

How to make a cultured pearl

Professor Henry A. Hänni, director of the SSEF Swiss Gemmological Institute and Professor of Gemmology at Basel University, provided some interesting insights into the specifics of pearl culturing following recent trips to Atlas South Sea Pearl farms in Bali and Irian Jaya Indonesia.

He explained that cultured pearls may be grown in the gonad or the mantle parts of a mollusc. As a general rule beaded pearls tend to be grown in the gonad where there is enough room for the bead. Beadless cultured pearls tend to be grown in the mantle. Beaded cultured pearls include Akoya, South Sea and Tahitian cultured pearls. Beadless include Japanese Lake Biwa and Chinese freshwater cultured pearls.

The tissue graft of the donor mollusc determines the colour and quality of the nacre on the growing cultured pearl. Oysters with excellent nacre quality are selected as mantle tissue donors. Fast-growing strong oysters are used as recipient shells. The implant of mantle tissue leads to the formation of a pearl sac and is called grafting. Beading refers to the introduction of a spherical or other hard body. The bead gives the pearl sac its primary shape and size.

Professor Hänni stressed that the piece of mantle tissue inserted into the gonad does not form a nucleus to the cultured

pearl, but grows to form the sac in which the pearl grows.

It is however possible for a bead to be expelled from a freshly grafted oyster. The tissue will still grow to form a pearl sac resulting in a beadless cultured pearl called 'keshi' (although the term 'keshi' was originally used to describe the tiny mantle pearls that developed without a tissue transplant during the production of Akoya cultured pearls). These 'keshis' are usually sub-round in shape. After the first harvest an oyster may be re-beaded and if the second pearl is lost, a second generation keshi may be formed. These second generation 'keshis' are usually oddly baroque-shaped because they are the product of a collapsed larger pearl sac.

At Atlas South Sea Pearl farms culturing oysters from fertilized eggs has generally replaced wild oyster collection. The oysters are reared under scientifically controlled conditions. After about two years they have grown to around 12 cm and are ready for the operation. High standards of hygiene are employed to ensure that the oysters remain healthy, X-radiography checks are made and the shells are cleaned every three to four weeks.

Almost four years from the hatching of the larvae the oysters are ready for the first pearl harvest. The appearance of the pearl depends on the conditions of the previous fourteen days. If adverse conditions have caused a lack of food, the pearl may not be of sufficient quality to warrant harvesting. In this situation the oysters may be returned to the sea for harvest at a later date.



Mantle tissue selection for grafting the Pinctada maxima oysters. Photo © Henry A. Hänni.

Arabian Pearling: a lustrous future

Gaiti Rabbani, Executive Director, Coloured Stones and Pearls at Dubai Multi Commodities Centre (DMCC), a Dubai Government Initiative, began by giving a little of the history of Arabian pearling. This developed in tandem with the trade routes between the Mediterranean Sea and India from the second century BC to the seventh century AD. By the turn of the twentieth century the UAE had a reputation for producing some of the best natural pearls in the world. After reaching its height in the early 1900s, the Gulf Pearl industry declined as a result of the great depression and the development of the cultured pearl market.

The decline of pearling in Dubai was followed by the development of the country's oil industry with later diversification into trade, retail tourism and property. Recently the government has initiated plans to revive the region's rich pearling history and 'embed pearling as the keystone of the Emirates cultural identity'. To this end international players have entered the market at retail level and the DMCC has now launched the Dubai Pearl Exchange and the Pearls of Dubai project.

The speaker concluded her presentation by showing a short film which brought to life the great traditions of Arabian pearling including 'the dive'.



With P. Maxima oysters, the grafting with mantle tissue goes together with the beading, i.e. introducing a sphere of shell to the tissue transplant. Photo © Henry A. Hänni.