

'Fantaisies en gélatine'. Gelatin and the production of sequins and other decorative elements on costumes

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Abstract:

The fashion of the early 20th century is well known for the use of decorative elements. Costumes were richly decorated with beads, sequins and embroidery, consisting of all kinds of materials, such as metal, glass, pearl and gelatin. These ornaments also belong to the field of a textile conservator. Conserving costumes with gelatin requires knowledge about the way gelatin decorations were produced, their specific qualities, and their use on costumes. In this paper, objects from the Rijksmuseum are given as examples representing the variety and use of gelatin ornaments on costumes. Mention of the use of gelatin ornaments in newspaper articles date back to as early as 1893. Archival records from the early 20th century show a flourishing business of gelatin manufacturers in France. This research proposes to set up a database in which relevant information on gelatin ornaments in museum collections and archival sources are combined, in order to get an insight into the development of the manufacture and the use of this kind of decoration on costumes.

Contents:

Introduction / The production of gelatin / The use of gelatin / Early use / French manufacturers of gelatin sequins / Combining objects with archival sources and other information / Conclusions / Acknowledgements / References

Introduction:

The fashion of the early 20th century is well known for the use of luxurious fabrics and ornaments. Costumes were richly decorated with beads, sequins and embroidery. These ornaments could consist of all kinds of materials, such as metal, glass, pearl and the animal-product gelatin. Gelatin had many advantages over the use of metal or other materials, for example its light weight makes it more suitable for fragile fabrics. Also, it could be produced into different colors, sizes and shapes. The disadvantage of gelatin is its low glass transition point: it melts at a relatively low temperature and at a high relative humidity. Therefore, costumes with gelatin ornaments could not be washed, steamed or ironed; these treatments would destroy the gelatin. Also, exposure to sweat or rain could cause it to dissolve.

Museum objects with gelatin ornaments need specific technical attention from conservators who are responsible for their long-term preservation. In order to conserve these objects properly, research on the material and its qualities is needed. Little is known and published about the production process and how this developed over time. For this paper, objects from the collection of the Rijksmuseum are used as case-studies to illustrate how and when gelatin was used as a material for decorative elements on costumes. Written sources prove that gelatin ornaments were already produced as decorative elements as early as the late 19th century.

The manufacturing of gelatin ornaments in France is researched as this was an important center of production in the late 19th and early 20th century, in order to get an insight into the development of the manufacture and the use of gelatin ornaments on costumes and accessories.

The production of gelatin:

Gelatin is a colourless semi-synthetic material, produced from the chemical synthesis of natural materials. It is a collagen product collected from animal bones and skin. Gelatin can be processed in a solid state, a gel, or in a solution, depending on the temperature and amount of water it contains. One of the chemical characteristics of gelatin is its low glass transition point, which means solid gelatin will transform into a gel at a relatively low temperature and a high relative humidity (Florian 2007, 75-76).

Throughout the years, gelatin has been used for different purposes, for example as an adhesive and an additive in food preparation. A major development in the use of gelatin occurred in 1874, when it became possible to use it commercially in the photographic industry. It was used to coat different photographic substrates such as glass or paper.

To produce gelatin in a sequin-shape, collagen was treated with acetic acid or alkalis, followed by heating; the gelatin, in its gel form, was poured and rolled out onto metal plates to dry and solidify. Disk-shaped forms were then punch-pressed from the plates (Kite and Thomson 2006, 193). Two techniques were used to colour sequins: by adding a dyestuff to the gelatin in solution, or by laminating a layer on the solid gelatin (Paulocik and Scott Williams 2010, 47). In the long-term, both techniques affect the material-technical qualities of the gelatin.



Figure 1: bodice (inv.no BK-1971-34), circa 1900, collection Rijksmuseum Amsterdam.

The use of gelatin in sequins

An early example of the use of gelatin sequins is shown on a costume (fig. 1) which is dated around 1900. Both the bodice and skirt are decorated with multiple embroideries and fringes of beads and sequins. On the bodice, three types of black sequins are visible: all made from gelatin. These ornaments are proof of gelatin already being produced as a material for decorative use on costumes as early as the beginning of the 20th century.



Figure 2: evening coat (inv. nr. BK-1967-127), 1910, collection Rijksmuseum Amsterdam
Figure 3: detail back shoulder area



Figure 4: microscopic image of gelatin ornament

Also, gelatin could be manufactured into forms other than disk-shaped sequins. The shoulder area and the sleeves of an evening coat from 1910 are covered with gelatin elements (fig. 2, 3 and 4). These elements are shaped like flowers with three petals, with a hole in the middle. In comparison to other decorative elements that were used, such as metal and glass, gelatin was relatively low in weight. If you consider the thin - and therefore fragile - fabrics as a ground layer for attaching decorative elements (such as silk, silk crepe and netting), gelatin ornaments was more suitable to the fabric than heavier materials.



Figure 5: evening dress (inv.no BK-1973-365), 1918, collection Rijksmuseum Amsterdam
Figure 6: hip accessory

Gelatin was also used in accessories. On an evening dress produced around 1918, a bunch of grapes is attached to the hip area (fig. 5 and 6). The grapes are made from hollow glass spheres and laminated with a layer of gelatin in a range of colors from pink to grey. During the first two decades of the 20th century, the production of gelatin sequins with many colors, finishes and sizes was wide-spread. Gelatin sequins were relatively cheap in comparison to other materials such as metal, glass or pearls. The dress mentioned above is covered with metal imitation black gelatin sequins. One type is embroidered in strips and has a glossy shine. The other type is embroidered in a sun-like motif and has a matte appearance. The two types of black sequin also differ in size (fig. 7).



Figure 7: detail of train (Evening dress BK-1973-365)

The 'flapper'-dress dating from 1925 is also covered with a wide variety of gelatin sequins (fig. 8 and 9), featuring multiple colors and different types of embroidered patterns. The curled motif in orange is called 'vermicelli' and was a popular pattern in the embroidery of beads and sequins during that time (Piña, Winfield and Korosee 1999, 16). Placing the sequins like tiles or 'fish scales' in such a way that they almost stand up perpendicular to the fabric, gives the embroidery more volume and gloss.

To summarize, gelatin came in a variety of shapes, sizes and colors, and it was easy to produce. Towards the 1930s, the use of sequins on fashion dress slowly diminished. At a certain moment in time (literature is not clear about this), gelatin-based sequins and ornaments disappear. It was replaced by the synthetic material cellulose acetate, developed by Herbert Lieberman with the Eastman Kodak Company.



Figure 8: Evening dress (inv.no BK-1973-370-A), 1925, collection Rijksmuseum Amsterdam



Figure 9: detail of hip area.

Early use

Written sources were also researched to gain a better understanding of the context in which they were produced. References to how gelatin ornaments were worn can be found in articles or advertisements from as early as the 1890s. One of the earliest Dutch references to gelatin as a sequin is found in the *Bataviaasch Nieuwsblad* from 1893. In this article, the latest fashion in Batavia (the capital of the colonial Dutch Indies) is discussed. Notable is the elaborate description of the different types of materials that are used as decoration; gelatin sequins are also mentioned: „Brand new are tulle-lace decorated with gelatin-sequins, [..]” (Unknown 1893). This shows that gelatin was already used in sequin-shape in 1893.

Another early Dutch example of the wear of gelatin ornaments is mentioned in the paper's section on 'All Kinds of This and That': „[..] of which the pattern is finished off with sequins of metal, mother of pearl or gelatin.” (Unknown 1895)

Despite these early references, production and/or origin of these gelatin ornaments could not be traced back to a manufacturer in the Netherlands. So where did the sequins come from? One possibility is that they were imported from France.

French manufacturers of gelatin sequins

The early 20th century was the period in which the specialized businesses of embroiderers and other milliners and craft workers flourished, specifically in France. Between 1900 and 1914 there were about 70 manufacturers of sequins and other *fantaisies pour modes* in France (Langlois-Martin, n.d.). In the 'Annuaire-almanach du commerce, de l'industrie, de la magistrature et de l'administration', published in 1901, some of these companies are mentioned in advertisements, including Choisy, Denis, Obry, Lecoq, Lesieur and Averseng.

There is one manufacturer founded in the early 20th century that still exists today, Langlois-Martin. Founded in 1919, this company specializes in the production of sequins. In 1919 Saint-Martin and Langlois took over the manufacture of sequins from Averseng, who originally bought the firm from Lesieur in 1901. Today the company is managed by J.B. Drachkovitch. For this research on the early manufacture of the use of gelatin as sequins and other ornaments, Drachkovitch was an important source of information. For example, the earliest machine they use dates from 1869. Some utensils were re-used by the successive owners of the business (J.B. Drachkovitch, e-mail to author, April 4, 2018).

The company did not produce and colour the gelatin. The gelatin was delivered to the company as coloured plates, or plates with a metallic finish (Unfortunately it was not possible to trace the companies which produced the gelatin plates yet.) A punch-press machine was used to form the disk-shaped sequin, making it possible to produce two to five sequins at the same time and with the *très bons* machines up till 20 pieces. The varnishing, polishing and iridescencing was all done by hand. In this way, the process of finishing could be customized (J.B. Drachkovitch, e-mail to author, April 4, 2018).

Drachkovitch also gives an insight into the economic environment these companies were working in: „The labour and working hours were not expensive and embroidery was in fashion all over the world” (J.B. Drachkovitch, e-mail to author, April 4, 2018). The supply and demand were high and therefore allowed for innovative research and developments.

In 1913, a patent for the production of gelatin sequins was given to Veyrier and Dannhauser, one of the firms absorbed by Langlois-Martin (Langlois-Martin, n.d.). Considering the production started years earlier, this patent is quite late. We can only speculate what the reason was: perhaps growing competition?

Langlois-Martin work(-ed) in close collaboration with different Parisian embroiderers such as Maison Lesage. The company is currently organizing their archival records, including the orders placed by embroidery studios and fashion designers. Unfortunately, no manuals, catalogues or archival documents on the actual techniques are preserved (or published). Thankfully Drachkovitch of Langlois-Martin has already provided useful insights into the manufacture of gelatin ornaments in France in the early 20th century.

Combining objects with archival sources and other information

Further research is necessary to achieve a better understanding of the use and manufacture of gelatin ornaments. With sources such as digital archives, it is possible to set up a timeline on the manufacturing of gelatin in addition to archives and other sources. Museum collections should be investigated for further information about the use of gelatin ornaments on costume and accessories.

It is important to be precise in the terminology used, for example terms such as 'artificial'. For example, an artificial pearl can be made of many different materials: is it cultivated, or synthetic, or glass? Or could it be gelatin? The term 'artificial' does not say anything about the actual material of which the object is made¹. Different types of data, including patents and manufacturers, can be combined with actual examples of ornaments in costume collections in one internationally accessible database.

Conclusions

Gelatin ornaments were the most practical material for decorations on costumes for a relatively long period, from about 1890 until the 1930s. Gelatin was a light-weight and versatile material, which could be easily used to imitate metal sequins, glass beads or pearls. As soon as synthetic materials became easier to produce, handle, and more versatile, gelatin lost its advantage.

Professionals working with textiles and costume should be aware of the possibility of the presence of gelatin on costumes and accessories during this period. The treatment and conservation of such objects call for specific methods of handling. This paper aims to promote an international database for the identification of gelatin ornaments. The goal is to share knowledge about the production, use, and preservation of this unique material.

¹ Research on artificial pearls has been published and there are cases of producers of gelatin pearls working in the late 19th century. For example, Heusch and Cie in Paris promoted their *perles gélatine Indiennes* in 1901 (Firmin Didot et Bottin réunis 1901, 2185).

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Photo credits: Rijksmuseum Amsterdam

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