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Pearl Culture and Craftsmanship: An Overview

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Pearls have been treasured for centuries, symbolizing elegance, purity, and wealth. With advancements in pearl culture (or pearl farming), pearls have become more accessible, enabling artisans worldwide to craft exquisite jewelry and decorative pieces. This article explores the intricate processes involved in pearl culture, the artistry of craftsmanship, and the current challenges and future directions of the industry.

The history and origins of pearl culture: The journey of pearl culture can be traced back to Japan in the early 20th century, where Mikimoto Kokichi pioneered techniques for cultivating pearls. This revolutionized the pearl industry, making it possible to produce high-quality pearls outside natural oyster beds. The success of Mikimoto's methods set the stage for pearl farms worldwide, with leading regions including Japan, China, French Polynesia, and Australia.

The timeless allure of pearls: Unveiling the art of pearl culture and craftsmanship: Pearls have captivated human imagination for centuries, symbolizing elegance, sophistication, and luxury. From ancient trade routes to modern jewelry designs, pearls have played a significant role in human culture. This article delves into the fascinating world of pearl culture and craftsmanship, exploring the history, techniques, and artistry behind these lustrous gems (Suman *et al*., 2021)

History of Pearl Culture

A legacy of luxury: The ancient roots of pearl culture: Pearl culture dates back over 4,000 years, with ancient civilizations such as the Sumerians, Egyptians, and Indians prizing pearls for their beauty and spiritual significance. The art of pearl farming emerged in the 19th century, with Japan and Australia leading the way. Today, pearl farming is a global industry, with farms in the Pacific, Indian, and Atlantic Oceans.

Pearl Farming Techniques

Cultivating Beauty: The Science of Pearl Farming: Pearl farming involves inserting a small irritant, typically a shell bead or piece of tissue, into a mollusk to stimulate the

production of nacre, a substance that coats the irritant to form a pearl. Farmers carefully monitor water quality, nutrition, and mollusk health to ensure optimal pearl growth. Harvesting typically occurs after 13-18 months, depending on the mollusk species and desired pearl size.

Types of Pearls

A Rainbow of Choices: Exploring Pearl Varieties: Pearls come in various shapes, sizes, and colors, each with unique characteristics. Major types include:

- Akoya pearls (white, cream, or pink)
- Tahitian pearls (black, gray, or green)
- South Sea pearls (white, silver, or golden)
- Freshwater pearls (pastel hues)
- Natural pearls (rare, occurring without human intervention) (Victor *et al*., 2000)

Pearl Grading and Classification

Evaluating Excellence: The 5 S's of Pearl Grading Pearl quality is assessed using the 5 S's:

1. **Size**: Larger pearls are rarer and more valuable.
2. **Shape**: Round, near-round, or baroque (irregular).
3. **Surface**: Smoothness and presence of imperfections.
4. **Shine**: Luster and reflectivity.
5. **Source**: Origin and mollusk species.

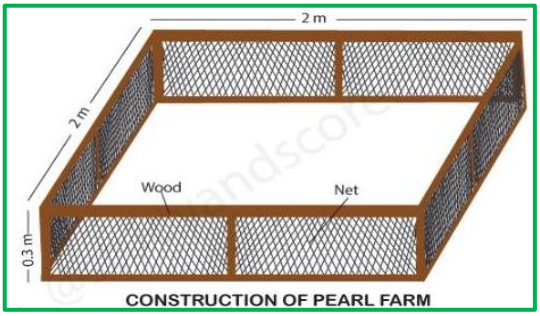
Technical requirements for pearl culture

The technical requirements for the establishment of Pearl farm and its successful operation are briefly described below:

Process of pearl culture: The process of pearl culture includes the following steps which are very crucial for obtaining high grade of pearls with good commercial value.

Step 1: Construction of pearl farm: Construction of a pearl farm includes three steps. They are,

- Selection of farm site
- Construction of farm
- Well-planned work schedule
- **Selection of farm site:** This step determines the type of pearls produced, and the oyster survival rate. Some of the points to be noted while selecting the site are:
- Natural features like mountains and reefs are needed to protect the farm from winds, currents, storms, etc.
- Constant regularity of temperature
- Type of sea bed, such as rocky or sandy
- Gentle currents are essential for the survival of the oysters as they bring food and oxygen (Haws *et al.*, 2002).



CONSTRUCTION OF PEARL FARM

Construction of pearl farm: The whole pearl farm system is based on series of floating wooden rafts. Ten units of wooden rafts are used. Each raft consists of two to five pieces of wood making the total length to 20 ft. The raft is covered with

wire mesh baskets, each of which house 10 oysters.

Well-planned work schedule: A typical work schedule plays a very critical role in pearl culture. The timing for collecting and seeding the oysters must be scheduled and followed strictly.

Step 2: Collecting oysters: After the construction of pearl farm, the divers set out to the bottom of the sea, to collect the oysters. Divers are pulled by large lugger boats in the direction of the tidal flow. Oysters are generally located on a flat rock bottom and are usually covered with marine animals and a thin layer of silt. Therefore, it is often very difficult for divers to recognize them. The shells collected, are cleaned, sized, and placed into baskets for storage until they are transferred to the pearl farm.

Step 3: Seeding:Two-three-year-old healthy oysters are considered for surgical implantation known as seeding. This is a very delicate operation and involves three stages: **Preparation of the graft:** A donor oyster is sacrificed to obtain mantle. Mantle is needed by the host oyster to accept the nucleus. The mantle is located on the outer section of the oyster and Mantle produces the nacre which forms pearl. Before a graft is taken from the mantle, the oysters are starved for several days to slow down the metabolism of the oyster. This helps to decrease the risk of core rejection and open the oyster easily.

Attaching the graft: The oyster is opened with special wedges and pliers, then a scalpel slit is made in the soft tissue near the reproductive organ and a graft of living mantle is inserted into the slit.

Inserting the core: A nucleus is placed in the scalpel slit and the oyster is then returned back to the water. The inserted core irritates the oyster, provoking it to gradually coat the core with thin layers of mother of pearl nacre. After some time, the oysters are collected, and x-rayed to see whether the implants have been accepted. Oysters which have rejected the implant are returned to the water and are once again operated. The oysters which have accepted the implant are transferred to the pearl farm. The person who is seeding must be extremely careful not to harm the tiny pea-crab which lives unharmed within every healthy oyster. It is presumed that the crab assists the oyster by keeping it clean and by sharing the debris which the oyster sucks in (Dan and Ruobo, *et al.*, 2002).

Step 4: Caring the oyster: The shells which have been collected and transferred to the pearl farm are placed in baskets or panels which are attached to long lines connected to the floating rafts. The rafts are dropped down into the ocean with the oyster securely inside the basket, where they remain until they become operated on for further seeding. The oyster can produce more than one pearl in its lifetime. Regular cleaning of the shells to remove seaweed results in better pearls plus makes them easier to handle. The cleaning is done by a machine which uses water jets and brushes to clean off any seaweed. The oysters need very tender loving care so as to be productive when harvested.

Methods in pearl culture

Harvesting: After 18-20 months, the oysters are harvested. It is necessary to make a trial harvest to determine whether the pearls have a sufficient coating. If it is not sufficient, then an additional six months to a year of culturing is necessary. The oysters are split open and pearl bags are cut by the scalpel to remove the pearls.

Collected pearls should be thoroughly dried after the harvest to prevent loss of luster.

Sorting pearls: There are many different steps involved with the sorting of pearls. Firstly, the pearls are sorted according to whether they can be used for the cultured pearl industry or not.

These are categorized into three sections:

- Unmarked pearls
- Pearls with one major blemish
- Pearls with more than one major blemish (Yadav and Sharma, *et al.*, 2022).

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