Reviews on

GLASS

Nº 2 | 2013

2012 ICOM Glass Meeting

Lectures: **Glass collections in Spain**
Interview: **Javier Gómez**

Yolanda Tabanera, Installation. Cloister of Santa María la Real, in Nájera, La Rioja, 2005.

Edit

ICOM INTERNATIONAL COMMITTEE
FOR MUSEUMS AND COLLECTIONS OF GLASS
http://network.icom.museum/glass

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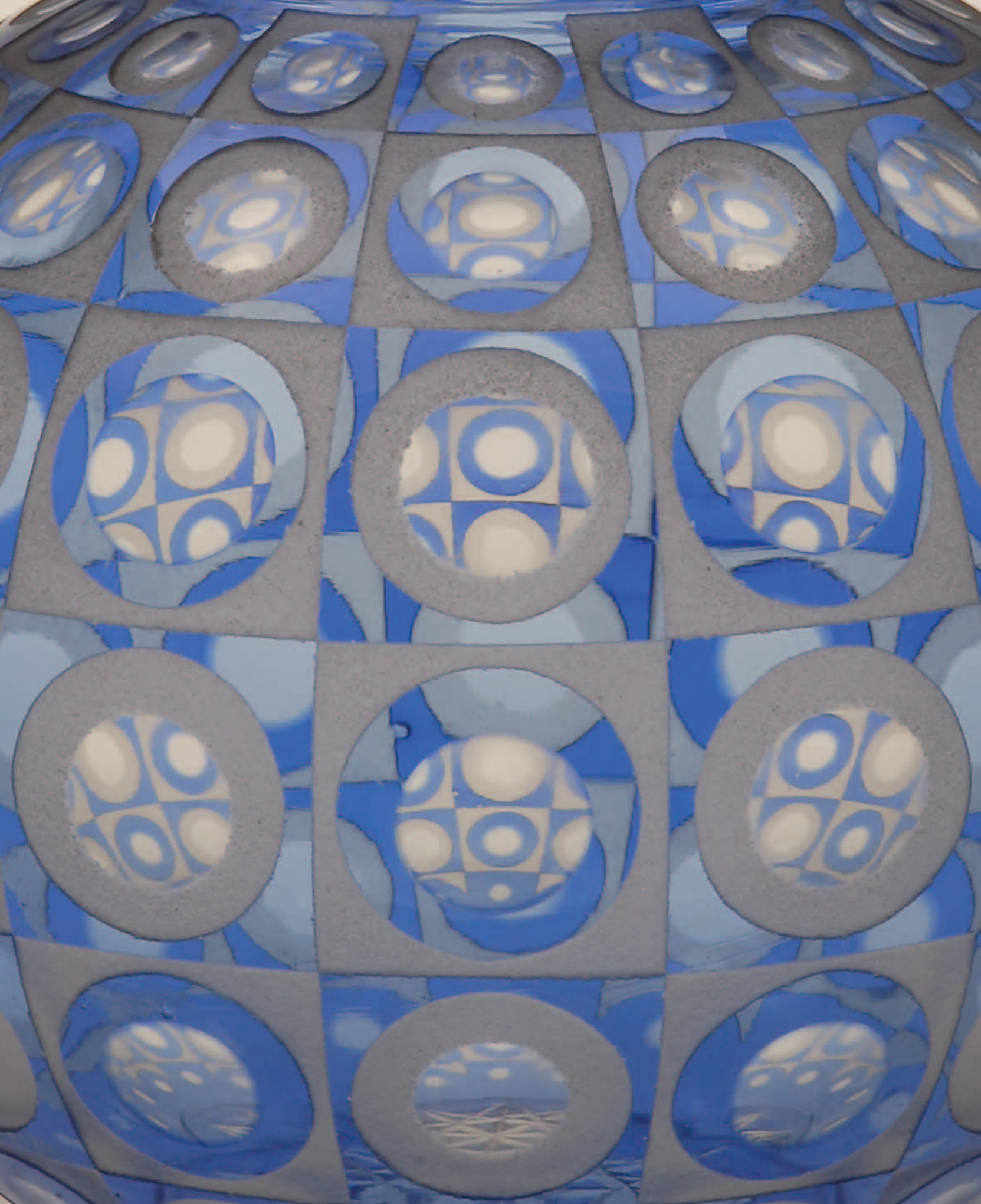
Layout
Cyan, Proyectos Editoriales, S.A.

ISSN: 2227-1317

Journal sponsored by
ICOM. International Council of Museums

We want to take this opportunity to thank the people who have collaborated in this Journal, particularly Jane Shadel Spillman and Teresa Medici for their effort and support.

SUMMARY



FOREWORD

Dear Colleagues and Friends,

I am delighted to introduce the second edition of our Journal, which contains some of the topics covered in the annual ICOM Glass Meeting held in Spain (2011). It was an exciting meeting organized by the Museu de Arqueologia of Catalunya, thanks to Teresa Carreras, and the Real Fábrica de Cristales of La Granja, which enabled us to explore the knowledge of glass pieces in Spanish collections, both public and private.

Under the topic "Glass Collections in Spain", several talks were given on Spanish glass production in different time periods, such as the Modern or the Contemporary period. Another issue which aroused great interest among our colleagues was the lecture about a project of the "Ministerio de Educación Cultura y Deporte" called Domus and Cer,es. In this project, an on-line platform, was created that allows anyone in the world to find out which glass pieces and documentation are kept in the various National Spanish Museums. Other subjects of great importance such as the dissemination of technological advances and stylistic influences of European Glassmaking in China; the artistic production of the Bohemian-Moravian glassworks in the 1940s; Mt. Washington and Paispoint Glass Company and their creations; and finally, the creation of an atlas of pathologies used as a tool to determine the conservation state of heritage materials were also covered. These topics are available for reading in *lectures.* Several important news items and announcements for this year have been selected and included in *Congress and Exhibitions.*

It should be remembered that, in addition to these conferences, the organizers of this meeting established an extensive program of six days of visits to glass collections usually inaccessible to the general public, and guided by the top specialists in each subject. In Barcelona we visited: the Museu d'Arqueologia of Catalunya, Pueblo Español, Sagrada Familia Basílica, Palau Reial and Monastery of Pedralbes. In Ampurias: the Greek and Roman City of Ampuries, and the Ampuries Monographic Museum. In Peralada: the Museu Castell of Peralada. In San Ildefonso (La Granja): the Real Fábrica de Cristales, Glass Museum and workshops, Royal Palace, Segovia City; and finally, in Madrid, the Glass Museum of Alcorcón (MAVA), the Decorative Art Museum and the Royal Palace.

We are convinced that this magazine is becoming an important channel of communication and a means of gathering and disseminating the activities of our glass committee, which in addition has attracted great interest among our readers. We are certain that with your help and more time, we will attract new readers.

Paloma Pastor Rey de Viñas
Chair. ICOM Glass

ICOM Glass Meeting in

Spain

A total of 25 participants attended the 2011 ICOM Glass Annual Meeting, representing Croatia, Czech Republic, Germany, Great Britain, Italy, Norway, Spain and USA. The official opening of the meeting and papers took place in the Library of the Museu d'Arqueologia de Catalunya. After a tour of the Museum to see the new permanent glass collection "La fragilidad en el tiempo. El Vidrio en la Antigüedad", and the temporary exhibition about the Amatller glass collection, guided by Teresa Carreras and Paloma Pastor, we had the lectures, presented by the speakers with the topic "Glass Collections in Spain".

European Glassmaking Technology in China:

Kilian Stumpf's probable Influence 'over liuli'

Florian Knothe. University Museum and Art Gallery, Hong Kong

Attention to the history of commerce between the East and West grew during the latter part of the twentieth century when the exchange of commodities between Western Europe and East Asia increased, and China, Taiwan, and Japan's manufacturing strength and global trading changed the world[1]. Interestingly, while the monopoly in world trade was certainly held by royal fleets attempting to colonize and gain commercial contacts around the shores of the Atlantic and Indian Oceans, there was a fraction of newly begun trade along with

1. See among other texts, Derek Massarella, Chinese, Tartars and "Thea" or a Tale of Two Companies: The English East India Company and Taiwan in the late Seventeenth Century, in *Journal of the Royal Asiatic Society,* third series, vol. 3, no. 3 (Nov. 1993), pp. 393-426; Dennis O. Flynn and Arturo Giraldez, 'Arbitrage, China, and World Trade in the Early Modern Period', in *Journal of the Economic and Social History of the Orient,* vol. 38, no. 4, 1995, pp. 429-448; and John Lee, 'Trade and Economy in Preindustrial East Asia, c. 1500–c. 1800: East Asia in the Age of Global Integration', in The *Journal of Asian Studies,* vol. 58, no. 1 (Feb. 1999), pp. 2-26.

A new impetus in China arrived with European "scientists" sent to the East as missionaries from the early- 1600s

artistic and cultural exchange, which laid in the hands of traveling Jesuit missionaries[2]. Through all of these contacts, as Michael North recently stated with regards to developments in eighteenth-century Japan, 'the importation of Western commodities was encouraged with the intention to disseminate practical knowledge'[3].

In the past years a new research interest of mine—work that ultimately lead to the *East Meets West* exhibition at the Corning Museum of Glass in 2010—has made me focus on the dissemination of practical knowledge by European missionaries, and the technological advances and stylistic influences of European glassmaking in China during the early eighteenth century[4]. Whereas porcelain presents a medium developed and mastered in Asia for a thousand years, which for centuries – notably from the late fifteenth to the mid eighteenth centuries – was highly admired and finally successfully imitated (first in Dresden in 1708) in the West, the creative design and manufacture of both luxury and more common domestic goods in glass were far more advanced in Europe[5]. A new impetus in China arrived with European 'scientists' sent to the East as missionaries from the early-1600s[6]. Glass produced in East Asia since then profited from – and often directly depended on – Western techniques and led local glasshouses – most notably the *liao liu,* the Chinese glasshouse within the Imperial City in Beijing – to produce an unusual hybrid style, indicative throughout both of an intellectual open-mindedness as well as of Oriental design and artisanal tradition[7].

2. Jesuits involved in, for example, the silk trade in East Asia have been studies particularly in the case of Spanish clergymen who profited from the vast colonized territories held by the Spanish crown and the protection it offered during the early modern era. See C. R. Boxer, *The Great Ship from Amacon, Annals of Macao and the Old Japan Trade, 1555 – 1640,* Lisbon 1959, C. R. Boxer, 'Missionaries and Merchants of Macoa, 1557–1687', in *Actas, Colóquio Internacional de Estudios Luso-Brasileiros, Lisboa 1957,* vol. II, Lisbon 1960, pp. 210-224; William L. Schurz, *The Manila Galleon,* New York 1959; and Nicholas P. Cushner, 'Merchants and Missionaries: A Theologian's View of Clerical Involvement in the Galleon Trade', in *The Hispanic American Historical Review,* vol. 47, no. 3 (Aug. 1967), pp. 360 – 369.

3. Michael North, 'Introduction', in *Artistic and Cultural Exchanges between Europe and Asia, 1400 – 1900,* Farnham: Ashgate, 2010, p. 7.

4. Glassmaking originated in China during the Wei Dynasty (386-557). See C.G. Seligman and H.C. Beck, 'Far Eastern Glass: Some Western Origins', in Far Eastern Antiquities, 1938, pp. 1-64, pp. 15-16; Yang Boda, 'An Account of Qing Dynasty Glassmaking', in Robert H. Brill and John H. Martin (eds.), *Scientific Research in Early Chinese Glass,* Corning: The Corning Museum of Glass, 1991, pp. 131-132 and 144.

5. Florian Knothe, 'East Meets West: Cross-Cultural Influences in Glassmaking in the 18th and 19th Centuries', in *Journal of Glass Studies,* vol. 52, 2010, pp. 201-216.

6. See among others George Loehr, 'Missionary-Artists at the Manchu Court', in *Transactions of Then Oriental Ceramic Society,* vol. 34, 1962-63, pp. 51-67; and Emily Byrne Curtis, 'Glass for K'ang Hsi's Court', in *Arts of Asia,* vol. 21, no. 5, September –October 1991, pp. 130-136.

7. For a comprehensive, recent study of the administration of the *Zaoban chu,* the Imperial Palace workshops, and its glasshouse, see Peter Y.K. Lam, "Three Studies on the Glasshouse of The Qing Imperial Household Department', in Rong Zhang (ed.), *Luster of Autumn Water: Glass of the Qing Imperial Workshop,* Beijing: Forbidden City Publishing House 2005, pp. 56-83. The glasshouse itself prospered during the Yongzheng and early Qianlong reigns, and a second workshop was established at Yuanming Palace, the Old Summer Palace, 8 kilometers northwest of the Imperial City, and Jesuits were still mentioned there until 1758. Some authors question whether the original glasshouse was moved to Yuanming Yuan or whether a second workshop was established there. However, two distinguished names *'bolichang'* (glass factory) and *'bolizuo'* (glass workshop) and continuously dated documents for both sites

The Jesuit missions in China were international and competitive: not only did individual candidates learn, train and prepare to be chosen for an appointment in the East, but, at least from 1693 on, both a Portuguese-initiated *Nantang* (southern church) and a newly-establish French *Beitang* (northern Church) existed in Beijing and fought for recognition by the Imperial court[8].

Until 1685, when French Jesuit missionaries – including Louis Le Comte (1655-1728), who also expressed an interest in glassmaking – were sent to the East by King Louis XIV, the Portuguese did not only obtain the sole Jesuit station in China, but proved to be the most effective facilitator for travelers from Europe to Asia[9]. Macoa had been a Portuguese trading post since 1535, and merchant vessels carried Jesuit missionaries from the Iberian Peninsula to the South China Sea[10]. Consequently, the most influential Jesuits in Beijing became the Italian Matteo Ricci (1552-1610), the German Johann Adam Schall von Bell (1592-1666), the Belgium Ferdinand Verbiest (1623-1688), the Italian Claudio Filippo Grimaldi (1638-1712), and the German Kilian Stumpf (1655-1720), all of whom succeeded each other as directors of the Imperial Astronomic Office[11]. As astronomers these 'scientists' – Schall von Bell built the Imperial Observatory in Beijing, Verbiest constructed imported instruments for it – were also responsible for the operation and maintenance – along with the development of new – astronomical instruments, an occupation to which Stumpf came with a special set of skills.

As Werner Loibl described in more detail, Kilian Stumpf trained in the Society of Jesus in Mainz prior to his arrival in China, and not only became an outstanding scholar and representative of the church that allowed him to qualify for an assignment abroad, but – more to the current interests of my essay – also gain in-depth knowledge of glassmaking[12]. Via the continuous transfer of knowledge and further development of the subject by the alchemists Johann Daniel Crafft (1624-1697), Johann Kunkel (1637?-1703) and Christoph Diem (b.1636), Stumpf learned about the highly important advances in glass formulating and coloring achieved by Johann Rudolf Glauber (1604-1670) in mid-seventeenth-century Germany[13]. In Beijing, his high reputation was then partly built upon his ability to produce glass lenses for telescopes – a technical *tour-de-force* that led to bigger and better things.

Qing-Dynasty China knew of European glassmaking through

seem to suggest that two workshops were operated in parallel. Compare Yang Boda, 'A Brief Account of Qing Glass' in *Palace Museum Journal,* 1983, p. 10; Boda 1991, pp. 136 and 141; Emily Byrne Curtis, 'Qing Imperial Glass, the Workshop on Can Chi Kou', in *Chinese Snuff Bottles in the Collection of Mary and George Bloch,* London: British Museum Press, 1995, p. XX; Zhang 2005, p. 24; Lam 2005, pp. 60-61, 64-66 and 68; Emily Byrne Curtis, 'Qing Glassmaking: The Jesuit Workshop on Canchikou', in Zhang 2005, pp. 99-100; and Hainer Schaefer, *From Bavaria to Beijing,* Frauenau: Glasmuseum Frauenau, 2009, pp. 83-84.

8. Schaefer 2009, pp. 10 and 43.

9. For the French involvement with East see Isabella Landry-Deron, 'Les Mathématiciens envoyés en Chine par Louis XIV en 1685', in Archive for History of Exact Science, no. 55, 2001, pp. 423-463.

10. Lam 2005, p. 59.

11. Lam 2005, p. 64; Schaefer 2009, pp. 38-39.

12. Claudia von Collani, 'Der Würzburger Kilian Stumpf S.J. am chinesischen Kaiserhof', in *Würzburg Heute* 36 (1983) pp. 16-23; Emily Byrne Curtis 1990, 'The Kangxi Emperor's Glasshouse', in *Journal of the International Chinese Snuff Bottle Society,* Winter 1990, p. 8; Werner Loibl, 'Itinerary of Glass Innovation: Johann Rudolf Glauber and His Followers', in Dedo von Kerssenbrock-Krosigk (ed.), *Glass of the Alchemists,* Corning: The Corning Museum of Glass, 2008, pp. 62-73.

13. Dedo von Kerssenbrock-Krosigk, *Rubinglas des ausgehenden 17. und des 18. Jahrhunderts,* Mainz: Philipp von Zabern, 2001, pp. 40-41; Werner Loibl, 'Johann Rudolph Glauber und die "gläsernen" Folgen', in *Journal of Glass Studies,* vol. 49, 2007, pp. 82-85; and Anna-Elisabeth Theuerkauff-Liederwald, "Becher-Gläser, daran die Farben aus denen Metallen gezogen, von dem berühmten Kunckel verfertiget", in *Journal of Glass Studies,* vol. 49, 2007, pp. 179-190.

diplomatic gifts Italian Jesuit missionaries offered to Emperor Kangxi (1662-1722)[14]. These presumably Venetian glasses, and more so Stumpf's proven ability to produce glass, led the Emperor decide to finance a local glasshouse that Stumpf erected adjacent to the French *Beitang* compound on Canchikou Street of which he had become a resident upon his arrival in the Imperial City in 1696[15]. This *liuli* (Chinese glass/glasshouse) was able to produce glass of a quality good enough for Kangxi to present seventeen objects as gifts in as early as 1705, and it lasted up to the end of the regime in 1911[16].

Covered bowl. Johannes Brauman II (mount), Germany, 1700. Collection of The Corning Museum of Glass, Corning, New York (2009.3.78).

In Stumpf's laboratory glasshouse, the making of the glass itself shows color formulas indicative of Western manufacture, and the de-colorized 'crystal' glass, and deeply colored translucent ruby-reds, as well as, possibly the broad variety of matte opaque colored glasses, and their application and manipulation at the furnace require closer study[17]. The Chinese ruby glasses first appeared during the Yongzheng reign (1723-1735), and most of the eighteenth-century example (and numerous more modern fakes) bear the reign mark of Qianlong (1735-1796), suggesting that production – as well as quality, as we will see – increased and that more and more varied glass vessels were produced (not just over a longer period of time). The recipes for ruby glasses, both with copper and colloidal gold, are of Germanic origin[18]. Dedo von Kerssenbrock-Krosigk

14. Kerssenbrock-Krosigk 2001, p. 55; see also Emily Byrne Curtis, 'European Contributions to the Chinese Glass of the Early Qing Period', in *Journal of Glass Studies,* vol. 35, 1993, pp. 91, 96 and 99.
15. Curtis 2005, pp. 94-95; Emily Byrne Curtis, 'Plan of the Emperor's Glassworks', *Arts Asiatiques* (Annales du Musee National des Arts Asiatiques-Guimet et du Musée Cernuschi), no. 56, 2001, pp. 82-84; Rong Zhang, 'Glass in the Imperial Workshops of the Qing Court', in Zhang 2005, p. 24; Lam 2005, pp. 59-60; and Schaefer 2009, pp. 44-45.
16. Yang Boda, 'A Brief Account of Qing Dynasty Glass', in Claudia Brown and Donald Rabiner (eds.), *The Robert H. Clague Collection. Chinese Glass of the Qing Dynasty 1644–1911,* exh. cat., Phoenix 1987, p. 77. For the dissemination of Chinese glass wares see Emily Byrne Curtis, 'Foucquet's List: Translation and Comments on the color 'Blue Sky after Rain", in *Journal of Glass Studies,* vol. 41, 1999, pp. 147-152; and Emily Byrne Curtis, 'Chinese Glass: 'A Present to His Czarish Majesty', in *Journal of Glass Studies,* vol. 51, 2009, pp. 138-143.
17. Yang Boda eluded to the fact that glassworkers at the Imperial glasshouse also bought in and re-heated glass ingots from the glassmaking center of Boshan, stating that this method of manufacture resulted in glasses that were similar to those of Boshan. See Boda 1991, pp. 136-137 and 142.
18. Chinese glasses also consist of batch formulas containing either copper or colloidal gold. See Shi Meiguang and Zhou Fuzheng, 'Some Chinese Glasses of the Qing Dynasty', in Journal of Glass Studies, vol. 35, 1993, pp. 104-105; and Pamela England, James C.Y. Watt and Lambertus van Zelst, 'Analyses of some Qing Period Chinese Glasses: An Interim Report', in Brill and Martin 1991, p. 104.

correctly noted that the Italian Antonio Neri (1576–1614) already mentioned the manufacturing of ruby glass in his famous *Arte Vetraria,* published in 1612, however, no ruby glass vessels are known to have been formed in seventeenth-century Italy, implying that translucent red was used primarily, if not exclusively, for glass beads, canes, and applied decoration rather than for entire glass vessels as in Germany[19]. Interestingly, whereas the German production of copper and gold ruby was hugely sophisticated and famous in the seventeenth century – and Stumpf must have been familiar with it, given his thorough training in Mainz – the Italian ruby glass of the early eighteenth century, like the Chinese, displays difficulties with the batch formulas[20].

The Corning Museum of Glass in New York keeps a pair of early Chinese ruby glass bowls that display the deficits of an uneven glass formula which resulted in crizzling or glass disease. Whereas the defects seem to indicate the poor translation of a stable chemical composition Stumpf would have acquired in Germany, the decoration of these bowls exemplifies their hybrid character. Blown into thick blanks, both bowls have been cut on the outside and show motifs known from carved nephrite stone. The long-established and ever so popular craft of carving hardstones, including jade, caused glasshouses to produce blown vessels and solid figurines in both translucent and opaque glass with cut surface decoration depicting figurative and floral forms, and incised inscriptions. Remarkable thereby are the imitative effects, as vitreous objects take on the translucency, shine and three-dimensional depth of nephrite stones[21]. The mastery of imitation – whether or not meant to deceive the eye of the beholder – resulted from a transfer of skills by employing stone cutters for glass[22]. The method and style of decoration, the iconography and thematic programs, such as the juxtaposition of figurative depiction and text are predominantly Asian in character, and suggestive of an adaptation of the lesser known medium of glass into a set culture of representation[23]. Furthermore, the object types produced, such as vases, brush

Two bowls. China, possibly Beijing, 1736-1795. Collection of The Corning Museum of Glass, Corning, New York (55.6.17 AB).

19. Kerssenbrock-Krosigk 2001, pp. 30-31.
20. For early eighteenth-century Italian ruby glass see the famous and well-documented and – dated 23 (now 19 surviving) pieces Frederic IV of Denmark (1671–1730) brought with him to Rosenborg Castle from Venice in 1709. See Gudmund Boesen, *Venetianske Glas på Rosenborg,* Copenhagen: G.E.C. Gads Forlag, 1960, cat. entries 82-85.
21. Objects combine techniques seldom seen in the West, such as deeply cut *(Hochschnitt)* carving on ruby glass, and carved, rather than applied foot-rings.
22. See Lam 2005, p. 61.
23. For a comprehensive survey see Peter Hardie, 'Glass in China: Late Ming and Early Qing', in *Transactions of Then Oriental Ceramic Society,* vol. 55, 1990-91, pp. 9-28.

Snuff bottle with stopper. China, Beijing, Qianlong Imperial Workshop, 1736-1795. Collection of The Corning Museum of Glass, Corning, New York, gift of Marian Swayze Mayer (81.6.8).

Beaker. Bohemia, about 1730-1740. Collection of The Corning Museum of Glass, Corning, New York, gift of Jerome Strauss (72.3.28).

pots, and snuff bottles to name but few, are typically East Asian[24]. A late eighteenth-century or early nineteenth-century ruby bowl displays yet another Chinese decoration: cut facets arranged in rows in imitation of the grown, overlapping petals of a lotus flower. This treasure shows not only ruby glass perfected, but a cut decoration repeatedly found on differently colored bowls. One of a pair of bowls, the following example is indicative of altogether different ambitions in European glassmaking. Cut with the same lotus-leaf facets, this bowl is made of de-colorized glass that was gilded. In Europe the highly reputed Venetian *'cristallo'* glass urged manufacturers throughout the West to produce a chemically stable, colorless crystal-like – meaning rock crystal like – glass that could be left undecorated or offered a fine surface for cut, engraved or enameled decoration[25]. High-quality glass in Germany and Bohemia, was also preferred for the assembling of Zwischengold glass, a glass that was made from two layers with a decorated and silhouetted gold leaf sandwich between them. The Chinese bowl shows gilding applied in such an unusual fashion – the inside and outside are gilded with the exact same pattern lined up, or juxtaposed, as if the gilded decoration sandwiches the glass. This technique, so I would like to propose, may be an imitation of Germanic gold sandwich glass, which, although miss-understood, and technically almost reversed, does in fact offer a similar effect.

The subtleness and elegance archived in monochrome objects, was contrasted with glasses boasting poly-color schemes produced in over-lay technique with bright red, yellow, blue, green, and white glass in which the lighter-colored glass typically is covered with the darker to produce a primary surface which is then partially cut away and carved into figurative and organic forms that stand proud before a lighter background[26]. Finely carved objects with multiple layers and four to five different colors – some applied in sections only rather than in successive complete wraps – range among the most virtuous. Although, at this time, there are few European objects that profit

24. In the West these forms were collected as exotic curiosities. See Carl L. Crossman, *The Decorative Arts of the China Trade,* Woodbridge: Antique Collectors' Club, 1991, pp. 19-20.
25. Florian Knothe, 'Venetian Glass and its Influence in 16th- and 17th-century Europe', in *The Yearning for Venice,* exh. cat., Suntory Museum of Art, Tokyo 2011, pp. .
26. This fashion seems to have been favored by the emperor for it was practiced at the glasshouse within the boundaries of the royal palace. See Curtis 2001, pp. 82-84.

Warrior Vase with stand. China, Ch'ing Dynasty (1644-1912), probably late 18th or early 19th century. Collection of the Corning Museum of Glass, Corning, New York, gift of Benjamin D. Bernstein (57.6.10).

from this technique – the endless possibilities of overlay glass were exploited only the nineteenth century – the ability to overlay differently colored glass depends on the employment of chemically compatible glasses and a scientific knowledge and/or the stamina to 'research' by trial and error, suggestive also of the enlightened Baroque culture from which Stumpf emerged.

In addition to the polychrome carved objects, Chinese glasshouses excelled in the production of enameled glass that – like its European counterparts – is reminiscent of both the technical and decorative qualities of fired and painted earthenware[27]. Despite the long tradition of porcelain-making – practiced since the Tang dynasty – and China's widespread dissemination of export porcelain wares, local gaffers also blew and enameled opaque white glass in imitation of porcelain for the local and foreign markets[28]. Scientific analysis of a few objects of this type in The Corning Museum of Glass revealed that the composition of the batch formula of some of the white glass used in the East closely relates to the porcelain-imitating glass German arcanists made in the West[29]. Whereas in decoration a resemblance between the Chinese and English objects is indicative of the fashion for *chinoiserie* in Britain, chemically the white glasses of Germany and China – as far as one can tell from the limited number of objects analyzed by x-ray fluorescence spectrometry – show strong similarities. For example, this pair of white and enameled

27. Curtis 1993, pp. 97-101. More than 30 colors were produced during the Yongzheng reign (1723-1735), and many more nuances during the Qianlong reign (1735-1796), see Zhang 2005, p. 25; and Lam 2005, p. 67.
28. Dedo von Kerssenbrock-Krosigk mentions a relationship between ruby glass and *'famille rose'* enamel color on white Chinese hard-paste porcelain, suggesting that the advances in glassmaking aided this particular style of porcelain decoration. See Kerssenbrock-Krosigk 2001, p. 56.
29. I am indebted to Dr. Robert H. Brill, Research Scientist Emeritus at The Corning Museum of Glass, for leading and evaluating the scientific analysis on the objects discussed in this study.

Snuff bottle. China, about 1730-1820. Collection of the Corning Museum of Glass, Corning, New York, bequest of Mrs. J. Gerald Mayer (82.6.46).

vases originating in mid-eighteenth-century China, consist of a mixed alkali-lime-silica glass with a moderate amount of arsenic (Na_2O, K_2O : CaO : SiO_2 + moderate As_2O_5) quite similar to the potash-lime-silica glass with arsenic (K_2O : CaO : SiO_2 + some As_2O_5) from which a white bottle was made in Saxony, Germany, in the 1710s (CMoG 83.3.18)[30]. A possible connection to and influence of the community around Stumpf seems only too tempting to suggest as a probable reason for such results.

To date, it does remain difficult to measure the depth of Stumpf's influence. Since the exact dating of Chinese glass objects is difficult, all statements about, for example, when colors were introduced continue to be speculative. However, proof seems to exist for the fact that the *liuli* was unable to produce optical glass after Stumpf's death[31]. An interest, however, may have reached its pinnacle at around this time, as suggested by the French Jesuit François-Xavier d'Entrecolles' (1664–1741) comment of 1712 that'[t]hey are almost as curious in China about the glass and crystal coming from Europe, as we are over their porcelain'[32]. This modest study of a few select artifacts exemplifies that Chinese glass, whether de-colorized, ruby red, or white, and the methods of decoration applied to enhance their resemblance to carved hardstone or porcelain could not have been possible without the scientific knowledge of Jesuit missionaries, nor do they represent an autonomous art-form, but rather an industry depending also upon the traditional designs and artisanal practices of China[33].

30. The analysis of an English mid-eighteenth white and enameled vase (86.2.15) shows that this contemporary piece contained lead – as typically found in English production since the mid-seventeenth century – but no lime, and that the lead-potash-silica glass had a high content of arsenic, most probably a lead oxy-arsenate opacifier.
31. Noted by the Jesuit Jean-Baptiste Jacques in 1723, see Schaefer 2009, p. 83. Gabriel-Léonard de Broussard (1703-1758) and Pierre d'Incarville (1706-1757) were recorded in 1740 as producing aventurine and translucent blue glass – both colors that were basically of European origin but rare also in the West. See Boda 1983, p. 10; Boda 1987, p. 79; and Curtis 1993, p. 100; Curtis 2005, pp. 97-99; Zhang 2005, p. 26; Schaefer 2009, pp. 96-99.
32. Jean-Baptiste du Halde (ed.), *Lettres édifiantes et curiouses: écrites des missions étrangères,* 2nd edition, Paris 1781-1783.
33. Different sample glasses have been analyzed by Robert Brill in the past, and preliminary studies of Qing Period objects have once been begun at the Boston Museum of Fine Arts and the Beijing Palace Museum. See Yang Boda, 'A Study of the Chemical Composition of Qing Glass', in *Palace Museum Journal,* no. 2, 1990, pp. 20-25; Yang Boda 1991; England, Watt and van Zelst 1991, pp. 103-107; and Meiguang and Fuzheng 1993, pp. 102-105.

Artistic Production of the Bohemian-Moravian Glassworks (ČMS) in the 1940s

Markéta Vejrostová. Moravian Gallery in Brno

Vase, Milena Velíšková, ČMS, Krásno, 1943. Moravian Gallery, Brno. (17.337).

At the beginning of the 20th century, the firm S. Reich & Co. was among the biggest manufacturers of glass within the Austria-Hungarian Empire. While in the first decade export was successfully growing, in the following years all sorts of glass manufacturers were suffering a recession that did not end until World War I was over. In the 1920's at the early 3rd decade, the firm was badly hit by the economic slump, and the loss of their traditional market caused by the War. Disagreement among the owners resulted in the establishment of an associated company led by a new management (1st July 1934). The major owner of the *"Českomoravské sklárny, dříve S. Reich a spol" (ČMS)* (Bohemia-Moravia Glassworks, formerly S. Reich & Co.) became the Moravian Bank.

While the technological name "foam glass" derives from how the articles were produced, "antiques glass" comes from an archaic impression that they evoke

At the beginning of World War II, the company's enterprises (Krásno nad Bečvou, Vsetín, Jablůnka, Karolinina hut', Úsobrno and Haida, Bor) were declared war-important,which is why fire-resistant glass, chemical-technical glass or glass preserving jars and the like were produced in addition to the traditional lighting. Despite the fact that the production of the glass works corresponded to the new demands, the management's ongoing effort to sustain the manufacture of the sorts of hollow glass remained; since it was the hollow glass that was winning the firm's fame and made the craft mastery of the local glass makers possible. This drift was reflected on the collections "Atel" and "Antik" executed in Krásno in the 1940s.

Vase ATEL 154, ČMS, Krásno, 1942. Moravian Gallery, Brno. (17.347).

It was vases, bowls, plates or table lamp stands, all called "antique glass" that became the typical products. While the technological name "foam glass" derives from how the articles were produced, the other designation comes from an archaic impression that they evoke. The antique glass in the connection with the Českomoravské závody (Bohemia-Moravia Enterprises) is mentioned in the contemporary literature sporadically, and its manufacture is linked with the glass works of Emanuel Beránek in the town of Škrdlovice. However, Dana Menoušková's research grounded on the archival collections in Ždár nad Sázavou and in Havlíčkův Brod indicates that Beránek first began to manufacture glass later called "antique" in the Krásno glass works, where he worked as a technical officer in autumn 1938[1]. The appearance of the Krásno collection "Antik" has been partly documented in the glassworks preserved sample book, thanks to which we are familiar with a few dozens of designs from the years 1940 to 1943. In addition to the sample

1. Dana Menoušková, *Rodinná hut' Škrdlovice-ars vitraria 20. století.* Diplomová práce FFMU, 1997, I. a II. díl, s. 23

book, the Museum of the Valašsko Region in Valašské Meziříčí also has the firm's catalogue, which contains the antique glass and colour overlaid vases decorated with deep etching or cutting. A few examples of the contemporary production may be seen in the glass negatives, which are deposited in the Provincial Archives in Opava[2].

The oldest Krásno products from the collection "Antik" that have been known so far come from 1940. We do not know who the designer was, but an industrial artist, Jaroslav Antonín Junek, who had worked with the glassworks since 1936, is supposed to have participated to a certain extent. His years of experience gained in the manufacture of lighting in England or in the North countries influenced, to a certain extent, his designs for the glassworks. The moment Junek began to work in the *Českomoravské sklárny* (Bohemia-Moravia Glassworks), new designs and forms, which did not include just functional aspects of the product but were aimed towards impressive aesthetic perception, began being applied to the manufacture. Because the enterprise was among important works in terms of war, it did not suffer from lack of the raw

Vase, ČMS, Krásno, 1941. Moravian Gallery, Brno. (17.350).

2. Zemský archiv v Opavě, fond Českomoravské sklárny, a.s. Valašské Meziříčí.

materials like other glassworks, but the fashion of the period had a role to play too. This is why these glass items were produced along with other production. While these glass items, untypical of the Czech glass tradition of the past centuries, had been appearing there since the 1940s, outside of the country they were known two decades earlier. It was because of their plasticity and structure that a French designer, Maurice Marinot, who presented his pieces at the Exhibition of Decorative Art, Paris, 1925, used them too. Almost "sculpturally" interpreted forms using the foam molten glass are also obvious in the pieces of work of an Italian, Martinuzzi, who cooperated with the firm Venini at the time[3].

Parallel to the collection "Antik" being manufactured in the Bohemia-Moravia Glassworks was also the collection "Atel" featuring in colour overlaid vases decorated with deep etching or cutting. Sober in forms, barrel-shaped or conical vessels were decorated with geometric or floral motives or stylised human figures. In terms of style, it was no newcomer but a proven classic that ensured the glassworks sales. As well as the decorative products from the foam glass, the designs of the collection "Atel" were integral part of the design book of lighting. The first preserved designs come from 1914 and record the patterns of Atel 100 to Atel 176. However, in the sample books from 1933 to 1939 they are not documented.

Table lamp base, ČMS, Krásno, 1941. Moravian Gallery, Brno. (17.362).

In addition to the collections "Antik" and "Atel", massive hot-shaped decorated vases and bowls after the designs of František Zemek, Milena Velíšková or Ludvika Smrčková were created in the 1940s too. Simple compositions of colour inlays in the form of stems with petals, finely overlaid with crystal molten glass, made the foam glass hearts unique. The cooperation between František Zemek (1913-1960) and the Bohemia-Moravia Glassworks began with his scholarship practice in 1942. From 1943 to 1946 Zemek worked either in Krásno or Karolinina hut', where he was occupied especially with drinking glass[4].

Besides decorative vessels, a range of crystal figurines made at the furnace in the shape of a fish, bird, woodpecker, stag or swan was created in 1942 and 1943. The author is not stated in the design book, however, Miloš Bohuslav Volf (an outstanding glass technologist, and later also scientist in the field of technical glass who worked in the Bohemia-Moravia Glassworks in 1940-1946) attributes them to Karel Zemek,

3. Finns at Venini, The Finnish Glass Museum 2007, s. 10, 13.
4. Karel Hetteš, Sklářské dílo Františka Zemka, *Tvar,* 7, XI, 1960, s. 12.

Vases, ČMS, Krásno, 1 st half of the 1940s. Moravian Gallery, Brno. (20.151).

a Krásno glass maker, and František Zemek's brother. During a study break due to the War, Milena Velíšková also did work in the Bohemia-Moravia Glassworks. Initially she worked there as a draftswoman, and in 1943 she cooperated mostly with a glass master, Karel Zemek, on many decorative glass items. Some of them, such as a leaf-shaped ashtray or a vase decorated with irregular points, she used later on in the assortment of the glassworks in Škrdlovice in 1945 and 1950.

Among technologically sophisticated hot techniques used in Krásno glassworks in the 1940s was a painted decor inlaid between two glass layers. According to Jitka Lněničková, its manufacture was patented in 1915, and Enrich Hantich broadened them in the 20s with inlaid metal foils or air bubbles[5]. Similar articles appeared that time also in the production of some German glassworks like Württembergische Mettalwarenfabrik in Geislingen and its production series "Ikora". Developed by the firm Hantich & Co the experiments on new hot decor were performed due to the consequences of the economic slump, and the so-called "Johnolyth" appeared in 1931. Miloš Bohuslav Volf attributes the authorship of these glass items in the Krásno glassworks to the brothers Zemek, since there were technical and personal conditions to their realisation[6].

After the nationalisation, the manufacture of utilitarian and decorative glass items in Krásno closed down. The national enterprise Lighting Glass (with works in Krásno, Vsetín, Rapotín, Janštejn and Košťany) which specialised in the production of lighting was established in 1958.

A representative selection of the decorative glass from the Českomoravské sklárny manufactured in the 1940s is today, in the Moravian Gallery in Brno. There the collection of more than forty articles was in 1962 transferred from the Museum of Decorative Art in Prague, where they were donated by Skloexport, a monopoly exporter of all glass, glass and jewellery (Jablonec's) goods from Czechoslovakia. The samples of this collection are now on display, which is focused on art production of the Českomoravské sklárny from the 1940s, in the Moravian Gallery in Brno; in this institution's depositary of glass, which is as the only one in this branch permanently open to both professionals and general public.

5. Jitka Lněničková, W. Hantich & Co. – řemeslo a umění. 30. léta: Ve znamení experimentů, *Glassrevue,* 18, 2005.
6. M.B. Volf, *Sklo,* Praha 1947, s. 349.

From the Gilded Age to the Roaring Twenties:

The Mt. Washington and Pairpoint glass companies and their creations

An exhibition at The Corning Museum of Glass, May 19-December 31, 2011

Jane Shadel Spillman. The Corning Museum of Glass, USA

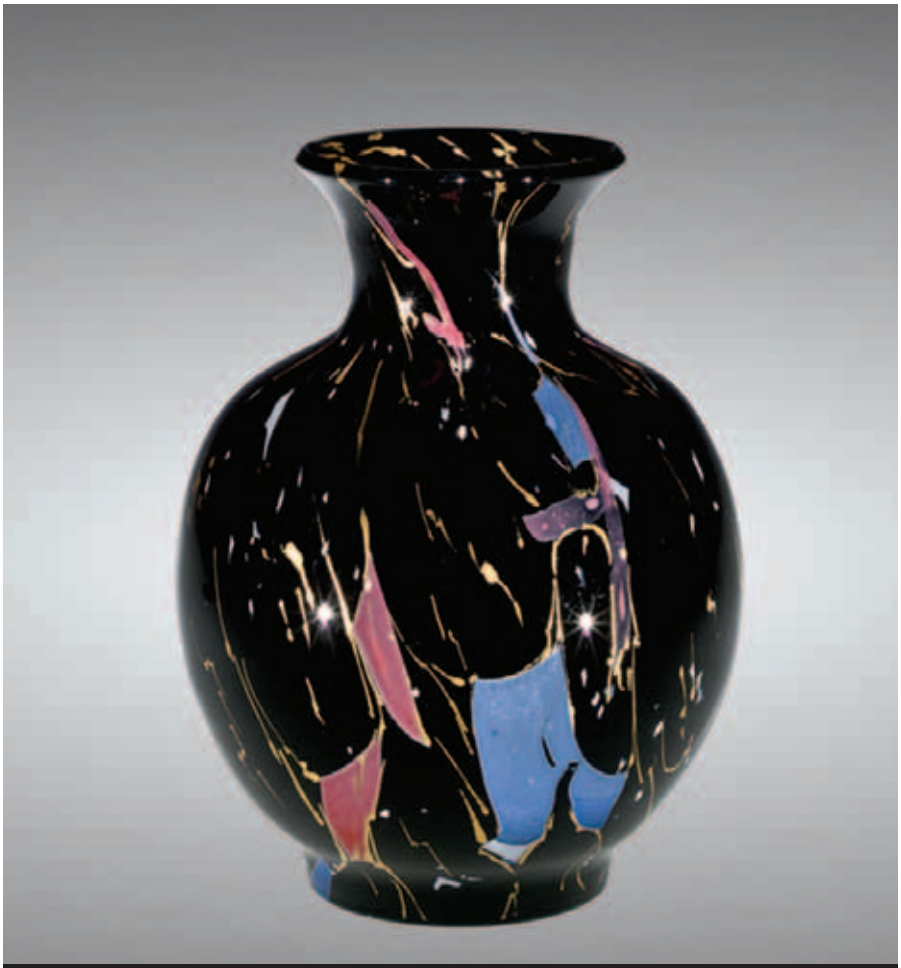
The Mt. Washington Glass Company was originally started in South Boston, Massachusetts, in 1837, and moved to New Bedford, Massachusetts, in 1870. It was in business under several different names, locations, and ownerships until 1957, when it closed for the last time and the factory was torn down. The name "Mt. Washington" comes from the original location in South Boston, where there was a Mount Washington, although it was more of a hill than a mountain by modern standards. In 1880, the company's investors hired Thomas J. Pairpoint, an English silversmith, to come to New Bedford and run the Pairpoint Manufacturing Company, which was intended to produce silver mounts for Mt. Washington glass, as well as silver-plated tableware. The Pairpoint company was owned by most of the same businessmen who owned the glass company, and the two worked together very well. In 1894, the Pairpoint Manufacturing Company absorbed Mt. Washington, and the company was renamed the Pairpoint Corporation in 1900. The Corning Museum of Glass exhibition concentrated on the types of ware which were produced in the company's most successful years, between 1880 and 1930. The Museum also published Mt. Washington & Pairpoint Glass, Vol. 2, by Kenneth M. Wilson and Jane Shadel Spillman in 2011. This volume covers most of the glass made by the firm after 1888, and until it closed.

In its first years, Mt. Washington made a variety of wares which were similar to those being made at other American glasshouses specializing in table ware and other glass for the home. This included both blown and pressed tableware. However, Mt. Washington was one of the few American companies which made chandeliers, and a variety of forms of lighting. Frederick Shirley, an Englishman who had worked for an English chandelier company, was hired in 1872 to run the chandelier department, and two years later he was put in charge of the company. Chandeliers continued to be an important product, and chimneys for kerosene lamps were also extensively produced. However, Shirley was both entrepreneurial and litigious, quick to adopt new designs and equally quick to complain if he thought any other firm was copying his wares. He ran the firm until 1891, when he

resigned, and during those years he had a total of 27 patents and 5 design patents for various types of glass, most of which were quite successful.

In 1876, the Mt. Washington Glass Company had a large display at the Centennial in Philadelphia. The company had two spaces in the Main Building. One, in the center, held "a large collection of glass table-wares, dessert-pieces, chandeliers, etc." which received a lot of attention in the press. The other exhibition was a large crystal fountain, 16 feet in diameter, on view in the center of the Main Building. Existing views of the exhibit show primarily the chandeliers as well as cut glass on the tables below them. However several trade cards from 1876 show the company as "MANUFACTURERS OF BLOWN PRESSED & CUT GLASS WARE."

In 1878, Shirley introduced *Sicilian glass,* the first artistic glassware patented by the firm. This glass (called by today's collectors *lava* glass) supposedly included volcanic lava from Mt. Aetna in Sicily among its ingredients. Most of the objects made were vases meant to be ornamental, rather than useful, and no tableware seems to have been made in Sicilian glass. Since it was opaque black, perhaps that isn't surprising. However, it was made for only a year or two, so it must not have appealed to the public.



Vase in *Sicilian* glass, Mt. Washington Glass Company, New Bedford, Massachusetts, 1878-1880. The Corning Museum of Glass (76.4.17).

In June of 1883, Joseph Locke, designer for the New England Glass Works, in Cambridge, Massachusetts, patented *Amberina* glassware, a transparent glass which shaded from red to amber. The coloring was produced by using gold and reheating part of the glass as it was being blown. Thus, only the reheated part turned red. In August of that year, Frederick Shirley filed a patent for *Rose Amber* glass, which was essentially the same thing. For the next several years, Shirley and the former superintendent of the Mt. Washington company, William Libbey, who was now running the New England Glass Works, were involved in controversy over who had the right to make this glass, but eventually both firms produced it. This marked the beginning of the 15 years or so when elaborately colored and decorated "art glasses" were all the rage to decorate upper

Bowls on stand in *Burmese* glass, Mt. Washington Glass Company and Pairpoint Manufacturing Company, New Bedford, Massachusetts, 1885-1894. The Corning Museum of Glass, (63.4.119), Gift of Fletcher Ford and Mrs. Sally Recker in memory of Lola Kincaid Ford.

In 1885, Shirley introduced Burmese glass, *a translucent glass that shades from yellow to pink, and it became an immediate success on the art glass market*

middle class homes and Mt. Washington was the leading glass company making these products.

In 1885, Shirley introduced *Burmese glass,* a translucent glass that shades from yellow to pink, and it became an immediate success on the art glass market. Shirley was a good businessman, and he advertised the glass extensively and presented sets to both President and Mrs. Cleveland for the White House, and Queen Victoria for use at Buckingham Palace. There were a variety of different types of decoration on *Burmese,* and Mt. Washington had a large decorating shop to do the enamel work and other types of cold decoration. As the company introduced a variety of other decorated glasses, mostly with exotic names like *Royal Flemish, Crown Milano, Colonial,* and *Pearl Satin Ware,* the same decorators worked on all of them. The company also produced Coralene ware which had applied glass decoction which imitated coral, and cameo glass, which was a cased glass which was acid-etched in imitation of the elaborate hand-carved English cameo glasses made in the Stourbridge area. Mt. Washington was the only American company making the acid-etched cameo pieces. In all, they developed a total of 15 art glass wares, in a variety of colors, mostly with elaborate decoration. By 1890, they were advertising themselves as "Headquarters in America for Art Glass Wares". The Pairpoint Manufacturing Company, located next door to the glass company made silver-plated mounts for much of the art glass, as well as table silver. The various art glasses were often marked, not with the company name but with the name of the type of glass, A crown over "CM" was the mark of Crown Milano glass and "RF" with the F backwards was the mark for Royal Flemish. The Pairpoint mounts always had P within a diamond so that they could be identified. However, all of these elaborate glasses were

phased out in the late 1890s as they fell from favor and the company shifted its attention to other products.

In addition to the decorated art glass, the Mt. Washington Company also produced elaborate cut glass which was then quite fashionable in the United States. The cutting department was in operation from the 1870's, until the Depression. Because their cut and engraved patterns were similar to those made by a number of other companies at the same time, the company is not as well-known today for this glass, even though that was a major product for a number of years, especially around the turn of the century. Mt. Washington did not use a trademark on its cut glass as some other companies did, so the pieces are not always easy to identify. Fortunately, the company patented several designs for cut glass in the early 1880's and several catalogs of their cut glass production survive which show a variety of patterns. One of these, which dates from 1879-1883 shows very simple patterns *(Fig. 5)* but some rather elaborate shapes including hanging vases and oddly-shaped baskets.

Cracker Jar in *Crown Milano* Glass. Mt. Washington Glass Company, New Bedford, Massachusetts, 1891-1895. The Corning Museum of Glass, (63.4.161) Gift of Fletcher Ford and Mrs. Sally Recker in memory of Lola Kincaid Ford.

Around 1890, Mt. Washington's cut glass patterns, like those of other companies, became much more elaborate. The company was one of the largest producers of cut glass in the country, and had more than 200 workers involved in this part of the business. The two surviving cut glass catalogs from the 1890's as well as a number of advertisements document the patterns of this decade well. One of the simpler patterns is called "Mirror Block" and was patented in 1889. A number of cut glass pieces were made to go in Pairpoint silver-plated mounts as well Cut glass continued to be an important part of the company's production until about 1910. After that, heavily cut glass was less fashionable and the cut glass patterns became simpler. It continued to be produced until the company closed, however.

Lighting was also an important product, ranging from the gas chandeliers which Shirley was originally hired to produce, to decorated art glass and cut glass kerosene lamps which were important in the 1880s and 1890s. The *Burmese, Crown Milano and Royal Flemish* lamps often had metal mounts and elaborately decorated

Bowl cut in "Mirror Block" pattern. Mt. Washington Glass Company, New Bedford, Massachusetts, 1889-1900. The Corning Museum of Glass (2007.4.60).

colored glass shades which are opaque. While they must have glowed, it is hard to see how much light was generated. They were very expensive and apparently quite popular. It was fashionable to have an elaborate lamp on the parlor table and Mt. Washington's lamps fit that description. However, the heavily decorated art glass and cut glass kerosene lamps went out of production in the first decade of the twentieth century.

Shortly after 1900, however, the company introduced "Electroliers" which had elaborate metal bases and reverse-painted shades and these were immediately popular. They continued in production until the 1930s, and although other companies made similar lamps, Pairpoint was one of the largest producers. They were especially noted for the mold-blown sculptural glass shades which were molded and then painted to look like clusters of flowers, and were striking when they were lit. Another unforgettable shade was in the form of an owl's head and the stem of that lamp was in the form of an owl. Other shades were reverse-painted with landscapes and seascapes, and a variety of other designs. Cut and/or engraved glass electric lamps were also popular both as table lamps and ceiling and wall fixtures. The designs on these were much simpler than the earlier ones, however.

In the teens and through the 1930s, Pairpoint concentrated on table wares and lighting with a variety of decorations. Most of the glass was transparent, either colorless or colored, and often with engraved and/or cut decoration. There were also a variety of wares with applied colored decoration including silver deposit, colored threading and colored swirls in the glass. The latter was made with either red or blue swirls and was marketed as *Twist* glass. It was the last decorated glass which Pairpoint developed. All of these decorations were successful in the 1920s, but the Depression of the 1930's eventually destroyed the market, as it did for many companies making decorative table wares. At its height, around the turn of the century, the company had over a thousand workers, but by 1938, only 20 employees were left and work had stopped. Thus, in 1938, the Pairpoint Corporation was closed. It reopened under new ownership the following year, and managed to stay in business until 1957, when it closed permanently and glassmaking in New Bedford came to a close after 120 years.

Spanish Glass:
Modern Period (16th – 19th Century)

Paloma Pastor. Museo Tecnológico del Vidrio. Real Fábrica de Cristales, Segovia

Since we have another colleague talking about Antique and Contemporary Spanish Glass, I would like to focus on another Spanish Period: The Modern Period. Really, this is a very short introduction to the study of Spanish Glass, from the sixteenth to the nineteenth century.

According to the traditional bibliography we classify three different regions in Spain with different glass production:

Barrilete. IAAH, 1006. Cataluña Region, beginning of sixteenth century. Amatller collection.

Catalonia (Eastern Spain), Andalucia (Southern Spain) and Castilla (Central Spain). Each has a local culture, mixed with foreign cultural traditions, both Eastern and Western, depending on the regional location of each of these places. If the Cataluña Region had a Venetian influence, the Andalusia Region had instead a more Eastern trend. However, in the Castellana region both traditions were present, Eastern and Western. The Bohemian and English influence was exclusive to the Royal Glass Factory of La Granja.

Cataluña Region

According to the decorative techniques, Catalan glasses can be divided into two sections; enameled glasses (XV-XVIII century) and the *façon de Venise* glasses with applied decoration, and filigree... (XVI-XVIII century).

Enamelled glasses (XV-XVIII century)

Very few pieces have been preserved today (approx. 50 pieces). They were unique pieces.

The glasses have a faint grey and yellow tinge, and are thick-walled. Their forms and decoration reveal Islamic elements, as well as the influence of the Venetian Renaissance:

1. Islamic elements:

Green leafy floral decoration is the predominant colour, and covers the surfaces of the glasses *(horror vacui).*

During the 18th century, the Catalan glassmakers lost the prominence they had enjoyed as leading manufacturers of luxury glass during the 16th and 17th centuries

Wineglass. IAAH, 1182. Cataluña, second half of the sixteenth century. Amatller collection.

The enamel is made without perspective or depth. It was applied very thickly and densely to the exterior of the glasses, which appear opaque, in relief, and with incised lines to suggest the contours or details. White birds, animals, humans, flame like rays, etc. are other motifs seen on these glasses.

2. Venetian Influence:

Shells, beads, gold decoration, lion mask knots… typologies of the same pieces.

A la façon de Venise (XVI-XVIII century)

Glasses have an amber tinge and are thin-walled.

Very light pieces. Their forms and decoration reveal the influence of the Venetian Renaissance.

Multiplicity of techniques can be seen such as: *Applied decoration, Ice glass, Diamond- point engraved, Latticinio and Mould-decorated:*

Ice Glass. Like the Venetians, the glass-blowers of Cataluña produced ice-glass during the sixteenth century.

Diamond-point engraved. Flowers, birds and foliage were the most common themes.

Latticinio. White canes standing out in relief from the glass.

On certain pieces moulded designs were gilded and combined with opaque white stripes, lozenges, ribs, and trails; or were combined with applied decoration, such as raspberry prunts or lion mask knots.

The canes were in fairly simple patterns resembling twisted braids, vertical ribs of milk glass, diagonal stripes of *lattimo* and also twisted stripes.

Mould-decorated. Another form of decoration was bas-relief patterns, obtained by using moulds decorated with a frieze of dancers, pine-cones or bunches of grapes.

Popularization of Glassware (18th Century)

During the 18th century, the Catalan glassmakers lost the prominence they had enjoyed as leading manufacturers of luxury glass during the 16th and 17th centuries. Now the glassware was made with simple, repetitive motifs and additional ornamentation with a clearly popular appeal. Nevertheless, most of the earlier techniques continued to be employed.

Andalucía Region (17th to 18th Century)

Murcia, Jaen, Almería (María, Castrill de la Peña) Granada…

The glass, accidentally tinted green by impurities in the silica,

ranged in shade from pale leaf-green to dark olive, brownish-black, cobalt-blue, or amber-yellow colours. All the glass, whatever its colour, is filled with tiny air bubbles.

Most of the vases are thick-walled and heavily decorated with trailed threading, chains, crested with pincered ribbons, stamped clamshells applied, trails, guilloches.

Decorated pieces with enamelling, engraving or decorated with *lattimo* trails were not found.

In their forms and decorative elements, they displayed a clear Islamic influence, and many of their features were the result of close ties to ceramic factories.

Mould-blown decoration, with inscriptions such as "MARYA" made in the 18th-19th centuries.

Castilla Region

Cadalso de los Vidrios (near Madrid), Recuenco (Cuenca)

The clear glass meant that the glass is lightly tinged with green or smoky yellow, and minute bubbles and unfused impurities give it a cloudy look.

The workers in Castilla knew the Venetian method for making *latticinio* glass, a process learned through Venetian and Catalan glass-blowers, as well as Eastern elements.

During the 16th to 17th century there was a tendency to purify glass batches and a preference for Venetian decorative techniques, such as ice glass and the application of blue trails, and *lattimo* decoration.

Recuenco: (Guadalajara)

Glasses with cloudy tones containing bubbles, with small impurities and tinged amber, or greenish-pink. The quality of the glass indicates that these objects emerged at a time of experimentation

Glasses without brilliancy or transparency.

In this glass the Venetian style is recognizable, a free blown technique, extremely thin walls, with pinched and threaded decorations.

The Royal Glass Factory (Segovia)

The Royal Glass Factory at La Granja was created in the middle of the eighteenth century under the protection of the Bourbon monarchy, primarily to accomplish two objectives. The first objective was protectionist in nature and focused on spurring national industry to compete with the foreign glass commerce that held sway throughout the Peninsula. The second was

Vase with handles. IAAH, 0288. Castilla Region, possibly El Recuenco, eighteenth century Amatller. Prats-Sedó collection.

technological, and designed to endow Spain with experts in all these industries, since the period comprising the end of the seventeenth century and the beginning of the eighteenth had been a time of serious technological recession, difficult to overcome without outside help. Thanks to negotiations by the Spanish State Secretariat and efficient espionage led by Spanish ambassadors in diverse European countries, many glassmaking experts acquainted with the most innovative formulas and techniques of the era were persuaded to come to Spain from Italy (Urbino), France (Paris and

The Royal Glass Factory. Baroque Period (1747-1787). Fundación Centro Nacional del Vidrio collection.

Nevers), Germany (Hamburg), Bohemia, Denmark, Norway and, England or Ireland.

We have divided the production of this factory in four different periods:

Baroque Period (1747-1787)

Wheel-engraved and gilded glass which is not fired

These mixed techniques, wheel-engraved and gilded but not fired, were most often used during this period. Gilded decoration stayed better on the engraved surface if it was not fired. Although, over time, the gilded decoration has been gradually lost. The most frequent decorative subjects were mainly floral, such as daisies, poppies, sunflowers, or tulips. These floral branches are usually located centrally on the most strategic areas of the vessels and generally in a curved arrangement. As you can see, this decoration, engraved and gilded, gave better results on colorless glass than on white or milk glass, and for this reason, these pieces are much rare than the former. If the origin of the engraved and gilded technique comes from Bohemia, the curved floral arrangement originates in England (Jacobite English rose). Poppies and sunflowers appear regularly on Hispanic ceramics, such as Talavera ("Alcora" series) and Alcora ("pintura del ramito" series).

Mixed decoration, wheel-engraved, gilded and painted

Sometimes, short brush strokes of cold-painted in reds and greens appear on the wheel-engraved and on the cold-gilded decoration. This decoration may be accompanied by lenticular facets and geometrical cutting of vegetal decoration. Decorative motifs contribute to the glass pieces in a wide range of tones in keeping with the Rococo style of the period.

Geometrical and floral motifs in cut decoration

The most frequents motifs were geometric daisies, composed of a large number of lenticular facets arranged radially around four central facets, arranged in a romboidal form that usually extended over the surface of the vessels. Since this was very deep cut, it was applied to vessels thick-walled, that is to say, on "entrefino glass". The origin of this floral motif cutting was Bohemia, and it was widely used in the Royal Glass Factory, from the mid-eighteenth century onwards.

Classical Period (1787 – 1810)

Enameled decoration

During the reign of Charles IV other decorative methods more in line with the fashions of the time became more prominent: enameled decoration, fired gilded and cutting. The most frequent enamel designs in La Granja during this period were mainly floral, loose branches or naturalistic garlands, as well as landscapes with floral scenes and inscriptions. Golden threads were usually used to sharpen edges, such as in porcelain. The preferred glass decorated with enamel was milk glass, in an attempt to imitate expensive Chinese porcelain. German glassmakers made milk glass by adding burnt animal bones to the batches, as this substance seemed to give this glass more consistency and hardness to hot tea and coffee. The branches and naturalistic garlands of La Granja were inspired by

Decanter. The Royal Glass Factory. Classical Period (1787-1810). Fundación Centro Nacional del Vidrio collection.

Bohemian designs which were themselves inspired by the floral designs of the Meissen porcelain factory in Saxony. During the first three decades of the XIX century, the floral garlands were complicated as they intertwined. The enameled landscapes show people dressed in the fashion of the period and are accompanied by architecture, bushes and rocks. Country scenes predominate.

Gilded and fired decoration

A new method of fired gilding with gold leaf, this decoration became fashionable during the Charles IV period, with floral bouquet and inscriptions, or pastoral scenes. If the enameled decoration was preferred for milk glass, the gold decoration gave an excellent result over any clear translucent or opaque glass, although translucent green and caramel colour glass were the most used. Gilders usually enameled the glass pieces, because both decorations (enamel and fired gilding) have similar appearances.

Empire Period (1815-1833)

Enameled decoration

The floral enameled decoration became, from the Ferdinand IV period, more schematic. Floral motifs in wide friezes predominated. The most common have bunches of grapes intertwined with leaves and twisted branches. These designs were also influenced by Bohemian manufacture.

Historical Period (1883 – At the end of XIX century)

Enamelled decoration

The decoration of this period tried to revive old designs from the time of Charles IV even Ferdinand VII. Enamel, with floral designs, was the most common decoration. Wide friezes were used, garlands, loose branches or branches surrounded by golden inscriptions, such as "Cariño eterno" (eternal love), "Para mi adorada" (for my loved one), etc. This enameled decoration was inspired by Bohemian designs.

The Royal Glass Factory. Historical Period (1883- end of XIX century). Lute collection.

Wheel engraved and cut decoration

Souvenir vessels and cups were very common during the Historicist period. These vessels show, on the principal surface, wheel-engraved decorations of the gates and various fountains of the Royal Palace of San Ildefonso, etc. The bottoms were decorated with cut facets. On the opposite side, these vessels were decorated with diamond-engraved initials, commemorating an event, or simply a motif to remember the visit to the Royal Site.

Popular Spanish Glass found on-line:
Domus and Cer.es

Mª Cristina Giménez Raurell. Museo Cerralbo, Madrid

Glass curators and people who are interested in it are welcome to http://ceres.mcu.es. In fact, anyone who wants to find on-line works or documents kept in museums all over the word can access this interesting website where Domus information is dropped. We would like to explain in this article how we can find, keep and share information on-line regarding popular Spanish glass.

Domus and Cer.es

First of all we need to understand what "Domus" is and how many Spanish museums are using it to improve museums' management and how museum's cultural assets can be catalogued.

The registration system of Spanish museums for more than ten years, has used Domus. It is an Integrated Documentation and Museum Management System created by the Ministry of Education, Culture and Sports. It is a powerful application that makes Spanish Museum's Digital Network spread and it consists of a lot of information dropped by mostly of the Spanish State Museums linked to the Ministry of Education, Culture and Sports. There are some other museums that depend of Autonomous Regions and city councils that have subscribed agreements (Aragón, Andalucía…) that reach information from museums and collections of provinces, municipalities, churches, and public foundations. These databases are also linked to international portals, such as "Europeana" and Spanish cultural heritage repositories like "Hispana".

Normalización documental de museos: elementos para una aplicación informática de gestión museográfica. Madrid, Ministry of Culture, 1996. http://www.calameo.com/read/0000753358fc66ce4e363

Nowadays, more than 70 museums link their information cataloguing cultural assets and working with administrative items that can be reached by Cer.es. We would like to thank a lot of professionals and a specialized team of experts from Spanish Museums (Registrar Curators mainly) that have dedicated a great effort to give information about Domus in the first steps joined to the *Subdirección General de Museos Estatales.* Spanish Ministry of Education, Culture and Sports: among others: María Dolores Adellac, Isabel Pesquera, Marina Chinchilla, Eva Alquézar, Andrés Carretero, Pilar Barraca and

Reyes Carrasco. Most of them developed the Documentation Standardisation Committee since 1994 and published

Domus was introduced to the ICOM community in the General ICOM Conference of 2001 (Barcelona, Spain) and has been explained in all the most important meetings about Register: V ARMICE Meeting (Madrid, 2006), Europe´s Cultural and Scientific Heritage in a Digital World (Berlin, February, 2007)... The application has been complemented with the publication (which can be read on-line as well) of the following dictionaries and thesaurus: Ceramics (2002), Furniture (2006), Materials and Techniques (I: Materials) (2008), Numismatics (2009) Rituals and Religions (2010) and Objects linked to Artistic expression (2012). The next publications will be about: General Cultural Assets, Materials and Techniques (II: Techniques), Cultural Contexts, Iconography, Geographic locations (place name)... These dictionaries are the result of a great effort to standardize information when cataloguing and filling Domus files and most of them will be accessible by internet for the museum's community and for everyone.

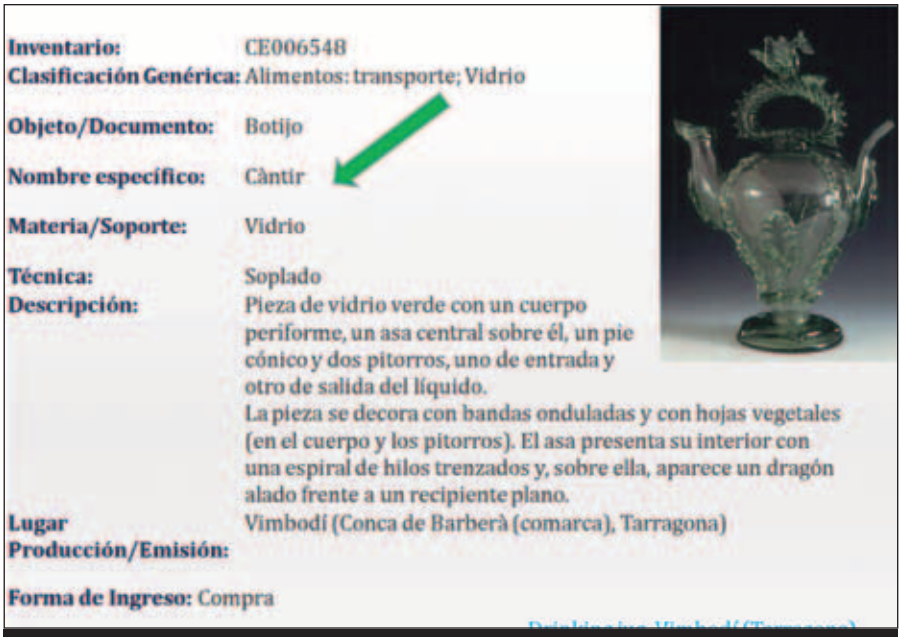
Daily, museum's curators and other museum`s professionals, software engineers and a technical following-up Committee, work with this database to complete thesauruses, lists of terms or terminological control, attend loans, acquisitions, to provide image services or generate and keep conservation information. Anyone can take advantage of it and users all over the world, through an easy accessibility found by Cer.es and museum's sites, can access this information in Spanish. We are planning to make it a multilingual web site and always working towards improvement and creation of new fields in Domus.

The Digital Net of Collections of Museums of Spain gathers museums of different specialties, geographic areas, and different ownerships (public and private), with the goal of making digital content available on-line. All these museums use Domus.

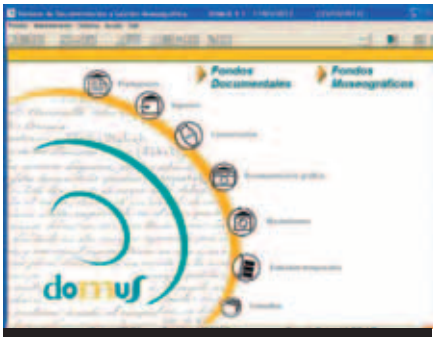
When you finally get the search you look for, it is possible to navigate through the different collections by hypertext and from that identify the characteristics (types of object, author, iconography, place of origin, cultural context, etc.). The gradual incorporation of new contents and new museums that enrich this space is expected to share cultural assets and knowledge.

As we can see in the up-right side of the main screen of the application Domus, which museum professionals use to feed Cer.es information, there are two possibilities to catalogue a cultural asset in the museum. **Documental pieces (FD – Fondos Documentales–) versus museographic pieces (FM – Fondos Museográficos–).**

http://ceres.mcu.es © Ministerio de Educación, Cultura y Deporte.



Water Jug. Museo Sorolla. http://ceres.mcu.es



© Ministerio de Educación, Cultura y Deporte.

Documental works refers to the kind of documents that complete in the collection of pieces of the museum. There can be included: photographs, letters... and other objects that cannot be considered as museum pieces in the collection. On the other hand, museographic ítems are those that conform the collection (glass, ceramics, paintings, sculptures, furniture...).

In the other items shown in this screen on the right side around a half circular line, we can choose among different features of the application: movements, graphic database, looking for... If you have a lot of works inside the application, you can make very interesting searches and find a lot of information with the required precision you need in every case.

There is something very important that we don't want to forget because it is really useful. Domus information can be kept by any user of the database generating a PDF where the most important information about the selected work can be seen, kept, print or shared.

The Application

The main steps we can follow when we fill up a Domus input are as follows:

Step 1: identification of the work or piece to be catalogued.

In this first part of the database we will fill, when necessary, the blanks regarding the Institution, department, inventory or registrar number, generic classification, name of the object or document, specific name and scientific classification, set, title, author / workshop, material, support and techniques, measures... and we will check if we want to make it be visible by internet, so that anyone can access the web site of the museum by Cer.es

As we can see in the first example, the information you find in the first field is the register number of the work. In Domus information it consists of some words and some numbers. If we are taking about museographic works, you will find the letters CE, DE, DO before the serial numbers. CE means that the piece is assigned to the stable collection of the Museum *(Colección Estable).* DE means that the work has been deposited in the Museum by another Museum or institution of Spanish State Administration *(Depósito Estatal)* and DO means that the work showed belongs to another Public Administration

institution but State (autonomy, court...) or to different owner (foundations, particulars...) *(Depósito de Otros)* that have deposited the work in that museum. Each one of the three kinds has different treatment when administrative duties have to be carried out.

The second field refers to a general classification of the work. As we can see, it depends on the nature of each collection; we can find different concepts in this area.

Step 2: we will fill here the information about the specific items of the work and the detailed description of it.

There are fields about Iconography, inscriptions, signatures, marks, cultural context, dating, production place, object history, origin / discovery, use / function, classification reasoned and bibliography. The cataloguing arguments holds all the information we are giving about that object and the bibliographical references explain where we can find this specific piece mentioned or published with or without image. We will also pay attention if there are copies or reproductions and to the conservation conditions of the work.

The following example helps us to understand how this information is shown in different fields:

Museo Sorolla
Inventario 50008
Clasificación Genérica Glass
Objeto/Documento Water Jug
Reasoned Classification "may be this Càntir was acquired by Sorolla at the Dalmau Gallery in Barcelona.
In a letter (March 25th, 1912 -CS1547-), sent by Francisco López of the Dalmau Gallery of Contemporary Art, tells him to refer the check, the glass jar and a basket by order of Mr. Dalmau.
In another letter dated April 24th, 1912 (CS1548), Dalmau asks Sorolla if he liked the pieces of glass he sent. In a letter to Carlos Vazquez of May 24th, 1912 (CS6188), he says he knows that Dalmau sent Sorolla the càntir and the basket. For the type, could be a piece of Catalonia or Mallorca. Keep in mind that the Catalan and Mallorcan glass have much in common and there are no clear guidelines to distinguish from each other. The *càntir* or *botijo* – water jug – was widely used in traditional Catalan festivals, especially at baptisms and weddings, and they used to serve as gift items. The jugs "males", it means, with circular mouth and spherical body, were offered to men, while those of oval mouth and piriforms deposit, were presents given to "female", The *botijo* usually was used to contain and drink wine, although in these cases it was more a decorative object (Pastor Rey de Viñas: *Spanish Glass Museum of Decorative Arts in Prague.* 2002). Eighteenth century Catalan glassmakers overflowed decoration in production of *botijos*. The endless variations of deposits appear profusely decorated with loses, glass beads, chains, appendices, rosettes, etc. Is very typical of this period a cock appendix located at the top of the handles (Guidol Ricart: *The Catalans glasses* 1941). According to the 1996 publication, *Glass blowing in Mallorca,* by María Cristina Giménez Raurell, scalloping, which consists on applying a bead of hot glass curled around the edge with tweezers or flat pliers scratch is a hallmark of Mallorcan glass. The festoons often decorate the profile of deposits vertically handles, spikes and other appendages of the pieces. Like the scallops, the crest and the birds used in the top of handles of the *botijos* worked by pins, are also the most characteristic decorative elements that can let us recognize a glass made in Mallorca. That's why the origin of the production site can be discussed.

Step 3: The third part or the information to be filled in Domus is the administrative one.

Cer.es shows only the subjects that are not of private domain of the museum (value, name of donator...). We can find collection type, record number, date of admission, how the object come to the museum, who brought it, place of purchase, administrative authorization, market value, other comments, name of the cataloguer and who filled the file.

In other words, we can have in the same database all the

information that, years ago, was written (Navascués files in Spanish museums during more than 50 years).

Looking for by Cer.es

You can find all this information by Cer.es: Digital Collections Network.

http://Cer.es.mcu.es/pages/SimpleSearch?index=true

Spanish collections using Domus

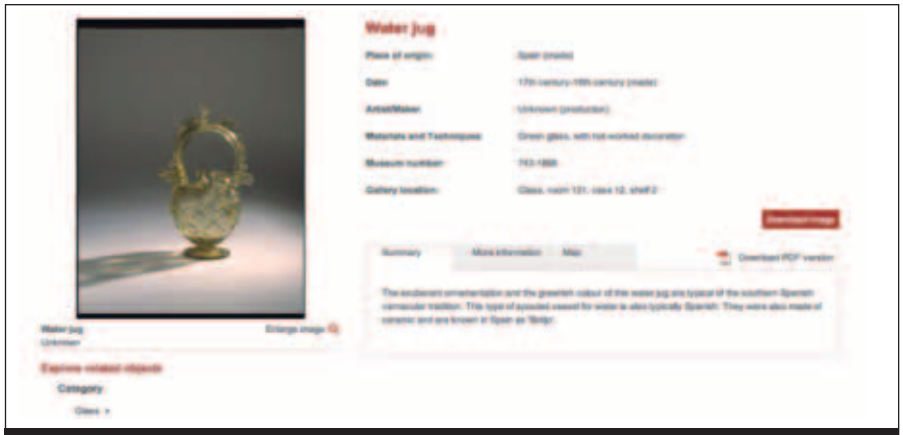
You can choose a general or an advance searching way (selecting different fields following closed lists of thesaurus) or look for geographical, typology or public or private institutions, some groups of different types of museums or, finally, going inside the web of an specific museum.

For instance: if you want to look for "glass blowing" pieces, you get the statistics results for museum: 731 pieces in this case.

When we try to find on-line any pieces belonging to a museum that shares Domus or if we want to look for works that are on-line by the databases of other museums all over the world, you can use the web site Cer.es as well.

All over the world Museums searching

Cer.es gives you the opportunity of searching inside the collection of 78 museums (more than 184.000 cultural assets and more than 303.000 images) using Domus and more than 100 museums all over the world with links that let you go directly inside databases of each museum following these few steps:



http://www.mcu.es/museos/MC/CERES/MuseosResto.html

http://www.mcu.es/museos/MC/CERES/CatalogoOtros.html

There are 16 links to museums cataloguing from Latin America, and 23 countries in the USA, Europe, Oceania and Asia that can be linked from Cer.es and nearly 100 museums databases to be consulted.

The main Latin **American museums** we can find depends on:

- **Bienes culturales (RUBC) de los Museos de la ciudad de Buenos Aires (Argentina).**
- **Red Nacional de Museos de Colombia.**
- **Archivos, Bibliotecas y Museos de Chile.**
- **Museo Histórico Nacional de Chile.**
- **Museo Nacional del Banco Central de Ecuador.**
- **Museo Nacional del Virreinato,** and those from other world areas, for instances, the United Kingdom.

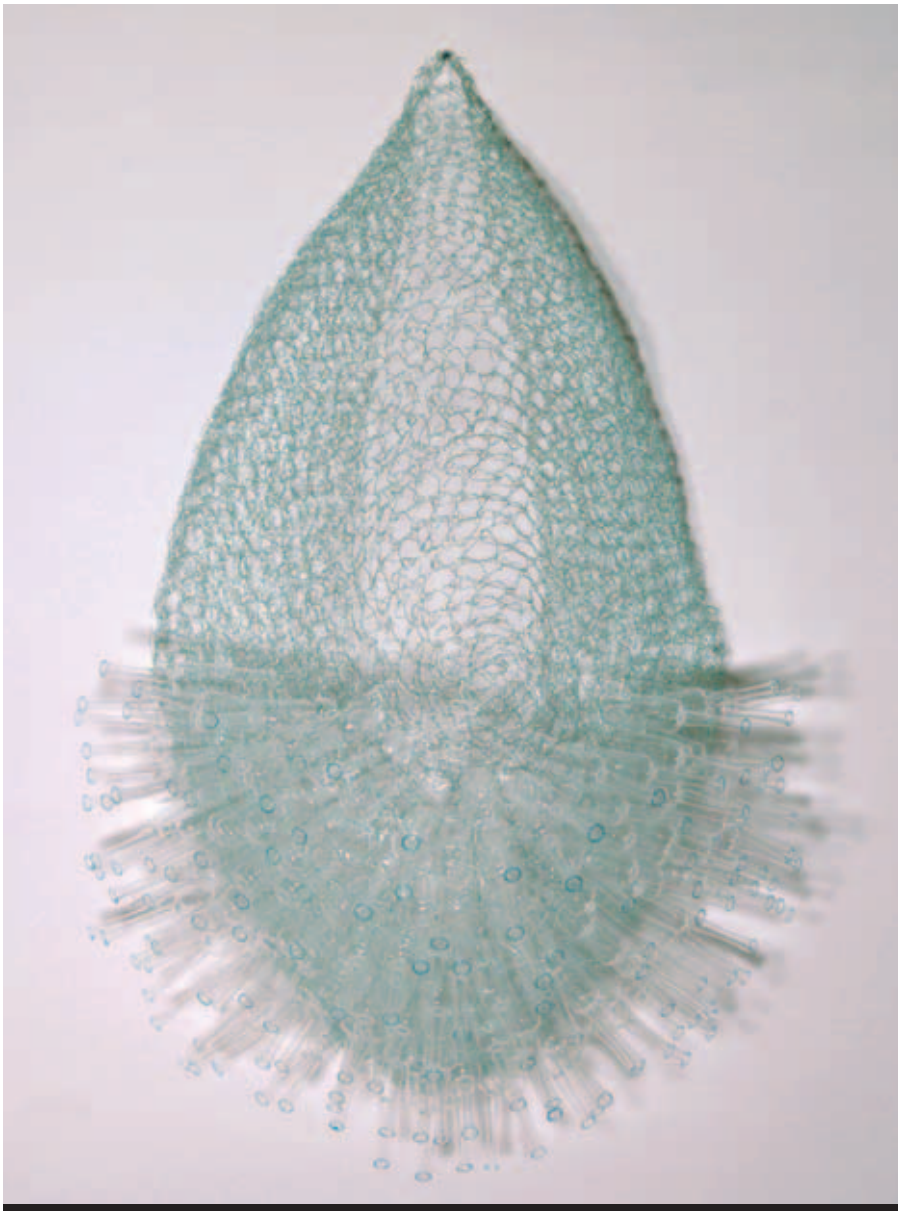
In The Victoria and Albert Museum, we have found a Spanish jug:

http://www.mcu.es/museos/MC/CERES/MuseosResto.html

We hope that ICOM-GLASS colleagues will go on using this useful tool to work daily and contribute to the Technical Following-Up Committee of Domus and Cer.es to improve it, making suggestions and sharing good ideas to make it better day by day.

Contemporary Art with Glass in Spain Today

María Luisa Martínez. Museo de Arte en Vidrio de Alcorcón



Anna Talens. Gota azul hielo, 2007.

The glass sculpture in Spain is a great unknown for the rest of world. I assume that some responsibility for this to happen lies with us, museum directors and curators, as among our responsibilities is the obligation to disseminate the work being done by artists in our respective areas of influence.

Even though the beginning of Contemporary Glass in Spain were delayed and reduced to a small number of artists, during the last 30 years, the use of glass has grown over time to reach today, a very high quality, comparable to that of any other country around us.

We first introduce the largest group, which comprises only the artists who use glass in their works, who know very well the techniques of glass and who perform the work with their own hands.

The first generation of artists in Spain who use glass as a material in their work, developed their work in the early 80's. Led by Joaquin Torres Esteban, this

Javier Pérez, *Tempus fugit*. 2002. Palacio de Cristal del Retiro. Museo Nacional Centro de Arte Reina Sofía.

Javier Gómez is the artist who is more committed to his work and who progressed the most in developing his own technique laminated glass

group of "fathers of Spanish art glass" also includes Pedro García, Antonio L. Sainz "Keshava", José Fernandez Castrillo, Pere Ignasi Bisquerra and Javier Gómez, among the most distinguished.

Among all of them, Javier Gómez is the artist who is more committed to his work and who progressed the most in developing his own technique: laminated glass, with a unique and very personal style, with which, throughout his career, has achieved huge international presence. From the late '90's he incorporated color, while working in closed volumes, achieving a notable leap in his production. Now, as an artist with a mature formal language, he works on technically impeccable large size pieces. The last ten years have been particularly productive for him in quantity and quality.

In 1982 two key foundations for the development and dissemination of glass between artists were born in Spain: The National Glass Centre Foundation-FCNV in La Granja and Fundació Centre del Vidre de Barcelona. Although very different in nature, both represented a major boost to the artistic glass, having among their objectives the education and training of glass techniques applied to art.

Thus, the next generation of artists must be sought among

Jaume Plenss, Grown Fountain in the Millennium Park, Chicago, 2004.

those who were trained in either of these two centers, or both, and who today have more than twenty years worth of artistic career. Among the most prominent in Catalonian area: Pilar Aldana-Méndez, Anna Marco, Mónika Úz, Maribel Navarro, as well as some foreign artists active in Spain such as the British Philippa Beveridge or the Japanese YukiKo Murata. On the other hand, in Segovias's area the most interesting young artist are: Natalia Garrido, Fernando Torres, Alba Martín, Concha Juárez and Genoveva García López.

Younger, but formed as well at the Fundació Centre del Vidre de Barcelona, we find Joaquim Falco and Meritxell Tembleque, to which the MAVA will dedicate a solo exhibition this Autumn.

The latest generation of artists are young people trained in this millennium whose most notable feature is that they have a more international training, and look out of Spain in search of learning and inspiration, helped mainly by study grants.

In addition to this there is another kind of artists who only use glass when they deem it necessary to give meaning to their works and installations, and usually do not manipulate it directly. Most of them were formed in College, so that their tools of expression are not limited to glass. Among the most interesting are: Miguel Soler (Sevilla, 1972), Anna Talens (Valencia, 1973), Javier Velasco (Cádiz, 1963), Ricardo Calero (Zaragoza), Xavi Muñoz (Barcelona) and Yolanda Tabanera (Madrid, 1964), Javier Pérez (Bilbao, 1963) and Jaume Plensa (Barcelona, 1955).

Javier Perez took his installation *Tempus fugit* to the Palacio de Cristal del Parque del Retiro de Madrid, a space that belongs to the Museo Nacional Centro de Arte Reina Sofía. The glass pieces were produced by CIRVA of Marseille, with which he has been working assiduously to carry out much of his glass production. *Carroña* is one of his latest works; it took part in Glasstress in Venice, during the event organized within the Biennale of the city. In this case, the pieces have been produced by Berengo Art Project.

On a different note, Jaume Plensa is a very well recognized artist who makes sculptures, installations and large-scale works for public spaces. One of his most popular intervention is the *Crown Fountain* in the Millennium Park in Chicago, and his newest monumental sculpture is titled Breathing, placed at the top of the BBC building in London.

An interesting detail that reinforces the idea that glass in Spain is living a positive period is that today many contemporary art museums, some of which have opened their doors in the last decade following the "Guggenheim effect", are incorporating glass into their permanent collection. This is the case of the Guggenheim Bilbao Museum itself, Artium in the city of Vitoria, Museo Patio Herreriano in Valladolid and others.

Atlas of materials pathologies

Images are a tool that may help us to shape a common language less bound to cause interpretation errors than the written language. Taking this statement and the shape of the graphic atlases already used in other disciplines into account, the creation of a pathologies atlas is proposed which can be used as a tool to determine the conservation state of heritage materials. This project intends to make this Atlas accessible via the Internet, making the most of the interaction, great diffusion and easy usage it provides us with. The creation of the 'Atlas of Materials pathologies' is open to professionals of conservation-restoration and is born with the intention to be permanently under construction.

Montserrat Pugès. Conservation and Restoration Department. Archaeology Service-ICUB
Laia Fernández. Restorer, freelance
María Molinas. Restorer
María José Alcayde. BS Chemistry- Chemical engineering IQS – Cetec-patrimoni

1. Introduction

Determining the conservation state of a piece with the naked eye or with the help of a binocular magnifier, the latter sometimes considered extravagant, is the most readily available, immediate and frequently used method by the conserver-restorer of archaeological materials and, in general, by any expert in this discipline. Justifications are not needed as they may be as simple as low budgets, or as special as the location of the site where they appear or the place where they are. The truth is that, in time, we compile an album of mental images which constitute the personal comparative guide to carry out fast diagnoses of the objects we have to work with. In other words, experience in the form of images becomes a major intangible work document. Fortunately, taking photographic images helps us to alleviate the load.

But images do not suffice. Often, they need to be accompanied by words. In our case this becomes essential, since we are talking about alteration forms. This is a different issue; possibly an even more complex one: transforming images into words. This includes searching for a name for a thing, 'christening' an image, what linguists call 'term' and is accompanied by its definition. Many papers on this matter have been published. The oldest we know about are terminological collections for stone alterations, but others for metals, paintings, glass, graphic recordings, etc., have been made. Even though papers especially devoted to stone alterations have been recently published, with visual correspondences, most do not include the described images and may cause confusions or mistakes. Altogether they involve a huge effort to correct the problem here exposed; this effort is even greater if we consider the

enormous variety of materials that are heritage objects and we multiply them by the large amount of existing languages.

Nevertheless, it can be stated that, except for a short list of defining terms for some pathologies, which are more or less agreed on and accepted, the truth is that, nowadays, no terminological dictionary can solve the problem here exposed. Obviously, this implies a communication problem. An internal problem, because of the lack of a terminological collection agreed on by the different agents participating in such a broad discipline as ours, but also an external problem because we need expression tools for everyone. Such tools would help diffuse and understand the problems in preserving heritage goods.

Heritage conservation is a young discipline which moves quickly forward thanks, to a great extent, to new technologies. Thanks to them, nowadays we can choose to work together in order to establish knowledge sharing nets.

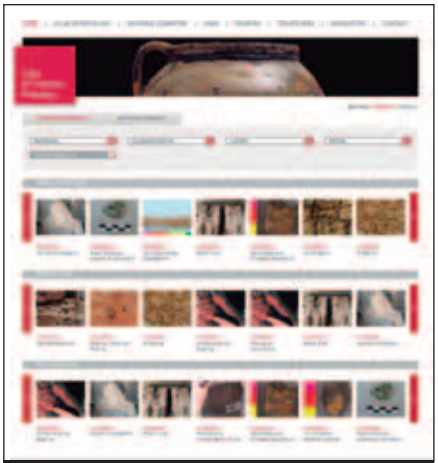


Fig. 1. Home page of the Atlas of Materials Pathology.

This paper does not constitute a piece of work in itself, but just an invitation to partake in a project which, even though it has already started to be shaped, must grow with the contribution of all the professionals who, in one way or the other, are related to heritage conservation-restoration.

2. Presentation

The work herein presented is the result of the acquired experience within the field of glass conservation-restoration and also a wide variety of materials offered by archaeology. It also results from a preoccupation to carry out a proper and worthy piece of work, often without the desirable means. And we must also mention it derives from our will to share the knowledge we have acquired, aware as we are that this is a minority discipline, uneconomic and full of responsibility for those of us in it involved.

It is not the first time we undertake this kind of job. In 1989, as a result of a grant given by a linguistic organization (CIRIT), dependent on the Catalonian autonomous government, a Catalan terminological dictionary about stone pathologies was made. It was never published because of the low diffusion expected.

The different stained glass windows and archaeological glass restoration works done have generated a vast collection of glass alterations which have allowed us to create an important graphic and descriptive data base, frequently accompanied by the corresponding analysis report. Collaboration in scientific studies with several Catalan universities has made it possible to collect a wide amount of affectations suffered by metal pieces. These works are the basis for the project presented in this paper.

3. From terminological dictionaries to illustrated glossaries

Other branches of knowledge have long needed to put words and images together. We are talking about Natural Science – particularly Botany, Zoology – or Health Science – such as Medicine. With reference to the earlier, we find loads of volumes which have the format of a visual guide with a purely identifying objective where an element is shown as an image and described in detail Regarding Medicine, as well as illustrating and describing the affectation, they make a diagnosis possible. This is the difference between a

Figure 2. The form for new entries.

The materials pathologies atlas must be basically visual and with a web format. It will be participatory and open for everybody to consult

visual guide and a medical atlas: the ability to diagnose. Currently this kind of work, originally books, has a digital format, a wide range and very diverse outlooks.

And as for conservation, what do we have exactly? For all that we know, we have examples of books with illustrated lexicons, some of which can be visited on the Internet. Their focus are descriptions of altered materials – with many precedents which are not going to be exposed herein in the case of stone – or other structures or manufactured elements, such as mosaic. Even though we consider these contributions very useful and interesting, we want to remark on the need to deepen the descriptions and broaden the assortment of materials.

Other aspects to be considered are the interaction and collaboration offered by the last advances related to the Internet, after several projects with different materials such as stone, metals and glass, we are going to make the most of the forum provided by these acts, in order to put forward this new project hoping it will be welcome. Our aim is to gather as much information on materials pathologies as possible, in digital format. Taking advantage of computing and the Internet, we believe the *Materials pathologies atlas* must be **basically visual.** The reason for this is that so far we have found no term for many of the alterations suffered by the wide range of heritage materials and, contrary to a dictionary organized according to words; here we need one that is **organized according to images.** The Atlas is conceived with a **Web format** and contains, among others, a folder with files referring to the pathologies of the different materials it embraces. It will be **freeware,** will include all kinds of traditional and modern materials, will be **participatory and open** for everybody to consult. Regarding languages, we believe people must be able to **consult it in different languages** – this will always depend on participation – with a minimum of one and a maximum of three obligatory ones, but not excluding the possibility to extend it to other languages.

4. Our proposal: the Materials Pathologies Atlas

Summarizing the criteria and objectives previously exposed and with the will to make them real, from now on we are going to try and explain how we have conceived and designed the web called *Atlas of Materials Pathologies (Fig. 1).*

4.1. The participation space

Participation in the project revolves around the generation of the Atlas, whether by means of contributing with a new pathology or by taking part in the discussion that could arise in order to validate it. From **the restorers or the experts forums** we intend to collect the relevant opinions, comments and improvements. The experts forum – which by no means excludes restorers – will gather

groups of experts in each of the materials considered in the Atlas. In order to propose the inclusion of a new pathology, the web has a **form** *(Fig. 2),* especially designed, where the requirements for such a contribution are defined as a file. A **quarantine area** will also be open to consult the proposals for new entries and see which have been incorporated and which are under construction *(Fig. 3)*.

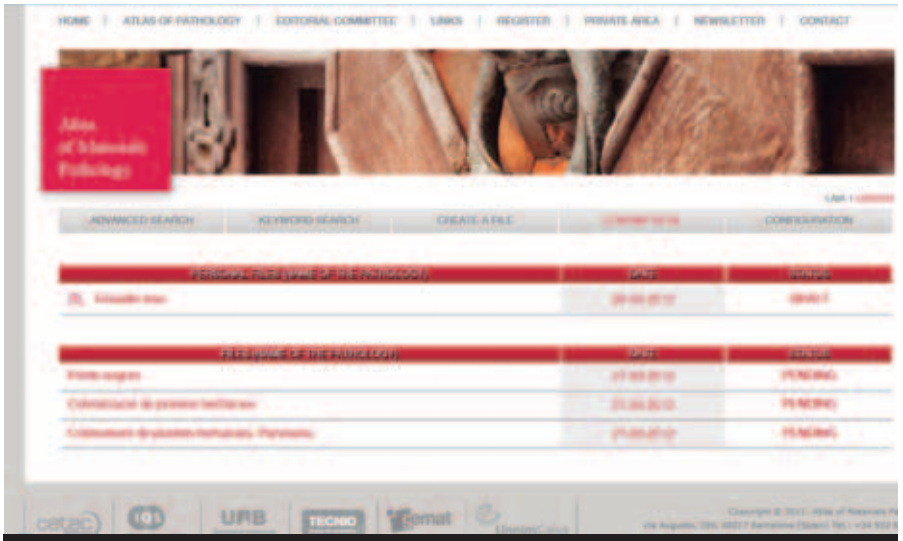


Figure 3. On the private area you can create a new file and there are the quarantine files to

4.2. The pathology file

The file has been devised with different fields which, in the form of drop-down menus, provide different information about the sample illustrating the described alteration. The fields are:

- Name of the pathology.
- Images of the sample-pathology.
- Origin of the sample mentioning what it is and its origin, historical data, etc., which could be relevant.
- Analyses supplied (with the possibility of establishing a link) and their comments
- Published papers on the described pathology (with a link to PDF) which are normally meant to have been written by the same author contributing to the new entry.
- Authorship of the file with the author's personal data.
- Known Bibliography on the topic.

With reference to the **images,** they are intended to obligatory supply:

- Photos with a naked eye. One is planned, but there could be more, if it is considered necessary.
- Magnified photo, approximately 30 magnifications, since these are the images restorers usually have, with their corresponding description.
- Author/s name/s and characteristics of the photograph.

Optionally, the file can also show microscope or other complementary techniques photographs with their corresponding Interpretation. Captions or other habitual details in each web must not be missing: how to get out or to the previous page, possible amplifications, etc.

4.3. The search. Classification system

Another important detail is the search, which can be done directly by typing the **name or keyword,** but also visually thanks to a system we have introduced. It is conceived from comparing images which must be searched according to the nature of the substrate material and some physical characteristics of the alteration. Factors such as colour, texture, form, among others, will lead us when searching for the desired image. For example, we may imagine we want to identify a whitish coating on our lead piece. First we will go to **metals,** from this point to **lead** and, in order to approach the search we have divided the possible alterations in a **stratified** manners depending on whether it is a **deposit,** a **surface** alteration, a **substrate** alteration

Figure 4. How a complete file is shown.

Figure 5. A more complex file, showing complementary images.

On causes in we can see the explanation on what caused this alteration and on related pathologies, we can find a link leading us, optionally, to other entries that may be interesting

or rather a **manufacturing indicator** (such as mould marks).

We would immediately see we already have a lead plus a deposit; we would need to decide whether it looks whitish, for instance, and according to the entries with these characteristics it is expected we would see an assortment of photographs which we could consult and, if desired, the corresponding files.

4.4. Some illustrative examples

In the reproduced image *(Fig. 4)* a glass pathology file is shown. We have called this pathology *Loss of grisaille,* with an image we can magnify if we want to. On the right what we see is **described** and, on the left, there is an **explanation** of the sample which mentions its morphological characteristics and its origin. The information must be clear and brief, useful for the desired objective.

On **causes** in we can see the explanation on what caused this alteration and on **related pathologies,** we can find a link leading us, optionally, to other entries that may be interesting. In this case the sample is accompanied by a **microscope photograph,** mentioning the number of magnifications and characteristics of the photograph, even though this does not change the previously done description. Due to the type of alteration no more information is thought to be needed. This can be a simple case of rather a habitual pathology which, however, could help to establish the desired terms dictionary.

In another example *(Fig. 5),* also about glass, we can see a file talking about another alteration, in this case more complex than the one previously described and which needs other means, both to illustrate it and to describe it. It is an instance of an alteration called *Mesopitting* which, apart from the previously described fields, is accompanied by images. Now there are electron microscope images amplifying and determining the information.In the field **bibliography** we could go to papers attached as PDF documents.

5. As conclusions

With this proposal for a graphic atlas of pathologies we only intend to show the broad assortment of possibilities we may obtain, as we all know, when applying the new technologies within the materials conservation-restoration field. We have not tried to create an impressive demonstration of what we understand could be an

unpleasant and inconvenient product. Our aim has been to make a simple and useful web which is an example of what we can come to build together.

This work, as we have mentioned, has just started its way. The Atlas is conceived with a spirit of cooperation, it is "open" and for everyone. The participation of experts wanting to share experience and knowledge is absolutely linked to the success of this project. Our desire is to encourage all of you who care for heritage to become an active part of this new project. The intention is for it to be a permanently constructed atlas.

6. Collaborators in the project and future perspectives

At the moment this project enjoys the support of several Catalan universities and organizations, especially the *Universitat Autònoma de Barcelona* (UAB); the *Universitat Ramon Llull* (URL) with the involvement of the *Institut Químic de Sarrià* (IQS) and the *Centre Tecnològic per la Conservació del Patrimoni* (Cetec - patrimoni) which have provided us with the server which will contain the information. This project would never have started without their assistance and enthusiasm[1].

Thanks to the help of *Unnim Banc* community services the launching of the web page has become possible. Access to the Materials pathologies Atlas can be done at http://www.materialspathology.com.

We want to thank the organizers of this conference for the chance to show this work in such a specialized forum. We know for a fact that we will count on you and your contributions to enlarge and improve the Atlas...

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1. We also want to take the chance to thank the people who have collaborated and taken part in this project in a disinterested way and who we still hope to count on, particularly the computer experts Òscar Fonts and Vítor Cabral.

Javier Gómez

is certainly one of the most important glass artist in Spain

Interviewed by **María Luisa Martínez,** Museo de Arte en Vidrio de Alcorcón

Javier Gómez, "Espacio Abierto VI", 2005, particular collection, France.

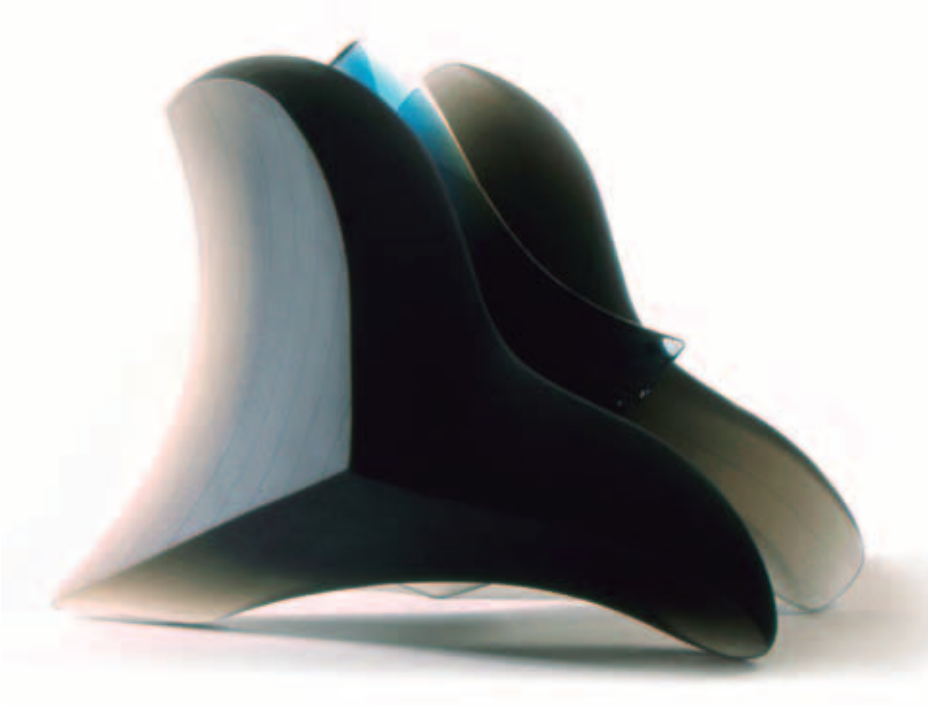
(Pedro Bernardo, Ávila, 1954) is certainly one of the most important glass artists in Spain. He began his artistic career in a self-taught way using the closest material he had in his hands, the laminated flat glass, since he worked at a family glassware business. Without thinking much, as he admits, he was launched with passion to this new activity, the artistic glass production. When he started he knew nothing about it.

Soon he started to exhibit in Spain and abroad, to participate in international meetings and symposia, to travel and meet other colleagues, and to see and be seen worldwide.

The strong faith in his own dreams and his entrepreneurial spirit led him to get direct donations from selected artists to join the ambitious project of founding a glass museum in Alcorcon. Thanks to these actions, the Glass Art Museum in Alcorcon was born 15 years ago; it's a municipal museum, the only one for contemporary glass in Spain.

Javier Gómez has his workshop in his hometown Pedro Bernardo. The great and beautiful surroundings from

INTERVIEW



Javier Gómez, "Espacio Abierto, XXVI", 2001, particular collection, Mexico.

Sierra de Gredos full of rocks, streams, forests and especially raptor birds, inspire him for his glass work.

MLM: Do you remember the moment you decided to become an artist working glass?

JG: To become an artist was not a decision, it was rather the mixture of my professional work in the family glassware workshop along with my personal concern to develop artwork with glass what led me to develop an artistic career.

MLM: Who has been the artist, curator, gallery or the most important person who has left a strong trace in your career?

JG: Takako Sano was the person who influenced me personally and encouraged me to grow as an artist. I owe much to her. She included my glass works during seven years in the Glass Now traveling exhibition that runs every year over seven cities in Japan: Tokyo, Nagoya, Osaka Hammatsu, Fukuokam, Hirosima and Kyoto. Later on, when I started with the project of the MAVA Glass Art Museum of Alcorcon, she donated more than 60 glass pieces to start the museum's collection.

MLM: Tell us about the best show you've done, the one you keep the best memories.

JG: It was my first retrospective exhibition at the Finnish Glass Museum in 2003. This exhibition showed a selected group of fifty pieces from different periods from sixteen years of my artwork. It was a great recognition for my work and a great personal encouragement to continue working with glass.

MLM: You're an artist with a long track, more than thirty-year career with a great production of works. From which creative period do you feel most proud?

JG: The most creative period was the beginning, the works arose very naturally, and I gave them form without thinking much on the results. At this time the works were figurative and abstract as well. Among them were the sculptures called *The third dimension* and Moon's face. This period left a strong mark in my creativity and set the path to develop all my next works.

However, even if the first period was exciting and very stimulating, I think the current period is stronger and more personal. I have now a deeper relation with my work, we meet to speak the same language.

Congresses & Exhibitions

GLASS CONGRESSES

AHG – Association for the History of Glass
Study-day workshop: "The Evidence for British Crystal Glass 1660-1700"
To be held with "Georgian Glassmakers" Mark Taylor and David Hill at Project Workshops, Quarley, Hampshire (UK), 16 March 2013.
www.georgianglassmakers.co.uk
www.historyofglass.org.uk

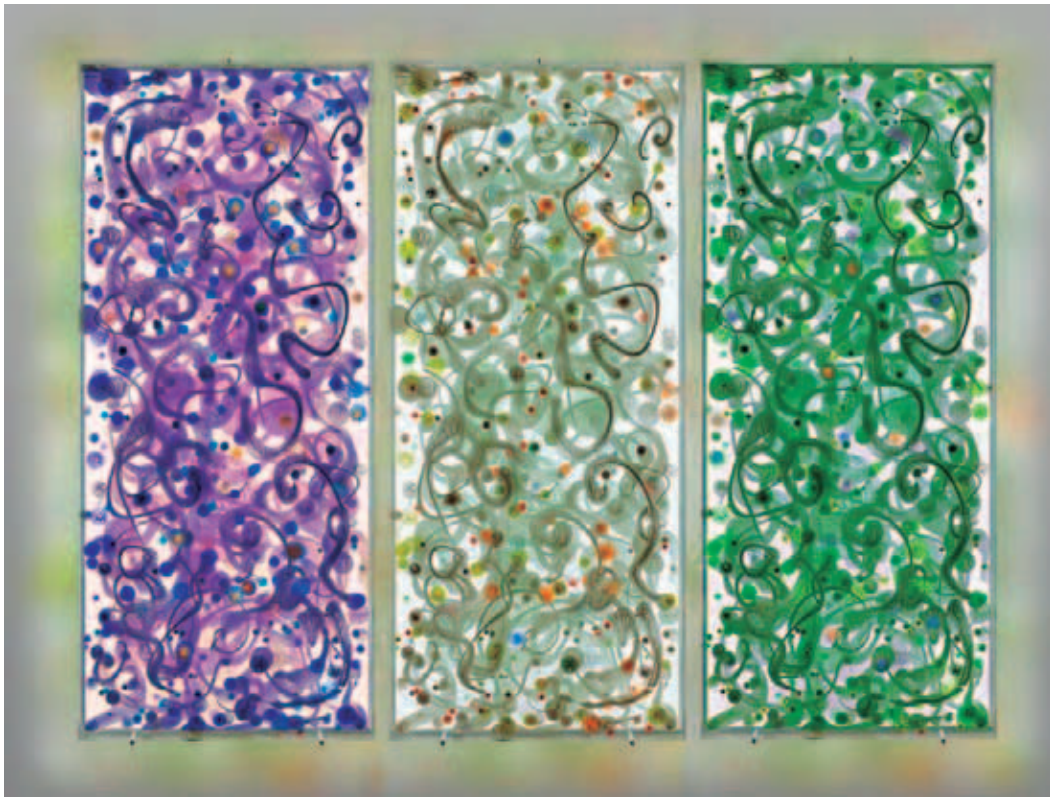
Theoretical Roman Archaeology Conference (TRAC) 2013
Session 11: "New Reflections on Roman Glass"
London, UK, 4-6 April 2013, King's College
Organizer: Ian Freestone (UCL)
i.freestone@ucl.ac.uk
http://www.trac2013.org/

Comitato Nazionale Italiano Association Internationale pour l'Histoire du Verre (AIHV)
XVII Giornate Nazionali di Studio sul Vetro: "Il vetro in Italia Centrale dall'antichità al contemporaneo /Glass in Central Italy, from Antiquity to Contemporary"
Massa Martana (PG, Italy), 11-12 May 2013
www.storiadelvetro.it

International Commission on Glass (ICG)
23rd International Congress on Glass
Prague, Czech Republic, 1-5 July 2013
This triennia event brings together glass science, technology and production.
www.icg2013prague.cz

AFAV – Association Française pour l'Archéologie du Verre
28èmes Rencontres Internationales de l'AFAV
Narbonne, France, 4-6 October 2013.
colloque.afav2013@yahoo.com
http://www.afaverre.fr/afaverre.php

Rio de Janeiro/Brazil. 12-17 August 2013, **The 23nd ICOM General Conference and Joint Meeting DEMHIST, GLASS, ICDAD and ICFA.** "Places for Reflection: museums as connectors of cultures, times, people and social groups".
Registration for the 23rd ICOM General Conference:
https://www.icomrio2013.org.br/en/registration
About the General Conference:
http://www.icomrio2013.org.br/en/about-icom
Call for papers, Joint Meeting DEMHIST, GLASS, ICDAD and ICFA
http://network.icom.museum/glass/annual-meetings/coming-conference/



by **Teresa Medici.** VICARTE

Bratislava – Lednické Rovné, Slovakia, October, 2013. **ICOM Glass Meeting**
Program and registration:
http://network.icom.museum/glass/annual-meetings/coming-conference/

GLASS EXHIBITIONS

Musée Maillol, Paris, France
FRAGILE. Murano. Chefs–d'œuvre de verre de la Renaissance au XXIe siècle / Glass masterpieces from the Renaissance to the 21st century, from 27 March to 28 July 2013.
For the first time in France, an exhibition traces the extraordinary adventure of Murano glass from the 15th c. to present day. More than 200 pieces, coming from public and private collections and most of them unpublished or exhibited only in exceptional circumstances, will be presented. Curated by Rosa Barovier Mentasti and Cristina Tonini.
http://www.museemaillol.com/prochaines-expositions/

Alexander Tutsek-Stiftung Foundation, Munich, Germany:
In the Name of Love, until 30 April 2013
The exhibition deals with the many facets of love from a very special perspective: not only the bright, the welcome part of love is explored, but so is its hidden, secretive, and dark side. On show are 30 objects created by 26 artists from around the world who work mainly with glass and mixed media.
http://www.atutsek-stiftung.de/en/ausstellungen.html

Corning Museum of Glass, Corning, New York, U.S.A.:
The Flood of '72: Community, Collections, and Conservation, until 3 January 2014
Masters of Studio Glass: Richard Marquis, from 16 February 2013 until 2 February 2014
Life on a String: 35 Centuries of the Glass Bead, from 18 May 2013 until 5 January 2014
www.cmog.org

Mad Museum, The Museum of Arts & Design, New York, NY (USA):
Playing with Fire. 50 Years of Contemporary Glass, until 7 April, 2013
www.madmuseum.org

Museu da Cerâmica, Caldas da Rainha, Portugal:
Núcleo de Vidro Escandinavo: Colecção Francisco Coutinho Carreira / Scandinavian Glass from the Francisco Coutinho Carreira collection, until 23 March, 2013.
The exhibition shows 108 objects of contemporary Scandinavian glass, which are part of a collections donated to the museum in 2007.
museudaceramica-en.blogspot.pt

Museum of Decorative Arts (UPM), Prague, Czech Republic,
All the Best! Czech Art Glass, until 31 March, 2013.
The exhibition has been organized in cooperation with Galerie Pokorná.
http://www.upm.cz/
www.galeriepokorna.cz

National Archaeological Museum, Athens, Greece:
The Antikythera shipwreck - The ship, the treasures, the mechanism, until 28 April, 2013
All the antiquities recovered from the legendary shipwreck off the islet of Antikythera, south of the Peloponnese, are presented for the first time. The recovery of the shipwreck, the first major underwater archaeological expedition, was undertaken by sponge divers, with the assistance of the Greek Royal Navy (1900-1901). The second underwater research was carried out in 1976 by the Greek Archaeological service and J.-Y. Cousteau's oceanographic "Calypso".
The wreck is dated approximately at 60-50 BC, though its cargo from the 4th to the 1st century BC. The study of the cargo, including bronze and marble statues, glassware, bronze vessels, golden jewelry,

and the famed "Antikythera Mechanism", an astronomical calculator, greatly contributes to our understanding of the maritime trade and the circulation of works of Greek art at the end of the Hellenistic period and the Roman Republic, in the light of the commercial exchanges and the taste of the rising Roman aristocracy. Exceptionally rare glass vessels were recovered; they were luxury wares which, like the other works of art the ship was transporting, were probably destined for the markets of Rome. The best-known and most impressive glassworking techniques of the Hellenistic age are represented. The finds provide a secure dating in the 2nd quarter of the 1st c. BC, but also a complete sampler of Syro-Palestinian, and perhaps also Egyptian, production of glass vessels in the 1st half of the 1st c. BC, while simultaneously offering the first reliable evidence concerning glass trade between East and West.
(from Ch. Avronidaki, The Glassware, in: N. Kaltsas (ed.), The Shipwreck off Antikythera, catalogue of the Exhibition, National Archaeological Museum, Athens 2012).
http://www.namuseum.gr/wellcome-en.html

Frauenau Glass Museum, Frauenau, Germany:
Theodor G. Sellner, from 21 December 2012 to 5 May 2013.
http://www.glasmuseum-frauenau.de

ESGAA Biennale du Verre 2013
ESGAA is currently organizing the 2013 International Biennale which will take place from 17 October to 30 November, 2013 in Alsace. The theme of the year 2013 is "Réflexions - Reflections".
www.biennaleduverre.eu

Museum of Glass and Jewelry, Jablonec nad Nisou,
From Neuwelt to the whole world. 300 years of Harrachov Glass, until 26 May, 2013.
http://www.msb-jablonec.cz/

Finnish Glass Museum in Riihimäki
Mysteries of Life – Glass Sculpture by Yan Zoritchak, until 28 April 2013.
Old Finnish Glass from the 18th and 19th Centuries, until 31 December 2013.
Tapio Wirkkala – Art Glass and Silver from the Kyösti Kakkonen Collection, from 17 May to 31 December 2013.
www.finnishglassmuseum.fi, glass.museum@riihimaki.fi

News

LIFEFORM

The **Rudolph and Leopold Blaschka Biological Model Competition and Exhibition** will be held at the annual conference of the Glass Art Society in Boston, MA, 12 - 15 June, 2013.
Deadline for pre-registration and image submissions: May 15, 2013.
This will be an exhibition of the best biological glass models made in the spirit of the famous 19th and 20th century models of invertebrates and plants made by the father and son team, Rudolf and Leopold Blaschka, for the Harvard University's Botanical Museum. Artists working in any glass technique (flameworking, glassblowing, pâte de verre, etc.) are invited to submit an entry. There will be $6,000 in cash awards: winners will be selected by a jury during the exhibition.
http://www.glasslifeform.org

Rediscovering the splendor: the restoring of the glass mosaics of the *São João Baptista* chapel in the S. Roque church, Lisbon (Portugal)
The *São João Baptista* chapel is one of the most precious and important works of art in the Roman 18th century. Commissioned by D. João V,

King of Portugal, to Luigi Vanvitelli e Nicola Salvi, it was built entirely in Rome between 1742 and 1747, and sent by ship from Civitavecchia to Lisbon via the Mediterranean Sea.
For the pictorial decoration, the precious and expensive technique of mosaics was chosen. The models for the three altarpieces, representing the "Baptism of Christ", the "Annunciation", and the "Whitsunday", were made by Agostino Masucci. The mosaicist who obtained the assignment to transpose the painting into mosaics was Mattia Moretti.
From November 2010 until March 2012, the entire chapel was object of a complete restoring program, promoted by the Santa Casa da Misericórdia de Lisboa, the owning institution. The intervention on the glass mosaics, affected by chromatic change mainly concerning the red colours and the flesh tones, has been coordinated by Carlo Stefano Salerno, of the *Instituto Centrale per il Restauro,* Roma (Italy) in collaboration with the Departamento de Conservação e Restauro of the *Faculdade de Ciências e Tecnologia*, *Universidade Nova de Lisboa* (Portugal).
Several months of works, including chemical analyses on the glass and the weathering products, made it possible not only to restore the pristine brilliance of the masterpieces, but also to attempt the understanding of the weathering mechanism, and to prepare a restoration and conservation plan. The results of these joined efforts are now visible to the public.
http://www.museudesaoroque.com

The first "Aldo Bellini" grant has been awarded.

The grant, aiming to stimulate the knowledge of blown glass, exploring the possibilities of using it as an artistic medium, is promoted by Sandro Pezzoli, in collaboration with the Italian National Committee of the AIHV – *Association Internationale pour l'Histoire du Verre,* to commemorate Aldo Bellini, a distinguished Italian glass collector deceased in 2006.
A sum of € 7.500,00 is awarded every year to a graduate student of any Italian academy, Faculty of Architecture, or School of Design, aged between 18 and 29, interested in gaining knowledge and skill in glass making techniques from direct experience, to be acquired in Murano.
The 2012-13 edition's winner is Vittoria Parrinello, a young artist (b. 1988) who received her degree in Sculpture in 2011 at the *Accademia di Belle Arti di Brera,* Milan (Italy). Thanks to the grant,

Vittoria Parrienello, *Respiro,* blown borosilicate glass (2011).

she will have the opportunity of taking part of a customized learning program on glass art and practice, including no less than 600 hours of stage in a group of selected Muranese furnaces.
More information and the CV of Vittoria Parrinello are available at: www.storiadelvetro.it

Le Stanze del Vetro and The Fondazione Giorgio Cini Study Centre for Glass: **new space for glass in Venice**

The new permanent exhibition space *Le Stanze del Vetro / Rooms for Glass,* a project by the *Fondazione Giorgio Cini onlus and Pentagram Stiftung,* opened in 2012 on the Island of San Giorgio Maggiore, Venice, Italy, with the inaugural exhibition "Carlo Scarpa. Venini 1932-1947", and it will continue hosting events during the 2013. Two exhibitions will be staged: ***Fragile?,*** curated by Mario Codognato, focusing on the use of glass in the visual arts in the 20th and 21st century by showing works by leading artists as Michelangelo Pistoletto, Mario Merz, Gerhard Richter, Robert Smithson, Rachel Whiteread, and Yayoi Kusama (from 8 April 2013), and a solo show of **Napoleone Martinuzzi's** creations for the Venini glassworks in the 1930s (September 2013).
In addition to the exhibition space, the *Fondazione Giorgio Cini* has created a dedicated *Study Centre for Glass,* as a part of its Institute of Art History. The principal aim is to provide the international scholarly community with an important reference resource about glass. In operation since April 2012, the *Study Centre for Glass* is currently committed to building a specialized library and to creating a general archive of Venetian glass, intended to gradually bring together the historical archives of the Muranese glassmaking companies. Drawings, designs, correspondences and photographic reproductions will be made available to the scholarly community, with the purpose of developing and reviving the art of glassmaking. The first historic archive acquired by *Pentagram Stiftung* for the *Fondazione Giorgio Cini Study Centre* is the extraordinary *Seguso Archive,* retelling the story of the production of the Murano glassmakers *Seguso Vetri D'Arte.*

Currently still under construction, the Study Centre for Glass library and archive will be open soon for consultation in the *Nuova Manica Lunga* library facility.
For information and contacts:
www.cini.it
www.lestanzedelvetro.it
centrostudivetro@cini.it
press@lestanzedelvetro.it

Alte Vitrie
The glass magazine founded 1988 by ISVAV - Istituto per lo Studio del Vetro e dell'Arte Vetraria, based at Altare (Italy), is restarting its pubblication as a digital journal. It is possible to download it for free at the site of the Museo dell'Arte Vetraria Altarese:
http://www.museodelvetro.org

Others

Bibliography of Glass: From the Earliest Times to the Present
[Willy Van den Bossche] [Publ. by Antique Collectors' Club, UK.]

Reviewed by Johan A. Soetens.
Formerly director of Vereenigde Glasfabrieken (United Glassworks). The Netherlands.

What causes a fascination with glass? After 'sixty years in glass' of which 42 years in the bottle-making industry, I still do not know the answer to that question.

I have known Willy Van den Bossche for more than twenty years and never found him lacking of interest in the beauty and history of antique glass, as well as in the technical evolution of its means of production.

From time to time, I have been able to call upon his knowledge of the subject while writing my own publications although those never reached the level of international appreciation as his beautifully illustrated 'Antique Glass Bottles' (Antique Collectors' Club, Woodbridge, Suffolk, England, ©2001).

And now he has made a new book that is in more than one way an astonishing achievement. It is a book without illustrations and without a story but with an overwhelming amount of information that will be of value for generations to come. His 'Bibliography of Glass' is a compilation of 3,500 books and a few important articles on glass and glassmaking; user friendly, thanks to the many cross-references that makes it easy to find book titles and authors. In order to place the books in their time-frame, the years of the authors births and deaths have been recorded. It contains worldwide information on books that cannot easily be found on internet, such as those published between 1600 and 1950, as well as those published in a limited edition or in uncommon languages. Of course, this is not a book to be read as a story but nevertheless one soon becomes fascinated with the content of it.

The catalogue, over 30 pages of 450 museums worldwide, that have to do with glass alone will keep you busy for quite a while.

I know of no other book that can compare with this bibliography, neither will there be one published in the next decades for I cannot think of anyone dedicated enough to spend ten years of his life compiling it.

It is a must for museums, universities, libraries and everyone seriously interested in the history and evolution of that wonderful material that is created by fusing dull and common composites such as sand, lime and soda ash. It has always fascinated me that out of such simple materials something so beautiful can emerge, yielding to the hand of the artist or the wish of the consumer. Once it was the favourite material of the mediaeval alchemists in their quest for the Stone of Wisdom and behold: it still produces wonders and is able to inspire some of us for a lifetime!

ICOM Glass Meeting in Spain, 2012

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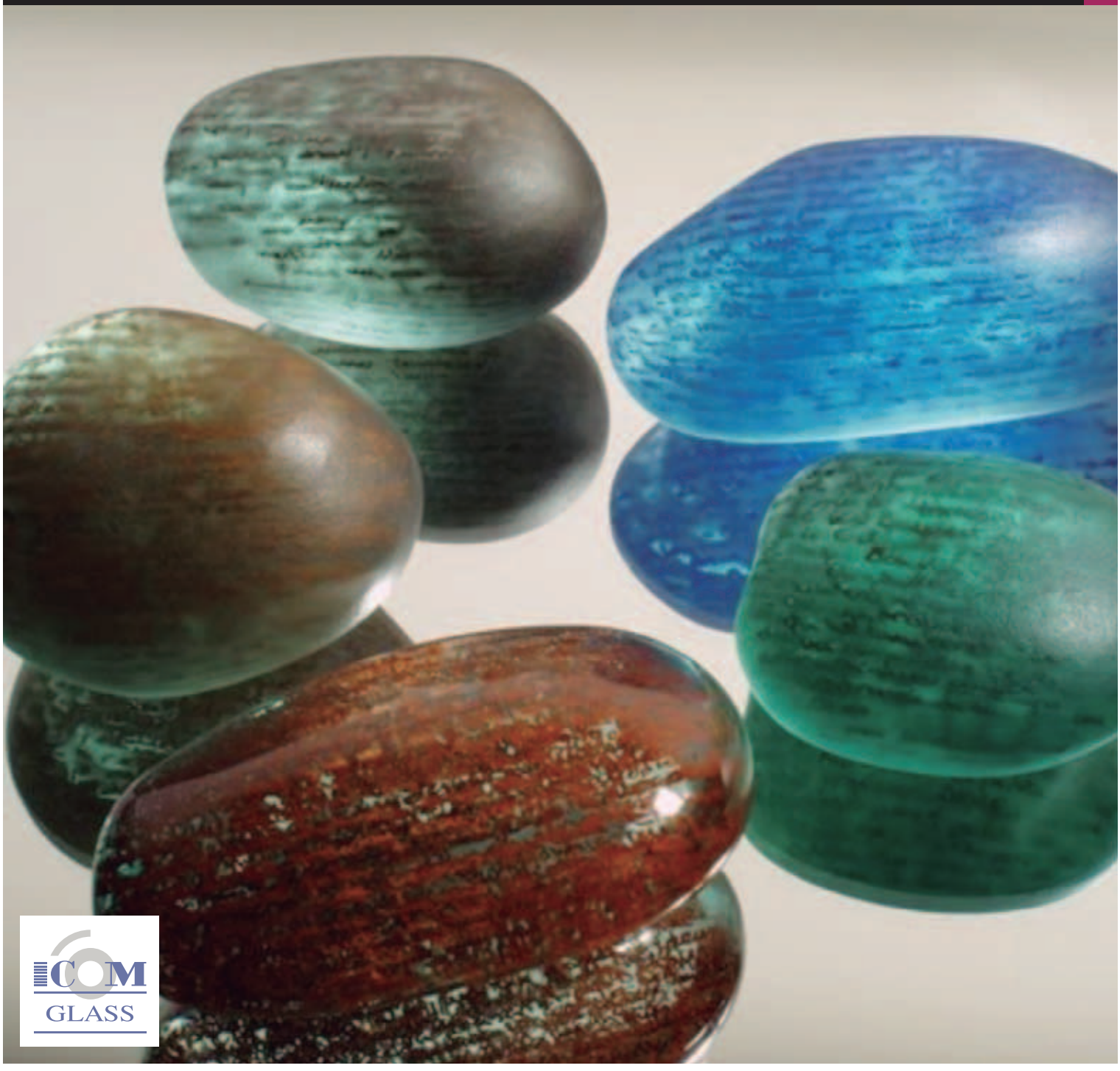
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