

# Botanical Illustration for the Classroom

*Bringing Art to Science...*



Partially supported  
with funds  
provided by the  
American Society  
of Botanical Artists

# Applying botanical illustration techniques to teach science in the classroom

## Skills

- Scientific observation (Both qualitative and quantitative)
- Drawing
- Attention to detail
- Following a method
- Neatness
- Completeness

Is it complete?  
Is it neat?





Students improve with exposure to techniques of observation, drawing and painting



Example of a student's first botanical painting ( Jill Chapman).

Before



Example of the same student's work after tuition.

After



Example of a student's first botanical painting (Jack Harding).



Example of the same student's work after tuition.

## **First Hour**

Introduction to Botanical Illustration as it  
can be applied in the classroom with a  
demonstration

## **Second Hour**

Hands on workshop

# How will this be useful in the classroom

- Enabling students to produce quality work in recording observations in science
- Give teachers confidence and techniques in teaching drawing and observational skills
- Provides context for students exploring and understanding the history of recorded science illustration
- Promotes discipline in observing and recording data
- Provides a different and rewarding approach to curriculum diversification

# Botanical Illustration a la carte

- History
- Science
- Botanical Illustration
- Art Skills
- Career Educations





# History

- **Early man**
- **Egypt**
- **Greece**
- **Rome**
- **Europe**
- **Today**

# Early Man

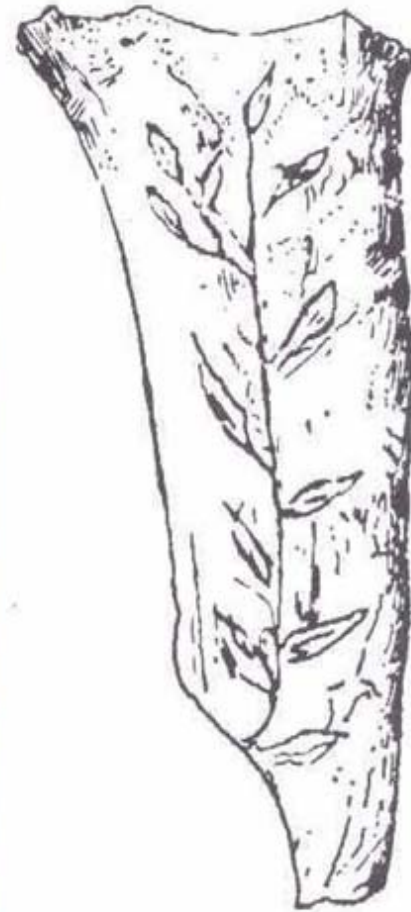


FIGURE 1. Plant form. Scratched on bone; paleolithic



# Ancient Egyptian Times

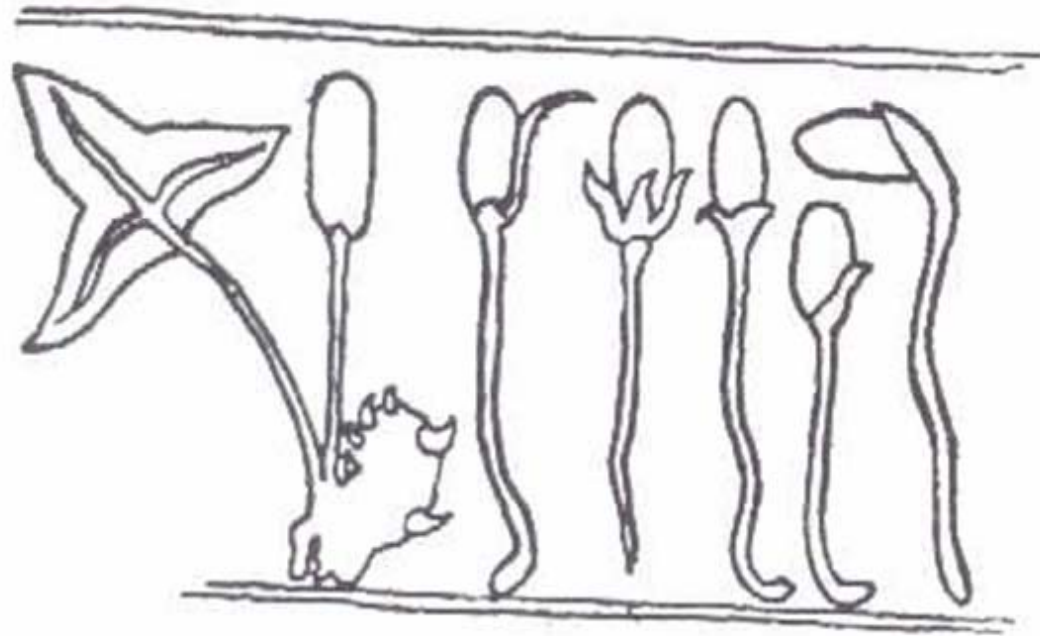
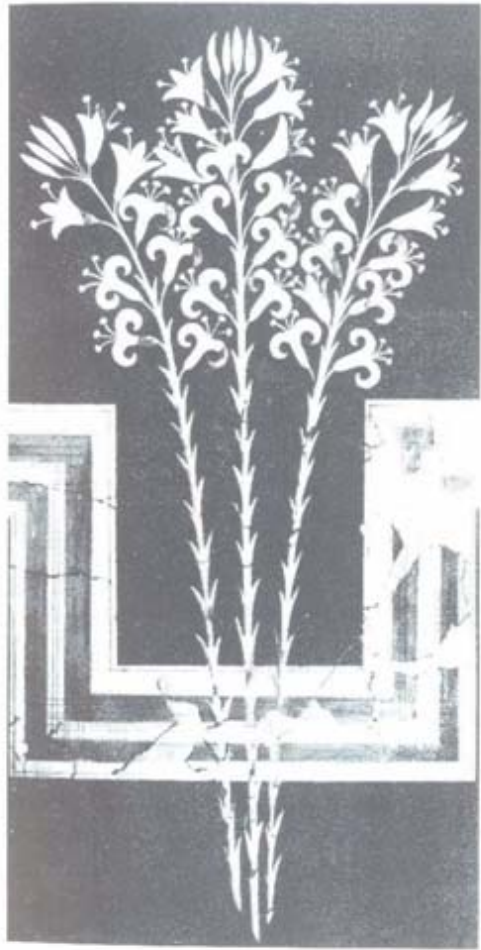


FIGURE 2. *Dracunculus vulgaris* seedlings. Egyptian stone relief in the Great Temple of Tuthmosis III at Karnak, c.1450 B.C.



# Greece



# Rome and the Renaissance



Michelangelo



# Europe

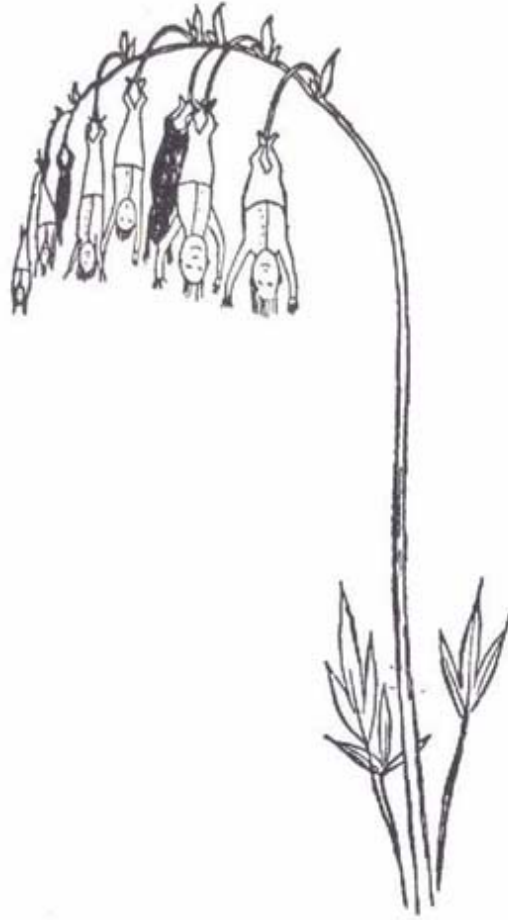
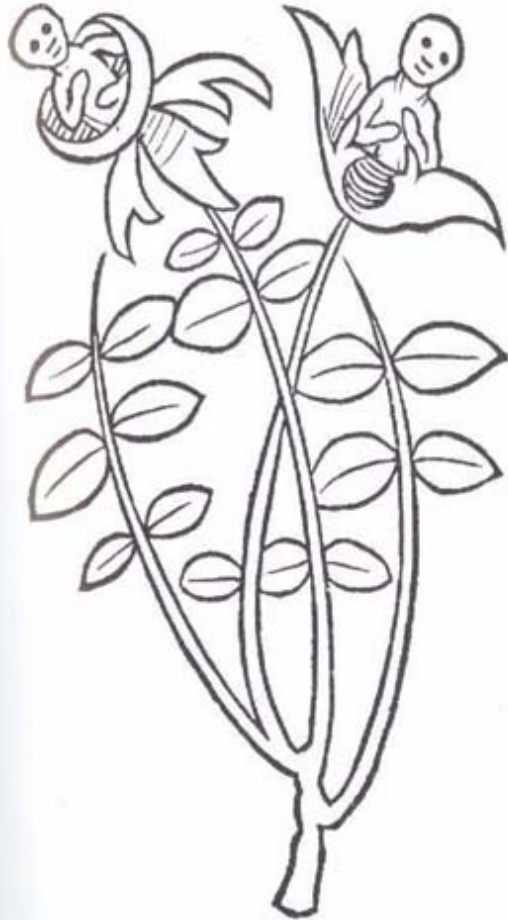
## Herbals



Horticulture including new plant species have been recorded through history by paintings prior to photography.



PLANTING OF IRIS





# Explorer's Records

Captain Cook's Second  
Voyage 1772 – 75

Johann Georg Forster

World explorers brought  
artists with them to collect  
and record plants by painting  
and journaling.



# England early 1800 Mrs. Augusta Withers

Early European women's  
"refinement" lessons  
required training in painting  
in botanical art.

Botanical painting was a  
way women could  
contribute to science.



ODONTODICTION GRAYE.

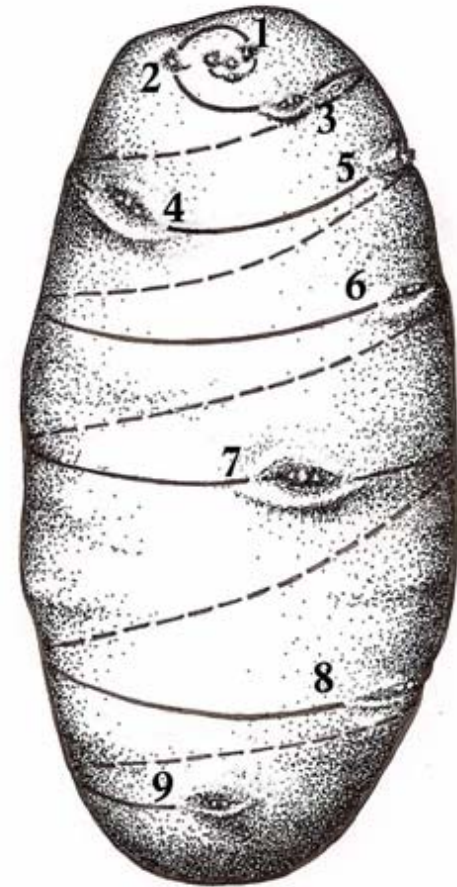
# Dutch Masters

European royal families maintained elaborate gardens and retained botanical painters.



# Today

- A demand for illustration of plants for science books, art pieces, and other publications.
- Botanical art can depict more accurately than photos





# Art Skills

- Media techniques (materials, media, mixing colors, moving color, building form, etc)
- Drawing
- Perspective
- Composition
- Observation
- Appreciation of accuracy, neatness, patience

# Science

- Observation
- Measurement
- Recording data
- Accuracy
- Diversity in nature
- Identification
- Ecology
- Ecozones
- Relationships in nature
- Classification
- Anatomy
- Life cycles/reproduction

# Botanical Illustration

- Multiple Step Method
  - Getting to know your subject
  - Drawing
  - Composition
  - Transferring the Image
  - Tea Stage
  - Building form (making 2D into 3D)
  - Overlap (defining depth)
  - Details (adding what you see)
  - Transition (tying it all together)
  - Finishing



# Getting to know your subject



# Drawing



# Composition



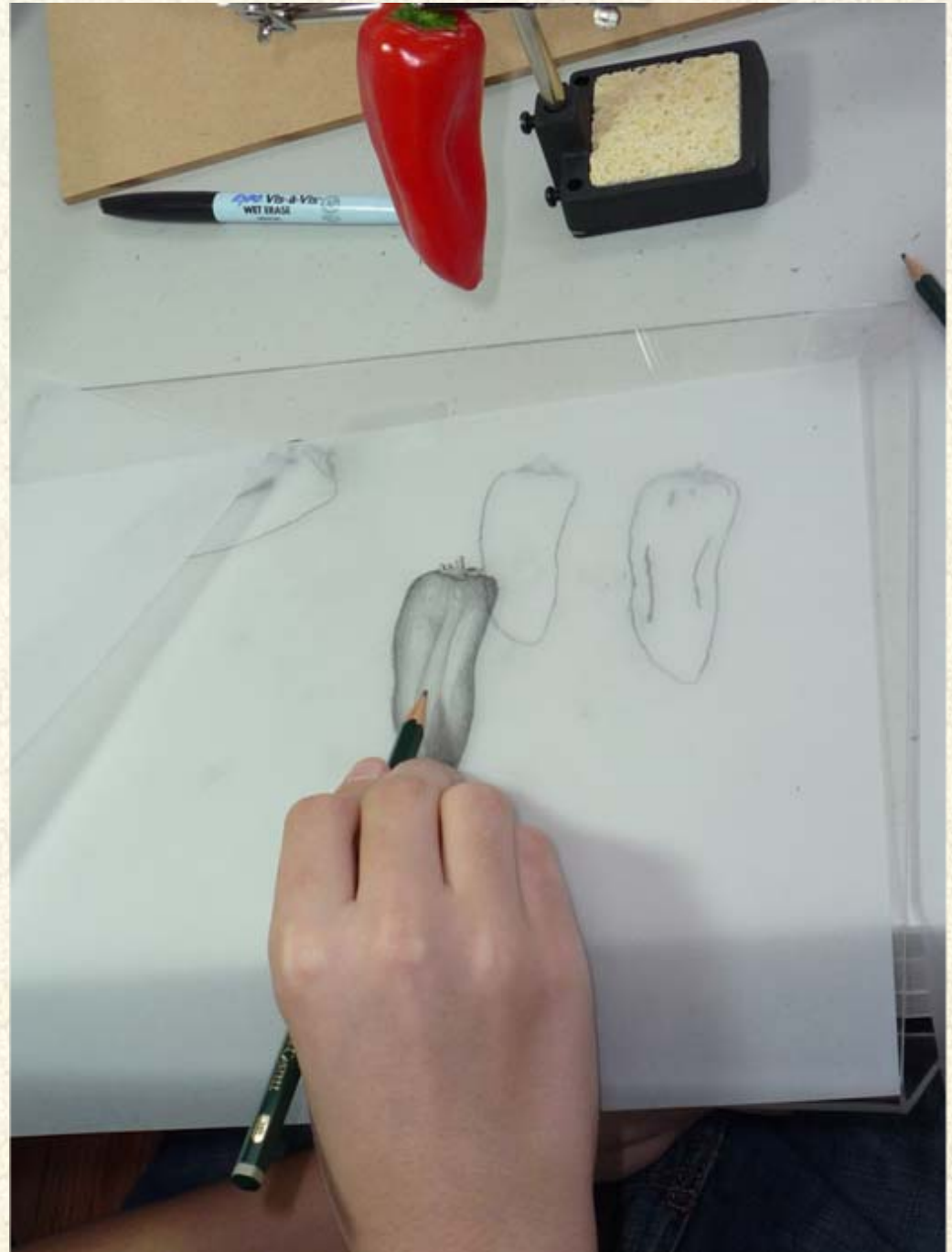
# Transferring the Image



# Tea Stage



Building form  
(making 2D  
into 3D)



Overlap  
(defining  
depth)



# Details (adding what you see)





# Transition (tying it all together)



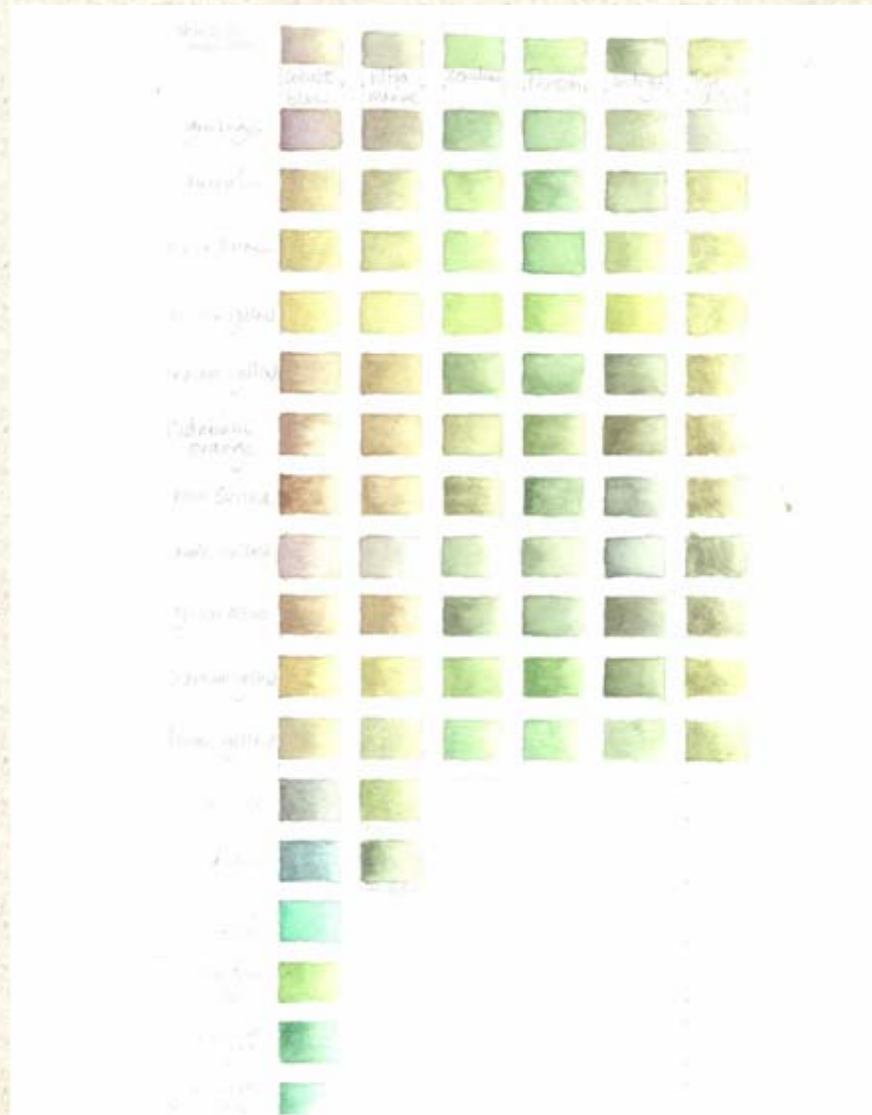
# Finishing



# Media Techniques

- Which materials to use?
- How do you chose and mix colors?
- How do you move paint?
- How do you show 3D on 2D surface?
- How do you transfer images?

# How do you chose and mix colors?



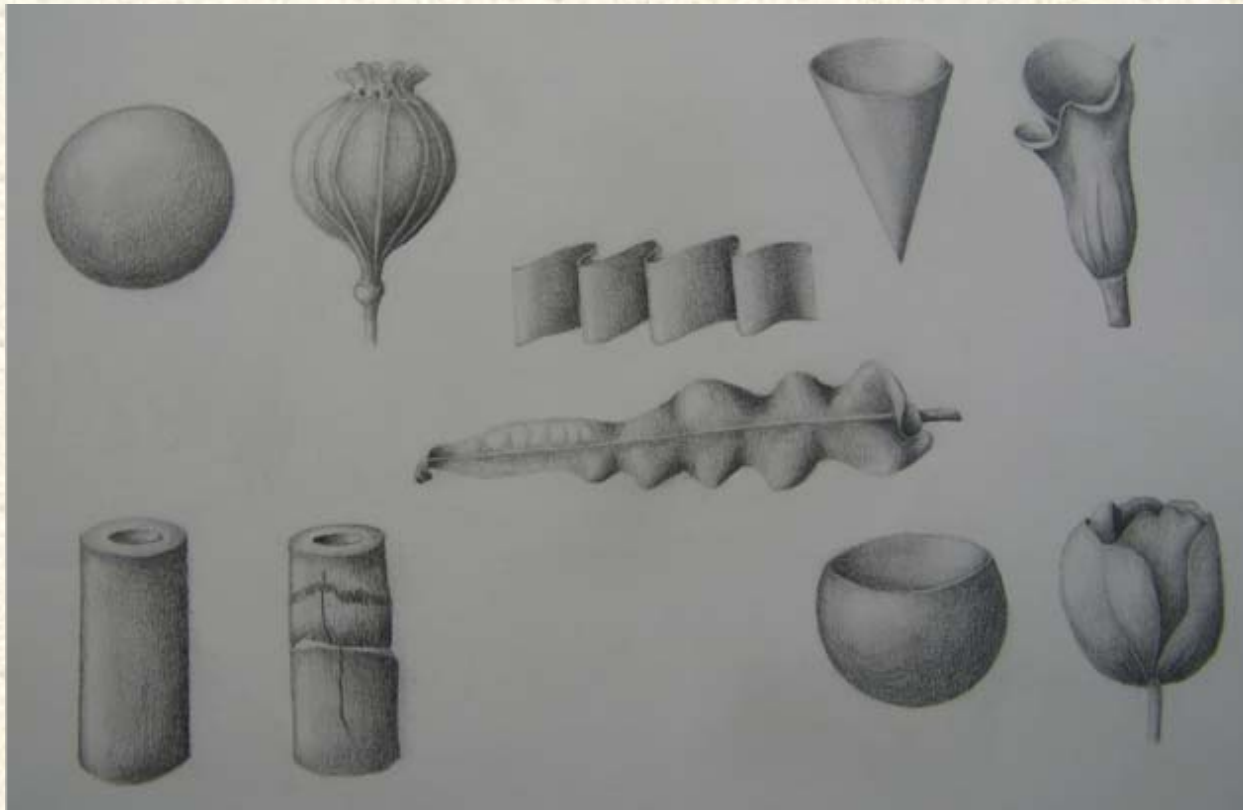
# How do you move paint?



How do you transfer images?



How do you show 3D on 2D  
surface?



# Perspective

How to capture in a drawing?







# Composition

- How do you make the painting appear real and attractive?
- How large should the subject be?
- How much of the plant should I show?
- Do the things in front look different than the things in back?

# Observation

- Looking at all the details
  - Connections
    - between stem and leaf
  - Leaves
    - surface
    - veins
    - habit
    - color
  - Size of each part
    - orientation



# Classification

## Binomial nomenclature

- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

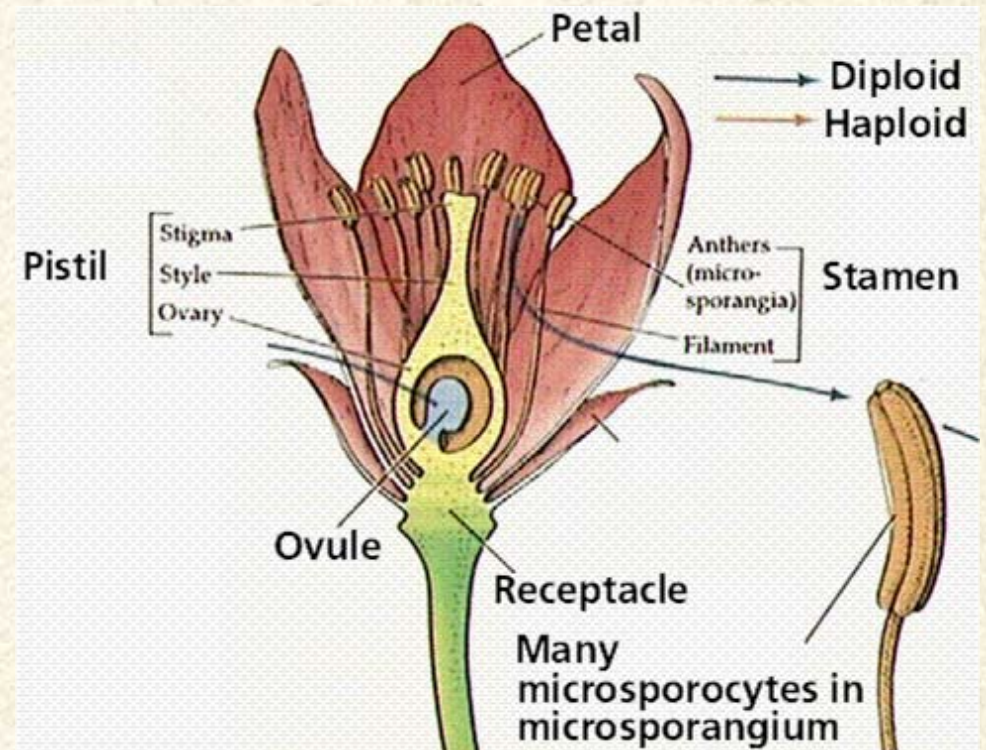
Using Taxonomic Keys  
New Methods for Identification

## Linnaeus



# Anatomy

- Identifying parts and their functions
- Roots, stems, leaves, flowers, fruits
- Dissection techniques



# Ecology

- Understanding a plant's habitat and its function in that ecosystem.
- Observing other plants that grow with it and why.
- Understanding where it grows and why.



# Life Cycles & Reproduction

- Understanding different stages of the plant's life cycle.



– Differentiating reproductive parts,  
understanding their function.

– Learning the  
life cycle's  
importance in  
identification  
of plants.





– Understanding plant survival mechanisms.



# Life Skills

- Patience
- Observation
- Accuracy
- Following a method
- Approach to neatness



# Patience

It takes *time* to:

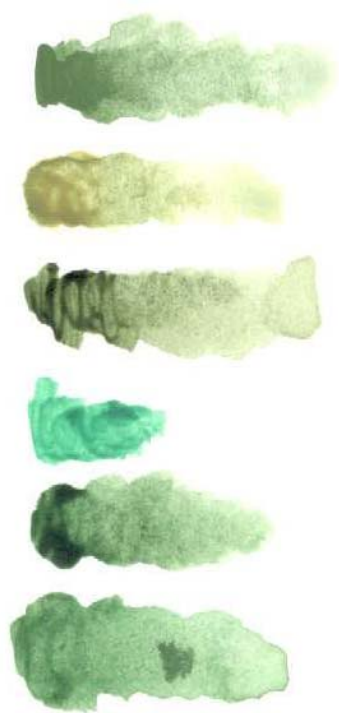
- Observe the plant's details
- Draw the details accurately
- Create the right paint color
- Carefully paint it





# Observation

- Looking at each part of the plant
- Creating accurate line and shape details.
- Reproducing accurate color.
- Figuring out how to represent textures.
- Understanding light and creating form to achieve realism.



3pts Sap Green  
1.5pts Fern Green

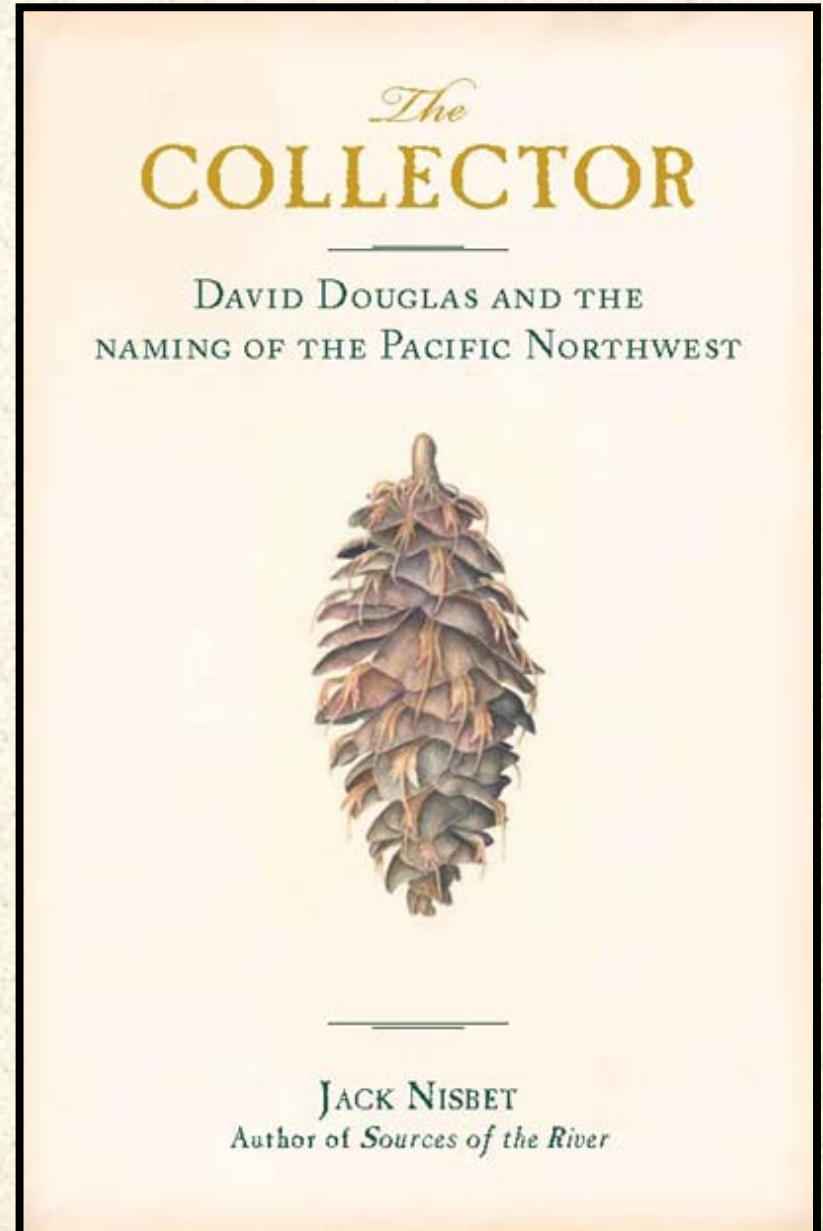


# Accuracy

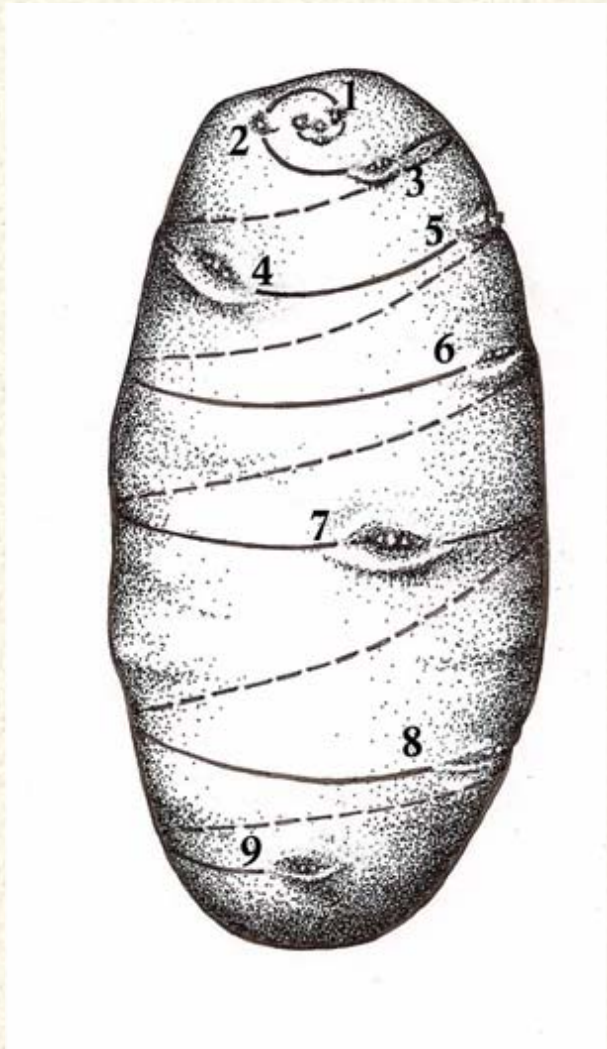
- Drawing what is seen including:
  - contour
  - lines
  - color
  - perspective

# Careers and Opportunities

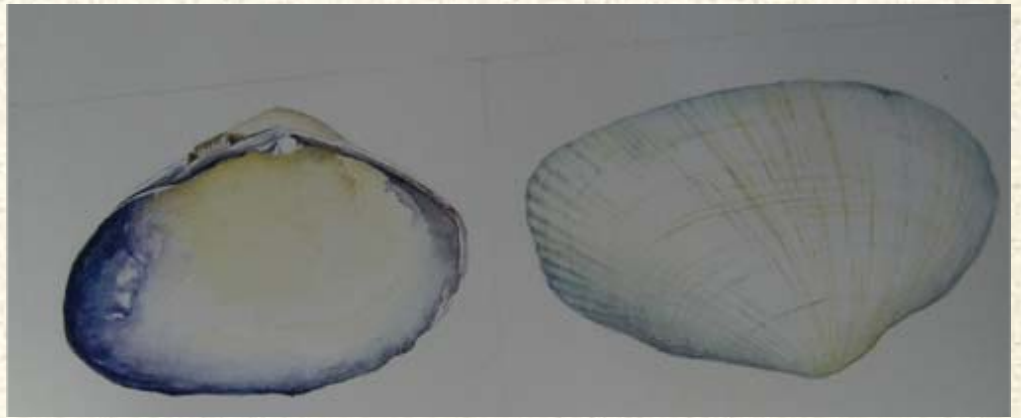
- Field Scientist
- Botanical Artist
- Art Instructor
- Book Illustrator
- Scientific Illustrator
- Medical Illustrator
- Working for Museums
- Working for Gardens
- Others











# Demonstration

- Drawing simple object
  - Measurement technique, Plexiglas
- Composition decisions
- Transferring image
  - Light box, Transfer Paper, Graphite
- Tea Stage
  - Colors
- Analyzing Form
- Moving Paint, Building Form



















# Hands On

- Materials
- Draw object freehand
- Draw object from multiple perspectives with Plexiglas tracing frame
- Decide on best composition for purpose
- Use tracing paper to transfer image to white watercolor paper
- Use tracing paper to understand shading and contours
- Discussion about how to use in classroom

# Hands On continued

- Additional exercises
  - Mixing colors and choosing the right ones
  - Moving paint and brush strokes
  - Creating notes and a record of the experience for future reference

# How could you use this to --

- Scientific observation (Both qualitative and quantitative)
- Drawing
- Attention to detail
- Following a method
- Neatness
- Completeness



**THANK  
YOU**