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A BUTTERFLY JOURNEY

THE LIFE AND ART
OF MARIA SIBYLLA MERIAN

 PRESTEL





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A BUTTERFLY JOURNEY

MARIA SIBYLLA MERIAN
ARTIST AND SCIENTIST



PRESTEL

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PROLOGUE



And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so.

And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good.

And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

So God created man in his own image, in the image of God created he him; male and female created he them.

And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat.

And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so.

And God saw every thing that he had made, and, behold, it was very good. And the evening and the morning were the sixth day.

Genesis 1:24–31 (King James Version)



THE ERA



It was a strange, wondrous and immensely eventful era into which Maria Sibylla was born on 2 April 1647 in Frankfurt am Main. The Thirty Years' War was still raging. It had pitted the Protestant and Catholic powers against each other and turned nearly all of Germany into a battleground. It came to an end with the Peace of Westphalia, signed in the year after Maria's birth. The coins minted in commemoration of this event bore the words "Pax optima rerum" – peace is the greatest good. And yet the peace did little to change the fact that, for many who had survived war, pestilence and hunger, the end of the world and the Last Judgment seemed as close as ever. For them, life was a fear-filled wait for Apocalypse, which they knew to be inevitable. The Creator's plan could not be anything else. Indeed, it was high time, for mankind's sinfulness was growing unbearable, the morals of the ruling classes were on the decline, and more than a few wallowed in luxury. Some people, meanwhile, looked to the past and decided to resurrect Antiquity, claiming that it had been purer and better.

Like a dark omen, the vineyards began to die. The summer rains would not end, so entire harvests rotted on vines that had once been rich in fruit. And there were few reserves for the ever longer and colder winters – the Little Ice Age ruled the weather. Wherever one trod, one encountered countless weeds

and thorns. Were these not proof enough of how far the world was from Paradise, which had not known such plants? There were always plenty of signs of the coming end of the world. People's certainty as to its approach was far from new, however. Their ancestors, too, had awaited its coming, as had Martin Luther, whose Reformation had deeply split the Christian church. While some waited, others hoped for the thousand-year reign of Christ. But they were all aware of the *memento mori* present in so many paintings of the era (which would later be called the Baroque) and in the songs warning that human life could end at any time, burst like a shimmering soap bubble. And the poet Andreas Gryphius proclaimed: "What is Mankind? : a dwelling for grim sorrows, / A ball of false fortune, a will-o'-the-wisp of these times. / A stage for bitter fears, beset by sharp pain, / Snow soon melted, candles spent."

And yet, some people could sense something new in this era. Something that was still very tender, that at times disappeared before growing stronger again; something that could barely be named. Like a scent in the air that ignites the senses although one never noticed it before. It was something predicted by none of the prophecies in the calendars, reported by none of the growing number of newspapers. And yet the attentive reader was aware that new things were taking up more and more space, for the young medium reported increasingly on current events. This, too, was a sign that the present day was growing in importance. The calendars now left more space for entries of one's own, and people become increasingly aware that they could shape their own lives. Some people, artists and scientists,

began to increasingly look upon the world and worldly phenomena through different eyes, in new ways and with a more conscious awareness than ever before. They explored the skies, nature, and man with previously unheard-of scientific interest, and in so doing made discoveries that increasingly shook the earlier worldview to its foundations. Even if some could not, and others would not see it: It was not the end of the world. A new era had begun.



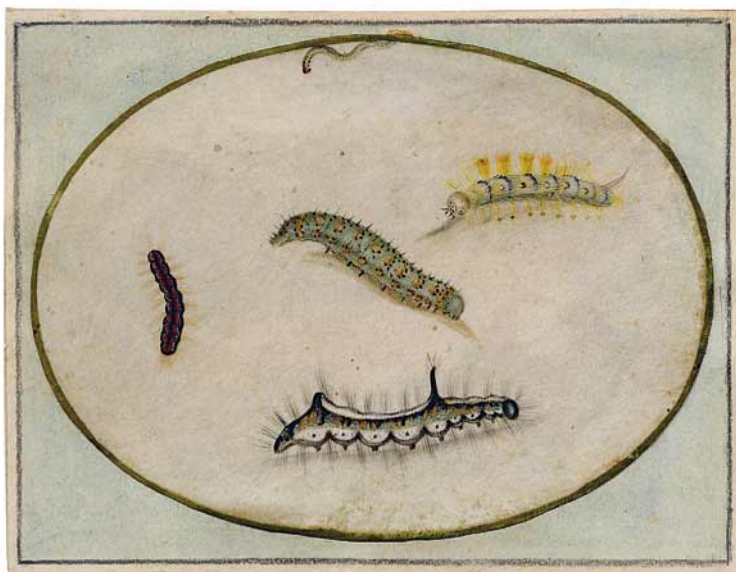


THE START OF A LIFELONG JOURNEY



Frankfurt am Main, 1660. Maria Sibylla is sitting her room, making a little house out of paper. Its pointed roof is turned downward, it is open towards the top. The upside-down paper house is not a toy house, for it is inhabited by living creatures – mysterious creatures that immensely fascinate the 13-year-old girl.

It all started with a wondrous present. Maria Sibylla had received a few caterpillars. We can only guess at the little girl's joy at this gift, for she loved beetles and worms more than anything else. These caterpillars were different from any that she had observed in nature. They were as white as flour. They were silkworms, from whose cocoons people had been making silk, only in China, for more than 3,000 years. It was so valuable that its worth was measured in gold until the secret of the silk thread, the betrayal of which was punishable by death, was smuggled out of the Middle Kingdom by two Persian monks in their bamboo walking sticks. This, the legend goes, is how the silkworm made its way to the Western world. Since the late sixteenth century there even existed people in Germany (whose number could be counted on one hand) who passionately bred silkworms, though not always with success. When Maria Sibylla was given her worms (by whom, we do not know), it was not common practice in Germany to plant mulberry trees, whose leaves are the silkworm's preferred nourishment. And so Maria Sibylla



fed her animals lettuce and watched them grow bigger from day to day as they repeatedly shed their skin. One day she watched as they produced seemingly endless filaments from their mouths, whereupon the young girl carefully placed the animals in her paper house. The worms spun a framework of threads that acted as a kind of scaffolding in which they repeatedly wove their threads in the shape of a reclining figure eight while swaying their heads back and forth. Soon, she discovered that the worms' color changed slightly and grew more yellow. Suddenly the animals seemed to shrink and their bodies even began to appear transparent. The egg-shaped web into which each worm spun

itself grew denser and denser. With some worms it was green, with others yellow or white. Within a few days, a cocoon had been spun in which the worms shed their skin one last time and soon changed into a pupa, which Maria Sibylla called a “date pit.”

Something mysterious happened inside the chrysalis, something she could not see. Eventually, the animal that had grown inside freed itself from the date pit and the cocoon, emerging as a white moth. Soon the next moth made its way towards the light from its chrysalis. Maria also noticed that some were smaller – these were the males. Then she saw larger and stronger animals – the females. Fascinated, she watched them mate and soon after discovered their small eggs, which resembled millet seed. The moths died a short while later.

These observations formed the beginning of the 13-year-old girl’s lifelong adventure-filled journey in search of insects, an endeavor in which Maria Sibylla’s greatest passion would belong to butterflies.

But what kind of child was this, who loved worms and caterpillars in times such as these, and who observed, with silent devotion, the wonder of metamorphosis?





A CHILD'S WORLD



The young girl saw much, endlessly much, of the big wide world. She just had to open one of the many books in her parents' home. These showed maps and illustrations of the New World, of Virginia and Florida, the landscapes and their inhabitants, even their clothing and customs. She could marvel at volumes with pictures from Africa, the Congo, Benin and Gabon – and also South America, the continent that many years later would become the destination for Maria Sibylla's adventurous scientific journey. Her grandfather, the publisher and engraver Johann Theodor de Bry, had begun this multi-volume series of travel reports and chronicles of conquest, *Collectiones peregrinationum in Indiam orientalem et Indiam occidentalem*. After his death, the series was continued by his sons and his Basel-born son-in-law – the engraver, printer, and publisher Matthäus Merian the Elder. He was a God-fearing man, whose faith however was independent of any church. Maria Sibylla's father had eight children with Maria Magdalena de Bry. She died in 1645, and after one year of mourning he married Johanna Sibylla Heim, whose Walloon family had only recently immigrated to Germany. Maria Sibylla was their first child together, followed by a son, Johann Maximilian.

In her child's world, Maria Sibylla had books with pictures that gave a sense of standing on a hilltop or even flying



high like a bird. The reader looked down on landscapes, on hamlets and villages and the large and small cities of the Holy Roman Empire, whose churches and monuments sometimes seemed to touch the sky. The cityscapes in the books from the series *Topographia Germaniae*, produced by Maria Sibylla's father, showed these places in their original form – the Thirty Years' War had destroyed so many of them. One vista showed Frankfurt am Main, which had been spared the destruction of war. This city, too, belonged to Maria Sibylla's childhood world. It was her place of birth, and it was where she was to marry as a young woman.

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The young learned at an early age that death is a part of life. Maria Sibylla was three years old when her father died while taking the waters in Bad Schwalbach, whose spas had actually been meant to ease his ailments. Perhaps the famous publisher and engraver sensed that his daughter might take an unusual



path in life, for it is reported that on his deathbed he proclaimed, “Even after I am gone, people will say: that is Merian’s daughter” – or so goes the legend. Her brother Johann Maximilian died soon after. He was not even three.

In 1651, a year after the death of her husband, Maria Sibylla’s mother married the painter and art dealer Jacob Marrel. Now, when the young girl explored the house and studio of her stepfather, she encountered still-lives with fruits and flowers. So many flowers: The paintings depicted arrangements of luxurious bouquets of irises, tulips, and marigolds, often enough surrounded by a few insects. One of the paintings showed the thorny branch of a rose, with blossoms whose outer petals were pure and white and whose innermost were blood-red. A tulip, violets, and lilies-of-the-valley have been placed around the rose. The viewer can almost sense their fragrance. A butterfly has alighted on the tip of the thorny rose branch. Does the painting herald

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the beauty and richness of spring? Or was the faithful Christian reminded of the Crown of Thorns and the blood of Christ, with the sight of the butterfly perhaps even recalling His Resurrection?

When Jacob Marrel was still in Utrecht, he had painted entire books of tulips. They were books for tulip merchants and growers who wanted to show their customers what they might expect in spring, since they would be investing all their belongings in just a few bulbs. The Netherlands was in the grip of “tulip mania,” that strange phenomenon that caused the price of just one bulb to soar to unfathomable heights and ruined more than a few people for whom one bulb was more important than all their belongings. Sometimes Jacob Marrel’s portraits of tulips also depicted a seashell, dragonfly or butterfly, as if he wanted to show that the virtuoso tulip varieties cultivated by man could

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hold their own against natural beauty. Her stepfather's flower paintings must have fascinated the young Maria Sibylla, for she soon began to paint and draw flowers herself. But it was not an activity that her mother wanted her to engage in. She was to master reading, writing, and arithmetic, to study the Bible, and because she was a girl she also had to learn how to cook, sew, and embroider. More than anything else, however, Maria Sibylla wanted to paint.

And so, one day she climbed up to the attic of her parents' house loaded with paper, brush, and paints, and – away from her mother's gaze – created what would increasingly become her own world. This place now became her secret studio. It was perhaps the young girl's most ardent desire to paint a tulip from life – a desire that led to an unusual plan: In the dark of night,



she snuck into the garden of Count Ruitmer, picked a tulip, and quickly disappeared again into the darkness. She paid more than one nocturnal visit, however, and the disappearing tulips did not remain unnoticed, and so one night the young thief was caught in the garden. But the count's anger evaporated when she showed him her paintings. As compensation, he asked her for a tulip painting that he could call his own. From this point on, Maria Sibylla's hidden passion was a secret no more.

Fascinated by his stepdaughter's talent, Jacob Marrel decided to make her his student. Maria Sibylla was filled with joy, but her strict mother felt no happiness at this turn of events,

believing that women had other duties in life. Had she forgotten how much she herself had loved the most diverse creations of nature, including seashells, stones, and butterflies, when she had been pregnant with Maria Sibylla? Maria Sibylla now spent day after day in Marrel's studio, practicing drawing with a quill and creating oil and watercolor paintings with a brush. The many pictures of flowers from the countless books in her parents' home will surely have served as a model.



One such book was her grandfather's *Florilegium novum*, which her father had republished in an expanded version. It contained engravings of exemplary gardens, tips on creating floral clocks, hedges and labyrinths, and a multitude of plant portraits, including Turk's cap lily, larkspur, and crocuses with bulbs. Books such as these were highly esteemed not only by lovers of gardens, but were also valued by painters as models for their works.

Through her studies, Maria Sibylla learned far more than just to recreate ever more precisely on paper and parchment the things shown in the books. She also gained a more comprehensive understanding of plants and flowers: Through her artistic



endeavors, she discovered the structure of plants, experienced and internalized their manifold forms, and soon knew many of them by name.

During all of her childhood years, Maria Sibylla repeatedly expressed a deep interest in the animals of the great wide world. She probably saw many of the insects in her stepfather's studio that would later find their way into his paintings. And without a doubt the young girl will have read, wide-eyed, doctor and naturalist Jan Jonston's *Historia naturalis animalium* on the natural history of animals. Her father had made the engravings for the first volume of this work, which he had published in 1650, the year of his death. The subsequent volumes were illustrated and published by Maria Sibylla's half-brothers Caspar and Matthäus Merian the Younger, who had taken over their father's publishing house. In this extensive work, the young girl could study all manner of animals, including clams, snakes, and crabs, but also

dragons – and butterflies. And every time Maria Sibylla opened a book published by her father, she saw a stork holding a snake tight in its beak, accompanied by the words “Pietas contenta lucratur” – piety pays. For the stork is holding not the frog sitting at its feet, but has in its beak a snake, the symbol of evil. This scene, circumscribed by a circle, was her father’s publishing logo. The stork, the “Ciconia Meriani,” is the Merian family’s heraldic emblem. Many years later, Maria Sibylla was to seal her letters with hot wax imprinted using a signet ring with just this stork.

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Perhaps, even, the Luther Bible that her father had illustrated with engravings in 1630 and would later gain fame as the Merian Bible was the first time that she saw the diversity and multifarious nature of the animals on the ground, in the water, and in the air. Everything that was written about the origin of the animals in the book of Genesis made a strong and early impression on Maria Sibylla’s faith. Throughout her life, whenever she explored and observed nature, she was moved by this belief in its divine origins.

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But the butterflies that she encountered again and again in these books and in her stepfather’s paintings interested her more than anything else. Some of them she depicted in her paintings, too. But she wanted to do more than to just bring things to life by her brush. She wanted to see them in real life, to watch them and learn to their secrets.





LIFE LIKE IN A COCOON



Maria Sibylla's passion for these wondrous creatures was not without danger. Too many people still clung fast to the belief that caterpillars and worms reproduce not through procreation but through spontaneous generation in rottong mud or even in other animals' excrement. Had not Aristotle written just that? For some people, these creatures were the work of the Devil, and those who interested in them were surely up to no good – why, they might even be witches, who must be put to death. According to popular belief, witches possessed the power to change themselves into butterflies in order to curdle cream and butter. They even had the power to steal it. And so these animals are called “buttervögel” (“butter birds”) in German or “butterflies” in English. Even the more modern German word “Schmetterling” hints at their evil intentions, for *schmetten* is the word for cream in East Central German. It is probably no coincidence that Maria Sibylla's initial interest was directed toward the silkworm, for they are an exception. As she emphasizes, they are seen as “noble” creatures for their “great usefulness.”

After witnessing the silkworms' metamorphosis, Maria Sibylla was filled with an endless yearning and curiosity to observe other caterpillars. For again and again she was motivated by one question: do they, too, undergo a transformation like the silkworm? Now she was drawn to the outdoors. She looked in

meadows, gardens and forests, on blackthorn, blooming plum trees, stinging nettles, and wild buttercup. Here, she found caterpillars that she brought home and looked after in countless boxes. Day after day, she gathered nourishment for her animals and gave the thirsty creatures water to drink. No change escaped her eye. Would this worm, too, shed its skin? Might it even spin a useful thread like the silkworm? How did the animals behave during thunder and lightning? Could they be touched, and must their food always stay dry? When would the butterfly awaken if the caterpillar spun its cocoon in September? Oh, not until spring! All these things kept the young girl occupied for days and weeks, which turned into months and years. In her activities, she practiced an art that she taught herself all alone – the art of observation. In this way, she withdrew a bit from the great big world and from the people and lives of her own world, as if she were in a cocoon in which she quietly transformed into an artist and scientist. Looking back later, she confessed: “It is not for naught / that it has cost me much time and effort / to seek out such creatures / to feed them / many days and months; for inasmuch as they do not obtain their habitual nourishment / they either die / or spin their cocoon.”

Not all her time and effort were wasted, however, for she soon recognized that her caterpillars’ transformations resembled those of the silkworms. She soon marveled at unexpected and never-before-seen phenomena that fascinated her deeply. And every time a butterfly struggled free from its cocoon, she was touched by the variegated blaze of color and beauty of her creatures. Maria Sibylla called her butterflies “summer-birds,”



for they flew only in summer and were not seen in the winter months. “Moth-birds,” by comparison, was her name for those that rest during the day and only begin to fly in the evening. With the greatest of care, she sketched each transformation and each difference between the animals, and wrote down in her notebook all that transpired before her eyes. At the same time, she did not neglect her study of painting under Jacob Marrel, and soon she had also learned to engrave a copper plate – an artistic as well as a physical challenge.



But almost nothing of what Maria Sibylla drew, painted, or engraved during her childhood or youth would be remembered by posterity. One rare exception is a series of small flower drawings with insects. Maria found the models for some of these works, which she produced with the aid of a grid, in her grandfather's *Florilegium novum*.

When Jacob Marrel went traveling again, his student Abraham Mignon gave her lessons. The occasional insect crawling around the flowers in his paintings makes a frighteningly lively impression. One time, however, Jacob Marrel took Abraham Mignon and his stepdaughter with him on a journey to Utrecht, where she could admire the still-lives of the Dutch masters.

Maria Sibylla was 17 years old when she met another student in the studio. It was Johann Andreas Graff, her stepfather's favorite pupil who had bid farewell to his teacher five years before and departed for Italy. He had been to Rome and Venice, where the floral painter practiced painting architecture. Not long after his return he asked for her hand in marriage. We do not know what the 18-year-old felt for this man ten years her senior. Perhaps she feared that no other man would take seriously her passion for bugs and butterflies. But perhaps it was love. The two were married in May 1665, one day after Pentecost.





THE LIFE OF MAN IS AS A FLOWER'S



Johann Andreas Graff and Maria Sibylla had been married nearly three years when their first child was born. It was a girl, and they gave her the name Johanna Helena. In 1670, the young family moved from Frankfurt to Graff's hometown of Nuremberg. It, too, was a bustling merchant city and a center of book printing and the book trade, although there was no annual fair here as in Frankfurt – which incidentally had for some time been showing fewer books than the fair in Leipzig.

The Nuremberg poet Sigmund von Birken called his hometown “the Rome of the Franks / the heart of the Empire.” The family's new home on the Milk Market belonged to Johann Andreas Graff and was called the “House of the Golden Sun.” The family also owned a garden right next to the Castle Church. Maria Sibylla now looked after home and hearth, cooking and sewing with her child always at her side. The family's life was not easy, for they had been waiting far too long for Graff's paintings to be successful. And so she had to contribute to the family budget through her skills and her art. She began to paint – not on paper, but on silk and linen, for her flowers, birds and butterflies now decorated tablecloths. She even painted an entire tent for a general. She never revealed the secret ingredients of her paints, in whose production she had become a true master. Neither light nor washing destroys her works.

When not looking after the household and her child, or not marveling at, studying, and painting nature, then she taught. Her students were a group of women from the city's best homes, and she taught them "needle painting" (embroidery), engraving and watercolor painting – after all, in Nuremberg as in the rest of Germany, the 1596 Nuremberg Painters' Ordinance forbade women to paint (for profit) live models or history paintings in oils. She called the pupils who regularly came and went at the House of the Golden Sun the "Maidens' Compagnie."

One of her pupils was the patrician daughter Clara Regina Imhof, whose grandfather Johann Christoph Volkamer built a garden of rare beauty just outside the city walls. Thanks to an invitation from her pupil, Maria Sibylla was able to visit the "Hesperides Gardens" as she pleased. And what a Paradise it was! Lemons, and oranges both sweet and bitter grew here, and she could even study olive trees, pineapples and agave. Another of her pupils was Magdalena Fürst, the daughter of an art dealer and publisher. We will hear more of her art later. The pupils required needles, thread, glaze, canvas, brushes, burin and much else for their work, and so she opened a small shop with all these things. The paints that she sold were of her own making. It was an early indication of her talent for business.

But what did these maidens embroider, paint, and engrave? Flowers, of course! Not any old flowers of field, wood, and meadow, but noble varieties of tulips, irises, oriental narcissuses, snake's head, fine-leaved lilies, and many other popular flowers of this Baroque century, arranged in garlands, wreaths and entire bouquets. Their works are fashioned after twelve loose plates

with pictures of flowers, engraved in copper by their 28-year-old teacher on the basis of watercolors, printed in 1675 in her husband's studio, and hand-colored by Maria Sibylla herself. Some of these floral pictures are surrounded by beetles and birds, and also caterpillars and butterflies – here still as decorative accessories like those in her teachers' paintings. Although these flowers were not initially meant to be symbolic, in some way they do represent life itself: bud, flower, beauty, and eventually slow decay. In the same year that her first floral plates were printed, she wrote in the personal album of her friend, the Nuremberg scholar and poet Christoph Arnold: "The life of man is as a flower's." To this, she added a rose with bud and full blossom, for her friend's lodge-name in the Pegnitz Flower Society, an important poets' union and linguistic association in Nuremberg, was *Lerian Heckenrose* ("Hedge Rose"). Like Arnold, every member of the order was given a flower name. It was not poetic tomfoolery, but an expression of a deep reverence for nature, combined with a great sense of devotion, a combination that greatly fascinated Maria Sibylla.

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Is there anything greater than when a pupil's works are like a mirror held up to her teacher's? After all, even Maria Sibylla did not come up with the floral images on her plates on her own, but copied them from other artists' flower books and florilegia, albeit with subtle alterations. At that time, nobody was bothered by such practices. Quite the opposite: Did it not show her great familiarity with other works, and also her skill? The school blossomed, the maidens diligently painted and embroidered, and so twelve new plates with floral motifs were printed in 1677.





Bearded Iris
Plate 8 from *The New Book of Flowers*, 1680



The following year, Maria Sibylla and Andreas Johannes Graff had a second child, another girl, who was soon baptized Dorothea Maria and later also Henriette.

At around this time, a Dutch master, probably Jacob Marrel, painted Maria Sibylla's portrait in oil. The painting will forever be shrouded in mystery, for are both the painter and the date uncertain, but it is also unclear whether the subject is actually who we think it is. In 1680, a third group of flower pictures was printed, as many as in the previous series. Now she had all three groups of floral plates bound in a book that she christened *The New Book of Flowers*. The 36 floral plates were preceded by a floral wreath, which first and foremost named the author: "M. S. Gräffin, daughter of the late M. Merian the Elder." The reference to her beloved father is more than praise – it tells the reader what famous family of artists the author hails from. The volume's intended audience is evident from her preface: it is no pattern-book whose images are meant as painting and embroidery templates for women. This book was aimed at true nature lovers, and she explained who was truly deserving of this label: Not those who are enthralled at the brief blossom of an infinitely expensive tulip, but people like the farmer who plants the seed of a date tree that will not bear fruit for 100 years. Maria Sibylla wrote of this man, who plants selflessly for God and his descendants, with deep admiration.

But the book was directed not just at admirers of nature. It was also meant to delight art lovers, for it is here that nature and its beauty are made evident by art. What is prettier? The consummate flowers in nature, which not only flatter the eye but

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also beguile through their fragrance, or the flowers of the artist whose skill has let them appear so deceptively alive, that require neither soil nor water nor fertilizer, and are so true that they will never wither? Let us not ask, unlike so many people at that time, and instead listen to the conciliatory words with which she ends her preface to *The New Book of Flowers*:

“So art and nature must always wrestle with each other /
Until each defeats itself /
So that victory may consist of both line and stroke:
That which is overcome / Overcomes as well!
Art and Nature must take heart and embrace /
And reach out to one another:
Good fortune to him / who also struggles! For / when all
is done /
Upon such a struggle / there follows satisfaction.”





GOD, SCIENCE, AND ART



Not for a moment did the move from Frankfurt to Nuremberg reduce Maria Sibylla's yearning and urge to learn more of the laws that define the life of butterflies. The few hours left to her after housekeeping and teaching she spent in her own garden, where she marveled at the flowers and observed the caterpillars, some of which she brought home with her. She also rarely left the Hesperides Gardens without having filled her boxes with new creatures. And the Knoblauchsland, literally "garlic land," a fertile region just outside Nuremberg where onions and many other vegetables were grown, proved to be an Eden for her collection of never-before-seen caterpillar specimens.

The unusual passion of the daughter of the famous Merian did not remain hidden from her surroundings. Again and again, "distinguished enthusiasts" delivered boxes of caterpillars at the House of the Golden Sun. One package arrived from as far away as Regensburg, more than 100 kilometers distant. The animals found a new home in one of her many plywood boxes. Each was examined and regularly fed its own particular plants – we can only guess how much endless time and effort she must have spent constantly gathering these plants. She wrote down all identifiable characteristics and changes, and whenever possible she captured the animals in watercolor and gouaches on parchment. Often enough, this happened at night.

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And so she inevitably had to spend the night painting a caterpillar that arrived in the evening, for it had already begun to spin its cocoon. Sometimes she found it hard to believe that there was life in that date pit. Then she placed her warm hand on it and it suddenly turned onto the other side all on its own. There was life in this brown mantle – Maria Sibylla had always been amazed at this. But not every caterpillar turned into a butterfly: one light-colored worm with a black head metamorphosed into a four-legged fly with two more feet in the rear of its body. Many a caterpillar died after cocooning, and on more than one occasion she observed with great interest how maggots suddenly emerged from the date pit. Such extraordinarily exciting things

took place in her room, which was research station, study, and painting studio all at once! But this room with its “wondrous metamorphoses” was no secret, and no-one was to claim that all the things she painted and noted down were purely products of her imagination. And so she preserved the animals at each stage of development and kept them in a plywood box so that the skeptical might convince themselves with their own eyes.

In 1674, she decided to make her observations from the previous years available to all – with her own book on the life of caterpillars, a life so unknown to most. In fact, she received encouragement for this endeavor from her friends in Nuremberg, who included artists, poets, and scholars. This project was to occupy her for five years, during which she also published the various editions of her floral plates. By this time, she was no longer unknown: The painter, collector, and author Joachim von Sandrart first mentioned her as an artist in his groundbreaking 1675 encyclopedia of artists *Teutsche Academie der Edlen Bau-, Bild- und Mahlerey-Künste* – although he still listed her alongside her husband: “who even today, in addition to her regular domestic duties / always offers her virtues to the Goddess Minerva / to depict the nature of animals / in all its ornament in flowers / fruit and fowl / especially also in the excrements of worms / flies / bugs / spiders and the like / with all their transformations [...]” By the time of the encyclopedia’s next edition, published in 1679, she has her own entry. For her floral plates, she used the coarse burin to chisel lines and points into copper plates, but for her caterpillar-book pictures, she used an etching needle, and for fine details even a drypoint needle. In this way, she could score every



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minute detail from her watercolor templates, even the finest hairs on the caterpillars, into the copper plate as if using a pen. It was also the first time that she fashioned transfer prints. For this, a damp piece of paper is placed on a fresh print and is passed one more time through the press. The resulting print is much more delicate and softer than the original – and as a mirror image of a mirror image, is the same way round as the original. These prints are highly valuable, for almost all of them are hand-colored by the artist in person and thus serve as models for other colorations.

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The book was published in 1679 as *Caterpillars, Their Wondrous Transformation and Peculiar Nourishment from Flowers*. One could even call her book “wondrous” as well, for she does not show caterpillar after caterpillar in one section and butterfly after butterfly in the next, as she had seen in the books at her parents’ home. The book’s uniqueness is clear to the reader



Der
Käupen
Wunderbare
Verwandlung
und
Wunderbare
Blumen-nahrung.
1679

Title page from the "caterpillar book," 1679

just from the title page depicting the silkworm, the creature that marked the beginning of her early observations and had unleashed her scientific spirit. It shows a branch of the red mulberry tree arranged in a wreath, with several small white eggs on one of its leaves and a caterpillar next to it. Anyone who does not know that the mulberry provides the food for these caterpillars can guess from the nibbled-upon leaves. At the very top are two hatched silkworm moths, one male and one female, and on another nearby leaf are more eggs. On the majority of the book's 50 copper engravings, she uses just such an all-encompassing view of the animals' metamorphosis to show their diverse manifestations, combined with the forage plant that is so important for their existence. Never before had a book depicted the life of these animals in such a way.

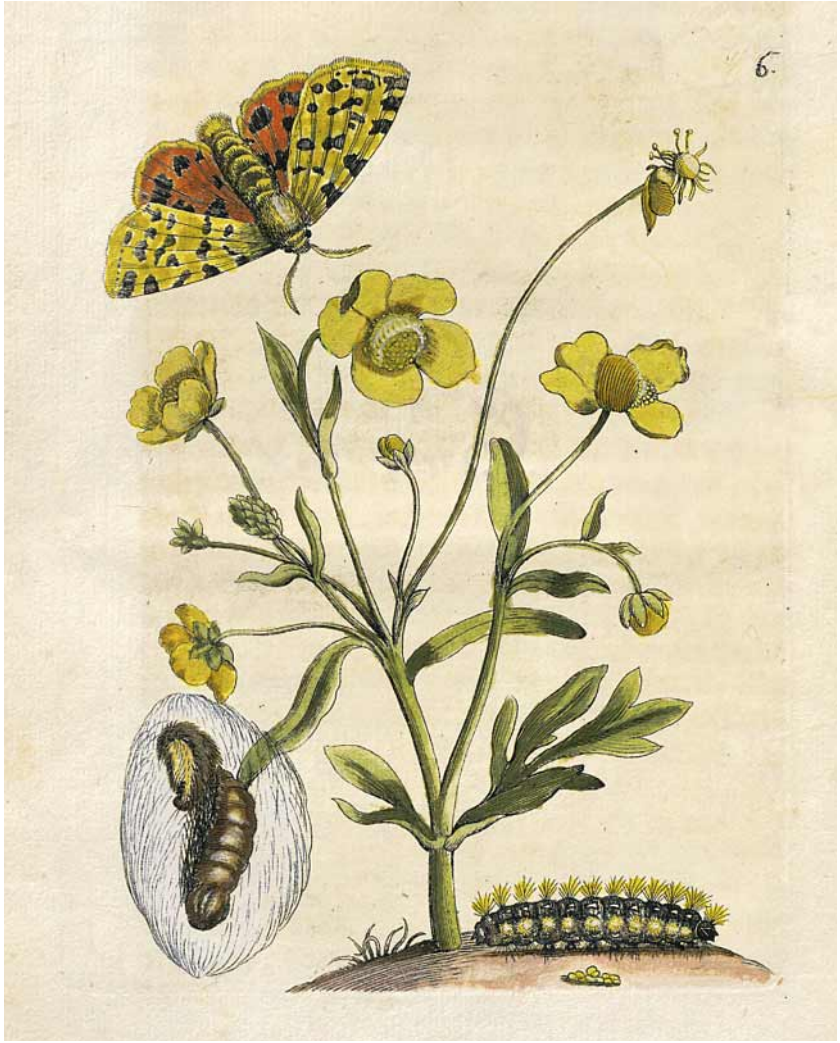
True, just a few years earlier the Dutch painter and entomologist Johannes Goedaert had depicted the various stages of butterfly development in his *Metamorphosis naturalis*, but he rarely reproduced the animals' forage plant. Most importantly, however, Maria Sibylla's work is more detailed and precise, and her animal illustrations are far more lifelike than Goedaert's. For each picture, she wrote several pages of description – her animals' biographies – all of it in German, so the book could be read by all, regardless of gender or education. It was an unusual and daring move, for scientific works were usually written in Latin, the language of scientists and academics, but also the language of men, for women were forbidden to attend university. For those with limited budgets, the book could be purchased with uncolored engravings. Upon request and for twice the price,



the prints could be ordered hand-colored, though the coloring was not always done by her herself. It is probable that some of the work was done by her pupils from the “Maidens’ Compagnie,” and so the books’ hand-coloring is executed sometimes with a more refined, sometimes with a less skilled touch. The book’s chapters are not named for the various butterflies gathered within its covers, for at this time when the study of butterflies was still in its infancy many of their names had not yet been officially established. Instead, the chapters are named for each species’ forage plant. If we leaf through the book, we soon encounter an illustration of a *sweet buttercup*. A black caterpillar can be seen at the foot of the stalk, and the animal’s yellow eggs lie nearby. On one leaf, we can see the next stage of development – a pupa – and fluttering above the flower is the hatched moth. According to the accompanying text, this caterpillar is not quite as finicky in

page 49 right

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its choice of forage plant, for she has observed that it also eats “sorrel / deadnettle / dandelion or gooseberry,” but should they encounter buttercup, “then they leave all the rest behind.” Maria Sibylla describes the animal in every last detail, including how the caterpillar rolls into a ball when touched. It is no “sun bird,” however, but a “moth bird,” for she has observed that the animals sit still until evening, when they take flight in groups until the next daybreak.

If we leaf a little further, we come across an illustration of a *stinging nettle* with a large black caterpillar on one of the top leaves. In the accompanying text, she writes that she was at first amazed that this caterpillar transformed into such a colorful “summer bird.” Her conclusion: “But then I discovered / that many an unsightly caterpillar became something beautiful.” During its metamorphosis into a butterfly, this caterpillar hangs upside-down from a leaf and transforms into a pupa “resembling / a fantastical head / or face.” The fully-formed butterfly, which she calls a “peacock-bird,” has been painted from the front and the rear. One time, the “date pit” produces not a summer-bird but a “black / ugly / little flying creature” that she includes in the picture but whose genesis remains a mystery to her. Soon enough, however, she reveals what the common fly is doing in the picture, for more than once does she find small white maggots in the caterpillar’s excrement that, according to her observations, laid black eggs from which the fly hatched.

With this book, she shared with the world the passion she had held since childhood. She emulated no female role model in order to get where she was now – she knew none. And thus

her poet friend opens the eulogy printed at the beginning of the book with the words: “It is amazing / that women, too, / dare to write / with consideration / what hordes of learned have struggled to do.” Did the book inspire more than a few women to listen more to their own capabilities and interests, and to boldly pursue them? We do not know.

For Maria Sibylla, however, the “caterpillar book” is not a medium for showing off her artistic skills and scientific knowledge at a time when a woman’s most important duties were those related to running the household. In fact, she saw her work solely as a song of praise for the Creator. In her preface, she confesses: “Do not seek herein my glory / but that of God / to praise / Him / as Creator of even these small and most humble worms; / for they spring not from themselves / but from God.” But this most splendid union of art and the natural sciences is not meant to be a book solely in honor of God. From her observations, she had come to believe that God has given these small beings the wisdom of time and order – qualities that, in her view, are lacking even in some people. While still in their egg, she believes, the caterpillars possess the unerring knowledge of when they can hatch in order to find food, and butterflies only lay their eggs in a spot where the freshly hatched caterpillars will find nourishment. To her, the metamorphosis of the butterfly, which emerges from a lifeless hull and joyfully flies heavenward, is a hope-giving symbol for the resurrection of the soul from the dead physical shell of the Christian’s body. It is an image repeated in Christoph Arnold’s *Caterpillar Song* at the end of the book, set to the tune of *Jesus, You, who my soul*. The final stanza is as follows:

“Dearest God / thus you will deal
With us, too / in due course;
As the caterpillars change themselves /
And / by dying /
Come again to life /
Like the dead / in the ground:
Let me, poor worm,
Be thus commanded unto you.”





CHILD OF THE LIGHT



In 1682, Maria Sibylla traveled from Nuremberg to Frankfurt with her daughters – 14-year-old Johanna Helena and 4-year-old Dorothea Maria. The occasion for this journey was not a cheerful one, however: a short time before, she received news that her stepfather Jacob Marrel, who had also been her supporter and teacher, had died in November 1681. Her mother was in need not only of solace but also assistance, for besides her husband’s debts she had also inherited 320 paintings that had now to be sold. And there was also a dispute over the inheritance with Marrel’s daughter from his first marriage. A short time later, Johann Andreas Graff followed her to Frankfurt.

By now, though, something had come between husband and wife that has been driving them apart for a longer time. Many years later, a newspaper would report that this estrangement resulted from Johann Andreas Graff’s “shameful vices,” which his wife could and would no longer tolerate. Soon after, however, the same newspaper reported that the blame lay solely with her. The true reason will perhaps forever remain a mystery.

Not for a moment did these new circumstances keep Maria Sibylla from walking through town with open eyes and continuing in her research. And so, one early May morning, she found as many as 70 caterpillars next to a cocoon in a black-thorn bush. They “lay in a round circle, very close together, but

they looked like a round, velvety-back patch; I took the entire twig home and gave them fresh blackthorn sprigs daily; these I study next to the cocoon, in a jar in the air. In the evening (at 7 o'clock) the caterpillars all lay down together as described above, and they remained so until 9 o'clock in the morning, when one was tempted to force them to start eating, for they did not move ... but when 9 o'clock came around, they ran about and sought their food." It is one of the many observations that Maria Sibylla, tirelessly and with a sense of fulfillment, painted with the brush and wrote down with the pen. She did the same with the life history of the cocooned worm that a carpenter acquaintance found in a piece of wood and presented to her; and with the little worms that she found in the antenna of an amber snail. Many of these observations were published in 1683 in the second volume of her caterpillar book, accompanied by 50 of her copper engravings.

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Many people probably still cannot comprehend why a woman would occupy herself with the life of worms, which strike them as so insignificant, ugly, or even as the spawn of the devil. In the preface to her book, Maria Sibylla explains her passion as follows: "Inasmuch as I continue to find daily pleasure therein; and I see quite well / that even the smallest of creatures / was created by God / and yet is thought useless by so many people / though it is proof of God's praise and wisdom : For so many caterpillars / summer-birds and moths are of such incomparable beauty consisting in their peculiar colors / and orderly decoration / that brings no small amusement to our ever-keen face; and that no man's art / has yet managed / to achieve."



Pear Blossom
Plate 2 from the "caterpillar book," 1679

During her time in Frankfurt something within her became so strong that it soon demanded a fundamental change in her life: The faith that had been growing within her in recent years – encouraged by Frankfurt’s Pietist circles – now compelled her to increasingly turn away from worldly matters and to commit herself fully to the service of the Lord. And so she made a radical decision: In the summer of 1685 she set out for the Netherlands with her elderly mother and her two daughters. Perhaps they spent several weeks traveling by carriage, or maybe they boarded a ship on the River Main and then continued down the Rhine. After several stops along the way, they reached their destination: Walta Castle in the small village of Wieuwerd.

It was a strange community, at times as many as 500 souls, including scholars, merchants and surgeons, craftsmen, theologians and artists – all living there without private belongings, with only communal property. Maria Sibylla’s stepbrother, the engraver Caspar Merian, had been living in this community for some time already, and was to die here in 1686. Perhaps it was he who had written his family in Frankfurt to tell them that they were welcome among these “Labadists,” as were all who were ready to turn away from worldly matters, willing to submit to unconditional obedience, and earnestly resolved to destroy the evil of their own ego, for only then could a purified self emerge within the truly born-again. “The head must come off” was a popular expression in this place, which the locals mistrustfully called “the bush” (and its inhabitants “bush people”). In their plain clothing, the castle’s inhabitants differed little from one another, for clothing was there only to fulfill its purpose but not

serve as ornament; in fact, any decoration was frowned upon because it distracts from what is essential. Anyone strolling through the castle and past the adjoining newer buildings would have found that the inhabitants' doors were always open, for nobody here had anything to hide. Despite all their commitment to community, not all Children of the Light – as they called themselves – were equal: Seated at one table was the council, including its leader, “Papa Yvon.” At the others are the members, one table was reserved exclusively for guests, and another for those members of the community still too caught up in self-love. The latter probably did not have much on their plates, for fasting was the only thing besides constant prayer that had the power to weaken the ego. This goal was achieved not only through strict self-discipline but also because members were obliged to constantly make sure that their “sisters” and “brothers” did not stray from the path. Everyone who wished to live here in a New Jerusalem as the first Christians did (among them French, Dutch, and Germans) is unified by the goal of becoming aware of “Christ within us,” the mystical union with God – and by their reverence for the community’s founder, Jean de Labadie.

While studying for the priesthood at Jesuit college, Labadie – who had been born into a French noble family in 1610 – had repeated mystical experiences that soon led him to believe that a special task awaited him in life, but it was one he could not realize within the Jesuit order – of this he was sure. He thus left the Jesuits and initially taught as an itinerant preacher. For ten years, he wandered through towns and villages, all the while enthusiastically reading the writings of Calvin, eventually converting

to the Reformed Church in 1650. In Protestantism, he saw far greater possibilities for his mission to lead mankind back to an original and true Christianity. In 1669, Labadie was working as a preacher in the Dutch town of Middelburg, but he was accused of religious separatism and banned from working. He then left for Amsterdam, surrounded by a constant flock of admirers. But here, too, his separatist views were not tolerated – he even provoked riots – and so he moved on to the Westphalian town of Herford. One of the few educated people who followed him was the polymath “Star of Utrecht” Anna Maria van Schurman, who possessed considerable knowledge in the fields of astronomy, biology, medicine, geography and history, fought for women’s right to study (she was the first woman in Europe to attend university lectures), mastered ten languages, and was a no less talented artist. Soon, however, Labadie and his followers were driven out of Herford as well, and they moved to the then-Danish town of Altona, where he died in 1674, convinced that the end of the world was nigh. The group found a new home at Walta Castle thanks to the goodwill of its lord, Cornelis van Aerssen van Sommelsdijk. Anna Maria van Schurman died here in 1678 as a “mother of the community.” While his three sisters, who were all Labadist followers as well, continued to live at Walta Castle, Cornelis van Aerssen van Sommelsdijk was drawn to the faraway Dutch colony of Suriname (Dutch Guiana). He was not only the colony’s governor but also its part owner, as were the city of Amsterdam and the Dutch West India Company. For the Labadists at Walta Castle, it may have seemed like a gift from God. For in Suriname, the stories went, there lived so many unbelievers



that one could scarcely count them. And so the first Labadists soon left Wieuwerd for South America, where they established a colony with the auspicious name “Providentia.”

Maria Sibylla Graff had been living in Wieuwerd with her mother and daughters for just a short time when her husband knocked on the castle gates. But Johann Andreas Graff was not allowed to live at the castle and had to find a room in the village. He took his time, for nothing was more important to him than to convince his family to return with him to Nuremberg. As he fretted and hoped, he began to sketch a plan of the castle,

including a view down its long tree-lined path and a view of the complex itself. In the end, he was ready to live in the Labadist community in order to be with his family – but the council initially had him do hard physical labor, as if to pass a test.

Maria Sibylla was repeatedly exposed to tests of entirely different dimensions: For instance, Johann Andreas Graff later wrote that he once found her in a struggle with Satan, who was apparently preventing her from killing her ego once and for all. As Maria Sibylla wrestled with Satan, she shared with Graff her overwhelming desire to burn all her belongings and to eradicate her name from this earth. Only when he offered her comfort in the name of Jesus did she quickly appear to recover.

His endless work in the community robbed Graff of his strength. He grew gaunt and eventually fell ill. In the end he departed for Nuremberg, sad and desperate – for neither his wife nor his daughters wanted to see him anymore. Maria Sibylla no longer considered him her husband, for among the Labadists marriages with unbelievers were null and void. And so she again assumed the name Merian. She soon received an official reprimand from Nuremberg city council, which Johann Andreas Graff had informed of her behavior. She did not reply, and so Graff was able to divorce his wife and marry the daughter of a book illuminator.

When the community at Walta Castle was not engaged in prayer or services, its members worked for their keep. They made soap and pans, wove the famous Labadist cloth, and printed the writings of Jean de Labadie. Whenever Maria Sibylla Merian found time after doing her work for the community, she devoted

herself with a never-dwindling sense of wonder to the observation of nature. For she had long been convinced that, in so doing, she came closer and closer to God. Labadie's writings may have strengthened this conviction, for in his view God reveals himself in everything: in smell, taste and sight, in sound and in touch, in the Bible and even in most of the sciences. Divine existence is manifested, he writes, in birdsong and in the skies through which they fly, in the bleating of the lamb, in the sea and its animals, in the stars on the firmament and the plants of the earth – if only one is capable of observing it all. The observation of nature in particular, writes Labadie, can be like meditation.

For Maria Sibylla Merian, the time at Walta Castle was not just a time during which to distance herself from her previous worldly life. It was also a time for collecting and for looking back on her past accomplishments as a scientist and artist. How much paper and parchment had she covered with watercolor over the years, capturing her observations since her early years as a scientist! She now began to organize all these treasures, pasting her mostly small-format watercolors showing the stages of development of butterflies onto larger pieces of paper. Then she inserted each of these watercolors into a small paper frame and transcribed onto a new piece of paper the written observations that go with each image. She now placed the two pages next to one another and later bound them as a double page with text and image facing each other. She was to spend nearly 30 years adding new texts and images to this working journal, thus recording the appearance, behavior, transformations and place and time of discovery of her caterpillars and of a smaller number of

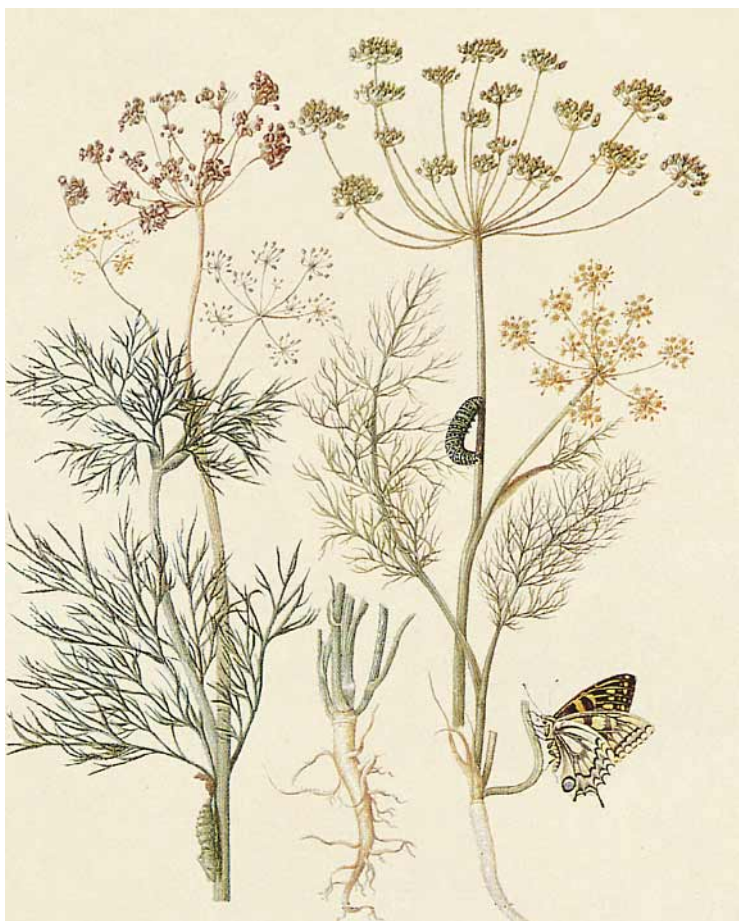
other insects and animals. More than a few texts were repeatedly expanded over the years, and many pictures would disappear from the book because – perhaps for financial reasons – she had sold them. Her working journal became an archive as well as a book of templates for larger watercolors and for her publications' engravings.

During her time among the Children of the Light, she also painted many watercolors depicting finely detailed flowers or herbs that were later brought together with other images to create the *Herbal Series*. Here, the focus was not on the development of caterpillars, but on the different parts of a plant from root to flower and fruit, as in the watercolor of various herbs from the parsley family (fennel and dill) on which we can see a caterpillar and butterfly that would later be christened the swallowtail. More than a few of these herbs and butterflies soon came to serve as models for Maria Sibylla Merian's third volume of her caterpillar book, which her daughters published after her death, for she never seems to have had the time to do so herself.

In 1688 the community at Walta Castle was rocked by the news that the castle's lord, Cornelis van Aerssen van Sommelsdijk, had been murdered in Suriname by mutinous soldiers. Soon after, the community's first Sisters and Brothers returned from the colony. They had not been very successful there; few of the unbelievers spoke their language, the colony was beset by scorching heat and terrible diseases, and during the long crossing Moorish pirates robbed one group of all the provisions so urgently needed by the settlers. But the returnees also reported on the beauty and wildness of Suriname's natural environment



Two Butterflies, 24 February 1706



and showed off many of the exotic plants and animals they had brought back with them, including preserved butterflies, beetles and snakes. Around this time, newly accepted members of the community were constantly arriving at the castle. But the Labadists' communal-property experiment was also beginning to falter, for not all the newcomers brought money with them, and so the community's supplies were growing dangerously low.

In 1690, Maria Sibylla Merian's mother died. In this situation, something changed inside Maria Sibylla. She had been going more frequently in search of caterpillars, and her scientific heart was beating with renewed force. Perhaps a new desire was growing within her to encounter countless butterflies in many different places around the world. Why not Suriname? This process led her to take another radical step: In the summer of 1691, one year before the communal-property model definitively failed, she and her daughters left Walta Castle. She had packed her most valuable belongings, things that were probably never the communal property of the Children of the Light: her sketches, her book of notes and studies, and her copper plates, and certainly also some of her stepfather's watercolors and the insects that she had gathered over all the years. She had joined the Children of the Light in order to leave behind all worldly matters, but her new destination was very worldly indeed: Amsterdam, the richest city on the continent.





THE WHOLE WORLD IN ONE CITY



Amsterdam was not only the continent's richest but also its most cosmopolitan city, for all its inhabitants were free to believe what they would. This city of nearly 200,000 inhabitants was thus a haven for many Jews from eastern Europe, Portugal and Spain, as well as French Huguenots who had had to flee their home for religious reasons. It was a city like no other, a place where the impossible seemed possible. For while at night other cities disappeared in darkness, here the thousands of lanterns filled with rapeseed oil made sure that the light never went out. One was never alone here – crowds of people jostled through the city's streets, drawn to its pubs or vices or the countless shops that never slept. There were so many things to see that even the most widely traveled sailors were amazed. The city was like an island awash in the aromas of the great wide world, a place where the winds of the future seemed to blow – leaving some enchanted, and making others' heads spin. Back in 1624, the teacher David Beck of The Hague had written: "Seek ye on an island the richest fleets of ships / the might of a kingdom. The conqueror of death / Or the entire globe in just one city / Then ye shall see an Amsterdam that feeds the world / [...] A city of merchants' wares like all of Africa: / A city rich in gold and treasures like Asia: / A Greece adorned in art, wisdom and law / Where all foreign is present in unknown abundance / And such

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is the way of world in Amsterdam / Thus Amsterdam presents a microcosm of the world.”

By September 1691 Maria Sibylla Merian had made herself at home and immediately set out in search of caterpillars. The first specimens she encountered in Amsterdam were delicate creatures with yellow and black spots. What was going through Maria Sibylla’s mind as she watched them? The summer before, she had discovered just such caterpillars on the apricot, quince, and cherry trees in Wieuwerd. She carried them home, where they soon wrapped themselves in cocoons. But the next April it

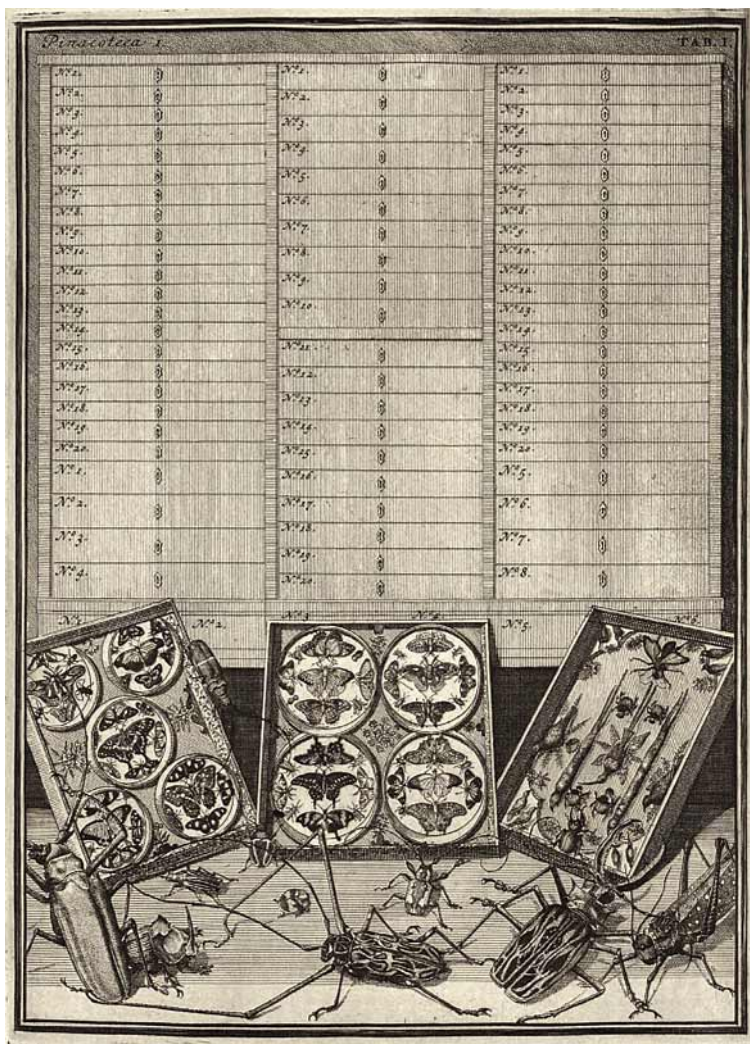
was not a “little grey bird” that emerged from the cocoon, but black flies. Soon enough, people began to knock on her door with boxes of caterpillars from all over Holland, for she was no longer unknown in this country, but had become a highly respected conversational partner of Amsterdam’s scholars.

She also encountered plants, animals, and other strange things that she had never seen before. Amsterdam was home to a group of well-off middle-class citizens whose greatest passion was to collect the wonders of nature and to take joy from them. There were unusual corals, sea urchins and sea shells, exotic insects and birds, and more than a few preserved animals. Frederik Ruysch, the famous professor of anatomy whose talented daughter Rachel was now receiving painting lessons from Maria Sibylla Merian, collected not only animals, which he preserved in fluid and displayed in countless jars in his cabinets, but even human embryos. Other collectors gained immense joy in collecting boxes of wondrous seeds and kernels, Seychelles nuts, herbaria, and paintings and drawings of plants from faraway places such as Japan, Indonesia, India, Ceylon, or Suriname. Many of these collectors’ nature-cabinets were also overflowing with rocks and minerals. Who would be surprised that, in their cabinets of curiosities, not a few of these collectors venerated equally ornate and curious works made by human hand? Maria Sibylla admired many of these collections, such as the one compiled by the damask merchant Levinus Vincent. She encountered butterflies and other insects that she had never seen before, but they failed to bring true joy to her scientific spirit for she lacked the most important thing: The possibility to study the various stages of

development and metamorphosis, from egg and pupa to freshly hatched butterfly. She probably had similar feelings when she discovered Amsterdam's botanical garden with its plants from Africa, North and South America, and the Pacific, and made the acquaintance of its director Kaspar Gommelin. Or when she visited the collector and botanist Agnes Block's orangerie with its exotic plants and animals on Block's estate outside Amsterdam, she saw angel's trumpets and pineapple plants but not the attendant butterflies. Block commissioned her to paint the plants and birds that were at home in her orangerie and aviaries. But Merian was not alone in this endeavor, for her daughter Johanna Helena – whom Maria Sibylla had spent years teaching a diverse range of artistic techniques and who had grown into a highly talented painter of flowers and insects – produced many paintings as well.

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It was through such commissions, the sale of watercolors and her caterpillar books, and the sale of paints and painting supplies that she earned a living in Amsterdam. She also began to trade in animals, which seemed to serve this purpose as well. For instance, in August 1697, Maria Sibylla Merian wrote to Clara Regina Scheurl, a painting student of hers in Nuremberg who was still called Imhof at the time, that she would like to trade rarities und seeds from the Dutch colonies in the East and West Indies for beetles, butterflies and snakes from the German lands. Perhaps these exotic items were from her son-in-law Jacob Hendrik Herolt, a former member of the Labadist community at Walta Castle whom Johanna Helena married in Amsterdam in 1692 and who was now engaged in trade with Suriname.



Levinus Vincent
Pinacoteca 1, plate 1 from *Wondertoonel der nature*, Vol. 2, 1715



Suriname... how much had Maria Sibylla Merian heard of this faraway land and its flora and fauna – during her time at Walta Castle, from collectors in Amsterdam, and now from her son-in-law? She needed no male explorer to inspire her, no male role model – although 100 years later Goethe attempted to see one in the French monk Charles Plumier, who around that time traveled three times to South America in the service of the king. Suriname was no longer a dream, but a destination, a place with butterflies to study – she only lacked the resources. She sold many specimens from her collection, and an Amsterdam art dealer helped her sell many of her paintings, but it was still not enough to pay for the journey. In this situation, she found support in the gift of patience, which she had developed over years of observation, noting “Patiencya is a good little herb.” And soon enough she received help from an unexpected source. Amsterdam’s well-traveled mayor Nicolaas Witsen, who was also the director of the East India Company, and his nephew, the city’s secretary Jonas Witsen, surprised Maria Sibylla with unexpected news. Both men were fervent collectors, their hearts aglow for the wonders of nature, and she knew their treasures well. For Maria Sibylla, their good tidings may have sounded like a miracle: The city of Amsterdam had awarded her a grant for the journey to Suriname. Nothing more stood between her and the land of her dreams.





TO SURINAME!



In June 1699, a hundred years before Alexander von Humboldt's South American expedition, Maria Sibylla Merian boarded a cargo ship bound for Suriname. She was accompanied by her younger daughter, 22-year-old Dorothea Maria. More than one person had warned her that she must expect the worst: an unforgiving tropical climate, mosquitos, and diseases such as scurvy, dysentery and yellow fever. Such a journey without a male escort was not only highly unusual at the time, but also harbored many dangers. But did Maria Sibylla Merian even know what fear was? In any case, shortly before leaving Amsterdam the 52-year-old made her last will and testament.

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If the winds were fair, the women would see Suriname in two months' time – three months in case of poor weather. Or perhaps never. At some point, a narrow strip of land appeared on the horizon and soon one could make out the coastline of what everyone called the “Wild Coast.” The water has a different color there, tinted by the mud of the Amazon. Christopher Columbus discovered this coast in 1498, and a hundred years before Merian a few adventurers came here in search of El Dorado – a city, an entire land even, made of gold. This stretch of land even inspired William Shakespeare – who had never been here – to have Falstaff in *The Merry Wives of Windsor* (1597) compare a woman to this coast, “all gold and bounty.”



The ship on which the two women were traveling sailed to the mouth of a great river that bears the country's name – Suriname. It then sailed a while upstream until it reached the harbor of Paramaribo, the capital, which the Dutch received from the English in 1667 in exchange for their settlement of New Amsterdam, which would later be renamed New York. Only a few English people lived in Paramaribo, but there were around 600 Dutch Protestants and 10,000 Africans – who were not here voluntarily, but had been abducted from their homes and worked as slaves on the colonial masters' 100 or so plantations. These, which stretched upstream away from the coast, consisted of row after row of sugarcane. Around 40 of them belonged to the Jewish community – English Jews and their Sephardic co-religionists who had fled from Spain and Portugal via Amsterdam and who lived in the “Jodensavanne” 50 kilometers south

of Paramaribo. Life here had not always been peaceful in recent decades, for the region's settlement had repeatedly led to armed hostilities with the native Caribs and Arawaks.

Where the sugar plantations ended, a different world began: the endless jungle. It is an incomprehensibly beautiful and dangerous region of thick rainforests and countless rivers and swamps. Macaws fly through the air, kingfishers, green and red ibises, flamingos and eagles. There are jaguars, pumas and ocelots, sea cows, sloths and capybaras. Frogs hop on the ground; tortoises crawl at their leisurely pace, snakes slither; caimans pull their victims into the water with lightning speed. Now and again, a thick fog rises because the air is so humid and the temperatures so high. Naturally, the region is home to countless insects – and an infinite number of butterflies. This was the place of Maria Sibylla Merian's dreams.





SO MUCH NEVER-BEFORE-SEEN LIFE



The place of Maria Sibylla Merian's dreams, the jungle, does not open itself to everyone – too thick is the undergrowth, too abundant the thistles and thorns. But somewhere in the forest there lived various indigenous tribes, as well as the occasional small group of “maroons,” escaped slaves. To anyone else, the jungle would appear to be off-limits. And so, for the time being Maria Sibylla Merian and her daughter moved into one of the white colonial houses in Paramaribo. In a painting from 1707, the Dutch artist Dirk Valkenburg shows such houses rising above the treetops in sharp contrast with the richly nuanced greens of the Surinamese natural environment, while in the foreground we can see slaves laying out a new plantation. At the house, Maria Sibylla had room for many of the things that she had taken with her on this journey: countless plywood boxes, jars, little bottles filled with Portuguese lavender oil, needles, magnifying glasses, and of course her paints, paper, parchment, and brush. And so she initially explored the garden and the nature surrounding Paramaribo.

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Again and again, she spied in the air never-before-seen butterflies whose beauty she glimpsed for just a few moments before they silently flew on. But she failed to catch them – such as the day-flying moth known as the green-banded urania – for they flew too high and too fast. And so she began by collecting

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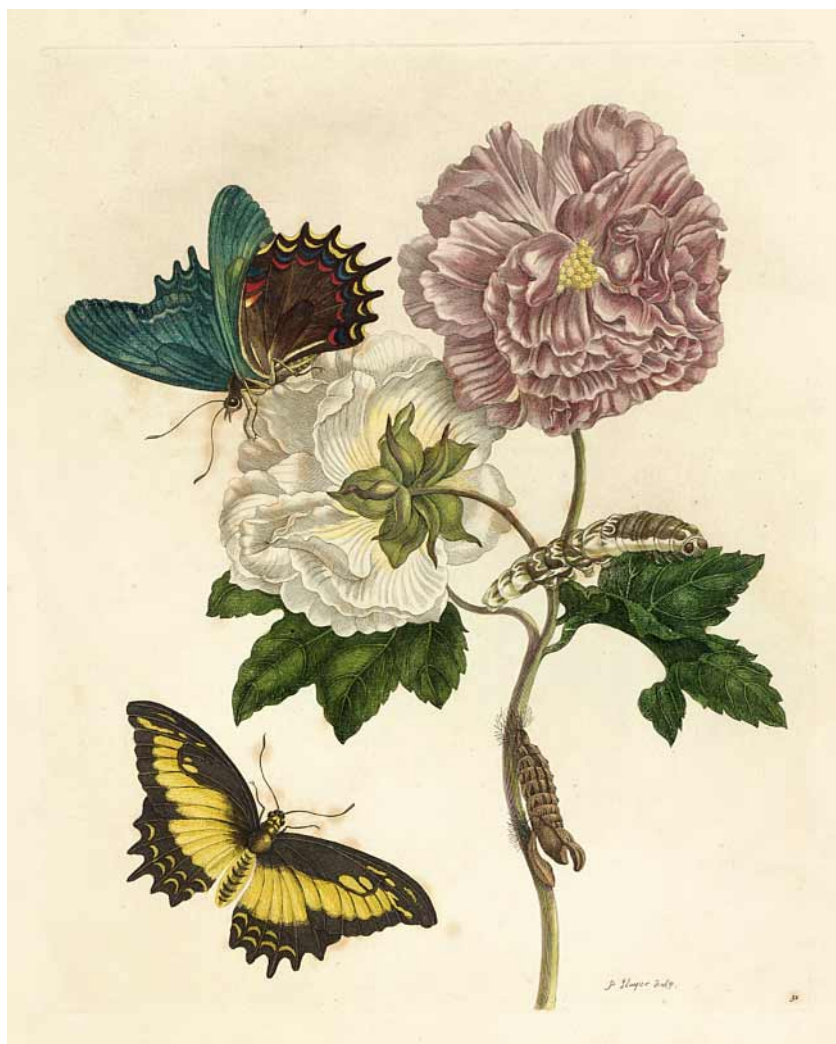
page 85 caterpillars, finding her first specimen on a guava tree in October 1699. Soon, she was filling box after box in her room with caterpillars, studying, noting and drawing their transformations. In her garden, she also discovered the most wondrous roses, which glowed white when their blossoms open in the morning, turned red in the afternoon, and by evening wilted and lost their leaves. On the leaves of such a rose, she found two brown-spotted caterpillars that, when looked after well, cocooned in their boxes. After two weeks, they hatched – and amazingly, one of the

butterflies had black-and-yellow coloring but the other looked completely different, with a dark-green inside and a colorful outside of the wings. Only later would scientists realize that the sexes look different with this species of swallowtail: the black-and-yellow butterfly is male; the other is female. Maria Sibylla Merian inspected many of her specimens through a large magnifying glass that showed things that would otherwise remain hidden to the unaided eye. In this way, she discovered the marvelous scales of a radiant blue butterfly: “Through the magnifying glass, the blue butterfly looks like blue tiles that have the same form as roofing tiles, arranged in a neat and regular order. They are broad feathers like those of the peacock, of wondrous brilliance that is worth seeing, for it cannot be described.” page 102

Naturally, there were pests as well – and not only animals: No sooner was Maria Sibylla Merian in Suriname than there were swarms of wasps constantly buzzing about her head, which then decided to build their fascinating round mud nest right next to her paint-box. One such wasp, which the natives call “Maribonse,” was later to appear on several plates in her Suriname book. page 84

For most plantation owners, this woman who searched the local gardens and fields for worms with her daughter was probably the most exotic bird in the whole land. She was interested in many things, just not sugar. People mocked her, but Maria Sibylla Merian was too busy experiencing nature fresh and anew, day after day: From afar, she kept smelling an intoxicating scent. It was the wild jasmine that grows here – like the hedges in Europe, as she would later explain in her Suriname book. On





Cotton Rose Mallow / Queen Swallowtail
Plate 31 from the "Suriname book," 1705

the jasmine's leaves, she discovered large green caterpillars that soon transformed into brown-and-black striped pupae. When Maria Sibylla Merian touched a pupa, it never stopped turning back and forth. Then she discovered that lizards and iguanas lived in the undergrowth beneath the jasmine bushes – and also found snakes that curled up strangely by placing their head in their coils. It is thus no surprise that her interest soon focused not just on caterpillars and butterflies, but on other animals as well. She never ceased to be amazed. So much never-before-seen life. She had probably studied the work of travelers who visited South America before her, such as the naturalist Georg Marcgrave, whose expedition visited parts of Brazil. She also saw various animals in Amsterdam's nature cabinets, either pinned into boxes or preserved in alcohol.

Maria Sibylla Merian soon realized that, without help, she would not be able to explore the diverse nature of Suriname and the secrets of its rainforest. Perhaps she asked for advice among the few local Dutch who were favorably disposed towards her, and their advice was to do what everyone did when work was involved: take some slaves with you. And so Maria Sibylla Merian and her daughter were soon traveling through the country with a few slaves and two natives, a man and a woman whom they called “our Indians.”

While still in Amsterdam, Maria Sibylla Merian probably learned that the language spoken on the plantations was a creole. It was a language that she apparently understood and spoke, for her travel companions repeatedly provided her with valuable information on the flora, fauna, and people of Suriname. In April



1700, the little group traveled up the Suriname River in a canoe until they reached the settlement of Providentia, where the Children of the Light from Walta Castle had waited, full of hope but in vain, to do their missionary work. The sister of the murdered colonial governor Cornelis van Aerssen van Sommelsdijk still lived here, and so Maria Sibylla Merian and her daughter spent several weeks at her home in order to explore the local surroundings. Nearby, they discovered fascinating wild trees that produced a yellow resin when sliced. This rubber had long been

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used to make varnish, and so Maria Sybilla Merian wrote in her Suriname book: “There is no need to describe the rubber. It is familiar to all who work with paint.” From the leaves of this tree, she collected large caterpillars with greenish black stripes. Shortly before it cocooned, the green suddenly turned red. But the butterfly that emerges is anything but colorful. The Suriname books shows it twice: once in flight with the black-and-gray inside of the wings, and once at rest with their softly purple outside.

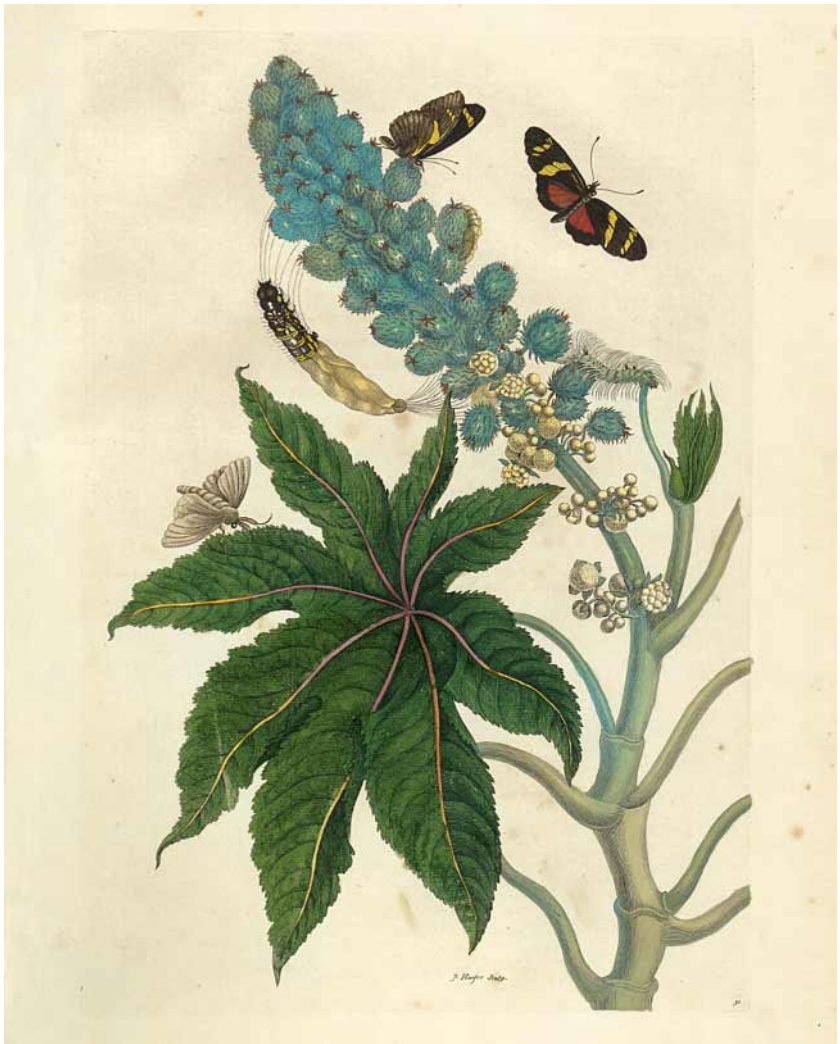
And finally Maria Sibylla Merian took her first difficult steps into the rainforest. What did she feel before embarking on this adventure? Her helpers had done good work hacking a path for her, but still the forest did not yield its treasures easily: Maria Sibylla Merian discovered several unfamiliar caterpillars on a papaya tree, but the tall tree’s trunk was hollow and thus impossible to climb. And so she had the tree chopped down in order to collect the caterpillars. More than once in her endeavors, she touched long-haired caterpillars so poisonous that her hand became painfully inflamed. Also, many of the exotic plants that she collected were withered before she could make it home. This was especially tragic for the caterpillars: once, 100 of them died because she could only offer them dried leaves as food. In response, she had any plants that aroused her interest dug up and planted in her garden. Many of these plants were well known to her helpers, and so she learned not only their names but also their use in the household and in cooking, including on several occasions their medicinal effects. For instance, the small bananas on which she found a quite unassuming caterpillar that transformed into a magically beautiful satyrid butterfly was used

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Pima Cotton / Gold-Drop Helicopsis Butterfly / Hypercompe sp.
Plate 10 from the "Suriname book," 1705



by the natives to produce vinegar. The leaves of a wild plant for which nobody had a name were used as a laxative, while roasted cashew nuts were used in case of diarrhea. The plum-like orange-yellow fruits of a tree on which she found several ravenous caterpillars that later transformed into blue butterflies induced sweating, and the natives reported that they used the cotton plant not only to spin thread for their hammocks, but that its leaves helped to heal wounds – like the oil obtained from the *Palma Christi*. She learned that the natives ate sweet potatoes, pineapple, and lizard eggs, and that they made candied key limes in sugar and also produced a delicious oil from them.

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It was probably also the first time in her life that Maria Sibylla Merian had encountered bananas. She watched how the natives used the plant's giant leaves to place bread made from cassava root in the oven. She wrote that it tasted "like fine Dutch rusk." She saw brooms made from the branches of the palisander tree, whose wood had been used to build many homes in Suriname, and she saw from which herbs the natives obtained the red color with which they painted elaborate decorative figures on their skin. One day, her guides told her of the power possessed by the plant that they call *Flos Pavonis*. Of this plant – on which she found a "light sea-green" caterpillar that transformed into a butterfly with a long proboscis – Maria Sibylla Merian later wrote in her Suriname book: "The Indians, who are not treated well when in the service of the Dutch, use it to abort their children so they will not become slaves like them. The black slaves from Guinea and Angola must be treated with respect or they will refuse to bear children into the same state of slavery as they are. They do

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Purple Coral Tree / Giant Silk Moth
Plate 11 from the "Suriname book," 1705

not bear any; indeed they sometimes kill themselves because of the harsh treatment to which they are subjected, for they believe that they will be reborn in their native land as free people, as they have told me from their own lips.”

Maria Sibylla Merian could no longer separate all the things she learned from her guides – their knowledge of the plants’ effects, their nutritional habits, and also their inhuman treatment at the hands of plantation owners – from how she viewed the plants and the animals that lived on them. The caterpillar’s development is linked to its forage plant, which is closely connected to the life of the people of Suriname. Her view is not merely that of a butterfly researcher and artist with a new-found ethnological interest; it is the view of a woman who sees things holistically because she recognizes contexts. The caterpillars’ metamorphosis was just one of many aspects that she now brought together.

By comparison, the views of the plantation owners whom Maria Sibylla Merian encountered on her travels are anything but open-minded. While she, as part of her botanical research, also shone a light on the cultivation and economic use of Suriname’s plants, the rigid gaze of the colonial masters was focused exclusively on sugar. For instance, in her search for caterpillars she discovered green, white, and black grapes that grew here in abundance. She was convinced that soon it would no longer be necessary to transport wine to Suriname by boat, but that the boats would be able to deliver Surinamese wine to Holland. In her Suriname book, she notes: “It is unfortunate that nobody here is keen on cultivating them.” She writes similarly of the



Pomelo / Urania Moth
Plate 29 from the "Suriname book," 1705



reluctance to plant figs, pomegranates and passion fruit, and when describing the two wonderfully aromatic types of vanilla that grow here wild, she summarizes: “It is a shame than nobody in this land is interested in cultivating such a thing or in seeking out other things that undoubtedly grow in this great and fruitful land.”

One day, Maria Sibylla Merian discovered a caterpillar on a bitter orange as it was spinning a cocoon using a thread much like that of her beloved silkworms. Even in the early years of her research she had wondered whether any other caterpillars spun a silk thread that might be used for the production of silk. In order to be sure that this thread could indeed be used for this purpose, she sent several cocoons to Holland. The positive answer confirmed her theory. What a discovery! What possibilities. She later wrote in her Suriname book: “If someone were to make the effort to gather these caterpillars, it would produce fine silk and yield a good profit.” Apparently, nobody ever did.



Sundown Cicada / Peanut-beaded Lantern Fly
Plate 49 from the "Suriname book," 1705





Banana / Automeris liberia
Plate 12 from the "Suriname book," 1705





When Maria Sibylla Merian and her daughter were not exploring the rainforest, searching for new worms on the plantations, or looking after, inspecting, and drawing their animals, they are busy preparing and preserving their specimens: the iguanas, snakes, tortoises, and even a crocodile that they brought back from their expeditions were preserved in alcohol using a home-made recipe. Many butterflies had to give their lives, pierced by a hot needle, in order to show their beauty to collectors, scientists, and other admirers for a brief eternity. So that no maggots might make a meal of these prepared butterflies, each of the wooden boxes into which the specimens were placed was coated with the strong-smelling oil of the Portuguese lavender plant. Even when the two women were not traveling, their faithful companions were constantly bringing them new caterpillars. For these two Indians, Merian was no strange bird. At one point, they presented her with a box of animals that, as it soon turned out, were good for a surprise: One night, a strange noise awakened mother

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and daughter and filled them with fright. In her Suriname book, Maria Sibylla describes what happens next: “We lit a candle, for we did not know what the noise in the house was. We soon realized that it was coming from the box, which we opened with surprise but threw to the ground with even greater surprise, for upon opening the box a fiery flame came out from it. Many an animal and with them many flames emerged from there. But we calmed ourselves, gathered the animals together and were in awe at their shining.” The plate next to this text shows two such animals, called lantern flies, in flight. Many years later, however, scientists would agree that these animals do not shoot flames, nor are they luminescent.

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So what did the two women see? The reflections of their flickering candles, a dream, or perhaps even their imagination? More than a few of the butterflies that Maria Sibylla Merian prepared in Suriname would later find their way into the collection of the Frankfurt merchant, banker, and butterfly enthusiast Johann Christian Gerning. In 1829, Gerning’s son left the butterfly collection to the Nassau Association for Archeology, the predecessor to the Wiesbaden Museum, in exchange for a lifetime annuity. The collection includes a specimen of this marvelous lantern fly, as well as the radiant blue butterfly whose scales Merian marveled at with her magnifying glass. These may well be specimens prepared by Merian herself, although there is no irrefutable evidence to this effect. Whatever the case, these prepared butterflies show one thing clearly: how meticulously and life-like Maria Sibylla Merian captured the animals on paper.

During all the time that Maria Sibylla Merian spent in Suriname, she was subjected to hot days and tropical nights that bring little cooling relief. Nor are the country's rainy periods a time for recuperation, for they are characterized by an unbearable humidity. Where in the beginning it was the impenetrability of the jungle that made her discoveries impossible, soon it was the climate that increasingly hindered her explorations. How many previously unknown butterflies would she still like to discover! In the spring of 1701, Maria Sibylla Merian fell so ill that, as she later wrote, "[I] nearly had to pay with my life." Weakened, in June the 54-year-old decided to return home, after nearly two years in Suriname. How much she would have loved to stay longer. In the preface to her Suriname book she later wrote: "The heat did not agree with me, and so I saw myself forced to return home sooner than I had intended."





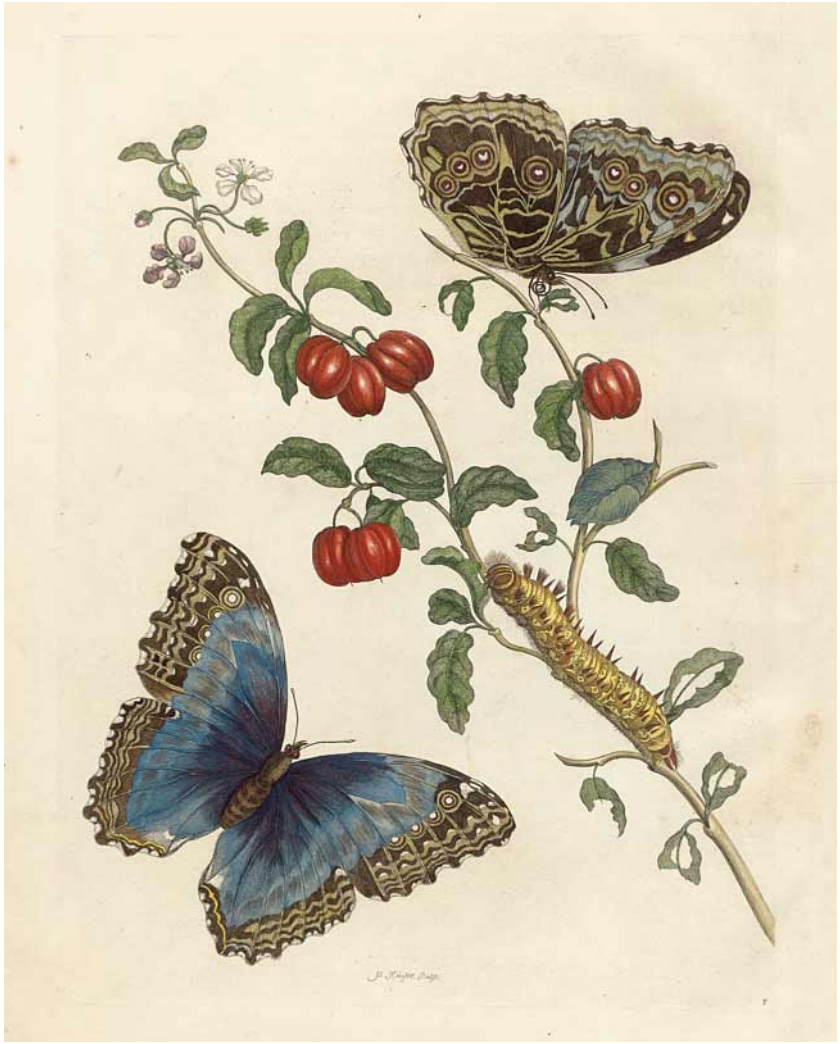
JOURNEY'S END



When Maria Sibylla Merian departed Suriname by boat in June 1701, she was accompanied not just by her daughter. The native whom she called her “Indian woman” – and about whom we know no further details – traveled with her to Holland. Also on board was Laurentia Maria Verboom, the daughter of Governor van Sommelsdijk’s former commandant. Like the others, she nursed the weakened Merian. But Maria Sibylla Merian felt fully in her element on the ship: surrounded by suitcases and boxes full of hundreds of prepared insects, seashells, plant bulbs, and jars of large and small animals in alcohol, she was already back to watching her caterpillars transform. One of the specimens is an unfamiliar slug-shaped caterpillar that looked more like an arachnid and possessed delicate, poisonous stinging hairs. When cocooning, the animal secretly crawls out of the underside of its caterpillar skin – which Merian the vigilant observer did not fail to notice. Eventually, she writes, a “strange owl moth” emerged from the cocoon. Also on board besides butterflies were several small eggs, from which lizards hatched. The eggs were laid by a blue lizard that Maria Sibylla Merian encountered in her room shortly before her departure – it had built a nest in the flooring. But the little lizards did not survive for long, for they lacked the proper nourishment.

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In late September, Maria Sibylla Merian moved back into her home on Amsterdam's Kerkstraat. But there was no time to think of rest – too many important tasks awaited. For her greatest wish was to compile all the things she has seen and experienced on multiple pages of parchment, accompanied by texts as with her caterpillar books. After all, never before had anyone studied the fantastic plants and animals of Suriname or documented them in text and pictures – and she was sure that it would be a long time before anyone “undertakes such a difficult and costly journey with such a goal in mind.” And so many of the Surinamese animal sketches in her book of studies served as templates for compositions of plants and animals (such as the yellow butterfly with brown stripes and spots on its wings) that she later engraved on copper plates on the basis of the original watercolors. Many of the caterpillars died because the leaves that served as their food wilted soon after being picked. But if none of these caterpillars had survived, her book would have been robbed of one magical butterfly. While in Suriname, Merian drew a picture in her book of studies showing a yellow-and-black caterpillar, its pupa, and two views of the butterfly. To this picture, she added two other caterpillars that do not belong to this species. These two hairy caterpillars, which she probably recorded in her book out of scientific interest, died as well. But her notebook does not show these caterpillars' forage plants, and we do not know in which form Maria Sibylla Merian captured the plant portraits in Suriname.

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Many insects are depicted neither in her notes and sketches nor anywhere else – she apparently lacked the time. And so

294 Dieſe golt gelbte Käfer mit ſchwartzem Rükken, ſind ſich
 in einem Kettle verändert zu, 16 Janij und zu, 29 diti
 kamme ein Solcher Schmetterling mit weißer und brauner Fleck,
 ſowenig.
 Dieſe nicht mehr als ein einziger Käfer geſehen.
 Dieſe ſind die Veränderung ſiebt ſich geſehen in einem Surinamſchen
 Inſecten Buch N. 31 auf dem 2ten Zettel von ſeiner Länge und Breite
 dieſer Käfer iſt.

many of the animals were first painted in Amsterdam on the basis of the prepared beetles and butterflies in Merian’s wooden boxes. She interrupted this work in the winter of 1701 for the wedding of her younger daughter Dorothea Maria – who had accompanied her to Suriname – to the surgeon Philip Hendriks of Heidelberg. Perhaps the conversation at the wedding also turned to her elder daughter Johanna Helena Herolt’s plans to travel to Suriname with her husband in the near future.

Afterwards, Maria Sibylla Merian returned to her work. It was her scientific ambition to depict every caterpillar and its metamorphosis, every insect and other animal next to the plant on which she found it. Sometimes, however, the artist within her resisted this ambition because she found the composition imperfect – as with plate 23, to which she writes: “I have depicted the blue lizard with her eggs mainly in order to decorate the image.”

But what would become of all the fantastic plants and animals, painted in watercolors and gouaches on parchment,

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when they were finished? For now, she did not know. But friends to whom she showed the prepared animals from Suriname along with her first paintings were convinced that these inimitable works deserved without fail to be published. In order to turn them into a book for a larger number of interested readers, she would have to engrave the pictures in copper and print them – but who would pay for it? After all, the journey had cost her a great deal of money. If, on the other hand, she were to sell the watercolors on parchment, then only one single buyer would be able to admire the wonders that she had discovered in Suriname.

At the same time that Maria Sibylla Merian was working on the pictures for her Suriname book, Hendrik d'Acquet, the



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Ice Cream Bean / Apricot Sulphur
Plate 51 from the "Suriname book," 1705

mayor of Delft, was preparing a book project of his own. Its aim was to show the extensive collection from the cabinet of curiosities belonging to Georg Eberhard Rumphius, who spent many years exploring the Moluccan island of Amboyna in today's Indonesia. All the plates for this book had been prepared and sent to a publisher in Amsterdam. But when he inspected the consignment more closely, he discovered that several of the pictures supposed to serve as templates for the engravings are missing – they had apparently been lost during transport. And so Maria Sibylla Merian was commissioned to create new images for this book on the basis of drawings and real objects. And so, concurrently with realizing her own work, she began to paint watercolors of crabs, seashells, and Gorgon's head starfish, as well as fossils and minerals. The book, *D'Amboinsche Rariteitkamer*, was published in 1705 with numerous engravings, 54 of which are based on watercolors by Merian. The book was financed through advance orders sold at a discounted subscription price.

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Subscription – this new sales model was just the solution for Maria Sibylla! And so she wrote to friends, scientists and collectors that they could place advance orders for her book with 60 illustrations of the insects of Suriname for the reduced price of 15 guilders instead of 18. For an additional 30 guilders, they could have the plates hand-colored by Merian and her daughters. She also described her subscription plan in a letter to her Nuremberg friend Johann Georg Volkamer, in whose Hesperides Gardens she probably saw the first citrus fruits in her life. In it, she revealed that she had already thought about soon publishing a second volume of her book. This volume would not show



butterflies, but crocodiles, iguanas, snakes, and other animals from Suriname – and would also show the world that she was no longer just a butterfly researcher. But she never got around to putting together this second volume. After her death, many of these animals would be published in a new edition of her Suriname book, including an immensely fascinating picture of a struggle between a caiman and a snake.

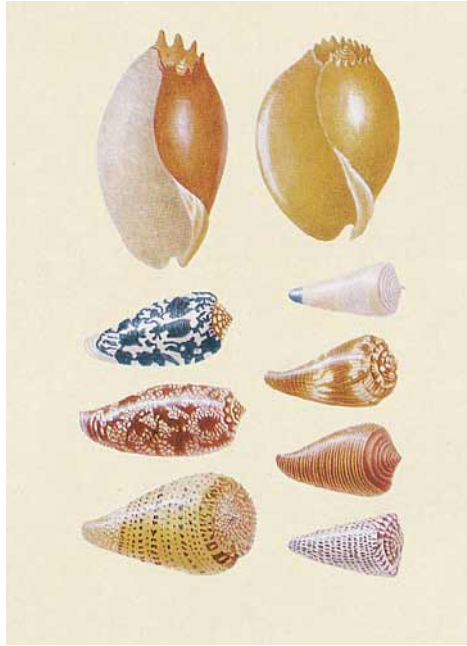
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Each painting in her book, which shows not only caterpillars in their metamorphosis but also other insects, snakes,



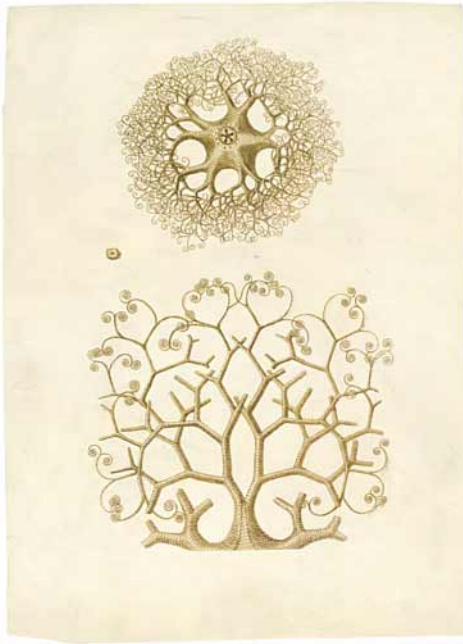
lizards, toads, and frogs, includes a text by Maria Sibylla Merian in which she shares her observations and the knowledge that she learned from “her slaves” and from the natives, as she emphasizes in the book’s preface. She had probably been expanding her knowledge even since returning to Amsterdam, for it is quite likely that the native woman who accompanied Maria Sibylla Merian on the voyage home was now living with her.

Many decades after the book’s publication, numerous scientists would criticize Merian for including animals and their



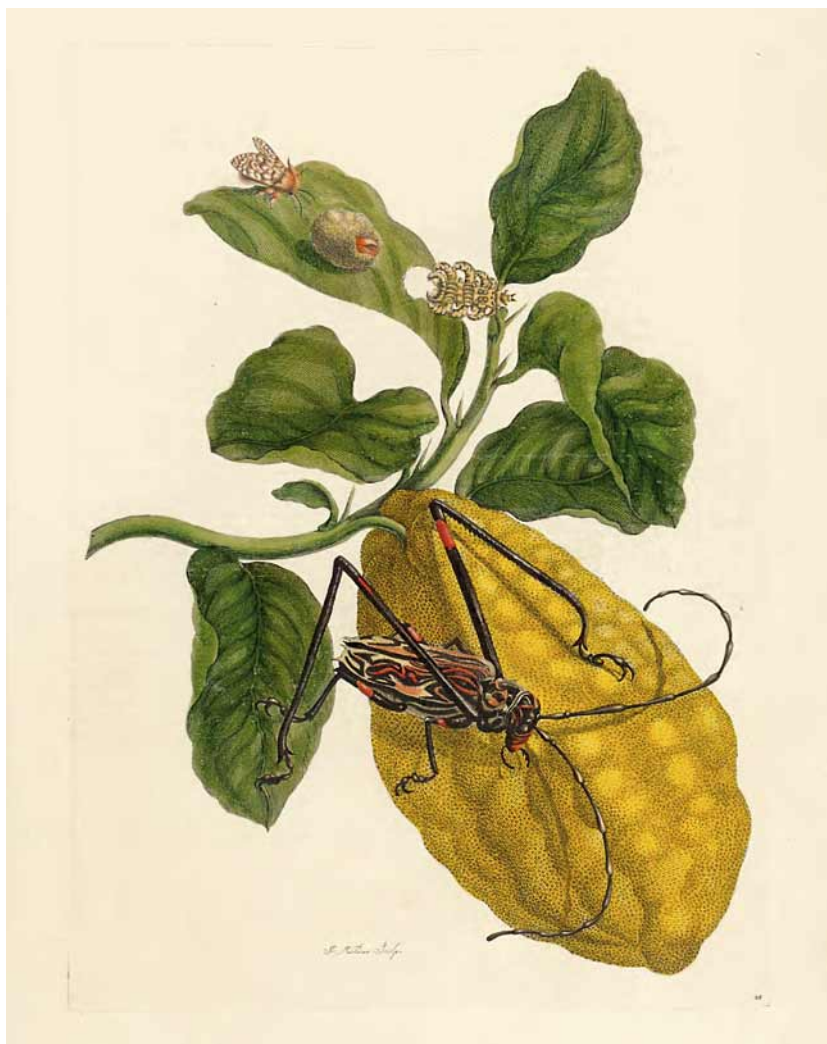
characteristics based solely on the natives' description, without ever having seen them herself. Over the centuries, researchers would also discover the occasional other inaccuracy in her pictures, but none of this will ever diminish her art and her incredible pioneering scientific work. Since she was not familiar with the Latin names for the plants of Suriname, she asked the director of Amsterdam's botanical garden Kaspar Gommelin to provide them.

Perhaps Maria Sibylla Merian soon began to transfer her watercolors onto copper plates. Perhaps she did so personally, but



realized that she did not have the strength to complete all the plates. And so she assigned the work to three leading Amsterdam engravers, whose names can be found on 57 of the final prints: Pieter Sluyter, Joseph Mulder, and Daniel Stoopendael. In July 1704, half of the pictures had been engraved and probably also printed. The book, entitled *Metamorphosis insectorum surinamensum* and published in a 52 × 73 cm large-folio format showing all the caterpillars and butterflies life-size, was completed in January 1705. Unlike originally planned, the book was only published

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in a Dutch and a Latin edition, with a print-run of just over 60. Since there were only 12 subscription orders for the German edition, the book was not printed in Maria Sibylla's native language.

A look at her preface shows an interesting development. Maria Sibylla Merian herself had undergone a transformation that becomes clear in her preface to *Metamorphosis insectorum surinamensum*: There is no mention of the nothingness of her person or of God as the creator of the creatures depicted on these pages – as she had emphasized in her previous books. Starting with her description of the plants on which she observed the caterpillars' metamorphosis, she now turned her gaze to the people of Suriname, their ways, knowledge and thinking, and their fate.

Her holistic way of seeing things was no longer aimed solely at presenting the vision of God. Could she even have found a way of reconciling the concept of God with the suffering of slaves? After all, only three years before the book's publication, she had written Johann Georg Volkamer in Nuremberg that she was painting the things she had seen in Suriname in order to show "what wondrous work and animals God the Lord has made in America." The preface, however, does not open with a reference to the multifaceted creation of God. Instead, Maria Sibylla Merian begins with the story of her own life as a researcher: "I have been engaged in the study of insects since my youth. I began with silkworms in my hometown of Frankfurt am Main. Later, I discovered that other caterpillars develop into even more beautiful butterflies and moths. This inspired me to observe the transformation of all the caterpillars that I could find. I thus withdrew from all human company and busied

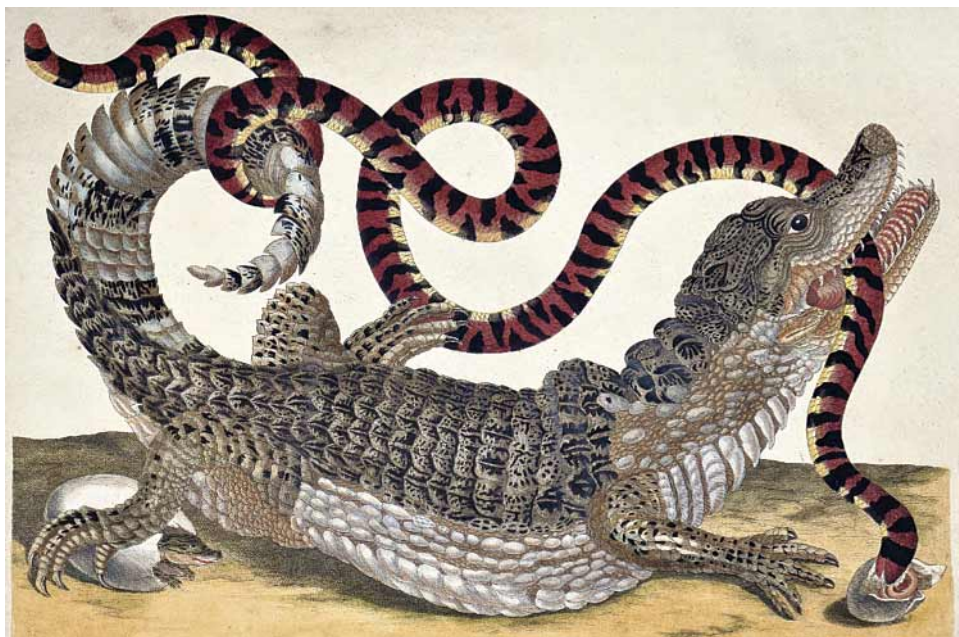


myself with these investigations. In so doing, I wished to practice my painting skills and to draw and describe them all according to nature, and thus I painted very precisely on parchment all the insects that I found first in Frankfurt and later in Nuremberg. These happened to fall into the hands of a few aficionados who urged me to publish my experiences so that they might be seen by and bring joy to curious naturalists. In the end, I let myself be convinced and engraved them by my own hand...”

Maria Sibylla Merian goes on to recount her time in Frisia, the cabinets of curiosities and natural objects that she



saw in Amsterdam, and her constantly growing desire to study the caterpillars and butterflies of Suriname. She describes her journey and her premature return home because her body could no longer bear the hot climate. In the end, she explains her approach to writing the book's text: "I could perhaps have written a more detailed text, but since today's world is very sensitive and scholars differ in their views, I have kept simply to my observations." These are the words of a woman who since childhood has constantly practiced seeing the smallest detail, whose observations led her to recognize more and more interrelationships, who



stands by her findings with all her soul. She needs no references to the opinions of other researchers – nor any references to God. Readers can nevertheless infer Maria Sibylla Merian’s ongoing close relationship to God from the final sentence of her preface, in which she announces a planned third caterpillar book: “To the extent that God gives me health and life, I have the intention to expand my observations from Germany to include those from Frisia and Holland and to publish them in Latin and Dutch.”

Her preface is many things at once: It testifies to a process in which Merian no longer sees herself as a servant of God who depicts creatures that crawl because she wishes to glorify Him, but as an expert, intellectual, knowledgeable person. It is her first autobiographical text about her long path in life, from the secret painting activities of a young girl with unusual interests to her existence as an artist and researcher who self-assuredly sees herself alongside naturalists and entomologists such as Thomas Moufett, Jean-Baptiste Godart, and Jan Swammerdam. It is also testimony to a multitalented woman who has unflinchingly followed her own path – and who stands by it. She did so at a time when superstition was as firmly anchored as people’s certainty of the coming apocalypse. Toward the end of her life, this artist and scientist thus radiates a shining aura, an aura nurtured not only by the light of a new era that today is called the Enlightenment: It is also the aura of a person who, with a profound sense of love and regardless of her surroundings, followed the most personal questions and dreams that had been slumbering within her since birth. And all the while, she was growing and changing – like a caterpillar that can only crawl but that, mysteriously, carries





Crown Imperial / Yellow Archangel / Notodontid Moth / Sawfly, after 1705
from the "Garden Series"

within in all the information necessary for it to transform one day into a butterfly and take to the skies.

In 1711, a young man traveled from Frankfurt am Main to Amsterdam: the scholar Zacharias Conrad von Uffenbach, who also had a passion for collecting beautiful books: His library already numbered 12,000 volumes. Naturally, he was familiar with the well-known artist and naturalist Maria Sibylla Merian. Perhaps his heart skipped a beat when she invited him to visit her at home. Together, they inspected *D'Amboinsche Rariteitskamer*, quite surely the Suriname book as well, and perhaps also the first and second parts of the caterpillar books, which Merian was translating into Dutch and would soon publish in a new edition. They admired drawings, watercolors, and engravings – including perhaps the works from her “Garden Series,” which she had been working on in recent years and in which predominantly exotic butterflies flutter around garden flowers. In his travelogue, he would later write of Maria Sibylla Merian that he had met a lively, polite, hard-working, and very congenial woman. It is the only authentic description of her character by one of her contemporaries.

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Maria Sibylla Merian died on January 13, 1717 in Amsterdam. Just a short time earlier, she was visited by the personal physician of Peter the Great, who had come to purchase several works for his employer. He left with two portfolio folders filled with numerous works on parchment. The tsar's payment of 3,000 guilders reached Maria Sibylla Merian on the day of her death. In the city of Amsterdam's register of deaths, this woman who was so infinitely rich in experiences and abilities is described as “without means”.

The last portrait of Maria Sibylla Merian was made by her son-in-law Georg Gsell, an artist whom her daughter Dorothea Maria married after the premature death of her first husband. The portrait was later engraved by Jacob Houbraken. It shows Merian surrounded by all that she lived for: Right by her side is a butterfly; in the foreground, a plant. Nearby is a plate with a seashell study, and next to that is a floral bouquet painted by Merian. In front of her, a piece of parchment awaits ink and paint, and her books are stacked on the table. Taking a firm spot behind her is the globe, across which she traveled. Hanging over it is her family crest of a stork holding a snake in its beak. Sitting peacefully beneath it, on equal terms with Maria Sibylla Merian, is Athena, the goddess of war, victory, and wisdom, and the patroness of knowledge and the arts. And next to her, a winged female genius sounds a fanfare of joy.









CHRONOLOGY



1647

Maria Sibylla Merian is born in Frankfurt a. M. on April 2 as the first child of the polymath, publisher and artist Matthäus Merian the Elder and Johanna Sibylla Heim. Merian already has eight children from his previous marriage to the late Magdalena de Bry.

1649

Matthäus Merian and Johanna Sibylla Heim's second child is born. Johann Maximilian will only live to the age of two.

1650

Matthäus Merian the Elder dies while recuperating at the spa in Bad Schwalbach.

1651

Maria Sibylla's mother marries the painter Jacob Marrel, who has three children from a previous marriage.

1659

After her parents discover that Maria Sibylla has been secretly and passionately painting in their attic, she is allowed to begin studying under her stepfather. When Marrel is traveling, she receives lessons in drawing, painting, and engraving from his assistant Abraham Mignon.

1660

At age 13, Maria Sibylla is given a present that will change her life: several

silkworms. It is the first time that she has watched caterpillars transform, and it marks the beginning of a lifelong love for the study of this metamorphosis. She calls daytime butterflies “summer birds” and refers to those that fly at night as “moth birds,” later also “owl moths.” She consistently describes the pupa as a “date pit.”

1665

Maria Sibylla marries the painter Johann Andreas Graff, a student of Jacob Marrel's, at whose studio the two first met.

1668

Johanna Helena, the eldest daughter of Andreas Graff and Maria Sibylla, is born on January 5.

1670

The Graff family moves to Nuremberg, where Maria Sibylla is soon teaching drawing and painting to a group of female students.

1675

Maria Sibylla Graff publishes her first 12 plates of flowers, which are initially intended as painting and embroidery templates for her students. The painter, collector, and author Joachim von Sandrart includes her in his artists' encyclopedia *Teutsche Academie der Edlen Bau-, Bild- und Mahlerey-Künste* – though still under her husband's entry.

1677

Another twelve floral plates are printed.

1678

Dorothea Maria, the second daughter of Maria Sibylla and Johann Andreas Graff, is born on May 15.

1679

Maria Sibylla publishes the first volume of *Caterpillars, Their Wondrous Transformation and Peculiar Nourishment from Flowers*. In the book's preface, she writes: "Do not seek herein my glory / but that of God / to praise / Him / as Creator of even these small and most humble worms; / for they spring not from themselves / but from God." The *Teutsche Academie der Edlen Bau-, Bild- und Mahlerey-Künste* gives Maria Sibylla her own entry.

1680

The 24 previously published floral plates are – along with 12 new plates – published in one volume entitled *The New Book of Flowers*. In the preface, she writes: "So art and nature must always wrestle with each other / Until each defeats itself."

1681

After the death of her stepfather Jacob Marrel, Maria Sibylla and her children move in with her mother in Frankfurt. Her husband follows later.

1683

The second volume of Maria Sibylla's *Caterpillars, Their Wondrous Transformation and Peculiar Nourishment from Flowers* is published.

1685

Joined by her mother and her children, Maria Sibylla moves to Walta Castle in the Frisian village of Wieuwerd in the Netherlands, where she lives in a Labadist religious community. During this time, she definitively separates from her husband and begins going by the name of "Merian" again. In 1686 her stepbrother Caspar, also a member of the community, dies at the castle, followed in 1690 by her mother.

1691

Maria Sibylla Merian leaves the Labadists and moves to Amsterdam with her daughters, both of whom are painters as well. Here, Merian makes the acquaintance of other scholars, and studies numerous cabinets of curiosities and natural objects.

1692

Merian's daughter Johanna Helena marries the merchant Jacob Hendrik Herolt, whom she had met at the Labadist community at Walta Castle.

1699

In June, after writing her last will and testament, Maria Sibylla Merian travels with her youngest daughter Dorothea Maria to the Dutch colony of Suriname in South America with the goal of studying the country's butterflies.

1701

After nearly two years, Maria Sibylla Merian and her daughter return to Amsterdam. Her luggage contains hundreds of prepared butterflies, plus snakes, iguanas and a crocodile – and the valuable notes and sketches of all

her observations. That December, Dorothea Maria marries the surgeon Philip Hendriks.

1705

Maria Sibylla Merian's Suriname book *Metamorphosis Insectorum Surinamensium* is published in a Dutch and a Latin edition. It is the first naturalist work on Suriname. Another book published that year is *D'Amboinsche Rariteitskammer*, for which Maria Sibylla Merian painted numerous watercolors that were used as templates for the copper engravings. The book shows items from the cabinet of curiosities of Georg Eberhard Rumpf, including objects from Indonesia.

1713

Maria Sibylla Merian dies on January 13 in Amsterdam. A short time later, Dorothea Maria publishes the third volume of her mother's caterpillar book.

Also that year, Dorothea Maria marries the Swiss painter Georg Gsell after her husband's death a short time previously. In 1719, the couple find a new home at the court of the Russian tsar, where Georg Gsell becomes Peter the Great's court painter. From 1725, Dorothea Maria teaches painting at the academy in St. Petersburg.

1719

Even after her death, Maria Sibylla Merian is not forgotten. A new edition of her Suriname book is published in 1719, and her caterpillar books will continue to be published in multiple editions. In 1758, the Swiss naturalist Carl Linnaeus honors Maria Sibylla Merian by giving the name *Phalaena merianella* (today *Eulamprotes wilkella*) to a "moth bird" with three silver stripes. Other scientists name butterflies after her as well.

SELECTED BOOKS BY MARIA SIBYLLA MERIAN

- Maria Sibylla Merian, *Der Raupen wunderbare Verwandlung und sonderbare Blumen-nahrung* [Caterpillars, Their Wondrous Transformation and Peculiar Nourishment from Flowers], Vol. 1, 120 pages, 50 plates, 21 × 17 cm, Nuremberg, 1679.
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ILLUSTRATIONS

The Latin plant names from the “caterpillar book” are the original terminology used by Maria Sibylla Merian. All other plant and animal appellations follow the more recent literature. (Schmidt-Loske 2009)

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Jacob Marrel (?),

Unconfirmed portrait of Maria Sibylla Merian, 1679

Oil on canvas, 59 × 50.5 cm

Kunstmuseum Basel

Photo: Hans Hinz – ARTOTHEK

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Sheet from portfolio of *24 Hand Paintings of Insects, Snails, and Flowers*, c. 1670

Gouache on parchment, 11 × 14.5 cm

Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Mathäus Merian the Elder

View of Frankfurt a. M.

From: *Topographia Hassiae et Regionum Vicinarum. Die Beschreibung der Freien Reichsstadt Frankfurt am Main*, Frankfurt a. M. 1655

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Jacob Marrel

Flowers on the Edge of a Table, c. 1645

Oil on wood, 26.5 × 32.5 cm

Frans Hals Museum, Haarlem

Photo: Tom Haartsen

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Jacob Marrel

Two Tulips, a Seashell, a Butterfly, and a Dragonfly, 1637–1645

Gouache on parchment, 27.2 × 35 cm

Photo: Rijksmuseum, Amsterdam

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Jan Jonston

Papiliones alij, plate 8

From: *Historia naturalis de insectis, de serpentibus et draconibus*, Frankfurt a. M. 1653

Copper engraving, 33 × 20 cm

Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Mathäus Merian the Elder (attrib.)

Merian family crest, c. 1629

Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Matthäus Merian the Elder
The Creation
From: *Icones biblicae*, special edition of
volumes I–IV, Frankfurt a. M. 1626
Used for the 1630 Luther Bible.
Copper engraving, 14.4 × 10.5 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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Sheet from portfolio of 17 *Original
Drawings of Plants and Animals*, 1669
Ink drawing with chalk/silverpoint
sketching, 8.8 × 6.5 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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Sheet from portfolio of 24 *Hand Paintings
of Insects, Snails, and Flowers*, c. 1670
Gouache on parchment, 11 × 14.5 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Bunch-Flowered Daffodil – Narcissus
tazetta L.*, plate 5
From: *The New Book of Flowers*, Vol. 1,
Nuremberg 1680
Hand-colored copper engraving,
31.5 × 19 cm
Photo: SLUB Dresden/From: S.B.760
Vol. 1 [http://digital.slub-dresden.de/
id375332529](http://digital.slub-dresden.de/id375332529)

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Bearded Iris – Iris germanica L., plate 8
From: *The New Book of Flowers*, Vol. 1,
Nuremberg 1680
Hand-colored copper engraving,
31.5 × 19 cm Photo: SLUB Dresden/From:
S.B.760 Vol. 1 [http://digital.slub-dresden.
de/id375332529](http://digital.slub-dresden.de/id375332529)

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Sheet with Rose, February 17, 1675
Watercolor on paper, 8.5 × 13.7 cm
Staatsbibliothek Bamberg
Photo: Edition Leipzig, 1974

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Title page from *The New Book of Flowers*,
Vol. 1, Nuremberg 1680
Hand-colored copper engraving,
31.5 × 19 cm
Photo: SLUB Dresden/From: S.B.760
Vol. 1 [http://digital.slub-dresden.de/
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Sheet from portfolio of 24 *Hand Paintings
of Insects, Snails, and Flowers*, c. 1670
Gouache on parchment, 11 × 14.5 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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Greater Plantain – Plantago major,
plate 36 and transfer print
From: *Caterpillars, Their Wondrous
Transformation*, Vol. 1, Nuremberg 1679
Hand-colored copper engraving, 16 × 12 cm
and watercolor on transfer, 23 × 18 cm
Photo: Kunstkabinett Strehler, Sindelfingen

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Wreath of Mulberry Twigs with Silkworms, Moths and Ladybugs, title page from *Caterpillars, Their Wondrous Transformation*, Vol. 1, Nuremberg 1679
Hand-colored copper engraving,
c. 20.5 × 16 cm
Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Stinging Nettle – Urtica urens, major, plate 26
From: *Caterpillars, Their Wondrous Transformation*, Vol. 1, Nuremberg 1679 (uncolored edition)
Copper engraving, c. 20.5 × 16 cm
Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Stinging Nettle – Urtica urens, major, plate 26
From: *Caterpillars, Their Wondrous Transformation*, Vol. 1, Nuremberg 1679
Hand-colored copper engraving,
c. 20.5 × 16 cm
Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Sweet Buttercup – Ranunculus dulcis, plate 6
From: *Caterpillars, Their Wondrous Transformation*, Vol. 1, Nuremberg 1679
Hand-colored copper engraving,
c. 20.5 × 16 cm
Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Pear Blossom – Pyrus florens, plate 2
From: *Caterpillars, Their Wondrous Transformation. Next Volume*, Vol. 2, Nuremberg 1683
Hand-colored copper engraving,
c. 20.5 × 16 cm
Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Johann Andreas Graff
Plan of Walta Castle in Wieuwerd (detail), c. 1686
Colored pen/brush drawing, 33.7 × 42 cm
Photo: Staatsarchiv Nuremberg

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Two Butterflies, 24 February 1706
Watercolor and gouache on parchment, 9 × 14.5 cm
Photo: Germanisches Nationalmuseum, Nuremberg

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Fennel – Foeniculum vulgare / Dill – Anethum graveolens / Swallowtail – Papilio machaon, c. 1688–1691
From the “Herb Series,” watercolor and gouache on parchment, 37.6 × 30.4 cm
Library of the Russian Academy of Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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Frederik de Wit
*Exactissima Amstelodami Veteris Et
Novissimi Delinatio*,
From: *Atlas Van der Hagen*, c. 1690
Hand-colored copper engraving
Koninklijke Bibliotheek, The Hague

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Levinus Vincent
Pinacoteca 1, plate 1
From: *Wondertooneel der nature*, Vol. 2,
Amsterdam 1715
Copper engraving

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Johanna Helena Herolt
Aerd Bessen [Strawberries], plate 32
From: *Een Bloem Boek, geschildert door
Johanna Helena Herolt*, Amsterdam 1698
Gouache, 27.2 × 30.8 cm
Herzog Anton Ulrich-Museum
Braunschweig, Kunstmuseum des
Landes Niedersachsen
Photo: Museum photographer

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Gerard van Keulen
*Pas-kaart van de rivieren Commewini,
Suriname, Suramaca, Cupanama en
Courantin*, Map showing the coast of
Suriname, before 1728
Hand-colored copper engraving,
50 × 86 cm,
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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Dirk Valkenburg
Plantation in Suriname, 1707
Oil on canvas, 52.5 cm × 45.5 cm
Photo: Rijksmuseum, Amsterdam

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*Heliconia – Heliconia acuminata /
Potter Wasp*, plate 54
From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Cotton Rose Mallow – Hibiscus mutabilis /
Queen Swallowtail – Heraclides
androgeus*, plate 31
From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Royal Jasmine – Jasminum grandiflorum /
Amazon Tree Boa – Corallus hortulanus /
Ello Sphinx Moth – Erinnyis ello*, plate 46
From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Gumbo-Limbo Tree – Bursera simaruba /
White Witch – Thysania agrippina /
Pachylia syces*, plate 20

From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,

c. 51 × 35 cm

Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Banana – Musa paradisiaca / Teucer
Giant Owl Butterfly – Caligo teucer /
Rainbow Whiptail – Cnemidophorus
lemniscatus*, plate 23

From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,

c. 51 × 35 cm

Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Pima Cotton – Gossypium barbadense /
Gold-Drop Helicopsis Butterfly – Helicopsis
cupido / Hypercompe sp.*, plate 10

From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,

c. 51 × 35 cm

Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Castor-Oil Tree – Ricinus communis /
Ricini Longwing – Heliconius ricini*,
plate 30

From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,

c. 51 × 35 cm

Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Pride of Barbados – Caesalpinia
pulcherrima / Tobacco Hornworm –
Manduca sexta*, plate 45

From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,

c. 51 × 35 cm

Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Purple Coral Tree – Erythrina fusca /
Giant Silk Moth – Arsenura armida*,
plate 11

From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,

c. 51 × 35 cm

Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Pomelo – Citrus maxima / Urania
Moth – Urania leilus*, plate 29
From: *Metamorphosis Inseċtorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Peanut-Headed Latern Fly – Fulgora
laternaria*
19 × 11.3 × 3.3 cm (box)
Photo: Museum Wiesbaden,
Naturhistorische Sammlungen

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*Sundown Cicada – Fidicina mannifera /
Peanut-Headed Latern Fly – Fulgora
laternaria*, plate 49
From: *Metamorphosis Inseċtorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Manioc – Manihot esculenta / White
Peacock Butterfly – Anartia jatrophae /
Gold Tegu – Tupinambis teguixin*, plate 4
From: *Metamorphosis Inseċtorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Banana – Musa paradisiaca / Automeris
liberia*, plate 12
From: *Metamorphosis Inseċtorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Pomegranate – Punica granatum / Banded
Sphinx – Eumorpha fasciatus / Menelaus
Blue Morpho – Morpho menelaus*, plate 9
From: *Metamorphosis Inseċtorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Menelaus Blue Morpho – Morpho
menelaus* (from the Gerning collection)
19.2 × 11.4 × 3.3 cm (box)
Photo: Museum Wiesbaden,
Naturhistorische Sammlungen

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*Barbados Cherry – Malpighia emarginata /
Deidamia Morpho Butterfly – Morpho
deidamia*, plate 7
From: *Metamorphosis Inseċtorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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Written entry 294 from the study book,
c. 1700
From: *Butterflies, Beetles and Other Insects,
The Leningrad Book of Notes and Studies,*
Leipzig 1976

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Illustration to entry 294 in the study
book, c. 1700
From: *Butterflies, Beetles and Other Insects,
The Leningrad Book of Notes and Studies,*
Leipzig 1976

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*Ice Cream Bean – Inga ingoides / Apricot
Sulphur – Phoebis argante*, plate 51
From: *Metamorphosis Insectorum
Surinamensium*, Amsterdam 1705
Hand-colored copper engraving,
c. 51 × 35 cm
Photo: Universitätsbibliothek Johann
Christian Senckenberg, Frankfurt a. M.

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*Mexican Prickly Poppy – Argemone
mexicana / Mallodon spinibarbis /
Taeniotes subocellatus*
Template for plate 24 of *Metamorphosis*,
1700–1702
Watercolor and gouache, parchment,
40 × 31 cm
Library of the Russian Academy of
Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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*Mexican Lime – Citrus aurantiifolia /
Achises Cattleheart – Parides anchises*,
1700–1702
Template for plate 17 of *Metamorphosis*,
watercolor and gouache on parchment,
38,5 × 30 cm
Library of the Russian Academy of
Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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*Cymbium Snails – Cymbium / Cone Snails –
Conus*, c. 1704/05
Template for plate 31 of *D'Amboinsche
Rariteitkamer* von Georg Eberhard
Rumphius, watercolor and gouache on
parchment, 37 × 27,3 cm
Library of the Russian Academy of
Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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*Gorgon's Head Starfish – Aſtrophyton
gracile (?)*, 1704/05
Template for plate 16 of *D'Amboinsche
Rariteitkamer* von Georg Eberhard
Rumphius, watercolor and gouache on
parchment, 37,6 × 27,5 cm
Library of the Russian Academy of
Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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Citron – *Citrus medica* / *Monkey Slug (larva)* – *Phobetron hipparchia* / *Harlequin Beetle* – *Acrocinus longimanus*, plate 28,
From: *Metamorphosis Insectorum Surinamensium*, Amsterdam 1705
Hand-colored copper engraving, c. 51 × 35 cm
Photo: Universitätsbibliothek Johann Christian Senckenberg, Frankfurt a. M.

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Yellow Mombin – *Spondias mombin* / *Enselasia arbas*, 1700–1702
Template for plate 13 of *Metamorphosis*, watercolor and gouache on parchment, 38.5 × 30 cm
Library of the Russian Academy of Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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Bellyache Bush – *Jatropha gossypifolia* / *Cocytius antaeus* / *Cecilia's Metalmark* – *Methone cecilia*, 1700–1702
Template for plate 38 of *Metamorphosis*, watercolor and gouache on parchment, 42.1 × 29.5 cm
Library of the Russian Academy of Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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Caiman with Coral Snake, plate 69,
From: *Metamorphosis Insectorum Surinamensium*, Amsterdam 1730 (expanded edition)
Hand-colored copper engraving, 49 × 33.5 cm
Photo: Kunstkabinett Strehler, Sindelfingen

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Strawflower – *Helichrysum spec.* / *Caštniid Moth* – *Caštniidae gen. spec. (?)*, after 1705
From the “Garden Series,” watercolor and gouache on parchment, 37.5 × 30 cm
Library of the Russian Academy of Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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Crown Imperial – *Fritillaria imperialis* / *Yellow Archangel* – *Galeobdolon luteum* / *Notodontid Moth* – *Notodonta phoebe (?)* / *Sawfly* – *Tenthredinidae gen. spec.*, after 1705
From the “Garden Series”, watercolor and gouache on parchment, 38.5 × 30 cm
Library of the Russian Academy of Sciences, St. Petersburg
Photo: Edition Leipzig, 1974

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Jacob Houbraken
Portrait of Maria Sibylla Merian, 1717
Copper engraving based on a drawing by Georg Gsell, 15.8 × 12.1 cm

The butterflies at the ends of the chapters are taken from the two “caterpillar books” by Maria Sibylla Merian, where she also placed them at the end of some of the chapters.

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