

Unit 4: Artist as Scientist

Announcements:

midterms handed out at end of class

Art sessions next week bring materials

field trip directions and information posted on website in week 6

We will go over directions Tuesday.

Wrap up Unit 4

Maria Sibylla Merian

earth map update

Midterm review

Hand out midterm



Unit 4 Lecture Concepts

- Renaissance:
 - Rise of the scientific method
 - Innovative techniques and materials
- Leonardo da Vinci – the Renaissance Man
 - His life and work
- Maria Sybilla Merian – 1st lady of Natural History
 - Her life and work

Unit 4 Activities

- Connections Concept Map
 - Renaissance
- Artist Summary write up : 1 page on each
 - Leonardo da Vinci
 - The life of Maria Sibylla Merian
- Earth map update

Unit 4 terms

Renaissance

fresco

cabinet of curiosities

spontaneous generation

Surinam, S. America

CCM5a. The Renaissance 1400 – 1700

- Birth of the Scientific method
- settled agriculture
- Originated in Italy
- Catholic Church remained the ultimate power.
- Pockets of pagan religions existed, stemming from our H/G past.
- Rebirth of the scientific spirit.
- Revival of ancient Greece
- Influenced philosophy, literature, politics, art and technology .
- Led to the expansion of European countries- technological and geographic exploration
- Experimentation was encouraged



5B. Art of the Renaissance 1400 - 1700

- Revival of the **realism** of Classic Greece
- Artists gained an important position in society
- Religion-based themes BUT
- Late renaissance- landscape, portraits and still life also became popular
- **Realism based on observation**
- experimentation of art materials
- Mastery of illusion painting techniques
 - Foreshortening
 - Quadratura
 - Sfumato
 - linear perspective



Lamentation over the Dead Christ, Andrea Mantegna,

5C. Attitude towards Nature

- Human superiority over nature.
- Wilderness = bad evil
- Taming wilderness remains a moral act.
- Learning about nature in order to better understand and control nature.
- Curiosity toward natural processes, concepts, physics and behavior to answer questions about the world and life.
- Viewing nature as a commodity.



Artist as Scientist

**Maria Sibylla Merian 1647
– 1717**

The first lady of Natural
History.

Self-made ecologist,
biologist and artist

She lived life on her own
terms, in the male-
dominated world of
science.



Artist As Scientist

Maria was born in 1647 in Frankfurt Germany.

Step-father - Flemish still-life painter

Family-owned engraving business and publishing house

exposed at an early age to natural history and engraving from her step-father.



Shift in gender position

- Single women could not live alone- married, convent or live with male relative, care taker of parents.
- Divorce was unheard of and could only be initiated by the husband.
- Legally belonged to their husbands.
- Women were not capable of higher thought
- upper classes--Liberal arts education ie music only a few years
 - lower classes-- trades
- No rights to property, to a own business
- It was unheard of for women to travel unaccompanied.
- Lifespan = 55 years average
- Marriage = 16 years for women
- 10+ children for lower classes

Artist As Scientist

In Germany of the 1600's
social upheaval and religious
hysteria.

Pagan or folk religions of our
Neolithic past were still
practiced in rural areas.

Threatened the Church

Superstition, suspicion and
persecution of nature- based
religions and activities.



Artist As Scientist

spontaneous generation:

The popular theory of the origin of the “lower animal” life forms.

the belief that lower forms of life arose from inanimate substances

“lower” life forms were considered unimportant for study.



Artist As Scientist

1663 Married student of her step father's at 16 years of age

Maria was a very unconventional wife:

1st child was born 3 years later

2nd born 10 years later

Only 2 daughters 20 years of marriage.



Artist As Scientist

Tutored by her step father, she had been painting from a very young age.

Early paintings – Flemish still life tradition.

1666 her first daughter was born

1668 she published her 1st book of flowers
-primarily used for embroidery patterns



Artist As Scientist

Maria continued her interest in insects and plants. Collecting specimens she raised and noted their transformations in her drawings. Discovered and documented their complex life cycles



Artist As Scientist

- Maria also began to note that specific plants and flowers had certain species of insects were associated with.
- Although not coining the term herself, later this is known as co-evolution
- Two species evolving together and developing a mutually beneficial relationship.

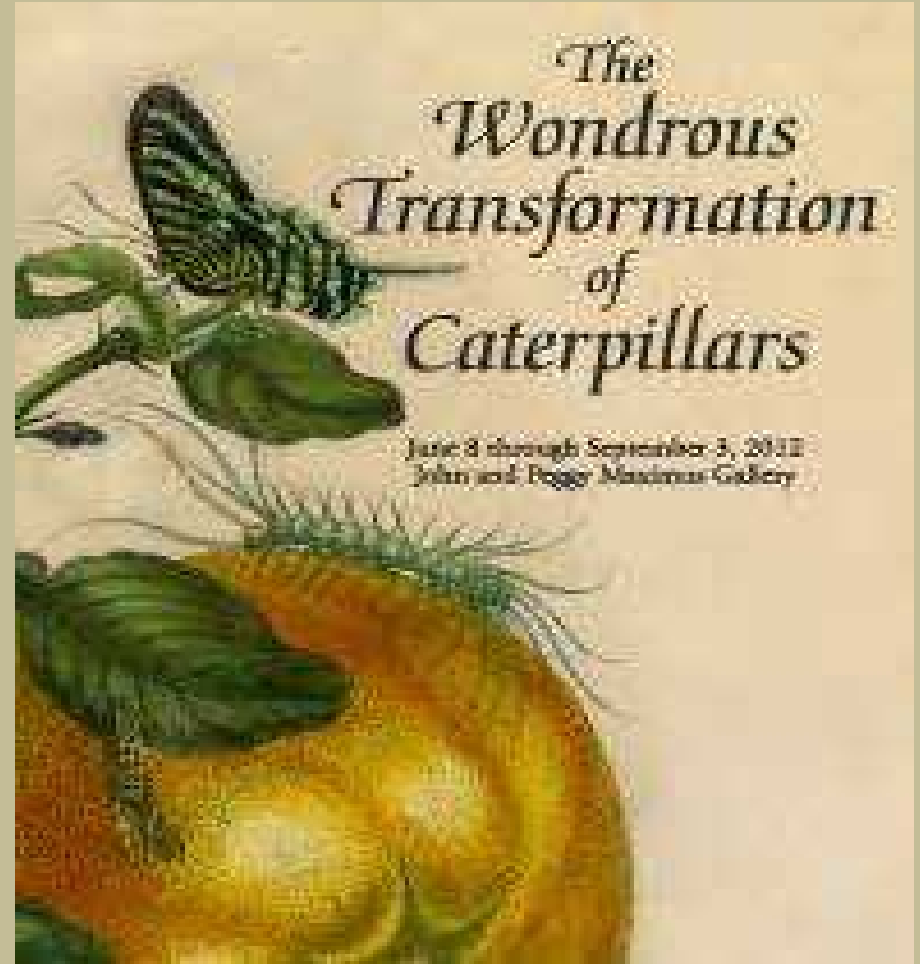


Artist As Scientist

In 1676 published her 1st book on the metamorphosis of caterpillars—

She discovered through observations:

- many insects have distinct life cycles
- certain insects relied on specific plant species for certain stages of their life.
- Larval plant – leaves for larva
- Nectar plant – nectar for adults



Artist As Scientist

- Fifty full color engravings depicting
 - The plant species
 - The insect associated with that plant
 - All the life stages- caterpillar, chrysalis and the male and female adults
- Copper plate engraving
 - The printing method of the time
 - Very tedious and time consuming



Copper Plate Engraving

Plate of copper is covered in acid resistant wax

Image is engraved exposing metal

Acid bath to deepen engraved image

Wax then removed

Ink is applied to surface with a cloth.

Excess ink is wiped clean, leaving the ink in the engraved areas only

The plate is run through a press with damp paper which transfers the image to the paper.



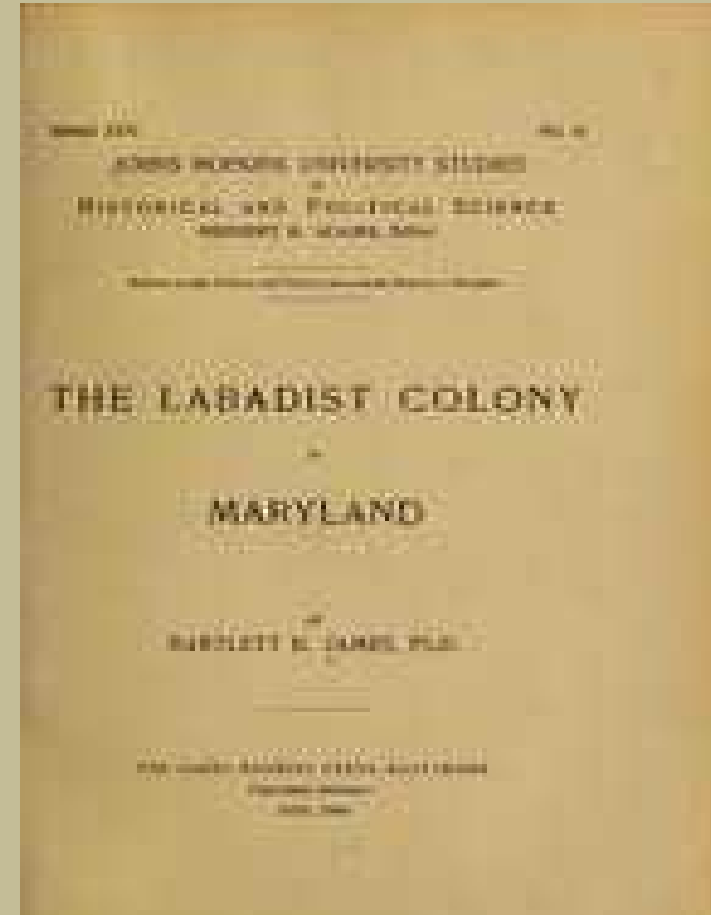
Artist As Scientist

Divorced in 1683

Labadist colony in the
Netherlands—

the only place that a single
mother could make a living
and support herself.

created an archive of her
images and focus on her
work.



Artist As Scientist

Mother died in 1688

Amsterdam, Netherlands the center of world trade

Dutch East India Company

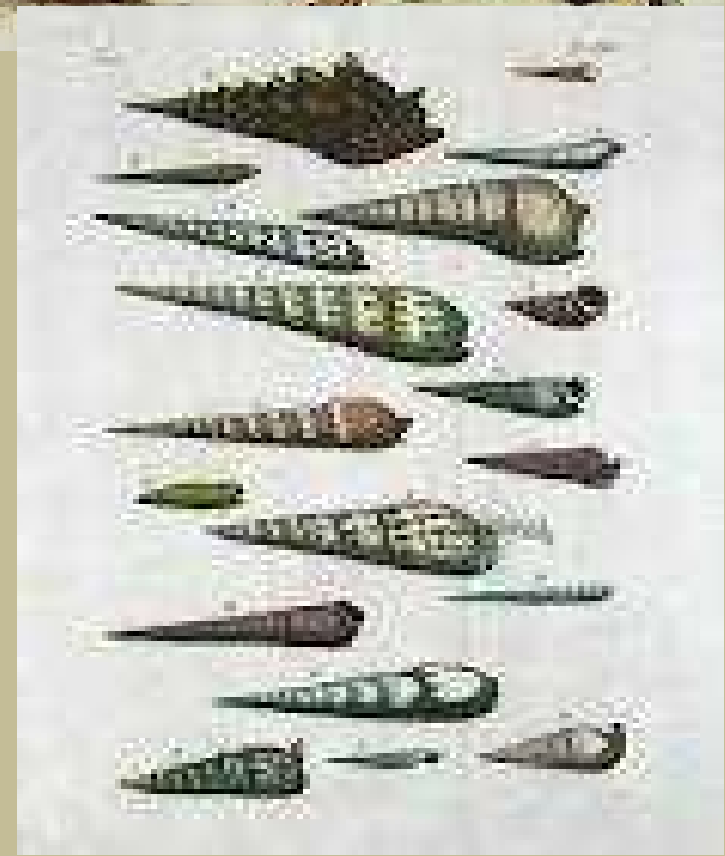
Teaching young daughters of wealthy families to paint.

Access to extensive gardens of the rich and collections

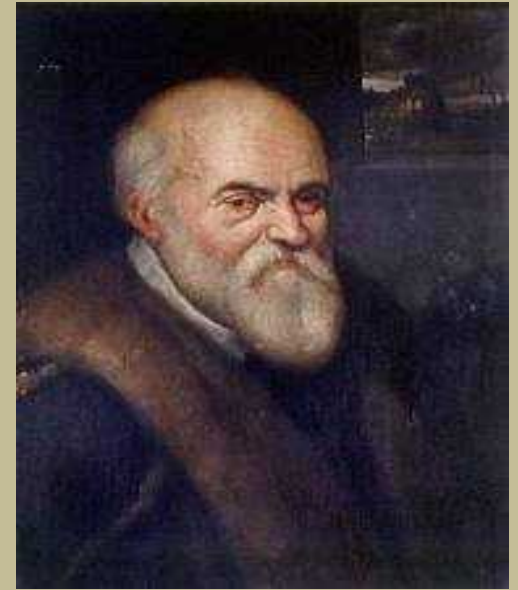
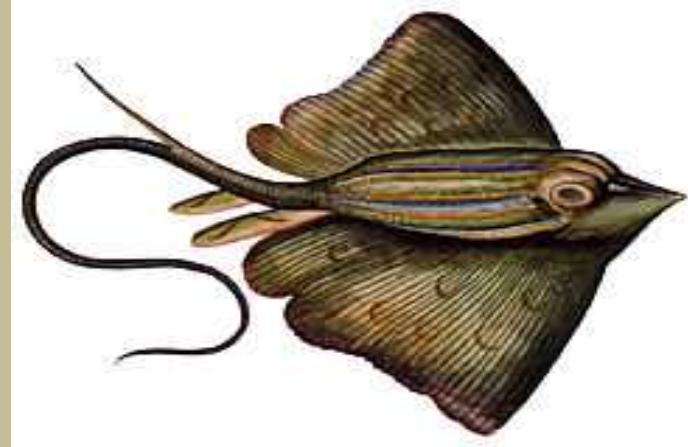
She gained notoriety and respect in local scientific circles.

Set up a business dealing in specimens.

Cabinets of curiosity



Artist as Scientist



Artist As Scientist

160 watercolor paintings

Drew from dead specimens
from distant exotic places

Sparked her curiosity about
these exotic species

What larva did they arise
from?

What plants did they
depend on?



Artist As Scientist

In 1699, at age 52
South American Dutch
colony of Suriname
on the north coast .
Traveling alone with
her daughter
Sold 225 paintings to
fund the trip



Artist As Scientist

Suriname region :

Smallest country in S.

America

Latitude 5- hot and humid

Northern area populated
with colonists

Southern area

Tropical rain forest and
uninhabited savannah
grassland.



Artist As Scientist

Conditions were difficult,
especially for a 52 year
old Victorian woman.

Heat, humidity, dense
jungles and unfriendly
colonists

Hired local indigenous
people to guide her into
the jungle.



Artist As Scientist

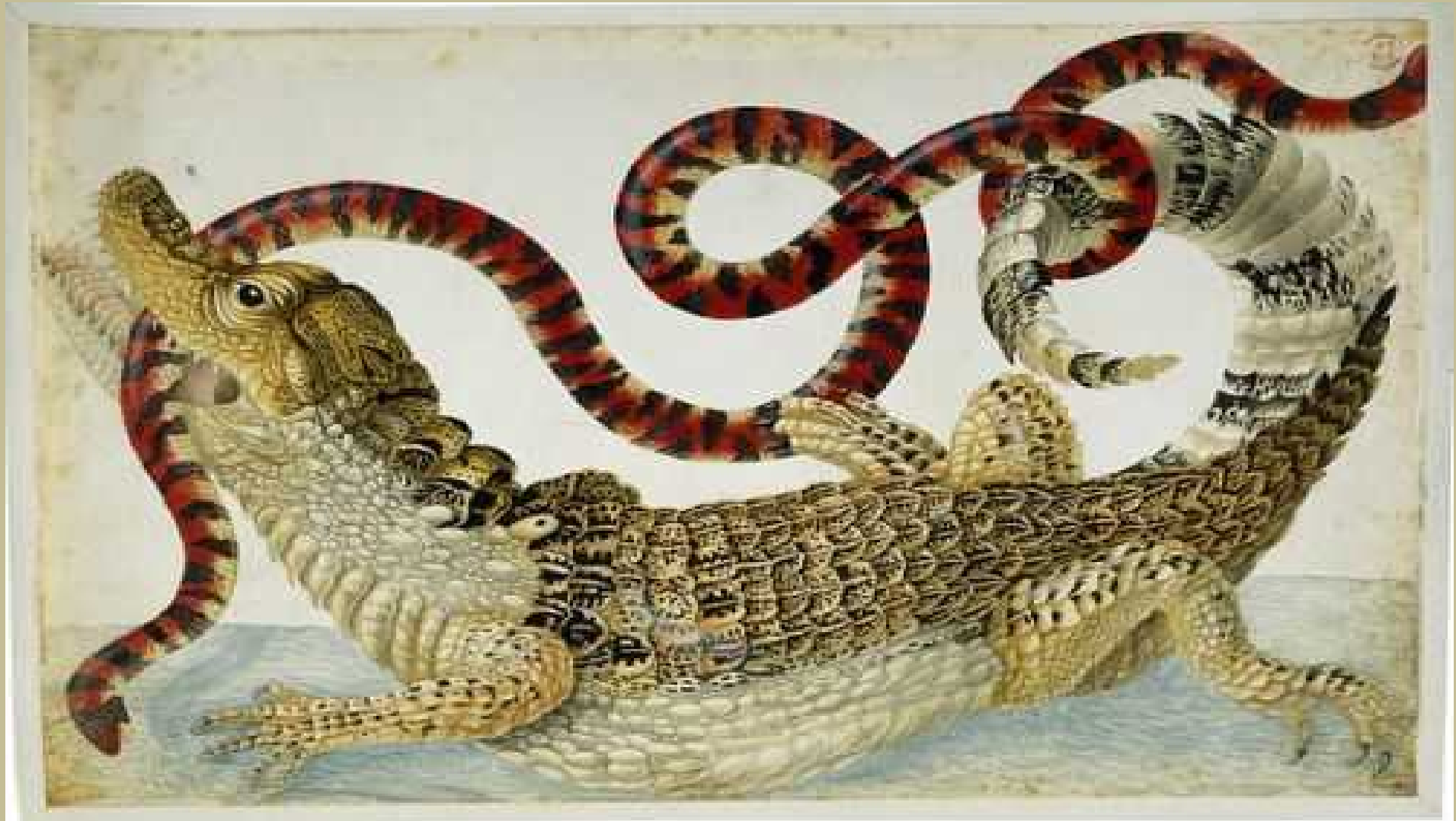
White Witch moth

One of the widest wingspan of any insect
- 12 inches

Spent several days upriver, and with the
aid of the local Amerindians
she was able to witness the
metamorphosis of this species of moth
which had never been done before as



Artist As Scientist



Artist As Scientist

Surinam toad
showing its
extraordinary
reproductive method
which she was the first
to record.



Artist As Scientist

1702 contracted malaria
returned to Europe

In order for her to recuperate
she needed to leave the
harsh environment of the
tropics



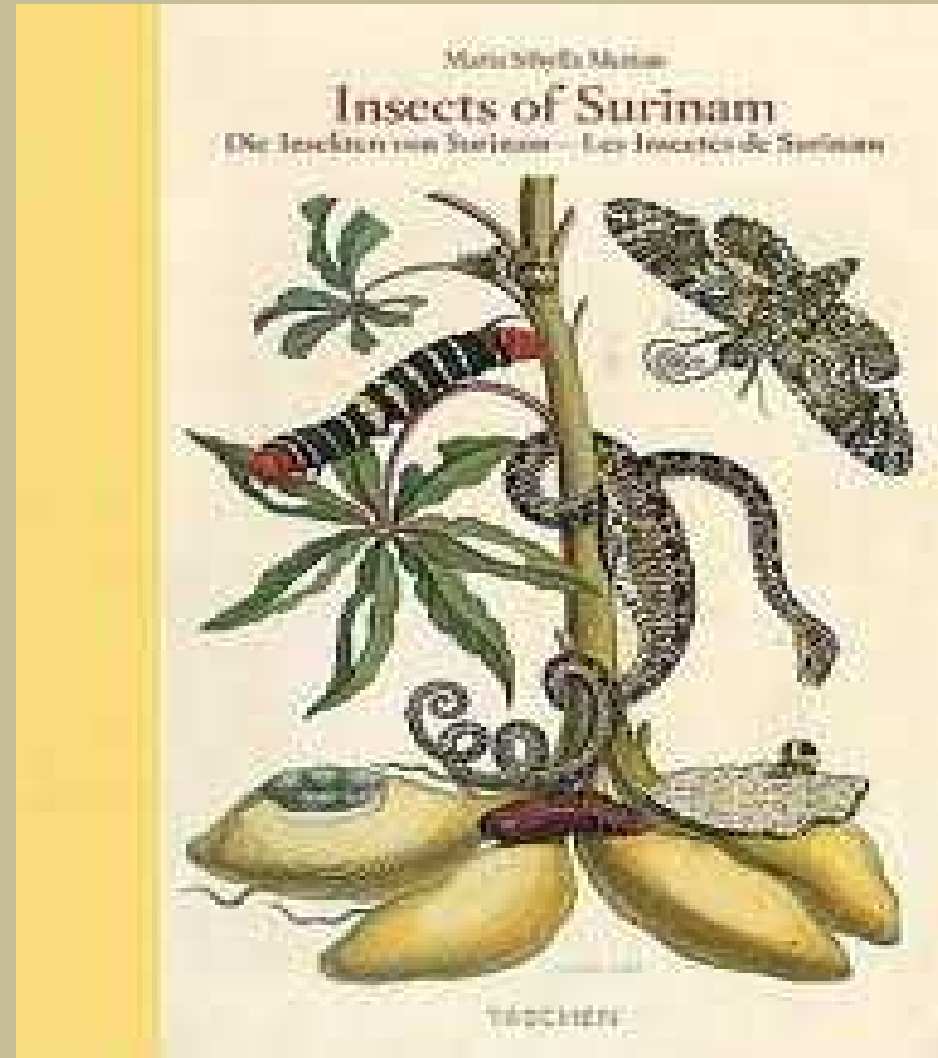
Artist As Scientist

After her return to Amsterdam:
1705 published her most well
known book

“The Metamorphosis of Insects of
Surinam”

60 full color plates with text in
English

she published and funded the
project herself.



Artist As Scientist

Each image in the book showed the different life cycles, putting them on their food plant.

the first natural history book of it's kind

giving important information she learned from direct observation.



Artist As Scientist

Publishing the book herself, cost her more than she saw in returns.

The book brought her commissions for floral paintings



Artist As Scientist

Maria spent her remaining years in Amsterdam living with her eldest daughter and continuing her research, writing and engraving.

She died in poverty, 1717 at 70 years old.

Her daughters continued her work

today the few copies of her books are carefully preserved in rare book collections in Europe and at Yale University.



Artist As Scientist

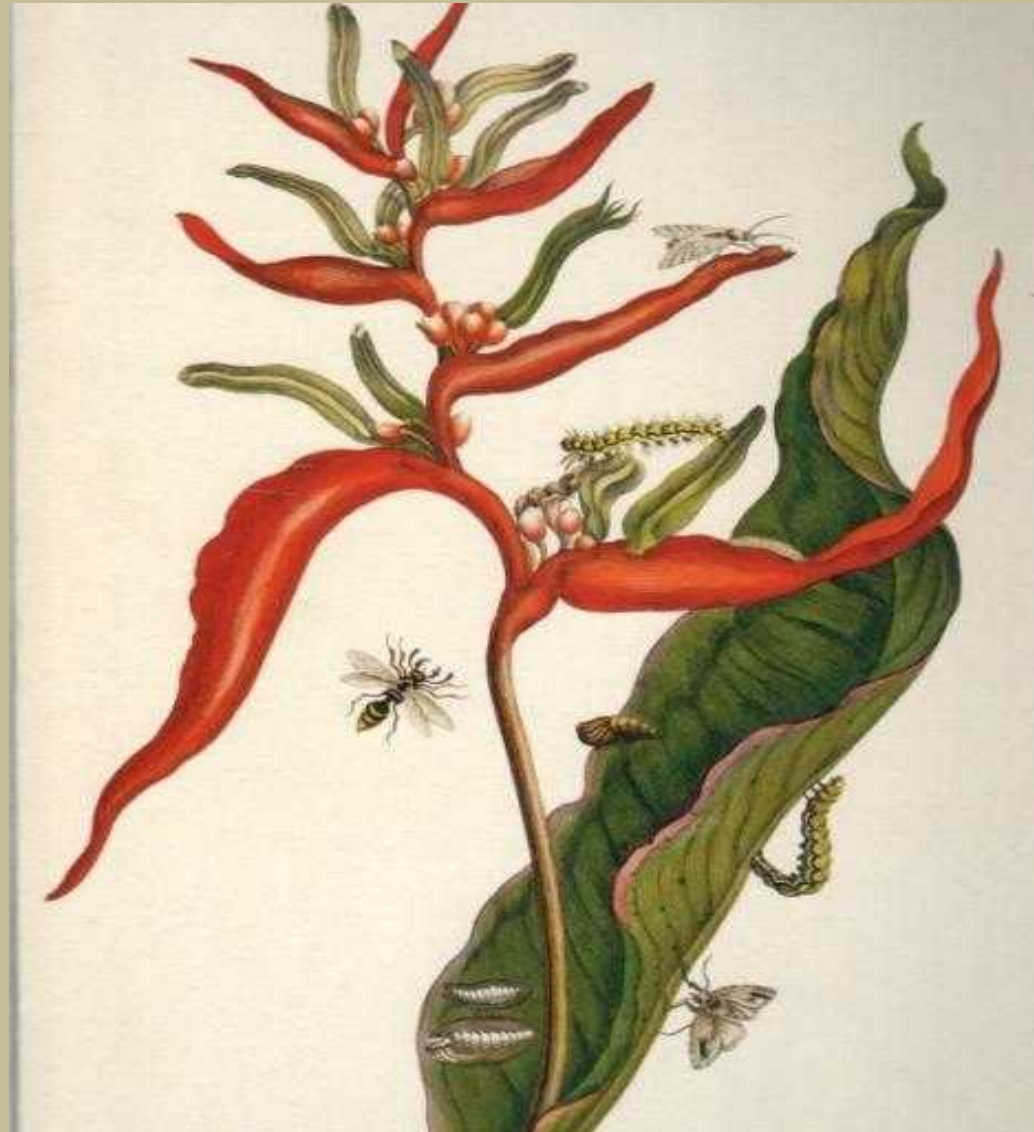
She had an unmistakable style

She depicted species with accuracy and detail but incorporating her talents in design creating pleasing compositions

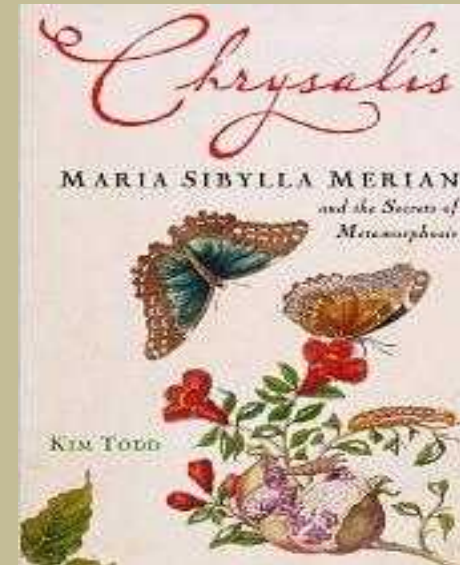
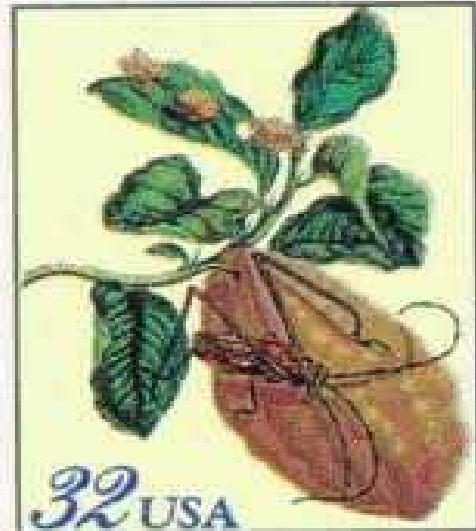
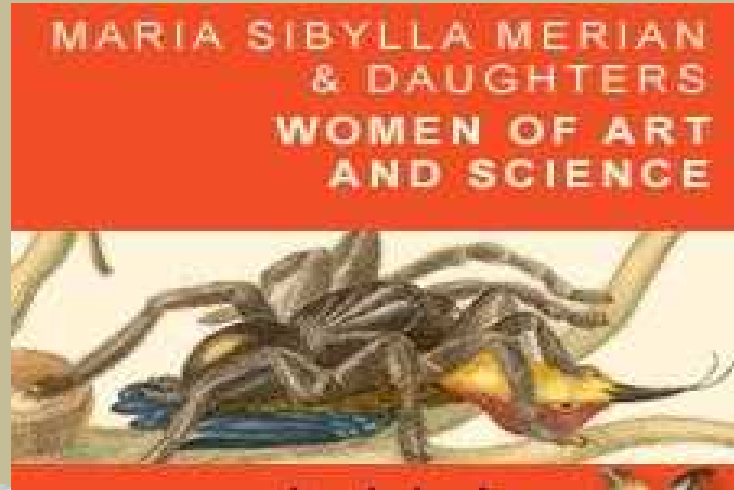
Created an interest in “lower” forms of life ie insects that up to this time weren’t readily studied.

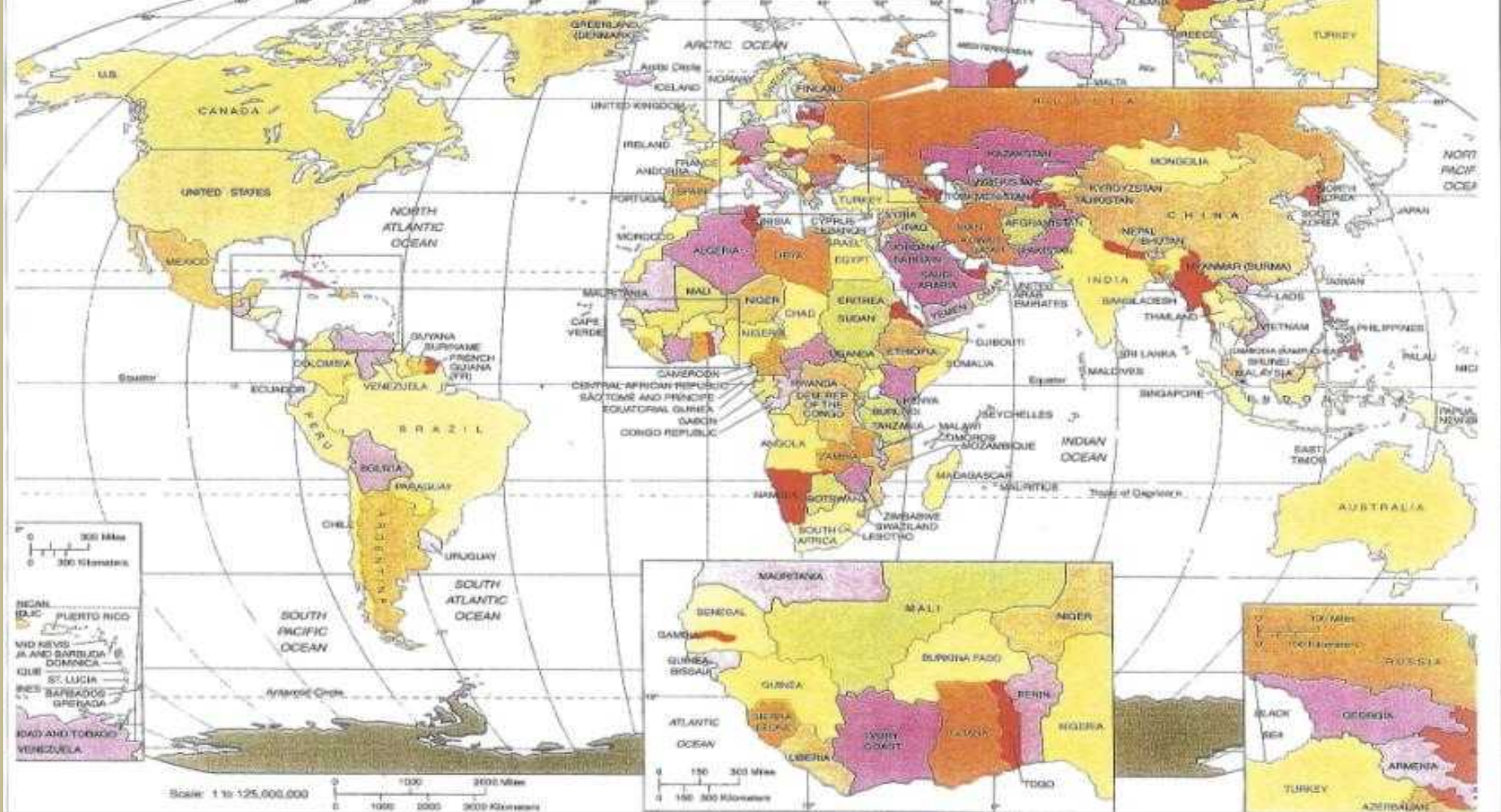
Discounted the theory of spontaneous generation

Helped to establish the field of entomology



Artist As Scientist





Unit 4 Earth Map update:

4a. Italian Renaissance, Italy

4b. Maria Sibylla Merian- Surinam , South America

4c. “ “ - Amsterdam, Netherlands