

### Galalith

By James Evans, EG

Named from the Ancient Greek 'gala' (milk) and 'lithos' (stone), this versatile gemstone is conspicuous by its absence from modern jewellery.



**A Neiger Brothers dress clip, comprised of green galalith with brass & glass details, 1930s.**

### The History of Galalith

The story of galalith begins with the German chemists Wilhelm Krische and Adolf Spitteler. In 1897 the pair applied to patent '*a new product, derived from casein or similar albuminous substances and called 'lactoform', which is very hard and tough and does not swell or materially soften when immersed in water*' (Krische; Spitteler, 1897a). Krische was reportedly looking to replace the slates used in schools with washable whiteboards made from lactoform-coated paper (his invention pre-dated the industrial production of notebooks). But whilst the material was unsuitable for this purpose, its similarity to horn would prove useful for the jewellery industry.<sup>1</sup>

Lactoform's first public appearance occurred at the Paris World Fair of 1900, where visitors could purchase souvenirs made from the new material – now rebranded as 'Galalith'.<sup>2</sup>

Fifteen years later, galalith appeared at the British Industries Fair of 1915 in the guise of the locally-produced brand 'Erinoid'.<sup>3</sup> It was here that the material caught the eye of Queen Mary, who ordered several pieces of jewellery for personal wear (Morgan, 1999, p.45). Nevertheless, it wasn't until fashion royalty discovered galalith that its popularity really took off. As explained by Rhiannon Knol:

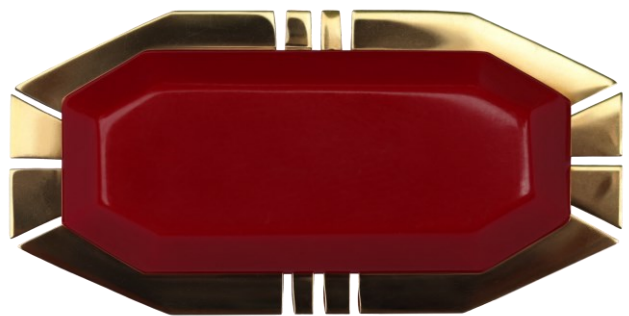
*One of the first designers to see the potential of galalith for jewellery was the French merchant Auguste Bonaz, who began creating brooches made of the new material inspired by the Bauhaus style in the early 1920s. This trend eventually caught fire when, in 1926, Coco Chanel published a picture of the now-iconic little black dress in Vogue magazine and accessorized it with costume jewellery made of galalith. The German designer Jakob Bengel [then] elevated costume jewellery and other plastics from fake to chic with his creative, sensitive products and a high level of workmanship. (Knol, 2016)*

## Making Galalith

Galalith should not be confused with modern "breast milk jewellery", which consists of powdered milk suspended in epoxy. The predominant ingredient of genuine galalith is casein, which forms roughly 80% of the protein in cow's milk (human milk has a greater proportion of whey protein). Splitting milk's casein curd from its watery whey is a familiar process to cooks. But rather than use a weak acid such as lemon juice or vinegar, Krische and Spitteler employed lead acetate (a toxic salt used by Ancient Romans as a sweetener). The remainder of their method is described in a patent application as follows:



**A galalith purse from the Paris World Fair (with a lithographic image by Alary-Ruelle). The product's wonky dimensions reflect a material in the early stages of development.**



**A galalith brooch by Jakob Bengel, 1930s.**

*The completion of the coagulation is recognized by the liquid [...] becoming clear and colourless. The wet coagulum thus obtained is ground with water to a uniform consistence, and the creamy mass is poured into a mold [sic] and the water is allowed to drain away, for which purpose the mold preferably has a sieve-bottom and is placed on an absorbent surface. When the mass is sufficiently firm to handle, it is removed from the mold and allowed to dry until it is slightly translucent. In this condition it is placed [...] in an aqueous solution containing about twenty per cent. of formaldehyde and is afterward dried, preferably under slight pressure, to avoid warping. (Krische; Spitteler, 1897b).*

The approach outlined above would later become known as the 'wet' method. An alternative and more forgiving 'dry' method was to start with casein granules, which were produced by reacting milk with rennet (a set of enzymes sourced from the stomachs of calves). In either case it was the addition of formaldehyde that created cross-links between the casein molecules; transforming a rubbery cheese into a resilient plastic.



**Two galaliths, produced by the author using the dry method and faceted by Eric & Janet Mitchell. Each stone has a diameter of 8mm.**

### Galalith Jewellery

Its early years of production saw galalith used as an imitation of several organic and polycrystalline materials, including: amber, bone, coral, horn, ivory, jet, tortoiseshell and turquoise. Galalith was cheap to produce, easily dyed, non-flammable (unlike celluloid) and presented a pleasant lustre. Krische and Spitteler had noted the material's several similarities to horn. But there was one significant difference: Once set, galalith could not be moulded; both horn and celluloid could.



Being well-suited to the bold, geometric forms of Art Deco jewellery, the popularity of Galalith peaked in the 1920s and 30s. Production of the material continued during the Second World War in order to supply buttons for the military. But, as the war concluded, the luxury of Art Deco gave way to post-war austerity. Food was in short supply. And, whilst the value of milk increased, the adoption of polyester drove down the price and prestige of plastics. The era of galalith jewellery had ended.

**A galalith, enamel, gold and baroque pearl necklace, by René Lalique, circa 1905.<sup>4</sup>**

## Notes

With thanks to WhiskersJet for sharing their knowledge of galalith jewellery.

<sup>1</sup> The hot point odour test can distinguish galalith from horn: Galalith will smell of burnt milk; horn of burnt hair. This is a destructive test.

<sup>2</sup> Other names for the material have included: Aladdinite, ameroid, casein formaldehyde, casolith, dorcasine, galalite, galorn, inda, karolith, kyloid, lactoid, lactoid and syrolit. The World Fair at which galalith made its debut also featured the first public appearance of Verneuil Ruby!

<sup>3</sup> The British Industries Fair was intended to promote British-made goods as alternatives to foreign (and especially German) imports (UK Board of Trade, 1915-58).

<sup>4</sup> Image courtesy of Christie's, 2017.

## Bibliography

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