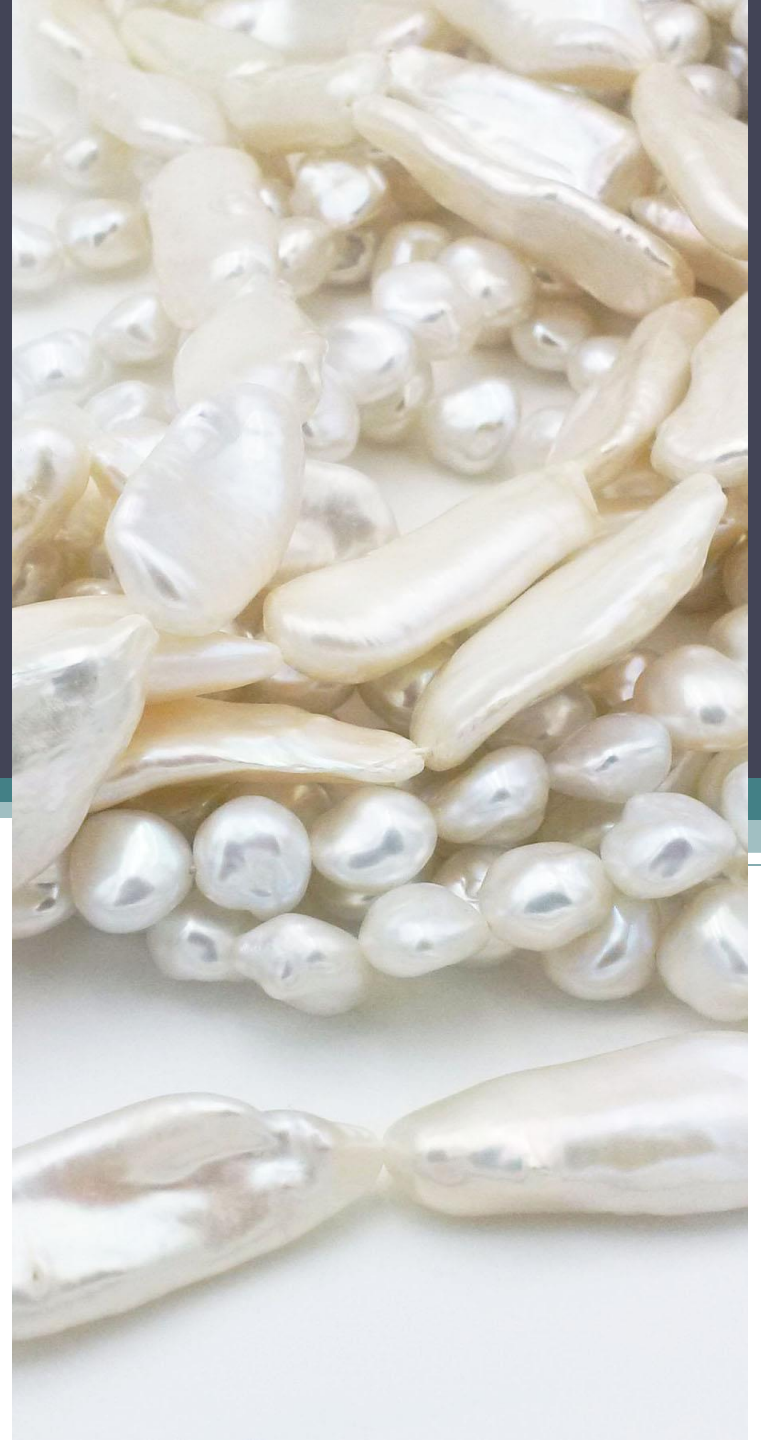


Introduction to the World of Pearls

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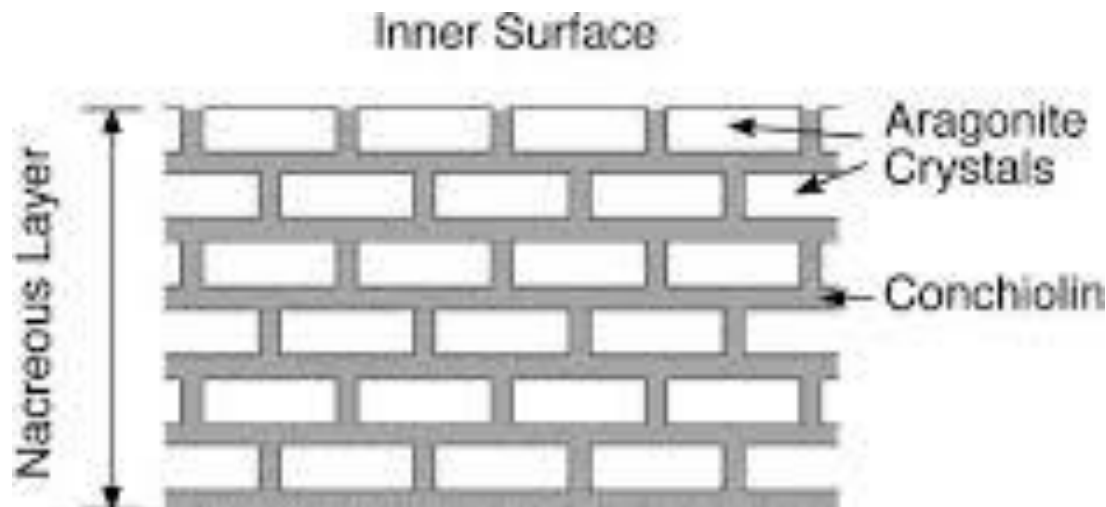
- Natural pearls: composition, definition and causes of their disappearance
- Distinction between freshwater pearl and cultured pearl
- Different variety of pearls
- Quality criteria for pearls
- How to care for pearls
- How to identify imitations
- Questions



Natural pearls

Natural Pearls form when an irritant - usually a parasite and not the proverbial grain of sand - works its way into an oyster, mussel, or clam. As a defense mechanism, a fluid is used to coat the irritant. Layer upon layer of this coating, called 'nacre', is deposited until a lustrous **pearl** is formed.

Nacre are composed of two substances: Aragonite crystals and conchiolin



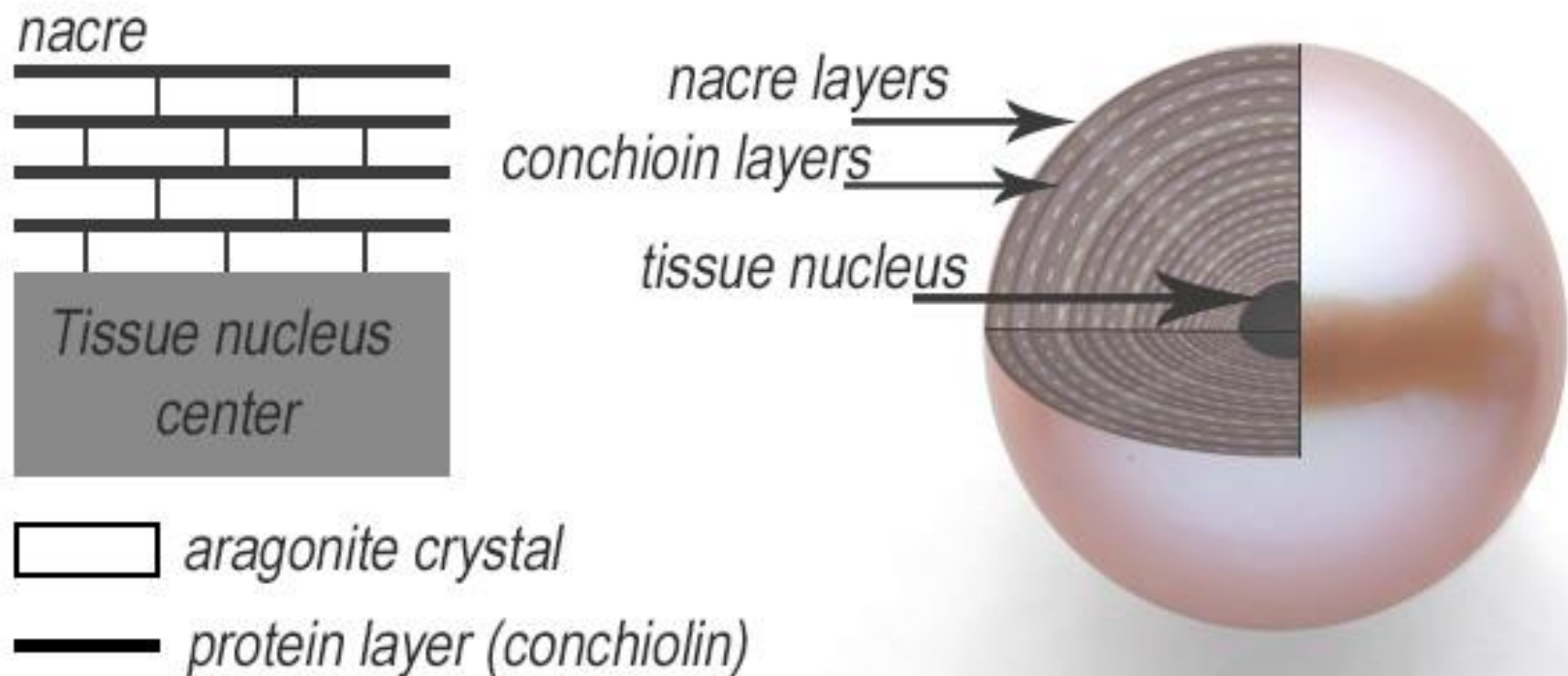
Disappearance of natural pearls: causes

- Excessive popularity of pearls (overfishing) at the end of the 19th Century; thus rarity and overpriced
- Sea pollution (petroleum, maritime commerce, transport)
- Great dangers in fishing for pearls, very difficult life
- Discovery of plastic (replaced nacre in the button industry)
- Mountains of dead molluscs putrefied on the shores of lakes and seas.
- Discovery of the culture of pearls, making them perfectly round-Japan 1897 (Mise, Nishikawa, Mikimoto)
- Length of time required to find enough pearls to constitute a reasonably matched necklace (one fisherman's life usually).

Freshwater cultured pearls



Nacre in thin layers of superposed coats,
mostly without nucleus, only nacre.



The layers of a cultured Freshwater pearl

- Mollusc : a MUSSEL of the *unio* variety
- Many pearls per valve up to 60 per mussel (but usually 15 to 40)
- Possible colors: all shades of white, cream and pastel pinkish and purplish color. Many factors determine colour of the pearl : minerals in the water, variety of the host, variety of the graft, health of the mollusc, etc.



- May have any shape; depends on whether or not there is a shell bead and what its shape is. Structure will follow the shape.



round



semi-round



button



pear



drop



oval



baroque



ringed

Pre-formed pearls



coins



heart



squares



stars

Fireballs



Keshi/biwa



- Graft on the mantle tissue; the pearl sac is formed in the mantle which secretes nacre. Made mostly from a piece of mantle tissue taken from a dead mussel (they now also have nucleus beads of miscellaneous shapes)
- Very large and thick shell, robust organism; some shell are used to make shell beads used in the saltwater culture.
- Can be treated by bleaching, dying or irradiation. The shell of the mollusc becomes dark or gray with gamma ray irradiation du to the presence of manganese in the atomic composition



Saltwater cultured pearls



Tahitian

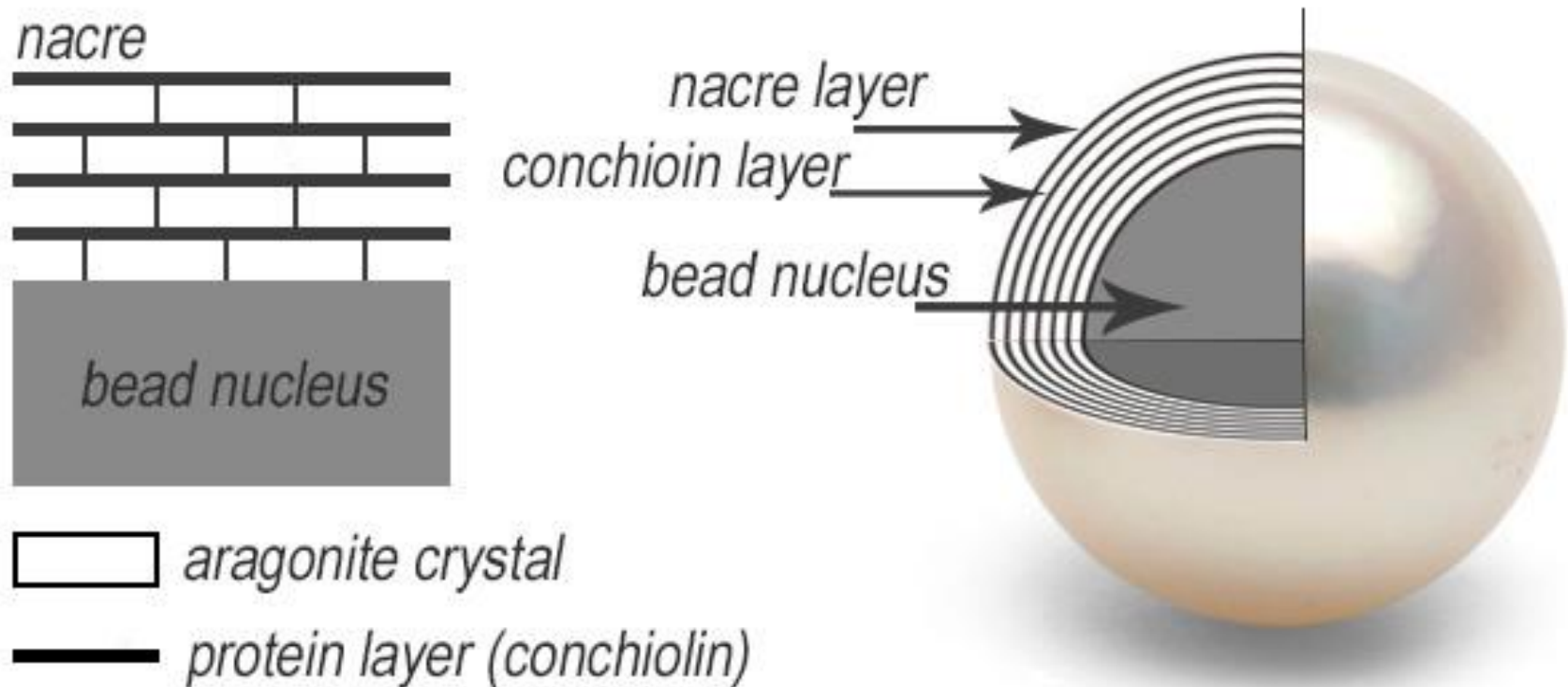


South sea



Akoya

Concentric structure only on the outside layers;
lamellar inside (structure of the shell bead).



The layers of a cultured Akoya pearl

- Mollusc : OYSTER, *pinctada* variety or *meleagrina*; the Japanese one is called *Akoya*
- Only one per oyster, rarely two
- Very high risks of mortality and of rejection of the graft (planktons, predators numerous, thin and fragile shell, graft site)
- Graft is in the gonad (reproduction organ): the pearl sac is formed from the graft that grows around the nacre bead; the gonad does not secrete nacre.
- Graft made from a nacre bead taken from a freshwater shell (an American unio mussel) PLUS a graft of mantle tissue taken from a dead oyster.



- Akoya shell is very thin, fragile and small, the South Seas and Tahitian are thick and large however.
- Many factors determine the colour of the pearl: how salty is the water, water temperature, variety of the shell, of the graft, health of the mollusc, etc.
- The shape is pre-determined by the shape and size of the nucleus (shell bead inserted with the graft).
- The saltwater oyster has no reaction to irradiation (however, note that the nucleus of the Akoya cultured pearl is made of freshwater shell which becomes dark and by transparency will give a grey pearl if irradiated).
- Layers of nacre that covers the nucleus shell bead. If the nacre wears out, the nucleus will be seen underneath.

Different variety of pearls

Akoya

Saltwater cultured pearls from the Akoya oyster *Pinctada fucata martensii*. These pearls are typically round, ranging from very pale pink to white, more or less pronounced shades of cream, and rarely bluish gray. On the market, we find mostly Akoya pearls between 6 and 8 mm although they exist between 4 and 9 mm and exceptionally up to 11 mm. Japan is the largest producer of Akoya pearls, but Hong Kong, South Korea, Vietnam and Sri Lanka also produce smaller quantities. The term "Japanese pearl" usually refers to this type of pearl.



Tahitian

- Also known as black pearls, Tahitian pearls exist in a wide variety of natural colors, from very light gray (sometimes even white) to very dark gray, passing through a wide variety of colored highlights: green, golden, coppery, bluish, pink or purplish. These pearls are derived from the oyster *Pinctada margaritifera* and as the name suggests, are mainly found in French Polynesia. They are usually between 8 and 18 mm, but more frequently are between 9 and 12 mm. Although we are seeing Tahitian pearls on the market between 6 and 8 mm, these sizes are still rare and marginal.



South sea pearls

- In general, this term refers to all saltwater pearls produced in the region between the Philippines, Indonesia, Australia and French Polynesia. However, the pearls of the South Seas are mainly pearls from the oyster *Pinctada maxima*. You may also hear the expression Gold-lipped oyster or White-lipped oyster to describe this same mollusc. These pearls are usually large (between 8 and 19 mm) and vary in color from white to silvery white to gray and golden white to brilliant gold. The main producing countries are Burma and Australia.



Kasumiga

- Japanese freshwater cultured pearl with nucleus that gets its name from Lake Kasumi-ga-ura in Japan. The pearls come from a cross between two types of freshwater mollusk and they are known for their particular color and iridescence. The majority of these pearls are now grown in China and are often sold under the name "Kasumi pearl", "Kasumiga like" or "Ming pearl".





Keshi

- Japanese term meaning "poppy seed". Keshis are small, coreless, baroque pearls that were created by accident when the mollusk shell rejects the mother-of-pearl nucleus when culturing saltwater pearls. This term is also used to qualify the shape of some baroque freshwater pearls.



Mabé

- Type of pearl built (assembled) from a mother-of-pearl dome filled with resin, plastic or wax and closed behind another piece of mother-of-pearl so as to form a half-pearl. They can be grown in all types of pearl mollusks, although they are more common in black-lipped and silver-lipped oysters. Also sometimes called “pearl doublet”, these pearls are very fragile. The mother-of-pearl layer used is more or less thick and can crack after a shock. Their use on rings or bracelets is therefore not recommended.



Quality criteria for pearls

- Luster



- Surface



- Colors



Quality criteria for pearls

- Shape



- Size

- Nacre thickness

- Matching

- Type of pearl

- Treatments



How to care for pearls

- Never store or wear with other jewellery, gold chains, watch
- Store in a breathable container, not plastic and keep away from cotton wool
- Keep away from heat
- Wipe well with a wet cloth after wearing on your skin (**do not pull nor stretch the strand**)
- Never shower or swim with your pearls
- Avoid at all costs contact with hair spray, perfumes or skin creams
- Re-string regularly (when pearls move between knots)
- Do not soak to clean. Never use other soaps than a very mild one if very dirty.
- Do not keep pearls in a safety deposit box where the atmosphere can be very dry. Pearls can dry out and crack if their water content evaporates

How to identify imitations

- Under magnification: cultured and natural pearls show fine uneven layers of pearly nacre that look like tiny raised undulating ridges. They can also show surface imperfections. Fake one will show a grainy smooth surface.



Immitation



Pearl

- On a necklace made with imitation pearls, the pearls will seem perfectly matched and will generally not show any overtone.
- Plastic pearls will be lighter; Majorca will have the same weight as cultured pearls, if not heavier

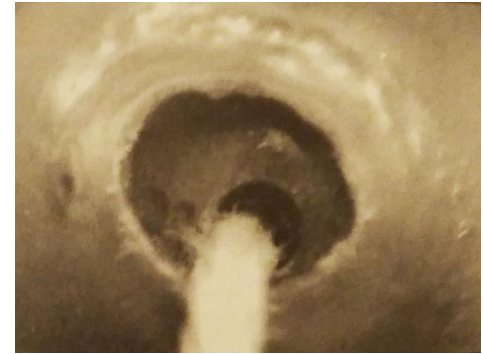
How to identify imitations

- When it's possible, observe very carefully the drill hole. The edges of a pearls are often sharp and well defined. On a fake one, the coating around the edges of the drill holes may have flaked off, form a glossy coating or look very uneven or even exposed the inner bead

Pearl



Imitations



How to identify imitations

- Real pearl will be colder by touch than plastic and even a little more than glass imitation
- The quality of the clasp could be an indication, but not necessarily.
- X-Ray radiography is a quick verification method when dealing with a necklace. Imitations are opaque under X-Rays while cultured and natural pearls appear semi-transparent.

