PHIL 560, Fall 2021
To what extent is the living world an historical accident?

(preliminary thoughts, john.beatty@ubc.ca)

> If we must marvel, let it be at our presumption in imagining for a moment that we understand the many complex contingencies on which the existence of each species depends. (Darwin, *Origin*)

One of the most momentous (and still contentious) elements of the Darwinian revolution concerns the extent to which the living world could have turned out very differently. We will spend several weeks considering why, and in what sense, Darwin came to attribute more and more phenomena to chance – which, at the time, meant chance *vs. design* – and the (perhaps) surprisingly theological reasons that he gave for doing so.

The case for chance and historical accident was eventually secularized, but it is still valuable to start with Darwin, partly as an exercise in understanding science in its broader historical context, but also as a good introduction to the conceptual and empirical issues that persist.

We will then spend several weeks on Stephen Jay Gould's "replay" thought experiment:

> I call this experiment "replaying life's tape." You press the rewind button and, making sure you thoroughly erase everything that actually happened, go back to any time and place in the past . . . . Then let the tape run again and see if the repetition looks at all like the original. (Gould, *Wonderful Life*)

Gould's expectation was that "any replay of the tape would lead evolution down a pathway radically different from the road actually taken."

There have been interesting attempts to actually replay the tape (both laboratory experiments and "natural experiments"). Evolutionary versions of the replay experiment been the subject of considerable philosophical analysis. We will also consider the ecological version (e.g., in the work of Tadashi Fukami), having to do with replaying the "assembly" or re-assembly of ecological communities following "disturbance" of those areas. What would happen if we could replay community assembly from the same starting conditions, e.g., the same pool of nearby species that could migrate into the disturbed area?

Additional issues will/may include: how "historical sciences" like evolutionary biology and ecology resemble history itself with regard to the highly contingent character of the phenomena being studied; "historical" explanations; might the "laws" of biology themselves be historical accidents?; broadly existential ("meaning of life") and practical (e.g., conservation/restoration) implications of the replay experiment.