskoi and aryballoi by imitating small vessels made of other materials, and in the process they adapted such techniques to the performance characteristics of glass and enriched them with a complex approach to glass material. The outcome was the most characteristic and widespread technique of glassmaking in Antiquity, which will continue to be dominant until the 1st century B. C. This method of making glass objects involved wrapping glass around a solid core.⁸ Glass was first wound around the core (which was attached to a metal rod), and then followed marvering, or the rolling of the glass on a hard flat surface (usually a marble plate or table) in order to gradually achieve the desired shape. The next stage involved the winding of thin horizontal glass threads of bright colours around the glass object: they would be rolled entirely into the surface of the object, while less often the threads would be left in light relief. Metal instruments were used to form the threads into parallel series of patterns that usually belonged to one of the following groups: a. the arcade pattern, b. the feather pattern, c. the hanging garland, and d. wavy line pattern. The last stage in the making of glass artefacts involved the addition of handles, and sometimes broad rims and feet, and at the very end of the process the core would be pulverized and removed from the interior of the vessel, leaving behind a hollow space. The balsamarium (no. ATM 1334, *ill. 3*, h. 5.9 cm, w. 4.8 cm, rim d. 1.9 cm) from the Mimara Collection dates from the 15th century B. C. It is a good example of high-quality Egyptian glassmaking. It is representative in all aspects of its significance and stylistic features, and it can serve as a guide to the basic features of Egyptian production. The vessel was made by wrapping glass around a solid core, and its blue body is decorated by threads of yellow glass form-

⁷ This type of bead continued to be made in the subsequent centuries, so that it is found as late as the 4th century A. D. See Anton Kisa, *Das Glas in Altertume*, I. Teil. Leipzig: Verlag von Karl W. Hiersemann, 1908. p. 65. *ill. 32*.

⁸ Ancient sketches of the making of balsamariums, in which different stages of production are clearly identifiable, have been presented and analyzed by many scholars. Among the most important ones I would like to single out P. T. Nicholson and Jay Henderson, as well as S. M. Goldstein, who summarize the available knowledge on the subject. S.M. Goldstein in particular stresses that the term "sand" should not be applied to the core around which glass was made because sand was not the main ingredient of the mix. See Nicholson and Henderson, *Ancient Egyptian Materials and Technology*, and Sidney M. Goldstein, *Pre-Roman and Early Roman Glass in the Corning Museum of Glass*. New York: The Corning Museum of Glass, 1979, pp. 14 and 26-29.





ing the so-called feather pattern.⁹ The body of the balsamarium is globular and wide, and at the top of the upper part of the body there are two small attached handles, opposing each other, through which runs a small gold chain – thus we have here a combination of two precious, equally valued things. The vessel has a short neck ending in a broad rim. Excellently preserved, this balsamarium was published in 1990 in the renowned *Journal of Glass Studies* (The Corning Museum of Glass, New York) as the first among 51 presented objects from American and European glass collections.¹⁰

Of great interest for the dating of this object is a sketch in Anton Kisa's *Das Glas in Altertume*. The sketch presents an identical vessel made during the 18th Dynasty.¹¹ The same characteristics are exemplified by the amphoriskos (no. ATM 1335; *ill. 4*) and alabastron (no. ATM 1338, *ill. 5*) from the Mimara collection, both made in the 2nd millennium B. C. They exemplify an early version of an almost complete inventory of forms that would be repeated and elaborated for centuries to come.

After a period of stagnation in Egyptian glassmaking, which lasted from the 11th to the 7th century B. C., there followed another period of the flowering of glassmaking in Egypt. Due to migrations of craftsmen and lively commerce Egyptian glassmaking spread throughout the Mediterranean, in some places becoming the foundation of local glassmaking and in others complementing and enriching the preexisting local traditions.¹² Glassware from Syria, Cyprus and Greece (Rhodes and Lesbos were the centres of Greek glassmaking) from the period between the 6th and the 2nd centuries B. C. largely corresponded to the established typology of Egyptian artifacts, which continued to provide the formal inventory of glassmaking in Egypt itself. Phoenician traders dealt intensively in these objects (along with original Phoenician glassware), so that one can justifiably speak of a vibrant, strong network of exchange of glassmaking skills and formal canons. The repertory of Egyptian glassware workshops in that period included alabastra, amphoriskoi, oinochoe, beads, etc., as is made clear by a group of objects from the Mimara Museum Glass Collection made in Egypt from the 6th to the 3rd century B. C. (the amphoriskos, no. ATM 1339, *ill. 6*; the alabastron, no. ATM 1340 *ill. 7*; the amphoriskos, no. ATM 1341, *ill. 8*; the bead, no. ATM 1342, *ill. 9*; and the alabastron, no. ATM 1343, *ill. 10*). The alabastra, small vessels with a long, slender body, which were modelled on objects made from

⁹ The use of yellow glass for decorative threads was especially characteristic of glassmaking during the 18th dynasty, and later it will be adopted by the workshops in Greece, Asia Minor, and so on.

¹⁰ The experts from the Corning Museum of Glass in New York with I cooperated in 1987/1988 presented this object in *Journal of Glass Studies* 32: 1990, p. 195.

¹¹ See Anton Kisa, *Das Glas in Altertume*, I. Teil, p. 9, *ill. 4*, and Ratković-Bukovčan, "Budenje staklarstva", pp. 12 and 28.

¹² Frederic Neuburg speaks of "a notable decline in the Egyptian glass-industry", from the period of the 20th and 21st dynasties (about a 1000 years B. C.) to the 26th dynasty (600 years B. C.). In continuation, he states that "after the liberation of Egypt from Assyrian yoke... there occurs a renaissance of the (glassmaking) art". See Neuburg, *Glass in Antiquity*, p. 12.



semiprecious stones, can be seen as precursors to balsamariums made in later centuries by the techniques of another time.¹³

The alabastron (no. ATM 1343, *ill. 10*, h. 14 cm, w. 3 cm, rim d. 3.3 cm) from the turn of the 3rd century B. C. is a core-formed Egyptian object. On its blue ground there is a lovely, typical feather pattern, executed in yellow and light blue threads. On the upper part of the tall, slender body with a rounded bottom there are two small blue handles attached on opposite sides, whose function was also decorative. A low neck flares into a bell-shaped folded rim.¹⁴

A group of Greek artifacts from the Mimara Museum Glass Collection exemplifies very well the overall interconnectedness and homogeneity of glassmaking techniques and forms in the Mediterranean in the period. This group includes two amphoriskoi (no. ATM 1354, *ill. 11*, and no. ATM 1355, *ill. 12*) from the 5th and the 4th centuries B. C., which are representative and excellently preserved examples of that production.¹⁵

ALEXANDRIA

2nd Century B. C. to 4th Century A. D.

Founded in 332 B. C., Alexandria was a vibrant centre of Hellenistic art, chosen by Ptolemy I Soter as his seat, and Ptolemy Philadelphus (who ruled from 284 to 246 B. C.) consolidated its position as the unquestionable centre of all Hellenistic culture. The city was the point of origin of inexhaustible artistic styles and accomplishments in glassmaking. The Alexandrian glassmakers crafted primarily luxury objects, in the making of which they perfected the preexisting knowledge and the repertory of working in glass material.¹⁶

¹³ Often on the surface of these objects, as well as of some objects made in later centuries (Syrian glassware and glassware made throughout the Roman Empire) we encounter an effect of the action of humidity. This is so-called iridescence – a "disease" of sorts caused by an imbalance of the chemical compounds in the glass mix. In the early stages it appears as a thin filmy layer of a silvery hue which refracts light like a thin membrane, but it can also finish in decomposition and peel off the surface. Frederic Neuburg states that Egyptian glasses with a higher content of metal oxides are more resistant to iridescence, while the ones with a manganese oxide content are much more susceptible. See Neuburg, *Glass in Antiquity*, p. 5.

¹⁴ See the alabastra decorated in the same manner from the Metropolitan Museum of Art in New York, which are presented in Neuburg's book, *Glass in Antiquity*, plate V, *ill. 15* and 17.

¹⁵ Of exceptional interest is a group of small vessels in the Oppenländer collection, made in Greece and the Eastern Mediterranean in the same period, belonging to the same typology of form and decoration. See Axel von Saldern et al., *Gläser der Antike – Sammlung Edwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe, 1974), pp. 53, 55, 64, objects nos. 127, 143, 144, 145. Also see the catalogue *Glass in the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 19, objects nos. 23a-23d; p. 20, objects 25a; and the oinochoe which is believed to have been made in Rhodes in the 5th century B. C., and is presented in the catalogue prepared by Sidney M. Goldstein, *Pre-Roman and Early Roman Glass in the Corning Museum*, p. 126, object no. 261.

¹⁶ Sidney M. Goldstein refers to the texts by Cicero, Strabo and Suetonius, which clearly suggest that Alexandria was a city in which "perfect glass objects" were made (p. 40).





They were looking for and finding always new ways to achieve technologically and aesthetically impeccable accomplishments. The work of Alexandrian workshops thus simultaneously connected and separated the old from the new, which gave Alexandria a dominant place in the centuries-long history of glassmaking in Antiquity, for its representative glassware that can be said to have often achieved the very highest levels of quality. Although the Alexandrian glassmakers still sometimes used the primary opaque glass paste, especially in some of the techniques that will be mentioned later, they in the main continuously investigated ways to improve and purify transparent glass, while keeping the blue and pale green as dominant colours. Their hues will hold even in cases where the use of manganese purified and “decolorized” the glass fabric. The technique of pressing the glass mix into the mould was given in Alexandrian workshops a complex application in the making of multilayered tablets, appliques, medallions, etc.; the walls of glass objects were often decorated by gilding or gold leaves, while spirally intertwined threads of glass were often trailed on the rims. Beads were still made using the old techniques, whereas small balsamariums, while still being made, were increasingly losing ground to vessels, bowls and plates with representative uses.

Alexandrian craftsmen continued to perfect the making of plaques, medallions and appliques – the types of glass objects which had been known in Egypt since the 2nd millennium B. C. They often pressed into the mould several layers of glass of different colours. The commonest ground colours were dark blue, violet and brown, while milky white glass was most often used for the technique of overlaying.¹⁷ The medallion bearing the face of a Ptolemy (no. ATM 1345, h. 9.5 cm, w. 10.8 cm, th. 1 cm, *ill. 14*) from the Mimara Museum Collection is an exceptional Alexandrian piece from the 3rd century B. C. It bears witness to the impeccable interaction of technological know-how and flawless aesthetic expression. It was made by pouring three layers of glass into a mould. The thickest, black layer, which serves as the ground for the representation of the head, is completely overlaid with a thin film of milky white glass. The curly hair of the young man whose profile is represented in the middle of the medallion is made of brown glass. While the eye, drawn out into the characteristic teardrop shape, is mildly raised, the low forehead, the regular nose and the mouth are more pronounced. The strong chin and the rounded underchin blend into the strong neck of the young man. The head is surrounded by three unfinished, yellow-brown beams (representing sunbeams). The edges of the medallion are uneven and rough, and parts of it above the young man’s head and below the neck are broken off. The representation of the young man’s head is rendered in perfect proportion and clarity, and the colour of the curly hair is exceptionally bright, all of which shows that along with some other materials (stone, precious stone, metal) glass was a very workable

¹⁷ In describing this kind of glass objects Anton Kisa mentions “the technique of overlaid glass” (*Überfang-Technik* in German). The term is used for all objects made all the way up to the present by the same technique as had been used in the making of these Alexandrian proto-models. See Kisa, *Das Glas in Altertume*, I Teil, p. 402, *ill. 195*, and p. 408, *ill. 198*.



material for the making of portraits and other figural representations.¹⁸ After it became widespread in Alexandrian workshops, this technique was improved in the subsequent centuries, so that the overlaid contrasting layers would be cut, polished and shaven away in order to form minute scenes after the model of semiprecious and precious stones. The objects made, finished and decorated in this technique are known under the name of cameo glass.¹⁹

In Alexandrian glassmaking, the combination of refined feeling for colour coordination and imaginativeness of motifs, blended with perfect technical accomplishment into a flawless whole, achieved a full expression in the production of glassware by the technique of mosaic glass or the *millefiori* technique (which is a name given to it during the Renaissance and used since). In the earliest examples, we encounter the Egyptian technique of arranging many sided or oval slices of polychrome glass on a clay surface; the pieces were then heated and fused into plaques of different patterns that were inlaid on other materials or shaped into beads, appliques, etc. Such glass was also imbedded into furniture, walls of sarcophagi, or sanctuary gates. In the making of small bowls, cups, and plates from the 1st century B. C. to the 2nd century A. D. a more complex and delicate technique was used. Glass rods and threads of bright colours were fused together, and then sliced. The cross-section of every slice clearly displayed the motif of the entire rod, such as a flower or an irregular geometric shape, etc. The slices were then arranged together on a flat surface or within a clay mould and fused together by heating in a furnace into a composite object. Often the connections between slices would remain slightly rough, so that the object would have to be reheated, and its surface polished thereafter. Relief moulds were also used, among which the dominant kind was the one used for the making of small vessels whose entire surfaces were decorated (wrapped) with vertical and parallel ribbed shapes. In the last stage of the production process spirally intertwined threads of milky white and coloured glass were often trailed on the mouth of the object.

A group of objects produced by the *millefiori* technique from the Mimara Museum Collection exemplify all the aesthetic and technological accomplishments of Alexandrian glassmaking. The shallow bowl (no. ATM 1352, h. 4.9 cm, d. 16.9 cm; *ill. 15*) from the 1st century B. C. was made from fused small polygonal platelets of transparent green glass in the center of which there are spiralling threads of opaque green glass. The rim is decorated with an applied spiralling yellow glass thread. The coloured glass matter was puri-

¹⁸ An interesting description of a relief plaque made by the same method (a dark ground overlaid with milky white glass) is presented in Rosemarie Lierke’s book, *Antike Glastöpferei* (Mainz: Verlag Philipp von Zabern, 1999), p. 79, *ill. 202*.

¹⁹ The cameo glass technique was developed particularly in Italy. In the workshops of Rome itself and its surroundings in the period from the 1st century B. C. to the 1st century A. D., and throughout the Roman Empire up to the 4th century A. D. some true masterpieces of glassmaking were made by this technique. See David Whitehouse, *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, 1997), p. 41.





fied to a high degree.²⁰ The small plate (no. ATM 1347, h. 1.5 cm, d. 12.5 cm; *ill.* 16) from the 1st century A. D. is made up of small angled milky white rhombs whirling towards the centre that are fused onto the brown background. It is related to simple mosaic combinations. On the other hand, the cup (no. ATM 1767, h. 5.7 cm, rim d. 9.5 cm; *ill.* 17) from blue transparent glass “sprinkled” over by variously shaped fragments of milky white glass is a result of the use of a relief, ribbed mould whose parallel verticals are evenly translated onto the entire surface.²¹

Another exceptional piece is the two-handled vessel – vase (no. ATM 1766, h. 9.5 cm, w. 12.7 cm, rim d. 12.5 cm; *ill.* 18) from the 1st century A. D. Its surface is made of small plaques of milky white glass with a small flower in the centre of each. The abundance and playfulness of motifs is illustrated by the 450 fragments of vessels produced by this technique in the 1st and 2nd centuries A. D. (no. ATM 1695, the fragments vary in size from 1 to 4 cm, *ill.* 19). The small bowl (no. ATM 1350, h. 4.4 cm, d. 17 cm; *ill.* 20) from the 1st century A. D. is an object that presents both a proof and an explanation of the stature and place of Alexandria in the study of the history and the development of glassmaking in Antiquity. Made by the *millefiori* technique this shallow oval bowl is covered by hexagonal plaques of blue glass in the centre of which there are violet flowering twig motifs. The rim curves out, and a thin ribbon formed by intertwining threads of milky white glass is applied to it. As this object is characterized by a sophisticated technological execution and a perfect harmony of colour, it is no wonder that Otto von Falke spoke admiringly of it and described it first in his article on vessels from Antiquity in the Mimara Museum Collection.²² Alexandrian glassmaking remained significant even in the period after 30 B. C. when Egypt became one of the provinces of the Roman Empire. Glass objects from Alexandria were exported not only across the Mediterranean, but they also reached England and the distant lands of Scandinavia. Along with their domestic and export activities, in the 1st century A. D. the Alexandrian glassmakers set up workshops in Italy, between Cumae and Liternum in the vicinity of the Volturnus, and in Rome at Porta Cassena (in the year 14 A. D.).²³ Over the next few centuries they will play an active role in the world of glassmaking, and the range of their glassware, manufacturing techniques and decorative styles varied from a strong reliance on centuries-long traditions to an acceptance of new technological achievements. For instance, the small jug (no. ATM 1344, h. 9 cm, w.

²⁰ See the small bowl of the same typology in blue glass from the same period in Goldstein's book, p. 181, object no. 475, and the one from the Victoria and Albert Museum in London presented in Neuburg's book, plate X, object no. 34.

²¹ See the cup made of identical glass in Axel von Saldern et al., *Gläser der Antike – Sammlung Edwin Oppenländer*, p. 122, object no. 325.

²² See Otto von Falke, *Antike Gläser, Pantheon* vol. 8, p. 196. The beauty of this object ranks it with the Alexandrian vessel with a floral pattern in the Metropolitan Museum in New York, singled out by Neuburg for its perfection. See Neuburg, p. 15, plate X, object no. 32.

²³ See Neuburg, p. 16.



4.5 cm, *ill.* 22) from the 1st century B. C., with a blue ground overlaid with a ribbed net of orange glass, is wholly within the tradition of the ancient decorative feather pattern. The round body with a flattened base tapers into the neck. A thread of yellow glass is applied to the rim, and a blue trailed handle stretches from the belly to the neck.²⁴ The small relief applique (no. ATM 1351, h. 2 cm, w. 1.4 cm, th. 0.6 cm, *ill.* 23) from the 1st century B. C. was made from opaque ochre glass with black and milky white details. The production technique was pressing glass fabric into a mould.²⁵

The new technique that was about to change the development of glassmaking from the 1st century B. C. on – the technique of blown glass, was introduced gradually into Alexandrian glassmaking. The jug (no. ATM 1346, *ill.* 25) and the vessel (no. ATM 1348, *ill.* 26) from the 4th century A. D. from the Mimara Museum Collection testify both to continuity and to new technological accomplishments by Alexandrian craftsmen.

GLASS OF THE ROMAN EMPIRE

1st Century B. C. to 5th Century A. D.

The invention of the glass blowpipe in the 1st century B. C. near Sidon in Syria is unquestionably a turning point in the history of glassmaking, marking the beginning of a period in which the production of glass objects becomes immense.²⁶ However, even in this turn to mass production there remained the fact that each glass object was the result of the work, skill and creativity of individuals, which meant that the basic feature of glassmaking throughout the previous centuries continued the same – a combination of flawless technical execution, individual expression of the craftsman and the aesthetic harmony of the whole. The purity and transparency of glass material, beauty and evenness of colour, and delicacy of decoration were combined with a simple, harmonious shape (whose point of origin was the round glass bubble), as much in the making of luxury pieces as in the making of objects for everyday use. In order to appreciate the entire range and significance of these achievements, it is necessary to consider that dif-

²⁴ Otto von Falke writes about this jug, stating that “it is supposed that to Alexandria, as a cultivator of old traditions in Egyptian glassmaking, belong those works that [...] are characterized by a moderate, idiosyncratic choice of colour. Here belongs the small jug with a handle [...] that resembles old Egyptian beakers”, p. 197.

²⁵ See Ursula Liepmann, *Glas der Antike* (Hannover: Kestner Museum, 1982), p. 129, object no. 171.

²⁶ Based on tomb finds, David Whitehouse concluded that the blowpipe was invented in the region of Syria/Palestine, most likely in the period between 50 and 40 B. C., and Fredric Neuburg points to Sidon as the likely place of the first use of the blowpipe. Ivo Fadić analyzed the subsequent development of some of the basic glass objects after the invention of the blowpipe, and described the multiplicity of their forms created throughout the Roman Empire in the subsequent period. See Ivo Fadić, *Stakleni amforisci i amfore i stakleni oblici tipa amfore* (*Annales – Anali za istarske in mediteranske študije, series historia et sociologia* 22, Kopar 2000), pp. 543–568. Also David Whitehouse, *Roman Glass in the Corning Museum of Glass I*, p. 67, and Neuburg, *Glass in Antiquity*, p. 24.





ferent regions and different local workshops often stood out by the specificity of their production. Each of them brought new accomplishments in their different specialties, sharing experiences and blending achievements, weaving thus a dense network of glassmaking. The beauty of blown glass flourished in this way across the vast territories of the Roman Empire all the way up to the end of the 4th century, continually enlarging the range of techniques and forms.

Syria and the Eastern Mediterranean

Not only was Syria the region where there originated a true, crucial transition in the production of glass objects, but it was also home to many forms which, in the richness of glassmaking in the territories of the Roman Empire (whose part Syria became in 64 B. C.), stood out for their specific identity. It should be said that glassmaking in Syria had been subject to influences from Egypt, which had dominated the region for many centuries. So, core-formed balsamariums, beads, pendants, etc. were part of the Syrian glassmaking repertory.

The invention of the blowpipe truly was a new chapter, and it can be assumed that the ancient technique based on the use of a solid core was soon almost completely abandoned.²⁷ Soda glass, also known as soft glass because it remained molten longer and therefore was more easily shaped, was the basic material for the making of glass objects, and it was most often pale yellow or pale green in colour. The Belus River, rich in sand, provided the workshops with high-quality primary ingredients, so that it is no wonder that such different objects with a range of uses were made over the next few centuries in Syria and the neighbouring regions.

The manufacture process itself required high precision and skill from the craftsmen. The craftsman would take a lump of molten glass on the tip of the blowpipe, and then transform it into a circular bubble by blowing with constant rolling and smoothing on a solid surface. Pincers and other tools were used after heating to add handles, feet, or decorations (most often in a pattern of thin glass threads), as required. Along with production of free-blown glass objects, there developed in Syria a technique of mould-blowing – blowing glass into two-part or three-part reusable earthen or clay relief moulds (often polygonal in shape). This way, as Fredric Neuburg states, “The mass-production of decorated glass now became possible for the first time.”²⁸ Of course, the forms and decorations showed constant and gradual change, becoming ever more imaginative.

²⁷ David Whitehouse even specifically states that the solid-core technique stopped around 10 A. D., and it is assumed that around 30 A. D. the making of earthenware with thin walls stopped too. See Whitehouse, *Roman Glass in the Corning Museum of Glass I*, p. 67.

²⁸ Neuburg, *Glass in Antiquity*, p. 28.



The use of small glass vessels as balsamariums was not abandoned; in fact, the familiar, elongated form of the alabastron can be said to have served as a model for the double-bodied glass objects that were manufactured in this region from the 1st to the 4th century (and continued to be made until the 6th century). Two balsamariums from the Mimara Museum Collection are representative examples of this production. The balsamarium (no. ATM 1360, h. 10.4 cm, w. 5.9 cm, mouth d. 4 cm, *ill.* 27) in transparent brown glass was made in the 1st century by the technique of blown glass. Its surface acquired some iridescence in places. The body consists of two narrow, elongated vessels joined together, decorated with a thin spiralling glass thread. The handle, trailed on the upper part of the vessel, had been broken off, so that only fragments remain on the body. The 3rd century balsamarium (no. ATM 1371, h. 13.5 cm, w. 5.7 cm, mouth d. 2.9 cm, *ill.* 28) in translucent green glass, and surface covered by iridescence in places, has two completely preserved opposing handles, which clearly show that their purpose was primarily decorative. Such balsamariums, characteristic of the Syrian production, can be found in many glass collections around the world. The basic shape remained the same across several centuries, and the trailed handles and threads continued to receive different elaborations, often turning into decorations of unrestrained lavishness.²⁹

From the 1st to the 3rd century various kinds of glass objects were made in Sidon, with a specific class of polygonal small flasks and jugs with richly relief-decorated surfaces standing out. A characteristic example of that group is the flask (no. ATM 1359, h. 6 cm, w. 4.7 cm, mouth d. 1.3 cm, *ill.* 29) from the Mimara Museum Collection. It was made in the 1st century from transparent blue glass by blowing glass into a three-part relief-mould, whose impression can be clearly seen on the bottom of the vessel. The rounded body with a mild hexagonal cross-section is divided up by columns and arches into six sections, within which there alternate the motifs of a tall, fruit-filled vessel on a foot and a tall empty vase. The chipped neck of the flask is smooth and without decoration; based on identical pieces from other glass collections in the world it can be concluded that it was narrow with a folded rim.³⁰

Relief signatures of the makers and workshop brands can often be found at the bottom or at the joint between the handle and the body of the flasks and jugs of this class, as well as glass bowls and cups, so one finds for instance the names of Artas Sidon, Neicon

²⁹ See Brigitte Klesse, *Glas* (Kunstgewerbemuseum der Stadt Köln, 1973), p. 54, object no. 23; Giovanni Mariacher, *Edle Gläser* (München: Buckmann, 1962), colour table 17; John W. Hayes, *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: The Royal Ontario Museum, 1975), pp. 214-15, objects no. 359, 360, 449, and 454.

³⁰ See Nina Kunina, *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers, Ltd, 1997), p. 279, objects no. 134-136; Axel von Saldern et al., *Gläser der Antike – Sammlung Edwin Oppenländer*, p. 142, objects no. 401-405; Whitehouse, pp. 36-37, objects nos. 506 and 507.





Sidon, Ennion, etc.³¹ Here one can also mention flasks in the shape of two heads set back to back, which were made from transparent coloured glass as well as milky white glass. Two flasks from the Mimara Museum Collection are typical examples of this class of Sidonian glassware. The 2nd century bifrontal head bottle (no. ATM 1364, h. 10.5 cm, w. 6.5 cm, rim d. 4.3 cm, *ill.* 30) is a mould-blown piece made from transparent brown-violet glass. The round belly of the flask with the two heads in mild relief stands on a low, circular, flattened base. The heads are joined by thick curly hair. The body tapers into a neck with a flaring folded rim. The milky white mould head bottle (no. ATM 1370, h. 6.4 cm, w. 4.2 cm, rim d. 2 cm; *ill.* 31) from the 2nd century belongs to the same class of objects. The belly of the flask is made up by two heads set back to back, with pronounced features of the face (especially the nose and the mouth), framed by abundant wavy hair. The neck is short and smooth and mildly folded at the very top.³²

Along with the described pieces, the Sidonian group includes fruit-shaped flasks (mostly date-shaped), bottles and jugs bearing animals forms, and bottles and jugs shaped like black people's heads with expressive features. Their production continued into the 5th century. "Grape" decorated bottles and bottles with surfaces covered with relief nets were also commonly manufactured in Syrian workshops. The flask in the shape of a bunch of grapes (no. ATM 1399, h. 10 cm, w. 7 cm, rim d. 5 cm; *ill.* 33), made at the turn of the 3rd century and the 3rd century bottle (no. ATM 1393, h. 8.9 cm, w. 5.4 cm, rim d. 4.9 cm; *ill.* 34), both from the Mimara Museum Collection, bear witness to the perfectly nuanced use of relief moulds in the making of well-proportioned, harmonious wholes.³³

³¹ Neuburg mentions that glassware bearing the signatures was found in Italy (Rome especially), Sicily, Cyprus and Bosphorus (*Glass in Antiquity*, p. 28), and Whitehouse concludes that the fact that the objects were found there does not mean that they were also made there, but rather that it is "an indication of the city's appetite for products from every corner of the Roman Empire" (*Roman Glass in the Corning Museum of Glass I*, pp. 15-16).

³² Several class collections include the same class of objects from the same period. See Axel von Saldern et al., *Gläser der Antike – Sammlung Edwin Oppenländer*, p. 170, objects nos. 461, 464-466 (compare no. ATM 1364), object no. 460 (compare no. ATM 1370); Kunina, *Ancient Glass in the Hermitage Collection*, p. 283, object no. 542 (compare no. ATM 1364), and objects nos. 154 and 155 (compare no. ATM 1370); Whitehouse, *Roman Glass in the Corning Museum of Glass II*, (New York: The Corning Museum of Glass, Corning, 2001), p. 70, object no. 542 (compare no. ATM 1364); and p. 169, object no. 460. Ivo Fadić presented a clear overview of the various types of flasks in the form of human heads in a work that presents an analysis of a head-shaped flask found in a tomb in Varoš near Senj (the Dolac area). He states that they were made of glass of different colour and quality (violet, blue, white, green, brown); that they came in different sizes (with smaller ones predominating); that there existed many versions of the basic type (without a neck, with a cylindrical neck, with a small handle, etc.). He also states that after Sidon in the 1st century A. D. and Alexandria a little later, "in the opinion of some authors this eastern type was in the later centuries manufactured in glass workshops across the Roman Empire. Head-shaped flasks were especially popular in Gaul in the 3rd and 4th centuries A. D.". See "Staklena boca iz Senja s reljefnim prikazom ljudske glave" (*Senjski zbornik* 8, Senj 1981-1982), pp. 53-59.

³³ Interesting groups of pieces produced by the same technique from the same period can be found in the Oppenländer Collection and in the Royal Ontario Museum Collection. See Axel von Saldern et al, *Gläser der Antike – Sammlung Erwin Oppenländer*, pp. 171-173, objects no. 470-471, and p. 174, object no. 479; John W. Hayes, *Roman and Pre-Roman Glass in the Royal Ontario Museum*, p. 49, object no. 91, and p. 78, object no. 280.



Over the course of the 2nd and 3rd centuries the diversity of types of glass objects and the volume of production grew. The range of forms and decorative elements of bottles, jugs, and cups gradually changed, and the trend of their getting more elaborate continued in the 4th century. The techniques of free-blown glass, delicate uses of moulds on free-blown glass, and mould-blown glass with strong relief elements were continually improved. Trailed glass threads, mostly green or blue, were sometimes merely decorative details on the body or the neck of the object, winding around them spirally, but during the 2nd and 3rd centuries on jugs, for instance, they evolved into complex handles. The bottoms were flat in the beginning, but from the 2nd century they were often concave; bases and feet get more pronounced at the end of the 3rd century and over the course of the 4th; and all the way up to the end of the 5th century bottles were made with a particularly long neck, and decorated with trailed glass threads. The productivity of Syrian glassmakers, based on perfect fundamental skills and a mastery of the technique of blown-glass, filled the history of glassmaking with important glass objects, and the Syrian forms spread in the immediate neighbourhood of Syria, but also across the Eastern Mediterranean.

The pieces from the Mimara Collection, including the described group of Sidonian origin, illustrate the above mentioned technological and aesthetic developments. The 2nd century bottle (no. ATM 1366; h. 25 cm, w. 5.6 cm, rim d. 3.5 cm; *ill.* 35) was made from transparent, pale brown tinted glass by mould-blowing. The tall, slender, drawn out body and the round base made up by a thin glass plate are completely covered with iridescence. The slender piriform belly of the bottle is covered with barely pronounced vertical ribbing. Through the perfection of its shape, this bottle conveys the evolved contours of long-neck unguentaria.³⁴ The bottle (no. ATM 1377, h. 22.5 cm, w. 8.8 cm, rim d. 3.9 cm; *ill.* 36) made at the beginning of the 3rd century from transparent blue glass also has a long neck, wholly covered in spiralling thin glass thread, while the bottle (no. ATM 1374, h. 22.5 cm, w. 11.2 cm, rim d. 5.3 cm; *ill.* 37) from the 4th century is a characteristic example of the contemporary production of this class of glass object. It is a mould-blown piece. The wide round body with a concave bottom is wholly covered with slight dimples forming a wavy surface. The belly runs into a very tall neck, widened at the top with a trailed cord of thin green glass spiralling around it. This form of flask from about the same period is found in some of renowned glass collections around the world.³⁵

The two-handled flask (no. ATM 1361, h. 11.7 cm, w. 6.6 cm, rim d. 4 cm; *ill.* 38) is a 4th century piece that illustrates a lavish execution of various detail in the production of highly aestheticized glassware. It was made from green glass by blowing. The slender body stands on a round, pad-like foot, and the surface is decorated by slight, vertical

³⁴ See Kunina, *Ancient Glass in The Hermitage Collection*, p. 323, object no. 354.

³⁵ See Kunina, *Ancient Glass in The Hermitage Collection*, p. 332, object no. 402; Whitehouse, *Roman Glass in the Corning Museum of Glass*, I, p. 179, object no. 314; *Glass at The Fitzwilliam Museum*, p. 48, object no. 92 c, and p. 55, object no. 110 b; John W. Hayes, *Roman and Pre-Roman Glass in the Royal Ontario Museum*, p. 112, object no. 421.





ribbing. The upper part spreads in the shape of a bell, and the two slender handles run from the upper part of the body to the very rim. Blended into a well-proportioned and perfectly harmonious whole, the various elements form an object that carries the familiar features of the alabastron.³⁶

The dimensions and decorative detail of jugs also changed. The lovely small jug (no. ATM 1376, h. 9.1 cm, w. 4.3 cm, rim d. 2, 1 cm; *ill.* 39) was made in the 2nd century from brownish-ochre coloured glass by mould-blowing. The surface is wholly covered with a thickly intertwining net-pattern, and in the very middle of the piriform body there is a horizontally set relief twig. The base is flattened.³⁷ The decorative style of this piece resembles Syrian glassware from the 1st and 2nd centuries, and so does the jug (no. ATM 1372, h. 14.8 cm, w. 8.7 cm, rim d. 4.2 cm; *ill.* 40) from the 2nd century. Its broad, cylindrical body is covered with a pattern of stylized twigs in low relief. The base is flattened, and the body extends into a long undecorated neck.³⁸ Two simple small jugs (no. ATM 1363, h. 10.7 cm, w. 7.6 cm, rim d. 3.9 cm; *ill.* 41, and no. ATM 1367, h. 11 cm, w. 7 cm, rim d. 4.7 cm; *ill.* 42) speak to a blending of utilitarian and aesthetic purposes of trailed glass threads winding around the surfaces of long necks and reinforced joints of slender handles with mouths.³⁹

The 2nd century beaker (no. ATM 1405, h. 10 cm, w. 6 cm, rim d. 8 cm; *ill.* 44) and the 3rd century flask (no. ATM 1406, h. 13.1 cm, w. 8.5 cm, rim d. 5.5 cm; *ill.* 45) are examples of a measured use of the mould and a commitment to extreme simplicity in the shaping of streamlined shapes of glassware for everyday use.⁴⁰

Cups, small bowls and small vessels were also frequently made in the period from the 2nd to the 4th century. Two small bowls from the Mimara Museum Collection made between the 3rd and the 4th centuries illustrate all the basic formal and manufacturing elements of this class of glass pieces. The small bowl (no. ATM 1378, h. 6.6 cm, rim d. 11.8

³⁶ See Kunina, *Ancient Glass in the Hermitage Collection*, p. 335, object no. 410; *Glass at the Fitzwilliam Museum*, p. 53, object no. 107; Hayes, *Roman and Pre-Roman Glass in the Royal Ontario Museum*, p. 117, objects no. 451-453; Neuburg, *Glass in Antiquity*, plate XXV, object no. 6.

³⁷ An interesting amphoriskos piece identically decorated from the 1st century (it is assumed it was made in Sidon) is presented in the Hermitage catalog. See Kunina, *Ancient Glass in the Hermitage Collection*, p. 277, object no. 129.

³⁸ The surfaces of pieces from the 1st and 2nd centuries made in Syria and the neighbouring regions, including those with signatures of the craftsmen, were often decorated with stylized leafy twigs. See Whitehouse, *Roman Glass in the Corning Museum of Glass II*, p. 22-23, objects no. 485 and 486; Kunina, *Ancient Glass in the Hermitage Collection*, p. 275, objects no. 115 and 116.

³⁹ Compare a related group of jugs made in Syria and the neighbouring regions in the 4th and 5th centuries: Whitehouse, *Roman Glass in the Corning Museum of Glass II*, pp. 182-184, objects no. 725, 726, 727.

⁴⁰ This class of beaker was manufactured in Syria as early as the 1st century, while the production of bottles related to the one in the Mimara Museum Collection continued into the 4th century. See Hayes, *Roman and Pre-Roman Glass in the Royal Ontario Museum*, p. 57, object no. 139, and p. 91, object no. 301; Whitehouse, *Roman Glass in the Corning Museum of Glass I*, p. 109, no. 164 and 165.



cm; *ill.* 46) was made by the technique of free-blowing from transparent, green glass. Its simple round shape with a mildly flaring mouth is an example of a flawless simplicity of form. The bowl (no. ATM 1369, h. 9 cm, rim d. 16 cm; *ill.* 47) is based on very similar formal elements, and it reveals a desire and an ability to continually improve the conventional forms. The bowl was made from transparent, green tinted glass by free-blowing, and the perfectly shaped rim was obtained by pinching. The round, pad-like base and the globular body are harmoniously blended. The body opens into a wide star-shaped rim with pinched-out, droplet-shaped points. This exquisite piece projects a harmony achieved by great skill.⁴¹

Two small vessels from the same period also belong to representative Syrian glassware. Both are of an almost regular round shape, with a mildly concave base, and their very short broad necks are strengthened by horizontal cordons. The surface of the vessel (no. ATM 1379, h. 7.8 cm, w. 8 cm, rim d. 6.4 cm; *ill.* 48), made of transparent, brown tinted glass, is smooth and very mildly dimpled in a few places. The whole surface of the belly of the small vessel (no. ATM 1380, h. 8.3 cm, w. 8.1 cm, rim d. 5.8 cm; *ill.* 49) is covered with shallow, oblique ribbing. This type of vessel, as many tomb finds suggest, was widespread in the neighbouring regions as well as the Eastern Mediterranean.⁴²

Syrian glassmakers set up workshops throughout the Roman Empire – in Italy, Gaul, Hispania and by the river Rhine, and these workshops remained in business for centuries – even during the Carolingian period.⁴³

In Syria itself glassmaking and its traditions continued to be active. Two bottles from the Mimara Museum Collection, made in the 5th or 6th century, show the longevity of some techniques – the use of moulds (no. ATM 1365, h. 5.3 cm, w. 2.6 cm, rim d. 1 cm; *ill.* 51) and the playful decoration by trailed glass threads (no. ATM 1373, h. 14.2 cm, w. 4.7 cm, rim d. 0.6 cm; *ill.* 52). Syrian glassmaking afterwards went through periods of stagnation and periods of new vigour, and gradually new forms, decorative fashions and symbols were introduced, as it adapted to new stylistic canons, while never allowing the art of glassmaking to fade away. It is no wonder therefore that in the 12th and 13th centuries Syrian craftsmen wrote some of the most lavish and highest quality pages in the history of Islamic glassmaking.

⁴¹ A small bowl of an almost identical form and manufacture is in the Hans Cohn Glass Collection. See Axel von Saldern, *Glass 500. B. C. to A. D. 1900*, The Hans Cohn Collection, Los Angeles/Cal. (Mainz am Rhein: Verlag Philipp von Zabern, 1980), p. 108, object no. 107. Another bowl of an almost identical form is in the Archaeological Museum in Split (no. G 1791), and Zrinka Buljević wrote, speaking of it, "The small bowl from Danila (near Šibenik) can be dated to ... the end of the 5th and the first half of the 6th century, and its origin can be assumed to have been Egyptian or Syrian". See Zrinka Buljević, "Neobjavljeni straokršćanski stakleni predmeti iz Arheološkog muzeja u Splitu" (*Diadora* 20: 2000, Zadar), pp. 266-267.

⁴² Neuburg presents the photographs of a tomb site as well as a selection of objects housed in the Rockefeller Museum in Jerusalem, which includes vessels of an almost identical form made between 200 and 400. See Neuburg, *Glass in Antiquity*, plate XXIV, object no. 83/8.

⁴³ See Neuburg, *Glass in Antiquity*, p. 29.





Italy, the Western Mediterranean, and the Gaul-Rhineland Region

An intense interpenetration between trade, stylistic influence, and migrations of craftsmen characterized the vigorous spreading of glassmaking throughout the Mediterranean. While in some places some classes of glass pieces were still made by the old techniques, the new technology of blown glass opened up new levels of creativity and productivity. It is no surprise then in this context that the new tools and techniques reached Italy before the end of the 1st century B. C. Already during that century there were glassmaking centres in Campagna and southern Italy, but the most important ones were Pompeii and Rome itself. The Volturnus river (just like the Belus in Syria) provided high quality sand suitable for the making of glass. New research shows that the blowpipe was used in Pompeii as early as the period between 40 and 10 B. C., and that perfume bottles were made in the reign of Augustus. David Whitehouse states that the making of various glass objects “*increased dramatically between A. D. 10 and 40*”.⁴⁴ Already in the reign of Claudius (41-54), and in particular in the Flavian period (69-96) glass in great measure replaced ceramics and other materials in the making of objects for everyday use. In the north the main glassmaking centre was Aquileia, which wholly matched the intense development of glassmaking in Rome and its surroundings. Along with its own rich production Aquileia imported a great deal of glass objects from the eastern provinces of the Empire. For that reason, the Aquileian craftsmen of the 1st and 2nd centuries built diverse manufacturing experiences of their own and imported knowledge into the foundation of a powerful flourishing of glassmaking in Aquileia.⁴⁵

New glassmaking knowledge spread very quickly across the Roman world, so that by the second half of the 1st century workshops appeared in Hispania, Gaul, Pannonia, and objects from Aquileia spread down the Adriatic coast into the towns of Istria and Dalmatia, where it introduced a new material into everyday life and enriched the way of life of the people there with the beauty of glass forms!

Italian glassmakers and those from the City of Rome itself in particular did their best to improve their skills and knowledge, they improved the quality of glass (working to purify the mix), and they added to the repertory of colours and forms. The basic mix was often slightly green coloured and slightly blue coloured, but it was soon joined by transparent glass in blue, violet, red, etc. Unguentaria, flasks, bottles, vessels, bowls, plates, beakers, urns were all made in the Italian workshops, which reached their creative peaks already in the 2nd century, and in particular in the 3rd and 4th centuries. All aspects of glass were being perfected during the flourishing of glassmaking in Italy, and in other glassmaking centres

⁴⁴ See Whitehouse, *Roman Glass in the Corning Museum of Glass I*, p. 67.

⁴⁵ M. C. Calvi states that even in the 3rd century, when the production of glassmaking began to flag, Aquileia still remained an important centre of trade, and that in the 3rd and the 4th centuries its trade turned towards Western Europe, and in particular the Rhineland. See M. C. Calvi, *I vetri romani del Museo di Aquileia* (Associazione nazionale per Aquileia, 1969), pp. 15-21.



across Europe that developed at the same time and made glass ubiquitous. Blown glass, relief moulds, a variety of decoration were over the course of the 3rd and 4th centuries supplemented by a lavish use of trailed threads, while some techniques that existed in ancient times in fundamental form only, like cutting and engraving, received a delicate elaboration. Here it is also necessary to mention some of the basic features of contemporary glassmaking on the Croatian shores of the Adriatic, which reveal its connection to the glassmaking in the other parts of the Roman Empire. Rich finds in the areas of Liburnia and Dalmatia, and most notably in Solin (Salona), Zadar (Iader), Nin (Aenona), Krk, Osor, Pula (Pola) speak of an exceptional presence of glass objects in everyday life, and many of them belong to the very top of highly aestheticized objects — bottles, vessels, flasks, plates, cinerary urns, etc. In great part, this was glass imported from Syria and Aquileia, but much of it was made in local workshops. The previously mentioned import of glassware from Aquileia and Italy in general in the 2nd and 3rd centuries is a logical continuation of intensive import activities from an earlier period. In fact, glass objects from Egyptian workshops (Karanis) and Sidonian workshops had been imported already in the 1st century, and in the 2nd and 3rd centuries along with the import from Italian workshops, there was also import from workshops in Gaul and the Rhineland. In the 3rd and 4th centuries there was also import from Syrian and Black Sea workshops. Some of the forms and the remains of glass furnaces suggest that glass was produced in Solin, perhaps Zadar and Nin, and in ancient Asseria (Podgrad near Benkovac), while outside of Liburnia and Dalmatia it was made in Sisak (Siscia) in upper Pannonia.⁴⁶

The elements of long-established techniques and the uses of glass objects that developed over the centuries characterized Roman glassmaking too, and the old was harmoniously incorporated into some types of production. Representative examples in this regard are two bracelets from the Mimara Museum, which can be dated into the period between the 1st century B. C. to 1st century A. D. Both were made by the technique of pinching. The one from Rome (no. ATM 1775, h. 1.1 cm, d. 9.3 cm; *ill.* 54) was done in the familiar style of blending blue and milky white threads; the one from Western Europe (no. ATM 1437, h. 0.6 cm, d. 6.3 cm; *ill.* 53) combines transparent green glass with a barely suggested beauty of new hues, especially in brown and dark red. It is interesting that in the

⁴⁶ Glassmaking in Liburnia and Dalmatia in antiquity was studied in detail by Ivo Fadić, whose articles put forward some fundamental claims on the origin and typology of glass objects found in these areas. He thus states that “*alongside with a presence of almost all types and forms known to the classical world of that time, there is strong evidence that there existed local glassmaking workshops in the province of Dalmatia. So far the existence of those in Salona have been confirmed, and possibly there were also workshops in Iadera and Enona, and in continuation he concludes that “the Dalmatian workshops operated from the end of the 2nd to the beginning of the 4th century, but it cannot be ruled out ... that they existed even before*”. See Ivo Fadić, *Antičko staklo istočne jadranske obale u kontekstu rimske civilizacije, Umjetnost na istočnoj obali Jadrana u kontekstu europske tradicije*, Zbornik radova (Posebno izdanje zbornika Pedagoškog fakulteta, Rijeka, 1993), p. 75. Also see Ivo Fadić, *Antičke staklarske radionice u Liburniji* (Godišnjak Centra za balkanološka ispitivanja, ANUBiH - Akademija nauka i umjetnosti Bosne i Hercegovine, 32/30, Sarajevo - Frankfurt am Main - Heidelberg, 2002), pp. 385-405.





making of this kind of object the simple beauty of glass material in all its subdued delicacy will remain a constant over the coming centuries which brought along a tide of new forms, while the technique of manufacture will be modified only in small details.

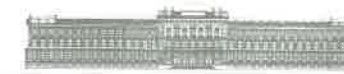
Also following received styles is the Iberian bottle (balsamarium) from the 1st century (no. ATM 1445, h. 9.6 cm, body d. 4.3 cm, rim d. 1.5 cm; *ill.* 56). It was made by free-blowing. Its entire surface is decorated with milky white threads blended into the blue ground of the wall. The piriform body with a flat bottom is thus covered by wavy vertical milky white threads of uneven width that stretch onto the slender neck of the bottle with a flaring mouth. Many such decorated bottles were made across the entire Mediterranean region, inspired by the long familiar technique of decorating balsamaria with glass threads.⁴⁷

Ribbed cups were quite frequently made in Italy as well across the Mediterranean and Western Europe in the 1st century B. C and 1st century A. D. Three cups made in Italy in the 1st century and kept in the Mimara Museum sum up all the important features of this class of object. The cups (no. ATM 1381, h. 5 cm, rim d. 11.6 cm; *ill.* 57; no. ATM 1382, h. 4.1 cm, d. 12.4 cm; *ill.* 58; no. ATM 1816, h. 5.4 cm, rim d. 12.5 cm; *ill.* 59) were made from translucent green glass by pouring and pressing glass into a mould. Their surface is covered by iridescence – in the case of no. ATM 1381 iridescence turned into a dense, thickened shell, separated in places from the wall. Shallow, round bodies with a flattened bottom are covered in greater part by evenly arranged parallel vertical ribbing. The upper wall of the cups, stretching about 1 cm from the ribbing to the rim, is smooth and undecorated. Many glass collections in the world possess this kind of cup, which testifies to its spread as well as the volume and uniformity of their manufacture.⁴⁸

Cups with ribbing were manufactured by mould-blowing too by the end of the 1st century, but soon they became just one of the classes of this species of glassware. That is, an ever greater spectrum of forms started to characterize the making of small vessels, bowls and cups, so that from the end of the 1st century to the end of the 4th century we encounter a multiplicity of forms, sizes, qualities of glass fabric, and decoration. A group of pieces from the Mimara Museum Collection may serve to illustrate this playful spectrum of forms. Two small vessels were produced in Italy in the 1st century from translucent green glass (no. ATM 1401, h. 3 cm, rim d. 6.1 cm; *ill.* 60) and blue glass (no. ATM 1410, h. 4

⁴⁷ Balsamaria of this class can be found in the Oppenländer Collection. Of special interest is a group of balsamaria made in the 1st century and in the second half of the 2nd century, from the Museum in Aquileia. See Axel von Saldern et al., *Gläser der Antike – Sammlung Erwin Oppenländer*, p. 132, objects no. 358 and 360; M. C. Calvi, *I vetri romani del Museo di Aquileia*, plate V, objects no. 1-5.

⁴⁸ Ribbed cups from the 1st century B. C. and the 1st century A. D. are found in many glass collections, of which I will mention only some of the most important ones. See for instance J. Schlosser, *Das Alte Glas* (Braunschweig: Klinkhardt & Biermann, 1956), p. 19, object no. 5; Goldstein, *Pre-Roman and Early Roman Glass in the Corning Museum of Glass I*, pp. 153-155, objects no. 327, 328, 331; Fritz Fremersdorf, *Römische Gläser aus Köln* (Köln, Leipzig: Volker Verlag, 1939), p. 27, object no. 5.



cm, rim d. 8.6 cm; *ill.* 61). Small conical bodies sit on a circular base made up by a thin glass thread. A thin cordon wraps around the upper part of the body.⁴⁹

The shallow bowl (no. ATM 1395, h. 3.6 cm, rim d. 13.6 cm; *ill.* 62) was manufactured in Italy in the 2nd century. It testifies to the beauty of a streamlined, simple form with well-blended delicate decoration. It was made from translucent green glass, and its shallow body, widening towards the top in the form of the lotus, is decorated by a milky white glass thread wrapping around it just below the rim.

The two cups (no. ATM 1384, h. 5.7 cm, rim d. 10.6 cm; *ill.* 63; no. ATM 1398, h. 7.4 cm, rim d. 13.4 cm; *ill.* 65), made in the 2nd/3rd centuries from translucent green glass, and the shallow vessel (no. ATM 1386, h. 4 cm, d. 11.3 cm; *ill.* 64) are examples of the range of forms in the making of objects for the same use. The cup no. ATM 1384 has a flattened bottom and a body divided by a horizontal ring into two parts – the belly-shaped, round lower part, and the cylindrical upper part. The smooth, bell-shaped body of the cup no. ATM 1398 sits on a low base made up by a glass thread. The cylindrical, undecorated vessel no. ATM 1386 from the same period exemplifies the same simplicity of shape.⁵⁰ The beaker (no. ATM 1408, h. 12.3 cm, w. 4.5 cm, rim d. 6.5 cm; *ill.* 66) from the same period, made from translucent green glass now covered by iridescence, also blends harmoniously into this group of pieces for everyday use.

Glass was also used to decorate the interiors of the houses of the wealthy people, in the ancient Egyptian tradition of decorating furniture with intarsia, glass plaques and appliques. Glass cubes (*tesserae*) of vivid colours were arranged in imaginative wall and floor mosaics, ranging from simply, almost geometric patterns to sophisticated figural scenes. In addition, thin overlays were used to decorate furniture (just like in Egypt).⁵¹ From the 1st century A. D. on, mosaics become an almost obligatory element in the design of interiors. Even in the making of smaller-size mosaics high technological and aesthetic standards of that segment of glassmaking were observed. The mosaic (no. ATM 1383, h. 9 cm, l. 16.5 cm, th. 3.3 cm; *ill.* 67) from the Mimara Museum is an example of the use of a harmonious pattern foregrounded by a flawless harmony of colour and a delicate and unassuming manufacturing technique. The representation of the bird and the butterfly was made from multicoloured *tesserae* pressed into the clay base. The redheaded bird with a body in hues of yellow, grey and brown, is placed in the middle of the mosaic, against the green background of a grassy meadow. In front of the bird there is the butterfly with spread broad motley wings that blend into the clear blue of the sky. The

⁴⁹ See a big group of such pieces in the catalogue by Whitehouse, *Roman Glass in the Corning Museum of Glass I*, pp. 85-88, objects no. 117-126.

⁵⁰ See Whitehouse, *Roman Glass in the Corning Museum of Glass I*, p. 70, object no. 81; p. 77, object no. 97.

⁵¹ Sidney M. Goldstein writes: "the sumptuous interiors of early Imperial Rome must have provided unlimited possibilities for interior decoration", evoking Nero's Domus Aurea as an example of a space adorned with a range of lavish decorations. See Goldstein, *Pre-Roman and Early Roman Glass in the Corning Museum of Glass*, pp 41. and 252-253.





intertwining of pure colours and impeccable figurality of the mosaic illustrates the range of exquisite quality the kind of which all glassmaking of the Roman Empire attempted to achieve.⁵²

As in the previous centuries, perfumes, essential oils and unguents were ubiquitous products, so it is not surprising that Roman glassmakers, while creating some new forms of vessels for their storage, also resorted to the traditional ones. For instance, the two small aryballoi (no. ATM 1402, h. 8 cm, w. 6 cm, rim d. 2.5 cm; *ill.* 68, and no. ATM 1409, h. 6.7 cm, w. 7.2 cm, rim d. 1 cm; *ill.* 69) from the 2nd/3rd centuries exemplify an ancient form produced by the new technique of blowing. The glass is translucent, with a greenish-brownish colour. But, in this segment of glassmaking the knowledge of the new possibilities of glass material also did infinitely broaden the limits of the formal repertoire. The unguentarium (no. ATM 1397, h. 18.5 cm, w. 6.7 cm, rim d. 4.7 cm; *ill.* 70), with a tall, slender neck stretching out of a small, round body, represents one of the common forms.⁵³ Related to this class of glass pieces is the bottle (no. ATM 1407, h. 16 cm, w. 9 cm, rim d. 4.5 cm; *ill.* 71), and there are a number of small bottles that display a wide range of interpretations of the basic round shape. The small bottles (no. ATM 1387, h. 8.5 cm, w. 5.8 cm; rim d. 3.5 cm; *ill.* 74; and no. ATM 1390, h. 12.6 cm, w. 8.3 cm, rim d. 4 cm; *ill.* 75) have broad round bellies that stretch into necks ending in slightly broadened rims, which in the case of no. ATM 1390 shaped like the funnel-like mouths of jugs. On the other hand, the small bottles (no. ATM 1389; *ill.* 76 and no. ATM 1403; *ill.* 77) are examples of a simple, pure round shape extending into a neck, harmoniously ending in a flaring mouth.⁵⁴

Bottles, bottles with handles, and jugs were among the abundant inventory of Roman glass pieces for everyday use. The 3rd century bottle (no. ATM 1411, h. 21.5 cm, w. 15 cm, rim d. 9.5 cm; *ill.* 78) illustrates the use of purified glass fabric to make bottles of a much larger size than the group described before, and so does the two-handed bottle (no. ATM 1404, h. 16 cm, w. 9 cm, rim d. 6 cm; *ill.* 79), whose handles also function as a decoration and a supplement to the purity of form. However, the two-handed bottle (no. ATM 1414, h. 24.5 cm, w. 14.9 cm, rim d. 7.3 cm; *ill.* 80) from the same period is an example of the

⁵² Whitehouse states that the motif of the flower garden with birds was an element of mural painting as early as the 1st century, and that Pliny the Younger wrote about them in his letters to a friend between 104 and 108. A mosaic with small birds is presented in the Corning Museum catalogue, and it illustrates the luxuriant beauty of this kind of representation. See Whitehouse, *Roman Glass in the Corning Museum of Glass I*, p. 36, object no. 33.

⁵³ The term used for this type of unguentarium by Whitehouse describes its shape best – *candlestick unguentarium*. See Whitehouse, *Roman Glass in the Corning Museum of Glass I*, pp. 147-160, objects no. 249-275.

⁵⁴ Groups of related bottles have been presented at the exhibition “*Trasparenze imperiali – Vetri romani dalla Croazia*”, held in Rome in 1997. See Ivo Fadić: *Il vetro, Trasparenze imperiali – Vetri romani dalla Croazia*, (Milano: Skira editore, 1997), pp. 82-86; objects no. 86-92, and 93-97.



use of different techniques of design and decoration with a purified glass material. The green transparent glass bottle was made by mould-blowing. The broad rounded belly of the bottle is entirely covered with shallow, oblique ribbing. The belly stretches into a tall neck with a slightly flaring rim. A thin glass thread spirals around the upper part of the neck. Two broad flat handles connect to the shoulder and the middle of the neck. The bottle stands out for its compactness and harmonious design. Similar characteristics can be recognized in the jug (no. 1415, h. 25 cm, w. 14 cm, rim d. 4.5 cm; *ill.* 81) made of blue glass in the 2nd century in one of the Rhineland workshops. Its round belly is covered with slight vertical ribbing. The belly continues into a very tall and slender neck without decoration. The tall handle runs from the top of the belly to the top of the neck. The jug (no. ATM 1481, h. 27 cm, w. 14.5 cm, rim d. 3 cm; *ill.* 82) is from the same period and the same provenance, and was made from perfectly purified blue glass. It unifies all the mentioned characteristics into an ethereal, almost levitating surface with barely suggested shallow ribbing on the belly and oblique ribbing on the very tall slender neck. The slender, tall handle stretches from the upper part of the belly and the upper part of the neck, while below it a decorative wavy glass thread runs down the surface of the belly.⁵⁵

As we have seen, glass objects reflected in their shape the changes in lifestyle, needs and customs; they bore witness to the complexity of human needs; they took part in the shaping of the human environment; and their usefulness was enriched by various aspects of design and decoration. It is not surprising then that the Christian religion arising at that time reached for that pliable material and marked it with its motifs and symbols. *Crux Monogrammatica* was represented in appliques since the first half of the 4th century, such as the one from the Mimara Museum (no. ATM 1439, d. 4.2 cm, th. 0.5 cm; *ill.* 89). But the new religion best expressed the elaborate world of Biblical scenes and symbols through the use of a technique that combined gold foil and glass material. Since the motifs were mostly placed on the bottom of vessels and beakers, the technique came to be known as *fondo d'oro* (gold glass). A gold foil would be laid onto a layer of transparent glass; the foil would be then be shaped by cutting and engraving into the desired representation, and then a new layer of glass would be laid over it. This technique was used as early as the 2nd and 3rd centuries to make portrait medallions, whereby the lower layer of glass was coloured or enamelled, to offset the golden foil. Medallions representing scenes from the Torah, candelabra with seven branches, etc. are from the 2nd century as well. However, in the 4th century the scenes from the Old and the New Testament (Eve, Daniel in the lion's den, St. Joseph, the Good Shepherd, St. Peter and St. Paul), often framed by inscriptions

⁵⁵ The glassware presented in some of the important museums and collections suggests that both jugs were products of Cologne workshops. See Donald B. Hansen, *Glas der Caesaren* (Olivetti, 1988), p. 119, object no. 51; Fritz Fremersdorf, *Römische Gläser aus Köln* (Köln, Leipzig: Volker Verlag, 1939), p. 27, object no. 11; Michael J. Klein, *Römische Glaskunst und Wandmalerei* (Mainz am Rhein: Verlag Philipp von Zabern, 1999), p. 55, object no. 8.





and the names of the represented characters and saints, are dominant in the use of *fondo d'oro*, with the greatest number of pieces made by this technique found in the Roman catacombs.⁵⁶ The bottom of the vessel with a portrait of a married couple and a *Crux Monogrammatica* on the back, is a characteristic example of the use of gold foil (no. ATM 1444, h. 2.2 cm, d. 6.1 cm; *ill. 90*), and so is the bottom of the vessel with a representation of a kneeling angel (no. ATM 1412, h. 0.5 cm, d. 8 cm; *ill. 91*). The representation of a sharply delineated character with delicate facial features and wearing a richly draped dress stands out against the background of clear turquoise glass. The inscription DEVENIENI is placed close to the angel, and the whole scene is framed by a thin gold circle. The chalice with the representation of the Good Shepherd (no. ATM 1768, h. 13 cm, rim d. 15 cm; *ill. 92*) is an example of an object decorated with a *fondo d'oro*.⁵⁷

During the 3rd and 4th centuries glassware production in Rome, Italy, and across the Roman Empire was very diversified in terms of range of glass forms, and it reached

⁵⁶ Whitehouse puts forward a precise categorization of the use of *fondo d'oro* into five groups of objects. These are: "1. Medallions ...; 2. Fragments with inscriptions made of gilded glass rods ...; 3. fragments decorated with gold foil under colored blobs ...; 4. Fragments with a gold-foil roundel at the center of the floor ...; 5. Other fragments ...". See Whitehouse, *Roman Glass in the Corning Museum of Glass II*, pp. 239-241. Croatian experts studied *fondo d'oro* objects as well. Branka Migotti, in a study "Pozlačena stakla sa Štrbinaca kod Đakova, dealing in great detail with two 4th century *fondo d'oro* objects, one representing a married couple (glass I) and the other a married couple with two children (glass II), extensively analyzed their manufacture, background, technique, etc., mentioning that about 520 to 550 such objects have been found in the territories of the Roman Empire. She also mentions that in the western part of the Empire their production began at the turn of the 3rd century, with the production peaking in the 4th, but "no single piece can be dated with certainty into the 5th century". Also, "gilded glasses were characteristic of the western part of the Empire. It is commonly held that the biggest, if not the only centre of production of such pieces was Rome". See Branka Migotti, "The Gold-Sandwich Glasses from Štrbinca (Đakovo, Northern Croatia)", (Zagreb: HAZU, 2002), p. 14; Glass I, *ill. 3*, p. 22, and Glass II, *ill. 7*, p. 35.

⁵⁷ Otto von Falke wrote of this chalice as a "beautiful glass vessel... from the 3rd or 4th centuries". The chalice, believed to be an Alexandrian work from the turn of the 4th century, was presented at the exhibition of early Christian and Coptic art in Vienna in 1964, and today it is a part of the permanent exhibit of the Mimara Museum. However, Renate Pillinger, a dozent at the Institute for classical archaeology in Vienna presented a hypothesis, after consulting the work of Th. E. Haevernick and V. H. Elbern, that the chalice was a Venetian work from the 19th century. This piece of indisputably exquisite quality will be analyzed in detail in one of the upcoming publications of the Mimara Museum, reviewing the pros and cons on this hypothesis. See Otto von Falke, *Antike Gläser*, vol. 8, pp. 199-200; Renate Pillinger, "Ein unpubliziertes Venetianisches Zwischengoldglas im Historischen Museum von Cluj-Napoca (Romänien)", *Journal of Glass Studies* 29 (New York: The Corning Museum of Glass, Corning, 1987), pp. 136-138, *ill. 1, 2 a, b*. The problem of dating of *fondo d'oro* pieces is mentioned by Nenad Cambi, who analyzed the objects in the Archaeological Museum in Split. He writes that "the problem of dating of gold glasses has not been solved in a completely satisfactory way yet. It is quite certain that these objects were more widely produced as early as the first half of the 3rd century. At that time, namely, mostly portraits were made, but also other representations either as stand-alone medallions or bottoms of beakers. These representations were in fact painted in gold on a glass background, in contrast to the later ones, including our pieces, which were engraved into a gold leaf. These two stages of technical development in the making of representations provide a basis for chronological differentiation of the two". See Nenad Cambi, "Neki kasnoantički predmeti od stakla s figuralnim prikazima u Arheološkom muzeju u Splitu" (*Arheološki vestnik*, Ljubljana, 1974), p. 141.



indisputable peaks of execution.⁵⁸ The Rhineland workshops, in particular the ones in Cologne and its surroundings, continued to be important centres in the long history of glassmaking. While the beaker (no. ATM 1448, h. 7.5 cm, w. 8.4 cm, rim d. 6.6 cm; *ill. 94*) and the small two-handled bottle (no. ATM 1449, h. 8.5 cm, w. 8.4 cm, rim d. 5.4 cm; *ill. 95*) from the Mimara Museum collection, made in Cologne in the 2nd or 3rd centuries, exemplify a production indebted to the styles of the previous centuries, the two-handled bottle (no. ATM 1388, h. 13 cm, w. 4 cm, rim d. 1.5 cm; *ill. 93*) and the chalice (no. ATM 1751, h. 10 cm, rim d. 9.5 cm; *ill. 97*) from the 3rd/4th century illustrate new knowledge of the beauty and possibilities of glass materials. The bottle is an example of a harmonious combination of utility with the beauty of a simple shape and decoration executed in purified glass fabric.⁵⁹ The chalice, cut from a glass block, illustrates an exceptional familiarity with this technique, which was used to create some of the most impressive glassware of this period. The chalice, executed after a form in the typology of Greek ceramics (cantharus), reproduced the contours of the ancient model and perfectly recreated it in a new material.⁶⁰

The 4th century marked the final stage of the flourishing of glassmaking in the Roman Empire, after which followed centuries of universal stagnation. Glassmaking retreated into small workshops, whose production was minor in quality and quantity, and the accomplishments of the Roman era faded away, so that glassmakers in the Middle Ages were engaged primarily in the making of objects for everyday use. However, it is quite certain that the accomplishments of Antiquity, accumulated over the centuries, functioned as the source for the reawakening of glassmaking in a later period. The glass collection of the Mimara Museum, with its presented pieces, shows, explains, and justifies the need for a continuous return to the flawless models of Antiquity in the creation of new chapters in the history of glassmaking.

⁵⁸ In the catalogue of the representative exhibit of glass from Antiquity held in Rome in 1997, "Trasparenze imperiali - Vetri romani dalla Croazia", which presented the highest quality pieces from Croatian museum collections (from archaeological museums in Zagreb, Pula, Zadar, Split, and the archaeological collections in Osijek, Dubrovnik, etc.), Ivo Fadić states that many glassmaking centres springing up in Gaul, Germania and Pannonia presented strong competition to the glasses of Rome and Aquileia, and that "from the 3rd and especially in the 4th century the glassmaking workshops in the Gaul-Rhineland region assumed the leading role in the production and commercialization of glass". See Ivo Fadić, *Il vetro, trasparenze imperiali - Vetri romani dalla Croazia*, p. 77.

⁵⁹ In professional terminology this type of bottle with two small decorative handles is known under the German name *Delphinflasche* (dolphin bottle).

⁶⁰ Speaking of this chalice, Otto von Falke described it as a piece that belongs to "the top technical achievements of the art of glassmaking in the antiquity". See Otto von Falke, *Antike Gläser*, vol. 8, pp. 197-199.





COLOUR PHOTOGRAPHS





JUG
EGYPT, II. 2nd MILLENIUM B. C. (cat. 1)
H. 9.8 CM; W. 4.3 CM; RIM D. 0.5 CM
no. ATM 1337





BEAD
 EGYPT, 15th C. B. C. (cat. 2)
 L. 5.4 CM; H. 4.2 CM
 no. ATM 1336



BALSAMARIUM
 EGYPT, 15th C. B. C. (cat. 3)
 H. 5.9 CM; W. 4.8 CM; RIM D. 1.9 CM
 no. ATM 1334





AMPHORISKOS
 EGYPT, 14th C. B. C. (cat. 4)
 H. 10 CM; W. 4.5 CM; RIM D. 2.5 CM
 no. ATM 1335

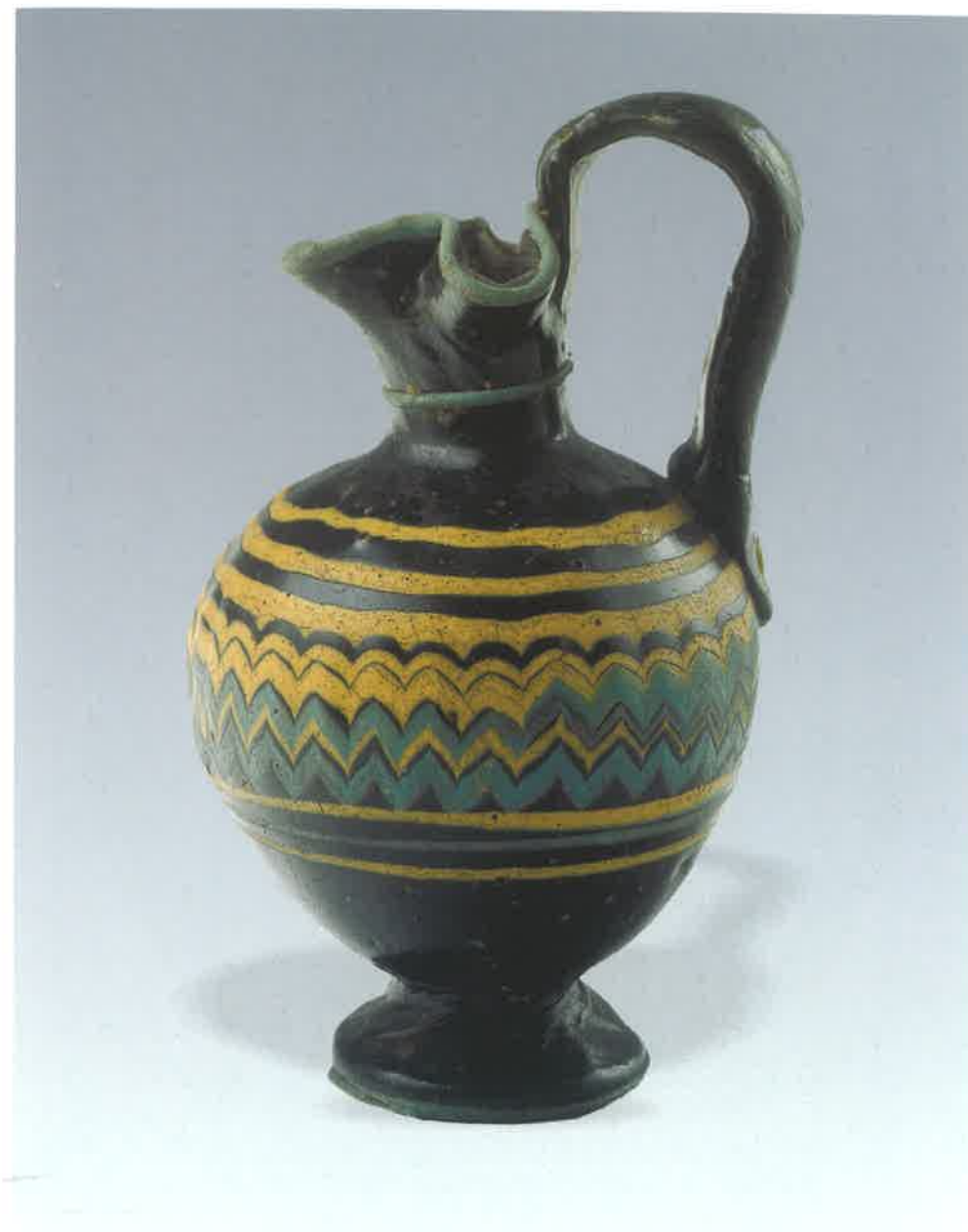


AMPHORISKOS
 GREECE, 5th/4th C. B. C. (cat. 11)
 H. 6.8 CM; W. 4.3 CM; RIM D. 2.5 CM
 no. ATM 1354





AMPHORISKOS
 GREECE, 5th/4th C. B. C. (cat. 12)
 H. 7.2 CM; W. 5 CM; RIM D. 2.6 CM
 no. ATM 1355



OINOCHOE
 GREECE, 4th C. B. C. (cat. 13)
 H. 11.2 CM; W. 6.6 CM; RIM D. 3 CM
 no. ATM 1356





BOWL
ALEXANDRIA, 1st C. B. C. (cat. 15)
H. 4.1 CM; RIM D. 16.9 CM
no. ATM 1352



CUP
ALEXANDRIA, 1st C. A. D. (cat. 17)
H. 5.7 CM; RIM D. 9.5 CM
no. ATM 1767





BOWL
ALEXANDRIA, 1st C. A. D. (cat. 20)
H. 4.4 CM; D. 17 CM
no. ATM 1350



FLASK
SIDON, 1st C. (cat. 29)
H. 6 CM; W. 4.7 CM; MOUTH D. 1.2 CM
no. ATM 1359



**BIFRONTAL HEAD BOTTLE**

SIDON, 2nd C. (cat. 31)
 H. 6.4 CM; W. 4.2 CM; RIM D. 2 CM
 no. ATM 1370

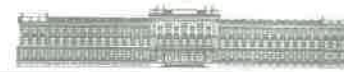
**FLASK IN THE SHAPE OF A BUNCH OF GRAPES**

SYRIA, 2nd-3rd C. (cat. 33)
 H. 10 CM; W. 7 CM; RIM D. 5 CM
 no. ATM 1399





BOTTLE
 SYRIA, 2nd C. (cat. 35)
 H. 25 CM; W. 5.6 CM; RIM D. 3.5 CM
 no. ATM 1366



BOTTLE
 SYRIA, 4th C. (P. D. 2nd C.) (cat. 37)
 H. 22.5 CM; W. 11.2 CM; RIM D. 5.3 CM
 no. ATM 1374





TWO-HANDLED FLASK
 SYRIA, 3rd C. (cat. 38)
 H. 11.7 CM; W. 6.6 CM; RIM D. 4 CM
 no. ATM 1361



BEAKER
 EASTERN MEDITERRANEAN, 2nd C. (cat. 44)
 H. 10 CM; W. 6 CM; RIM D. 8 CM
 no. ATM 1405





BOWL
 SYRIA, 3rd-4th C. (P.D. 2nd C.) (cat. 47)
 H. 9 CM; RIM D. 16 CM
 no. ATM 1369



MOSAIC
 ITALY, 2nd C. (cat. 67)
 H. 9 CM; L. 16.5 CM; TH. 3.3 CM
 no. ATM 1383





TWO-HANDED BOTTLE
 WESTERN EUROPE, 2nd C. (cat. 79)
 H. 16 CM; W. 9 CM; RIM D. 6 CM
 no. ATM 1404



JUG
 COLOGNE, 2nd C. (P.D. 3rd/4th C.) (cat. 82)
 H. 27 CM; W. 14.5 CM; RIM D. 3 CM
 no. ATM 1481





BOTTLE
 GAULISH/RHINELAND REGION, 3rd C. (cat. 93)
 H. 13.4 CM; W. 4 CM; RIM D. 1.5 CM
 no. ATM 1388



TWO-HANDLED BOTTLE
 COLOGNE, 3rd C. (cat. 95)
 H. 8.5 CM; W. 8.4 CM; RIM D. 5.4 CM
 no. ATM 1449





CHALICE
COLOGNE, 3rd-4th C. (cat. 97)
H. 10 CM; RIM D. 9.5 CM
no. ATM 1751



CATALOGUE



EGYPT AND GREECE 2nd millenium B. C. to 3rd Century B. C.

1. Jug

Egypt, 2nd millenium B. C.

blue glass paste

techniques of mould-pressing and cutting

h. 9.8 cm; w. 4.3 cm; rim d. 0.5 cm

no. ATM 1337

The jug was made pressing blue glass paste into a mould, and then it was finished by cutting. The oval body with a flattened bottom continues into a long neck. The slender handle, made from the same material, is attached to the top of the belly and the upper part of the neck. The rim of the lip is flat, fairly pronounced, and crisscrossed with fragments of orange-yellowish glass paste. A tubular cavity 0.5 cm in diameter and 2.5 cm in length extends from the lip inside the jug. The entire surface of the jug is rough.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 443, ill. p. 270.

Lit.: Frederic Neuburg, *Glass in Antiquity* (Bristol: Rankin Brothers Limited, 1949), pp. 9-10.



2. Bead

Egypt, 15th c. B. C.

blue, white and red glass paste

core-made

cutting

l. 5.4 cm; h. 4.2 cm

no. ATM 1336

The pearl was made by winding layers of red, white and red glass around a solid core with a circular cross-section. The polygonal shape was achieved by cutting. The central part of the bead is shaped into flat, rectangular surfaces, with oblique surfaces continuing on both ends. A layer of white glass forms a zig-zag pattern where the oblique edges meet the central part.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 443, ill. p. 271; *Vodić Muzeja Mimara*. (Zagreb: MGC-Muzej Mimara, 1998), Glass section; Lada Ratković-Bukovčan, p. 17, ill. 1; Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 8, ill. 1.

Lit.: Anton Kisa: *Das Glas im Altertume*, I Teil (Leipzig: Verlag von Karl W. Hiersemann, 1908), p. 64, ill. 31. and p. 65, ill. 32.



* p. d. = previously dated
(indicates the first dating of the piece when entering the collection)





3. Balsamarium

Egypt, 15th c. B. C.

blue and yellow green paste; gold

core-made

h. 5.9 cm; w. 4.8 cm; rim d. 1.9 cm

no. ATM 1334

The balsamarium was made by the technique of wrapping glass paste around a solid core. The blue ground is decorated with yellow threads forming the so-called feather pattern. The threads are in low relief in several places. The body of the balsamarium is globular and wide, and at the top of the upper part of the body two small handles of irregular circular shape are applied, and a small gold chain runs through them. The vessel has a short neck ending in a thickened rim.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 443, ill. 271; *Vodič Muzeja Mimara*. (Zagreb: MGC-Muzej Mimara, 1998), Glass section; Lada Ratković-Bukovčan, p. 18, ill. 2; Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 9, ill. 2. Lada Ratković-Bukovčan: *Journal of Glass Studies*, Volume 32 (New York: The Corning Museum of Glass, Corning, 1990), p. 195.

Lit.: Anton Kisa: *Das Glas in Altertume*, I Teil (Leipzig: Verlag von Karl W. Hiersemann, 1908), p. 9, ill. 4.

4. Amphoriskos

Egypt, 14th c. B. C.

opaque blue, yellow and white glass

core-made

h. 10 cm; w. 4.5 cm; rim d. 2.5 cm

no. ATM 1335

The amphoriskos was made by wrapping blue glass around a solid core. The base is round. A thin thread of yellow glass winds around the foot at the joint with the body. The tall body has a round belly with two opposing small handles applied at the upper part of it. The body tapers into a long neck with a thickened rim. The blue ground is decorated with variously shaped threads of yellow, milky white and light blue glass, divided into three bands. The lower part of the amphoriskos and the neck are decorated by threads in the feather pattern, and the middle section is decorated with a series of threads forming a garland pattern.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 443, ill. p. 272. Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 13, ill. 5.

Lit.: Frederic Neuburg, *Glass in Antiquity* (Bristol: Rankin Brothers Limited, 1949), plate II, ill. 3; Sidney M. Goldstein: *Pre-Roman and early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), p. 52, objects no. 11 and 12.



5. Alabastron

Egypt, 2nd millenium B. C.

white and brown (?) glass paste; calcification

core-made

h. 12 cm; w. 2.5 cm; rim d. 1.5 cm

no. ATM 1338

The alabastron was made by winding glass paste around a solid core. The bottom is round, mostly broken off. The longish body is decorated with glass threads. They wind around the lower part of the body spirally. Just below the neck the threads form a series of slightly oblique, almost horizontal lines, and on the middle part of the body they are applied in a zig-zag pattern. Since the surface is decayed (due to overall calcification) it is not possible to precisely determine the colour of the ground or of the decorative threads, and it can at best be guessed that the threads were white on a dark ground. Two small S-shaped handles are applied at the upper part of the body. The body tapers into a very short neck with a thick rim.

6. Amphoriskos

Egypt, 5th c. B. C.

opaque blue and milky white glass; iridescence

core-made

h. 14 cm; w. 4 cm; rim d. 1.5 cm

no. ATM 1339

The amphoriskos was made by winding glass around a solid core. The piriform blue body is decorated in the middle by threads forming a zig-zag pattern. A small circular base is trailed on the bottom of the body. Two straight horizontal threads wind around the upper part of the body. The surface of the vessel is wholly covered with iridescence. The neck is short and undecorated, with a rough and uneven rim.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 16, ill. 8.



**7. Alabastron**Egypt, 6th–5th c. B. C.opaque blue and white glass
translucent pale turquoise glass
core-made

h. 12 cm; w. 3.5 cm; rim d. 3.5 cm

no. ATM 1340

The alabastron was made by winding glass around a solid core. The body is longish, like a test-tube, with a rounded bottom. The vessel is made of milky white glass and decorated with evenly arranged blue glass threads. The vertical, slightly oblique sections, lined by barely suggested threads of white glass, contain white sections framed by blue glass which form patterns resembling a pair of leaves. These leaves are laid in horizontal parallel series one above another, increasing in density towards the top of the vessel. The body of the alabastron tapers into a very short neck with a broad, folded-over rim in translucent turquoise glass.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 15, ill. 6.

Lit.: Frederic Neuburg, *Glass in Antiquity* (Bristol: Rankin Brothers Limited, 1949), plate V, objects in ill. 16, and plate VI (objects in the bottom row).

**8. Amphoriskos**Egypt, 5th c. B. C.opaque blue and milky white glass; iridescence
core-made

h. 14 cm; w. 6 cm; rim d. 2.5 cm

no. ATM 1341

The amphoriskos was made by wrapping glass around a solid core. The middle part of the blue piriform body is decorated with a dense network of horizontally placed bright threads forming a garland pattern. An applied elongated toe of transparent glass is applied at the bottom. The lower part of the body and the tall slender neck are covered with spiralling white threads. The surface is covered with iridescence. The rim is thick and rounded.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 17, ill. 9.

**9. Bead**Egypt, 5th c. B. C.opaque blue, light blue, and milky white glass
core-made

l. 1.7 cm; w. 0.5 cm

no. ATM 1342

The small bead was made by winding glass around a solid core. The blue body is wholly decorated with threads of light blue and milky white glass forming a feather pattern.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 18, ill. no. 10.

**10. Alabastron**Egypt, 4th–3rd c. B. C.opaque blue, yellow and light blue glass
core-made

h. 14 cm; w. 3 cm; rim d. 3.3 cm

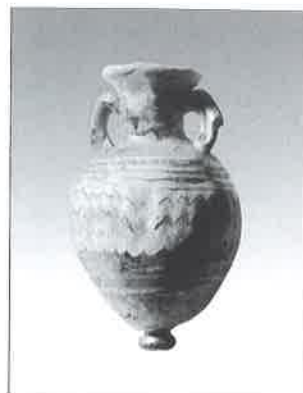
no. ATM 1343

The alabastron was made by winding glass around a solid core. The elongated body with a rounded bottom is made of blue glass. The entire surface is decorated with the feather pattern formed by yellow and light blue threads that stand out against the blue ground. Two small, opposing handles are applied to the upper part of the body. Their function is decorative. The body of the alabastron tapers into a slender neck that runs into a broad flaring mouth. The rim is rounded.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 17, ill. 7.

Lit.: Frederic Neuburg, *Glass in Antiquity* (Bristol: Rankin Brothers Limited, 1949), plate V, ill. 15, 17.





11. Amphoriskos

Greece, 5th/4th c. B. C.

opaque blue, yellow and milky white glass; iridescence

core-made

h. 6.8 cm; w. 4.3 cm; rim d. 2.5 cm

no. ATM 1354

The amphoriskos was made by winding glass paste around a solid core. The entire surface of the vessel is covered with iridescence. At the bottom of the round blue body a small round decorative foot is applied. The body is decorated with yellow and white glass threads in two kinds of patterns. A small number of thin, light lines run horizontally around the lower part of the belly and the upper part, while the middle part is wholly covered with a dense net of thicker lines forming parallel zig-zag patterns.

The body tapers into a short, broad neck ending in a slightly flaring mouth. Two opposing handles are applied to the belly and the upper part of the neck. A slender round thread of light glass is applied around the rim.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 19, ill. 11.

Lit.: S. M. Goldstein: *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), p. 38; *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 19, object no. 23 b; p. 20, object no. 25 a; *Historic Glass from Collections in North West England* (Merseyside County Museums, 1979), p. 5, object no. 18; Bergman & Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History, Pittsburgh* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 36, objects no. 4 and 5; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 62, objects no. 140 and 141; p. 64, object no. 146.



12. Amphoriskos

Greece, 5th/4th c. B. C.

opaque blue, yellow and light blue glass; iridescence

core-made

h. 7.2 cm; w. 5 cm; rim d. 2.6 cm

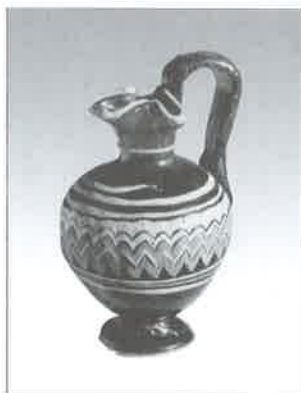
no. ATM 1355

The amphoriskos was made by wrapping glass paste around a solid core. The blue piriform body is decorated with threads of yellow and light blue glass. A small round foot with a decorative purpose is applied at the bottom. The lower and the upper part of the body are covered with thin horizontally laid threads of yellow glass, and the middle part is wholly covered with densely laid lines of light blue threads forming a zig-zag pattern. The body of the vessel tapers into a short neck ending in a flaring rim. Two applied, opposing handles stretch from the top of the belly to the widened part of the neck. A slender round thread of yellow glass is applied around the rim.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 20, ill. 12.

Lit.: S. M. Goldstein: *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), p. 38; *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 19, object no. 23b; p. 20, object no. 25 a; *Historic Glass from Collections in North West England* (Merseyside County Museums, 1979), p. 5, object no. 18; Bergman & Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History, Pittsburgh* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 36, objects no. 4 and 5; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 62, objects no. 140 and 141; p. 64, object no. 146.



**13. Oinochoe**Greece, 4th c. B. C.opaque blue, yellow, and light blue glass
core-made

h. 11.2 cm; w. 6.6 cm; mouth d. 3 cm

no. ATM 1356

The oinochoe was made by wrapping glass paste around a solid core. The vessel has a circular base. The round belly of the blue jug is decorated with differently shaped yellow and light blue glass threads. Thin horizontal lines wind around the lower and the upper part, while thicker, densely laid light blue and yellow threads zig-zag around the middle. The body tapers into a neck ending in a trefoil mouth. A thin round thread of light blue glass is applied to the rim. An applied high and slender handle stretches from the upper part of the belly to the top of the neck.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 444, ill. on p. 272.; *Vodič Muzeja Mimara*. (Zagreb: MGC-Muzej Mimara, 1998), p. 18, ill. 3.; Lada Ratković-Bukovčan: *Buđenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), pp. 4 and 21, ill. 13.

Lit.: *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 19, object no. 23 d; S. M. Goldstein: *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), p. 38 and p. 126; object no. 261; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 55, object no. 127.

ALEXANDRIA (3rd c. B. C. – 4th c. A. D.)**14. The medallion bearing the face of a Ptolemy**Egypt, 3rd c. B. C.opaque black, brown and milky white glass
gilding; mould-glass; overlaid glass

h. 9.5 cm; w. 10.9 cm; th. 1 cm

no. ATM 1345

The medallion was made by pouring three layers of glass into a mould. The thickest, black layer is overlaid with a thin film of milky white glass. The curly hair of the young man, whose profile is represented in the middle of the medallion, is made of brown glass. While the eye, drawn out into the characteristic teardrop shape, is done in light relief, the low forehead, the regular nose and the mouth are more pronounced. The strong chin and the rounded underchin blend into the strong neck of the young man. The head is surrounded by three unfinished, yellow-brown beams. The edge of the medallion, about 1 cm thick, is rough and uneven. The medallion is broken off just below the man's neck and above his head, which means those parts of the background are entirely missing.

Lit.: Rosemarie Lierke: *Antike Glastöpferei* (Mainz: Verlag Philipp von Zabern, 1999), p. 79, ill. 202.

**15. Small bowl**Alexandria, 1st c. B. C.translucent green glass and opaque yellow glass
mosaic glass; polishing

h. 4.1 cm; d. 16.9 cm

no. ATM 1352

The bowl was made by the technique of mosaic glass. The surface of the polished vessel is made up by irregular polygonal platelets of translucent glass fused together. Inside the platelets threads of yellow opaque glass form irregularly shaped spirals. The vessel has a flattened circular bottom, and the upper part of the vessel is curved out. A thin spiralling thread of yellow glass is applied to the entire rim.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 444, ill. on p. 273; *Vodič Muzeja Mimara*. (Zagreb: MGC-Muzej Mimara, 1998), p. 19, ill. no. 4; Lada Ratković-Bukovčan: *Buđenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 25, ill. no. 15.

Lit.: Frederic Neuburg, *Glass in Antiquity* (Bristol: Rankin Brothers Limited, 1949), plate X, object no. 34; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 117 and 122, object no. 322; S. M. Goldstein: *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), p. 181, object no. 475.



**16. Small plate**

Alexandria, 1st c. A. D.

translucent and opaque dark brown and milky white glass
mould-pressed; overlaid glass; *millefiori* (mosaic glass)
h. 1.5 cm; d. 12.5 cm

no. ATM 1347

The small plate was made by pressing opaque, translucent, and colourless glass into a mould, which was afterwards overlaid with a thin wall made by the *millefiori* technique. The surface of this round plate is wholly covered with a network of small, irregular, oblique milky white rhombs fused into the brown ground. In the centre of the plate the pattern whirls into a continuous zig-zagging line, and turns into a completely irregular thread of milky white glass of uneven width. The smooth, low rim of the plate is overlaid with only a thin layer of brown glass, which is peeled off in places, so that the translucent fabric of the ground comes through.

**17. Cup**

Alexandria, 1st c. A. D.

translucent blue and opaque milky white glass
millefiori technique; use of mould
h. 5.7 cm; rim d. 9.5 cm

no. ATM 1767

The cup was made by combining the *millefiori* technique and the use of a mould. The basic blue paste was sprinkled with threads and fragments of glass of irregular shape. The lower part of the cup, which is of a regular circular shape, is decorated with vertical ribbing, while the top part, about 1 cm wide, is smooth. The rim is rounded.

Bibl.: Lada Ratković-Bukovčan: *Budenje staklarstva* (Zagreb: Studije Muzeja Mimara no. 14, Muzej Mimara, 2001), p. 26, object no. 16.

Lit.: S. M. Goldstein: *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), object no. 467; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), object no. 325.

**18. Two-handed vase**

Alexandria, 1st c. A. D.

milky white and blue glass
millefiori technique
h. 9.5 cm; w. 12.7 cm; rim d. 9.8 cm

no. ATM 1766

The vessel was made by the *millefiori* technique. The bottom is flattened and round, and the body is wide and globular, with the upper part narrowing slightly and ending in a mouth that curves out slightly, 1 cm below the rim. The surface of the vessel is made up of polygonal platelets of milky white glass. In the middle of each platelet there is a blue flower in mild relief, and this motif is slightly deformed in the upper part of the vessel that curves out. Two circular, slender, opposing handles are applied to the middle of the body and the rim.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 444; ill. p. 275. *Vodič Muzeja Mimara*. Edited by Tugomir Lukšić. (Zagreb: MGC-Muzej Mimara, 1998), p. 19, ill. no. 5.

**19. Vessel fragments (450 pieces)**

Alexandria, 1st/2nd c. A. D.

translucent green, blue glass; opaque blue, green, yellow, milky white, etc. glass; iridescence
millefiori technique
h. 1-3 cm; l. 1.4 cm; th. 0.1-0.3 cm

no. ATM 1695

The multicoloured vessel fragments were made by the *millefiori* technique. They contain a multiplicity of motifs, such as flowers, stars, spots, drops, spirals, etc. There is iridescence on a great number of fragments.



**20. Bowl**

Alexandria, 1st c. A. D.

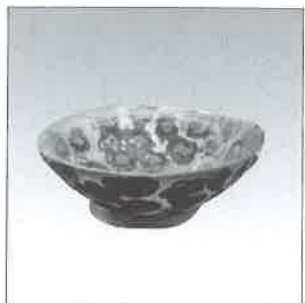
translucent blue glass and opaque violet and green glass; *millefiori* technique
h. 4.4 cm; d. 17 cm

no. ATM 1350

The bowl was made by the *millefiori* technique. The surface is made up of hexagonal plaques of blue glass in the center of which there are violet flowering lilac twig motifs. The bowl is shallow and round, and the upper part of the rim curves out slightly. The floral pattern is deformed in the upper part of the vessel by pinching. The joints between plaques are clearly visible, because the vessel was not polished. A thin ribbon formed by intertwining spiralling threads of milky white glass is applied to the rim.

Bibl.: Otto von Falke: *Antike Gläser*, Pantheon, vol. 8 (München: T. Bruckmann Verlag, August 1940), pp. 196-197; *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 444, ill. no. 274.

Lit.: Frederic Neuburg: *Glass in Antiquity* (Bristol: Rankin Brothers Ltd., 1949), plate X, object no. 32.

**21. Small bowl**

Alexandria, 1st c.

translucent and opaque red glass
millefiori technique
h. 2.5 cm; rim d. 7.5 cm

no. ATM 1773

The bowl was made by the *millefiori* technique from transparent, colourless, translucent glass and multicoloured opaque glass. The low base is made up of a round thread of translucent glass. The body is round and shallow. The surface is made up by numerous irregularly shaped flowers of blue, white and brown glass fused onto the transparent glass of the ground. The flowers touch only in a few places, so that the greater part of the surface consists of translucent glass. The rim is uneven and rough.

**22. Small jug**

Alexandria, 1st c.

translucent, bluish-violet, reddish-brown and opaque yellow glass
core-made; overlaid glass
h. 9 cm; w. 4.5 cm; mouth d. 4 cm

no. ATM 1344

The small jug was made by wrapping glass around a solid core. The body is piriform, with a flattened bottom, and it is made of dark bluish-violet glass. An almost regular net pattern, slightly narrowing in the upper part of the vessel, is applied to the surface (by heating). An applied slender handle made of opaque blue and yellow glass runs from the middle of the belly to the flaring part of the neck. A thread of yellow opaque glass is applied to the rim.

Bibl.: Otto von Falke: *Antike Gläser*, Pantheon, vol. 8 (München: T. Bruckmann Verlag, August 1940), p. 197 (the article is reprinted in *Studije Muzeja Mimara* no. 1, MGC, Zagreb, 1988, pp. 4-10).

**23. Relief applique**

Alexandria, 1st c.

ochre and black glass paste
mould-pressed glass
h. 2 cm; w. 1.4 cm; th. 0.6 cm

no. ATM 1351

The small applique was made by pressing glass paste into a mould. The shape is that of a small, elongated head of a man. The eyes, regular nose and eyes are in mild relief on the face, made from ochre glass paste. The pupil of the eye is formed by a small applied glass drop, which is missing from the right eye. The locks of hair on both sides of the forehead and on the sides of the head are made from black glass paste.

Lit.: Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum, 1982), p. 129, object no. 172.



**24. Jug**Greece, 1st c. B. C.

translucent, greenish-turquoise tinted glass; iridescence;
applied decoration
blown glass, pinching
h. 17 cm; w. 9.8 cm; mouth d. 6 cm

no. ATM 1357

The jug was made by the technique of blowing from translucent greenish-turquoise tinted glass. The body is round with a concave bottom, and its surface is covered with iridescence. Vertical ribbing is applied from the bottom to the middle of the belly. The cut-off top ends of the ribs show evidence of milky white glass in the centre. The upper part of the belly is smooth and undecorated. The body tapers into a tall broad neck ending in a trefoil mouth (as in the oinochoe). The applied handle is made from a broad glass thread, stretching from the shoulder of the vessel to the very mouth. The handle is shaped into a playful, wavy decoration at the upper joint.

**25. Small jug**Alexandria, 4th c. (?) (p. d. 1st c.)

translucent and opaque red, blue, yellow and milky
white glass; applied decoration
blown glass
h. 10.9 cm; w. 9 cm; mouth d. 4.7 cm

no. ATM 1346

The jug was made by the technique of blowing from colourless translucent glass. The body is broad and globular with a bottom slightly curved inward. A net made up by thin fused threads of opaque red, yellow, blue glass and milky white glass is applied to the surface. The meshes are rather large, and they get smaller in the upper part of the body, with their endings stretching into the lower part of the neck in the form of thin threads. The neck is tall with a flaring mouth, and a thin thread of translucent glass spirals around it. A trailed handle stretches from the middle of the body to the middle of the neck. The rim is smooth and rounded.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), pp. 212-213, objects no. 777 and 778.

**26. Small bottle**Alexandria, 3rd/4th c. (p. d. 2nd c.)

translucent, opaque and colourless glass; iridescence
mould-blown
h. 9.8 cm; w. 7.8 cm; rim d. 3.7 cm

no. ATM 1348

The mould-blown vase made of translucent, opaque and colourless glass. The body is of a regular globular shape, with a flattened bottom around which a thin glass thread is trailed on to serve as a base. The middle part of the belly is decorated with a series of circles in low relief. In the middle of each circle is a small drop-like motif in low relief. The neck is tall and cylindrical, only slightly widening towards the top. Its surface is smooth. The rim is even and sharp. The entire surface of the vase is covered with iridescence.





GLASS OF THE ROMAN EMPIRE (1st c. B. C.–5th c. A. D.)
Syria and the Eastern Mediterranean



27. Balsamarium

Syria, 1st–3rd c.

translucent brown glass; applied decoration
blown glass

h. 10.4 cm; w. 5.9 cm; mouth d. 4 cm

no. ATM 1360

The balsamarium was made by the technique of blowing from translucent brown glass. Its surface is covered with iridescence in places. The body consists of two narrow, elongated vessels (shaped like test tubes) joined together. Their surfaces are decorated with a thin spiralling glass thread. Fragments of two opposing handles, applied on the upper part of the vessel, are preserved. Part of the rim of the broad mouth is chipped off.

Lit.: Frederic Neuburg: *Glass in Antiquity* (Bristol: Rankin Brothers Ltd., 1949), plate V XII, objects no. 57a, b, c; plate XIX, objects no. 64, 65; Giovanni Mariacher: *Edle Gläser* (München: Bruckmann, 1962), plate 17; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (The Royal Ontario Museum, Toronto, 1975), pp. 214 and 215; objects no. 359, 360, 449 and 454.



28. Balsamarium

Syria, 3rd c.

translucent green glass; trailed decoration; iridescence
blown glass

h. 13.5 cm; w. 5.7 cm; mouth d. 2.9 cm

no. ATM 1371

The balsamarium was made by the technique of blowing from translucent green glass. The surface is covered with iridescence in places. The body, shaped like a test tube, was pressed across the middle in the manufacture process so that two long and narrow vessels, joined together, were created. Two broad and curvy glass handles are applied on both sides (one on each of the vessels) stretching from the middle of the body to the very mouth. The rim of the two-part mouth is round, thickened, and smooth.

Lit.: Frederic Neuburg: *Glass in Antiquity* (Bristol: Rankin Brothers Ltd., 1949), plate XIX, objects no. 66, 68; B. Klesse: *Glas* (Kunstgewerbemuseum der Stadt Köln, Köln, 1973), p. 54, object no. 23; G. Mariacher: *Edle Gläser* (München: Bruckmann, 1962), plate 17; David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), pp. 192–197, objects no. 741–751; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: The Royal Ontario Museum, 1975), pp. 214 and 215, objects no. 359, 360, 449 and 454.



29. Small bottle

Sidon, 1st c.

translucent blue glass; iridescence
mould-blown

h. 6 cm; w. 4.7 cm; mouth d. 1.2 cm

no. ATM 1359

The bottle was made by blowing translucent blue glass into a mould. The surface is covered with iridescence. The low base bears the marks of the three-part mould. The body is round, with a slightly suggested hexagonal cross-section. The middle part of the belly is decorated with a motif in relief. The motif consists of rectangular sections of equal size with the alternating representations of a large vessel with a foot filled with fruit and a tall, empty vase. Above each section there is a small section in relief ending in an arch supplementing it. The neck is very short and narrow, and a part of it is missing. The rim is sharp and unfinished.

Lit.: Bergman, Sidney M. & Andrew, Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History, Pittsburgh* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 60, ill. no. 51; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 142, objects no. 401–405; David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), p. 36 and 37, objects no. 506 and 507; *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 32, object no. 54 b; Nina Kunina: *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers Ltd, 1997), p. 297, objects no. 134–136.



**30. Bifrontal head bottle**Sidon, 2nd c.translucent, brown-violet tinted glass; iridescence
mould-blown

h. 10.5 cm; w. 6.5 cm; rim d. 4.3 cm

no. ATM 1364

The bottle was made of brown-violet tinted glass blown into a mould. The surface is covered with iridescence. The base is low, circular, and flattened. The broad, round belly of the bottle consists of two heads set back to back. The heads are set in low relief. The facial features are soft, and the heads are joined by the thick, curly hair, suggested by the wavy surface. The body tapers into a short, smooth neck, ending in a rim curving out. A thin glass thread is trailed on the rim.

Lit.: Bergman, Sidney M. & Andrew, Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History, Pittsburgh* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 64, ill. no. 61; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 170, objects no. 464-466; David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001) p. 70, object no. 542; Nina Kunina: *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers Ltd, 1997), p. 283, object no. 158.

**31. Bifrontal head bottle**Sidon, 2nd c.milky white glass
mould-blown

h. 6.4 cm; w. 4.2 cm; rim d. 2 cm

no. ATM 1370

The bottle was made by blowing milky white glass into a mould. The base is low and circular. The belly is shaped like two heads set back to back, framed by thick, wavy hair. The large lips, nose and jaw are set in more pronounced relief, while the eyes are done in light relief. The body extends into a short neck ending in a thickened rim, with a glass thread trailed on.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 445, ill. p. 277. *Vodič Muzeja Mimara*. (Zagreb: MGC - Muzej Mimara, 1998), p. 20, object no. 7.
Lit.: Axel von Saldern: *Glass 500. B. C. to A. D. 1900* (Mainz am Rhein: Verlag Philipp von Zabern, 1980), p. 54, object no. 47; Bergman, Sidney M. & Andrew, Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History, Pittsburgh* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 69, object no. 62; David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001) p. 69, object no. 540; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 169, object no. 460; Nina Kunina: *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers Ltd, 1997), p. 283, objects no. 154 and 155.

**32. Bottle with a relief representation of two faces**Syria, 2nd c.translucent green glass; iridescence; trailed decoration
mould-blown

h. 13.9 cm; w. 5.5 cm; rim d. 2.5 cm

no. ATM 1368

The bottle was made by blowing translucent green glass into a mould. The surface of the bottle is covered with iridescence. The body is tall and cylindrical, with a flattened bottom. In the middle of the body two faces are set in relief on the opposite sides, without touching. The expressive eyes and pronounced lips are framed by a light suggestion of curly hair. The body tapers into a very tall, narrow neck. A thin glass thread spirals along the entire length of the neck. The neck ends in a funnel-shaped mouth with a rounded rim.

**33. Bottle shaped like a bunch of grapes**Syria, 2nd/3rd c.translucent brown tinted glass; iridescence
mould-blown

h. 10 cm; w. 7 cm; rim d. 5 cm

no. ATM 1399

The bottle was made by blowing translucent brown tinted glass into a mould. The surface of the bottle is covered with iridescence. The base is circular and flat. The piriform body is wholly covered with even-sized knobs, resulting in the shape of a bunch of grapes. The body tapers into a short, broad neck. Around the very top of the body there runs a glass ring in relief. The rim is smooth and rounded.



Lit.: Bergman, Sidney M. & Andrew, Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History, Pittsburgh* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 119, ill. no. 206.; Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum, 1982), p. 44, object no. 18; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), pp. 171-173, objects no. 470-473; David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), p. 126, objects no. 631.



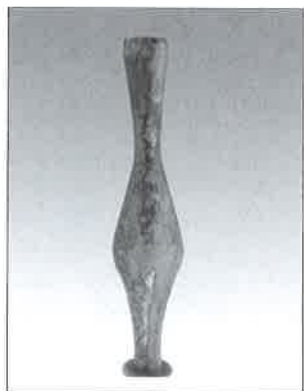
**34. Small bottle**Eastern Mediterranean, 3rd c.translucent, brown tinted glass; iridescence
mould-blown

h. 8.9 cm; w. 5.4 cm; rim d. 4.9 cm

no. ATM 1393

The bottle was made by blowing translucent, brown tinted glass into a mould. The surface is covered with iridescence. The body is of a regular globular shape, it is covered with a net pattern in mild relief. The neck is short, with a broad, sharply flaring mouth and a folded rim. The rim is smooth and rounded off.

Lit.: *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 53, object no. 105b; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: Royal Ontario Museum, 1975), p. 78, object no. 280; Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 174, object no. 479.

**35. Bottle**Syria, 2nd c.translucent, brown tinted glass; iridescence; applied
decoration

mould-blown

h. 25 cm; w. 5.6 cm; rim d. 3.5 cm

no. ATM 1366

The bottle was made by blowing translucent, brown tinted glass into a mould. The surface is covered with iridescence. The low round base is made up by a thin glass thread. The piriform body is tall and quite slender. The belly-like middle part of the vessel is covered with vertical ribbing in mild relief. The neck is tall and slender, flaring mildly and ending in a smooth and even rim.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 445, object no. 7.26; *Vodič Muzeja Mimara*. (Zagreb: MGC - Muzej Mimara, 1998), p. 20, object no. 6.

**36. Bottle**Syria, 2nd-3rd c.translucent, blue tinted glass; iridescence; applied
decoration

blown glass

h. 22.5 cm; w. 8.8 cm; rim d. 3.9 cm

no. ATM 1377

The bottle was made from translucent, blue tinted glass by the technique of blowing. The surface is covered with iridescence. The body is piriform and irregular, with a flattened bottom. Shallow dimples are perceptible on the surface. The neck is tall with a flaring mouth. A thin trailed glass thread winds around the surface of the neck. The rim is smooth and rounded off.

**37. Bottle**Syria, 4th c. (p. d. 2nd c.)translucent, pale green glass; applied decoration;
iridescence

mould-blown

h. 22.5 cm; w. 11.2 cm; rim d. 5.3 cm

no. ATM 1374

The bottle was made by blowing translucent pale green glass into a mould. The surface is covered with iridescence in places. The body is broad and globular, and wholly covered with shallow dimples resembling small meshes of a net. The bottom is concave. The belly tapers into a very tall neck, quite broad except in the lower part. A thin green glass thread spirals around the upper part of the neck. The rim of the broad mouth is smooth and rounded off.

Lit.: John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: The Royal Ontario Museum, 1975), p. 112, object no. 421; Nina Kunina: *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers Ltd., 1997), p. 332, object no. 402; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 2001), p. 179, object no. 314; *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 48, objects no. 92c and p. 55, object no. 110b.



**38. Two-handled bottle**Syria, 3rd c.

translucent green glass; iridescence; applied decoration

blown glass

h. 11.7 cm; w. 6.6 cm; rim d. 4 cm

no. ATM 1361

The vase was made from translucent green glass by the technique of blowing. The surface of the vase is covered with iridescence. The base is wide, round and thick. The body is tall and slender, and its surface is decorated with vertical ribbing in slight relief, laid out at equal distances. The upper part of the body tapers into a very short neck, around the very top of which winds a thin glass thread. Two trailed opposing handles are attached to the upper part of the body and the mouth. A rounded glass thread is applied to the rim.

Lit.: Frederic Neuburg: *Glass in Antiquity* (Bristol: Rankin Brothers Ltd. 1949), plate XXV, object no. 6; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: The Royal Ontario Museum, 1975), p. 117, objects no. 451-453; Nina Kunina: *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers Ltd., 1997), p. 335, object no. 410.

**39. Small jug**Syria, 2nd-3rd c.

translucent brown glass; iridescence

mould-blown

h. 9.1 cm; w. 4.3 cm; rim d. 2.1 cm

no. ATM 1376

The small jug was made from translucent, brownish-ochre glass by mould-blowing. The surface is covered with iridescence. The body is piriform with a flattened bottom. The entire surface of the body is covered with a dense net pattern in relief. The pattern is interrupted only in the middle part of the belly by a horizontally laid leafy twig in low relief wrapping around the belly. The body tapers into a long smooth neck ending in a funnel-shaped mouth.

Lit.: Nina Kunina, *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers Ltd., 1997), p. 277, object no. 129.

**40. Jug**Syria, 2nd c.

translucent, brown tinted glass; iridescence

mould-blown

h. 14.8 cm; w. 8.7 cm; rim d. 4.2 cm

no. ATM 1372

The jug was made from translucent, brown tinted glass by mould-blowing. The surface is covered with iridescence in places. The tall cylindrical body has a flattened bottom. A pattern of stylized twigs executed in almost geometrically regular lines covers the whole body in low relief. Below and above two horizontal cordons in relief frame the pattern. An exceptionally wide trailed glass handle stretches from the top of the shoulder to the upper part of the neck. The entire length of the handle is ribbed. At the joint with the body the handle spreads creating a fantail shape. The neck spreads at the top, ending in a smooth, rounded rim.

**41. Jug**Syria, 2nd-4th c. (p. d. 1st-2nd c.)

translucent, brown-reddish tinted glass; iridescence;

applied decoration

blown glass

h. 10.7 cm; w. 7.6 cm; rim d. 3.9 cm

no. ATM 1363

The jug was made from translucent, brown-reddish tinted glass by blowing. The surface is covered with iridescence. The wide body has a round belly and a flattened bottom. The neck is tall and broad, and a thin glass thread winds around its upper part. A trailed glass handle stretches from the shoulder to the upper part of the neck. At neck, the handle bifurcates into a thread winding around it. Another cordon of glass wraps around the neck just below the smooth, even rim.



Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), pp. 182-184, objects no. 725, 726 and 727.



**42. Jug**

Syria 2nd-4th c. (p. d. 2nd c.)

translucent, green tinted glass; iridescence; applied decoration

blown glass

h. 11 cm; w. 7 cm; rim d. 4.7 cm

no. ATM 1367

The jug was made from translucent, pale green glass by the technique of blowing. The surface is covered with iridescence in places. The body is piriform with a flattened bottom, and its surface is covered with slight dimples. The neck is tall and slender, with a thin thread of turquoise glass winding around the lower part. A tall handle stretches from the shoulder to the lip; at the joints it is shaped into small paws. The neck flares sharply. A cordon of glass winds around just below the lip. The rim is rounded off.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), pp. 182-184, objects no. 725, 726 and 727.

**43. Two-handled jug**

Syria, 2nd-3rd c.

translucent, pale green coloured glass; applied decoration

blown glass

h. 9.7 cm; w. 6.3 cm; rim d. 3.3 cm

no. ATM 1375

The jug was made from translucent, pale green-coloured, rather bubbly glass by the technique of blowing. The flaring pad-foot is broad and round. The piriform body tapers into a tall broad neck, slightly spreading at the top. Two trailed opposing handles are attached to the middle of the belly and the middle of the neck. A thin glass thread spirals around the neck. The rim is smooth and rounded off.

**44. Beaker**

Eastern Mediterranean, 2nd c.

translucent, pale green tinted glass; iridescence

blown glass

h. 10 cm; w. 6 cm; rim d. 8 cm

no. ATM 1405

The beaker was made by the technique of blowing from translucent, pale green-tinted glass. The surface of the beaker is covered with iridescence. The tall cylindrical body with a flat bottom flares mildly at the top. At the very bottom and 2 cm below the rim the beaker is decorated with two glass rings wound around it. The rim is rough and rounded off.

Lit.: Axel von Saldern: *Glass 500. B. C. to A. D. 1900* (Mainz am Rhein: Verlag Philipp von Zabern, 1980), p. 118, ill. no. 116; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 1997), p. 109, ill. no. 164.

**45. Bottle**

Eastern Mediterranean, 3rd-4th c. (p. d. 2nd-3rd c.)

translucent, green tinted glass; iridescence

blown glass

h. 13 cm; w. 8.5 cm; rim d. 5.5 cm

no. ATM 1406

The bottle was made from translucent, green tinted glass by blowing. The surface is covered with iridescence. The body is round with a concave bottom. The neck is very tall and broad, slightly spreading into a conical shape towards the top. The rim is rounded off.

Lit.: Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum Hannover, 1982), p. 85, object no. 101; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: Royal Ontario Museum, 1975), p. 91, object no. 301.



**46. Cup**Syria, 2nd–3rd c.

translucent green glass; iridescence; applied decoration

blown glass

h. 6.6 cm; rim d. 11.8 cm

no. ATM 1378

The cup was made from translucent glass by the technique of blowing. The surface is covered with iridescence. The wide round body stands on a low round base. The surface of the body is smooth. A cordon of glass wraps around the cup just below the rim. The broad mouth of the cup flares slightly. The rim is smooth and rounded off.

Lit.: Nina Kunina: *Ancient Glass in the Hermitage Collection* (St. Petersburg: The State Hermitage Ars Publishers Ltd., 1997), p. 319, object no. 335; David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, New York, 2001), p. 129, object no. 646.

**47. Small bowl**Syria, 3rd–4th c. (p. d. 2nd c.)

translucent green tinted glass; iridescence

blown glass; pinching

h. 9 cm; rim d. 16 cm

no. ATM 1369

The bowl was made from translucent green glass by blowing and pinching. The surface is covered with iridescence. The round smooth lotus-shaped body stands on a round pad-foot. The body spreads into a wide star-shaped rim. The points of the star-shaped rim are round and drop-let-shaped, and they were made by the technique of pinching. The rim is smooth and rounded off.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 445, object no. 7.30.
Lit.: Axel von Saldern: *Glass 500. B. C. to A. D. 1900* (Mainz am Rhein: Verlag Philipp von Zabern, 1980), p. 108, object no. 107; Zrinka Buljević, *Neobjavljeni starokršćanski stakleni predmeti iz Arheološkog muzeja u Splitu* (Zadar: *Diadora* 20, 2000), p. 266–267, object no. 5 (no. G 1791).

**48. Small vessel**Syria, 3rd–4th c. (p. d. 2nd–3rd c.)translucent, pale brown tinted glass; iridescence
blown glass

h. 7.8 cm; w. 8 cm; rim d. 6.4 cm

no. ATM 1379

The small vessel was made from translucent, pale brown tinted glass by blowing. The surface of the vessel is covered with iridescence in places. The bottom is flattened. The surface of the round belly is slightly indented in some places. The mouth curves out, and the rim is smooth and rounded off.

Lit.: Frederic Neuburg: *Glass in Antiquity* (Bristol: Rankin Brothers Ltd., 1949), plate XXIV, object no. 83/8; John W. Hayes: *Roman and Pre-Roman Glass in the Ontario Museum* (Toronto: The Royal Ontario Museum, Toronto, 1975), p. 95, object no. 325.

**49. Small vessel**Syria, 3rd–4th c. (p. d. 2nd–3rd c.)translucent green tinted glass; iridescence
mould-blown

h. 8.3 cm; w. 8.1 cm; rim d. 5.8 cm

no. ATM 1380

The vessel was made from translucent green tinted glass filled with bubbles and grains of sand by the technique of mould-blowing. The surface is covered with iridescence in part. The surface of the wide round body has several indentations. It is covered with parallel, obliquely set wavy ribbing in light relief. The neck is very short and broad, with a cordon of glass running around the middle. The rim is smooth and rounded off.

Bibl.: *Vodič Muzeja Mimara*. (Zagreb: MGC - Muzej Mimara, 1998), p. 20, object no. 8.

Lit.: Frederic Neuburg: *Glass in Antiquity* (Bristol: Rankin Brothers Ltd., 1949), plate XXIV, object no. 83/8; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: The Royal Ontario Museum of Glass, 1975), p. 95, object no. 326.



**50. Small vessel**

Syria, 2nd–4th c. (p. d. 1st c.)

translucent yellow tinted glass; iridescence
blown glass

h. 3.9 cm; w. 3.3 cm; rim d. 2.5 cm

no. ATM 1362

The miniature vessel was made from translucent yellow tinted glass by blowing. The surface is covered with a thick layer of iridescence. The regular round body extends into a broad conical neck. The base is flattened. The rim is rough and uneven.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), pp. 163–166, objects no. 282, 284, 286, 288–290.

**51. Small bottle**

Syria, 5th/6th c. (p. d. 2nd c.)

translucent turquoise glass; iridescence
mould-blown

h. 5.3 cm; w. 2.6 cm; rim d. 1 cm

no. ATM 1365

The small bottle was made from translucent turquoise glass by the technique of mould-blowing. The surface is covered with iridescence. The body is quadrangular with a flattened bottom. The surface is covered with relief shapes that are difficult to make out, but resemble a tree with a dense canopy. The cylindrical neck flares mildly. The rim is smooth and rounded off.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 2001), p. 135, objects no. 644 and 645.

**52. Small bottle**

Syria, 5th/6th c. (p. d. 2nd c.)

translucent brown glass; iridescence; trailed decoration
mould-blown

h. 14.2 cm; w. 4.7 cm; rim d. 1.6 cm

no. ATM 1373

The small bottle was made from translucent brown glass by the technique of mould-blowing. The surface of the bottle is covered with iridescence in part. The tall cylindrical body with thick walls and bottom is decorated with trailed vertical glass threads that wrap around it. In the middle section of the body the decoration is in the shape of stylized irregular tall forms shaped like the letter H. A horizontal torque glass thread wraps around the body above them. The body tapers into a very short and narrow neck. The rim is rough and rounded off.

Lit.: Brigitte Klesse: *Glas* (Köln: Kunstgewerbemuseum der Stadt Köln, 1973), p. 57, object no. 30.





Italy, the Western Mediterranean,
and the Gaul-Rhineland region



53. Bracelet

Western Europe, 1st c. B. C.–1st c. A. D. (p. d. 2nd c. B. C., Celtic product)

translucent green glass and opaque blue, yellow and dark brown-red glass
pinching
h. 0.6 cm; d. 6.3 cm

no. ATM 1437

The round bracelet was made from translucent green glass by the technique of pinching. The base glass band was covered with another layer of green glass. A 1 cm wide band, made up by vertical threads of opaque yellow, red, white and blue glass, was then laid on that layer in 6 different places at relatively equal distances. The outside surface of the bracelet is rounded off, while the trailed threads are in mild relief.



54. Bracelet

Western Mediterranean, 1st c.

opaque blue, black and milky white glass
pinching
th. 1.1 cm; d. 9.3 cm

no. ATM 1775

The bracelet was made by the technique of pinching. The base glass band was 0.5 cm wide and made of opaque blue fabric. A thin thread was trailed on the entire length of the band on both the upper and the lower sides. The thread is made up by intertwining black and milky white glass. The multicoloured rounded thread is in low relief.



55. Ring

Western Mediterranean, 1st c.

opaque yellowish glass; yellow and turquoise glass paste
mould-pressed; pinching
d. 2 cm; d. of plaque 2.1 cm

no. ATM 1358

The ring was made from yellowish fabric by the techniques of mould-pressing and pinching. A circular plaque made of yellow glass paste is applied on the glass ring. Along its edge, the plaque is decorated with turquoise dots. In the middle of the plaque there is a small turquoise plaque displaying a pattern that repeats the pattern of the ground — applied dots in contrasting yellow colour.



56. Small bottle (balsamarium)

Iberia, 1st c.

translucent blue and milky white glass; iridescence
blown glass
h. 9.6 cm; body d. 4.3 cm; rim d. 2 cm

no. ATM 1445

The bottle was made of opaque blue glass by blowing. The surface of the bottle is in part covered with iridescence. The entire surface is decorated with wavy, curvy threads of milky white glass of uneven width, fused into the wall of the vessel. The piriform body with a flat bottom tapers into a slender neck, flaring at the top. The rim is smooth and rounded off.

Lit.: Axel von Saldern et al.: *Gläser der Antike - Sammlung Erwin Oppenländer* (Hamburg: Museum für Kunst und Gewerbe Hamburg, 1974), p. 132, object no. 358; p. 134, objects no. 371-373; M. C. Calvi: *I vetri romani - Museo di Aquileia* (Associazione nazionale per Aquileia, 1969), plate V, objects no. 1-5.



57. Ribbed cup

Italy, 1st c.

translucent green glass; iridescence
mould glass
h. 5 cm; d. 11.6 cm

no. ATM 1381

The cup was made by pouring translucent green glass into a mould. The surface is covered with a thick layer of iridescence. The cup resembles an orange sliced in half; it has a round body and flattened bottom. It is wholly covered with vertical ribbing at equal distances. The rim curves out slightly; it is smooth and undecorated.

Lit.: Sidney M. Bergman and Andrew Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History, Pittsburgh* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 47, ill. no. 25.



**58. Ribbed cup**Italy, 1st c.

translucent green glass; iridescence

mould glass

h. 4.1 cm; rim d. 12.4 cm

no. ATM 1382

The cup was made by pouring translucent, green coloured glass into a mould. The surface is covered with iridescence. The body is shallow and round, with a flattened bottom. It is covered with vertical ribbing at equal distances. The top part of the cup is smooth and undecorated. The rim is smooth and rounded off.

Lit.: Frederic Neuburg: *Glass in Antiquity* (Bristol: Ranking Brothers Ltd., 1949), plate XII, ill. no. 39; J. Schlosser: *Das Alte Glas* (Braunschweig: Klinkhardt & Biermann, 1956), p. 19, ill. no. 5; S. M. Goldstein: *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), p. 153, ill. no. 327; Sidney M. Bergman and Andrew Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 47, ill. no. 24.

**59. Ribbed cup**Italy, 1st c.

translucent green glass

mould glass

h. 5.4 cm; rim d. 12.5 cm

no. ATM 1816

The cup was made by pouring translucent green glass into a mould. The surface is covered with iridescence. The body is shallow and round, with a flattened bottom. It is covered with vertical ribbing at equal distances, stretching from the bottom to the rim. The rim is smooth and rounded off.

Lit.: S. M. Goldstein: *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (New York: The Corning Museum of Glass, Corning, 1979), p. 153, object no. 327; Sidney M. Bergman and Andrew Oliver Jr.: *Ancient Glass in the Carnegie Museum of Natural History* (Pittsburgh: Carnegie Institute Pittsburgh, 1980), p. 47, object no. 24.

**60. Small vessel**Italy, 1st c. (p. d. 2nd c.)

translucent green glass; iridescence

blown glass

h. 3 cm; rim d. 6.1 cm

no. ATM 1401

The vessel was made by translucent green by the technique of blowing. The surface is covered with iridescence. The piriform body stands on a circular base. A horizontal ring in relief runs around the upper part of the vessel. The surface is undecorated. The rim is smooth and rounded off.

Lit.: Ivo Fadić: *Il vetro, trasparenze imperiali - Vetri romani dalla Croazia* (Milano: Skira editore, 1997), p. 174, object no. 155; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 2001), pp. 85, 88 and 89, objects no. 117, 118, 124-126.

**61. Small vessel**Italy, 1st c. (p. d. 3rd c.)

translucent blue glass; iridescence

blown glass

h. 4 cm; rim d. 8.6 cm

no. ATM 1410

The vessel was made from translucent blue glass by the technique of blowing. The surface is covered with iridescence. The base is low and round. The body is bell-shaped, with the top part flaring. A thin, horizontal cordon of glass runs around the upper part of the body. The rim is smooth and rounded off.

Lit.: Brigitte Klesse: *Glas* (Köln: Kunstgewerbemuseum der Stadt Köln, 1973), p. 48, object no. 5; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 2001), pp. 85, 88 and 89, objects no. 117, 118, 124-126.



**62. Small bowl**Italy, 2nd c.translucent green and milky white glass; iridescence
blown glass

h. 3.6 cm; rim d. 13.6 cm

no. ATM 1395

The bowl was made from translucent green glass by blowing. The surface is covered with iridescence. The base is low and round, and the body is shallow with a concave bottom. The body spreads slightly towards the top in a lotus-like fashion, and ends in an outcurved rim. The rim is decorated with a thread of milky white glass inside the wall.

Lit.: Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum, 1982), p. 69, object no. 67.

**63. Cup**Western Mediterranean, 3rd c. (p. d. 2nd–3rd c.)translucent green glass; iridescence
blown glass

h. 5.7 cm; rim d. 10.6 cm

no. ATM 1384

The cup was made from translucent green glass by blowing. The surface is covered with iridescence. The body is round with a flattened bottom. A thin horizontal ring in relief divides the body into two parts: the lower rounded part and the upper cylindrical part. The rim is smooth and rounded off.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (The Corning Museum of Glass, Corning, New York, 2001), p. 77, object no. 97.

**64. Small vessel**Western Mediterranean, 2nd c.translucent green glass; iridescence
blown glass

h. 4 cm; rim 11.3 cm

no. ATM 1386

The small vessel was made from translucent green glass by blowing. The surface is covered with iridescence. The bottom is flat. The body is shallow and cylindrical, without decoration. The round rim is thick and smooth.

**65. Cup**Western Mediterranean, 2nd–3rd c.translucent green glass; iridescence
blown glass

h. 7.4 cm; rim d. 13.4 cm

no. ATM 1398

The cup was made from translucent green glass by blowing. The surface is covered with iridescence. Around the circular bottom there is a broad glass band that functions as the base. The body is smooth and undecorated. It flares at the top and ends in a thin, rounded rim.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 2001), p. 103, object no. 152.

**66. Beaker**Italy, 2nd c. (p. d. 2nd–3rd c.)translucent green and black glass; iridescence
blown glass

h. 12.3 cm; w. 4.5 cm; rim d. 6.5 cm

no. ATM 1408

The beaker was made from translucent green glass by blowing. The surface is covered with iridescence. The base resembles a corolla. It is made of black glass. The tall cylindrical body spreads slightly at the top. At the very bottom a ring-like relief was formed by pressing the upper part of the body into the base. A cordon wraps around the body at the top. A broad glass thread, curving out, is applied to the rim. The rim is rough and rounded off.

Lit.: *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 39, object no. 74.



**67. Mosaic**Italy, 2nd c.

opaque brown, green, red, blue, grey and black glass on a clay base

technique of cutting glass into small pieces (*tesserae*)

h. 9 cm; l. 16.5 cm; th. 3.3 cm

no. ATM 1383

The mosaic representing a bird and a butterfly was made from small pieces of multicoloured glass (*tesserae*). The bird, depicted in profile, is placed in the middle of the mosaic, against the green background, and in front of it there is the butterfly with spread motley wings. The slender agile body of the bird is done in a harmonious blend of grey, white and yellow glass (on the belly and neck) and dark grey and black (on the wings and tail). The head is in vivid red and orange with a large black eye. Large broad wings in grey, white, orange and red loom over the fragile black body of the butterfly. The upper part of the mosaic is in light blue colour, which suggests the breadth and calm of a clear sky.

Bibl.: Vodič Muzeja Mimara. (Zagreb: MGC - Muzej Mimara, 1998), p. 21, ill. no. 9.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 2001), p. 36, object no. 33.

**68. Aryballos**Italy, 2nd c.

translucent brown tinted glass; trailed parts; iridescence blown glass

h. 8 cm; w. 6 cm; rim d. 2.5 cm

no. ATM 1402

The vessel was made from translucent brown tinted glass by blowing. The surface is covered with iridescence. The round regular body has a slightly concave bottom. The neck is short, with a broad thick rim. Two small opposing handles stretch from the shoulder to the rim. The rim is even and sharp.

Lit.: Ivo Fadić, *Il vetro, trasparenze imperiali - Vetri romani dalla Croazia* (Milano: Skira editore, 1997), pp. 133-34, objects no. 81-84; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 1997), p. 201, object no. 351; Brigitte Klesse: *Glas* (Köln: Kunstgewerbemuseum der Stadt Köln, 1973), p. 47, object no. 1.

**69. Two-handed bottle**Italy, 2nd c. (p. d. 3rd c.)

translucent green glass; iridescence; trailed parts blown glass

h. 6.7 cm; w. 7.2 cm; rim d. 1 cm

no. ATM 1409

The small bottle was made from translucent green glass by blowing. The surface is covered with iridescence. Then regular round body has a flattened bottom. The neck is very short and narrow. A broad glass thread is trailed on the rim; the thread has a conical shape and gets thicker at the rim. Two opposing handles are attached to the upper part of the bottle.

Lit.: *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), p. 38, object no. 70; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: Royal Ontario Museum, 1975), p. 54, object no. 123; Michael J. Klein: *Römische Glaskunst und Wandmalerei* (Mainz am Rhein: Verlag Philipp von Zabern, 1999), p. 1, object no. R 4371; p. 50, objects no. R 6364, R 1710; p. 51, object no. 842.

**70. Unguentarium**Italy, 2nd c. (p. d. 3rd c.)

translucent green glass; iridescence blown glass

h. 18 cm; w. 6.7 cm; rim d. 4.3 cm

no. ATM 1397

The small bottle (unguentarium) was made from translucent green glass by blowing. The surface is covered with iridescence. The small round body has a flattened bottom. The neck is exceptionally tall and slender, tapering somewhat at the top. A broad round glass band is trailed on the top of the neck, thus forming the rim.

Lit.: Ivo Fadić: *Il vetro, trasparenze imperiali - Vetri romani dalla Croazia* (Milano: Skira editore, 1997), p. 99, object no. 9; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: Corning Museum of Glass, Corning, 1997), p. 149, object no. 251; p. 158, object no. 271; p. 159, object no. 274; Giovanni Mariacher: *Edle Gläser* (München: Bruckmann KG, 1962), plate 12.



**71. Small bottle (unguentarium)**Italy, 2nd-3rd c.translucent, brown tinted glass; iridescence
blown glass

h. 16 cm; w. 9 cm; rim d. 4 cm

no. ATM 1407

The small bottle (unguentarium) was made from translucent brown tinted glass by blowing. The surface is covered with iridescence. The wide round body resembles an orange sliced in half, and has a flattened bottom. The neck is very tall and narrow, ending in a folded, round rim.

Lit.: John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: Royal Ontario Museum, Toronto, 1975), p. 126, object no. 493; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 2001), p. 154, object no. 262.

**72. Small bottle**Italy, 2nd c. (p. d. 3rd-4th c.)translucent brown-tinted glass; iridescence
blown glass

h. 13.2 cm; w. 7.7 cm; rim d. 2.8 cm

no. ATM 1396

The bottle was made from translucent brown tinted glass by blowing. The surface is covered with iridescence. The broad piriform body with a flattened bottom tapers into a tall slender neck. A thin glass thread is trailed on the rim. The thread curves out slightly making the mouth look wider.

Lit.: Ivo Fadić: *Il vetro, trasparenze imperiali - Vetri romani dalla Croazia* (Milano: Skira editore, 1997), p. 102, object no. 27; p. 105, object no. 30; Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum, 1982), p. 55, object no. 35; M. C. Calvi: *I vetri romani - Museo di Aquileia* (Associazione nazionale per Aquileia, 1969), plate 12, object no. 7.

**73. Small bottle**Italy, 2nd c.translucent green tinted glass; iridescence
blown glass

h. 13 cm; w. 5.8 cm; rim d. 3.8 cm

no. ATM 1400

The bottle was made from translucent green tinted glass by blowing. The surface is covered with iridescence. The tall cylindrical body with a flat bottom extends into a very short neck slightly spreading at the top, and ending in a flaring, rounded, smooth rim.

**74. Small bottle**Western Mediterranean, 3rd c.translucent green tinted glass; iridescence
blown glass

h. 8.5 cm; w. 5.8 cm; rim d. 3.5 cm

no. ATM 1387

The small bottle was made from translucent green tinted glass by blowing. The surface is covered with iridescence. The round body with a flattened bottom extends into neck with an exceptionally broad flaring rim. The rim is smooth and rounded off.

Lit.: Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum, 1982), p. 74, object no. 78.

**75. Small bottle**Italy, 2nd-3rd c.translucent blue glass
blown glass

h. 12 cm; w. 8.3 cm; rim d. 6 cm

no. ATM 1390

The small bottle was manufactured by blowing. The fabric is translucent green and filled with bubbles. The round body with a concave bottom and a smooth surface extends into a slender neck flaring at the top, and ending in an uneven mouth. The rim is smooth and rounded off.

**76. Small bottle**Italy, 2nd-3rd c.translucent green tinted glass; iridescence
blown glass

h. 7.9 cm; w. 4.9 cm; rim d. 3.9 cm

no. ATM 1389

The small bottle was made from translucent green tinted glass by blowing. The surface is covered with iridescence. The body is smooth, of a regular round shape with a concave bottom. The neck is tall and broad, flaring at the top. The rim is smooth and rounded off.



**77. Small bottle**Italy, 2nd c.translucent light brown tinted glass; iridescence
blown glass

h. 11 cm; w. 6 cm; rim d. 5 cm

no. ATM 1403

The small bottle was made from translucent light brown tinted glass by blowing. The surface is covered with iridescence. The body is round with a flat bottom. The tall neck flares widely at the top. The rim is slightly uneven, smooth and rounded off.

**78. Bottle**Western Mediterranean, 3rd c.translucent green glass; iridescence
blown glass

h. 21.5 cm; w. 15 cm; rim d. 9.5 cm

no. ATM 1411

The small bottle was made from translucent green glass by blowing. The surface is covered with iridescence. The body is broad and round, with a flattened bottom. The neck is tall and flaring at the top. The folded rim has a thin glass thread trailed on. The rim is smooth and rounded off.

Lit.: Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum, 1982), p. 99, object no. 127; John W. Hayes: *Roman and Pre-Roman Glass in the Royal Ontario Museum* (Toronto: Royal Ontario Museum, Toronto, 1975), p. 112, object no. 421.

**79. Two-handled bottle**Western Europe, 2nd c.translucent green tinted glass; iridescence; applied
decoration

blown glass

h. 16 cm; w. 9 cm; rim d. 6 cm

no. ATM 1404

The bottle was made from translucent green tinted glass by blowing. The surface is covered with iridescence. The body is round with a flattened bottom. The neck is broad and tall, slightly flaring at the top. A cordon of glass runs around the neck, 1 cm below the lip. Two applied opposing handles stretch from the shoulder to the upper part of the neck. The handles are tall and slender, forming a decorative motif at the juncture with the neck. The motif is an irregular S shape.

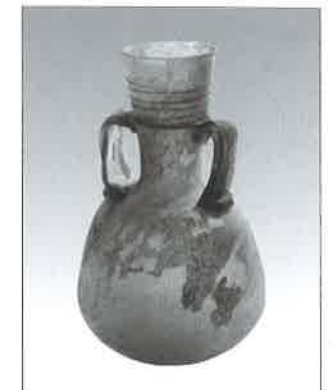
**80. Two handled-bottle**Western Europe, 2nd–3rd c.translucent green glass; applied decoration; irides-
cence

mould-blown

h. 24.5 cm; w. 14.9 cm; rim d. 7.3 cm

no. ATM 1414

The bottle was made by blowing translucent green glass into a mould. The surface is covered with iridescence. The wide round body with a flat bottom is covered with vertical slightly oblique ribbing in light relief. The neck is very tall, flaring slightly at the top. A ring of glass runs around the upper part of the neck, and above it a thinner thread spirals around the top of the neck. Two applied opposing handles stretch from the shoulder to the middle of the neck. The rim is smooth and rounded off.

**81. Jug**Cologne, 2nd c. (p. d. 3rd–4th c.)blue glass; applied decoration; iridescence
mould-blown

h. 25 cm; w. 14 cm; rim d. 4.5 cm

no. ATM 1415

The jug was made by blowing blue glass into a mould. The surface is partially covered with iridescence. The body sits on a low round base. The body is of a regular round shape, and its surface is entirely covered with vertical ribbing at equal distances. The neck is exceptionally tall and slender, only slightly flaring at the top. At the joint of the neck and the belly there runs a round glass thread. The same kind of thread is applied to the rim. A tall, slender handle is applied on, stretching from the shoulder to the top of the neck.

Lit.: Donald B. Harden: *Glas der Caesaren* (Milano: Stabilimento Grafico Scotti, 1988), p. 119, object no. 51.



**82. Jug**

Cologne, 2nd c. (p. d. 3rd-4th c.)
translucent blue glass; applied decoration
mould-blown
h. 27 cm; w. 14.5 cm; rim d. 3 cm

no. ATM 1481

The jug was made by blowing translucent blue glass into a mould. The body is conical with a flattened bottom. The upper part of the body is decorated with vertical ribbing in very mild relief. The neck is exceptionally tall and slender, and it is covered with an oblique net pattern in mild relief. The neck ends in a folded rim. A thin, tall and slender handle is trailed on the jug, stretching from the shoulder almost to the very top of the neck. A long wavy decorative band is trailed on vertically below the connection of the handle and the body.

Bibl.: *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 447, ill. p. 278; *Vodič Muzeja Mimara*. (MGC - Muzej Mimara, 1998), p. 21, ill. p. 10.

Lit.: Michael J. Klein: *Römische Glaskunst und Wandmalerei* (Verlag Philipp von Zabern, Mainz am Rhein, 1999), p. 55, object no. 8; Fritz Fremersdorf: *Römische Gläser aus Köln* (Köln und Leipzig: Volker Verlag, 1939), p. 27, object no. 11.

**83. Relief applique**

Western Mediterranean, 2nd-3rd c.
black glass; iridescence
mould-pressed
h. 2.1 cm; rim 3.8 cm

no. ATM 1417

The applique was made by pressing black glass into a mould. The surface is partially covered with iridescence. In the middle of the applique there is a relief representation of a human head with pronounced features. Meaty lips and a broad nose stand out. The face is framed by thick hair, shaped into regular sections resembling small braids.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, New York, 1997), p. 232, object no. 811.

**84. Vessel**

Western Mediterranean, 1st c.
opaque black glass
blown glass
h. 8.1 cm; w. 8.3 cm; rim d. 1 cm

no. ATM 1394

The vessel is made of opaque black glass by blowing. The body is round with a smooth surface. The neck is exceptionally short and broad, with a thick wall. A tubular cavity 1 cm in diameter stretches through the centre of the neck and the belly of the vessel. The broad uneven rim is rounded off.

**85. Miniature column**

Western Mediterranean, 2nd-3rd c.
opaque black, blue and milky white glass
millefiori technique
h. 2 cm; rim 2.2 cm

no. ATM 1416

The miniature column was made from opaque glass of different colours by the *millefiori* technique. Irregular fragments of white, violet and blue glass were inserted into the mushroom-shaped object made of black glass. An oblique, slightly curvy small flower in light blue is visible on the "stalk." There is a small round hole on the top of the object, in its very middle.

**86. Vessel with a handle**

Western Mediterranean, 2nd c.
translucent green-tinted glass; applied decoration
mould-blown
h. 5.7 cm; w. 6.3 cm

no. ATM 1385

The vessel was made from translucent green-tinted glass by mould-blowing. The cylindrical body with a concave bottom is decorated with vertical ribbing in mild relief. The upper part tapers and ends in a narrow mouth with a broad flaring rim. An applied vertical wavy thread runs from the bottom of the body to the rim, functioning as a decorative handle. The rim is smooth and rounded off.

**87. Stand (?)**

Western Mediterranean, 3rd-4th c.
translucent green glass; iridescence
blown glass, pinching
h. 5.5 cm; w. 3.3 cm; rim d. 1.6 cm

no. ATM 1391

The stand (?) was made from translucent green glass by blowing and pinching. Its surface is covered with iridescence. A low bottomless conical body sits on three feet. The feet of the stand blend into the thick wave-shaped lower part of the body. A wavy glass thread is applied to the upper part of the body, and its shape and curvature seem to follow the thick band on the lower part of the body. The short narrow "neck" ends in an even and unpolished rim.



**88. Small beaker**

Western Mediterranean, 3rd–4th c.
translucent green glass; iridescence
blown glass
h. 5.2 cm; rim d. 3 cm

no. ATM 1392

The beaker was made from translucent green glass by blowing. The surface is covered with iridescence. The cylindrical body with a round bottom widens slightly at the top, and ends in a thick rounded rim folded over. A thin glass thread, dark red in colour, winds around the middle part of the body. A small round seal is attached to the thread. The surface of the seal is decorated with stylized geometrical patterns in light relief.

**89. Early Christian applique with a Crux Monogrammatica**

Italy, 4th c.
translucent green and milky white glass; iridescence
mould-pressed; overlaid glass
d. 4.2 cm; th. 0.5 cm

no. ATM 1439

The applique was made by pressing glass into a mould. It is made of translucent green glass laid over by a thin layer of milky white glass. The surface is partially covered with iridescence. The shape of the applique is irregular round, and in the centre of it there is a Crux Monogrammatica in relief. The edge of the applique is also in relief, and resembles a wreath. The back of the applique is flat and chipped in several places. The connection between the flat background and the front (face) of the applique is clearly visible.

Lit.: David Whitehouse: *Roman Glass in the Corning Museum of Glass II* (New York: The Corning Museum of Glass, Corning, 1997), pp. 235 and 236; objects no. 818-820.

**90. Bottom of a vessel decorated with gold foil (fondo d'oro)**

Rome, 4th c.
translucent colourless glass; gold foil; multicoloured enamel
gold glass (gold foil inserted between two layers of glass — the technique of *fondo d'oro*)
h. 2.2 cm; d. 6.1 cm

no. ATM 1444

The bottom of the vessel made of translucent colourless glass was made by the technique of *fondo d'oro*. The bottom is framed by the remnants of the broken vessel in the way of uneven sharp edges. A round gold foil is placed between two layers of glass. The central part of the bottom features the busts of a man and a woman dressed in rich drapery on a turquoise background. The scene is set in a golden frame that bears a partially undecipherable inscription written in red enamel: "INDT... NEA." The back of the gold foil bears a representation of a Crux Monogrammatica done in red enamel with black edges.

Bibl.: *Frühchristliche und Koptische Kunst*. Catalogue of the Exhibition. (Wien: Akademie der bildenden Künste, 1964), p. 95, text on p. 266, ill. no. 68.

Lit.: Branka Migotti, *The Gold-Sandwich Glasses from Širbinci* (Đakovo, Northern Croatia), (Zagreb: HAZU, 2002), Glass I, ill. 3, p. 22, and Glass II, ill. 7, p. 35.

**91. Bottom of a vessel decorated with gold foil (fondo d'oro)**

Rome, 4th c.
translucent colourless and turquoise glass
gold glass (gold foil inserted between two layers of glass — the technique of *fondo d'oro*)
cutting and engraving
h. 0.5 cm; d. 8 cm

no. ATM 1412

The bottom of the translucent colourless glass vessel was made by the technique of *fondo d'oro* — by inserting a gold foil between two layers of glass. The outer layer, which was the base of the vessel, was made from translucent turquoise glass shaped into a regular circle. A gold foil was placed on that layer, and then cut and engraved, and finally covered with a layer of clear glass of which the walls of the vessel were made. The only part of the walls left is a small fragment with rough edges at the very bottom. The foil features a kneeling angel in profile pointing to the tree of life. The angel's garment falls in rich drapery, executed by fine engraving as are the facial features. Behind the angel's back there is an obliquely placed inscription DEVENIENI, which follows the gold line of the circle framing it, closing it into a clearly defined whole.

Bibl.: *Frühchristliche und Koptische Kunst* (Wien: Akademie der bildenden Künste, 1964), p. 95, text on p. 265, ill. no. 69.





92. Chalice with the Representation of the Good Shepherd

Alexandria, 3rd–4th c. (?)

translucent green tinted glass; iridescence
gold glass (*fondo d'oro*)
h. 13 cm; rim d. 15 cm

no. ATM 1768

The chalice was made from translucent glass by blowing. Its matte surface is rough. The base is round and pad-like. The foot is broad and short, with a wavy blue glass thread winding around the middle of it. The bottom of the broad circular chalice (which flares slightly at the top) is decorated with a gold foil (technique of *fondo d'oro*), featuring a representation of the Good Shepherd. The young man wears the chiton of the antiquity, and sandal thongs criss-cross around his lower legs. With both hands he holds onto a lamb tossed across his shoulder. Two low trees surround the figure. The whole scene is framed by a thin golden thread forming a regular circle.

Bibl.: *Vodič kroz dio zbirke Ante Topića-Mimare*. Edited by Mijo Antunović and Karolina Franc. (Zagreb: GZH, 1983), object no. 247; *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 448, object no. 7.62; *Frühchristliche und Koptische Kunst* (Wien: Akademie der bildenden Künste, 1964), p. 94, object no. 262, ill. no. 67; Otto von Falke: *Antike Gläser* (München, Pantheon, vol. 8, T. Bruckmann Verlag, August 1940), pp. 199–200; Renate Pillinger, *Ein unpubliziertes Venetianisches Zwischengoldglas im Historischen Museum von Cluj-Napoca* (Rumänien), *Journal of Glass Studies* 29 (New York: The Corning Museum of Glass, Corning, 1987), pp. 136–138, ill. 1, 2 a, b.



93. Bottle

Gaul-Rhineland region, 3rd c.

translucent colourless glass; iridescence
blown glass
h. 13.4 cm; w. 4 cm; rim d. 1.5 cm

no. ATM 1388

The bottle was made from translucent colourless glass by blowing. The surface is covered with iridescence. The body is tall and cylindrical, widening slightly in the upper part. The bottom is flat. The surface is smooth. The neck is tall and slender, with two applied opposing handles with a decorative purpose. The handles form a playful S-shape at the joint with the neck. The rim is flat and sharp.

Lit.: Fritz Fremersdorf: *Römische Gläser aus Köln* (Köln und Leipzig: Volker Verlag, 1939), p. 29, object no. 27 (inv. no. 186); Ursula Liepmann: *Glas der Antike* (Hannover: Kestner-Museum, 1982), pp. 48 and 49, objects no. 25 and 26; *Glass at the Fitzwilliam Museum* (Cambridge: Cambridge University Press, 1978), pp. 41/42, object no. 80b.; David Whitehouse: *Roman Glass in the Corning Museum of Glass I* (New York: The Corning Museum of Glass, Corning, 2001), p. 252, object no. 432.



94. Beaker

Cologne, 2nd–3rd c.

translucent brownish tinted glass; iridescence
blown glass
h. 7.5 cm; w. 8.4 cm; rim d. 6.6 cm

no. ATM 1448

The beaker was made by blowing from translucent brownish glass. The entire surface of the beaker is covered with iridescence. The wide body with a flat bottom tapers slightly in the upper part. The rough rim is narrow and folded over.



95. Two-handled bottle

Cologne, 3rd c.

translucent, green tinted glass; applied decoration;
iridescence
blown glass
h. 8.5 cm; w. 8.4 cm; rim d. 5.4 cm

no. ATM 1449

The small bottle was made from translucent light green tinted glass by blowing. The surface is covered with iridescence. An applied thread of green glass forming an irregular zig-zag pattern winds around the lower part of the wide round body. An even thinner thread runs around the middle section of the body. The bottom is flat. The body extends into a broad cylindrical neck, flaring very slightly at the top, and ending in a rim with an applied glass thread. From the shoulder of the body to the very rim there stretch two applied opposing handles. At the joint with the body they get broader, while at the joint with the rim they form a wavy shape.



96. Beaker

Cologne, 3rd c.

opaque blue and milky white glass
millefiori technique
h. 3 cm; rim d. 8 cm

no. ATM 1447

The beaker was made by the *millefiori* technique. The blue ground is criss-crossed by fragments and threads of milky white glass. The body is short and cylindrical with a thick bottom. The body widens in the upper part and ends in an exceptionally broad mouth, with a folded lip.



**97. Chalice**Cologne, 3rd-4th c.

translucent light green tinted glass

cutting

h. 10 cm; rim d. 9.5 cm

no. ATM 1751

The chalice was made from translucent light green matte glass by cutting. The base is broad and circular. A slender foot stands on it. A flat glass ring winds around the middle part of the foot. Two opposing slender round handles are attached to the broad semiglobular cup. Two small tooth-shaped glass decorations project out at the joints of the handles and the cup.

Bibl.: Otto von Falke: *Antike Gläser* (München: Pantheon, vol. 8, T. Bruckmann Verlag, August 1940), pp. 197-199; *Frühchristliche und Koptische Kunst* (Wien: Akademie der bildenden Künste, 1964), p. 94, text on p. 263, ill. no. 70; *Katalog Muzeja Mimara*. (Zagreb: MTM, 1987), p. 448, ill. no. 282.



Contemporary copies of glass from Antiquity

98. Small bottle (balsamarium)

copy of Egyptian glass

(p. d. Alexandria, 1st c.)

translucent blue glass and yellow, red and brown

opaque glass

blown glass

h. 10.5 cm; body d. 7.3 cm; rim d. 4.7 cm

no. ATM 1774

The small bottle (balsamarium) was made of translucent blue glass by blowing. The bottom is round. The globular body is entirely covered with threads of opaque yellow, red and brown glass. The wave-shaped threads are laid horizontally. The body tapers into a funnel-shaped neck covered with the same wavy pattern. The rim is oblique and smooth.

**99. Jug**

copy based on glass of the Roman Empire

(p. d. Rome, 1st c.)

translucent blue glass; iridescence

blown glass

h. 14 cm; body d. 10.2 cm; rim d. 7.6 cm

no. ATM 1776

The jug was made from translucent blue glass by blowing. The entire surface is covered with iridescence. The bottom is slightly concave, and the body is globular. The neck is high and broad, with a folded rim. A small applied handle is attached to the shoulder and the middle of the neck. The rim is rounded and thick.





- 100. Plate with the representation of the Good Shepherd**
 copy based on glass with an early Christian motif
 (p. d. Roman Empire, 2nd c.)
 translucent colourless glass and milky white glass;
 gold foil
 gold glass (*fondo d'oro*)
 h. 3 cm; d. 19.5 cm

no. ATM 1899

The plate made from translucent colourless glass is decorated by the *fondo d'oro* technique. Two parallel threads of milky white glass, 1 cm apart, run around the elevated edge of the plate. The entire bottom is decorated with a representation of the Good Shepherd, cut and engraved in gold foil. The young man wears a short gown (*chiton*) and high sandals on his feet. He is surrounded by two low trees, and carries a lamb on his shoulder. The scene is encircled by a golden frame made up by engraved stylized triangles laid onto a gold thread.



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