PEARL SCIENCE LABORATORY

Pearl science laboratory was found in 1987. Not only issuance of grading reports, but also Pearl science laboratory has been working on many fields associated to pearls.

Specific works are:

1. Issuance of pearl grading report
2. Issuance of identification and quality analysis
3. Development and sales of pearl cleaning and maintenance tools
4. Providing various types of educational Seminars about pearls
5. Publication of a monthly magazine Margarite
6. Publication of books about pearls
7. Development of medical materials for pearl cultivation

President of Pearl science laboratory, Hiroshi Komatsu obtained a PhD for “Optical research on mechanism of pearl`s irradiance”. His long time research on pearls are well recognized and based on his works, unique grading system, cleaning and maintenance methods are developed. Year after year, educational activities, such as providing seminars and publication, are sophisticated. Monthly magazine Margarite reached No 280 and its contents are wide, from research of pearl cultivation to the latest fashion trend.

On grading reports, pearls which are qualified as in the range of highest quality are given special name and grantee mark. For example, in case of “Aurora Ten-nyo”, the grading report looks like this

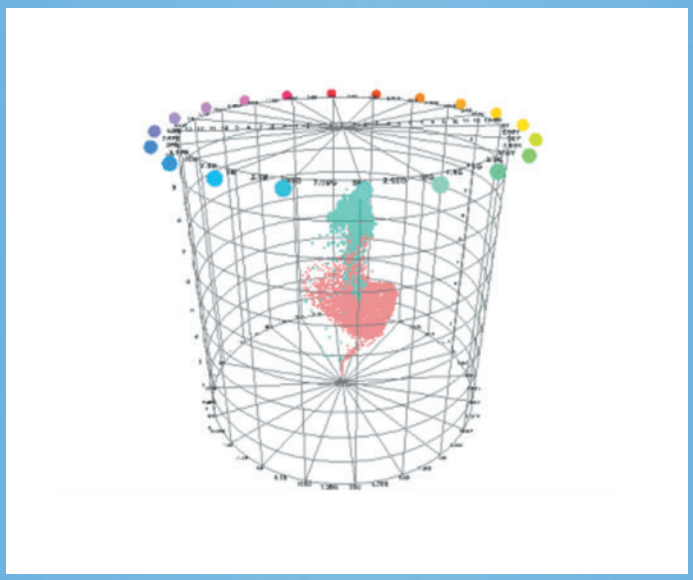
3-D "TERI" Measurement

三次元でテリを測定

「Aurora TEN-NYO」

New Pearl Identification & Grading Report is completed

「オーロラ天女」新しい鑑別鑑定書が完成



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1. About "Aurora TEN-NYO"
2. About "TERI"
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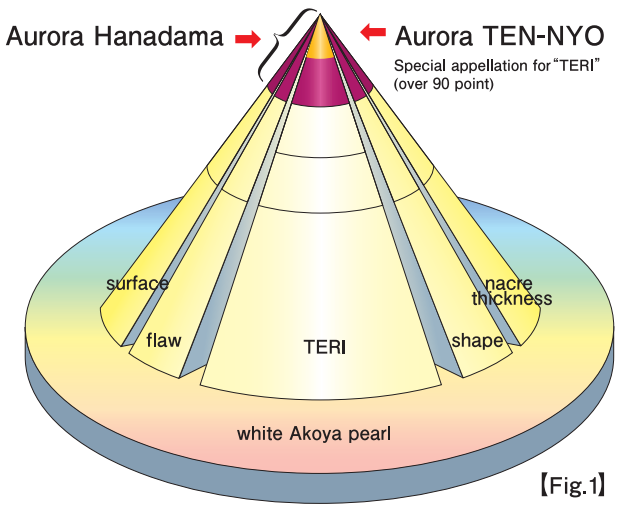
road 1 About “Aurora TEN-NYO”?

We have been focused on “TERI” because it is the most important element to consider about pearls.

As we will explain about TERI later (on road2), you might have heard of "Aurora HANADAMA" as a name of the best quality valued Akoya-pearls. "Aurora TEN-NYO" is the special name for the Aurora HANADAMA pearls but only have the most distinctive TERI among all. The TERI of Aurora TEN-NYO is valued by our original score formulation using a device named “Aurora viewer”. To clear the criteria, more than 90 points out of 100 points full mark is required.

The word “TEN-NYO” can be directly translated as “A lady from heaven”. We named "Aurora TEN-NYO" to express the image of beautiful maiden floating over the flowers with her three colored feathered robe worn.

*TEN-NYO is a fabulous maiden in Japanese traditional legend.



【Fig.1】

road 2 About TERI

2-1 What is TERI ?

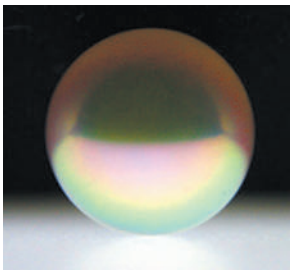
TERI is the word for the light interference which occurs on the surface of the nacre.

In other words, it means the brightness and the color of the light interference.

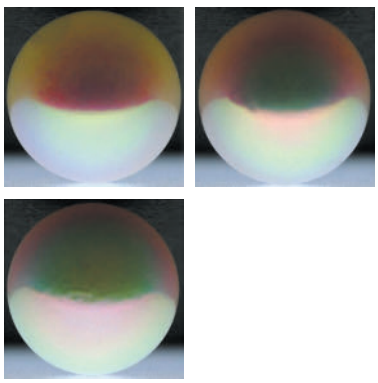
The feather of a peacock, a jewel beetle, and morpho butterflies are good examples.

All of the examples above have the light interference on their feathers, which occurs by reflection only. Pearls are unusual case however; the interference occurs by both reflected and transmitted light.

You can see the image of the light interference (TERI) when the pearls are directly touched on the fluorescent light (diffused light source). The light interference (TERI) can be roughly classified into three patterns.【Fig.3】



【Fig.2】 Colors of transmission and reflection interperence lights seen in the upper and the lower hemisphere



【Fig.3】 above from left pink,pinkgreen, greenpink

2-2 How to measure the TERI

The measurement of TERI is extremely difficult compared with the measurement of luster.

Dr. Teizo Aida* at Kumamoto University had published his method, how to measure TERI. He showed that there is a definite relation between the vividness of the reflected light on a pearl and the strength of the TERI.

Our method of the measurement is expressed by an image of the color analysis, and it shows the color of transmitted (the upper hemisphere) and reflected (the lower one) light interference. As you can see in Fig.4, three dimensional representations of colors are shown in the 3D graph. The color (Hue), the saturation (Value), and the luminous intensity (Chroma) of aurora are represented as three attributions on the graph. The total score are calculated by each attribution.

【Fig.4】 Three-dimensional representation of colors

*Teizo Aida "Luster of pearl", Optics,15,3,1986

road 3

Explanation of the contents of Identification & Grading Reports

No. 1 "TERI Value Analysis" is listed first on the Analysis list below. The outline of the analysis is mentioned on the back of the Identification & Grading Report.

No. 2 Phonogram Mark and real image of aurora effect are attached as a certification of color analysis result.

No. 3 Since the "Aurora TEN-NYO" is a one of "Aurora HANADAMA" quality in a broad sense, the Best Quality Mark is attached.