



M. J. S. Hodge: Darwin's
Argument in the *Origin*

CHAPTER XIV.

RECAPITULATION AND CONCLUSION.

Recapitulation of the difficulties on the theory of Natural Selection — Recapitulation of the general and special circumstances in its favour — Causes of the general belief in the immutability of species — How far the theory of natural selection may be extended — Effects of its adoption on the study of Natural history — Concluding remarks.

As this whole volume is one long argument, it may be convenient to the reader to have the leading facts and inferences briefly recapitulated.

That many and grave objections may be advanced against the theory of descent with modification through natural selection, I do not deny. I have endeavoured to give to them their full force. Nothing at first can appear more difficult to believe than that the more complex organs and instincts should have been perfected, not by means superior to, though analogous with, human reason, but by the accumulation of innumerable slight variations, each good for the individual pos-

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RUSE



THAGARD



LLOYD



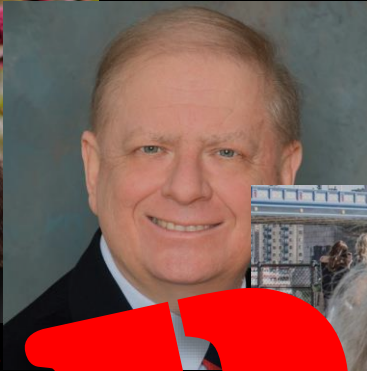
SINTONEN



WILSON



RUSE



THAGARD



LLOYDS



SINTONEN



WILSON

WRONG

Part I Variation and selection under domestication	Chapter I	Consideration 1 Existence case		Division One Natural selection established as VCP cause for species
Part II Variation and selection under nature	II	Consideration 2 Competence case	The case	
	III		Difficulties considered	
	IV			
	V			
	VI			
	VII			
VIII				
Part III Trial of theory of natural selection as explanatory of species production	IX	Consideration 3	Geological difficulty	Division Two Natural selection as probably responsible for species production
	X	Responsibility case	Evidence favouring responsibility	
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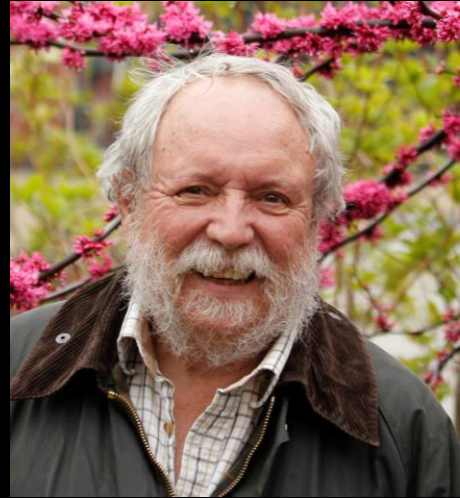
Newton's *first rule of reasoning*:

"Causas rerum naturalium non plures admitti debere, quam et vera sunt et earum Phenomenis explicandis sufficiunt."

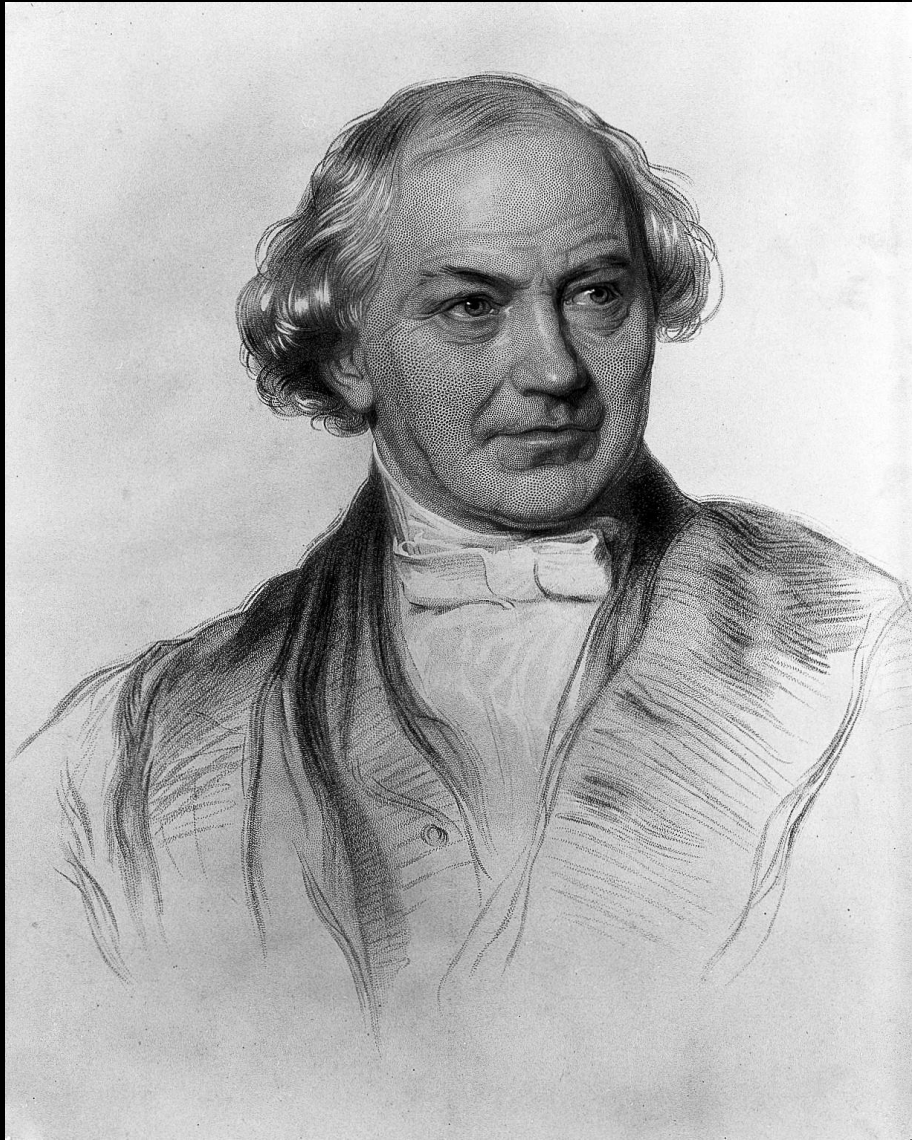
"We ought to admit no more causes of natural things, than such as are both **true** and **sufficient** to explain their appearances."

Principia

1687



Michael Ruse suggested Darwin's argument follows William Whewell's notion of the **Consilience of Inductions**



William Whewell

“The Consilience of Inductions takes place when an Induction, obtained from one class of facts, coincides with an Induction, obtained from another different class. This Consilience is a test of the truth of the Theory in which it occurs.”

Philosophy of the Inductive Sciences, p. 469

1840

According to Hodge (1991), Darwin's "notebooks from July 1837 on show that he was already committed to the structure and strategy of argumentation that would be adopted in the *Origin*. Indeed, in his notebooks, Darwin adopted that kind of argumentation on behalf of the very earliest theories he had about the origins of species, theories he had before he first arrived (in late 1838) at his theory of natural selection."



John Herschel

“So far as weight is concerned, it makes no difference whether a body having weight enters, or one having levity escapes ; but there is this plain difference in a philosophical point of view, that oxygen is a real producible substance, and phlogiston is no such thing: the former is a *vera causa*, the latter an hypothetical being, introduced to account for what the other accounts for much better.”

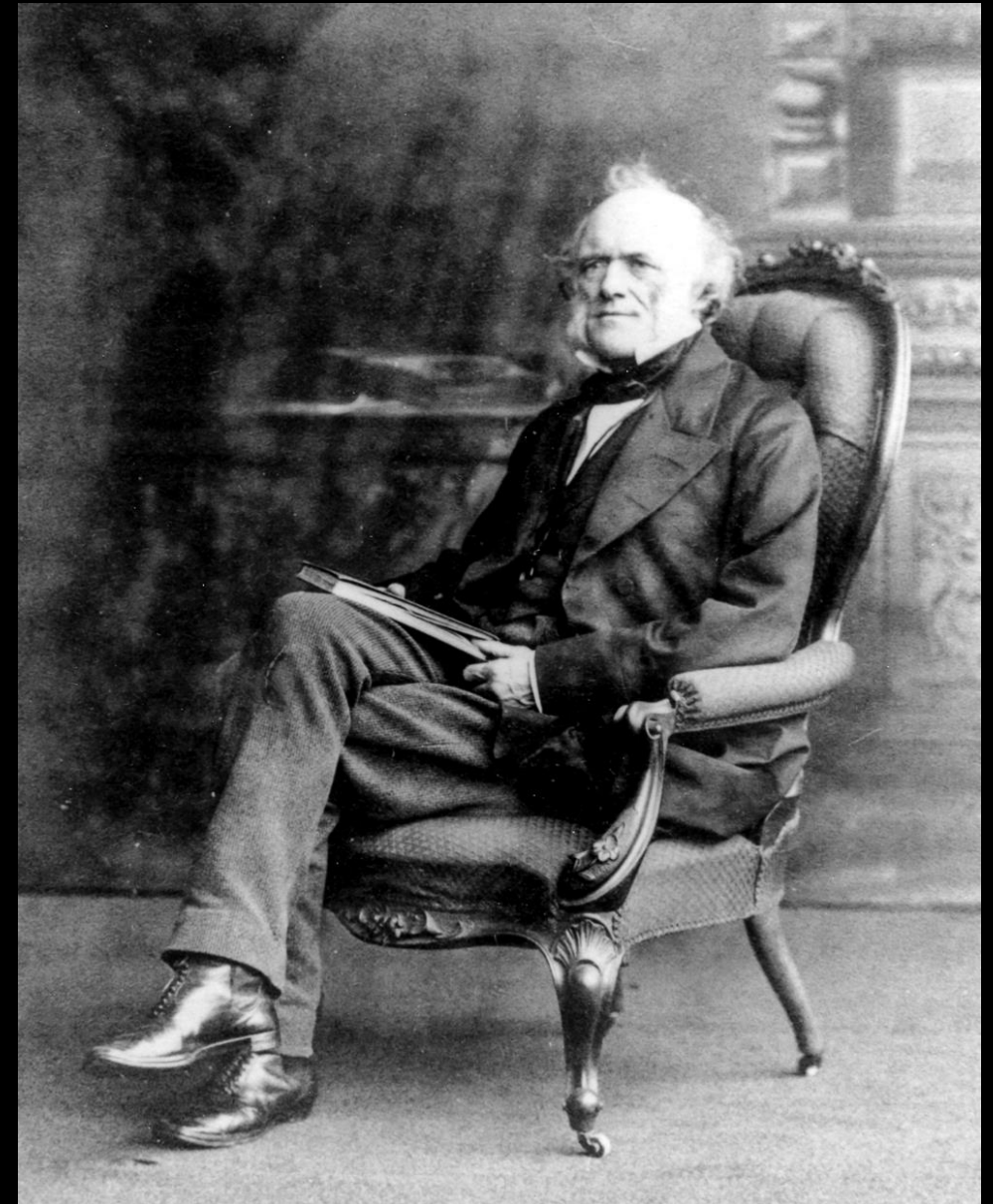
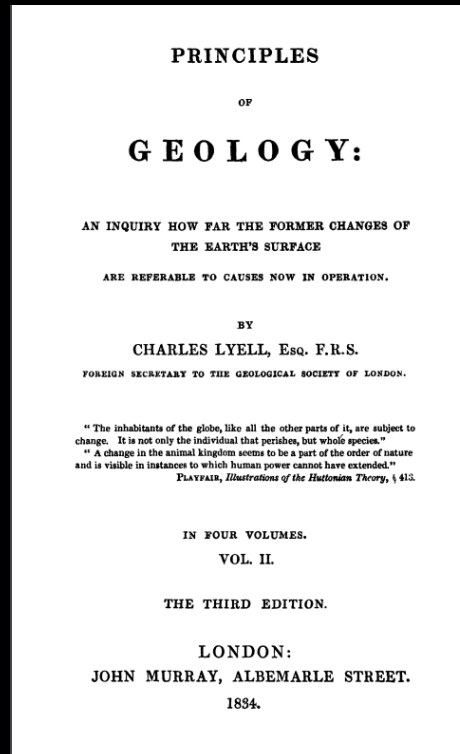
A Preliminary Discourse on the Study of Natural Philosophy, p. 301

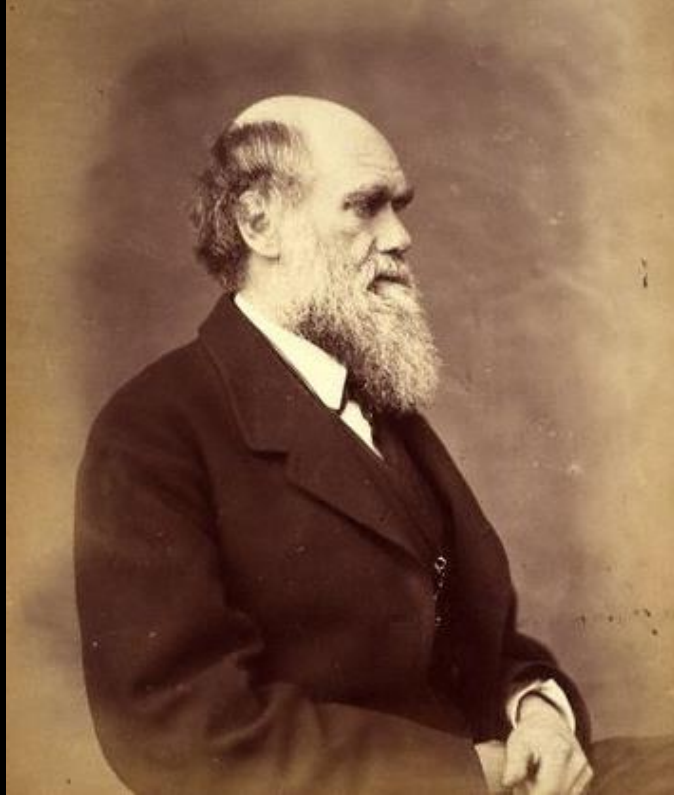
1830



Charles Lyell

Vera causa principle exercised in
Principles of Geology Vols. II, III
1834, 1835

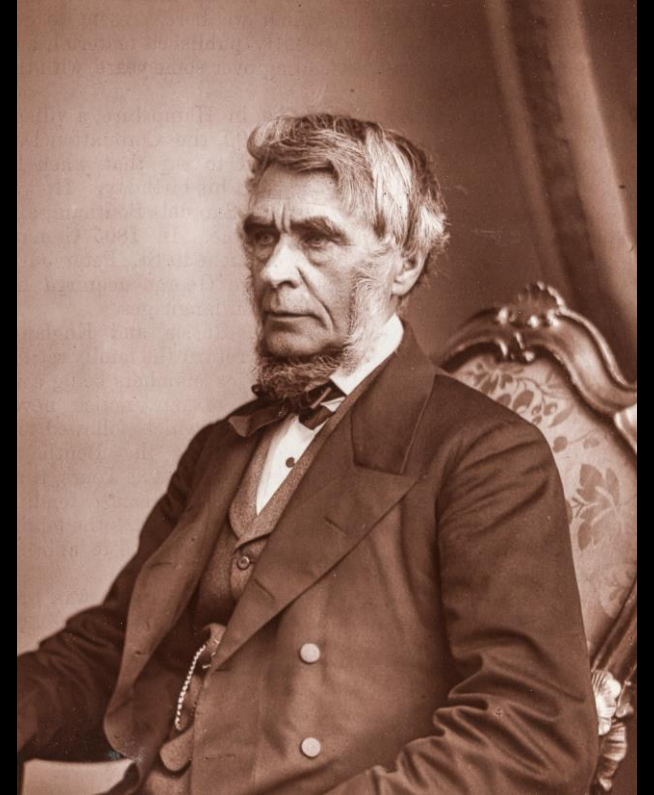


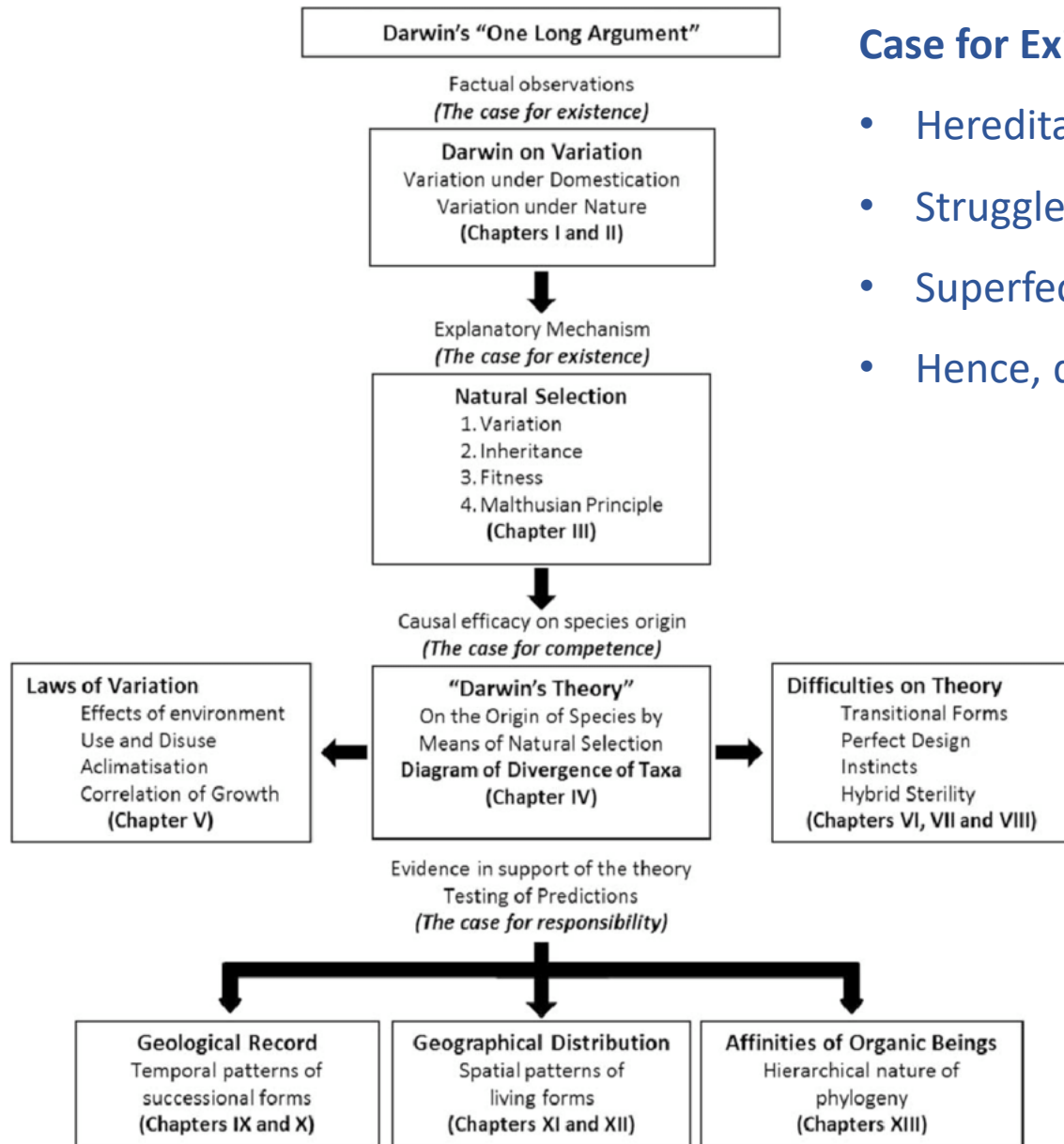


“In fact the belief in natural selection must at present be grounded entirely on general considerations. (1) on its being a *vera causa*, from the struggle for existence; & the certain geological fact that species do somehow change (2) from the analogy of change under domestication by man’s selection. (3) & chiefly from this view connecting under an intelligible point of view a host of facts. —”

-Charles Darwin,

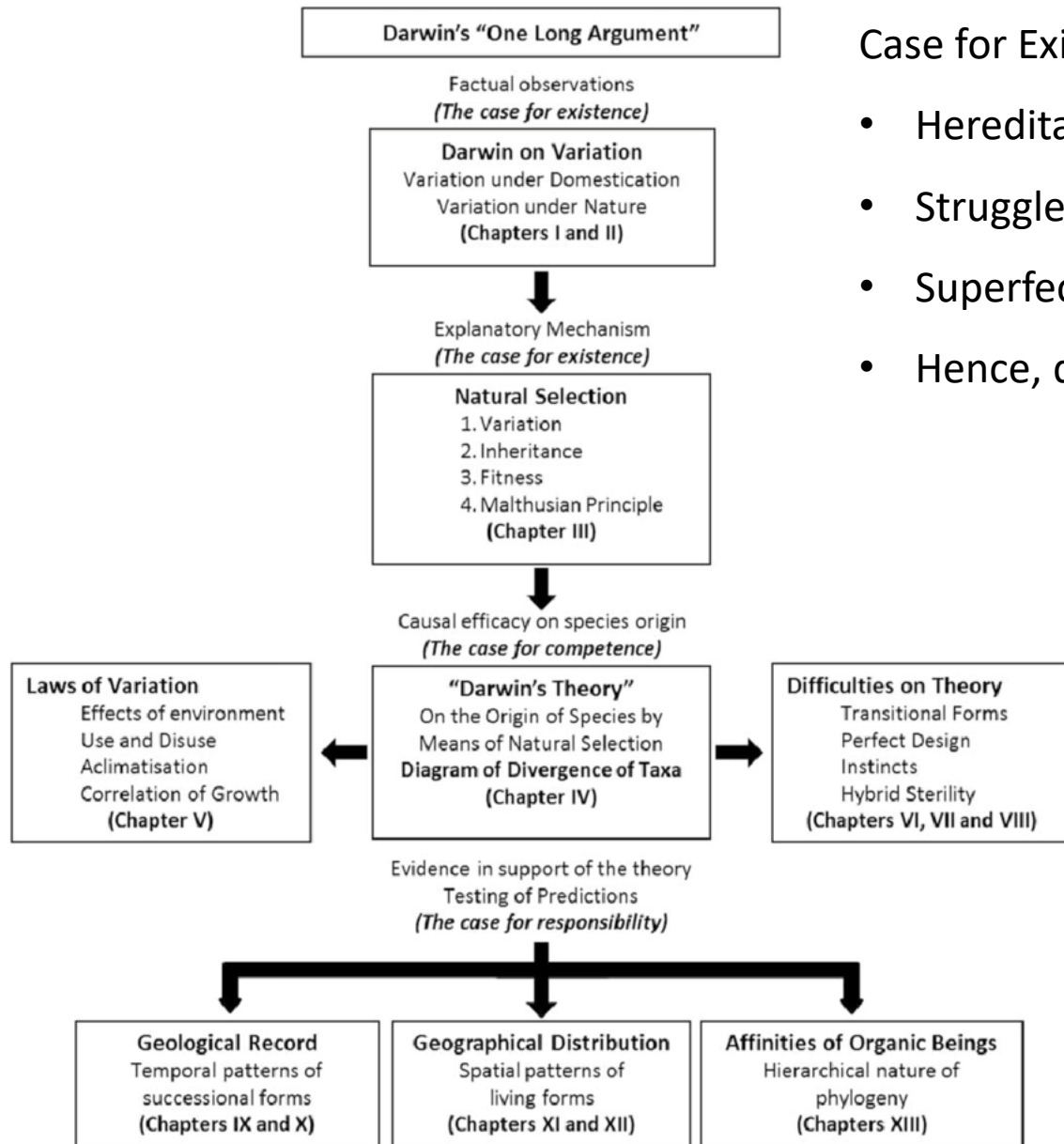
letter to George Bentham, 22 May 1863





Case for Existence:

- Hereditary variation
- Struggle for life
- Superfecundity
- Hence, differential survival and reproduction of hereditary variants

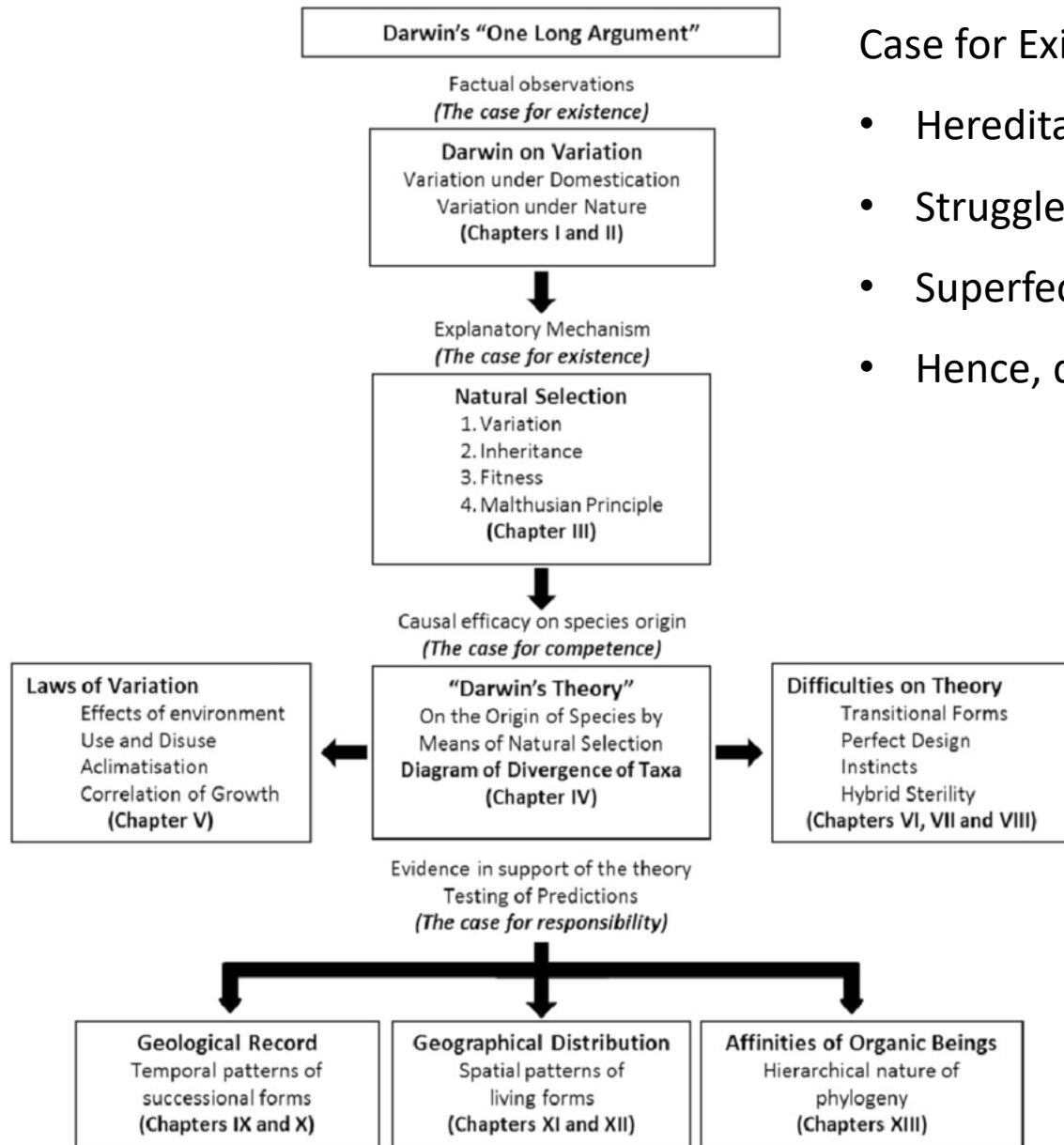


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- Artificial selection produces new varieties
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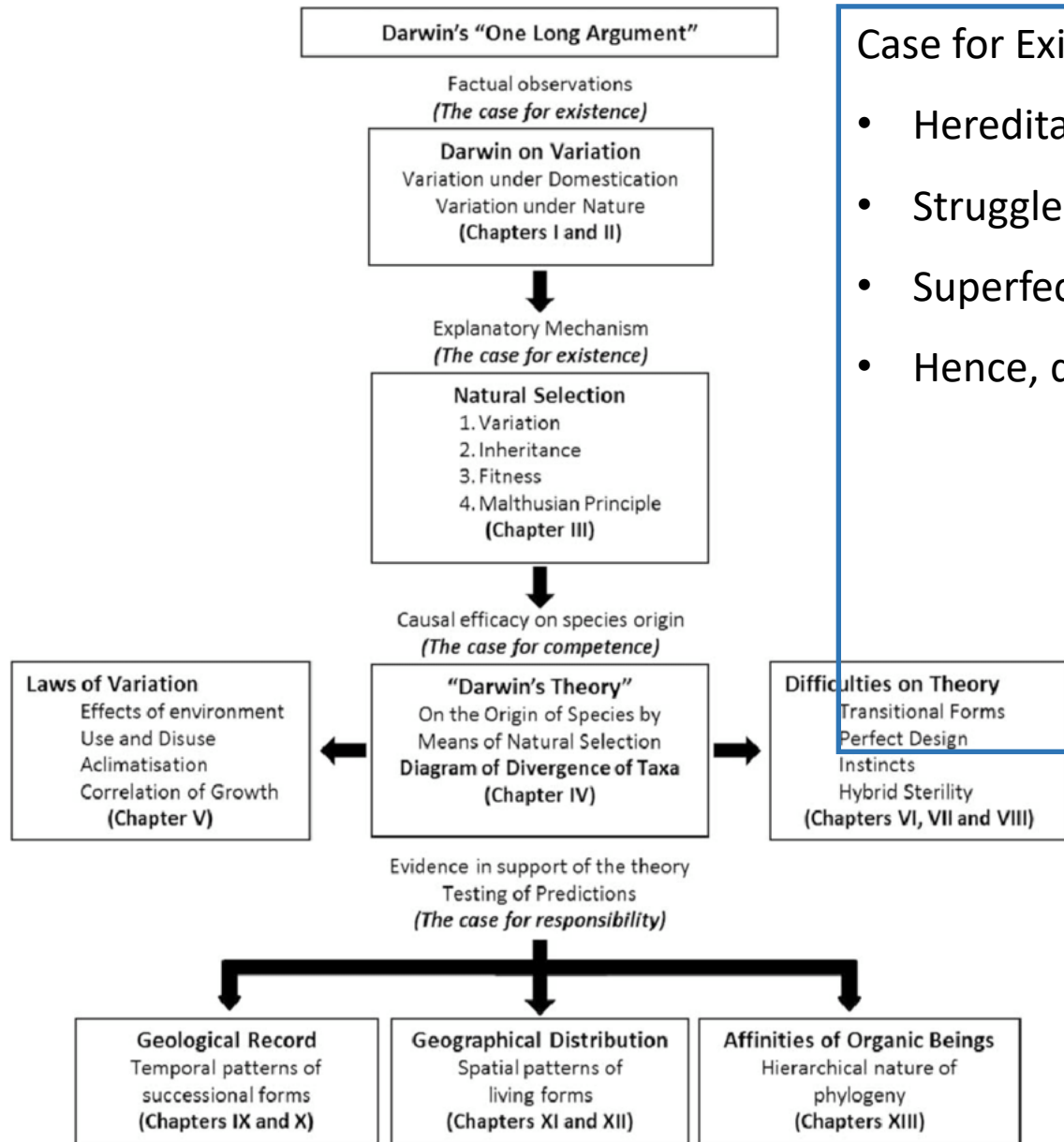
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Case for Responsibility:

Evolution by natural selection better at explaining

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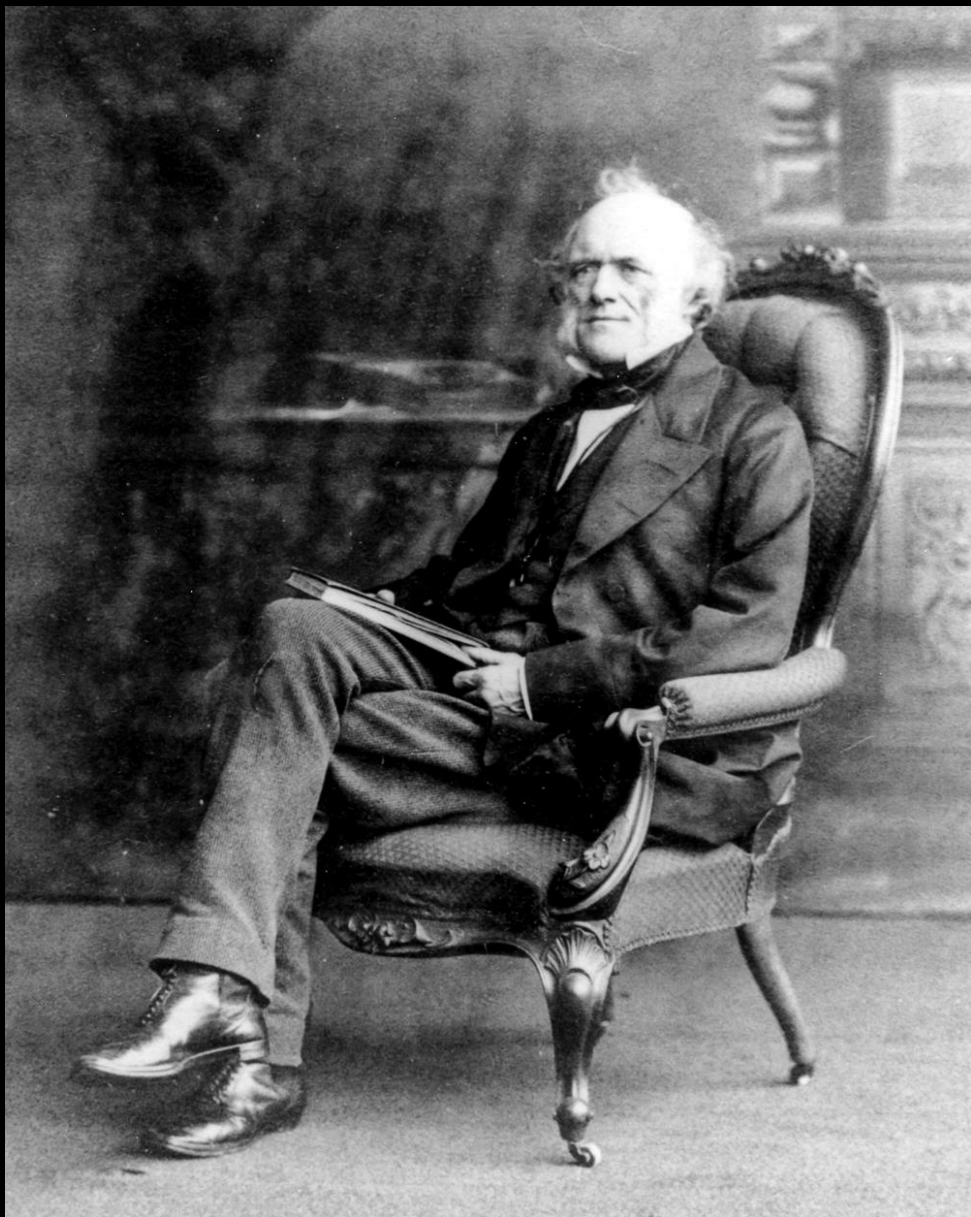
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Implications for future work:

“anyone seeking to throw light on Darwin's argumentation – whether by means of semanticist, Kuhnian, or any other type of general philosophical proposal – must show how light is thrown on the three-case, or three-component-argument, structuring of that argumentation.”



“It is a splendid case of close reasoning & long sustained argument ...”

- Lyell, letter to Darwin

3 October, 1859

“I have heard by round about channel that Herschel says my Book ‘is the law of higgledy-pigglety’. — What this exactly means I do not know, but it is evidently very contemptuous. — If true this is great blow & discouragement.”

- Darwin, letter to Lyell

10 December, 1859



Gems

- ❖ Clarifies Darwin's argument
- ❖ Persuasive (?)
- *Case for responsibility: IBE? Consilience?*

HPS

- Historical context used to *explain the argumentative structure of Darwin's theory*.
- Relevant to historians and philosophers (?)