Mimetic Analogy in Butterflies

My objective for the final project was to visually interpret the concept of mimicry in butterfly species described in chapter three. While in the Amazon, Henry Walter Bates recorded 550 species of butterflies, all with subtly varying wing and vein color. Different species, such as the Leptalis theonoe and the Ithornia butterfly species, show extreme similarities, appearing to be more closely related that butterflies with various mutations within the same species.

Mimetic analogy occurred as a means of self-preservation and survival. While the phenomenon occurs among many different species, such as a caterpillar resembling a small viper, or a cricket looking similar to a tiger beetle, I chose to focus on the butterfly as the inspiration for the form, as they were the central focus of the chapter and Bates' research. When mimicry occurs, predators such as birds are not able to distinguish from the non-palatable model butterflies such as the Heliconidae, which secrete odorous fluids and gases. Other species of butterflies mimic their appearance to seem unpalatable to predators.

The drawing is designed to appear symmetrical as a whole in an abstracted butterfly structure, though the two forms, which mirror each other, are slightly different. The structure on the right is intended to represent the unpalatable model species, as the lines extend further outward from the center, and a larger mass of color is placed closer to the edge, visually weighing down the right side to imply it is stronger form, that has existed and survived in its space longer. The form on the left is constructed to mirror the original drawing, as the palatable imposter species. Undulating segments with slight modifications in structure, altered color and shading in lines are made to resemble the subtle differences in vein and wing color between the species that are nearly undetectable to predators.

Mimicry among prey induces a coevolution with its predators, as the birds undergo processes of natural selection in order to distinguish minor differences with the butterfly species, so the differences between the model and imitation species are evolutionarily forced to diminish. My own interpretation of that coevolution is in the underlying blue network that expands from the center along with the darker brown areas, almost as a shadow. Bates attributes these statistics and observations as evidence and explanation for natural selection. His studies showed that mimetic analogy causes parasitic relationships between the butterfly species. The mimics increase the potential for models to be targeted by predators, which I depicted with dark brown shadows and thin, tapering lines.