



LUMINESCENT LIGHT SOURCES

DISCOVER

GO OUTSIDE

i went to my local park this evening to practice (re)connection: a practice that reminds us to observe and spend time in nature to understand how life works and encourages innovators to think about how a personal connection to nature informs work.

while I was sitting there, time passed very quickly, which reminded me of how ephemeral nature is, further reminding me of its importance and value. soon, it was evening, and I spotted a small blinking in the distance; fireflies. the captivating glow of fireflies in nature served as the primary inspiration for our model, emphasizing the beauty of bioluminescence and its potential application in urban lighting. after going home and researching, I found that this was very possible and scientific research had gone into it already.





WHAT DO I WANT MY DESIGN TO DO?

for my design, I want to use bioluminescence as a sustainable, nature-derived alternative to electric lighting (often produced through fossil fuels).

urban lighting accounts for 16% of total public authority energy consumption and 41% of their electricity bills.

bacteria, which would produce the bioluminescence, can be cultivated at very fast rates and need very little for this growth, and would therefore reduce costs significantly

moreover, the dim lighting of bioluminescence would reduce light pollution significantly, reducing the harm done to animal and vegetable ecosystems weakened by traditional street lights.

DEEP LATE



THE SCIENCE

some biological purposes for bioluminescence include:

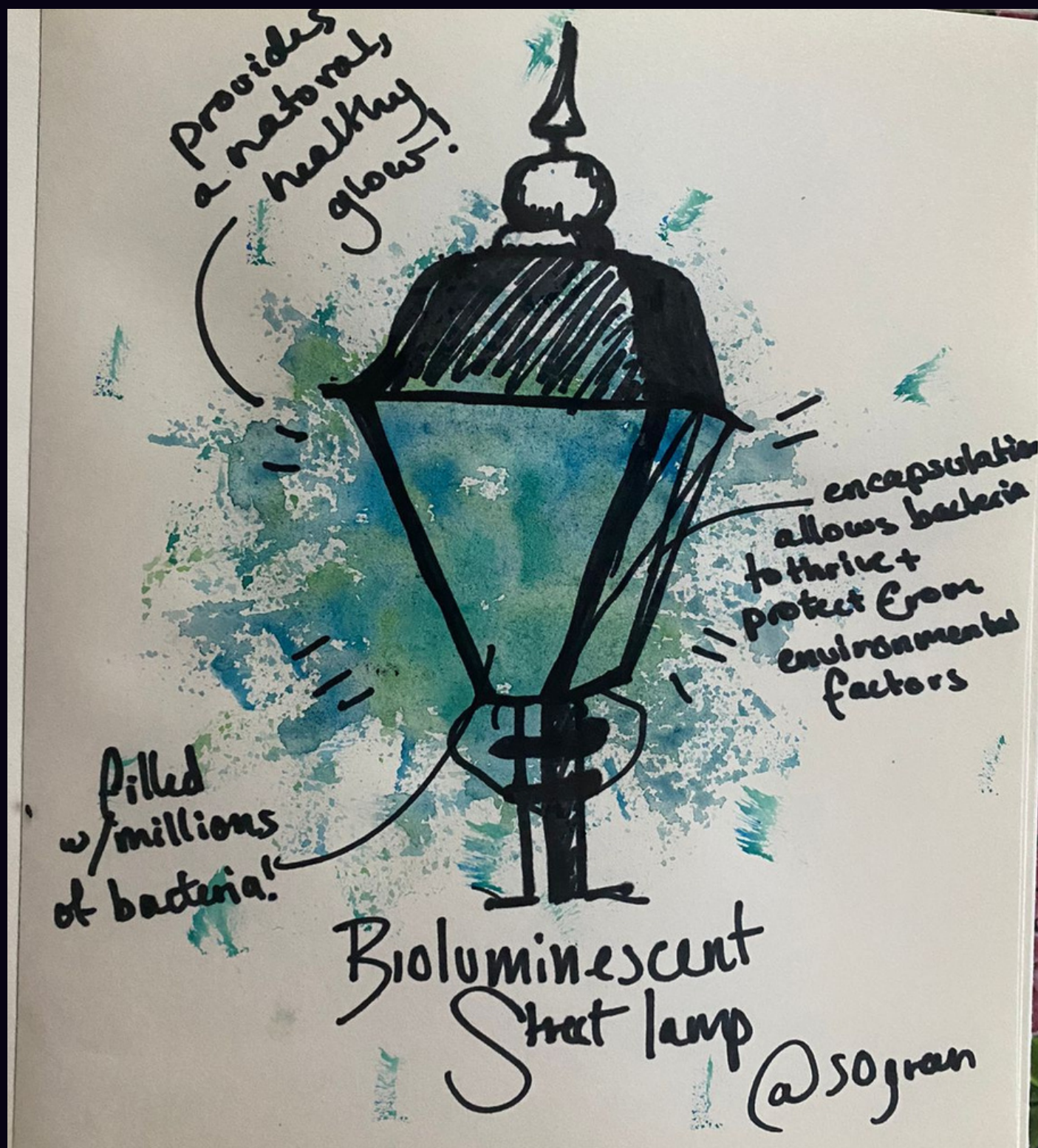
- *attracting mates*
- *defence against predators*
- *warning signals*
- *distribution*

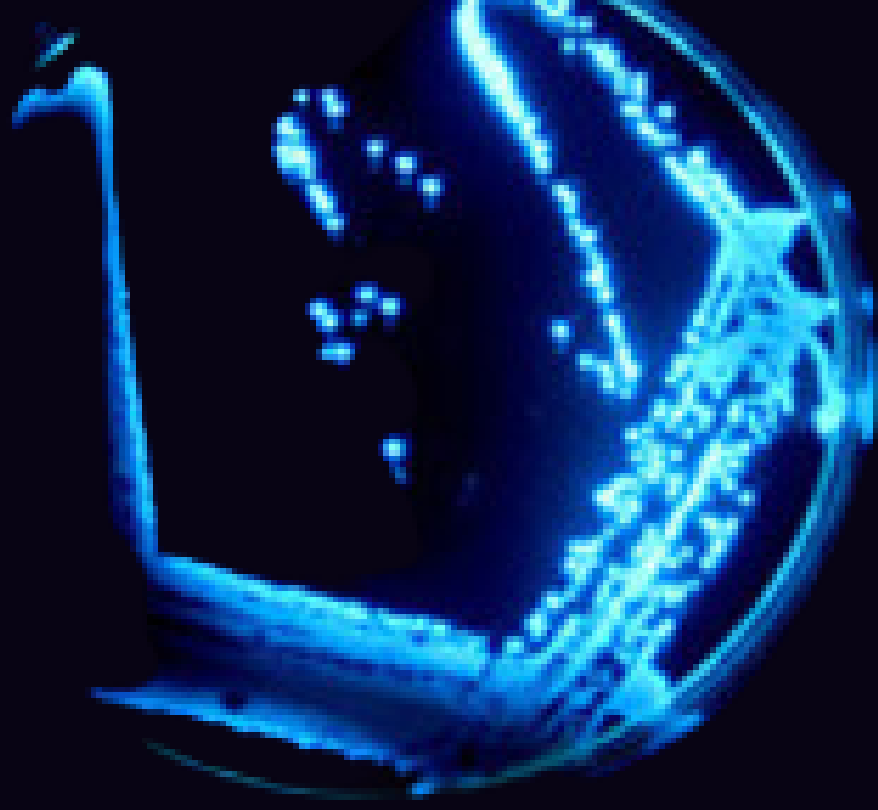
the chemical reaction that is responsible for bio-luminescence is catalyzed by the enzyme luciferase. in the presence of oxygen, luciferase catalyzes the oxidation of an organic molecule called luciferin, which produces light.

bioluminescence is believed to have evolved independently at least 40 times.

- *serves as a metabolic pathway producing light in low-oxygen conditions.*
- *helps bacteria resist oxidative stress and aids in DNA repair*
- *the "bait hypothesis" suggests luminescence attracts predators, ensuring bacteria's dispersal through the food chain.*

ANIMULARTS





COAL WASTE

bioluminescent lighting not only provides energy-efficient and aesthetically pleasing illumination for urban areas, but also raises awareness about bioluminescence and the natural world. by recreating the glow of fireflies and jellyfish through bacteria, this system promotes the coexistence between urban life and the biological world.



50shadesofgreen_mx



50shadesofgreen_mx Day 26: BIOMIMICRY (greenest challenge)

Biomimicry, drawing inspiration from nature, offers innovative solutions to combat climate change. Harnessing bioluminescence, like in certain deep-sea organisms, not only illuminates paths to sustainable lighting but also reduces energy consumption, aiding our fight against climate change by promoting eco-friendly technologies.

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Publicar

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