FROM QUALITATIVE TO QUANTITATIVE: TRACKING GLOBAL ROUTES AND MARKETS OF VENETIAN GLASS BEADS DURING THE 18TH CENTURY

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The Venetian glass bead industry has its roots in the Late Middle Ages. The development of Atlantic trade and, particularly, the slave trade from the second half of the 17th century increased the demand for glass beads. The 18th century would be the heyday of this industry, when Venetian beads attained a significant global diffusion. While scholars have long known the global exports of beads from Venice, this paper contributes new quantitative data on their precise routes and markets in the 18th century, toward the Orient and toward the Atlantic. Using beads as a case study, this paper shows how a niche product allowed a Mediterranean city such as Venice to stay connected with the Atlantic world and how the Atlantic slave trade influenced Venetian glass bead exports to the West.

INTRODUCTION

For most of its history, Venice has been a major manufacturing city. Beginning in the Middle Ages and increasingly so in the modern era, the glass industry played a crucial role in the lagoon city's economic life. Building on its medieval origins, the glass bead sector expanded significantly in the 17th century, stimulated by growing international demand, especially from the Atlantic. The Venetian *conterie* (drawn beads) and *manifatture a lume* (lampworked wound beads) industry broadened in the 18th century as its products gained a global diffusion that would continue into the 20th century.

This study presents an overview of the Venetian glass bead industry in the 18th century, and identifies the Mediterranean destinations, commercial routes, and global markets for its products. As well, by looking especially at the Western trade of Venetian beads, it is clear that beads solidly linked the Venetian economy to the Atlantic trade, notably that in slaves.

We consulted both archival and secondary sources. Regarding the former, we present results of a cross-analysis between quantitative data, from Venetian (*Registri dei Cinque Savi alla Mercanzia* or ship's manifests leaving Venice) and international (Portuguese balance of trade, TOFLIT18, Trans-Atlantic Slave Trade Database) sources, and qualitative data drawn from Venetian consular dispatches and the records of the Glass Arts magistrates. As for scholarly literature, we rely on Italian and international historiography, as well as publications in anthropology and archaeology.

THE VENETIAN GLASS BEAD INDUSTRY IN THE 18TH CENTURY

The commercial success of Venetian glass beads rests, in large part, on the production phase of this product. By the 18th century, the Venetian glass industry had organized as an integrated production system that included five artisanal guilds or Arts (Panciera 1998:537-547; Trivellato 2000:131-134). The Art of Murano regulated the first production phase of glass beadmaking, that of making glass, while the guilds of the *paternostreri* or *margariteri* and of the *suppialume* or *perleri* regulated the second phase of transforming glass into beads. On the island of Murano, the site of furnaces since 1291, the "mother" Art of the Venetian glass industry transformed raw materials into cane of two types: hollow tubes for the work of the *margariteri*, and solid rods for the *perleri*. In the city of Venice itself, the two "daughter" Arts used tubes and rods to make glass beads, following two production techniques. The *margariteri* produced drawn beads called *conterie*. After sorting and chopping the tubes into bead lengths, they were rounded using one of two heat-rounding techniques, depending on the size of the tubes. The smaller sizes (*margarite*) were heated in copper pans called *ferrazze* (hence the bead group called *conterie a ferrazza* in the Venetian dialect). Larger beads were mounted on spits called *spiedi* (hence the bead type called *conteria a speo*) which were inserted into a furnace and rotated until the tube segments became rounded (Karklins 1993).

As for the *perleri*, the workers who filled the orders placed by the guild's traders fashioned glass rods into beads at the lamp (*a lume*). The beads were often decorated with various applied designs such as floral pattern, dots, spirals, or stripes using various enamels. Women strung the *conterie* and the *perle a lume* into hanks of various sizes which were tied together into bunches and packed in bundles. The latter were then placed in barrels or boxes for stowage in the holds of merchant ships for export (Trivellato 2000:177-178; Zecchin 1987:90-91).

Since the second half of the 20th century, Italian historians have taken an interest in Venetian glassmaking. More recently, they have reevaluated the role of guild institutions in European history (Ago 2018; Caracausi, Davies, and Mocarelli 2018; Epstein and Prak 2008; Guenzi, Massa, and Piola Caselli 1998; Massa and Moioli 2004; Prak et al. 2020; Prak and van Zanden 2013). Within this field, glass beadmaking has attracted the attention of historians such as Francesca Trivellato, Anna Bellavitis, Barbara Bettoni, Nadia Maria Filippini, and Maria Teresa Sega. In particular, Trivellato's work has become a reference for any study of Venetian glass in the 17th and 18th centuries. Among other aspects, she has studied the role of conflict within and between the different Venetian glassworking guilds, as well as the industry's relative openness to technical innovation and its conversion to "mass" production in response to foreign demand, especially in the 18th century (Trivellato 2000, 2006). This body of research confirms the popularity of Venetian glass beads in the world market from the second half of the 17th century through the 18th century. In fact, beads are a prime example of how the Venetian manufacturing system specialized and reconfigured in response to international competition, notably from France (Trivellato 1996, 2000).

Several studies have focused on women's work in the bead industry from the 18th to the 20th century (Bellavitis 2016; Bellavitis, Filippini, and Sega 1990; Filippini 1996; Trivellato 1998, 2000). They not only show women's importance in the production of *conterie* – in the tasks of sorting, cutting, and stringing – but also in the production of lampworked beads. In the 18th century, several hundred women workers, officially excluded from membership in the Venetian Arts, were often exploited by the glassworks' owners and bead merchants. In particular, hiring a workforce outside the guild structure lowered the cost of labor, and thus, of production. Bellavitis and Trivellato have documented a hierarchy within the female workforce, where "mistresses" (*mistre*) organized the work of women stringers (*impiraresse*) and lampworkers. Moreover, Venetian records reveal the rise of an illegal female production system that escaped the guild structure: women bought cane, oversaw its transformation, and directly sold glass beads[1] (Bellavitis 2016:47-48; Trivellato 2000:179-181).

In her work on the Venetian *perle a lume* sector, Bettoni (2017) shows how it broadened and diversified its product line in the 18th century through a process of product innovation that responded to consumer taste and adopted new materials, such as enamels, thus building on centuries of artisanal knowledge. Bettoni underscores the remarkable ability of Venetian glass beadmaking to adapt to the dynamics of international demand, suggesting that the success of this product did not rest only on reducing production costs through workforce exploitation.

Our approach here (and elsewhere) builds on the work of these previous researchers while seeking a broader analytical framework.[2] There is a need, in fact, for combined study that links the production and trade of glass beads within the wider industrial and commercial context of 18th-century Venice, using a "commodity chain" approach (Figure 1) (Gereffi and Korzeniewicz 1994; Hopkins and Wallerstein 1977).

The production aspect is beyond the scope of this paper, but we may briefly synthesize some observations. Archival sources reveal the Venetian Republic's efforts to find substitutes for ash imports, as well as increasingly strict oversight by the Arts or individuals from the glass industry in the management of raw materials (manganese) and lamp fuel (bovine fat). We see differences between women who worked with *conterie* and those who produced beads at the lamp, while noting the symmetry of legal and illegal workplaces. Over the course of the 18th century, we see the emergence of elite merchant beadmakers who profited from their increasing dominance within the organization of the two bead Arts to gain absolute control over production. The most dynamic merchant beadmakers ventured into foreign trade, especially in the western Mediterranean and Atlantic Europe, undertaking voyages to England, France, Portugal, and Morocco, and building links with international traders (Figure 2).

Previous work has not considered the commercial aspect of the glass bead "commodity chain" in detail. As we shall see, the routes and markets of Venetian glass beads in the 18th century provide a fundamental understanding of this universe.

ROUTES, NODES, AND MARKETS IN THE 18TH CENTURY

"These *conterie* serve the usages of the farthest regions of Africa and the Indies, where they are transported by the most industrious trading Nations."[3] "They [the beads] are diffused to Holland, England, Spain, Portugal, Alexandria,

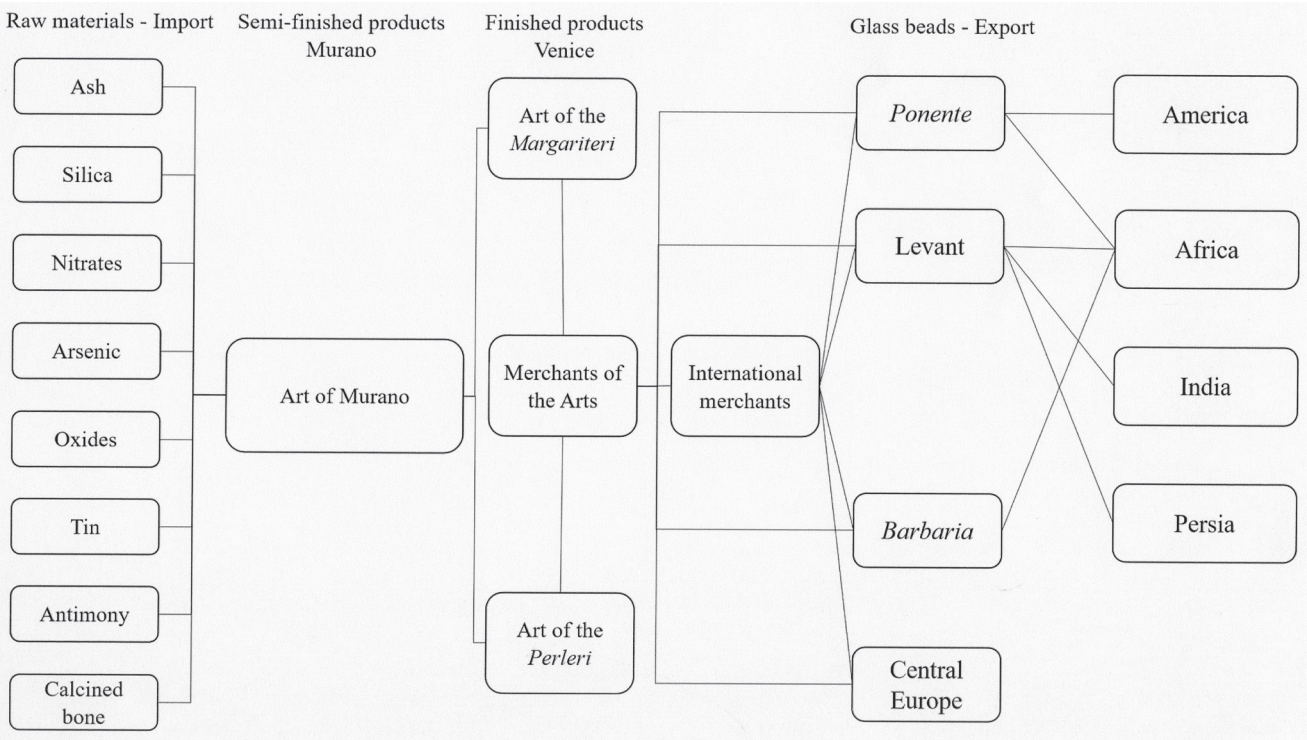


Figure 1. Venetian glass bead commodity chain (graphics by the author).

for all of Barbary, penetrating even the East Indies, thanks to the navigation on the Red Sea, and from Barbary, they pass into the vast western and southern provinces of America."[4]

These two quotes, reflecting the written words of beadmakers, provide a relevant starting point for our analysis. They describe, in general but evocative terms, the intermediaries and markets for Venetian glass beads in the 18th century. They identify three major overseas markets: Africa, India or the East Indies, and the Americas. They mention an intermediate navigation in the Red Sea where beads transited to the Orient. These citations combine several basic aspects of the Venetian glass bead trade toward the end of the modern period, but do not present its essential traits in detail. In fact, no global systematic study describes the routes followed by Venetian beads, although some studies present useful general data (Guerrero 2010; Trivellato 1996, 2000:230-231). Different primary sources contain quantitative and qualitative data that allow us to move beyond these stereotypical descriptions, and to retrace the routes and quantify the flows of Venetian beads in the 18th century.

The 18th Century: A Period of Growth?

Qualitative sources create the impression of success and growth for the Venetian bead trade in the 18th century. We may ask an initial question: do quantitative sources confirm this impression? Before attempting to provide an answer, we must reiterate that statistical knowledge was still nascent during the Ancien Régime, and that available quantitative data from this period show a certain order of magnitude, rather than precise figures. We must exercise attentiveness and caution in the study of quantitative sources from the modern era. Nevertheless, by the 18th century, states including the Venetian Republic produced proto-statistical documentation that grew increasingly rich and detailed. We find several indicators that seem to confirm an expanding Venetian bead industry and bead trade over the century.

Figure 3 presents two quantitative measures of the evolution of the Venetian glass bead universe: the number of crucibles in Venice/Murano that made glass cane and enamels, and bead exports according to Venetian customs records.[5] Despite sharp fluctuations, both data groups show the 18th century to be a time of growth. After a drop from 1700 to 1709, the number of crucibles in use increased throughout the century, peaking in 1755 and 1789. In terms of value (ducats), bead exports increased 88% from 1739 to 1789. This growth trend ran into turbulent times in the late 1790s, as international wars and the demise of the Venetian Republic, among other factors, undercut the bead trade.[6] These difficulties at the end of the century do not erase the extremely positive trend for most of the 18th century.

Figure 2. Trade card of the *manifatture a lume* producer Giorgio Barbaria (BCMC, P.D.:Ms. PDc 42).

Other data show the importance of *conterie* and *manifatture a lume* in Venetian industry and trade. In terms of value, they equaled 43% of glass exports and about 12% of the city's exports manufactured under the privilege system between 1773 and 1790.[7] Quantitative sources thus confirm the importance and expansion of Venetian bead production and trade during the 18th century.

EURO-MEDITERRANEAN DESTINATIONS AND GLOBAL MARKETS

Venetian primary sources identify the Euro-Mediterranean markets for beads in the 18th century. Particularly useful in this regard are the *Registri* of the *Cinque Savi alla Mercanzia*, a kind of balance of Venetian trade (Sambo 2012). This statistical source lists two categories of beads: *conterie*, made by the Art of the *Margariteri*, and *manifatture a lume*, fabricated by the Art of the *Perleri*, making a detailed analysis possible.

Campos (1936) and Trivellato (2000:130) have already presented data on bead export regions, based on a part of the *Registri*. A full extraction of data from this source, and a re-tabulation of research results, allow us to generate a list of the ten principal destinations of *conterie* and *manifatture a lume* in 1769-1800, in terms of quantity and value (Table 1).

These figures confirm the general destination indicated by our qualitative citations. During these years, most Venetian beads headed to two major destinations: Atlantic Europe (*Ponente*) and the Ottoman Empire.[8] The former received, by direct voyages, 27% of *conterie* and 17% of *manifatture a lume*, and another 8%-10% by indirect routes via Bologna, Livorno, and Genoa. In total, between a quarter and a third of the beads headed for the Atlantic. The Ottoman Empire likely absorbed another third of Venetian exports. Alexandria in Egypt was the hub of the Levantine bead trade, while Syria, especially, received *corniole*, lamp-wound beads that imitate carnelian (Costantini 2001). Venetian customs records thus indicate that 50%-60% of beads headed for these two large regions. The improbably high figures (17%-18%) for Istria, a region of 90,000 inhabitants in the Serenissima domain, may reveal a thriving re-export trade to the Balkans, Eastern Europe, and other Euro-Mediterranean destinations. A small quantity (3%-5%) went to the Barbary Coast from whence the beads transited into the African interior. The remainder flowed into continental Europe.

The Euro-Mediterranean destinations were not, however, the beads' final consumption markets. Once unloaded at Alexandria or Atlantic ports, most *conterie* and *manifatture a lume* were still at the beginning of a much longer voyage. These Mediterranean and Atlantic ports were nodes that mediated Venice, the place of production, with markets in Asia, Africa, and the Americas. Can we go beyond this general statement and reconstruct, with reasonable precision, the complete routes followed by Venetian beads? Can we identify their final destinations in the 18th century?

Trade routes across the Ottoman Empire were crucial vectors for the transport of Venetian beads. At the end of the modern period, Middle Eastern and African caravans, as well as coastal and regional navigation in the Red Sea, the Indian Ocean, and the Persian Gulf, still thrived and prospered, despite competition from oceanic options (Raymond 1973). Two routes, radiating from Egypt and Syria, stand out for their importance in the oriental trade of Venetian glass beads. In the 18th century, the Venetian Republic maintained a strong institutional and commercial presence in the Ottoman Empire. Consular dispatches sent to Venice from Cairo and Aleppo reveal the bead trade of these regional hubs.[9] They show that *conterie* and *manifatture a lume* were important items in the commerce of Venetian traders established in Egypt and especially in Syria (Costantini 2001).

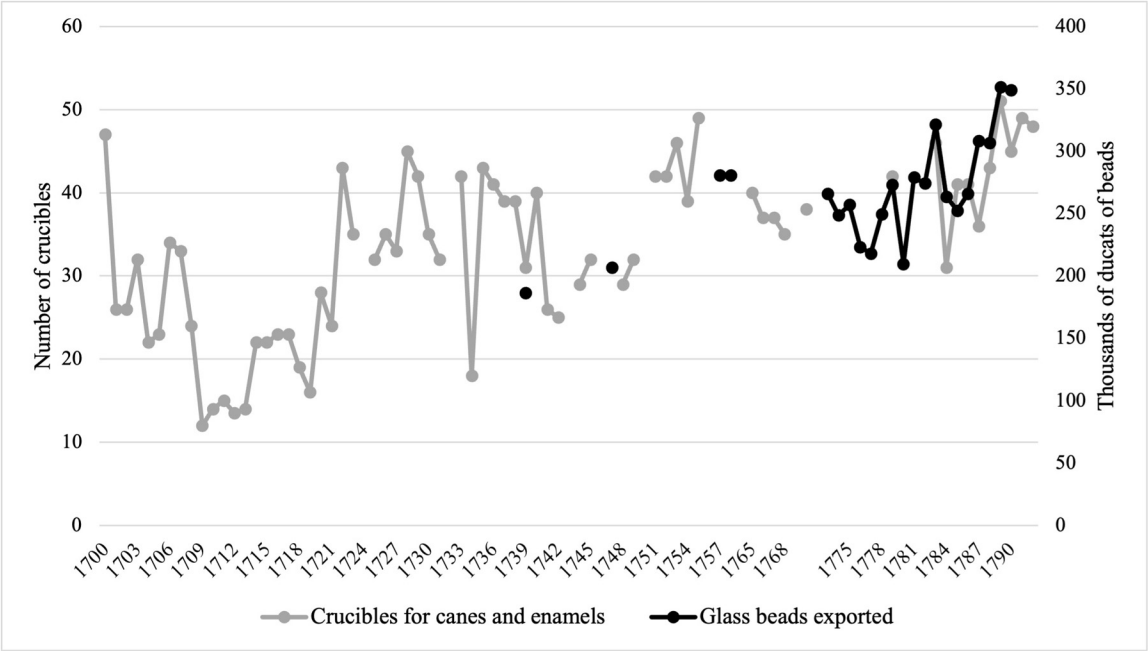


Figure 3. Evolution of the Venetian glass bead industry and its exports, 1700-1790 (Trivellato 2000:228; BCMC, Morosini Grimani: 496:174; Archivio di Stato di Venezia [ASVe], V Savi alla Mercanzia [VSM], Registri: 13, 18, 23, 29, 35, 41, 47, 52, 57, 63, 67, 72, 76, 80, 85, 90, 95, 100.7).

In Cairo, traders redirected beads to the Arabian Peninsula and Sudan. The route to Jeddah was a vital commercial artery for Egypt and several tons of Venetian glass products departed Suez for the Hejaz Coast each

Table 1. Venetian Glass Bead Destinations, 1769-1800 (Average of Annual Figures).

Conterie			*Manifatture a lume*		
Destination	**Tons**	**%**	**Destination**	**Tons**	**%**
Ponente	124	26.7	Alexandria	24	23.1
Alexandria	123	26.6	*Ponente*	18	17.4
Istria	72	15.7	Istria	17	17.2
Genoa	27	5.7	Syria and Cyprus	11	11.1
Trieste	14	3.0	Bologna	5	5.4
Tripoli	13	2.8	Tripoli	4	3.8
Syria and Cyprus	11	2.3	Leghorn	3	2.9
Leghorn	9	1.8	Genoa	3	2.6
Mestre	8	1.8	Trieste	2	1.6
Coasts of France	6	1.2	Germany	1	1.2
Total (top 10 destinations)	**406**	**87.7**	**Total (top 10 destinations)**	**88**	**86.2**

Source: Archivio di Stato di Venezia (ASVe), V Savi alla Mercanzia (VSM), Registri: 3, 7, 11, 18, 21, 27, 34, 45, 51, 55, 62, 66, 71, 76, 79, 86, 89, 99, 108, 115, 116, 117, 122, 123, 128, 130, 131.

year. Most were not retailed at Jeddah, but sold to shipping merchants and stowed in the holds of English, Arab, French, Indian, Dutch, and Malayan ships that crisscrossed the Arabian Sea and Indian Ocean. These intermediaries carried Venetian beads to their consumers in Gujarat, the Malabar Coast, Bengal, and likely, the Indonesian archipelago. European records thus show the circulation of Venetian beads in a vast portion of the Asian continent, but archaeology and anthropology also buttress the idea of a wide diffusion in Asia (Francis 1989-1990; Janowsky and Ingrao 1996). While we lack quantitative data for the 18th century, in the 19th and 20th centuries India bought between 20% and 40% of all Venetian bead exports, while Java and Sumatra purchased just one percent (Filippini 1996:6; Francis 1988:17; Zecchin 2010:59). In the 18th century, we may imagine that 80%-85% of beads shipped to Alexandria continued on to Jeddah and India, or the equivalent of 115-125 tons per year between 1769 and 1800. The rest traveled to Darfur and Sennar on African caravans that arrived in Egypt (Holt 1975:40-52; Raymond 1973:157-165; Walz 1975). These convoys hauled and resold Venetian *conterie* and *manifatture a lume* to a vast region extending from Chad to Ethiopia, and beyond to Central Africa as far as regions north of the Zambesi River (Pallaver 2016:205-208).

What bead types did Venice export to Egypt? A statistical extract from a 1762 consular dispatch provides an indication (Table 2).

By weight, most beads arriving in Egypt fall in the *conterie* (drawn bead) category, produced by the *margariteri*.

Table 2. Venetian Glass Beads Arriving in Egypt in 1762.

Name	Translation	Production Process	Value in *Paras**	%
Contaria	Seed beads	*a ferrazza*	689,268	39.9
Rubino 1, 2, et 3	Ruby 1, 2, and 3	*a lume*	620,900	36.0
Rubino 4	Ruby 4	*a lume*	285,645	16.5
Puntine	Wheat shaped	*a lume*	21,600	1.3
Grani	Barleycorn beads	*a lume*	14,080	0.8
Corniola tonda	Round carnelian	*a lume*	13,800	0.8
Contaria a speo	Large drawn beads	*a speo*	12,960	0.8
Foglietta	Small with foliage	*a lume*	12,200	0.7
Tavelle rubino	Rectangular ruby	*a lume*	12,000	0.7
Cannette	Small canes (bugles)	*a ferrazza*	9,224	0.5
Agate nere	Black agate	*a lume*	6,000	0.3
Rosetta	Chevron beads	*a speo*	5,720	0.3
Corniola	Carnelian	*a lume*	4,800	0.3
Rubino a bisce	Ruby with spirals (?)	*a lume*	3,600	0.2
Lapislazzuli	Lapis lazuli	*a lume*	3,000	0.2
Olive bianche e rosse	White and red olives	*a lume*	2,520	0.1
Finto corallo	Imitation coral	*a lume*	2,400	0.1
Sente 4	?	?	2,000	0.1
Turchine 4	Deep blue 4	*a lume*	1,920	0.1
Ramina	Coppery ?	*a ferrazza*	1,500	0.1
Olivette bianche	Small white olives	*a lume*	960	0.1

Source: ASVe, VSM, Prima serie: 605. *Ottoman currency in Egypt.

Bead varieties made by *perleri*, however, had a higher value. In 1762, *contarie* and rubies dominated all other categories of Venetian beads.

The *manifatture a lume* made by *perleri* were even more central to the Venetian trade at Aleppo. According to archival sources, they accounted for at least 25% of the value of all Venetian commerce in the Syrian city[10] (Costantini 2001). Caravans from Aleppo took the beads to Armenia, Baghdad, Persia, and especially Basra, the hub that linked Syria and Mesopotamia to the Indian subcontinent. Although the Persian trade flourished in peacetime (Perry 1991) and despite examples found along the east coast of the Arabian Peninsula (Andersson 2016), in the 18th century, most Venetian glass beads transshipped at Aleppo headed for Basra and, from there, to Surat, Bombay, and Bengal.[11] Again, India emerges as the principal Eastern consumption market for Venetian glass beads.

As for Aleppo, what bead types did Venice export to the Syrian hub in the 18th century? Consular dispatches provide a detailed view of this flow in 1784-1786 (Table 3).

Not surprisingly, in terms of value in the Aleppo trade, lampworked beads outpriced those made by the *margariteri*. The bulk of Venetian exports to the Syrian city consisted of *corniole*, beads that imitated carnelian, also called "imitation coral." These beads were a Venetian innovation, a semi-precious item sold in strings of 120-140 beads for those of the finest quality. Their price in Aleppo ranged from 27-61 Venetian lire for a bunch weighing 2.7 kg in the 1760s-1780s.[12] Conversely, a cane maker at a Venetian furnace earned between 5 and 7 lire per day in the 1780s.[13]

In sum, beads were central to Venice's Levantine trade in the 18th century. As soon as they arrived in Cairo or Aleppo, they continued onward to a vast part of the Asian continent, especially India, and to central and eastern Africa.

Having followed the oriental trade of Venetian beads in the 18th century, we may now turn to their routes in the Atlantic sphere.

VENETIAN GLASS BEADS, SUGAR, AND SLAVES

The Western trade of Venetian glass beads is interesting for several reasons. The Atlantic ports were hubs that transmitted Venetian merchandise to African and American markets and, to a lesser extent, the Indian Ocean. *Conterie* and *manifatture a lume* were crucial to Venice's trade to the *Ponant*. These beads were among hundreds of items in the Atlantic slave trade and thus participated in a vast Atlantic commercial network. Guerrero (2010) and Zecchin (2013)

Table 3. Venetian Glass Beads Arriving in Aleppo, 1784-1786.

Name	Translation	Production Process	Value in Piasters*	%
Corniola di 120 e 140 grani	Carnelian, 120 and 140 beads	*a lume*	40,662	39.3
Corniola di 280 grani	Carnelian, 280 beads	*a lume*	39,836	38.5
Rubino n° 2 et 3	Ruby no. 2 and 3	*a lume*	7,434	7.2
Rubino n° 4	Ruby no. 4	*a lume*	5,823	5.6
Contaria ferrazza e pippiotti	Seed beads and small bugles	*a ferrazza*	5,412	5.3
Granata	Garnet	*a ferrazza*	1,141	1.1
Agate tre bisce	Agate with spirals	*a lume*	864	0.8
Zojetta	?	*a lume*	513	0.5
Grana a puntine	Wheat shaped	*a lume*	470	0.5
Olivette	Small olives	*a lume*	462	0.4
Smaltini	Enamel beads	*a lume*	393	0.4
Contaria smaltini	Drawn enamel beads	*a ferrazza*	304	0.3
Mandole verdi e rosse	Green and red almonds	*a lume*	219	0.2
Mandole de Muran	Murano almonds	*a lume*	32	0.03
Source: ASVe, VSM, Prima serie: 604:25.11.1785, 10.05.1787. *Ottoman currency.				

have studied the Venetian bead trade in England. Here, we will look at four aspects: 1) the place of beads in Venetian trade to Western Europe in the 18th century, 2) their destinations and reshipment by English, French, Dutch, and Portuguese merchants, 3) links between the Atlantic slave trade and Venetian bead exports, and 4) the types of beads that Venice exported to the West.

Trade Between Venice and the Atlantic in the 18th Century

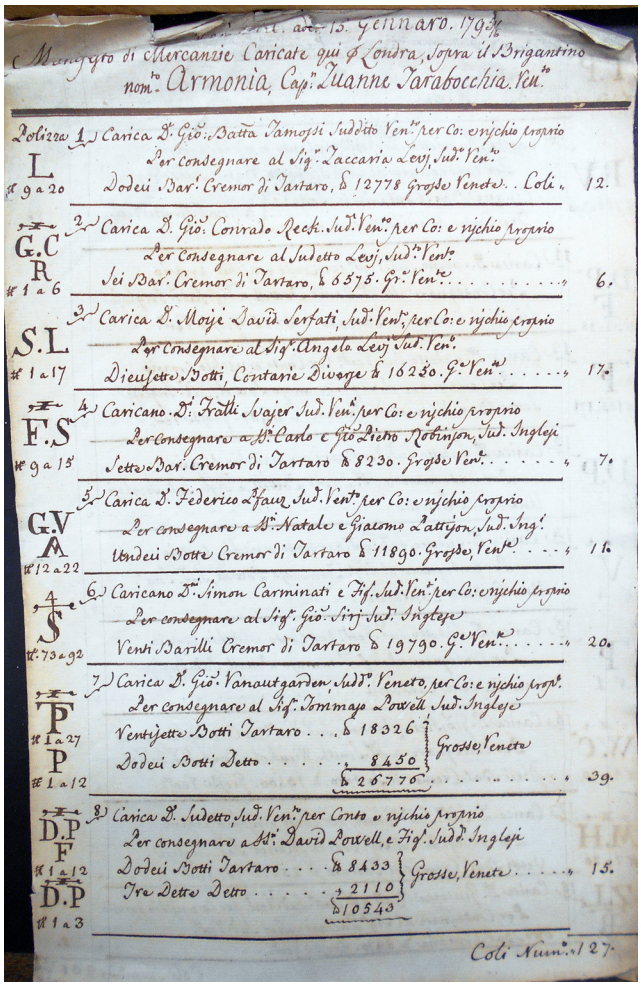
In Venetian records, *Ponente* or *Ponente Alto* (High Ponant) designates an immense region extending from the western Mediterranean as far north as Saint Petersburg. This region supplied 18th-century Venice with a vast array of products, as shown by customs records.[14]

Foodstuffs formed the key group of imported goods (about 40% of value), essentially raw sugar and cocoa from Portuguese and French colonies. Sugar refined in Venice found consumer markets within the city, in the wider Republic, and throughout northern Italy. In this manner, the lagoon city positioned itself as a center for the transformation and reshipment of Atlantic colonial foodstuffs for part of the Mediterranean. Two other commodities, salt fish and metals, were central to Venetian imports from the West. Tin, lead, iron, and salt fish were the main goods obtained from England, in exchange for raisins and olive oil from the Ionian Islands that belonged to Venice (Fusaro 1996; Grendi 1992:266). Other major imports that Venice drew from Western Europe were pepper, raw flax, furs, brass buttons, chemical products, and textiles.

In exchange, in addition to raisins and olive oil, Venice offered manufactured goods and, when harvests were good, cereal grains. Glass provided more than a third of export values to the *Ponant*; chemical products and textiles, while still important, had a lesser value. *Conterie* and *manifatture a lume* formed the mainstay of Venetian manufactured exports to Western Europe, likely worth more than 30% of the value of this flow and more than 80% of the value of all glass exports.

Atlantic Ports, Atlantic Markets?

Venetian customs records do not name the Western destinations of beads in the 18th century, specifying only "Ponant" or "High Ponant." Other sources, such as export manifests and other documents, mitigate this limitation and enable us to quantify bead shipments to Atlantic ports, identifying the cargo and destination of ships leaving Venice (Figure 4). We have created a database of these precious bits


Manifesto di Mercanzie Caricate qui p.ª Londra, Sopra il Brigantino nom.to Armonia, Cap.n Zuanne Tarabocchia Ven.to

Polizza 1) Carica D.i Gio.: Batta Tamossi Suddito Ven.no per Co: e rischio proprio
Per consegnare al Sig.r Zaccaria Levi, Sud.o Ven.no
L — N.o 9 a 20 — Dodeci Bar.l Cremor di Tartaro, ₺ 12778 Grosse Venete . . Coli . 12.

2) Carica D.i Gio.: Conrado Reeck. Sud.o Ven.no per Co: e rischio proprio
Per Consegnare al Sudetto Levi, Sud.o Ven.no
G.C R — N.o 1 a 6 — Sei Bar.l Cremor di Tartaro, ₺ 6575. G.e Ven.ne . . . . . 6.

3) Carica D.i Moyè David Serfati, Sud.o Vent.o, per Co: e rischio proprio
Per consegnare al Sig.r Angelo Levi, Sud.o Ven.no
S.L — N.o 1 a 17 — Diecisette Botti, Contarie Diverse ₺ 16280. G.e Ven.ne . . . . . 17.

4) Caricano D.i Fratti Nojer Sud.o Ven.no per Co: e rischio proprio
Per Consegnare a S.r Carlo e Gio Pietro Robinson, Sud.i Ingleşi
F.S — N.o 9 a 15 — Sette Bar.l Cremor di Tartaro ₺ 8230. Grosse Ven.e . . . . . 7.

5) Carica D.i Federico Zfaur Sud.o Vent.o per Co: e rischio proprio
Per consegnare a S.i Natale e Giacomo Lattijon, Sud.i Ing.i
G.V A — N.o 12 a 22 — Undeci Botte Cremor di Tartaro ₺ 11890. Grosse, Vent.e . . . . 11.

6) Caricano D.i Simon Carminati e Fig.i Sud.i Ven.ni per Co: e rischio proprio
Per consegnare al Sig.r Gio.: Sirj Sud.o Ingleze
S — N.o 73 a 92 — Venti Barili Cremor di Tartaro ₺ 19790. G.e Ven.no . . . . . 20.

7) Carica D.i Gio.: Vanoutgarden, Sudd.o Veneto, per Co: e rischio propr.o
Per consegnare al Sig.r Tommajo Powell Sud.o Ingleze
F — N.o 1 a 27 — Ventisette Botti Tartaro . . . ₺ 18326
P — N.o 1 a 12 — Dodeci Botti Detto 8450
₺ 26776 } Grosse Veneto . . . . . 39.

8) Carica D.i Sudetto, Sud.o Ven.no per Conto e rischio proprio
Per consegnare a S.i David Powell, e Fig.i Sudd.i Ingleşi
D.P F — N.o 1 a 12 — Dodeci Botti Tartaro . . . ₺ 8433
D.P — N.o 1 a 3 — Tre Detto Detto 2110
₺ 10543 } Grosse, Venete . . . . . 15.

Coli Num.i 127.

Figure 4. Manifest of the Venetian ship *Armonia* headed to London, 1796. The third entry mentions 17 barrels of *conterie* being exported by the Venetian Jewish merchant Moisé di David Serfati (ASVe, VSM, Prima serie: 918:15.01.1796).

of macro- and micro-economic information, individually collected and analyzed. We generated macro data by normalizing the weights of different shipping containers (casks, boxes, etc.). We then added up these data by destination. For the Western trade, we find such information for 1764-1769 and 1781-1796 (Table 4).

This analysis shows the centrality of Lisbon, by far the principal destination of Venetian glass beads shipped to the western Mediterranean and beyond the Strait of Gibraltar. The Lusitanian port's preponderance, which strengthened over time, is not surprising when we recall that one type of Venetian glass bead bore the name of *contaria da Lisbona*.

At a much lower level, second place belongs to English ports including Gibraltar, the destination of 10%-15% of beads shipped to the West during the second half of the

Table 4. Western Destinations of Venetian Glass Beads, 1764-1769 and 1781-1796 (%).

Destination	1764-1769	1781-1796
Alicante	0.18	0.00
Amsterdam	12.68	1.98
Barcelona	0.00	0.31
Bristol	2.02	0.00
Cádiz	4.99	6.51
Gibraltar	9.45	0.00
Hamburg	0.12	0.83
Lisbon	60.95	69.11
Liverpool	4.12	0.00
London	1.52	11.53
Marseille	3.95	9.31
Porto	0.01	0.00
Saint Petersburg	0.00	0.16
Santa Cruz de Tenerife	0.00	0.01
Szczecin	0.00	0.26
Total	**100.00**	**100.00**
Source: ASVe, VSM, Prima serie: 913-918.		

century. To these, we must add most of the cargos sent to Livorno by sea or land (via Bologna), for another 9%-14% of the westward bead flow. In total, about a quarter of Venetian glass beads sent west in these years likely went to English ports. The slaving centers of Liverpool and Bristol received shipments directly from Venice in 1764-1769, while London controlled English destinations between 1781 and 1796. Liverpool owes its mention in the 1760s to a short-lived arrangement for the direct supply of beads from Venice (Guerrero 2010), while London was a long-standing hub for trade into Africa as well as Hudson Bay in Canada.

In the 18th century, Portugal and England were the principal destinations of *conterie* and *manifatture a lume* shipped westward from Venice. Amsterdam was a lesser market that diminished over time, likely because of competition from beads made locally or obtained from Bavaria or southern Bohemia. Cádiz and Marseille occupied niches that expanded at the end of the century.[15]

These ports, however, were not the final destination of Venetian beads. Can we clearly identify their Western consumption markets? Unfortunately, Venetian sources speak only in general terms of Africa, the Americas, and the West Indies (Trivellato 1996). To further our analysis, we turned to other sources. In light of Lisbon's centrality for Venetian bead exports, Portuguese balance of trade books appeared a logical choice.[16] This record series covers the period 1775-1831 (Moreira 2015), but data on beads are limited to 1776-1801. Items that we can identify as beads are *contas de vidro* (glass beads), *conterie* (drawn beads), and *granadas* (garnets), as well as *missanga* and *avelórios* (small seed beads). During this period, Lisbon acquired nearly all its beads from Venice (96% on average in 1776, 1777, and 1789), the rest coming from Genoa and Hamburg. The record series also shows the reshipment of glass beads from Portugal in 1776-1801 (in value), thus revealing their consumption markets (Table 5).

Not surprisingly, the west coast of Africa received most glass beads shipped from Lisbon (55.4%). Angola alone received a third of the value of Portuguese export beads, while the other West African destinations lay at the mouth of the Geba River in present-day Guinea-Bissau. It seems possible that a large part of these cargos served to purchase African captives.

Table 5. Portuguese Glass Bead Export Markets, 1776-1801.

Destination	Region	%
Angola	Africa	36.2
Asia and Eastern Africa	Indian Ocean	10.0
Azores	Atlantic Ocean	1.0
Bahia	Brazil	8.3
Bissau	Africa	13.4
Cacheu	Africa	5.8
Cape Verde	Atlantic Ocean	0.5
Capitania de Santos	Brazil	<0.1
Maranhão	Brazil	1.9
Parà	Brazil	3.1
Paraíba	Brazil	<0.1
Pernambuco	Brazil	7.1
Rio de Janeiro	Brazil	12.6
Source: ANTT, Projecto Reencontro: 103, 105, 108, 110.		

Brazil was the second largest market for Portuguese bead exports (33.1%), a finding that provides solid evidence for the circulation of Venetian beads in the Americas. This commercial flow may reflect a local Brazilian consumption of these items or Brazil's role in the African slave trade, which expanded greatly in the last decades of the 18th century.

Finally, a portion of the beads shipped from Lisbon went to the Indian Ocean (10.0%), to Mozambique or Goa. Venetian archives preserve the record of a *conterie* shipment to Goa via Lisbon, while the use of Venetian beads in Mozambique is also attested[17] (Pallaver 2016). England also likely reshipped Venetian beads to final markets in African regions such as the Gold Coast and the Gulf of Guinea. In the 1760s, Venetian merchants supplied William Davenport and Co., a firm involved in the slave trade, and the African Company of Merchants[18] (Guerrero 2010). Some Venetian beads imported by England went on to North America, especially to the distribution centers of the Hudson's Bay Company (HBC) at the mouths of the Churchill and Albany Rivers, at Fort Churchill, Fort Albany, and especially York Factory (Karklins and Adams 2013; Spector 1976). Carlos and Lewis (2010:96-105) have shown that after 1750, the HBC noticed the European popularity of Venetian beads and chose them as new varieties for its trade with the Assiniboine, Ojibwa, and Cree. While limited in quantitative terms – a few hundred kilograms of beads shipped annually to Hudson Bay – this commercial flow reaffirms the planetary diffusion of Venetian glass beads in the 18th century.

Venetian Glass Bead Export and the Atlantic Slave Trade

In the 18th century, a considerable quantity of Venetian glass beads found its way to Africa, probably in the context of the Atlantic slave trade which was managed by Europeans. Beginning in the early 17th century, the growing plantation economy of Brazil, the Caribbean, and North America absorbed a massive flow of captives plucked from Africa and transported to the Americas. Plantation owners forced millions of slaves to work in the production of exotic foodstuffs for a booming European market (Eltis and Engerman 2011; Klein 1999; Pétré-Grenouilleau 2004; de Vries 2008:157-158). The 18th century saw the apogee of the Atlantic slave trade. From 1576 to 1600, about 6,000 captives embarked on European slaving ships each year, about 29,000 per year between 1676 and 1700, and more than 80,000 per year from 1776 to 1800.[19]

Europeans purchased captive Africans in exchange for various items such as textiles, alcoholic beverages, guns, tobacco, iron and copper bars, and various manufactured products (Eltis and Jennings 1988:948), including glass beads (Alpern 1995:22-23; Eltis and Jennings 1988:952; Rawley 1981:34-35), and we know that Venetian beads served to purchase African captives (Trivellato 1996:28-29).

Can we measure the links between the flows of beads and slaves? Did fluctuations in the Atlantic slave trade influence Venetian bead exports toward the West? To answer these questions, we compared Venetian customs data and African slave figures. The Venetian sources allow a comparison for the last thirty years of the 18th century (Figure 5).

Aside from inter-annual fluctuations, we see that Venetian bead exports to the *Ponant* mirrored cycles in the slave trade. In mathematical terms, we find a correlation between the two flows of 0.56 (triannual average). The American War of Independence (1775-1783) had an obvious effect on the slave trade, provoking a parallel downturn in Venetian bead exports to the *Ponant*. After the initial drop, we see a slow but steady recovery from 1779 to 1783, followed by stability from 1784 to 1793. Venetian bead exports recovered briefly in 1781, followed by another drop. A new growth phase in bead exports in 1785-1786 resulted in a plateau until about 1793. Subsequently, the War of the First Coalition (1792-1797) hit international trade hard. While the slave trade quickly stabilized, bead exports fell deeper under the effects of the French invasion of Venice and the fall of the Venetian Republic in 1796-1797. Despite this troubled context, the end of the century saw a resilient Venetian bead sector ready to profit from the renewed slave trade. Thus, glass beads linked Venice to the Atlantic and to the 18th-century slave trade.

Beads, Beads, Beads... But Which Ones?

Finally, we may look at the Western trade of Venetian glass beads from a material culture perspective. We have seen that *corniole* (imitation carnelian beads) were central to the Venetian bead trade in Aleppo, while in Egypt the most important bead types were *conterie* and lampworked imitation rubies. What bead types headed for the Atlantic ports in the 18th century?

Venetian archival sources offer some interesting details. For example, in 1757, the Lisbon trading houses Albertini Frisoni and Juvalta sent an order to the Venetian traders Antonio Milletch and Francesco Bersacina for 550,000 *libbre* (about 165 tons) of *conterie* in three colors: white, red, and dark blue.[20]

A more precise view of Venetian bead types exported to the Atlantic comes from the case of Isach dalla Man, a Jewish Venetian merchant, and his trade with the West, including detailed orders (Figure 6) (Trivellato 1996:28; Zecchin 2013). In 1763, initially via his trading house at

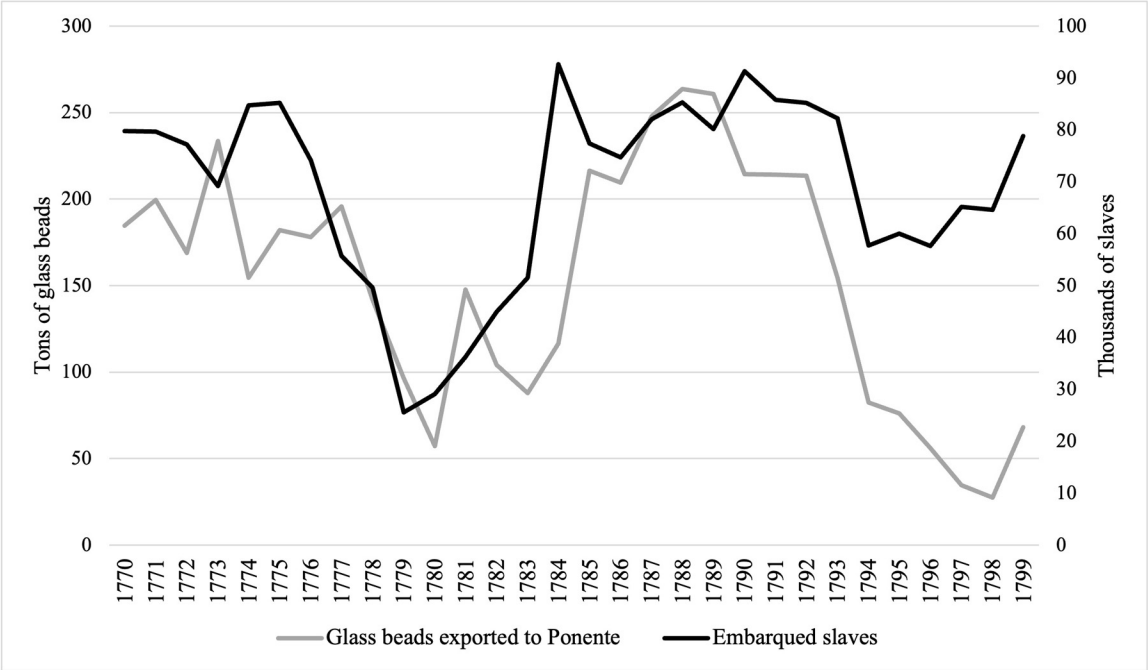


Figure 5. Venetian glass bead exports to the West and the trans-Atlantic slave trade (ASVe, VSM, Registri: 3, 7, 11, 18, 21, 27, 34, 45, 51, 55, 62, 66, 71, 76, 79, 86, 89, 99, 108, 115, 116, 117, 122, 123, 128, 130, 131; TASTD).

Livorno, he arranged to supply Venetian glass beads to the African Company of Merchants of Liverpool. Dalla Man's English commerce thrived for five years until the Venetian senate barred his trade in 1768 (officially because of a bad lot of beads) and recommended that English traders deal with Christian houses in Venice.[21] The English orders handled by the Jewish trader were considerable; between 1763 and 1768, he shipped beads to Liverpool having a value of more than 120,000 ducats. The sources specify the cargoes' composition (Table 6).[22]

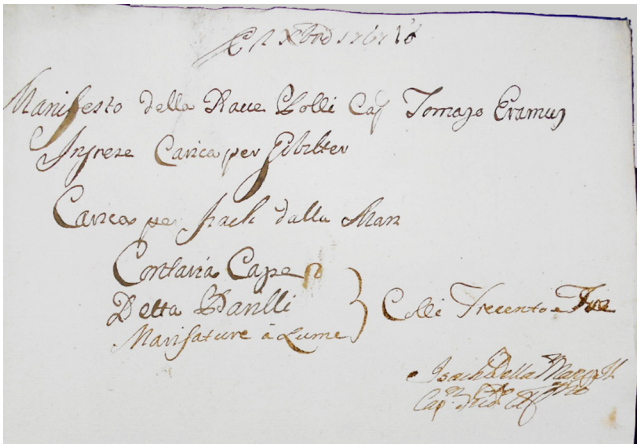


Figure 6. Manifest of the English ship *Polly* headed to Gibraltar, 1767. Dispatched by Isach dalla Man, the cargo is composed of 303 barrels and boxes of *conterie* and *manifatture a lume* (ASVe, VSM, Prima serie: 910:02.12.1767).

Obviously, the case of Isach dalla Man does not necessarily reflect the typical composition of Venetian glass bead exports to the West in the 18th century. Nonetheless, we have an interesting sample of beads shipped to England and Holland in the late 1760s. First of all, in terms of the number of bunches, 69.8% were lampworked beads, 14.8% were *conterie*, 8.5% necklaces, and 6.9% *cannette* (small tubes known as bugles). Within the lampworked category, half were olive beads and a third were barleycorn beads. The colors and decoration varied according to bead type, but their diversity is impressive. As for the *conterie*, more than half the bunches were black or white; these colors apparently found a high demand on the coast of Angola (Savary des Bruslons 1723, 2:1273). Black, white, and red beads made up more than half the necklaces, while small bugles were most often requested in dark blue, lavender, or lemon yellow. As for lampworked beads, enamel decoration dominated the olive category, a finding consistent with a great increase in the use of enamel ingots in the 18th-century Venetian bead industry (Bettoni 2017). Interestingly, the orders included 200 bunches of black olives called *avventurina*, the celebrated Venetian enamel with sparkling inclusions of copper filings (Bova, Junck, and Migliaccio 2004). In the barleycorn bead category, alongside a notable quantity of black wheat-shaped beads (*grani a punti neri*), two thirds consist of shiny faceted beads imitating diamonds, a style perfected by the Bohemian beadmaking industry (Zecchin 2013:155).

Table 6. Major Glass Bead Groups Ordered from Isach dalla Man, 1765-1767.

Name	Bunches	%	Name	Bunches	%
Conterie	**17,900**	**100.0**	**Olives**	**40,800**	**100.0**
White	6,300	35.2	Enamel	24,000	58.8
Black	4,000	22.3	Light lavender	4,000	9.8
Lavender	2,000	11.2	White	4,000	9.8
Red	1,100	6.1	Turquoise	3,000	7.4
Dark lavender	1,000	5.6	Black	2,000	4.9
Lemon yellow	1,000	5.6	Lavender	1,000	2.5
Transparent green	1,000	5.6	Lemon yellow	1,000	2.5
Dark blue	800	4.5	Ruby	1,000	2.5
a speo	500	2.8	*Zajel*	600	1.5
Leek green	200	1.1	Black with aventurine	200	0.5
Small Bugles	**8,400**	**100.0**	**Barleycorn (*Grani*)**	**27,700**	**100.0**
Dark blue	2,450	29.2	Faceted (36 facets)	10,000	36.1
Lavender	1,500	17.9	Faceted (30 facets)	10,000	36.1
Lemon yellow	1,500	17.9	Wheat shaped	6,000	21.7
White enamel	1,050	12.5	White	1,000	3.6
Red	1,000	11.9	Striped	200	0.7
Turquoise	500	6.0	Blue	100	0.4
White with red stripes	200	2.4	Yellow	100	0.4
Leek green	200	2.4	Green	100	0.4
Necklaces	**10,300**	**100.0**	Red	100	0.4
Black	2,200	21.4	Other	100	0.4
White	2,200	21.4	**Carnelian (*Corniola*)**	**4,000**	**100.0**
Red	1,500	14.6	Coarse	3,000	7.0
Leek green	1,200	11.7	Fine	1,000	25.0
Lemon yellow	1,200	11.7	**Flattened**	**4,750**	**100.0**
Dark blue	1,000	9.7	White	3,750	78.9
Dark lavender	1,000	9.7	Ruby	1,000	21.1

Source: ASVe, VSM, Prima serie: 463.

CONCLUSION

Our study confirms the growth of Venetian glass bead production and trade in the 18th century, and reveals the importance of this export product for the city of Venice. Glass beads flowed to the Levant and the *Ponant*, to key transshipment nodes in the commercialization of these products in Asia, Africa, and the Americas. We also see minor flows to the Barbary Coast, Germany, Italy, Eastern Europe, and the Balkans.

In the Ottoman Empire, glass beads formed an important group of Venetian commodities. They followed terrestrial and maritime routes in a major flow to Gujarat and Bengal, and southward to the Wadai Empire, Darfur, the Sennar region, and the Horn of Africa. *Conterie* and imitation rubies were the most popular items sent to the transshipment node in Egypt at the beginning of the 1760s, while lampworked beads had the greatest value. From the Syrian trade hub of Aleppo, oriental caravans transported Venetian beads to the Armenian-Persian Plateau, but especially to Basra where they continued on to Gujarat, the Malabar Coast, and Bengal. In Syria, the Venetian bead trade emphasized lampworked beads, especially *corniole* (70%-80% of exported beads), while imitation rubies were important as well.

Study of the Atlantic bead trade has revealed some interesting aspects. In the 18th century, a good part of the trade from the Atlantic to Venice consisted of colonial foodstuffs including sugar, the fruit of slave labor in the Americas, while glass beads sent in exchange entered considerably into the slave trade.

The Western destinations of beads were the Atlantic ports of Europe. Lisbon received the majority of Venetian exports (about 60%), while English ports absorbed about a quarter, shipped by direct and indirect routes. On a lesser scale, we find Amsterdam (decreasing over time), and Cádiz and Marseille (growing over time). These ports were transshipment nodes for overseas destinations. Study of the Portuguese case shows that Venice was the principal supplier (96%) of beads to that country. Beads re-exported from Portugal went mainly to West Africa, especially Angola, while a signification portion (30%-40%) headed to Brazil, possibly to maintain the Brazilian slave trade. A lesser but not insignificant portion (10%) headed to the Indian Ocean, to Mozambique and Goa. In the English case study, Africa also appears to have been the principal market, considering the direct links between Venetian traders and the African Company of Merchants and William Davenport and Co., both heavily involved in the Atlantic slave trade and commerce with Africa. The English case also reveals a North American market for Venetian glass beads, traded to Indigenous people living within the Hudson's Bay Company's sphere of influence, and likely elsewhere in the English colonies. In sum, both the oriental and occidental trade data confirm the global scale of the Venetian glass bead trade in the 18th century.

The sources studied and compared for the 1770-1800 period show a strong correlation between the evolution of the Atlantic slave trade and that of Western bead exports from Venice. Fluctuations in the slave trade deeply influenced bead exports, especially during international conflicts. We may suggest that this strategic part of the Venetian economy closely mirrored the fortunes of Atlantic commerce.

Finally, the orders received from England and Holland by trader Isach dalla Man provide a sample of the most requested bead types for the English/Dutch trade to Africa during the second half of the 1760s. From a material perspective, this specific case shows a great variety of types and styles, a sign that the industry could adapt to diverse consumer tastes. These orders favored white, black, and dark blue colors for *conterie*, necklaces, and small tubular beads, while the most requested varieties of olives and barleycorn beads were decorated with enamel or faceted like diamonds.

Venetian glass beads were crucial for the Venetian economy and trade at the end of the Early Modern Period. Far from being cheap goods, beads were key products that connected a Mediterranean city to the global market in the 18th century. In fact, sources show that Venetian *conterie* and *manifatture a lume* reached almost every region of the world, from Hudson Bay to the Bay of Bengal and from Brazil to western Russia. A fundamental connection existed between the Western trade of Venetian glass beads and the Atlantic slave trade; the latter deeply influenced the former.

This study has revealed the potential of a cross analysis of qualitative and quantitative sources from different European archives. In this regard, a more accurate image of the Venetian glass bead trade could be achieved by comparing Venetian, French, and Portuguese trade data with that of England, Genoa, and Spain. For the Levant trade, Ottoman sources or those from the English East India Company or Dutch East India Company would be relevant. Additionally, a closer collaboration between anthropologists, archaeologists, collectors, historians, and material culture experts would be a good way to improve our knowledge of the history of glass beads.

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ENDNOTES

1. Archivio di Stato di Venezia [ASVe], Inquisitori di Stato: 820:Z:09.07.1741; ASVe, Censori: 31:05.02.1766.

2. The production and trade of Venetian glass beads in the 18th century are the subject of my doctoral dissertation at the Centre de la Méditerranée Moderne et Contemporaine, Université Côte d'Azur (Nice).

3. "Servono esse contarie agl'usi delle più rimote regioni dell'Africa, e dell'Indie, somministrate le sono col mezzo delle più industriose Nazioni commercianti;" ASVe, Censori: 21, 262-28r.

4. "Si estendono le medeme per l'Ollanda, per l'Inghilterra, per la Spagna, per il Portogallo, per l'Alessandria, per tutta la Barbaria, inoltrandosi colla navigazione per il Mar Rosso persino nell'Indie Orientali, e dalla Barbaria passano nelle vaste provincie sì occidentali, che meridionali dell'America;" ASVe, Censori: 38:15, "Scritture de margaritieri presentate al Tribunal degl'Illu.mi & Ecc.mi SS.ri Capi dell'Ecc.so Cons.o di X.ci."

5. The value of exports is measured in ducats, at prices that were current at the end of the 1730s (Sambo 2012:400). Venetian authorities mechanicaly calculated this value by assigning a fixed price to exported quantities; the figures thus also reflect exports by weight.

6. According to Venetian customs documents, bead exports dropped from 770 to 270 tons per year between 1792 and 1799.

7. ASVe, V Savi alla Mercanzia [VSM], Registri: 13, 18, 23, 29, 35, 41, 47, 52, 57, 63, 67, 72, 76, 80, 85, 90, 95.

8. Other sources confirm the centrality of these destinations (ASVe, VSM, Prima serie: 913-918; ASVe, Censori: 21:21:11.08.1790; ASVe, Inquisitori di Stato: 821).

9. ASVe, VSM, Prima serie: 603-604, 639-642.

10. ASVe, VSM, Prima serie: 604:25.11.1785, 10.05.1787; ASVe, VSM, Diversorum: 396:113.

11. ASVe, Censori: 40.

12. ASVe, VSM, Prima serie: 603:09.09.1769, 18.03.1769, 20.12.1770, 24.10.177; 604:25.11.1785, 10.05.1787.

13. ASVe, Censori: 21:11.01.1789.

14. ASVe, VSM, Registri: 13, 18, 23, 29, 35, 41, 47, 52, 57, 63.

15. The TOFLIT18 database confirms the presence of Venetian beads in Marseille commerce. The database is the product of an ANR project coordinated by Loïc Charles and Guillaume Daudin (https://toflit18.hypotheses.org/). I thank Guillaume Daudin for sharing the data on glass beads in the French trade.

16. Archivo Nacional da Torre do Tombo, Projecto Reencontro: 103, 105, 108, 110.

17. ASVe, VSM, Prima serie: 186:66.

18. ASVe, VSM, Prima serie: 463.

19. Trans-Atlantic Slave Trade Database (TASTD); https://www.slavevoyages.org/.

20. ASVe, VSM, Prima serie: 186:66.

21. ASVe, VSM, Diversorum: 371:25; Prima serie: 549:17.09.1768, 22.06.1773.

22. ASVe, VSM, Prima serie: 463.

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