



**Wasp and Orchid Tryst**

## **VICEROY BUTTERFLIES, BAD BLENNIES AND PROBLEMATIC REPUBLICANS**

Mimicry is one of the most fascinating aspects of zoology. Thanks to mimicry, we get all sorts of interesting imitative natural phenomena. There are two primary types of mimicry, Batesian and Mullerian.

This essay will (a) discuss some of the most interesting examples of both forms of mimicry, and then (b) compare this mimicry in nature to some mimicry going on in the halls of congress.

### **What is Mimicry in Nature?**

For non-zoologists, “mimicry” is the phenomenon in nature where one species evolves to resemble another, separate species due to the particular relationship of the organisms in question.

For example, we have some organisms which are separate species, but allies nevertheless, which sport basically similar coloration to announce their alliance, like allied urban street gangs sharing similar patches or colors. We also get cases of sneaky imitation, where one organism deceptively pretends to be another, and where there is no alliance whatsoever.

Sometimes the mimicry is between closely related species, other times it involves species separated by different families, orders, classes, phyla and even separate kingdoms in some instances. Also, sometimes the mimicry is beneficial to both the different individuals and species doing the mimicking – i.e. it's symbiotic, benefiting all. In other instances however the mimic “unfairly” benefits by pretending to be something else, such that the individuals and species being mimicked are harmed by the mimicry – in which case the relationship is parasitic, albeit indirectly so.

“Mimicry” is in contrast to “convergent evolution,” although both phenomena do involve unrelated species evolving to resemble one another. But with mimicry, the relationship between the organisms in question is what drives the similarity in appearance. In contrast, with convergent evolution the similarity of appearance in unrelated organisms is due to both species occupying similar ecological niches, but where the individuals in these species have no relationship with one another at all, and are often separated by time and/or space. Examples of convergent evolution -- but not mimicry -- include (a) ichthyosaurs, swordfish and dolphins, (b) the colugo, flying squirrel and flying phalanger and (c) hummingbirds and hummingbird moths.

### **Mullerian Mimicry**

Mullerian mimicry involves symbiotic dynamics whereby separate species begin to evolve similar characteristics which benefit both (or sometimes three or four or more) of the species involved in the mimicry. German zoologist Fritz Muller first identified it. The classic examples include various stinging insects in the Hymenoptera order and the (completely unrelated) coral snake.

Yellow jacket wasps, paper wasps, honey bees and coral snakes are separate species (among the insect mimics) and even separate phyla in the case of the coral snake. They all share basically the same coloring despite being separate species. The bright yellow,

orange and black coloration of all these creatures is similar, and that similarity is not a coincidence. All these species are toxic, with stings or poisonous bite. The bright, contrasting colors serve as Nature's Warning Sign, and are as visually startling and recognizable as a flashing yellow warning light.

The "message" of danger underlying these warning signs is reinforced by the similarity in the signals: a predatory bird, for example, will not likely try to eat a paper wasp if it's already been stung earlier by a honey bee, just as a child stung by a bee will react similarly the next time he or she sees another similarly-colored insect, be it bee or wasp. The coral snake benefits too, since its warning colors evoke a similar reaction of fear to a perceived danger – the bright, contrasting red, yellow and black bands with which the coral snake announces its presence are easily recognizable as a warning, since anyone (man or creature) who has been stung by a wasp or bee will immediately be reminded by the threat implicit in that similar coloration.

This is why honey bees and paper wasps are orange and black, why yellow jackets and bumble bees are yellow and black, and why coral snakes have all three colors (albeit red instead of orange). Interestingly, in a lifetime of informal (but close) observation of such things, by far the most aggressive paper wasps I've ever encountered were also by far the brightest orange.

### **Skunks, Ratels and White-faced Hornets**

Skunks, ratels (also called the "Honey Badger") and white-faced hornets likewise share similar coloring, though in this case the warning colors are simply black and white, but in the wrong places. Most organisms are darker on top than on the bottom, but the white-faced hornet and skunk reverse this to convey a visually jarring warning to "stay away." The skunk has a black body with conspicuous white stripes along its back. Likewise the white-faced hornet is black, except for the head which is bright white. In both cases the contrasting colors in atypical body locations are almost impossible not to notice and are immediately recognizable as an unmistakable warning message.

As soon as one sees the snow-white visage of the white-faced hornet, or the broad white swathe down the back of an otherwise jet black ratel, one immediately senses that "something's wrong," and it's probably best to stay away.

The similarity of bright, discordant coloring in all these examples make each species' message a lot easier to interpret, since the warning coloration is basically similar, which enhances the ability of everyone else who might bother these creatures to learn to avoid them. This obviously benefits the organisms delivering the warning, since they don't need to be attacked each time they need to issue their warning. All it takes is one or two instances of previous message reinforcement, likely delivered by a separate species of similar coloration.

So, Mullerian mimicry is symbiotic, in that the organisms participating in the mimicry benefit each other by virtue of the mutual mimicking.

### **Batesian Mimicry**

In contrast to Mullerian mimicry, Batesian mimicry is parasitic, albeit only in an indirect fashion. In this form of mimicry, the mimicking is not mutual, rather, only one species

benefits from the imitation.

Bates was an English zoologist who noticed that some organisms resemble others almost identically, such that they're hard to tell apart even though they are separate species. Further, he correctly perceived that in this form of mimicry, one of the species is often toxic, but the other is not. Rather, it only pretends to be toxic by virtue of closely imitating its actually toxic model.

Batesian mimicry is much more exact than Mullerian, since the intent of Batesian mimicry is to deceive, whereas the intent of Mullerian mimicry is only to strongly remind by association.

### **Viceroy and Monarchs**

The most classic example of Batesian mimicry is the Viceroy Butterfly. It is virtually indistinguishable from the Monarch butterfly, at least visually. The Monarch caterpillars feed almost exclusively on the leaves of milkweed plants, which are poisonous to most creatures. The Monarch caterpillars absorb the milkweed's toxic latex chemicals, and the adults retain them after pupation. The Monarch is brightly (and beautifully) colored deep orange and black, with contrasting stripes and patches. The Viceroy is colored virtually identically, but is not poisonous at all.

Birds love to consume tasty, protein-rich butterflies. Also, birds are highly visual in their sensory orientation (i.e. they rely on their eyes far more than their ears or noses, in comparison with most other organisms). So, the bright, contrasting colors in Monarchs and Viceroy are noticed immediately by these most visual of predators. If a bird eats a Monarch, it will probably not die but it will get very, very ill. All it takes is one try for a bird to learn that bright orange and black butterflies are best left off the menu. If the bird eats a Monarch, it will likely never again attempt to eat another Monarch, or Viceroy for that matter.

So, the Viceroy and other Monarchs benefit from the death of the first Monarch consumed by a given bird, since the bird never forgets how sick that first Monarch made it. The Viceroy therefore benefit from looking like Monarchs.

But, if the Viceroy is first consumed by an inexperienced bird, it will only learn that these brightly colored winged pieces of delectability are good to eat. The bird won't learn its lesson until it eats a Monarch, and in fact it may take a few tries for the Monarchs to get their message across since that message of warning was in fact initially undermined by the Viceroy, which looks like the Monarch but is tasty.

In effect the presence of Viceroy dilutes the effectiveness of the Monarchs' toxic message, since from the birds' perspective there's confusion of reinforcement. The message, in other words, is not coherent some of the time. The Viceroy's pretending to be toxic undermines the defense of the Monarch by this dilution of reinforcement, and as such the Viceroy is indirect parasites of the Monarchs, they gain at the expense of the "host" whose defense mechanism they both imitate and weaken.

### **Simultaneous Batesian and Mullerian Mimicry**

Monarchs are actually an example of both symbiotic Mullerian and parasitic Batesian

mimicry occurring simultaneously with the same organism. This is because the Monarchs share -- to their benefit -- the bright orange and black warning coloration of paper wasps and honey bees, even as they are closely mimicked -- to their disadvantage -- by Viceroy's.

Likewise coral snakes also have their near-exact Batesian mimic, the King snake.

### **The Cleaner Wrasse**

The cleaner-wrasse is a small fish several inches long which lives in tropical coral reefs. They are conspicuously colored, and have a silver body with dark black stripes running horizontally along their entire length. The cleaner-wrasse adds to this conspicuous visual advertisement by doing a weird, fishy dance-like series of contortions, whenever a larger fish approaches. It's contortions are, in fact, extremely reminiscent of Joe Cocker's similarly weird contortions when he sang "A Little Help From My Friends" at Woodstock. The wrasse's and Cocker's odd contortions are both unique in their visual distinctiveness.

The cleaner-wrasse make their living by eating the external parasites off other fish. They have "stations" on the reef, where they set up shop and advertise for customers. They are popular among all sorts of other fish, who regularly visit them for relief. Both benefit: the cleaner-wrasse gets a free meal, the larger customer-fish gets its irritating, itchy parasites removed. The cleaner-wrasse are even encouraged to swim in the customer fishes' mouths and gills, to excise (and eat) the parasites afflicting those sensitive areas.

### **The Saber-tooth Blenny**

Saber-tooth Blennies are unrelated to cleaner-wrasse, but they look virtually identical. They too are small and seemingly inoffensive, but in imitating the cleaner wrasse they steal the wrasses' customers.

But not only do they steal the wrasses' customers, they undermine that solid (and symbiotic) relationship. For, when the larger, parasite-infested customer-fish approaches the blenny seeking relief thinking the blenny is a cleaner-wrasse, the blenny -- with its distinctive, saber teeth -- takes a nice big bite out of the larger fish and then darts away.

As with the Viceroy / Monarch relationship, the Saber-tooth Blenny damages the cleaner wrasse in imitating it. The customer fish may not be so eager for relief, and may want to satisfy other (food-related) cravings as well, if it encounters a cleaner wrasse after having lost a chunk of itself to the blenny imposter. In both instances the mimic takes advantage of the model, to the model's clear disadvantage.

With Batesian Mimicry, there needs to be a much larger number of bona-fide models than imposter mimics in order for the imitation to work. Otherwise, the Skinnerian reinforcement becomes too diluted, the model's message gets too confused to be coherent. This is similar in concept to virtually all forms of parasitism, be they external, internal or indirect: for parasitism to work, there must always be much more host biomass than parasite biomass.

### **Orchids and Wasps**

One of the most interesting -- and oddly poignant -- examples of Batesian Mimicry involves tropical orchids and wasps. This is mimicry which goes across different life Kingdoms, a plant mimicking an animal.

Certain species of tropical orchid have evolved flowers which closely resemble the females of particular wasp species in shape, size, color and smell. The male wasps of that species are beguiled, and may even favor this vegetable imitation over the real thing.

These orchid flowers are Nature's Real Life Blowup Dolls. The male wasps copulate with these flowery strumpets with sufficient enthusiasm and promiscuity so as to enable the orchids to reproduce themselves, in that the beguiled and besotted males spread the orchids' pollen, even as their own seminal injections are futile, unknowingly wasted on the flower in (mistaken) lieu of an actual female wasp. Thus, in effect the orchids indirectly parasitize the wasps by defrauding them of the offspring they would otherwise sire.

### **Mullerian Mimicry in Congress?**

At first glance, one might view the relationship between Blue-Dog Democrats and Reagan Republicans as being symbiotic, in that the Blue-Dogs' conservative political coloration seems to make them resemble Reagan Republicans, even though they belong to a separate political party. The Blue-Dogs seem to both benefit, and benefit from, the Reagan Republicans by these similarities in political coloration just as the bright, similar coloration shared by paper wasps and bees mutually benefits both groups.

That is, with respect to both (a) wasps and bees and (b) Blue-Dog Democrats and Reagan Republicans, unrelated organisms which resemble each other seem to provide mutual benefit and support by virtue of the similarity in appearance.

But, the relationship between Blue-Dogs and Reagan Republicans is really more like a combination of Batesian and Mullerian Mimicry, with the Blue-Dogs performing both roles.

The bees, wasps, coral snakes, etc all have actual potency. Their sting, poison or other toxic quality is bona-fide. However, the Blue-Dogs' sting is most mild, or possibly non-existent, since they usually knuckle under to their Progressive Democrat overlords. So, like the true-blue Mullerian Mimics which mutually benefit one another, the Blue-Dog Democrats' resembling Reagan Republicans may help the Republicans sometimes, and it certainly helps the Blue-Dogs to get elected. But, when the going gets tough and the Republicans most need the Blue-Dogs' votes, the Blue-Dogs usually turn yellow and run from their ostensibly conservative positions, and like a parasitic Batesian Mimic vote against the Republicans which they appear to resemble except in most of their votes.

The Blue-Dogs are in fact reminiscent of carpenter bees, which look exactly like bumblebees but have no sting. From the Progressive Democrats' perspective they may seem superficially like a threat, but in the final analysis they usually fold and vote as instructed by their Liberal party leaders.

Thus, as with carpenter bees the Blue-Dogs may buzz boldly and loudly like the genuine article, but in the end from Harry Reid's and Nancy Pelosi's perspectives the Blue-Dogs

usually have no sting, and at worst like the carpenter bees may only annoyingly nibble a bit on the exterior of your House (or Senate).

### **Batesian Mimicry in Congress**

But, a clear (and possibly an *exact*) analogy does exist between these zoological examples of Batesian mimicry and the clumsier, cruder version of this one seen in congress.

Reagan Republicans who consistently vote for smaller government, strong defense and fewer taxes are, in effect, indirectly parasitized by Problematic Republicans who like the Viceroy and Saber-tooth Blenny look like the genuine article and go by the same name, just like the Viceroy and Blenny closely (but superficially) resemble the Monarch and Wrasse. But, although these Imposter-Republicans wear the guise of Reagan Republicans by being in the same political party, they actually vote in a fashion that's often more like the Democrats. As such, they may resemble the bona-fide Republican model, but their relationship to it is actually parasitic, since in their voting patterns they often undermine the genuine Reagan Republicans' positions.

For example, Olympia Snowe and Susan Collins (fondly termed by the author **Suzerain Snowe of Nothing Know** and **Countess Collins the Clueless**) may be Republican in name but often vote with the Democrats. They benefit from posturing for voters in Maine as Republicans, just as Viceroy's benefit by resembling Monarchs and as the nasty predatory blennies benefit from posing as cleaner-wrasse. But, when the rubber hits the road on voting day, with disturbing regularity these Batesian Political Mimics actually harm the Reagan Republicans' position, since they so often side with the opposition.

And also like true Batesian mimics, these Problematic Republicans do more damage as an undermining imitation than if they switched parties and abandoned the mimicry. For, the Problematic Republicans create the false impression of bipartisanship where no true bipartisanship exists, and they confuse the Reagan Republicans' political message just as nature's Batesian mimics weaken their models' zoological message.

The Problematic Republicans' metaphorical relationship with the Reagan Republicans is in fact exactly paralleled by these zoological examples. In both cases the mimic seems to resemble the model, but they use that superficial resemblance in a fashion as to undermine the model's strengths (i.e. their message of poison in the case of Monarchs, their customer relationship in the case of the wrasse and their uniform political strength in the case of the Republicans in Congress).

### **Political Orchids and Voter Wasps**

Or, perhaps Ms. Snowe, Ms. Collins and their Problematic Republican ilk are actually more akin to the tropical orchids, and Republican voters like the wasps. In both cases the mimics' fertilization (be it for botanical pollination or political election) is successful, but the model's vital seminal injection (be it of Reagan Conservative principles by the Republican voters, or sperm by the wasp males) is wasted.

Damocles

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