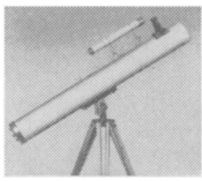


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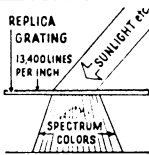
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BIOLOGY

Mixed Animal Enzymes Produce Luminescence

➤ FOR THE FIRST time, scientists have removed luciferin from a fish. Luciferin is a light-emitting compound found in some "glow-in-the-dark" creatures, such as fireflies and glowworms.

Working in Japan with luciferin from a South Seas fish known as kinme modoki, Dr. Frank H. Johnson of Princeton University and Dr. Yata Haneda of the Tokyo Jikeika Medical College were able to mix two compounds that produce luminescence and get a luminescent reaction, although the compounds came from different animals.

The luminescent extracts are the enzyme luciferase and a substance known as luciferin which, upon decomposing, emits light. Previous attempts to obtain light when mixing luciferase from one animal with luciferin of another type had failed.

However, Drs. Johnson and Haneda reported, they were able to get a cross-reaction, luminescence, using extracts from two different types of fish. Even more remarkable, they said, is the fact that extracts from one of the fish, which is about the size of a large goldfish, reacted with those of a luminescent crustacean.

Luminescence interests biologists, Dr. Johnson explained, because it is a useful tool in investigations of fundamental problems that apply to all living things. For example, it can be used in studies of the "effects of drugs, heat and cold, and antibiotics on organisms as a whole or on their various life processes such as respiration, reproduction and digestion."

"Until you can get extracts, there is no way to understand the process," he said. "Extracts are the first step. In the past there appeared to be no relation between the luminescent systems of different organisms, because there had been no cross-reaction of the extracts. Now it is shown that there is some unity in the luminescent systems of very different organisms."

The successful experiments with kinme modoki, whose scientific name is *Parapriscanthus berycijformis*, were completed under a grant from the Office of Naval Research.

Science News Letter, February 14, 1959

VETERINARY MEDICINE

Twin Calf Study Shows Tastes Can Be Inherited

➤ IF YOU have a "sweet tooth," chances are it is probably inherited.

Studies with twin calves, reported by two British researchers, indicate that taste discrimination is "almost entirely genetical in origin." Environmental factors apparently play only a minor part in this type of behavioral reaction, F. R. Bell and H. L. Williams of the Royal Veterinary College, London, report in *Nature* (Jan. 31).

Using identical twins, the researchers learned that the calves were able to dis-

tinguish between the four normal "taste modalities" of sweet, sour, salt and bitter. However, while sweetened water was rarely rejected, both bitter and sour tastes were low in acceptance.

Two-choice discrimination tests were carried out to test taste preferences. Each animal was given two identical buckets to drink from. One bucket contained tap water, the other either glucose, acetic acid, sodium chloride or quinine dehydrochloride, depending upon which taste was being tested.

High concentrations of the "flavor" were almost always rejected, the scientists report, even when sweet glucose was given. Preference for a flavor was indicated by the amount of tap water the calf drank compared with the flavored water.

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