



Landscapes

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People: John Wesley Powell, Mary Somerville, Louis Agassiz, Mary Agassiz, Arnold Guyot, William Morris Davis, Grove Karl Gilbert, Nathaniel Shaler

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Visit <https://geo-context.github.io> for the teacher's companion guide to these slides.

Geomorphology: the study of landscapes

Landscapes were studied by many scientists, who helped develop the geoscience discipline in the 19th century

- [John Wesley Powell](#) (U.S. Geologic Survey Director)
- [Mary Somerville](#) (first physical geography textbook 1848)
- [Louis Agassiz](#) and [Nathaniel Shaler](#) (professors at Harvard, trained many scientists)
- [Arnold Guyot](#) (founding professor of geoscience at Princeton)
- Grove Karl Gilbert (president of Geologic Society of America)
- [William Morris Davis](#) (president of Geological Society of America)

Backdrop to 19th century research and teaching on landscapes:

Imperialist projects, including government-sponsored expeditions, which sought to describe topography/landscapes in territories to justify who should live on and use the land

→ [many](#) of these scientists were involved in research in **scientific racism**, for example using physical geography to designate the inferiority or superiority of human races that evolved on different landscapes

John Wesley Powell

- Led the 1869 Powell Expedition, the first U.S. government-sponsored expedition through the Colorado River into the Grand Canyon
- Contributions of the local native people downplayed in Powell's accounts, including knowledge of the land (a main objective of the expedition)
- Studies on language of the Ute people inhabiting canyonlands sought to prove the inferior "barbaric" status of Native American culture
- Government reports recommended Native American assimilation; Later Powell established the U.S. Bureau of Ethnography
- Accompanied by Grove Karl Gilbert on later expeditions to the Rocky Mountains

"... next to teaching them to work, the most important thing is to teach them the English language. Into their own language there is woven so much mythology and sorcery that ... the ideas and thoughts of civilized life cannot be communicated to them in their own tongues."

— Powell, Report on the condition of the Ute Indians of Utah, 1873



Powell poses with Tau-Ruv, a Ute woman, with a mirror case. Clothing worn by both sewn by Powell's sister for Smithsonian Museum. Photograph by Hillers, 1874.

William Morris Davis and Race

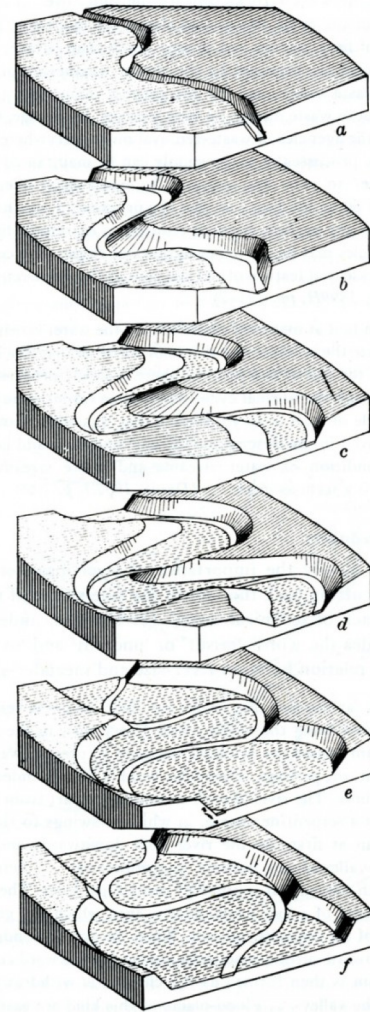
- Proposed concept of a river's "life cycle" from young to mature describing stages of river evolution through time.
- Wrote geography textbooks (e.g. Elementary Physical Geography, 1902) connecting topography and climate to superiority/inferiority of human races.
- These ideas motivated Earth system studies, influencing scientists and politicians that tried to explain perceived racial differences in physical, mental, and moral attributes by climate and geography
- This concept of "environmental/geographic determinism" ultimately inspired the Nazi slogan "Blood and Soil", used to justify eugenics program

*"The study of physical geography...gives a knowledge ...so that we may better understand the relation of man and nature. This relationship is of great importance because the **progress of man from the savage toward the civilized state has been made by taking advantage of favorable geographical conditions.**"*

"Few nations among [black, brown, red] races have made important advances towards civilization."

"Inhabitants of [North America] were savages who did not know how to develop its riches..."

- William Morris Davis, *Elementary Physical Geography*, 1902



William Morris Davis, *Physical Geography*, 1898 (Fig 152)

Early landscape geologists and scientific racism

Scientific studies by early 19th century geologists included creating and justifying racial hierarchies

- *Louis Agassiz*: studied glacial landscapes and human races
- Advocated for polygenism, the idea that different human races constitute different species
- Measured skull sizes and analyzed photographs of different human races in seeking to justify superiority of white races
- *Mary Somerville*: first woman in Royal Astronomical Society, published first English geography textbook

"It seems to be the design of providence to supplant the savage with the civilized man on the continent of Australia as well as in North America though every effort has been made to prevent the extinction of the natives."

— Somerville, *Physical Geography*, 1848

"...the deterioration consequent upon an amalgamation of races... is rapidly effacing the best qualities of the white man, the negro, and the Indian, leaving a mongrel nondescript type, deficient in physical and mental energy."

— Mary Agassiz, writing alongside husband Louis Agassiz, *Diary in Brazil*, 1868

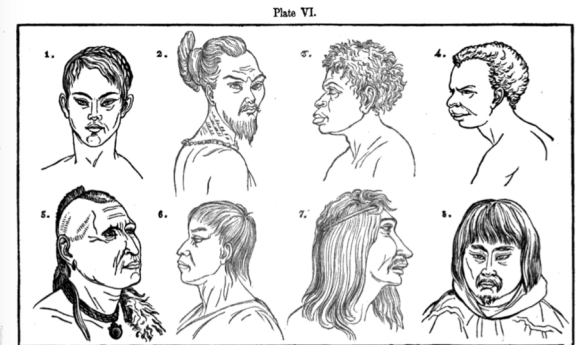
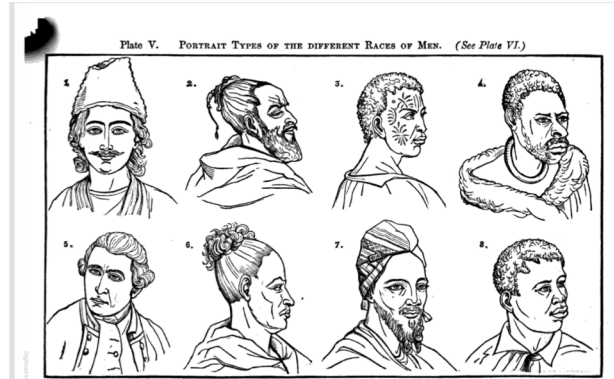


Louis Agassiz in Types of Mankind, 1854.

Early landscape geologists and scientific racism

Scientific studies by early 19th century geologists included creating and justifying racial hierarchies

- *Arnold Guyot*: Professor at Princeton gives series of lectures which form *Earth & Man* textbook to ~1500 teachers in New England. Many attendees incorporated material into their teaching
- Connects distribution of continents, topography, and climate to superiority/inferiority of human races in terms of beauty, physical ability, intelligence, and morality (*Earth and Man*, 1849)
- *Nathaniel Shaler*: claims North American topography is "unfit to cradle great peoples", argues North America has "peculiar advantages" for American people (of Aryan descent) because the climate and topography of the land is ideal for the institution of slavery
- Suggests slavery "led to the rapid accumulation of wealth, and in this way brought the people the sooner into a condition in which they could control their own destiny."



Arnold Guyot, The Earth and Man, 1849