Glass in the Future

A two-day conference at a historical glass site focused on the future of glassmaking in the architectural and packaging segments. Jean Hardy* reports.

▲ Pic 1. The architectural glass panel, from left to right: Caroline Boelens-Duchamp, Emmanuel Normant, Raphaël Ménard, Niels Schreuder, Myriam Risson and Anne-Laure Carré.

Nestled in the heart of the Avesnois, in the north of France, the Trélon glass site combines architectural heritage and industrial equipment, as well as embodying the legacy of the master glass masters.

Three major periods marked the Trélon glass factory:

- The Champagne era in the 19th century, when it reached annual production of nine million bottles;
- The era of flasks in the 20th century, when it produced laboratory equipment and perfume bottles for brands. At its peak, 150 workers were employed in the glass factory;
- The decline and rebirth. The factory closed in 1977. Nevertheless, the 'big hall' was preserved and transformed into a Glass Museum – Workshop, that opened in 1981 and is now a part of the Ecomusée de l'Avesnois.

Today, its artisan glass blowers perpetuate the tradition by creating unique pieces, which combine ancestral techniques and contemporary design. Every year, more than 10,000 visitors come to discover its history and the secrets of glass.

In 2024, the Glass Museum-Workshop celebrated 200 years of the factory with events throughout the year.

Last November, a two-day conference, entitled Glass in the Future, brought together experts and craftsmen passionate about the history and future of glass.

It offered an opportunity to explore glass in the field of architecture and the packaging sector.

The conference examined the history of the industry as well as solutions for a sustainable future.

Architectural glass

Participants were welcomed by Stéphanie Vergnaud, Manager of Ecomusée de l'Avesnois, and Jean Hardy, who introduced each speaker and was also the moderator for the panel discussions.

Before starting the presentations themselves, two specialists in the history of glass, one from the North of France and the other one from Belgium, gave talks.

Stéphane Palaude, historian and Chairman of Amaverre, spoke about the history of glass in the Avesnois region. Starting from the ignition of the first furnace in 1466, he explored five centuries of glassmaking skills, which radically transformed the region.

Catherine Thomas, Curator of the Glass Museum of Charleroi, discussed 'Charleroi and glass: a never-ending story'. The story started in 1447 and continues today with the local AGC Glass Europe facility.

Afterwards six talks focused on architectural glass:

- Caroline Boelens-Duchamp, Director of the Glass Museum of Meisenthal, Alsace, spoke about the original architectural renovation project of the site that started in 1704. Encompassing old halls, the museum has become a building with a futuristic design with a footbridge overlooking the site that links the past and future.
- Anne-Laure Carré, Research engineer at Centre National des Arts et Métiers in Paris, laid down the basis for the story of flat glass. The main processes developed over the last two centuries were described, accompanied by drawings and pictures.
- Raphaël Ménard, Chairman of the Board of AREP (Architecture Recherche Engagement Post-carbone) also spoke. When created, AREP was a spin-off of the French railways SNCF, in charge of rethinking the architecture of future train stations.

Today, AREP has customers on all continents and employs more than 1000 people. One crucial question: what will be the cost of footprint of transparency versus raw materials and energy? Some outstanding achievements are explained in detail (including the reuse of materials that is better than recycling).

- Emmanuel Normant, VP for Sustainable Development at Saint-Gobain, focused on the future with a detailed roadmap on how to reach zero CO_2 emissions in 2050. The 168,000 employees are aware of the challenges and obstacles to overcome. Engineers are considering processes everywhere: in flat glass, fibre and plasters, for example. It will take time and effort, but the company expects to reach its target.
- Niels Schreuder, Director of Public Affairs and Communication, AGC Glass Europe, tackled the same challenges but focused on another solution: the renovation of existing buildings. Real estate is getting older, with poor thermal insulation and obsolete systems

▲ Pic 2. The container glass panel, with moderator Jean Hardy to the left of the participants. Then from left to right: Lucile Viaud, Fabrice Rivet, Corinne Payen, Thierry Bonnot and Laurent Cormier.

for heating and cooling buildings. In addition, new regulations have been developed by European authorities. In fact, renovation represents a huge potential for architectural glass. As a solution, AGC recently developed vacuum insulating glass, under the brand name Fineo. It is as thin as single glazing, so the frames do not need to be changed.

■ Myriam Risson, Export Area Manager at Seves Glassblock, presented on glass blocks: a process older than a century, but still up to date, with impressive realisations in various countries. Maybe a solution for great developments in the coming years?

Topics covered during the question and answer session included the pricing policy for ecological glass, a return circuit for cullet glass from deconstruction, the role of external partners, and the impact on HR such as new jobs and new ways of working.

Container Glass

The second day started with a guided tour of the site and with glass blowing demonstrations. As a souvenir, participants received a glass bauble, produced in Trélon.

■ Jérôme Bonnet, Perfumer, spoke on 'the vial, the perfume: the perfect balance and the subtle alchemy, from antiquity to the present day'. Samples were distributed to the public, who had to recognise the different fragrances, sometimes combined.

Then the main presentations began:

■ First was Thierry Bonnot, Anthropologist, Research Officer CNRS at Institut de Recherche Interdisciplinaire sur les enjeux Sociaux (IRIS). He spoke about multidisciplinary thinking on packaging such as the uses and history of consumption in the south of Burgundy. Jars, bottles, jugs, in glass, but also in sandstone, in brass, and even in bone: those containers have no more secrets for the participants.

■ Fabrice Rivet, Technical Director, FEVE, focused on glass packaging in Europe. After a short presentation of the sector, including data related to container glass collection, the main challenges and opportunities for the industry were described. A recent decarbonisation report from FEVE points out four key paths to decarbonise: the furnace of the future, closing the glass loop, sourcing and design, and transport and delivery

■ Corinne Payen, Innovation Director at Verallia, discussed how the company would re-imagine glass for a sustainable future. Verallia has seven production sites in France for the production of glass packaging for the food and beverage sectors. She said:

* Glass is the healthiest material for storing food and drinks;

* Glass is in the heart of the circular economy;

* There is strong commitment from the management to decarbonise the process.

Some recent achievements:

* Inauguration of the first 100% electric furnace in the food glass packaging in September in Cognac.

* Start of production of beer bottle Long Neck Ecova 185g at Vauxrot, in January this year.

■ Laurent Cormier, Director of Research CNRS at Sorbonne University, Paris, spoke about colour and transparency in glass. Transparency started 5000 years ago with the first obsidians in Egypt to the last developments in optical fibres: expressed in db/km, optical losses has been divided by 10^8.

■ Young artist-researcher, Lucile Viaud, is interested in the use of natural resources in an approach that is both local and respectful of the environment. As a native of Brittany, she remembered the mountains of shells from oyster farms abandoned on the shore. Lucile has obtained the assistance of well-known laboratories from the glass and ceramic sector to produce a vitreous paste from the shells that can be processed in bowls and cups. Other successful trials have been done in various regions of France, like in the Rance estuary, near Saint-Malo, using silty sediment.

A round table discussion followed the presentations, focused on the cost and pricing of reuse, back to deposit glass, refilling the containers, bottle personalisation and the conflict between marketing and ecological view.

Attendees praised the conference for its organisation and said they appreciated the presence of people with very different profiles. Engineers and industrials learned a lot from historians and anthropologists, and vice versa, so, it is an experience to be repeated.

Afterwards Ms Vergnaud said: "This site embodies a precious heritage, but we now have the responsibility to preserve it. That's why Ecomusée de l'Avesnois is launching an ambitious restoration project.

"This is an emergency because the structures of the old glass factory have been affected by time.

"It is essential to stabilise the foundations to protect the site.

"Without renovation, this heritage is likely to disappear. In addition, the renovation will create modern and functional spaces, providing an enhanced experience for all visitors."

Project funding is based on a public/private partnership: a fundraising campaign will be launched at the end of 2025 to involve the general public in this historic restoration. ■

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