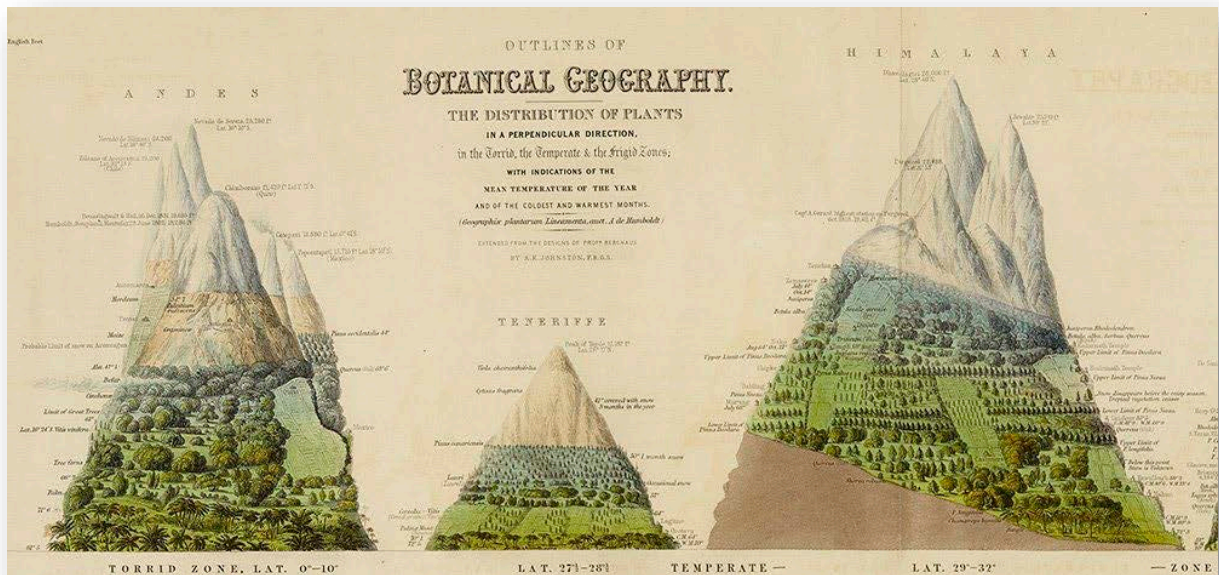


On the Distribution of Species

From Humboldt and Darwin to DNA Sequencing and 'Spatial Turns'



(Version: 12 – Feb – 2018)

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ETH Zurich

Spring Semester 2018

Time Tue 13.15—15.00

Location HG F 26.5

Abstract

How did life on planet earth not only evolve over time, but disperse across geographical space? This is one of the core questions of biogeography--a less known subdiscipline emerging around 1800 and continuing to the present. This seminar ask how biogeography came to shape our understanding of where animals, plants, people, and cultures on planet earth 'came from' and 'belong'.

Objectives

Much of the intellectual history of the life sciences--from the early days of Natural History to modern Biology--rests on two pillars: 1) the question of how life evolved over time, and 2) the question of how life dispersed across geographical space. While there is a vast historiographical literature on pillar no. 1 (mostly on Darwin and Darwinism), the spatial dimension of the life sciences has received far less attention by historians of science. Research into the distribution of life across space belongs to the little known subdiscipline of 'Biogeography'. Alexander von Humboldt, Alfred Russel Wallace, and Alphonse de Candolle count among the 'founding fathers' of the discipline.

The aim of this seminar is to explore how theories, practices, and tools of biogeography changed from their inception in the 19th century to their more recent applications, e.g. in DNA sequencing and the environmental sciences. Students will engage with classical texts from the field and explore how their authors were both shaped by and shaped their changing social, cultural and political environments. Particular attention will be given to how geographical thinking in the life sciences had an impact on social and cultural theories--ranging, e.g., from notions of 'Lebensraum' in imperial and fascist Germany to the 'spatial turn' in the humanities in the context of globalisation.

Apart from reading and discussing texts, students will also visit some of the biogeography's key sites: collections, data-bases, and "the field". In doing so, students will learn to critically relate biogeography – its theories, tools and practices – to broader shifts in modern science and society, and to geopolitics in particular. Students from all departments and with all backgrounds are welcome.

Requirements

- Regular attendance and active participation
- Regular reading of mandatory texts and fulfillment of 2-3 assignments during semester
- Submit a term paper at the end of semester

Readings can be downloaded here: <https://polybox.ethz.ch/index.php/s/YILZzXDBgV2Y8H8>

Contact regarding readings: martina.anderstatt@gmw.gess.ethz.ch

Syllabus

20 Feb Introduction: “Biomonitoring” & “Migration Management” today

27 Feb **Re-reading the Classics I: Humboldt**

- Humboldt, Alexander von, and Aimé Bonpland. *Essay on the Geography of Plants*. Edited by Stephen T. Jackson. Chicago: University of Chicago Press, 2009, p. 64-75, 76-99

6 Mar **Humboldtian Science: Tools and Empire**

Group 1: Epistemic Practices

- Michael Dettelbach, ‘The Face of Nature: Precise Measurement, Mapping, and Sensibility in the Work of Alexander von Humboldt’, *Studies in the History and Philosophy of Biological and Biomedical Sciences* 30 (1999): 473–503.
- Camerini, Jane R. „The Physical Atlas of Heinrich Berghaus: Distribution Maps as Scientific Knowledge“. In *Non-Verbal Communication in Science Prior to 1900*, herausgegeben von Renato R. Mazzolini, 479–512. Florence: Leo S. Olschki, 1998.

Group 2: Imperial Order

- Dettelbach, Michael. ‘Global Physics and Aesthetic Empire: Humboldt’s Physical Portrait of the Tropics’. In *Visions of Empire: Voyages, Botany, and Representations of Nature*, edited by David Philip Miller and Peter Hanns Reill, 258–92. Cambridge: Cambridge University Press, 1996.
- Pratt, Mary Louise. *Imperial Eyes : Travel Writing and Transculturation*. London [etc.]: Routledge, 1992, Chapter 6.

13 Mar **Humboldtian Science II: Networks and Local Knowledge**

Group 1 : Imperial Europe

- Candolle, Augustin Pyramus de. *Essai élémentaire de géographie botanique*. Strasbourg: Imprimerie de F. G. Levrault, 1820.
<http://www.mdz-nbn-resolving.de/urn/resolver.pl?urn=urn:nbn:de:bvb:12-bsb10301226-1>
- Ebach, Malte C., and Daniel F Goujet. ‘The First Biogeographical Map’. *Journal of Biogeography* 33 (2006): 761–69.

- Spary, E.C. *Utopia's Garden: French Natural History from Old Regime to Revolution*. Chicago: University of Chicago Press, 2000, chapter 2.

Group 2 : Colonial Africa

- Junod, Henri Alexandre. *The Life of a South African Tribe*. Neuchâtel: Neuchâtel Impr. Attinger, 1912, p. 1–34, online: <http://archive.org/details/lifeofsouthafric01junouoft>
- Harries, Patrick. *Butterflies & Barbarians: Swiss Missionaries in South-East Africa*. Oxford: James Currey, 2007, p. 123-154.

20 Mar

Re-Reading the Classics II: Darwin and Wallace

- Darwin, Charles. *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. London: John Murray, 1859, chapters 11 and 12, online: http://darwin-online.org.uk/converted/pdf/1859_Origin_F373.pdf
- Wallace, Alfred Russel. *Darwinism. An Exposition of the Theory of Natural Selection, with Some of Its Applications*. London New York: Macmillan & Co, 1889, chapter XII, online: <http://www.gutenberg.org/ebooks/14558>
- Wallace, Alfred Russel. *The Geographical Distribution of Animals. Vol 1*. New York: Harper & Bros, 1876, Chapter 1, online: <https://www.biodiversitylibrary.org/bibliography/11354>

27 Mar

Evolution: Islands and Boundaries

Darwin and St. Jago

- Darwin, Charles. *Charles Darwin's Beagle Diary*. Darwin's Beagle Diary. Cambridge: Cambridge University Press, 1988, p. 18-34, online: http://darwin-online.org.uk/converted/pdf/2001_KeynesBeagleDiary_F1925.pdf
- Darwin, Charles. *Journal of Researches into the Natural History and Geology of the Countries Visited during the Voyage of H.M.S. Beagle Round the World*. 2nd ed. London: John Murray, 1845, p. 1-8, online: http://darwin-online.org.uk/converted/pdf/1845_Beagle_F14.pdf
- Beer, Gillian. 'Writing Darwin's Islands: England and the Insular Condition'. In *Inscribing Science: Scientific Texts and the Materiality of Communication*, 119–39. Stanford: Stanford University Press, 1998.

Wallace Line

- Vetter, Jeremy. 'Wallace's Other Line: Human Biogeography and Field Practices in the Eastern Colonial Tropics'. *Journal of the History of Biology* 39 (2006): 89–123.
- Van Wyhe, John. *Dispelling the Darkness : Voyage in the Malay Archipelago and the Discovery of Evolution by Wallace and Darwin*. Singapore: World Scientific, 2013, Chapter 6.

3 Apr

EASTER BREAK

10 Apr

18th & 19th century Biogeography today

How did 18th and 19th century biogeography shape science in Zürich? How and where can we discover its traces and legacies in the 21st century?

Research topics could include

- Collections (i.e. herbaria, museums)
- Published works (i.e. local floras, travelogues)
- Maps
- Image collections

17 Apr

Re-Reading the Classics III: Biopolitics & Geopolitics

- Ratzel, Friedrich. *Der Lebensraum. Eine Biogeographische Studie*. Darmstadt: Wissenschaftliche Buchgesellschaft, 1901, S. 1-35.
- Ratzel, Friedrich. "The Territorial Growth of States." *Scottish Geographical Magazine* 12, no. 7 (1896): 351-361.
- Mackinder, H. J. "The Geographical Pivot of History." *The Geographical Journal* 23, no. 4 (1904): 421-37.
- Egli, Emil. *Das Schweizervolk*, in: ders. (Hg.). *Erdbild als Schicksal: aus Raum und Leben des Kleinstaates*. Zürich: Artemis Verlag, 1959, S. 50-59.

24 Apr

Bio- & Geopolitics: Heimat & Decolonization

Urbanism, Heimat and Lebensraum

- Geddes, Patrick. 'The Influence of Geographical Conditions on Social Development'. *The Geographical Journal* 12 (1898): 580-86.
- Cupers, Kenny. 'Bodenständigkeit: The Environmental Epistemology of Modernism'. *Journal of Architecture* 21 (2016): 1126-1252.
- Zeller, Thomas. 'Building and Rebuilding the Landscape of the Autobahn, 1930-1970'. In *The World beyond the Windshield: Roads and Landscapes in the United States and Europe*, edited by Christof Mauch and Thomas Zeller, 125-42. Athens, Ohio: Ohio University Press, 2008.
- Butlin, Robin Alan. *Geographies of Empire: European Empires and Colonies c. 1880-1960*. Repr. Cambridge Studies in Historical Geography. Cambridge: Cambridge University Press, 2010.
- Kearns, Gerry. "Geography, Geopolitics and Empire." *Transactions of the Institute of British Geographers* 35, no. 2 (2010): 187-203.
- Shaw, Wendy S., R. D. K. Herman, and G. Rebecca Dobbs. "Encountering Indigeneity: Re-Imagining and Decolonizing Geography." *Geografiska Annaler. Series B, Human Geography* 88, no. 3 (2006): 267-76.

- Gibson, Chris. "Decolonizing the Production of Geographical Knowledges? Reflections on Research with Indigenous Musicians." *Geografiska Annaler: Series B, Human Geography* 88, no. 3 (September 1, 2006): 277–84.
- Kreis, Georg. "Der 'Homo Alpinus Helveticus'. Zum Schweizerischen Rassediskurs Der 30er Jahre." In *Erfundene Schweiz. Konstruktion Nationaler Identität*, edited by Guy Marchal and Aram Mattioli, 175–90. Zürich: Chronos, 1989.

1 Mai

Labour Day

8 Mai

Biogeography Today I

Historicizing current biogeography

→ Assignment

15 Mai

Understanding and Addressing Ecological Change Then and Now

- In Conversation with Prof. Dr. Christoph Küffer

<http://www.geobot.umnw.ethz.ch:8000/~kueffer/personal/Home.html>

22 Mai

Biogeography Today II

tba

29 Mai

Biogeography and the Spatial Turn in the History of Science

Livingstone, David N. *Putting Science in Its Place : Geographies of Scientific Knowledge*. Science.Culture. Chicago: University of Chicago Press, 2003, chapters 1 and 2.