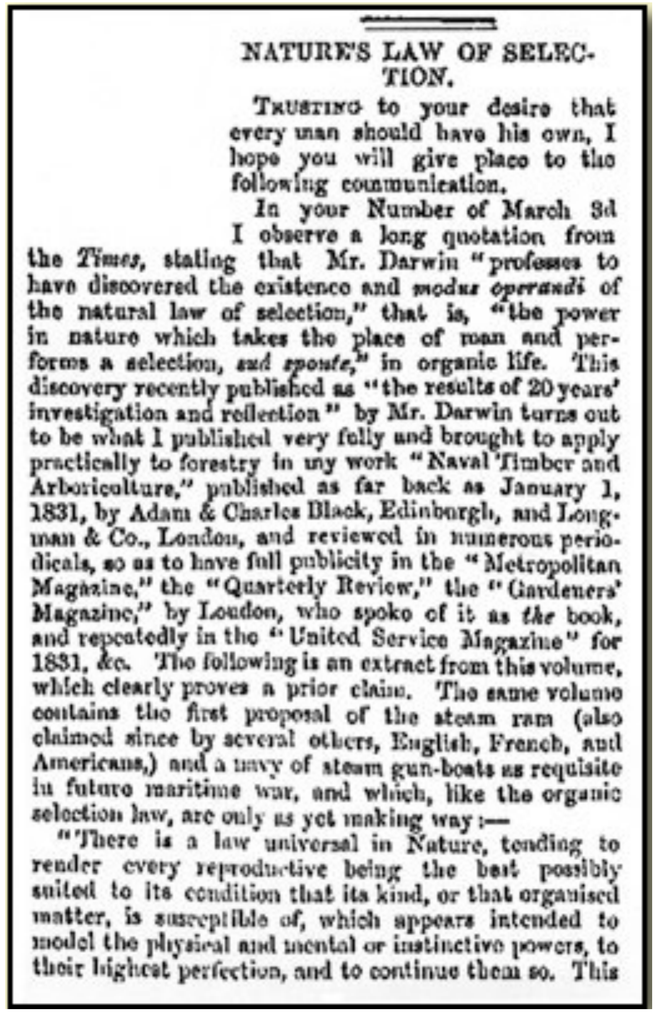
A bit of trivia

- The theory of natural selection was first proposed by ...*Patrick Matthew*
- Matthew seemed to regard the idea as more or less self-evident and not in need of further development.
- In a stunning example of how **not** to communicate science, he published his ideas in appendices B and F of his book "*On Naval Timber and Arboriculture*" (1831).
- Unsurprisingly, his peers failed to discover his ideas in such an obscure source, and his work had no impact on the subsequent, more developed, work of Darwin and Wallace (1859).

- Do **not** emulate Patrick Matthew.



NATURE'S LAW OF SELECTION.

TRUSTING to your desire that every man should have his own, I hope you will give place to the following communication.

In your Number of March 3d I observe a long quotation from the *Times*, stating that Mr. Darwin "professes to have discovered the existence and *modus operandi* of the natural law of selection," that is, "the power in nature which takes the place of man and performs a selection, *sua sponte*," in organic life. This discovery recently published as "the results of 20 years' investigation and reflection" by Mr. Darwin turns out to be what I published very fully and brought to apply practically to forestry in my work "Naval Timber and Arboriculture," published as far back as January 1, 1831, by Adam & Charles Black, Edinburgh, and Longman & Co., London, and reviewed in numerous periodicals, so as to have full publicity in the "Metropolitan Magazine," the "Quarterly Review," the "Gardeners' Magazine," by Loudon, who spoke of it as *the* book, and repeatedly in the "United Service Magazine" for 1831, &c. The following is an extract from this volume, which clearly proves a prior claim. The same volume contains the first proposal of the steam ram (also claimed since by several others, English, French, and Americans,) and a navy of steam gun-boats as requisite in future maritime war, and which, like the organic selection law, are only as yet making way:—

"There is a law universal in Nature, tending to render every reproductive being the best possibly suited to its condition that its kind, or that organised matter, is susceptible of, which appears intended to model the physical and mental or instinctive powers, to their highest perfection, and to continue them so. This

Welles KD. The historical context of natural selection: The case of Patrick Matthew. J Hist Biol. 1973 Fall;6:225-258. doi: 10.1007/BF00127609. PMID: 11609722.

Natural Selection

- **Mutation, recombination and other processes introduce variation into genomes of organisms**
- The fitness of an organism describes how well it can survive/grow/function/ replicate in a given environment, or how well it can pass on its genetic material to future generations
- The same mutation can have different fitness costs in different environments (fitness landscape), and different genetic backgrounds (epistasis)

- Any particular mutation can be:
  - **Neutral:** no or little change in fitness (the majority of genetic variation falls into this class according to the neutral theory)
  - **Deleterious:** reduced fitness
  - **Adaptive:** increased fitness