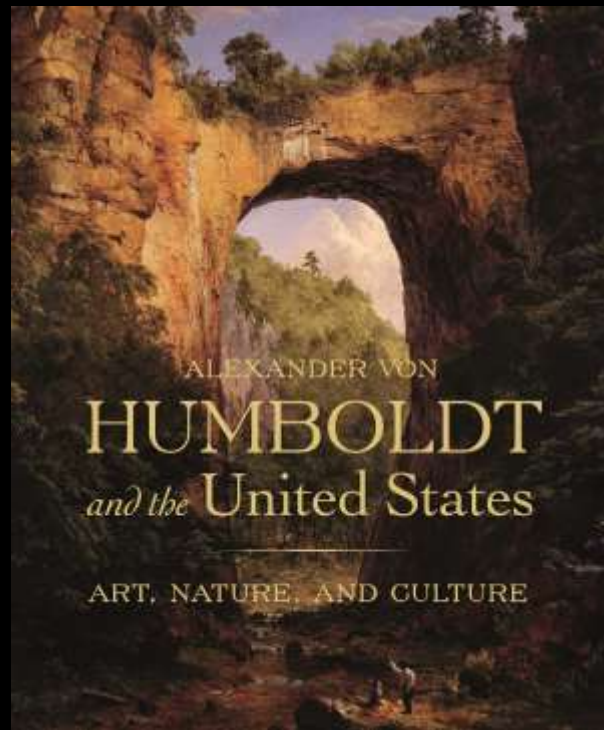




American Biology: Natives, Immigrants, and Humboldt's Progeny

Kevin M. Anderson Ph.D.

Austin Water Center for Environmental Research



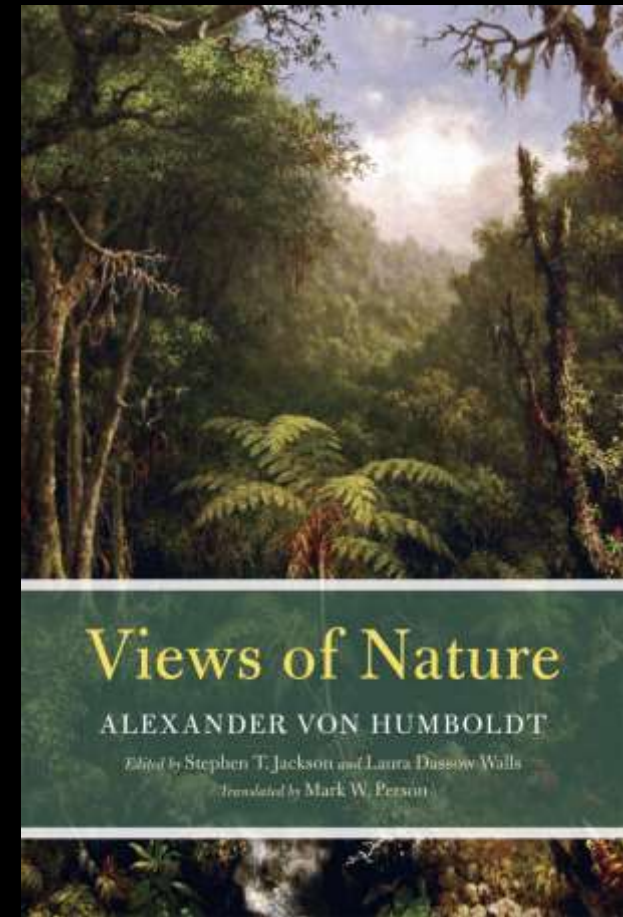
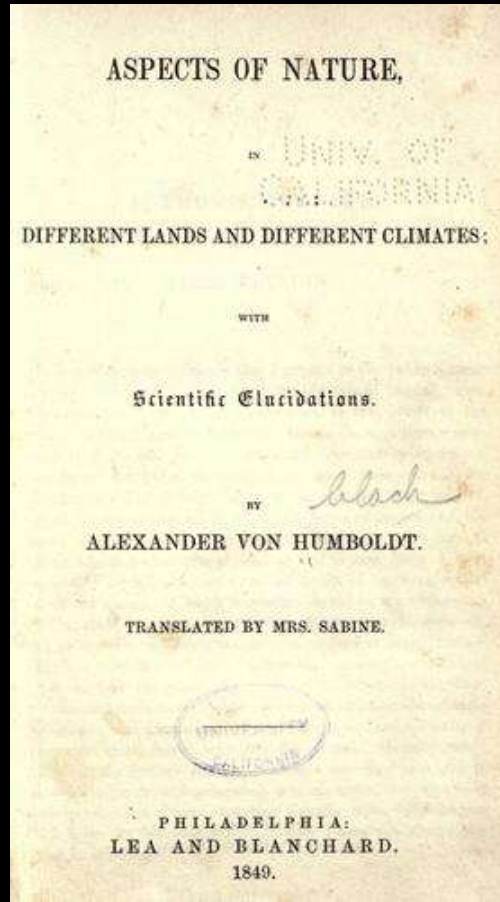
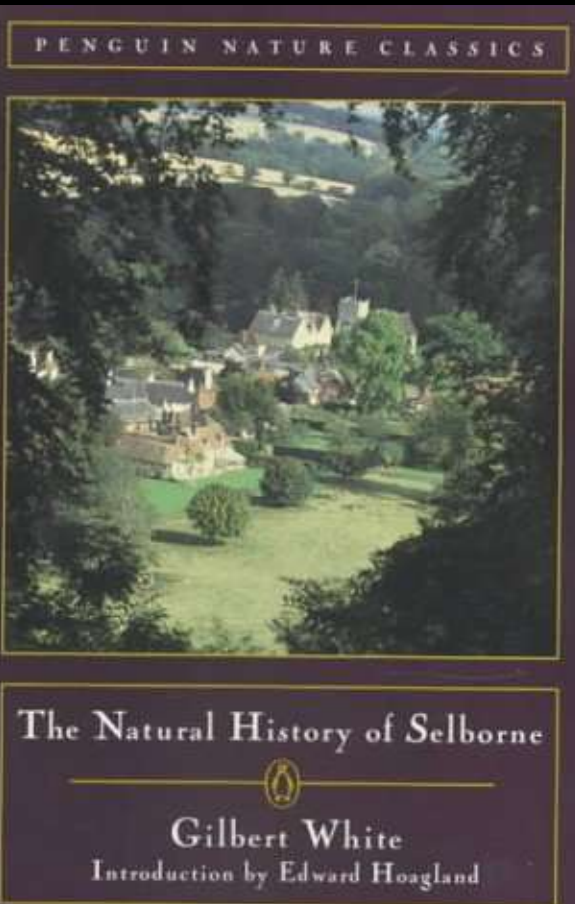
Thoreau and Humboldtian Science

“I am an observer of nature generally, and the character of my observations, so far as they are scientific, may be inferred from the fact that I am especially attracted by such books of science as *White's Selborne* and Humboldt's *Aspects of Nature*”

1853



1817-1862



Natural History Synthesis
Scientific and Literary
Alexander von Humboldt
(1769-1859)



PENGUIN CLASSICS

ALEXANDER VON HUMBOLDT

*Personal Narrative of a Journey to the
Equinoctial Regions of the New Continent*



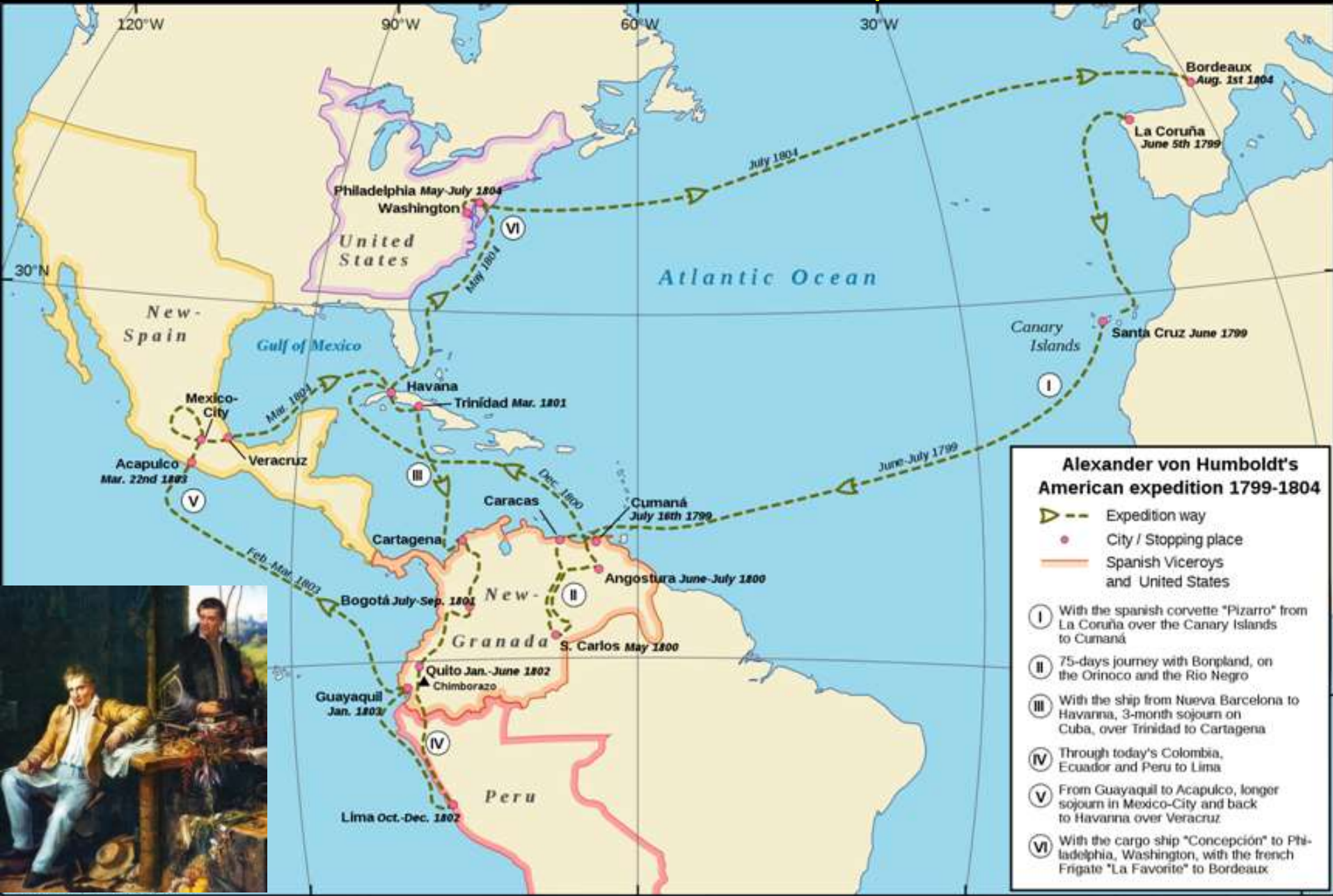
Views of Nature

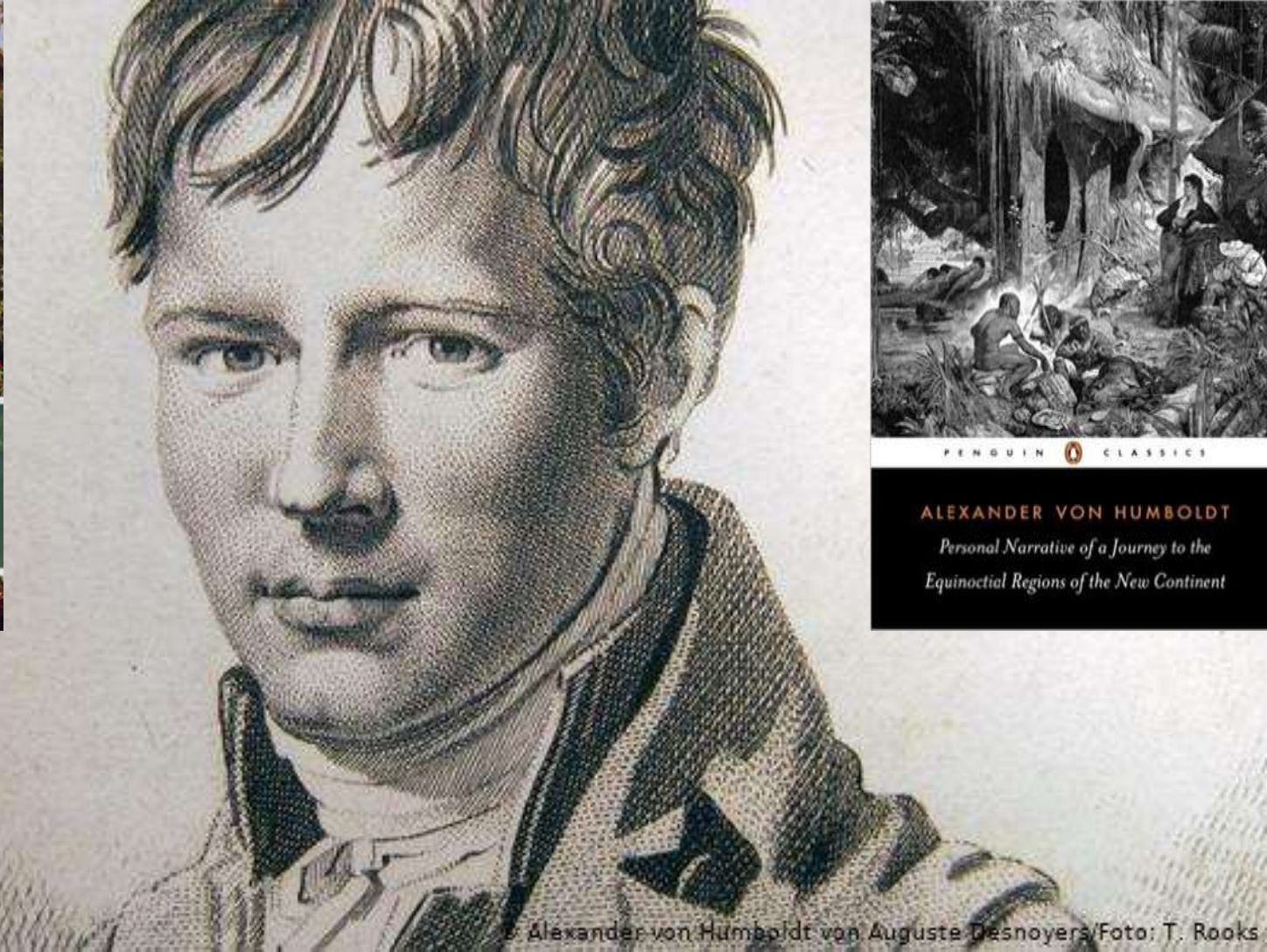
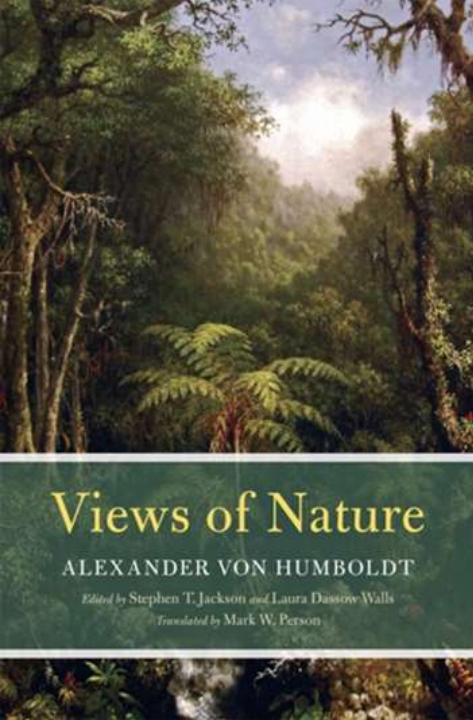
ALEXANDER VON HUMBOLDT

*Edited by Stephen T. Jackson and Laura Daston Wells
Translated by Mark W. Peterson*

The Second Discovery of the New World

Alexander von Humboldt and Aimé Bonpland 1799-1804



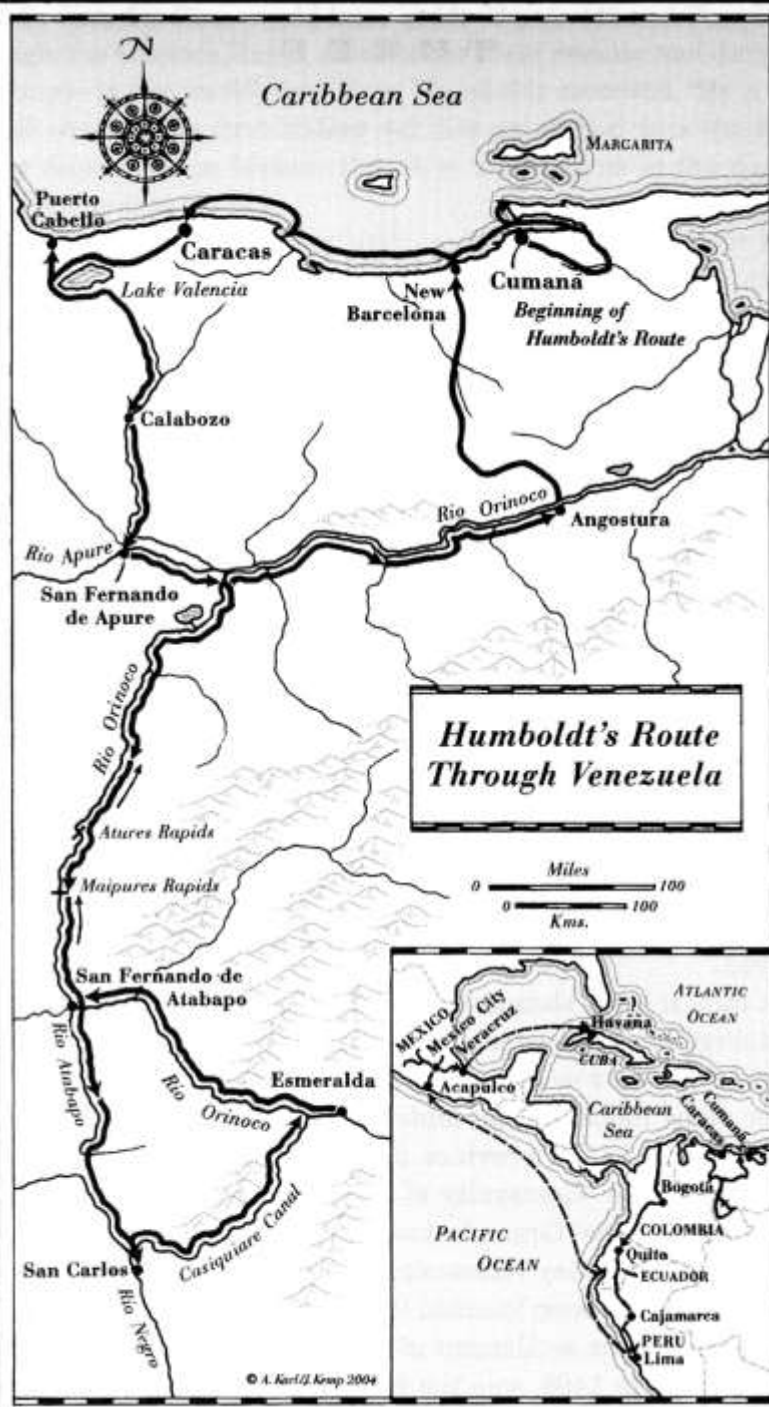


How Does Nature Work?

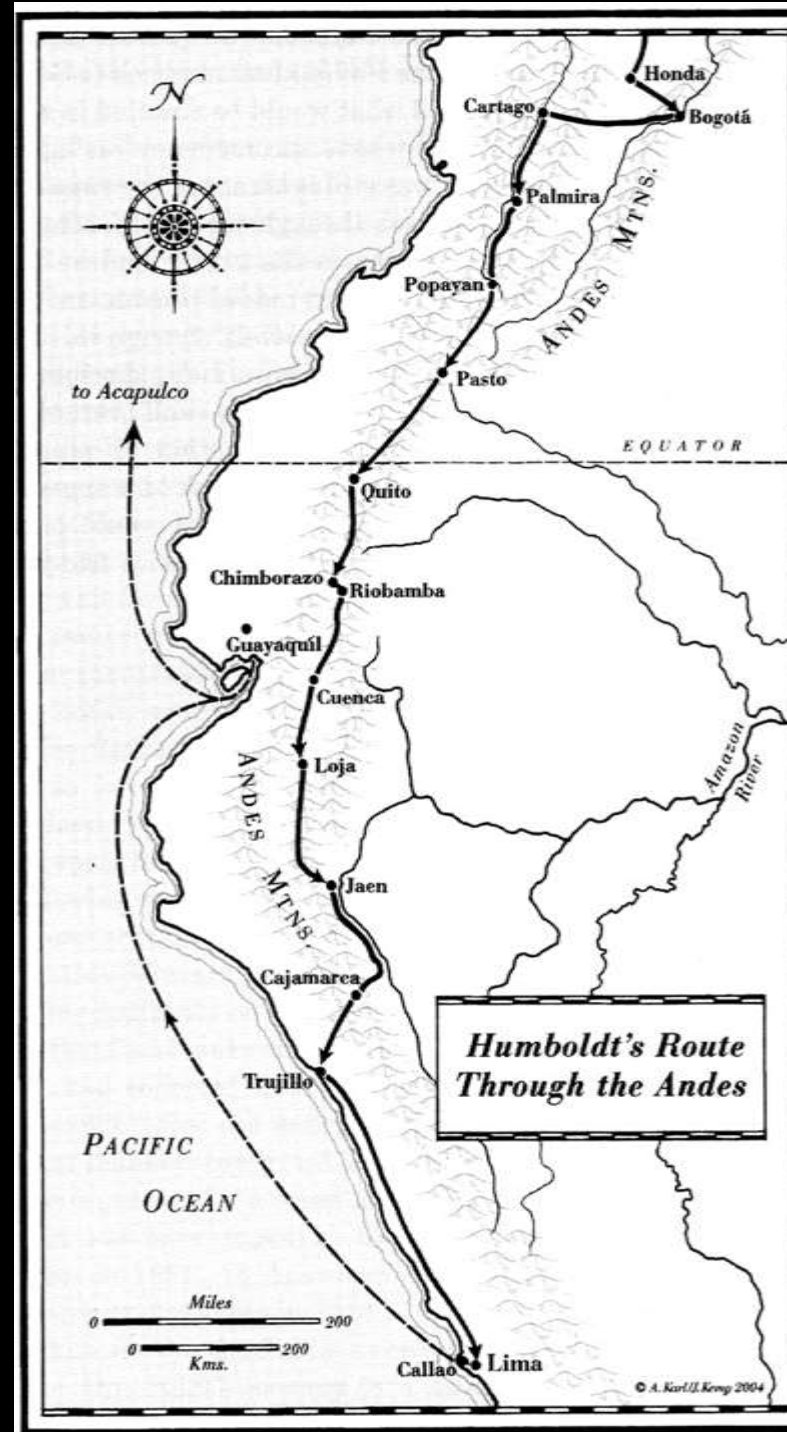
“I shall try to find out how the forces of nature interact upon one another and how the geographic environment influences plant and animal life. In other words, I must find out about the unity of nature.”

Venezuela, the Llanos, and the Orinoco 1799–1800

In February 1800, Humboldt and Bonpland left the coast to explore the course of the Orinoco River and its tributaries.



The Andes Journey 1801-3



Climbing Chimborazo 1802

Chimborazo is about one hundred miles to the southwest of Quito. It was thought to be the world's highest mountain, and no one had ever made it to the top.

Yet, with three indigenous guides loaded down with instruments, Humboldt and his two traveling companions were determined to scale the 6,310-meter (20,700-feet) Ecuadorian volcano in the bitter cold.

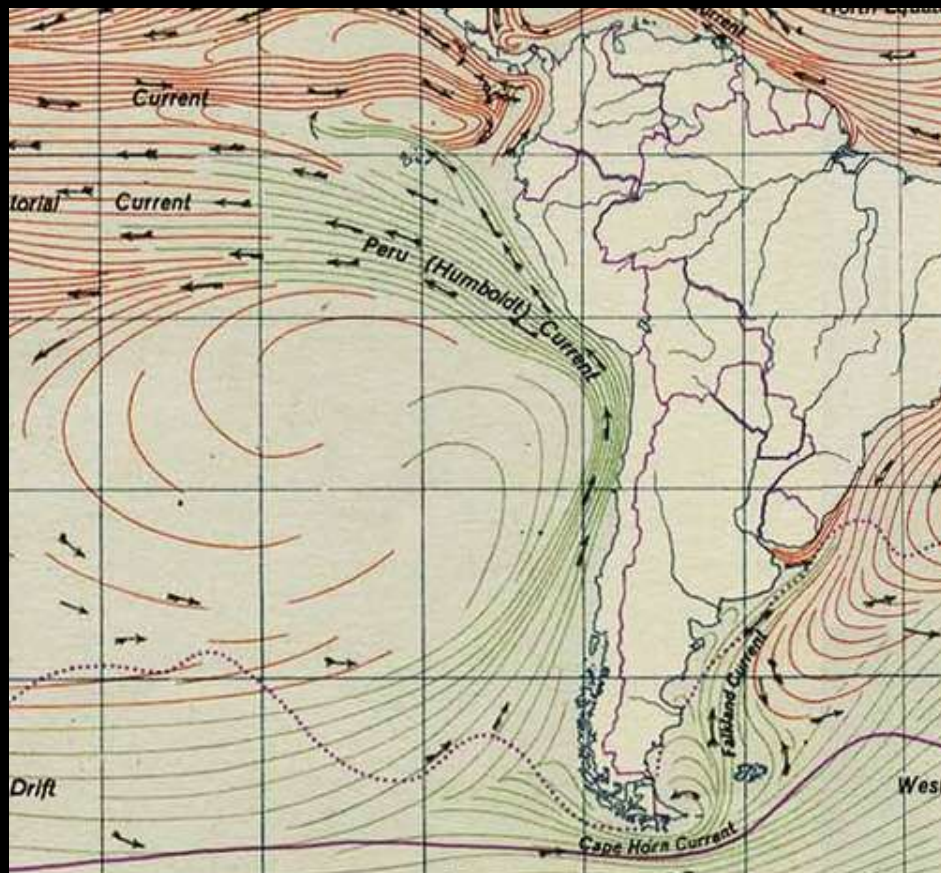


To the Equator and Lima then north to New Spain 1802-3

They left Quito in June 1802 and trekked south to Peru surveying Inca ruins, researching the chinchona tree (quinine bark), and the Earth's magnetic field at the geographic equator – then he was the first to measure the magnetic equator 7 degrees south.

Arrived in Lima October 1802.

Sail from Lima to Guayaquil January 1803, and along the way is the first to measure the cold coastal current now known as the Humboldt Current.



Mexico 1803-4



MYRON ECHENBERG

HUMBOLDT'S MEXICO

*In the Footsteps of the Illustrious
German Scientific Traveller*

To Cuba and on to the United States 1804

In March 1804 they sail to Cuba planning to go directly to France, but American consul to Cuba, Vincent Gray, convinces Humboldt to visit Washington to meet President Jefferson.

Arrive in Philadelphia and spends six weeks meeting and befriending political, cultural, and scientific leaders of the United States.



Charles Willson Peale,
Humboldt, 1804



Rembrandt Peale,
Humboldt, 1809



To the United States 1804

“I consider him, Humboldt, the most important scientist whom I have met.”

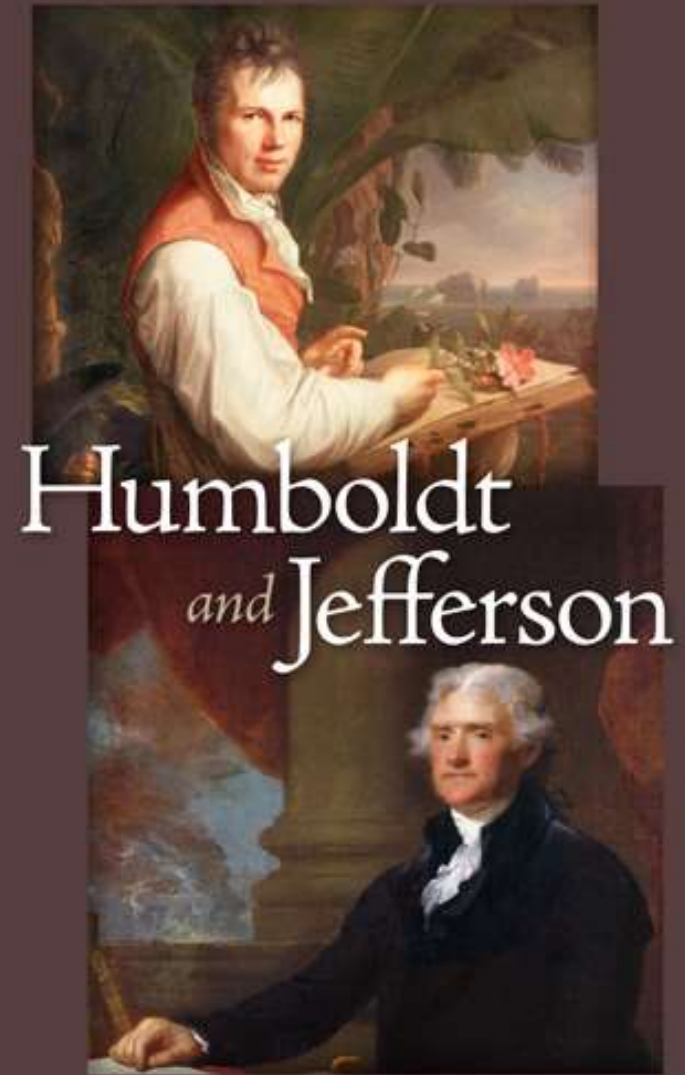
— Thomas Jefferson

On May 19, 1804, the 34 year old Alexander von Humboldt arrived in the United States...Thomas Jefferson had just turned 61.

“Mr. President, Arrived from Mexico on the blessed ground of the republic, whose executive powers were placed in your hands, I feel it my pleasant duty to present my respects and express my high admiration for your writings, your actions, and the liberalism of your ideas, which have inspired me from my earliest youth.”

1st letter from Humboldt to Jefferson 1804

SANDRA REBOK



A Transatlantic Friendship
of the Enlightenment

(1743 – 1826)



(1769 – 1859)



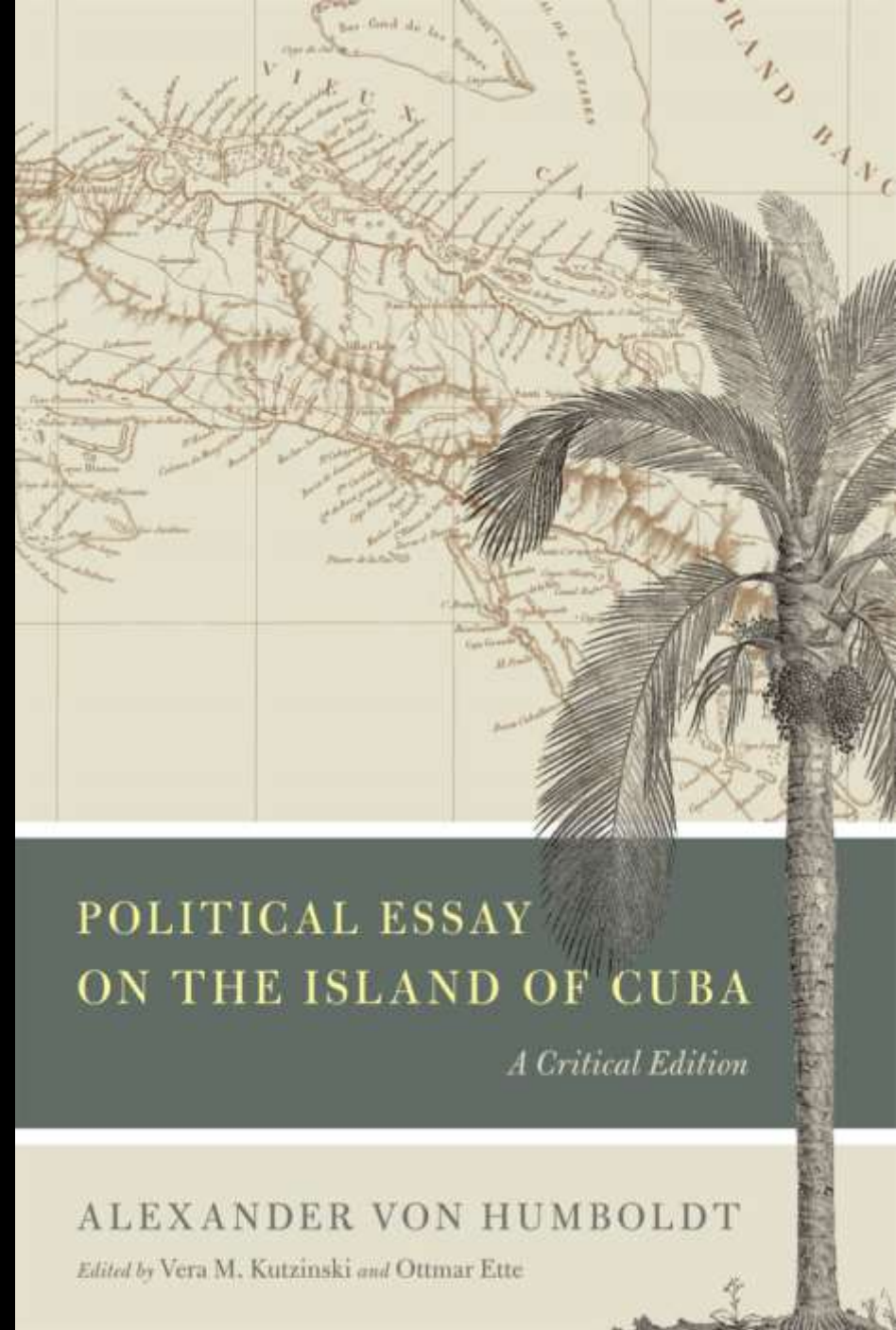
Humboldt

“Slavery is no doubt the greatest of all the evils that afflict humanity”

New World Politics

Political Essay On The Island of Cuba 1826

- Humboldt denounces colonial slavery on both moral and economic grounds and stresses the importance of improving intercultural relations throughout the Americas.
- Banned, censored, and willfully mistranslated to suppress Humboldt's strong antislavery sentiments.
- 1856 John Sidney Thrasher publishes "translation" changing it into a pro-slavery essay
- Humboldt "my book against slavery...is not prohibited in Madrid, but cannot be purchased in the United States"



New World Politics

Political Essay on the Kingdom of New Spain 1811

- Statistical analysis of Mexico
- Criticism of Spanish treatment of indigenous population and culture
- The most detailed, accurate map of the West

*A MAP OF
NEW SPAIN
from 16° to 38° North Latitude
reduced from the Large Map drawn from
astronomical observations at Mexico
in the Year 1804,
BY ALEXANDRE DE HUMBOLDT,
and comprehending the whole of the information contained in the
Original Map,
except the heights of the Mountains.*



Political Essay on the Kingdom of New Spain

VOLUME 1 *A Critical Edition*

ALEXANDER VON HUMBOLDT

Edited with an Introduction by Eric H. Rieu and Robert E. K.

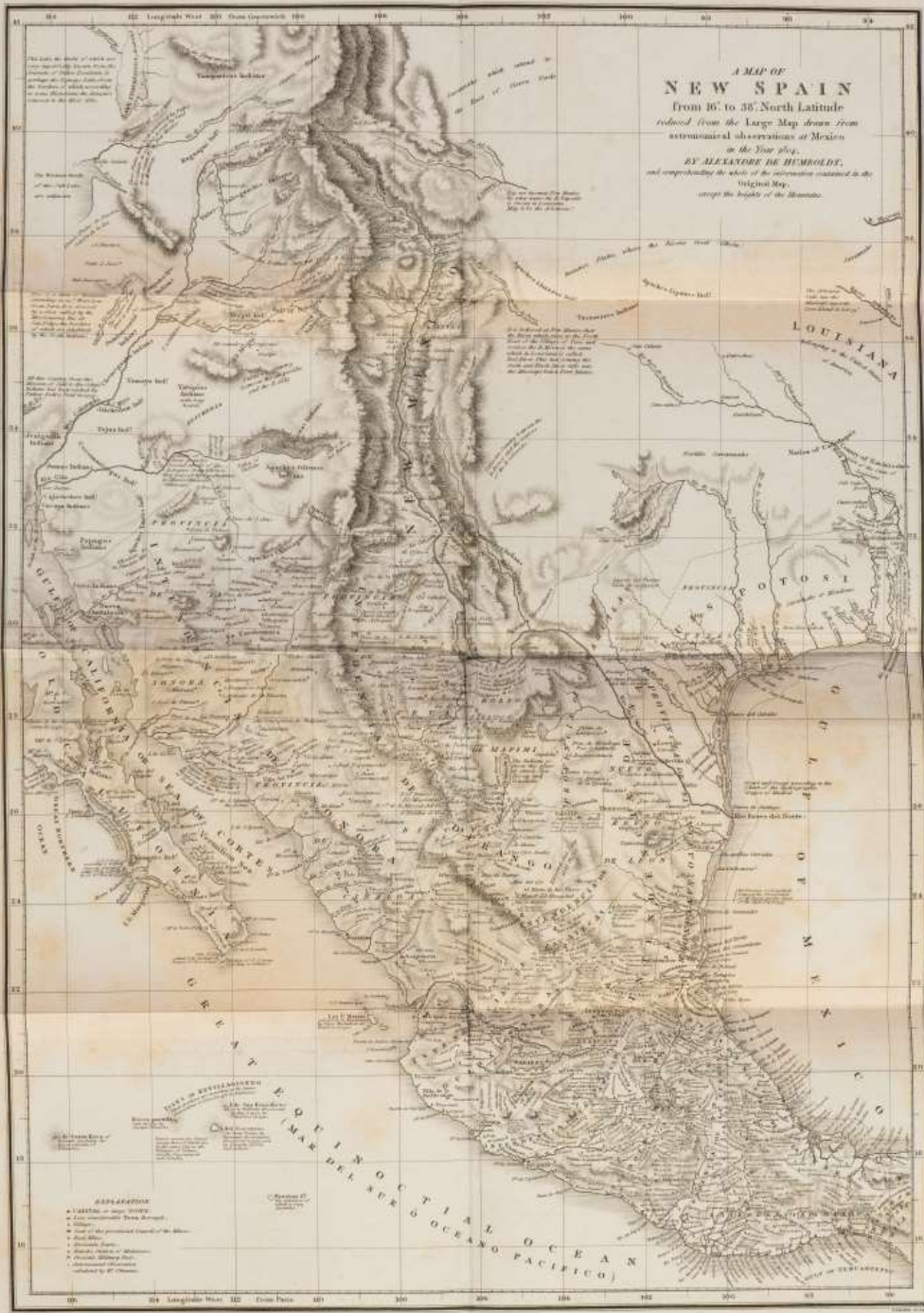


Political Essay on the Kingdom of New Spain

VOLUME 2 *A Critical Edition*

ALEXANDER VON HUMBOLDT

Edited and with an Introduction by Eric H. Rieu and Robert E. K.



A MAP OF
NEW SPAIN

from 16° to 38° North Latitude
reduced from the Large Map drawn from
— astronomical observations at Mexico
in the Year 1804.

BY ALEXANDRE DE HUMBOLDT,
and comprehending the whole of the information contained in the
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except the heights of the Mountains.





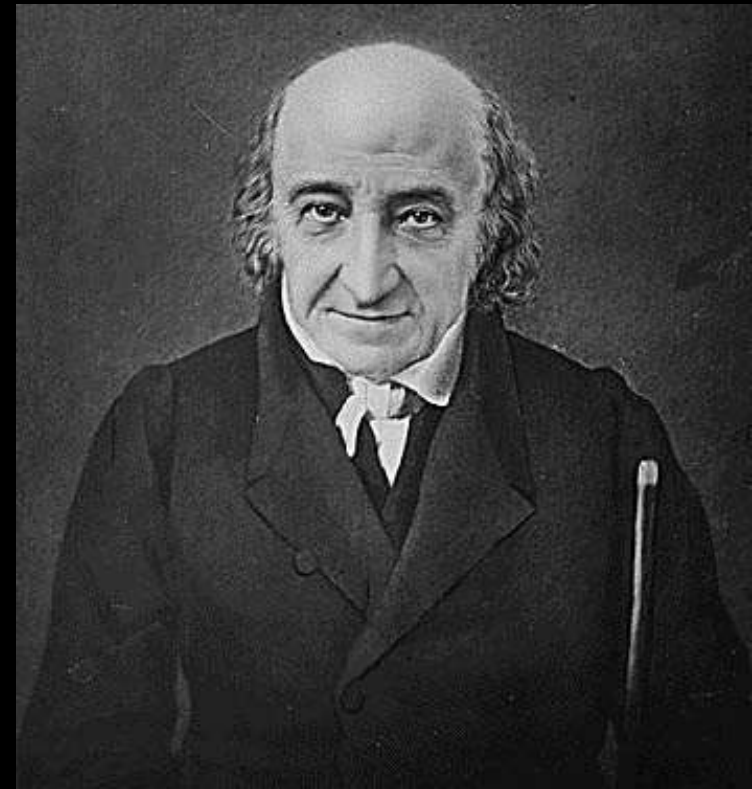
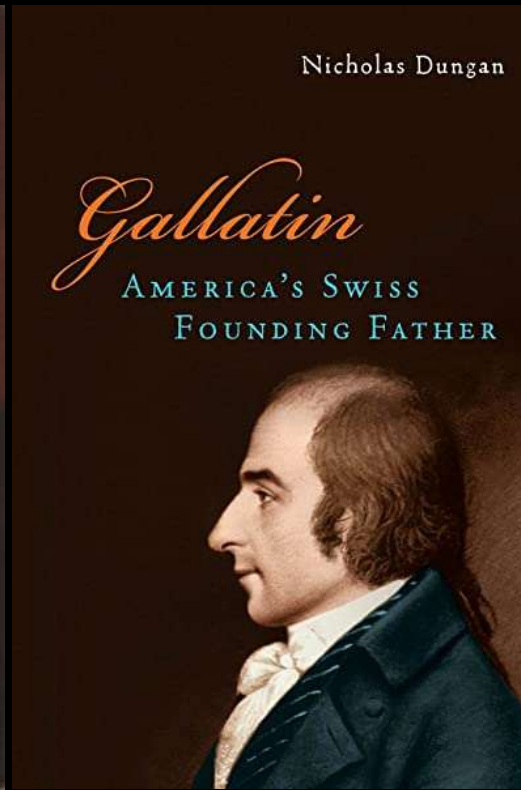
Gallatin Copy of Humboldt's Map

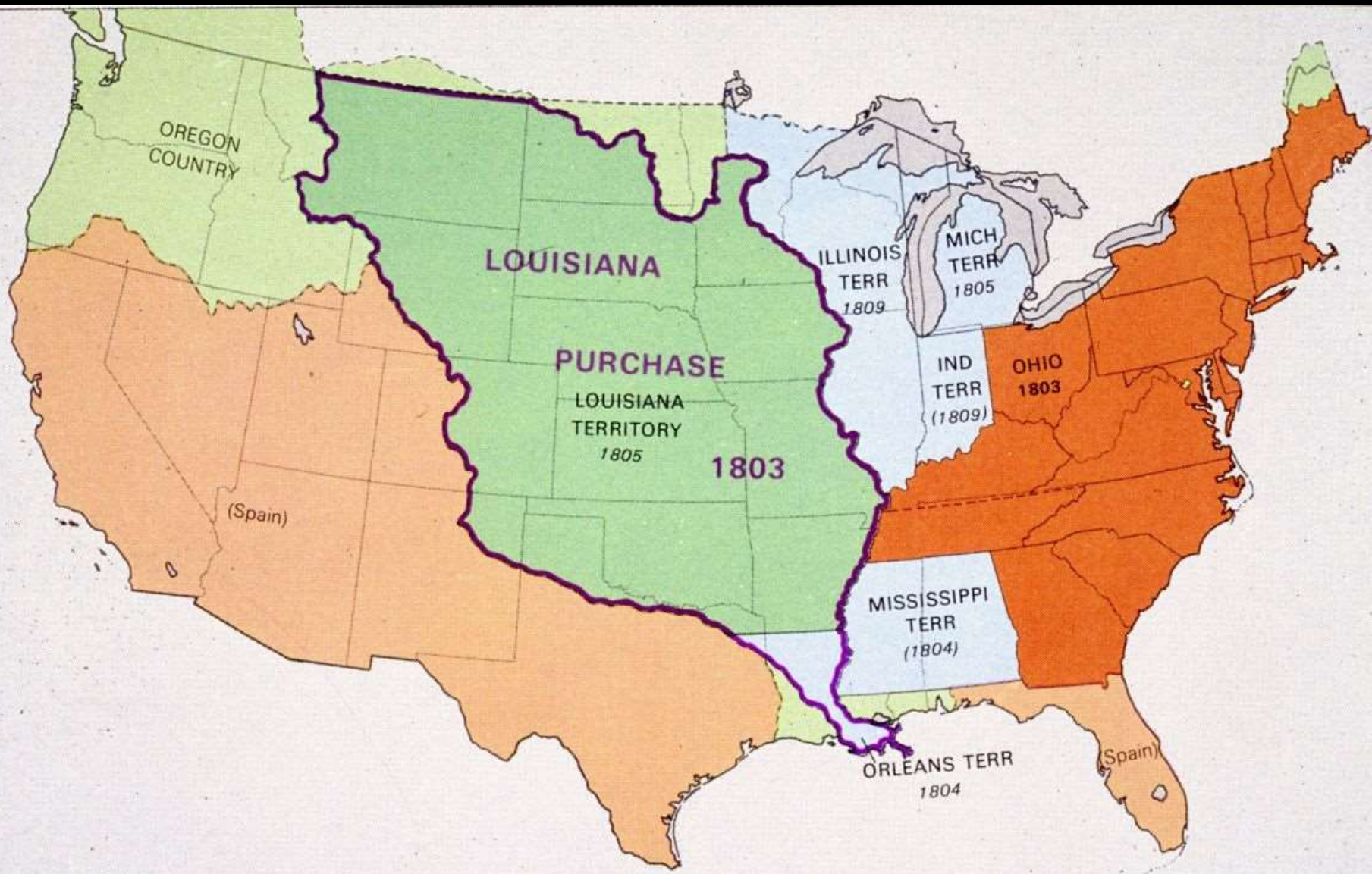
Secretary of the Treasury
Albert Gallatin 1761-1849



Albert Gallatin 1761-1849

- He served as a Congressman, Senator, United States Ambassador and was the longest-serving United States Secretary of the Treasury.
- Ambassador to France 1816-1823
- *A Table of Indian Languages of the United States* (1826)
- *Synopsis of the Indian Tribes of North America* (1836)
- Founder of The American Ethnological Society 1842







The Journey of the Corps of Discovery
A Film by Ken Burns
A GENERAL MOTORS
MARK OF EXCELLENCE PRESENTATION

May 14, 1804 – Sep 23, 1806



Home to Europe 1804

Departs the US at the end of June and arrives back in France August 1, 1804.

Travels to Rome, Berlin, and settles in Napoleon's Paris in 1808 where he remains writing his books until 1826.





PENGUIN  CLASSICS

ALEXANDER VON HUMBOLDT

*Personal Narrative of a Journey to the
Equinoctial Regions of the New Continent*





PENGUIN CLASSICS

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*Views of the Cordilleras and Monuments of
the Indigenous Peoples of the Americas*

A Critical Edition

ALEXANDER VON HUMBOLDT

Edited by Vron M. Kutzinski and Ottmar Lutz



*Political Essay on the
Kingdom of New Spain*

VOLUME 1 *A Critical Edition*

ALEXANDER VON HUMBOLDT



*POLITICAL ESSAY
ON THE ISLAND OF CUBA*

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Views of Nature

ALEXANDER VON HUMBOLDT

*Edited by Stephen T. Jackson and Laura Daston-Wells
Translated by Mark W. Peterson*

Alexander von Humboldt

COSMOS

A SKETCH OF THE
PHYSICAL DESCRIPTION
OF THE UNIVERSE

Volume 1



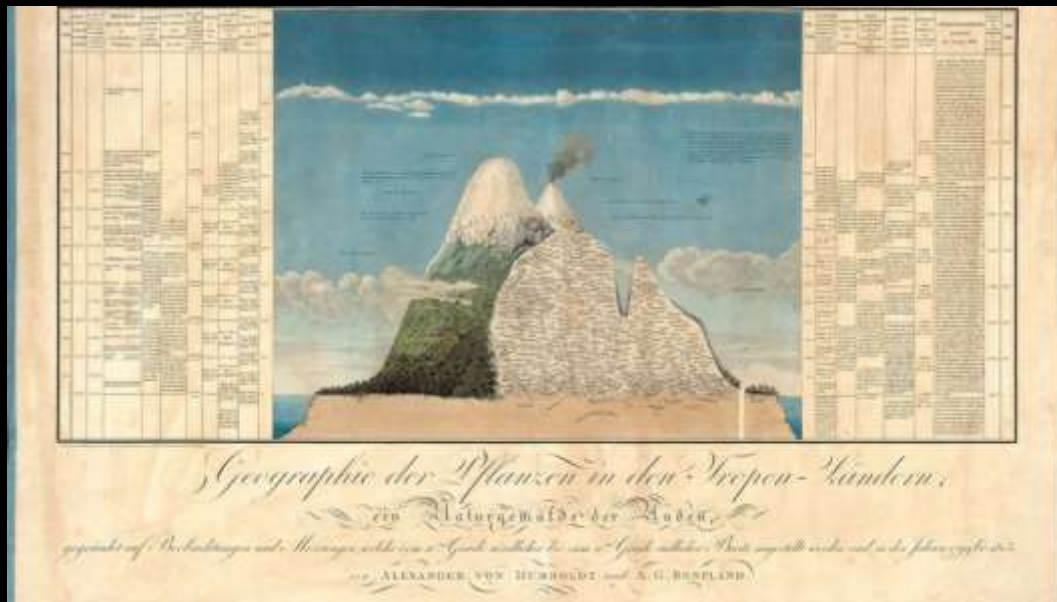
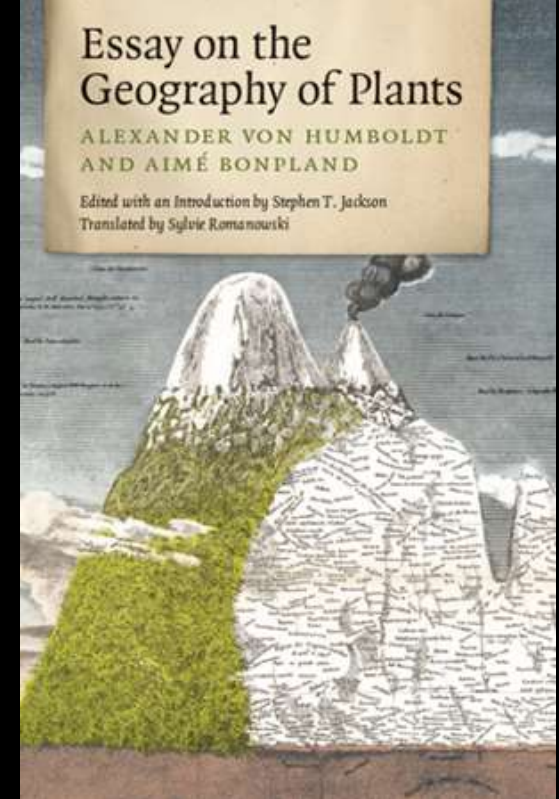
*Translated by E. C. Otté
Introduction by Nicolaas A. Rupke*

Humboldtian Science

The Unity of Nature - Biogeography

Essay on the Geography of Plants 1807

- An ecological vision - Instead of placing plants in their taxonomic categories, he saw vegetation through the lens of climate and location.
- The similarity between coastal plants shows an ancient connection between Africa and South America and suggests continents geologically shift [plate tectonics]
- First to document New World domesticated plants – corn, yucca, potato, tomato, pepper, vanilla, cocoa, etc.

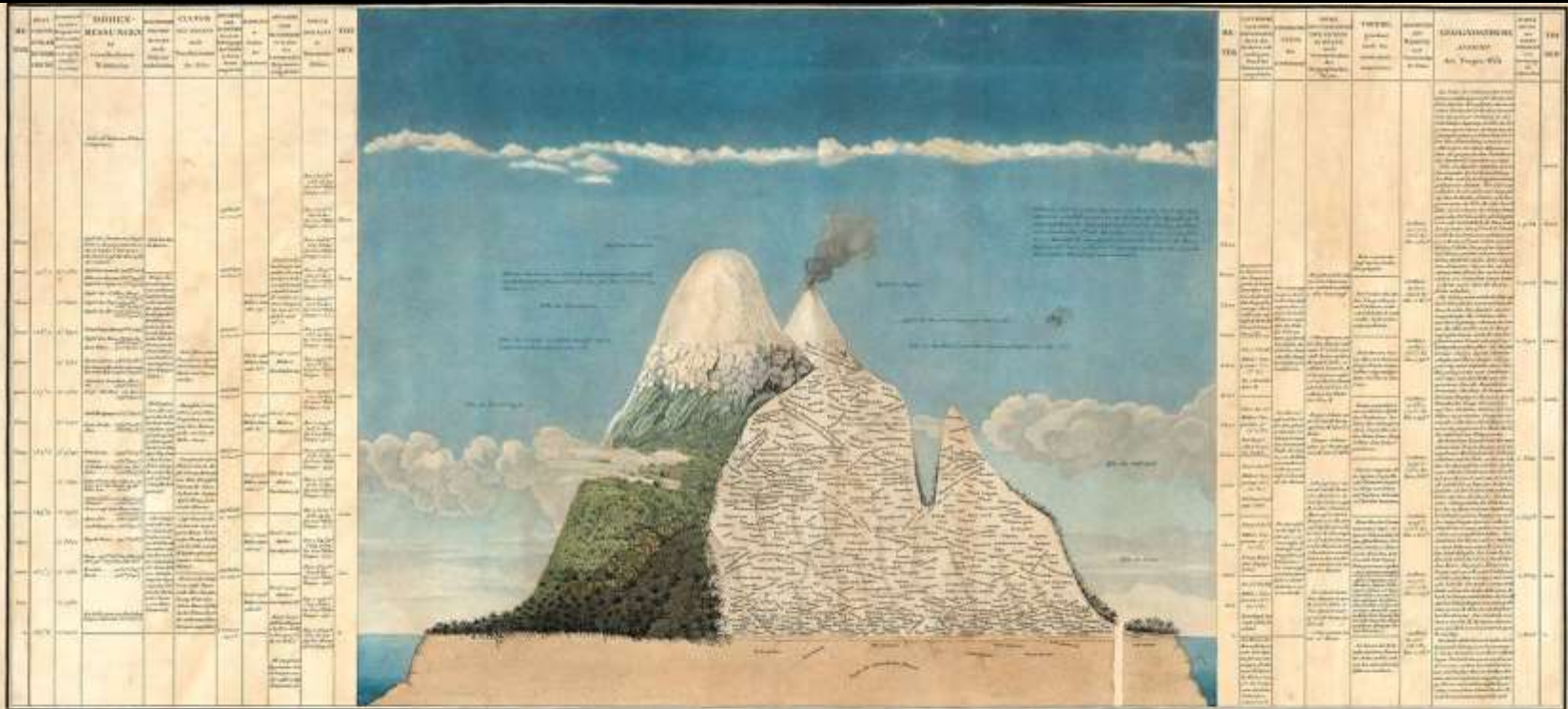


A New Vision of Nature – Naturgemälde

Infographic – Data in visual form

An ecological vision - Nature is a system in which everything was connected - every plant was placed on the mountain precisely where Humboldt had found them.

Humboldt saw 'unity in variety'



*Geographie der Pflanzen in den Tropen-Ländern;
ein Naturgemälde der Anden.*

gegründet auf Beobachtungen und Messungen, welche vom 10. Grade nördlicher bis zum 10. Grade südlicher Breite angestellt worden sind, in den Jahren 1793 bis 1803.

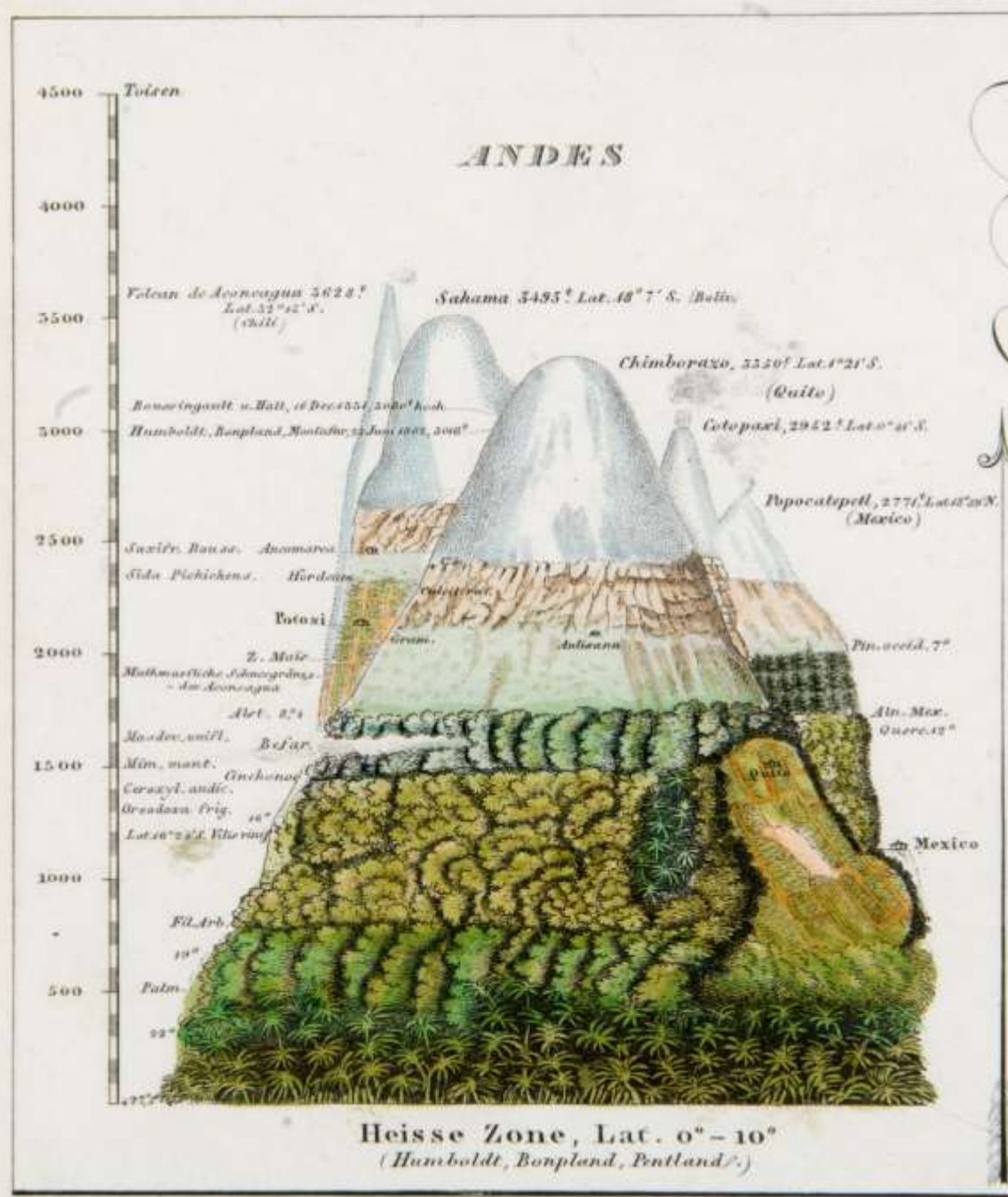
VON ALEXANDER VON HUMBOLDT und A. G. BONPLAND.

The Unity of Nature

Biogeography and Biodiversity

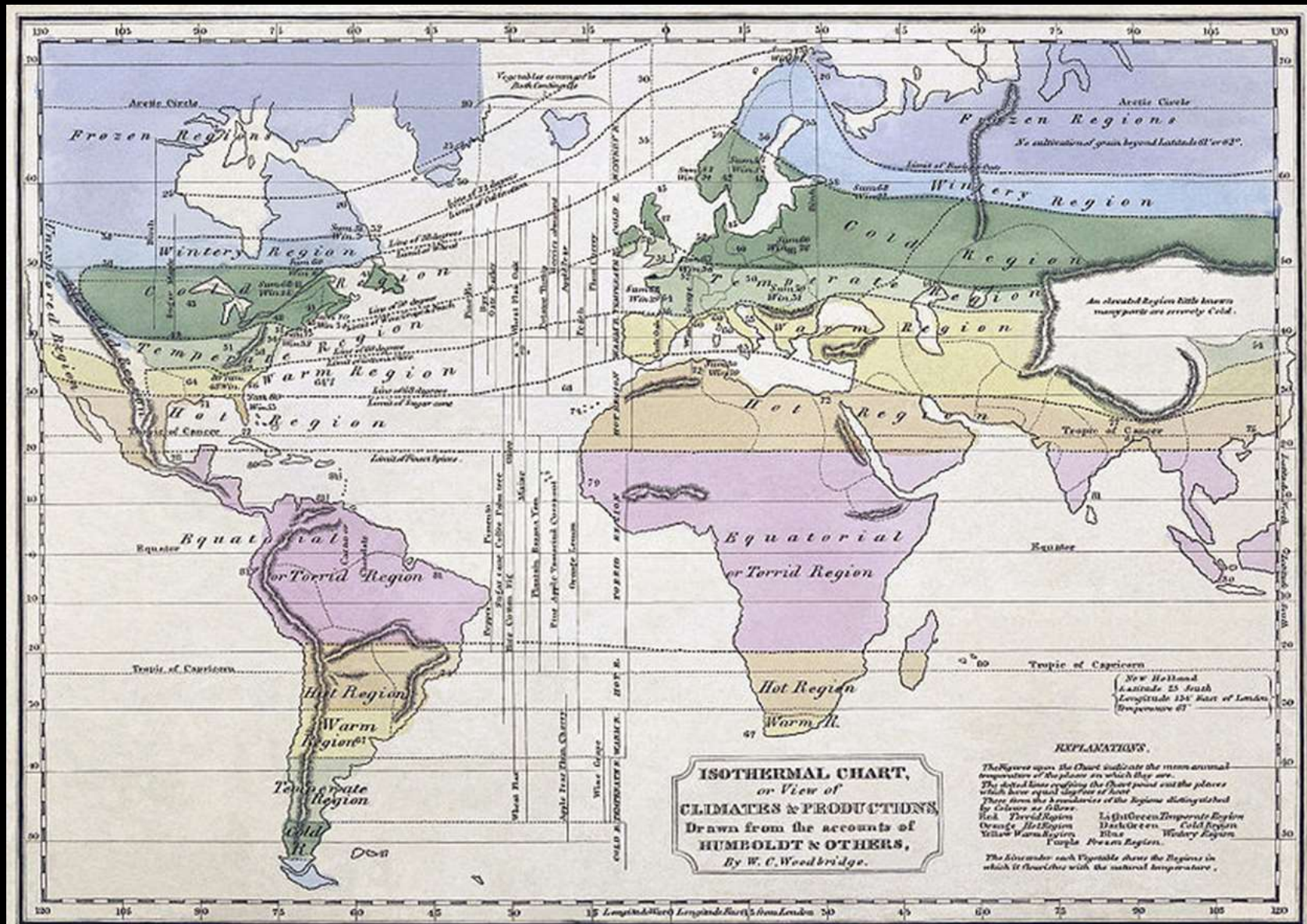
This variety and richness, but also the simplicity of the scientific information depicted, was unprecedented.

Plants distributed according to their altitudes, ranging from subterranean mushroom species to the lichens that grew just below the snow line.



Humboldtian Science of Nature – Order and Change

Humboldt showed for the first time that nature was a global force with corresponding climate zones across continents.



Humboldtian Nature

Order and The Science of a Systematic Universe

- The Systematic Universe – Everything is part of the same system
- Nature is an inseparable organic whole, all parts of which were mutually interdependent, including humans.
- Study the interconnections not just particulars - though he began first with particulars and moved towards generalizations, his objective was never simply to measure one kind of phenomenon in nature.
- Everything is connected - “In this great chain of cause and effects, no single fact can be considered in isolation”

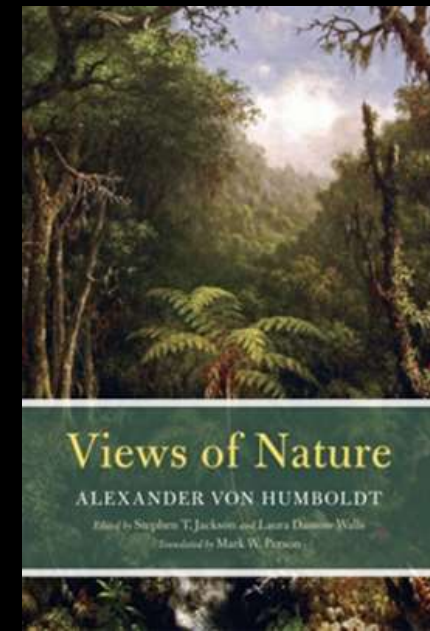
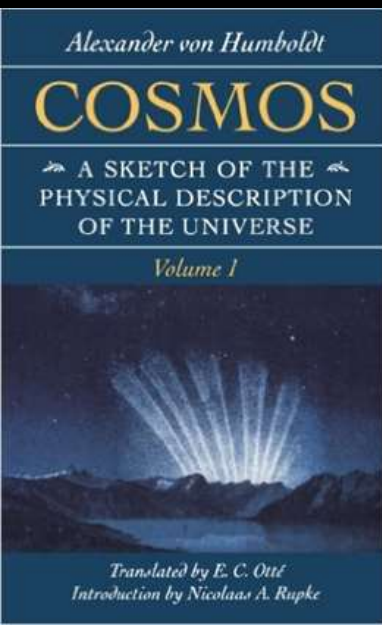


How does Nature work? Harmony, Equilibrium, and Homeostasis

- Harmony - one concept that is central to Humboldtian science is that of a general equilibrium of forces amidst change.
- Equilibrium/Homeostasis and Dynamic Nature - “The general equilibrium, **which reigns amongst disturbances and apparent turmoil**, is the result of infinite number of mechanical forces and chemical attractions balancing each other out.”

Humboldtian Science – Change and Resilience

- Change and Resilience - “to recognize unity in the vast diversity of phenomena, and by the exercise of thought and the combination of observations, **to discern the constancy of phenomena in the midst of apparent changes.**”

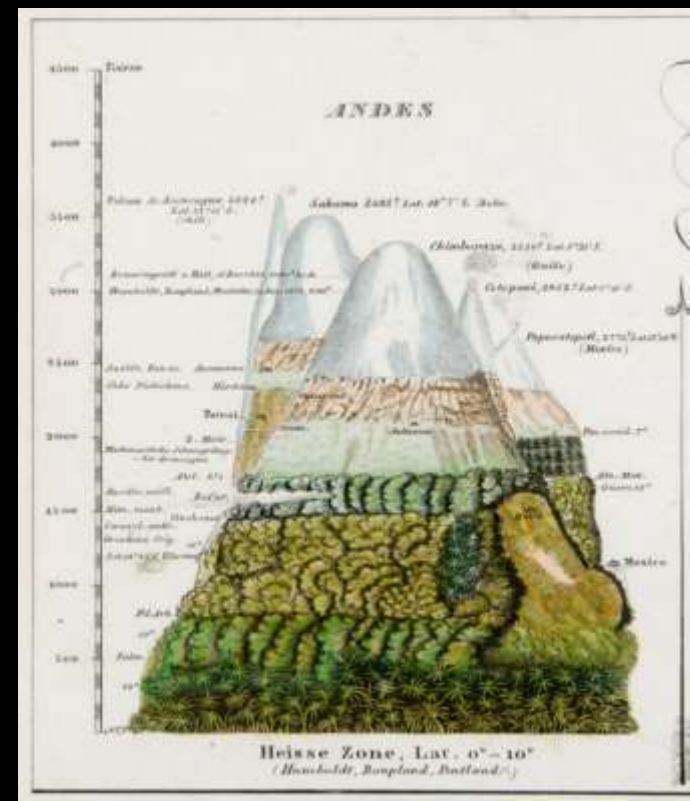
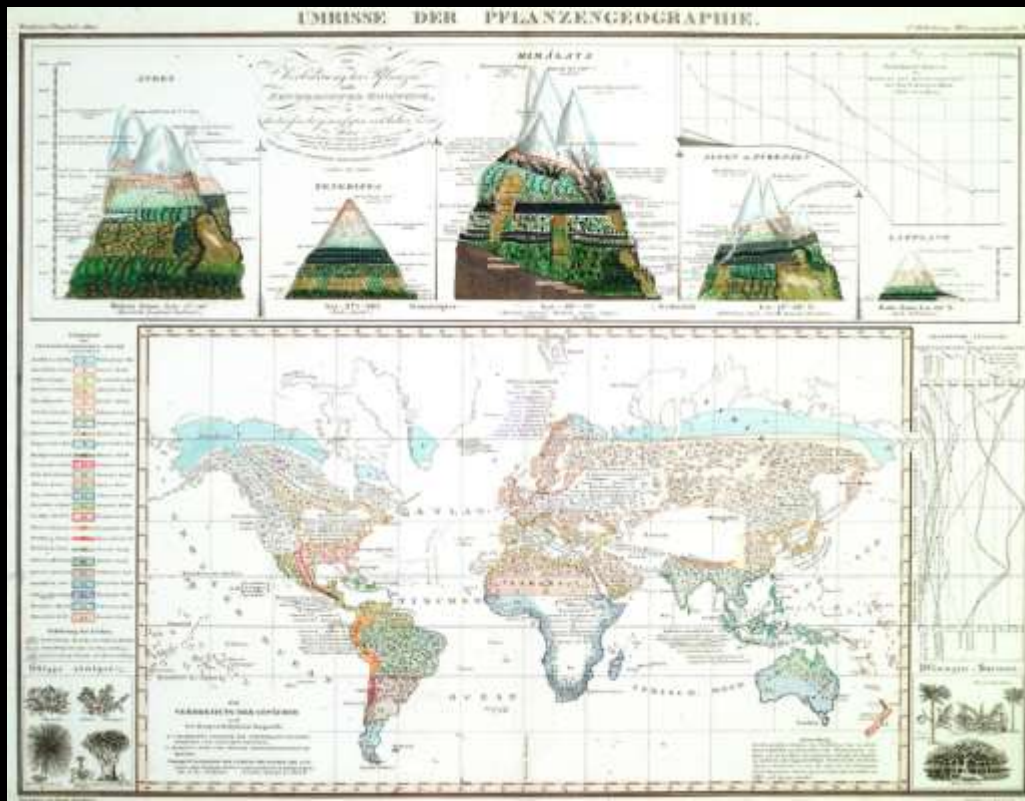


Humboldtian Science

To Explain How Nature Works - Order and Change in the Cosmos

“To discern the constancy of phenomena in the midst of apparent changes”

1. Explore – “Nature speaks and the scientist must go out and listen”
2. Collect – gather data for or against an idea/theory
3. Measure – widespread, accurate, collaborative
4. Connect – detect patterns that point to underlying laws
5. Cosmopolitan science – international collaboration



WILLIAM H.
GOETZMANN

*AUTHOR OF THE PULITZER PRIZE-WINNING
EXPLORATION AND EMPIRE*

NEW LANDS, NEW MEN

*AMERICA AND THE SECOND
GREAT AGE OF DISCOVERY*



"Humboldt's Children"

Humboldt the Scientific Model and Method

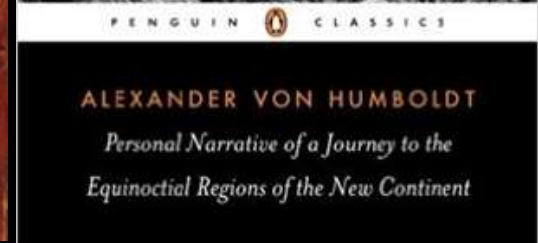
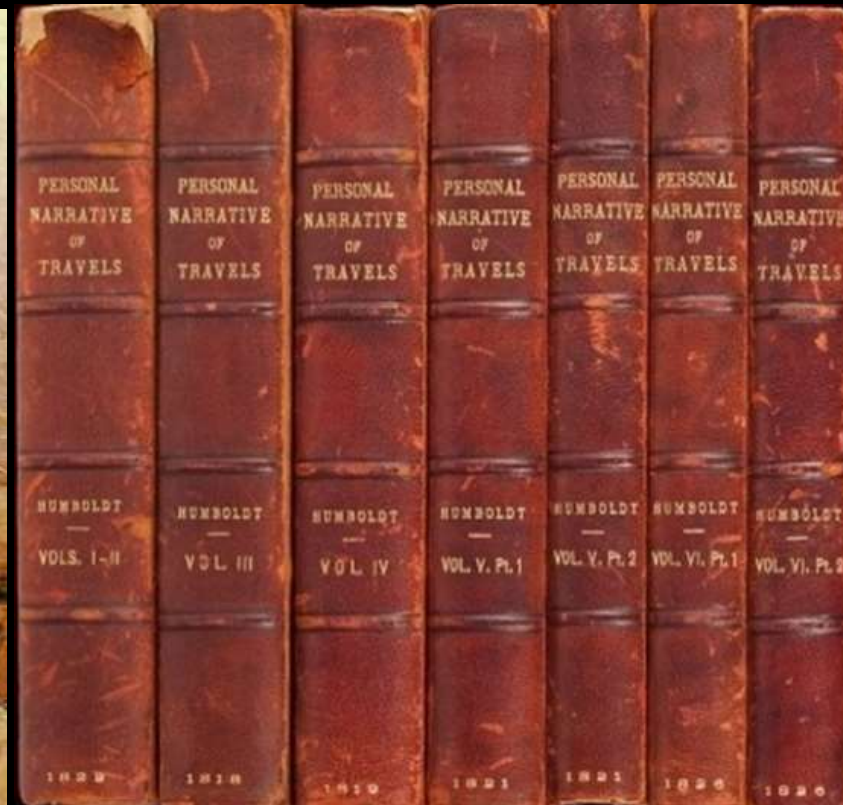
- "came to stand like a colossus over the scientific exploration and study of the continents"
- "provided a model and a method for organizing all the data that poured into Europe from the ever-increasing number of expeditions to all parts of the globe."



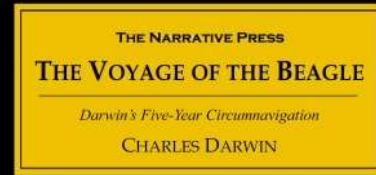
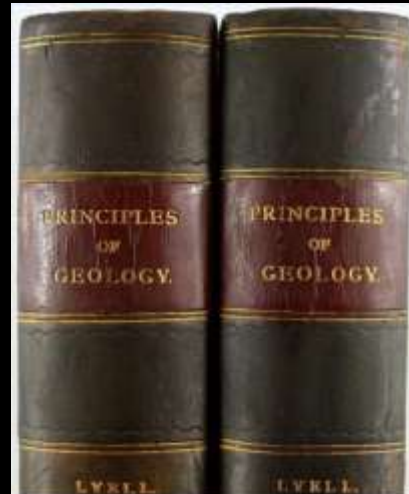
Humboldt's Progeny - Charles Darwin 1809-1882

Darwin's epitaph for his hero, written in a letter to his friend Joseph Hooker the year before Darwin's own death -

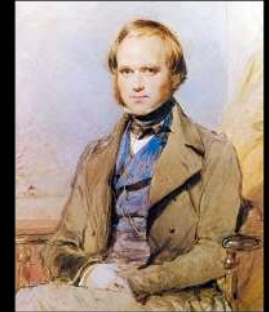
"I believe that you are fully right in calling Humboldt the greatest scientific traveler who ever lived. You might truly call him *the parent of a grand progeny of scientific travelers*, who taken together have done much for science.'



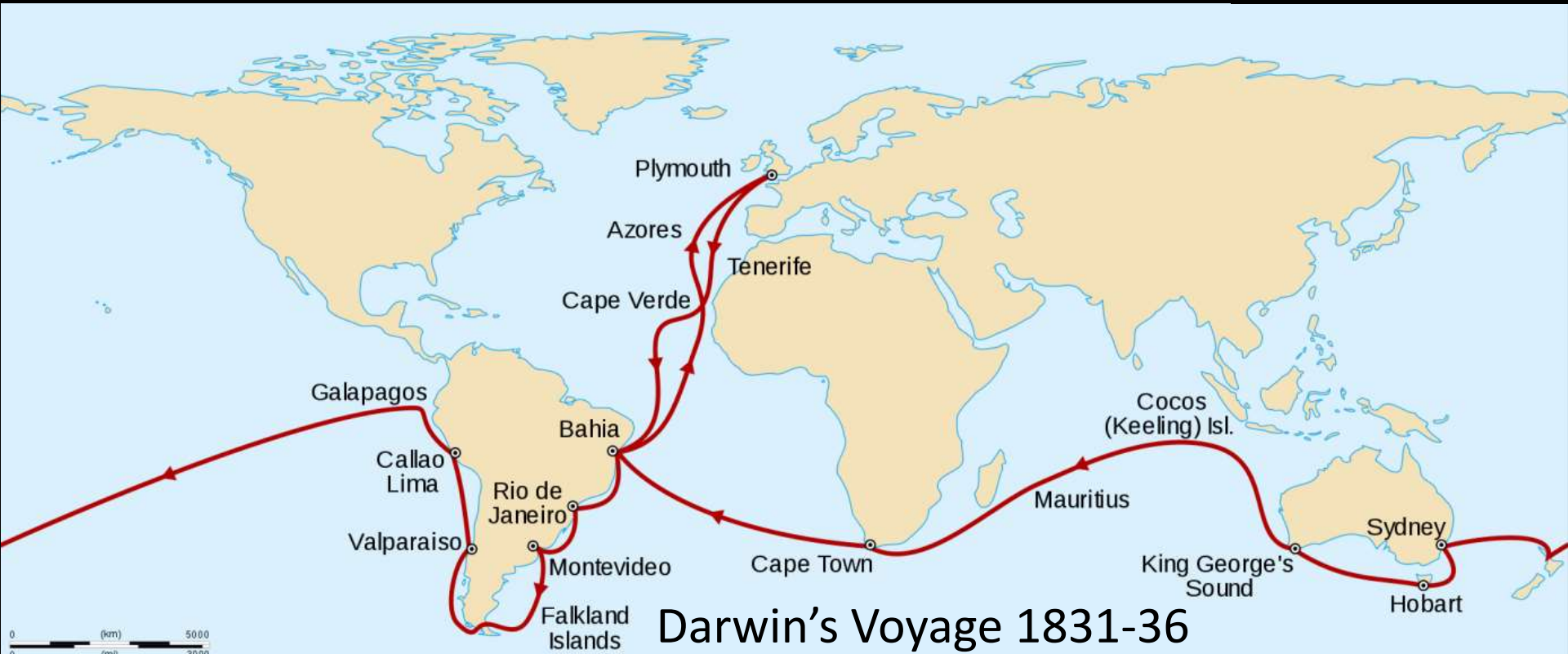
Humboldt's Progeny - Charles Darwin 1809-1882



The Voyage of the Beagle Published 1839



NUMBER 51 IN THE HISTORICAL ADVENTURE AND EXPLORATION SERIES



Darwin's Voyage 1831-36



Humboldt “the rare union of poetry with science”

“I spent a very pleasant afternoon lying on the sofa, either talking to the Captain or reading *Humboldt’s glowing accounts of tropical scenery*. — Nothing could be better adapted for cheering the heart of a sea-sick man.” (Dec 31, 1831)

Humboldt’s writing as “the rare union of poetry with science” and notes that “I am at present fit only to read Humboldt; he like another Sun illumines everything I behold.” (Feb 28, 1832)

Humboldt and Darwin – 40 Year Age Difference

In 1839, Humboldt sent a letter that Darwin prized as much as any he ever received. Humboldt wrote,

“You told me that, when you were young, the manner in which I studied and depicted nature in the torrid zones contributed toward exciting in you the ardor and desire to travel in distant lands. Considering the importance of your work, Sir, this may be the greatest success that my humble work could bring. ***Works are of value only if they give rise to better ones.***”

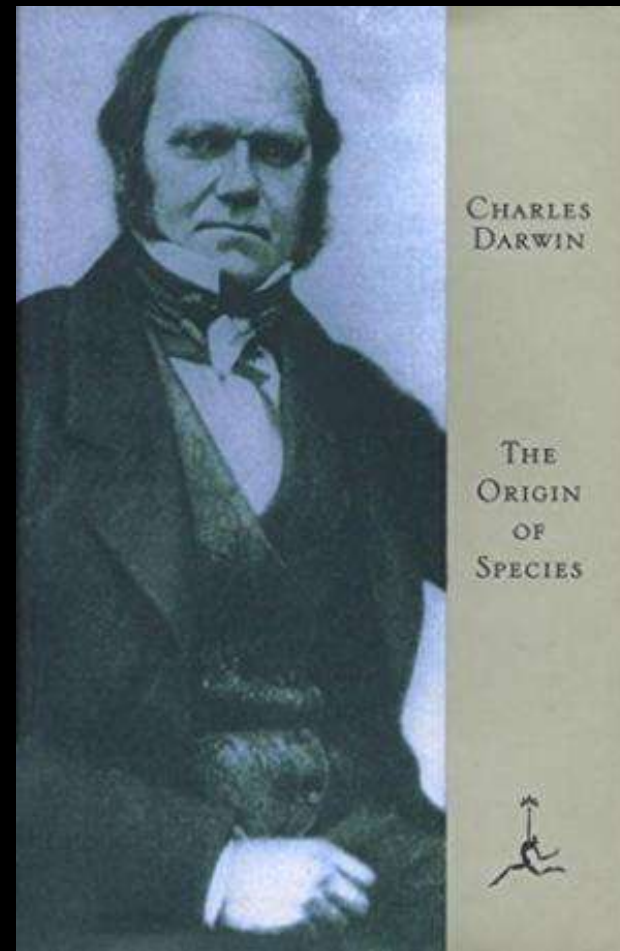
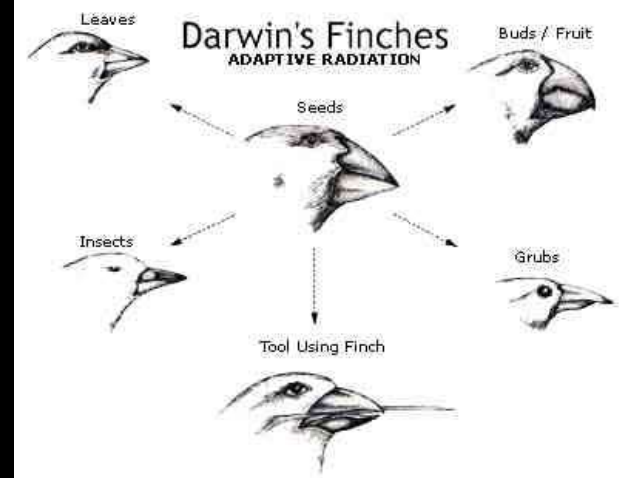
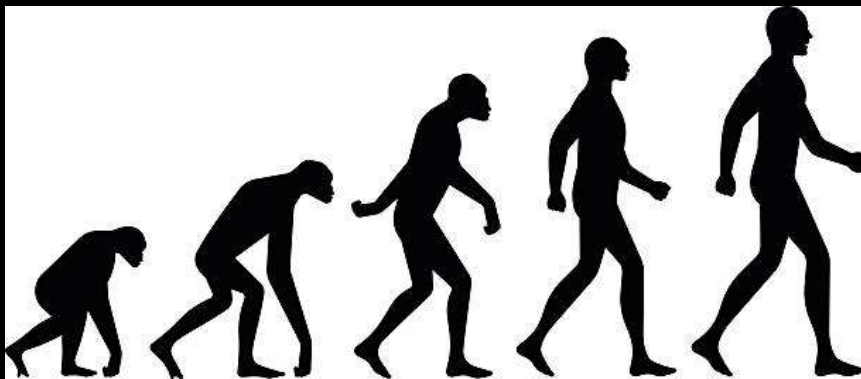


Darwin meets Humboldt 1842 – Darwin was 32, Humboldt 72

Biology – How Does Life Work?

Darwin and the Theory of Evolution 1838-1858

- During his voyage, Darwin was connecting patterns of geographical and historical distribution, and starting to doubt the stability of species.
- In September 1838 he conceived his theory of natural selection as the cause of evolution, then he worked privately on finding evidence and answering possible objections slowly working on his "big book" *Natural Selection*.
- He wrote out his ideas in an 1842 "pencil sketch" then in an essay written in 1844.
- He discussed transmutation with his friend Joseph Dalton Hooker, who read the essay in 1847.



Humboldt's (and Darwin's) Progeny - Biogeography and Evolution

Alfred Russel Wallace 1823-1913

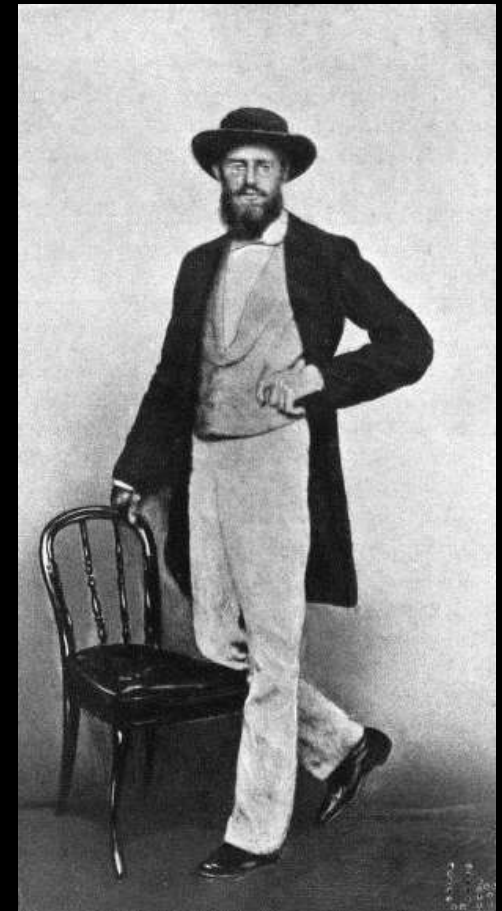
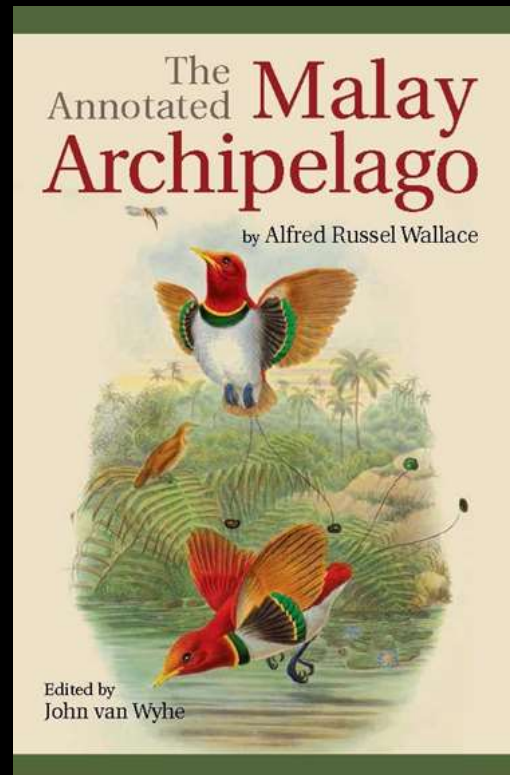
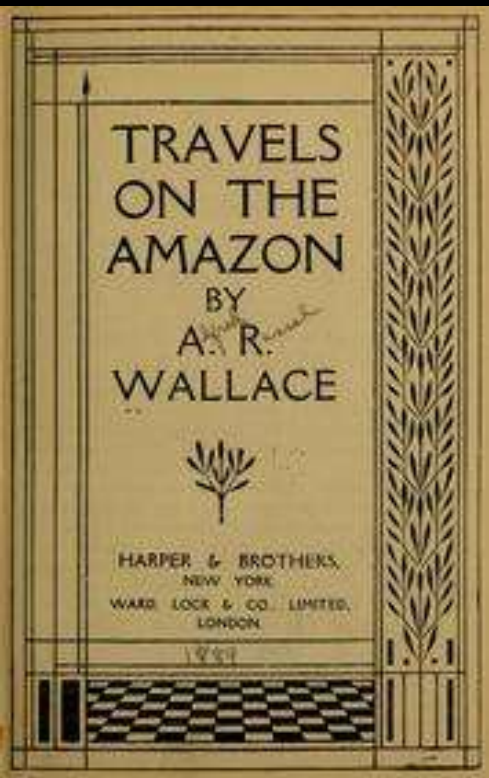
Cites two influences to travel to the tropics - Humboldt's *Personal Narrative* – “the first book that gave me the desire to visit the tropics” and Darwin's *Voyage of the Beagle*

Travels to the Amazon (1848-52)

Publishes *A Narrative of Travels on the Amazon and Rio Negro* (1853)

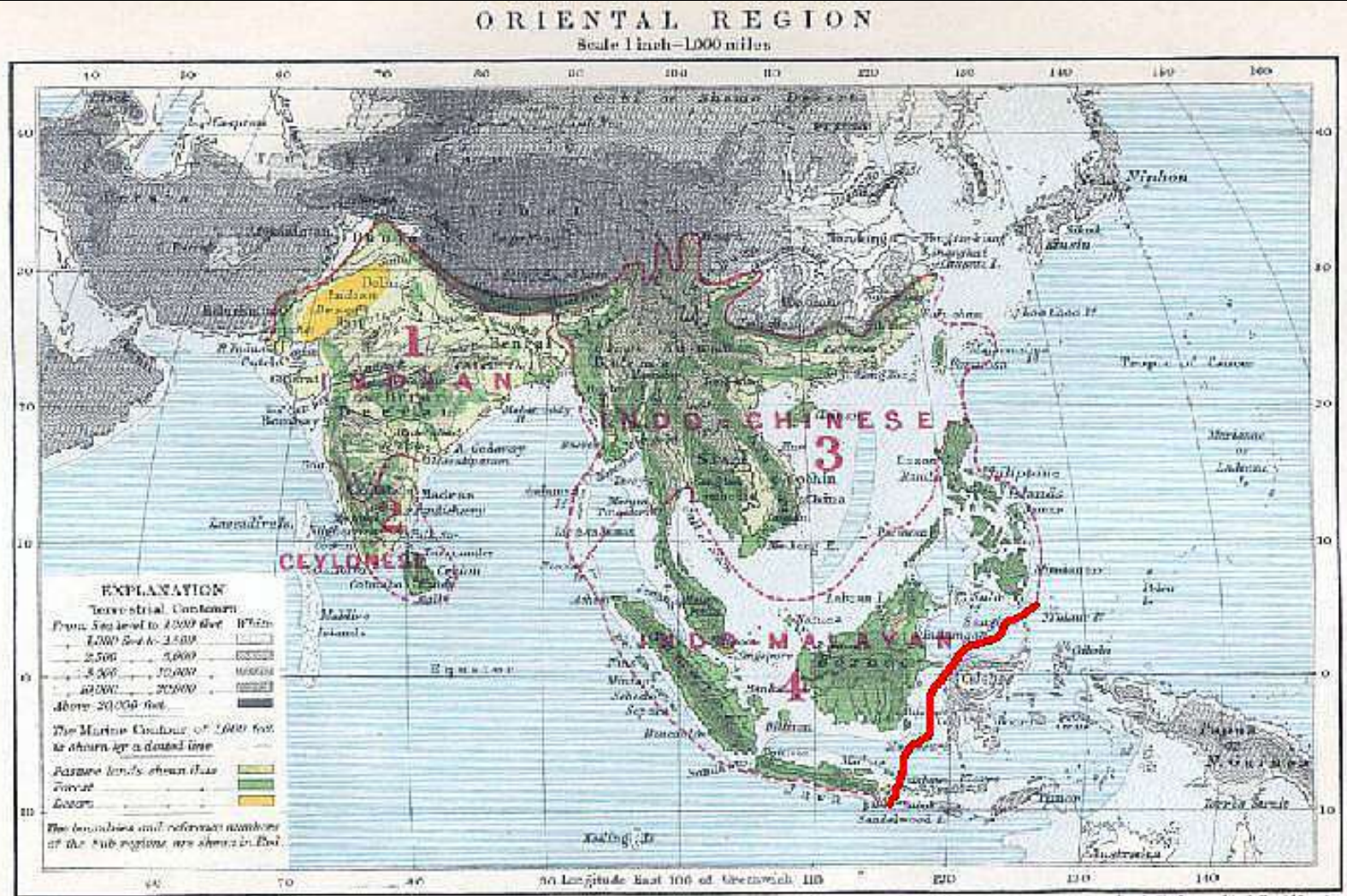
Travels to the Malay Archipelago (1854-1862)

Publishes *The Malay Archipelago* (1869)



Wallace - "Father of Biogeography"

Identified the "Wallace Line" that divides the Indonesian archipelago into two distinct parts, one in which animals closely related to those of Australia are common, and one in which the species are largely of Asian origin.

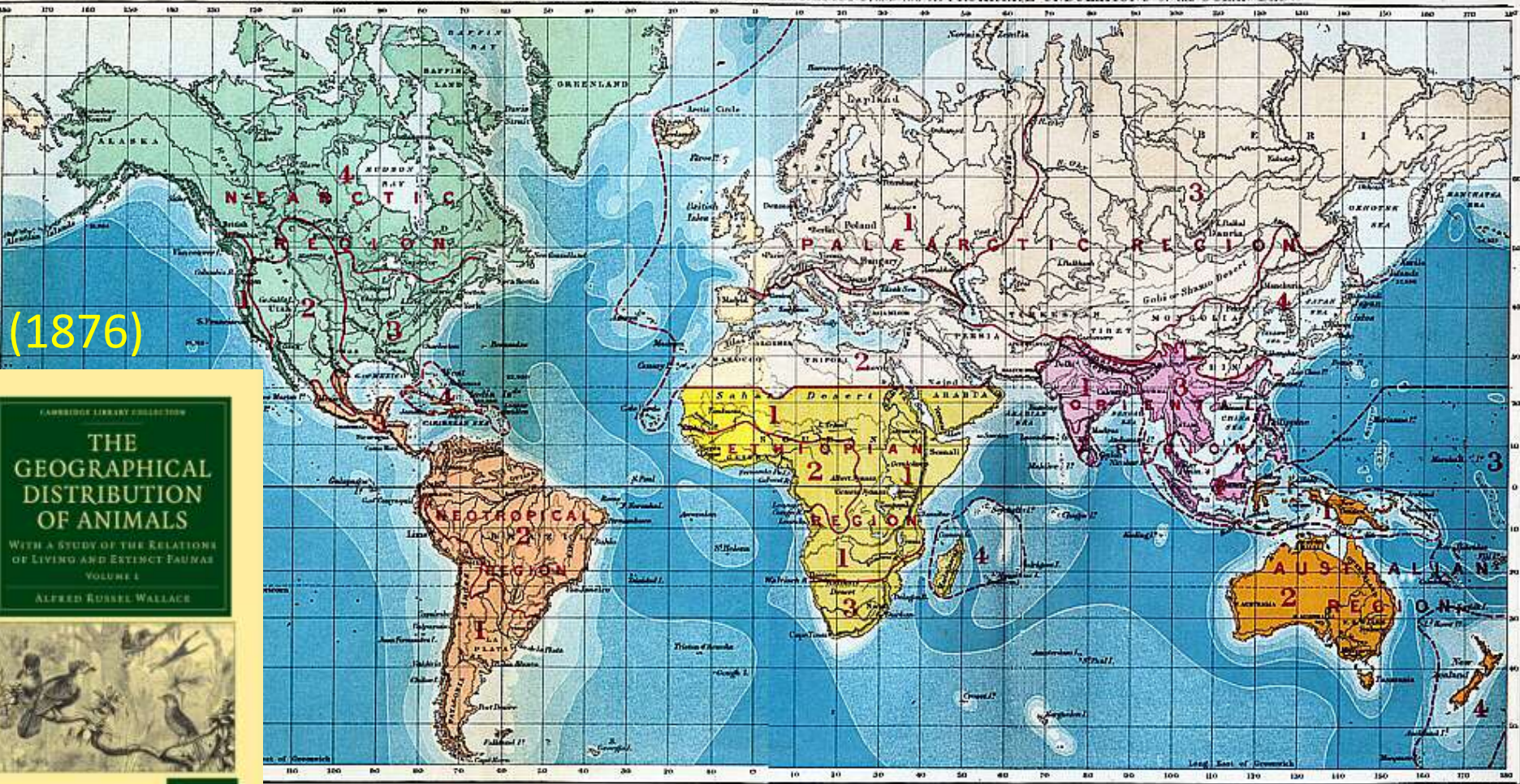




Wallace - "Father of Biogeography"

(1876)

THE WORLD ON MERCATOR'S PROJECTION SHOWING THE ZOOGEOGRAPHICAL REGIONS, AND THE APPROXIMATE UNDULATIONS OF THE OCEAN BED.



CAMBRIDGE LIBRARY COLLECTION

THE GEOGRAPHICAL DISTRIBUTION OF ANIMALS

WITH A STUDY OF THE RELATIONS OF LIVING AND EXTINCT FAUNAS

VOLUME I

ALFRED RUSSEL WALLACE



How Does Life Work? Darwin and Wallace

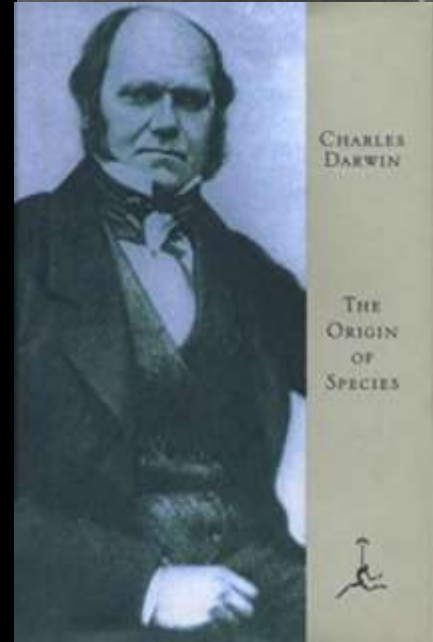
“Co-discovery” of the Theory of Evolution 1858

Wallace wrote his paper *On The Tendency of Varieties to Depart Indefinitely from the Original Type* in February 1858 and sent it to Darwin with a request to send it to someone for publication.

Co-discovery of the Darwin–Wallace theory of evolution by natural selection announced at a joint presentation of two scientific papers to the Linnean Society of London July 1858

- "On the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection" is published in the *Zoological Journal of the Linnean Society*, comprising - Wallace's paper and an *Extract from an unpublished Work on Species* from Charles Darwin's Essay of 1844.

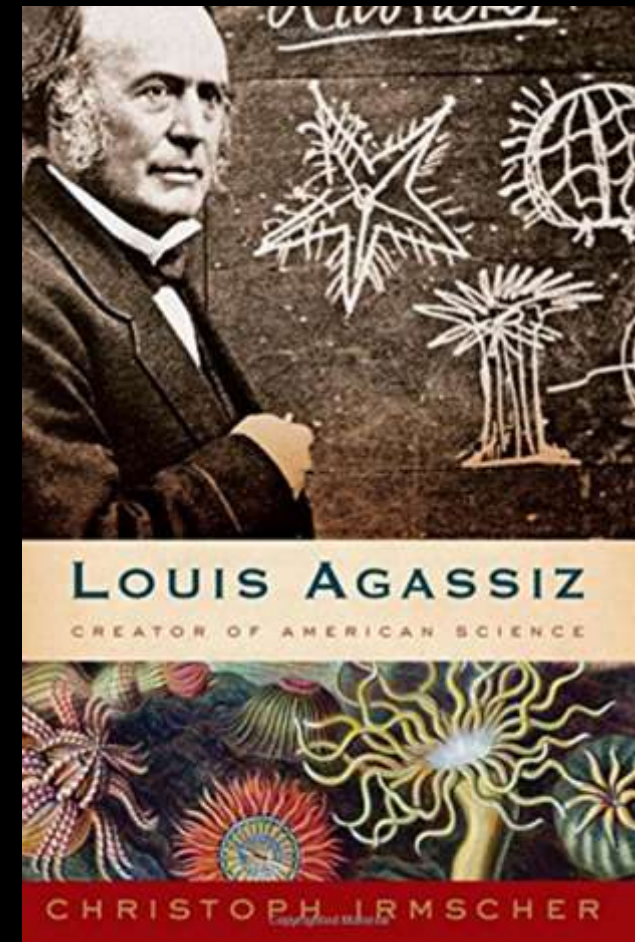
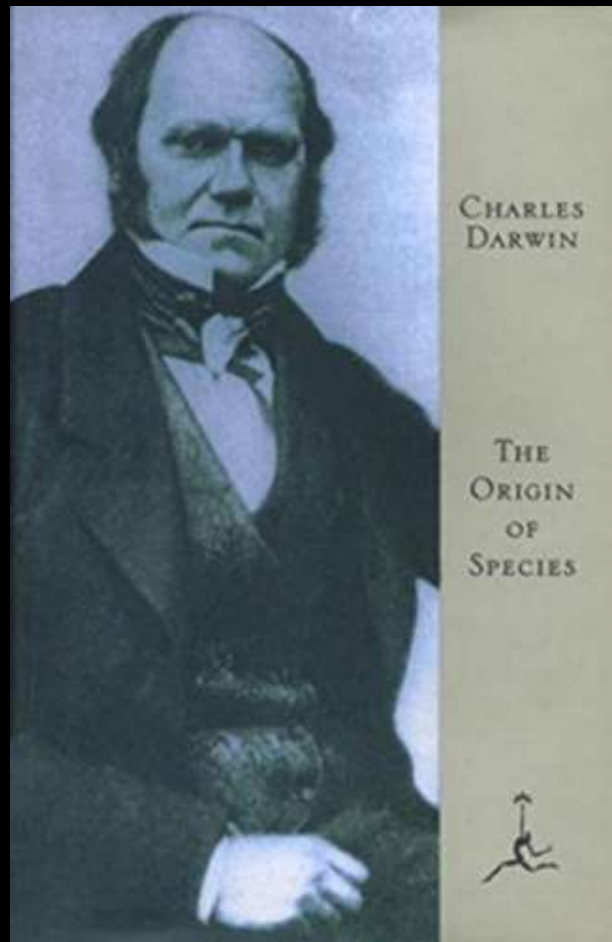
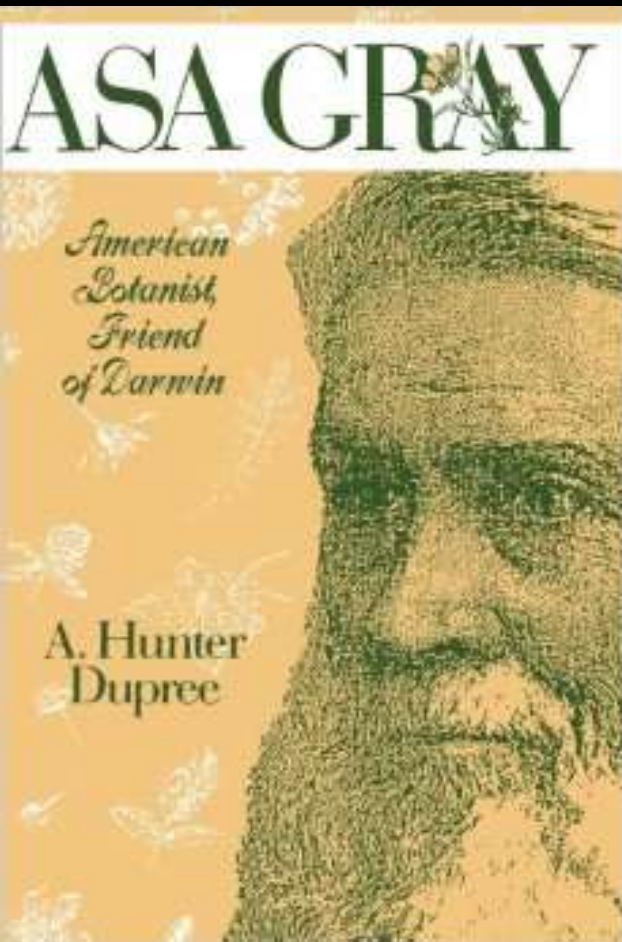
The American Connection - The article also includes an *Abstract of a Letter from Darwin to the American botanist at Harvard University* - **Asa Gray**



The American Connection

Emergence of American Biology and the Great Evolution Debate

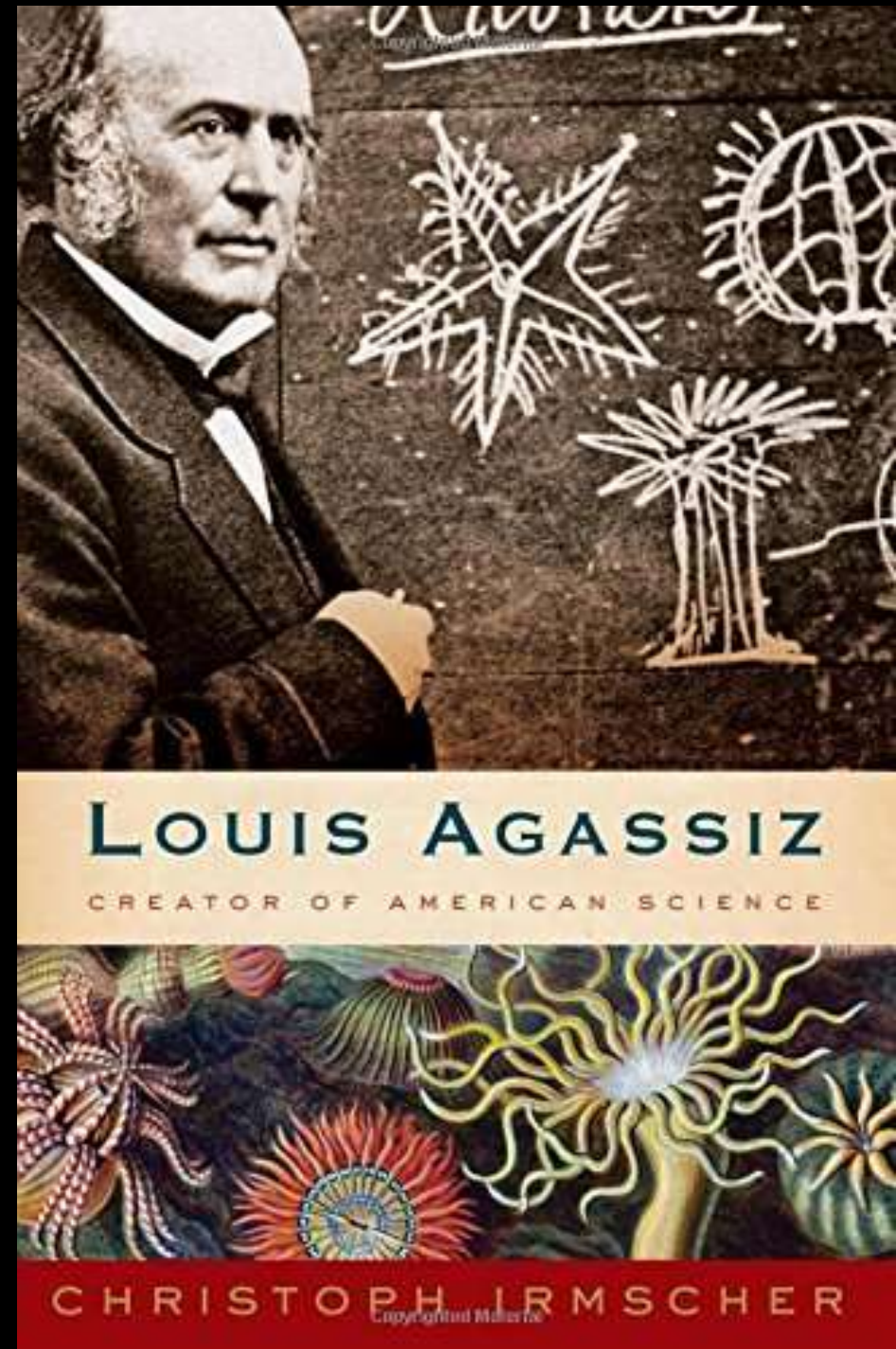
Humboldt's Progeny - Natives and Immigrants



The Immigrant

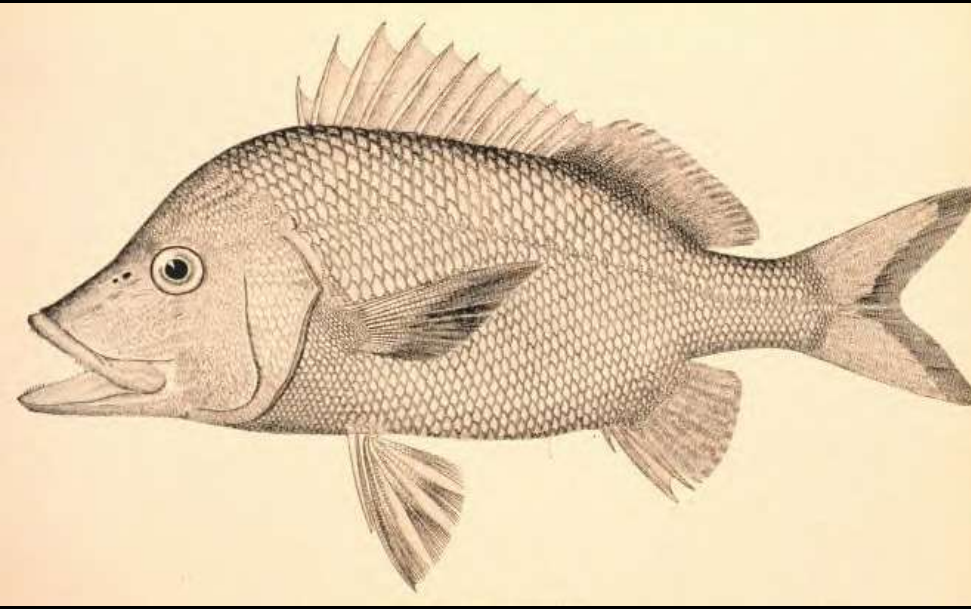
Louis Agassiz 1807 - 1873

- He grew up in Switzerland and studied in France during 1831-32 working closely with Cuvier on fossil fish at the Museum of Natural History in Paris.
- There he became friends with Humboldt, who made a large cash gift to help Agassiz continue his work.
- Later that year, he became a professor of natural history at University of Neuchâtel through Humboldt's support.



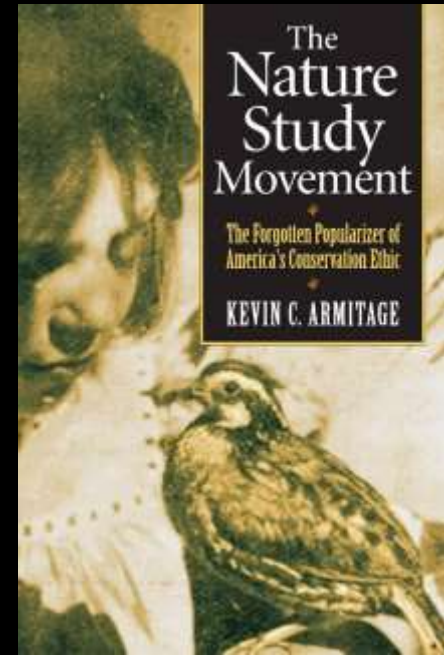
Louis Agassiz – Fish and Glaciers

- Marine Biology - Agassiz made extensive contributions to ichthyological classification (including of extinct species)
- Glaciology - In 1840, Agassiz published a two-volume work, *Études sur les glaciers* ("Studies on Glaciers") leading to the founding of glaciology.
- Unhappy in the shadow of Humboldt



Non-Natives and American Science

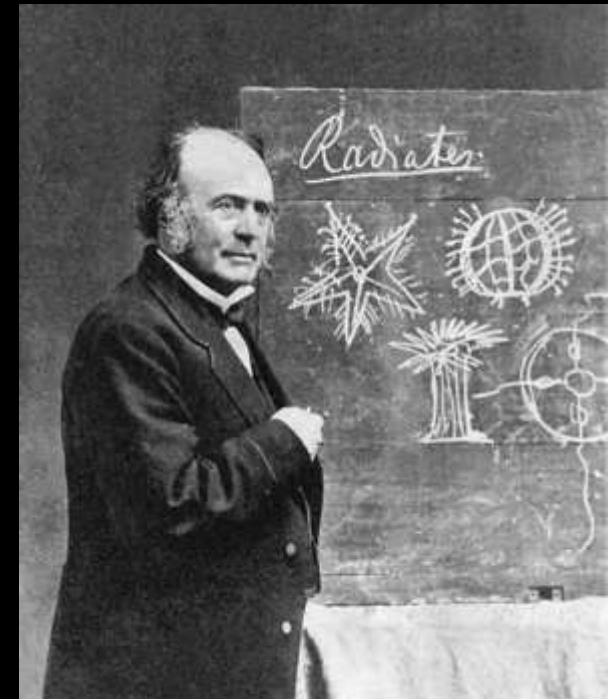
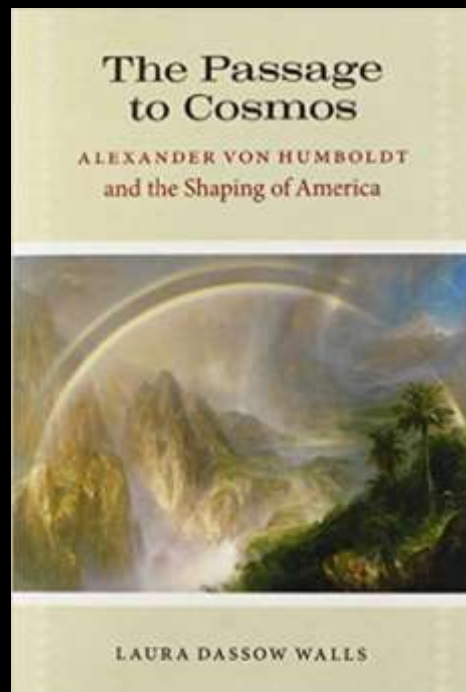
- In 1846 Agassiz came to the United States on a lecture tour supported by Humboldt which established his reputation in the US
- In 1847 he accepted a professorship at Harvard to be a professor of zoology and geology at Harvard and to head its Lawrence Scientific School.
- Popular Lectures - “Study Nature not Books” - His popular public lectures inspire the Nature Study movement in America – the beginning of American environmental education.
- In 1859 he founded the Museum of Comparative Zoology, which opened its doors in 1860. This was the first publicly funded science building in North America.



Agassiz vs. Humboldt – Creationism vs. Evolution

In his books, Humboldt makes no mention of God ,and “he took evolution for granted even as he was baffled by its cause.” – Walls *Passage to Cosmos* 2009

- Agassiz the Creationist - he taught that after every global extinction of life God created every species anew. “A species is a thought of the Creator”
- Argument from Design - Agassiz saw the Divine Plan of God everywhere in nature, and could not reconcile himself to a theory that did not invoke design.
- Special Creation - Agassiz staunchly supported the fixity of species and special creation of man – but separate creation of each race.



Agassiz vs. Humboldt – Racism vs. Anti-Racism

Polygenesis vs. Monogenesis

White Superiority and the Faces of Slavery

- Joseph Zealy daguerreotypes, photographs of South Carolina plantation slaves that were commissioned in 1850 by Agassiz (and ended up in the Harvard University anthropology museum).
- Agassiz wanted these photographs as evidence for *polygenesis*, the idea that human races had separate origins and were thus fundamentally different with whites superior.



Humboldt vs. Agassiz and Racism

- Humboldt was disgusted by Agassiz's views on race, slavery, and the superiority of white humans.
- In 1859 Humboldt wrote in the NYTimes, "I am half American; that is, my aspiration are all with you; but I don't like the present position of your politics. The influence of Slavery is increasing, I fear. So too the mistaken view of negro inferiority."



Natives – Gray and Humboldtian Science

Asa Gray 1810 – 1888

- Gray was born in Sauquoit, New York in 1810.
- Gray became an assistant to Torrey. Gray and his mentor John Torrey published *The Flora of North America* together in 1838.
- In 1838, Gray became the very first professor at the newly founded University of Michigan, appointed as Professor of Botany and Zoology.
- Gray was sent to Europe to purchase books to form the university's library and spends a year visiting botanical gardens and meeting European scientists.
- Darwin Friendship - In England he is hosted by the botanist William Hooker and meets his son, Joseph Dalton Hooker who in January 1839 introduces him to his friend, Charles Darwin, recently back from a voyage around the world. Gray and Darwin become friends.



ASA GRAY

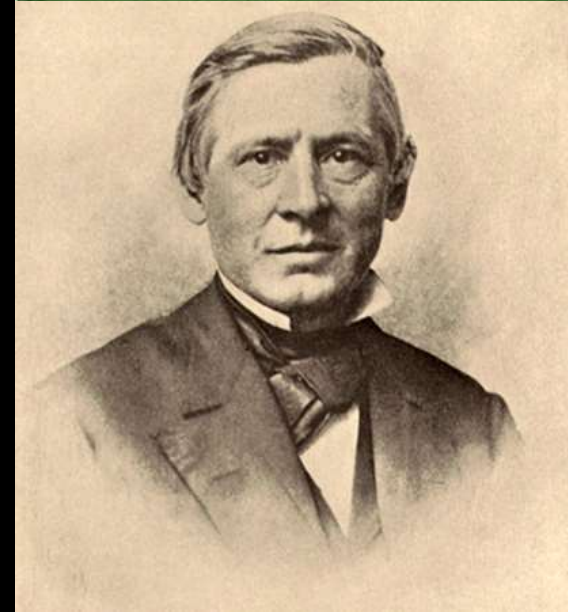
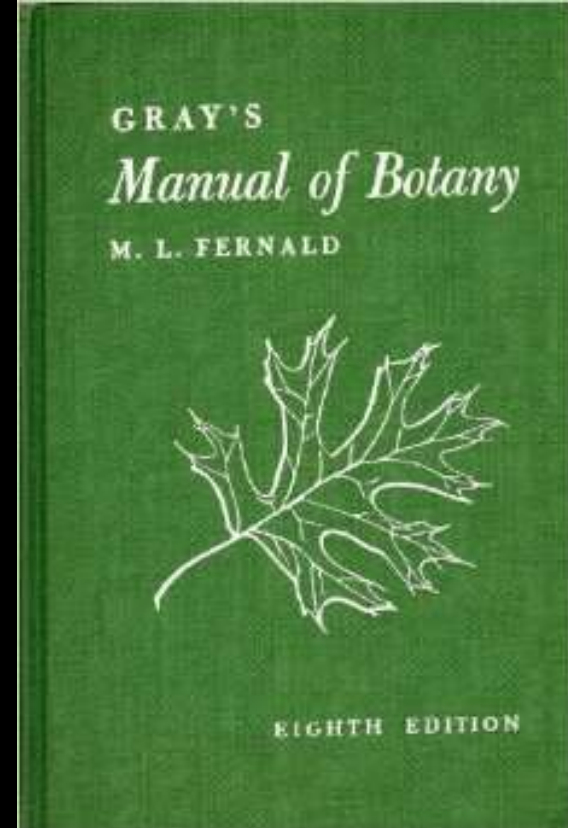
*American
Botanist,
Friend
of Darwin*

A. Hunter
Dupree



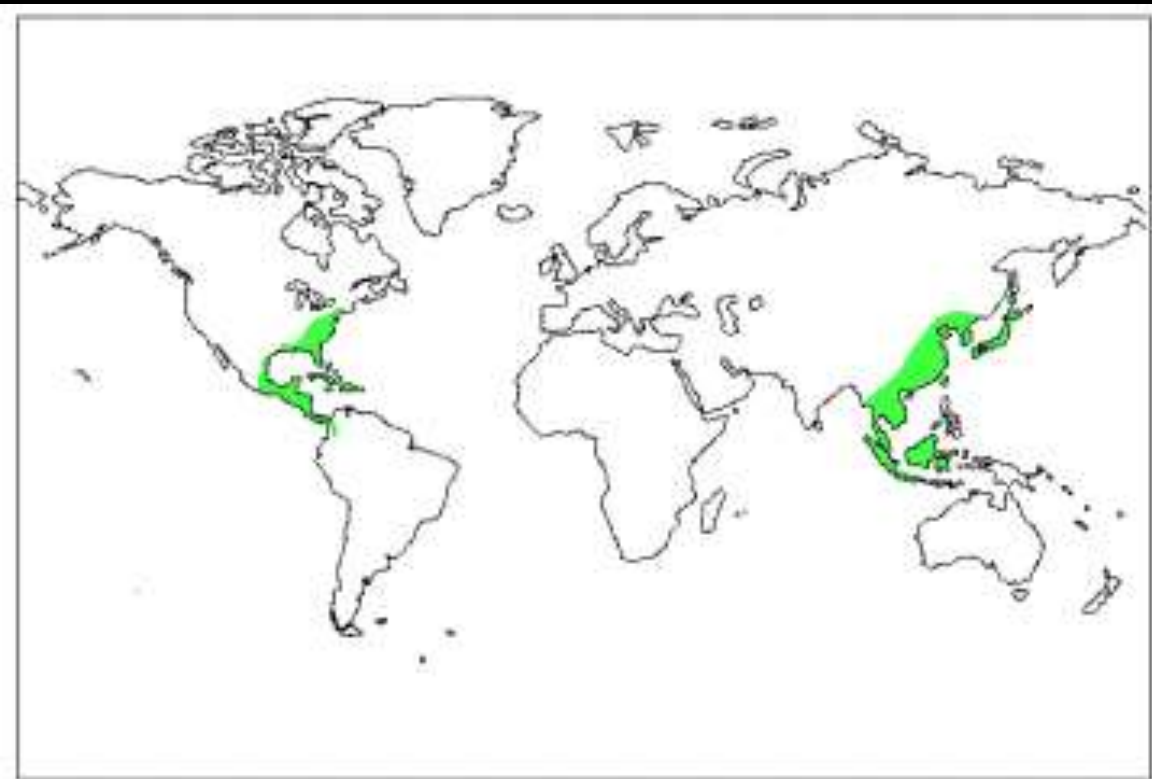
Harvard and Gray's *Manual of Botany*

- On returning from Europe, Gray discovers that the job in Michigan has evaporated, but that Harvard University has a position for him.
- In 1842 Gray hired as Fisher Professor of Natural History at Harvard to teach botany and superintendent of Harvard's botanic garden and herbarium. (Thoreau contributes 820 plant specimens)
- In 1848 publishes *Manual of the Botany of the Northern United States, from New England to Wisconsin and South to Ohio and Pennsylvania Inclusive*, commonly called *Gray's Manual*



The Asa Gray Disjunction and Darwin's Theory of Evolution

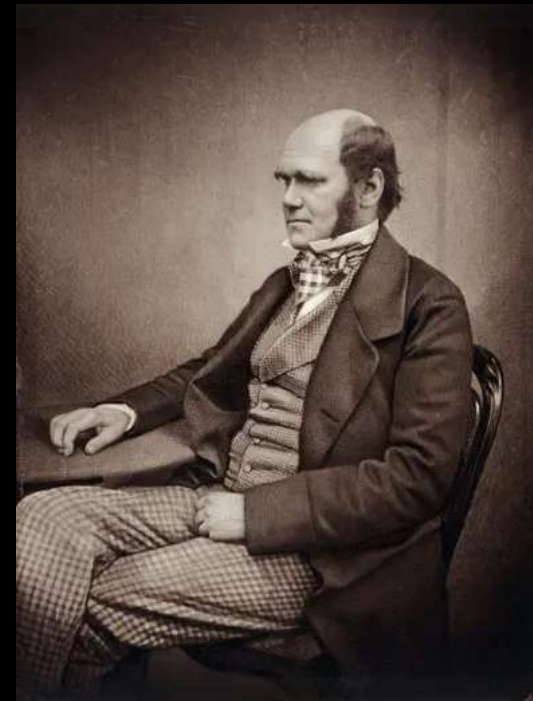
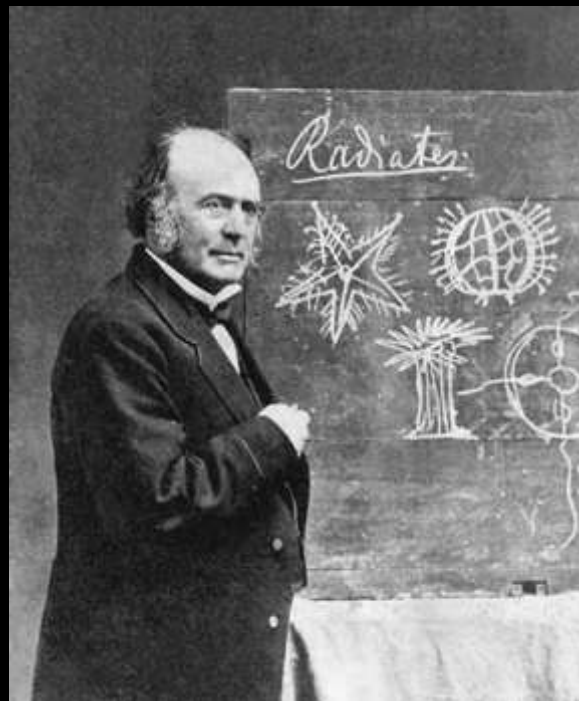
- Gray's 1859 essay on the floristic connections between Japan and the United States established his international reputation as a scientist.
- The Asa Gray Disjunction – the morphological similarities between many eastern Asian and eastern North American plants.
- Gray-Darwin Correspondence - Between 1855–1881 Gray and Darwin exchanged about 300 letters. Darwin prompts him to focus on the Disjunction, and his research gave significant support to Darwin's theory of evolution.



Polygenesis vs. Monogenesis

Slavery and Human Evolution

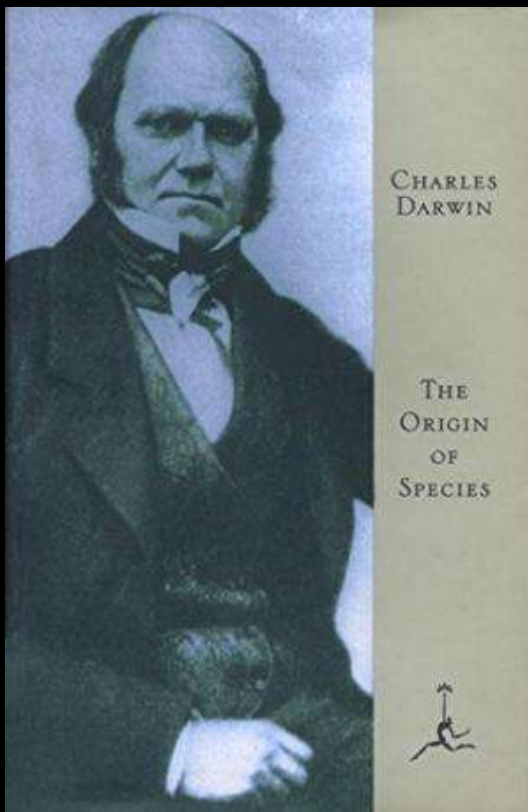
- Gray and Darwin abhorred slavery. Gray disagreed with Agassiz about polygenesis and racial inferiority.
- Biology as a science proved the unity of all humans because all human races can interbreed and produce fertile offspring - all members of a species are connected through natural selection.
- But biology needed a scientific theory of evolution through natural selection to explain how life works – and refute Agassiz.



Gray and the Theory of Evolution - Darwin's Letter to Asa Gray July 1857

"As you seem interested in subject, & as it is an immense advantage to me to write to you & to hear ever so briefly, what you think, I will enclose (copied so as to save you trouble in reading) ***the briefest abstract of my notions on the means by which nature makes her species...***

In regard to my abstract you must take immensely on trust; each paragraph occupying one or two chapters in my Book. You will, perhaps, think it paltry in me, when I ask you **not to mention my doctrine...**"



The Great American Evolution Debate

Gray vs. Agassiz

- The publication of Darwin's letter to Gray and Gray's support of Darwin and the theory of evolution prompted fierce debate in America...and between Agassiz and Gray.
- In a May 1859 meeting of the Cambridge Scientific Club, Gray began the debate –
- "To see how it would strike a dozen people of varied minds and habits of thought, and partly, I confess, maliciously to vex the soul of Agassiz with views so diametrically opposed to all his pet notions."
- Gray explicated Darwin's theory directly, summarizing and reading parts from Darwin's Linnean Society paper and the abstract Darwin had sent him, presenting Darwin's theory of evolution and natural selection and noting once again that this view of species creation directly contradicted Agassiz's theory of divine creation.

A Wrangle OVER DARWIN

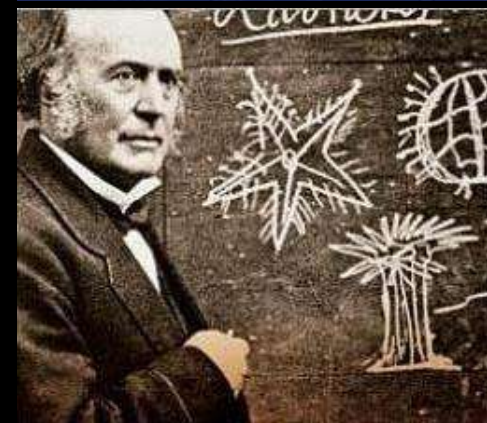
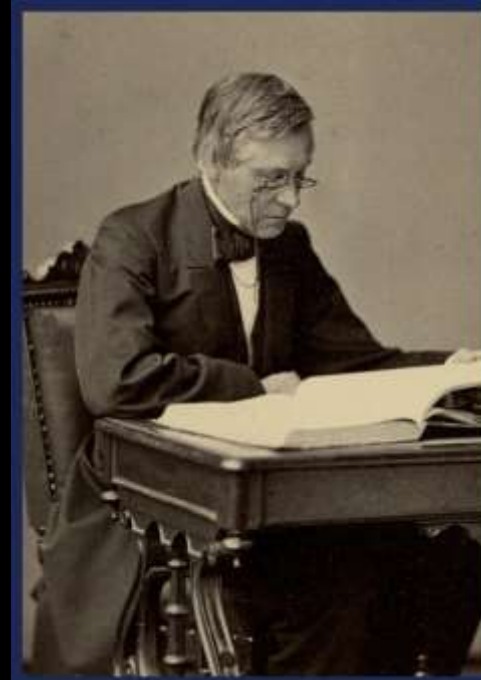
How evolution evolved in America

by DAVID B. WILLIAMS



The Debate 1860-66

- Darwin sends Gray *Origin of the Species* in December 1859. Gray oversees the copyright and publication of the book in America.
- Gray publishes a positive review of *Origin of the Species* in the March 1860 issue of the *American Journal of Science*.
- Agassiz's publishes a rebuttal of Darwin and Gray in the *American Journal of Science* July 1860, defending a creationism.
- Special Creationism - Agassiz launched his public attack on Darwin at the American Academy of Arts and Sciences on January 10, 1860, arguing that **modern species and fossil species had no evolutionary relationship**. This tenet was central to the theory of special creationism, which held that **God had created each and every species in its current location**. Species did not change through time, but they did become extinct and God created new ones.
- Between 1861 and 1866 Agassiz gave scores of lectures and published four books and twenty-one articles asserting his brand of creationism.



LOUIS AGASSIZ
CREATOR OF AMERICAN SCIENCE

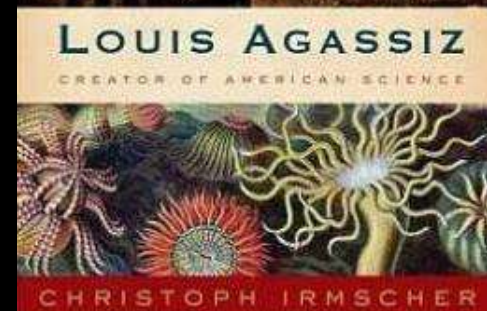
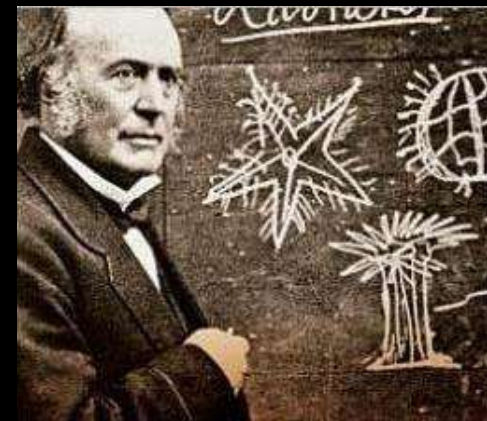
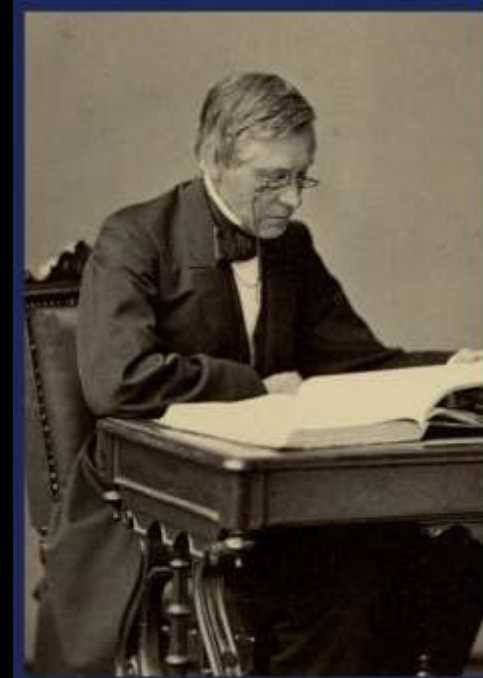


Agassiz Defeated and American Empirical Biology

The Triumph of Humboldtian Science

“Nature speaks and the scientist must go out and listen”

- As the debate raged over Darwin's theories, the rift between Gray and Agassiz grew deeper, and they were estranged by December 1863, when Gray was elected president of the American Academy of Arts and Sciences, which also marked Agassiz's increasing isolation within the scientific community.
- “Agassiz exposed his close-mindedness and a hostility to the inquisitive, empirical basis of biology. Should someone who so proudly closed his mind to a productive idea stand as an icon of American science? More and more colleagues thought not.” Irmscher
- By Agassiz's death in 1873, Darwin's theory as championed by Gray was broadly accepted by American biologists.



HUMBOLDT.

The One Hundredth Birthday of
the Philosopher.

Celebration Generally Throughout
the Country.

Unveiling of the Bust at the
Central Park.

ORATION BY DR. FRANCOIS LIEBER.

Processions, Banquet and Speeches
in this City.

EXTENSIVE OBSERVANCES IN BOSTON.

Eulogistic Address by Professor
Agassiz.

IN THIS CITY.

Extent of the Observances—Decorations
in the City and on the Shipping—
Leading Features of the Celebration.

Humboldt Celebrated then Forgotten in America

Died in 1859, six months before Darwin's *Origin of Species* was published.

In 1869, the centennial of his birth was celebrated across the globe, from Moscow to Mexico City and, in the United States, most cities hosted celebrations, with 10,000 people joining President Grant in Pittsburgh while 15,000 attended in New York City.

Why forgotten? Shift in the character of science, the style of Humboldt's written work and the rise of anti-German sentiment and move to "de-Germanize" the United States in the early twentieth century (WWI and WWII)



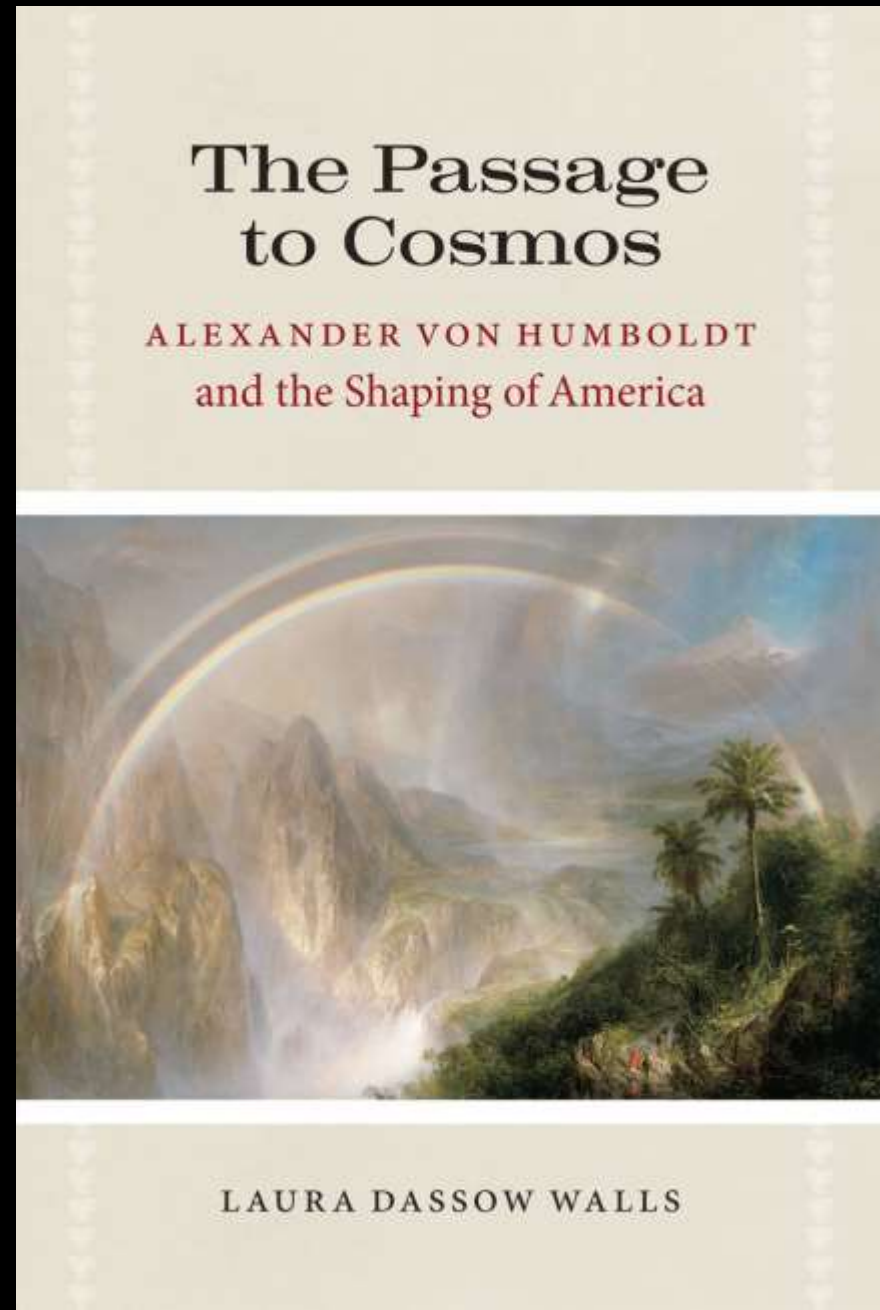
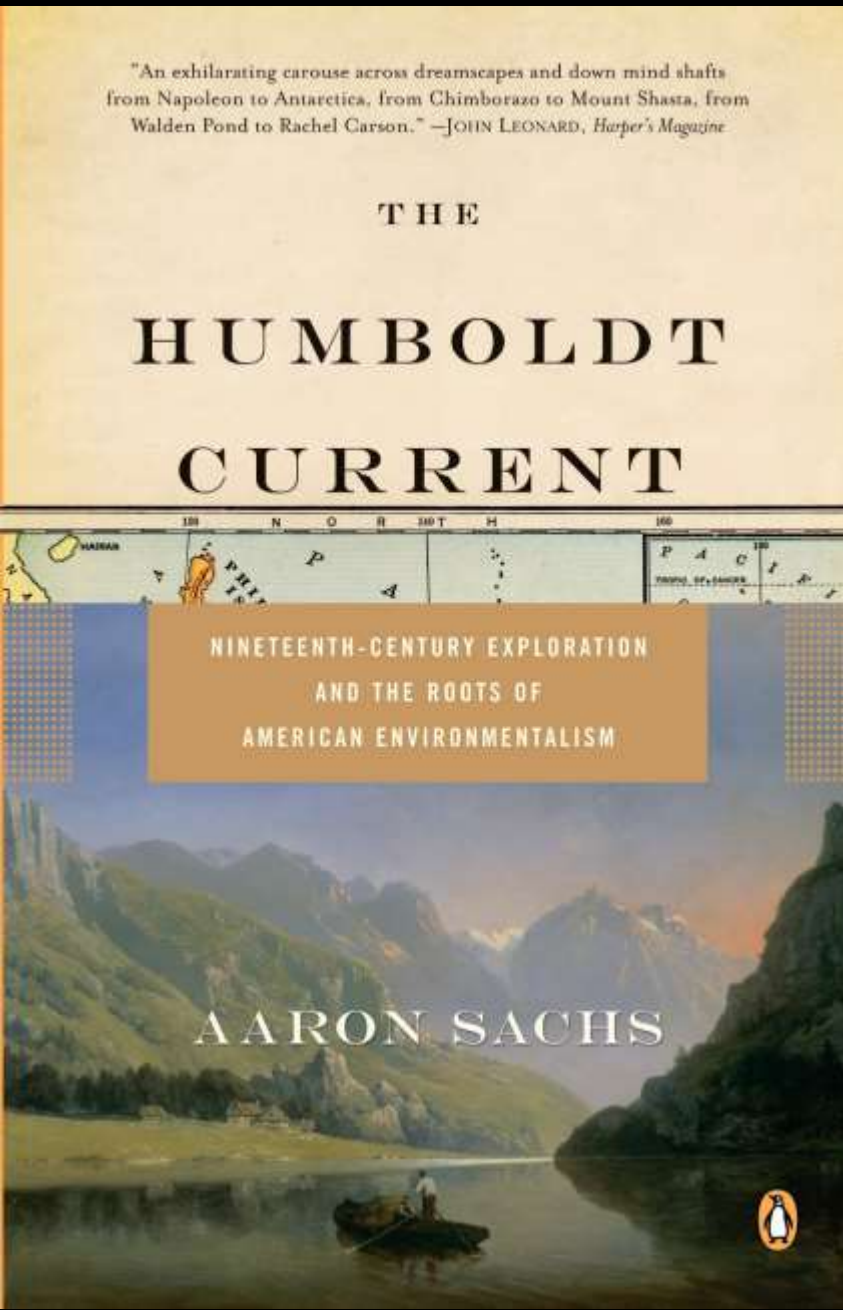
FIG. 1—The entire front page of the 15 September 1869 *New York Times*, on which these headlines appeared, was given over to coverage of the Humboldt celebrations in New York and other U.S. cities, as was additional space in that day's issue.



The Unity of Nature - The Earth as a Nature Whole

“In the forests of the Amazon River, as on the edges of the high Andes, I got the feeling - that, as if animated by a spirit from pole to pole, one single life has been infiltrated into stones, plants and animals, as well as in the swelling breast of mankind.”

Humboldt's Influence on the United States



The Passage to Cosmos

ALEXANDER VON HUMBOLDT
and the Shaping of America



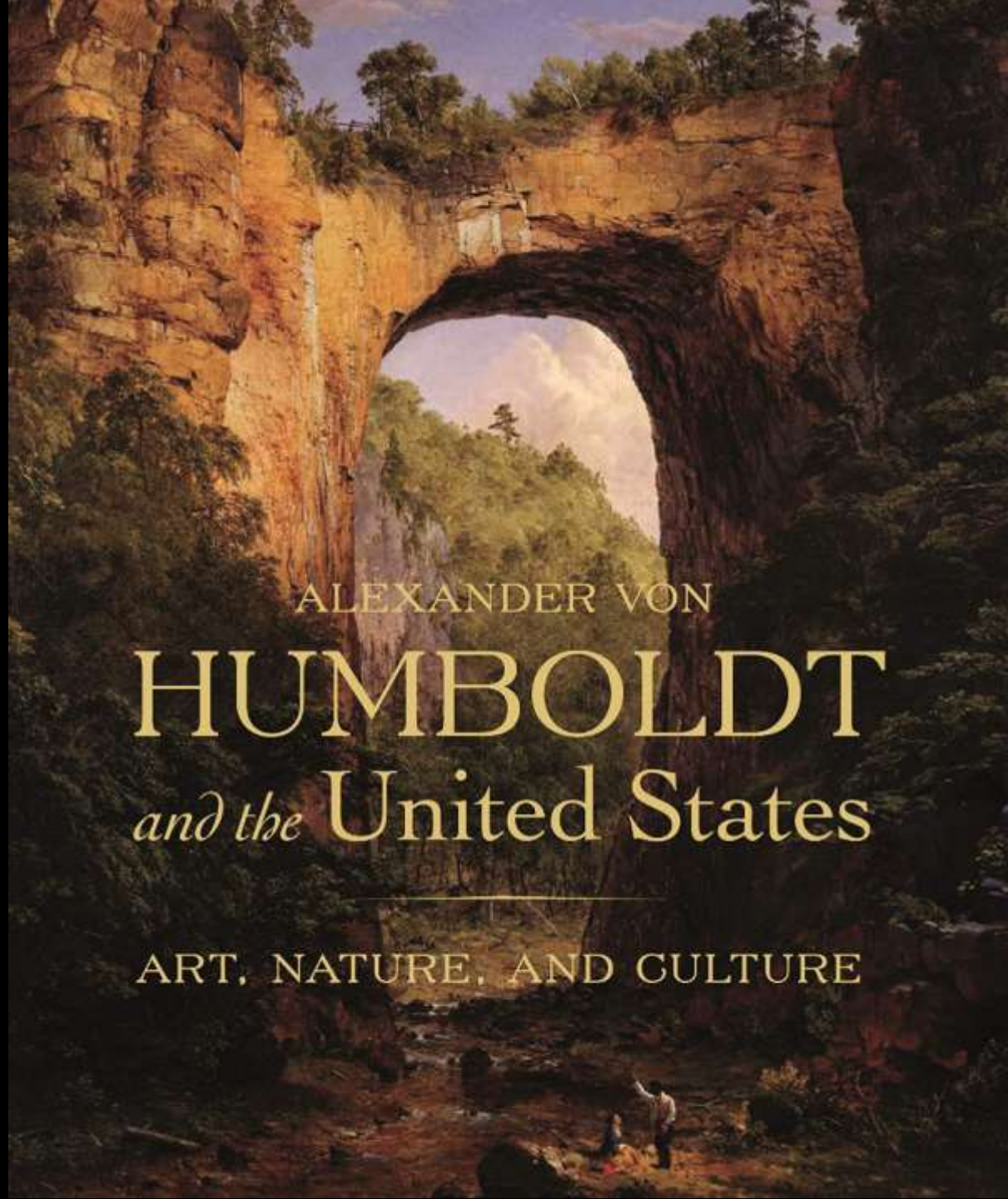
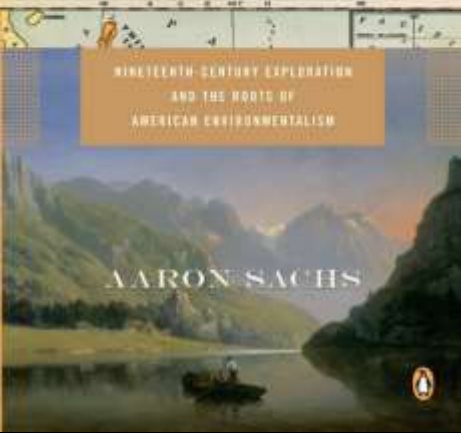
LAURA DASSOW WALLS

"An exhilarating journey across dreamscapes and down into the depths
from Napoleon to Antarctica, from Chateaufort to Mount Shasta, from
William Penn to Rachel Carson." —*John L. Johnson, Harper's Magazine*

THE HUMBOLDT CURRENT

NINETEENTH-CENTURY EXPLORATION
AND THE ROOTS OF
AMERICAN ENVIRONMENTALISM

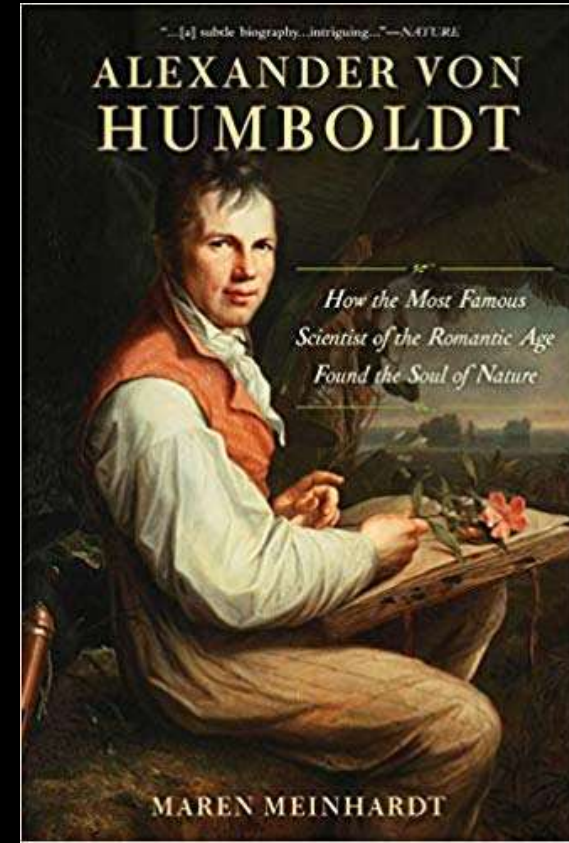
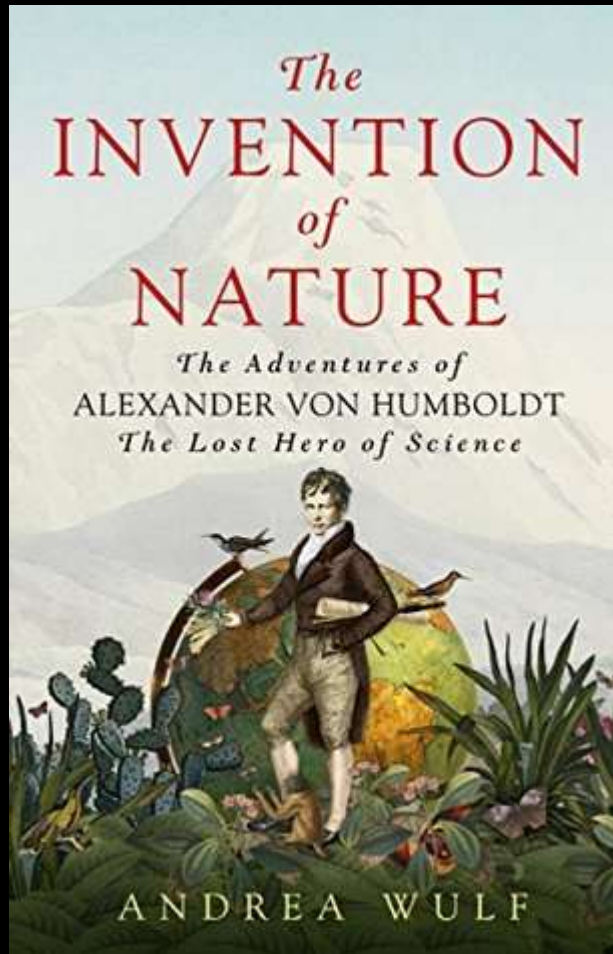
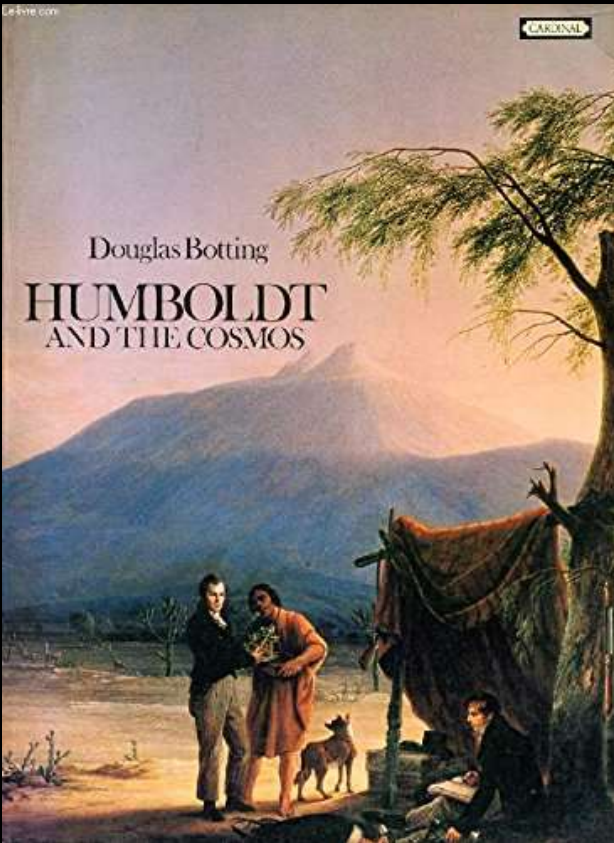
AARON SACHS



ALEXANDER VON HUMBOLDT *and the* United States

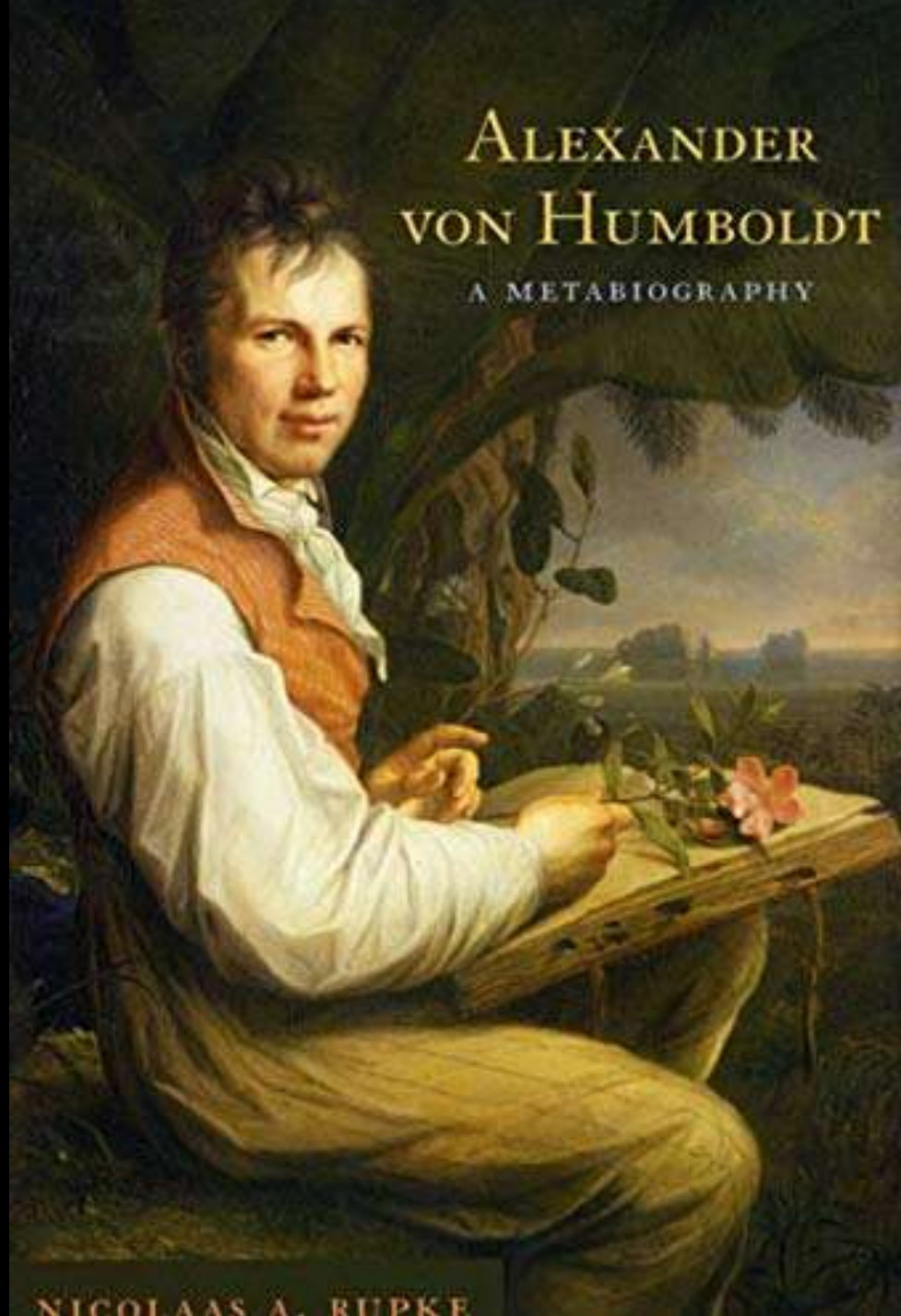
ART, NATURE, AND CULTURE

Biographies



ALEXANDER VON HUMBOLDT

A METABIOGRAPHY



NICOLAAS A. RUPKE



PENGUIN  CLASSICS

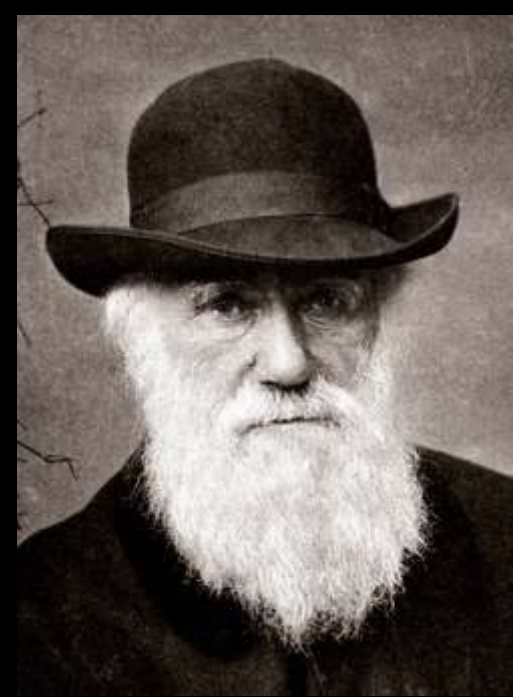
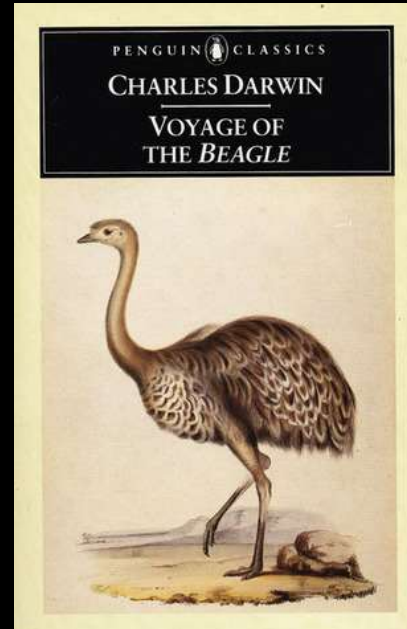
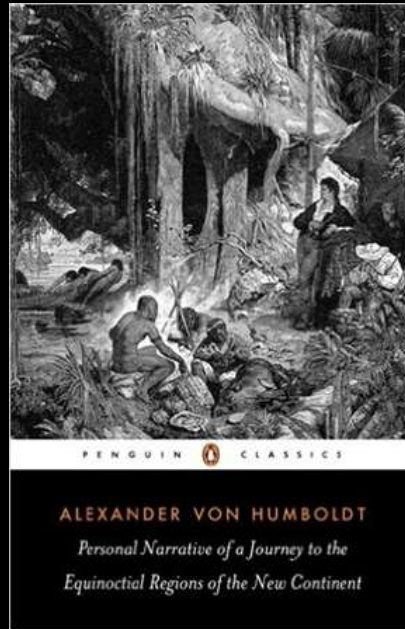
ALEXANDER VON HUMBOLDT

*Personal Narrative of a Journey to the
Equinoctial Regions of the New Continent*





Humboldt's Progeny - Charles Darwin



There is no better proof of how Darwin treasured Humboldt's *Personal Narrative* to the end of his life than his ink note written inside the back cover of volume 3 of his own copy: "July 6 1881 to p. 417 – April 3rd 1882 finished".

He was too ill in the following weeks to do more reading, and so Humboldt's book was one of the last Darwin read - or in this case re-read – before he died.

Darwin died on 19 April 1882.

