

An
OBSESSION
with
BUTTERFLIES



*Our Long Love Affair with
a Singular Insect*

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OBSESSION WITH BUTTERFLIES

*I*N PHYSICS, STRING THEORY SUGGESTS THAT there are more than four dimensions, perhaps ten in all. These extra dimensions are curled up into a very small space, big enough only for subatomic particles, or tiny loops of vibrating "string." The theory does not rule out more dimensions, perhaps in the area of time. These dimensions, here but not here, exist outside our range of perception.

Adding butterflies to your life is like adding another dimension. The air trembles with the movement of wings. The approach of a White Admiral. The aerial dance of sulphurs. A Painted Lady. A Black Satyr. All this existed before, has always existed, but you were unaware. You didn't see. At various times and places, in winter, or on a busy street, the air is still and butterflies are impossible. Yet their presence remains, like one of those other ten dimensions. You've added this to your life.

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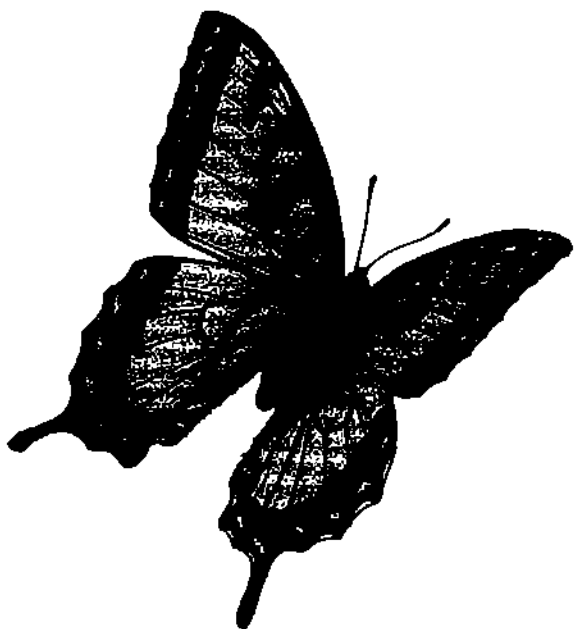
Butterflies became present in my life one summer afternoon by a river in New Mexico. A Western Tiger Swallowtail dipped by my face. About three inches across, it seemed much larger. Its lemon yellow wings were striped improbably and fluted in black. They flapped into a long-forked tail with spots of red and blue. Smelling nothing of interest, the butterfly floated away, leaving me pleased and agitated, as though I had been handed a gift I didn't deserve. Could this, all along, be a simple truth: beauty without cause or consequence?

The Western Tiger Swallowtail was patrolling for a mate, avoiding birds, and on the lookout for nectar or carrion juices. Like most butterflies, it tasted with its feet and smelled with its antennae. Its genitalia had eyes, simple light-sensitive cells. It had been alive for a day. It might live another month.

Later, I became enamored with the tiniest of butterflies, thumbnail-sized gray hairstreaks in my peripheral vision, on a weed or a fence, common as a mailbox. But wait until they settle and show their underside. Scallops of mango orange. Patterns of blue and russet. A crescent, a dash, a language in code.

In the second movie of the *Jurassic Park* series, actor Jeff Goldblum is once again trapped on an island filled with dinosaurs. As the other characters admire a herd of tricer-

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Western Tiger Swallowtail

atops, Goldblum says dryly, "Ooooh! Ahhhh! That's how it always starts. But later there's screaming and running."

Oooh. Ahhh. That's how it starts. Later there are guidebooks and more guidebooks and picnics in meadows and screaming and running. Some of us become obsessed with butterflies, although I would never include myself in that category. I am interested, yes, but not obsessed.

Not like those other people.

Eleanor Glanville was a woman of property and modest wealth, thirty-one years old, seven years a widow, the mother of two children. In 1685, she married again, a man ten years younger. This time, she married badly.

When her second husband cocked his pistol and pointed it at her breast, shouting that he would shoot her dead, did Eleanor think of Purple Emperors falling through the sunspots of an oak woodland? When the same man left her, after the birth of two more children, did she find peace in the rearing of her caterpillars, the Large Whites feeding on the leaves of watercress, cabbage, and turnip, the fritillary changing into its pupa or chrysalis, "a thick larg cofen ye same coler speckt with a row of silver on each sid"?

In 1703, a well-known entomologist in London wrote that Lady Glanville had come "to town with the noblest collection of butterflies, all English, which has sham'd us; her way is to give for forty or fifty ordinary caterpillars sixpence, and to feed them; if a fine caterpillar, for encouragement, six pence a piece, which is one way to employ the poor."

The lady had already sent cases of butterfly specimens to the premier naturalist of her day, James Petiver, who responded with gratitude and admiration. Included in the collection was the first record of the Glanville Fritillary, a

prettily patterned flutter of orange that "breeds on steep and broken declivities near the coast, which the scythe or the plough never as yet have invaded."

By now, the evil second husband, Richard, had a new mistress and a new baby and was scheming to disinherit his first son by Eleanor. This seventeen-year-old boy was serving as an apprentice for James Petiver when his father kidnapped him, held him, and bullied him into renouncing his mother and his inheritance. Richard Glanville also worked to alienate Eleanor from her other children, so that at her death she left most of her property to a second cousin. Another of Eleanor's sons challenged the will, declaring that his mother had made it under the mistaken belief that her children had been turned into fairies.

As early as the Middle Ages, people believed that butterflies, or *butterfloeges*, were disguised fairies bent on stealing dairy products such as butter, milk, and cream. Over time, fairies and butterflies became ever more linked, both tiny winged creatures, sportive, and seemingly merry.

Eleanor Glanville may only have been hoping for the best.

During the contest of her will, one hundred witnesses came forward to testify. Her former neighbors were quick to remember her strange behavior: how she dressed like a gypsy, appeared on the downs "without all necessary

cloathes," and "would carry a sheet out under the hedges and bushes and with a long pole beat the said hedges and catch a parcel of wormes."

Friends such as Petiver and other scientists appeared in Lady Glanville's defense. Still, the verdict overturned her final wishes on the grounds of insanity. As one entomologist later admitted, "None but those deprived of their Senses would go in Pursuit of butterflies."

That sentiment would change. In the mid-eighteenth century, English butterfly collectors began calling themselves Aurelians, from the Latin *aureolius*, a reference to the golden chrysalis of some species. These men and women might still be considered odd, armed as they were with oversized nets and satchels of paraphernalia, but they were more mocked than scorned, viewed even with affection.

Historian David Allan believes that "the eighteenth century was a period of transition. In its earlier years we can watch people playing with nature, treating it like a newly purchased toy. Later, as they become accustomed to the novelty and learn to react with less and less unease, we see their boldness grow. Eventually, as the century ends, we find them helplessly in love with it."

By the Victorian age, in the mid-1800s, nature had become part of the household furniture, represented by the

curio cabinet filled with minerals, fossils, dried plants, and seashells. The impulse mixed science with a collector's greed.

And butterflies, so bright, so distinctly patterned, were eminently collectible. Seemingly, every other good man, sometimes his good wife, and often his unruly children were obsessed with the insect. Lectures, social clubs, and field trips welcomed people of all classes, and people of all classes came: to learn the habits of a Meadow Brown, to catch a Camberwell Beauty, to revel in the abundance of Silver-washed Fritillaries dancing over sweet-scented bramble.

Like fairies, this abundance is something we can only imagine. At that time, there were miles of meadows, pastures, hedges, and woods; no cars, no chemicals, millions fewer people, and thousands more coppers, blues, whites, and sulphurs swirling like confetti in the air. The stout-hearted members of the Berwickshire Naturalists Field Club or the Haggerstone Entomological Society could hardly guess then what kind of party they were celebrating, or how it would end.

In 1876, Walter Rothschild, an eight-year-old boy in a wealthy banking family, started his own natural history museum and hired a skilled taxidermist as his first assistant. By the time of his death sixty-three years later, Lord

Rothschild was recognized as the world's greatest butterfly enthusiast, an eccentric who harnessed zebras to his carriage, which he rode through Piccadilly to Buckingham Palace, a statesman who helped forge the 1917 promise of a homeland for Jews in Palestine, a collector who bequeathed his set of 2.25 million butterflies and moths to the British Museum in London, making it the holder of more lepidoptera anywhere at any time.

Lord Rothschild did not collect 2.25 million butterflies by himself. He hired professionals, men, and later women, in the business of going to remote places. One of these was the Australian collector, A. S. Meek, who traveled mainly through Papua New Guinea and the Solomon Islands. Meek sent back thousands of new species, including the largest of all butterflies, the Queen Alexandra's Birdwing, the female nearly a foot long, the male iridescent green and luminous blue, with a bright yellow abdomen.

The biological diversity of New Guinea lies in its life zones, which range from hot lowland forests to snowy peaks. During one trip in the cold mountains, most of Meek's bearers fell ill. Meek himself was nearly giddy with the recent capture of a new female birdwing, a high-altitude specialist with a hairy body.

He notes that it was particularly vexing to be faced with

making the decision either to stay where the collecting was so rich or to return to the coast to save his men. One by one, the natives contracted pneumonia. Their breathing grew labored, and they seemed close to death.

Often enough, Meek had been in the same situation, ill and shivering with fever. "I suppose," he wrote, "that the people of civilized countries will wonder that there was any doubt for a single moment in my mind, as to whether the health—and perhaps lives—of the boys should be sacrificed for the sake of collecting a few butterflies. But in the wild world, away from the ideas of civilization, one gets what I would not call a recklessness or an indifference to human life so much as a somewhat different idea of its value. A certain work to be done seems to be a bigger consideration."

Eventually, a young man dies, and Meek returns to the coast.

Similar scenes were being played out around the world. Men faced danger and disease, a collecting net in one hand, a gun in the other. (More than one collector used that gun to shoot down the luminous birdwing as it flew out of reach at the tops of trees.)

In the United States, in 1871, Theodore Mead headed west on a butterfly-collecting trip and wrote home laconically:

There are several hotels here in Denver. The one where we are staying is good but rather dear for a country village (4.50 a day). We start on Monday morning to Fair Play in South Park, by stage, 17 hours. Indians are friendly—they only killed one man last week, 12 miles from Greely. . . . As there are no large bands in South Park, I don't think we run very great risks. I met a former acquaintance here, now territorial officer in Wyoming. He did not like our idea of camping out alone and said we might go 40 times without accident but the 41st time they would "gather us in."

Another explorer in Colorado had collected a brilliant group of new specimens until one night when two of the men driving his pack train stole his supplies, fished out the insects, and drank the refreshing alcohol used to preserve them.

By now, many collectors were also naturalists. In 1898, the author of a guide to the butterflies of the eastern United States could write with surprising accuracy about the shape of butterfly eggs, the habits of caterpillars, and the physiology of adults, including the scent scales on the wings of a Mountain Silver-spot and the structure of a swallowtail's antenna. The life history of a species became as important as its naming and death at the end of a pin. The twentieth century saw more and more people follow-

ing the flight of a butterfly, not to capture it but to see where it went and what it did with its time.

There are some 18,000 species of known butterflies and 147,000 species of moths, both in the order Lepidoptera. Briefly, the differences between a butterfly and a moth are that most butterflies fly during the day, most moths do not; most butterflies have bright colors, most moths do not; most butterflies have distinctly clubbed antennae, most moths do not; most butterflies rest with their wings clapped above their bodies, most moths do not. At the same time, most moths have rather hairy bodies, and most butterflies do not; most moths have hooks linking their forewings and hindwings, and most butterflies do not.

Of what use are butterflies? Less than you might think. Butterflies are not like beetles or bees, engines of pollination. They do not even compare favorably to moths, their kissing cousins. If all butterflies were to disappear, so would a few flowers—but not many. (If all flowers were to disappear, so would we, since almost everything we eat depends upon a flowering plant.)

The Taoist master Chuang Tze, for whom uselessness had a certain grace, and even a certain use, wrote: "I dreamed I was a butterfly, fluttering hither and thither. I was conscious only of following my fancies as a butterfly,

and was unconscious of my individuality as a man. Suddenly I awoke and there I lay myself again. Now I do not know whether I was then a man dreaming I was a butterfly or whether I am now a butterfly dreaming I am a man."

A modern interpreter of Chuang Tze reminds us that characterizing "life and knowledge as dream is not to denigrate its reality." Dream does not imply delusion but a "radical interchange among separate identities."

To exchange identity with a butterfly is radical. It is to be what you are obviously not. It is to find surprising connections to the world, as well, perhaps, as hidden dimensions, small but powerful, outside your range of perception.

Moreover, the life of a butterfly is the enactment of myth. As "a parcel of wormes," caterpillars crawl lowly on the ground. They hide in the debris of leaves and twigs. Some of these larvae bristle with spines to deter predators. They are as crudely colored as a child's wooden toy. They spit acrid vomit and emit poisonous gas. From this dubious state, they form their hard, protective chrysalides and enter a sleep in which they transform themselves.

The adult emerges. It rises like a phoenix.

And we, who live by myth, who live in fear of change and in fear of death, are privileged to see this metamorphosis over and over, a common thing, an everyday thing for a fat green "worme," a bag of goo splotted with yellow,

to transform into a Western Tiger Swallowtail, fluted and glowing.

The French naturalist Marcel Roland said that butterflies give us "solace for the pain of living."

I would venture to guess that more people today are obsessed with butterflies, looking for solace, than ever before. Many are graduate students and professors. Some use butterflies as models to examine issues of genetics and insect biology; these scientists dutifully apply their research to agriculture and conservation. But most study butterflies for less practical reasons, often for the simplest of human motives.

Miriam Rothschild, born in 1908, was the niece of Lord Walter Rothschild and the daughter of Charles Rothschild, a man who once stopped a train when he saw a rare butterfly through the window. Charles Rothschild reserved his finest passion for fleas, however, and his daughter went on to produce a six-volume inventory of his collection of several million, claiming for herself the title of "Flea Lady."

In her research on butterflies, Miriam showed how Monarch caterpillars ingest and store the poisons in milkweed plants. She looked closely at the role of pigmentation in a butterfly's chrysalis or pupa. She demonstrated that Large White females use chemical cues to avoid laying eggs on leaves that already have eggs or feeding larvae.

These butterflies want the best for their young: an abundant food source, without competition.

During the twentieth century, Miriam Rothschild helped extend the work of the nineteenth-century naturalist and collector, men like her father and uncle, into the world of ecology and biochemistry, of molecules and odor plumes and secret signals. The Large White had been pinned, named, dissected, and observed in the field. But there was more to do.

Musing over why the pupa of a Large White is sometimes blue, its bile pigments remaining in the surface tissues, Miriam Rothschild asked, seemingly without guile, "Who will elucidate this mystery?"

Who will elucidate the mystery of the morpho caterpillar, which exudes a drop of clear liquid and studiously combs it through all its tufts of hair?

Who will elucidate the mystery of why some butterflies court and some rape?

Of how Postman butterflies remember and avoid the spot where a researcher once netted them?

Of butterflies with ears on their wings?

Of number, and extinction, and of how many butterflies exist in the world?

There is more to do, and that is true still for places such as Papua New Guinea and the Solomon Islands, where

John Tennent is a scientific associate for the British Natural History Museum. During a recent collecting trip, he came across a flowering tree on the island of San Cristobal. In brief, intense periods of producing nectar, such trees attract a variety of butterflies. John caught three with one swoop of his net, a male and two females of two unknown species. Over the next few days, he collected a "fair series of one" but not of the other, although he visited the tree regularly, then and months later. "That species was not seen before," John says, "and has never been seen since."

A small blue butterfly now bears the name *Psychonotis julie*, after John's wife.

On his last trip, in the first year of the twenty-first century, John was marooned on the island of Tikopia for eight weeks due to a local coup d'etat. Unfortunately, Tikopia has only thirteen species of already discovered butterflies. John passed the time killing flies for the lizard that lived on his doorstep and teaching the island children interminable verses of "Old MacDonald Had a Farm."

He is now ready to publish his book on the biogeography of the Solomon Islands, which will include descriptions of seventy new butterfly species and some interesting observations on mimicry.

"Butterflies add another dimension to the garden," Miriam Rothschild wrote, "for they are like dream flow-

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ers—childhood dreams—which have broken loose from their stalks and escaped into the sunshine. Air and angels. This is the way I look upon their presence, not as a professional entomologist."

There comes a moment in your life when you must look at what you love and think: Yes, I was right.

People who love butterflies have it easy.