

Nature Note

Iridescent Jewel: The Pearl

► **THE PEARL**, natural or cultured, is the only jewel created by a living creature.

Although every two-shelled creature can produce a pearl of some sort, the truly beautiful and valuable pearls are created only by certain oysters—the Pteriidae or pearl oyster, of the large Mollusca phylum.

During the life of an oyster, its fleshy tissue, called the mantle, secretes and lays down molecules of horny material in precise orientation to produce an outer horny shell. Next to this, calcium carbonate crystals lie in tightly packed prisms. The innermost layer, the nacre or mother-of-pearl, is secreted in extremely thin layers of limy material alternated with equally thin films of horny material. These layers provide the diffraction of light that produces beautiful iridescent colors—blue, green and pink.

Then if a grain of sand or other material gets between the mantle and the inner layer, it irritates the tissues, and the oyster secretes more mother-of-pearl to cover or wall off the foreign object. The shape of this growing pearl depends on the body zone in which it is produced. It may be spherical, or if compressed, it may be lateral or pear-shaped.

The layers of nacre are built up slowly—at a rate of about three thousandths of an inch per year. It takes an oyster about three years to make a pearl.

Natural pearls are those occurring naturally in the oysters. Cultured pearls are the products of cultivated oysters into which man has deliberately placed a foreign object. Artificial pearls have been made with spheres of thin glass filled with a special preparation of silvery scales of small fish. The cavity is then filled with white wax.

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tion brought together in each community an unusually broad group of local leaders, state officials, university presidents, professional men from a number of fields, and industrialists. Immediately there resulted a cross-pollination of ideas, an exchange of views, a frank discussion of problems—in short, these communities engaged in an unprecedented self-appraisal. In many cases, I think the people were led to see some of the hitherto unrecognized assets and shortcomings of their area.

As local resources were being mustered, it suddenly dawned on community leaders that the overall attractiveness of an area must be measured by factors which transcend economic considerations. Critics of intellectual and cultural activities were transformed into champions when it became evident that a strong academic base and a broad cultural environment were more highly regarded than amusement parks or dog racing.

University presidents suddenly found that their pleas for understanding of long-range goals—pleas that had long been ignored—were blossoming into legislative appropriations. In some cases for the first time in history, legislatures specifically earmarked appropriations for their university's research programs.

This local self-appraisal brought a greater interest in racial harmony. It brought renewed support for education at every level. It brought a greater appreciation for the public library, the symphony and even children's ballet classes.

New Channels Opened

The very process of assembling information opened important new channels of communications within the community. And if the people can maintain their momentum, not only will the community be a better place in which to live—it will be in a stronger position to compete for other scientific or technical installations.

Our site search has, I think, helped in another way which is important to me personally. It has helped change the public image of the scientist from a cold, detached individual to that of a very human person with a deep interest in his family and in his community.

All of this indicates, then, that the 'Two Cultures' are, indeed, becoming integrated, and this will be mutually beneficial to each.

Finally, as part of the new blending of scientific, social and cultural interests which seems to be forthcoming to-

day, and in turn influencing it, I think we may see in our country a new rise in the quality of leadership. This should come about as, in this process of better balancing human values with the growth of science and technology, we develop men and women who have both broad social outlook and the knowledge to make the practical day-to-day decisions in keeping with that outlook.

Perhaps also in a society which fosters this combination of wisdom and knowledge, and which tries to keep its focus on individual human values within an evergrowing nation, we will be able to develop some immunity to the Anti-Leadership Vaccine which John W. Gardner has described so effectively as one of today's new problems in education.

To me, all these aspects of our new awareness, and the new actions we are taking as a result of it, are signs of an important new period of maturity for our country, and I believe they will not only reflect in our building of a Great Society here but will have a profound influence in our relations throughout the world.

In October of 1963, the late President Kennedy flew to Amherst College in Massachusetts to participate in a ceremony honoring the poet Robert Frost. I think that the talk he gave at that ceremony best reflects what most Americans feel should be the goals of this country and our role in the world. And since it bears so profoundly on what I have been trying to say tonight, I would like to conclude by quoting some of this most impressive statement.

"I look forward to a great future for America, a future in which our country will match its military strength with our moral restraint, its wealth with our wisdom, its power with our purpose.

"I look forward to an America which will not be afraid of grace and beauty, which will protect the beauty of our natural environment, which will preserve the great American houses and squares and parks of our national past, and which will build handsome and balanced cities for our future. . . .

"I look forward to an America which will reward achievement in the arts as we reward achievement in business or statecraft. . . .

"I look forward to an America which commands respect throughout the world not only for its strength but for its civilization as well. And I look forward to a world which will be safe not only for democracy and diversity but also for personal distinction."

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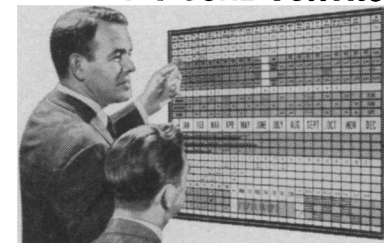
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