



NATURE'S VAST FRAME

*Natural Science & Poetry
before Darwin and the
"Origin of Species"*

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APRIL THROUGH MAY 2007

BY THE 17TH CENTURY most naturalists believed that the Earth was only a few thousand years old; that all species of plants and animals had been created distinct from one another and organized in a rigid hierarchy of being; that all living things had been made in their present form at the beginning of mortal time; and that they had remained unchanged since then, their creation by God being perfect by definition. A few philosophers and scientists, however, dared to consider different ideas about Nature, to speculate on whether the natural world was subject to laws and mechanisms not yet understood, and what those might be. As the years passed and Nature was observed more systematically, the evidence of specimens and the emerging fossil and geological record suggested more complex theories about our world and its resident life.

Among these were theories of evolution. The idea that living things, and the Earth itself, had evolved from earlier to present states was centuries old before Charles Darwin revealed his own thoughts on the subject in 1859 in his *Origin of Species*. But it was developed most thoroughly in the 18th and 19th centuries, climaxing (though by no means ending) with Darwin's revolutionary book. This development, moreover, was part of a tradition of thinking and writing about Nature which encompassed works as diverse as Gilbert White's *Natural History and Antiquities of Selborne*, Malthus's *Essay on the Principle of Population*, and Mary Shelley's *Frankenstein*.

The present exhibition looks at the scientific, historical, and literary background of Darwin's *Origin of Species*. It includes works by Darwin's predecessors in the development of evolutionary thought, and by other writers of his own century concerned with the study or expression of natural order. The evocative title *Nature's Vast Frame* is taken from a poem of the period by Percy Bysshe Shelley: *Alastor, or, The Spirit of Solitude* (1816).

WAYNE G. HAMMOND
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Thomas Burnet, 1635?-1715

The Theory of the Earth: Containing an Account of the Original of the Earth, and of All the General Changes Which It Hath already Undergone, or Is to Undergo, till the Consummation of All Things

First edition

London: Printed by R. Norton,

for Walter Kettilby, 1684

Library purchase 1958

Burnet's famous work attempts to explain the history of the Earth, including all of its evident physical changes, using Scripture as an authority but also applying the science of his day. Noah's flood, for instance, is related to the vast waters of the planet, and to great caverns formed, according to the Bible, when the "outward frame" of the Earth "was dissolv'd and fell into the great Abyссе". Burnet refutes the view of Aristotle that the world and all things upon it subsisted for eternity; whereas "we say all these things arose and had their first existence or production not six thousand years ago".

The engraved frontispiece to Burnet's book illustrates his argument: Christ, at the top, has his left foot on the Earth as it was at the beginning, without form and void. Clockwise are the featureless Earth of Eden; the flooded Earth, with Noah's Ark at the center; the present state of the world; the conflagration predicted to consume the Earth; the world thus purified; and finally the Earth transformed into a star after the righteous have ascended to Heaven.

Charles Lyell wrote of Burnet's book in his *Principles of Geology* (elsewhere in the exhibition) that it was "a fine historical romance, as Buffon afterwards declared; but it was treated as a work of profound science in the time of its author".

Johann Jakob Scheuchzer, 1672-1733

Kupfer-Bibel: in welcher die Physica sacra, odor beheiligte Natur-Wissenschaft derer in heil

First edition

Augsburg: Gedruckt bey Christian Ulrich Wagner,

1731-5

One of five volumes

Gift of Alfred C. Chapin, Class of 1869

The *Kupfer-Bibel* ("Copper Bible") or *Physica Sacra* by Scheuchzer, a Swiss doctor and natural historian,

contains 761 folio copperplate engravings of scenes from cosmology, history, and numerous sciences, together with verses from the Bible, translations, and scholarly and theological annotations. Scheuchzer's purpose was to harmonize scientific findings with the biblical text by embracing the natural world as evidence of God's design. This plate illustrating an aspect of Genesis represents, in the context of the present exhibition, the long-standing view that animals were created at the beginning of time in their present-day forms.

Edward Topsell, 1572-1625?

The Historie of Foure-footed Beastes

First edition

London: Printed by William Jaggard, 1607

Gift of Alfred C. Chapin, Class of 1869

The text in Topsell's *Historie*, typical of its era, is a curious mixture of observational data, travelers' tales, myths, and legends, citing authorities such as Pliny and Peter Martyr. Accounts of real primates are followed by entries for satyrs and other "monsters" considered as relations of the apes. The woodcuts were derived mainly from the works of the 16th-century German-Swiss naturalist Konrad Gesner, one of the fathers of modern zoology.

Georges-Louis Leclerc, Comte de Buffon, 1707-1788

Histoire naturelle, générale et particulière

Paris: De l'Imprimerie royale, 1749-67

First edition

One of 15 vols. in the collection

Transfer from the Williams College Library

Buffon, the director of the Jardin du Roi in Paris, collected and studied a wide variety of organisms – living, dead, and fossilized. His analyses, in particular his comparisons of animal anatomy, led him to conclude that different species are related rather than unique unto themselves, and that the forms of animals have changed over time. In his argument for dynamic organic change, Buffon did not describe a coherent mechanism by which such evolution works, but he speculated that it may be the result of influences by the environment. He also concluded that the Earth is much older than the 6,000 years then believed by other

scholars, and even suggested that all life has descended from a common ancestor.

The *Histoire naturelle* was Buffon's great attempt to systematically present all existing knowledge in a single publication. He lived to complete thirty-six volumes; another eight were added by other hands after his death.

**Jean Baptiste Pierre Antoine de Monet,
Chevalier de Lamarck, 1744-1829**

Philosophie zoologique, ou, Exposition des considérations relatives à l'histoire naturelle des animaux

Nouvelle édition

Paris: Librairie F. Savy, 1873

One of two volumes

Lent by Archives and Special Collections,
Williams College Library

In the *Philosophie zoologique*, first published in 1809, and further in the introduction to his *Histoire naturelle des animaux sans vertèbres* (1815-22), Lamarck argued that changes in an environment alter in turn the needs of its resident organisms, who then purposefully change their behavior. In this way, organs or other living structures are used more or less, and may develop or regress accordingly. Thus all organisms undergo continuous, gradual change as they adapt to their environments. To support the idea that such evolution was slow and gradual, occurring over generations, Lamarck also argued that acquired characteristics are inherited by offspring. This process, he believed, tended toward diversity and perfection.

Lamarck observed, for instance, that giraffes, living in places where the soil is often barren, are obliged to stretch to reach food on the branches of trees. From this habit, over long years, the giraffe's neck and fore-legs lengthened as a means of adaptation to the environment. Charles Darwin, however, argued that a species naturally contains variations, and those animals – such as giraffes with greater elongation of body parts – best suited to exist in an environment will naturally survive and reproduce, continuing the useful variations in offspring. Darwin's view came to be upheld by the modern science of genetics; but for a long time, even many who described themselves as Darwinists were attracted to Lamarck's idea that creatures could *strive* toward change, in command of life rather than merely subject to the chances of "natural selection".

Erasmus Darwin, 1731-1802

Zoonomia, or, The Laws of Organic Life

Second American, from the third London edition,
corrected by the author

Boston: Printed by D. Carlisle,

for Thomas and Andrews, 1803

2 vols.

Lent by Archives and Special Collections,

Williams College Library

Zoonomia, one of the four major works by Charles Darwin's polymath grandfather, was first published in 1794 and 1796. As part of his discussion of the issue of "generation", Darwin considers the "great changes" produced in animals, naturally after they are born or introduced by domestication or artificial breeding and continued in offspring, as well as "the great familiarity of structure which obtains in all the warm blooded animals, as well quadrupeds, birds, and amphibious animals, as in mankind". From these, "one is led to conclude, that they have alike been produced from a similar living filament", and that "from their first rudiment . . . to the termination of their lives, all animals undergo perpetual transformations . . . and many of these acquired forms or propensities are transmitted to their posterity". Such changes are driven, he says, by lust, hunger, and security: a bird, for instance, might develop a harder beak to crack nuts, or an animal a natural camouflage. The role of God, in this theory, is diminished to that of a "great first cause".

Elsewhere in his writings, Darwin anticipated many ideas that would be expressed by others in the next century, such as the continuity of instinct as buried memory, rediscovered by Samuel Butler in Britain and Asa Gray in the United States. As Jacques Barzun has said in his *Darwin, Marx, Wagner* (1958), Erasmus Darwin's "awareness of struggle for survival, of the reproduction of the strongest animals, of the greater variations in animals under domestication, and even of what was later accepted for a time as protective coloration . . . is what enabled his future biographer [Ernst Krause, 1880] to say, with the approval of Charles Darwin, that for every volume by the grandson there was a corresponding chapter by the grandfather".

Thomas Robert Malthus, 1766-1834

An Essay on the Principle of Population,

as It Affects the Future Improvement of Society

First edition

London: Printed for J. Johnson, 1798

Gift of Alfred C. Chapin, Class of 1869

Malthus argues that a population will always grow larger than it is able to feed, inevitably leading to poverty and famine, which in turn will check growth. Population, moreover, will increase geometrically, not arithmetically, compounding the problem.

Malthus's *Essay* was read by both Charles Darwin and his contemporary Alfred Russel Wallace, who independently conceived a theory of evolution. Both men realized that producing more offspring than can survive in a population will establish a competitive environment among siblings, and that variation among siblings will produce some individuals with a slightly greater chance of survival. In 1876 Darwin wrote in his *Autobiography*: "Being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me [on reading Malthus] that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The results of this would be the formation of a new species. Here, then I had at last got a theory by which to work."

Charles Lyell, 1797-1875

*Principles of Geology, or, The Modern Changes
of the Earth and Its Inhabitants*

New and entirely revised edition

New York: D. Appleton, 1853

Lent by Archives and Special Collections,

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In this work, first published in 1830-32, Lyell shows that the Earth's surface has been altered gradually over time by the same geological processes currently at work, such as erosion, the accumulation of sediment, and the elevation of land by earthquakes and volcanoes. Geological changes in history therefore did not need to be explained by extraordinary catastrophes such as Noah's flood; but the Earth had to be vastly old to allow enough time for gradual changes to work. Before

long, Lyell extended his study, revised in twelve lifetime editions, to include the effects of geological and climatic change on living species, considering questions of extinction and geographical distribution.

The first volume of Lyell's work was published in time for Charles Darwin to take it on his 1831-6 voyage to South America and the Pacific on the ship *Beagle*, when he gathered much of the evidence he would use in developing his theory of evolution. Lyell's views on the immense age of the Earth, combined with the emerging fossil record, were instrumental in shaping Darwin's opinions about the gradual change or extinction of species. Loren Eiseley in *Darwin's Century* (1958) considers Lyell the greatest single influence on Darwin, and points out that the *Principles* contains stores of information that Darwin would have found useful, conveniently summarized and brought directly to his attention.

Erasmus Darwin, 1731-1802

The Botanic Garden: A Poem

Third edition of Part I ("The Economy of Vegetation"),

fourth edition of Part II ("The Loves of the Plants")

London: Printed for J. Johnson, 1795, 1794

Purchased on the Inez L. Jones Memorial Fund

In the 18th and 19th centuries it was not uncommon to find scientists using poetic language in their writings, nor poets and novelists referring to scientific phenomena. Nature was observed and described by a wide variety of people, including the Romantic poets of English literature, on whom the writings of Erasmus Darwin were a significant influence.

In *The Botanic Garden*, first published in 1791 and 1789 (parts I and II), Darwin expounds the latest scientific theories in verse with extensive "philosophical notes". He conveys the complexity of plant biology through a unique point of view: wanting his readers to see plants as closely related to other living things, Darwin describes them in anthropomorphic terms, even giving them a love life. Later, in *The Temple of Nature* (1803), he continued the thoughts he had expressed in his *Zoonomia* (elsewhere in the exhibition) about the evolution of life from simple to complex forms and derived from a common ancestor:

*Organic Life beneath the shoreless waves
Was born and nurs'd in Ocean's pearly caves
First forms minute, unseen by spheric glass,
Move on the mud, or pierce the watery mass;
These, as successive generations bloom,
New powers acquire, and larger limbs assume;
Whence countless groups of vegetation spring,
And breathing realms of fin, and feet, and wing.*

Mary Wollstonecraft Shelley, 1797-1851

Frankenstein, or, The Modern Prometheus

First edition

London: Printed for Lackington, Hughes,

Harding, Mavor, & Jones, 1818

3 vols.

Gift of Alfred C. Chapin, Class of 1869

By now, Romantic poets and writers had begun to portray all living things as part of an organic whole, and to speculate on the nature of life. Mary Shelley's classic novel *Frankenstein*, the story of the "animation of lifeless matter", was inspired in part by Erasmus Darwin's texts on life and evolution, and by his late writings on electricity published in *The Temple of Nature* (1803). In Chapter 3, Victor Frankenstein remarks that "a new species would bless me as its creator and source". In the event, his creation does no such thing.

John Keats, 1795-1821

Endymion: A Poetic Romance

First edition

London: Printed for Taylor and Hessey, 1818

Gift of Alfred C. Chapin, Class of 1869

Keats, Shelley, and Tennyson, whose works are shown in these cases, all responded poetically to discoveries that had been made of fossil remains. Keats, for instance, wrote of "skeletons of man, / Of beast, behemoth, and leviathan, / And elephant, and eagle, and huge jaw / Of nameless monster".

The fossil record allowed anatomists to classify living and extinct species based on structural similarities, which helped to show that similar creatures were to be found on the Earth in widely separated places. This

suggested a common ancestry, which further shook long-standing views of the uniqueness of species and how they developed.

Percy Bysshe Shelley, 1792-1822

Prometheus Unbound: A Lyrical Drama in Four Acts, with Other Poems

First edition

London: C. and J. Ollier, 1820

Gift of Alfred C. Chapin, Class of 1869

*Of dead Destruction, ruin within ruin!
The wrecks beside of many a city vast,
Whose population which the earth grew over
Was mortal but not human; see, they lie,
Their monstrous works, and uncouth skeletons,
Their statues, homes and fanes; prodigious shapes
Huddled in grey annihilation, split,
Jammed in the hard, black deep; and over these,
The anatomies of unknown winged things,
And fishes which were isles of living scale,
And serpents, bony chains, twisted around
The iron crags, or within heaps of dust
To which the tortuous strength of their last pangs
Had crushed the iron crags; and over these
The jagged alligator, and the might
Of earth-convulsing behemoth, which once
Were monarch beats, and on the slimy shores,
And weed-overgrown continents of earth,
Increased and multiplied like summer worms
On an abandoned corpse, till the blue globe
Wrapt deluge round it like a cloak, and they
Yelled, gasped, and were abolished. . . .*

Alfred, Lord Tennyson, 1809-1892

In Memoriam

First edition

London: Edward Moxon, 1850

Gift of Alfred C. Chapin, Class of 1869

*“So careful of the type?” but no.
From scarpèd cliff and quarried stone
She cries “a thousand types are gone:
I care for nothing, all shall go.*

*Thou makest thine appeal to me:
I bring to life, I bring to death:
The spirit does but mean the breath:
I know no more.” And he, shall he,

Man, her last work, who seem’d so fair,
Such splendid purpose in his eyes,
Who roll’d the psalm to wintry skies,
Who built him fanes of fruitless prayer,

Who trusted God was love indeed
And love Creation’s final law –
Tho’ Nature, red in tooth and claw
With ravine, shriek’d against his creed –

Who loved, who suffer’d countless ills,
Who battled for the True, the Just,
Be blown about the desert dust,
Or seal’d within the iron hills? . . .*

Gilbert White, 1720-1793

The Natural History and Antiquities of Selborne, in the County of Southampton

First edition

London: Printed by T. Bensley

for B. White and Son, 1789

Gift of Alfred C. Chapin, Class of 1869

The Natural History and Antiquities of Selborne, in the County of Southampton

New edition

London: Printed for White, Cochrane, et al., 1813

The 18th- and 19th-century interest in the observation of Nature is nowhere exemplified so well as in White’s *Natural History and Antiquities of Selborne*. White was an Anglican priest whose minor curacy and personal income allowed him to indulge his study of birds and mammals, insects and reptiles, vegetables and trees – of all things in the natural world around his family home at Selborne in the English countryside – and to write a personal account of them which has become a classic of 18th-century literature. It was in this tradition of nature writing, and that of Thomas Bewick in the north of England, that Charles Darwin was raised.

Thomas Bewick, 1753-1828

A History of British Birds

Sixth edition (first published 1797, 1804)

Newcastle: Printed by Edw. Walker for T. Bewick, 1826
2 vols.

Transfer from Williams College Library

A General History of Quadrupeds

Fifth edition (first published 1790)

Newcastle upon Tyne: Printed by Edward Walker,
for T. Bewick and S. Hodgson, 1807

Library purchase, 1959

To investigate, with any tolerable degree of success, the more retired and distant parts of the animal œconomy, is a task of no small difficulty. An enquiry so desirable and so eminently useful would require the united efforts of many to give it the desired success. Men of leisure, of all descriptions, residing in the country, could scarcely find a more delightful employment than in attempting to elucidate, from their own observations, the various branches of Natural History, and in communicating them to others. – A History of British Birds

Alfred Russel Wallace, 1823-1913

A Narrative of Travels on the Amazon and Rio Negro, with an Account of the Native Tribes, and Observations on the Climate, Geology, and Natural History of the Amazon Valley

First edition

London: Reeve, 1853

Gift of the Faculty Club of Williams College

Palm Trees of the Amazon and Their Uses

First edition

London: John van Voorst, 1853

Gift of the Faculty Club of Williams College

The Malay Archipelago: The Land of the Orang-utan, and the Bird of Paradise: A Narrative of Travel, with Studies of Man and Nature

First edition

London: Macmillan, 1869

2 vols.

Gift of the Faculty Club of Williams College

In 1848 Wallace traveled to South America with the aim of supporting himself by collecting objects of natural history. He explored the Amazon basin until 1852. He had, he said, “an earnest desire to visit a tropical country, to behold the luxuriance of animal and vegetable life said to exist there, and to see with my own eyes all those wonders which I had so much delighted to read of in the narratives of travellers”. But by then he had also come to believe that species arise through natural laws rather than by divine fiat, and wished to collect information on the variation and evolution of species at first hand. In his 1853 *Narrative of Travels* he remarked that “in all works on Natural History, we constantly find details of the marvellous adaptation of animals to their food, their habits, and the localities in which they are found. But naturalists are now beginning to look beyond this, and to see that there must be some other principle regulating the infinitely varied forms of animal life”.

Most of his specimens from the Amazon having been lost through the sinking of his ship on his voyage home, in 1854 Wallace undertook another expedition, to the Malay Archipelago (Indonesia and Malaysia), which lasted eight years. During this time he gathered an enormous number of specimens and published scores of scientific papers. Most importantly, he formulated a principle of natural selection as the mechanism by which evolution worked – the same principle that Darwin had been pondering since the 1830s, but which he had not yet made public. In 1858, Wallace having written to him of his ideas, Darwin prepared part of an essay on natural selection to be read at the Linnean Society of London along with a paper on the subject by Wallace, but with Darwin’s views represented (in Wallace’s absence) as having priority of discovery.

Wallace seems to have taken this in stride. He continued to write about evolution, and was an ardent Darwinist. His *Malay Archipelago* is dedicated to Darwin, “not only as a token of personal esteem and friendship, but also to express my deep admiration for his genius and his works”.

Johann Georg Heck

Iconographic Encyclopædia of Science, Literature, and Art

Translated from the German, with additions,

and edited by Spencer F. Baird

New York: Rudolph Garrigue, 1851

One of 6 vols.

Library purchase, 1965

The fossil record that had emerged by the mid-18th century and continued to grow led naturalists and the general public to (sometimes fancifully) imagine life in prehistoric times, but also to question how such creatures became extinct. Such issues were at the heart of larger debates over the evolution of the Earth and of life upon it.

At the center of the plate shown is the renowned *megatherium* or giant ground sloth, which “occupied a position in point of size between the elephant and the rhinoceros” but was apparently a herbivore.

Charles Darwin, 1809-1882

On the Origin of Species by Means of Natural Selection, or The Preservation of Favoured Races in the Struggle for Life

First edition

London: John Murray, 1859

Gift of Alfred C. Chapin, Class of 1869

The importance of Charles Darwin in the *Origin of Species* is not that he invented evolution, but that he demonstrated how it works. T.H. Huxley called evolution “the oldest of philosophies”, referring to its discussion in one form or another since ancient times. John Herschel wondered in the 1830s when someone would provide a plausible answer to the “mystery of mysteries”: how extinct species have been replaced by new ones in the ages of time. According to tradition, new species could be created only by God.

At the end of 1831, when Darwin went to sea on the *Beagle* as ship’s naturalist, he was still a “creationist”. But during his five-year voyage to South America and the Pacific, he collected specimens and made observations that would change his mind. He was also influenced heavily by Sir Charles Lyell’s *Principles of Geology*, which argued that the age of the Earth was immense, not just the few thousand years suggested

by the Bible. Species, he realized, were not immutable or unrelated – and Man must come under the same natural law.

It was not until 1842 that Darwin began to put his ideas on evolution seriously to paper. In that year, he wrote 35-page sketch of the subject, and in 1844 a 231-page essay. He was plagued by doubts: to write about the “stability of species” when others, like his friend Lyell, considered them unchanging, was, he said, “like confessing a murder”. In 1856, he began to write a more finished work, of which he had amassed some ten chapters by 1858. Then he was spurred into action by the receipt of a letter from an acquaintance, the naturalist Alfred Russel Wallace, who had independently discovered the same mechanism by which evolution operates: “natural selection”, as Darwin first called it in the sketch of 1842. With acknowledgement to Wallace, though claiming priority of discovery, Darwin put forward part of his essay to the Linnean Society of London, and in 1859 published *On the Origin of Species*. That most famous of his works would have several editions, through which Darwin refined his theory and replied to his critics.

Put simply, Darwin argued that variations occur occasionally among animals, and some of those variations prove to be advantageous to survival and reproduction – for instance, they allow the organism to adapt better to its environment, or to avoid predators. Since such traits are inherited (as we would now say, have a genetic basis), they will become more common with each generation, and may be said to be *naturally selected*.



RESPONSES TO DARWINISM

Samuel Butler, 1835-1902

Life and Habit

First edition

London: Trübner, 1878

Gift of Carroll A. Wilson, Class of 1907

Evolution, Old and New, or, The Theories of Buffon, Dr. Erasmus Darwin, and Lamarck, as Compared with That of Mr. Charles Darwin

First edition

London: Hardwicke and Bogue, 1879

Gift of Carroll A. Wilson, Class of 1907

Butler was initially enthusiastic about Darwin's *Origin of Species*. But he became disillusioned as he considered its implications. He wanted to believe that species developed by trying and learning, as active participants in evolution rather than passive under natural selection. But such a theory could not be sustained unless there were some way in which acquired traits, and acquired learning, could be passed along to descendants. In this his ideas, especially that of inherited memory, were largely derived from Lamarck. *Life and Habit* was his main statement on the subject, with additions in *Evolution, Old and New* and other books.

Ernst Krause, 1839-1903

Erasmus Darwin

Translated from the German by W.S. Dallas
With a preliminary notice by Charles Darwin
First edition in English
London: John Murray, 1879
Library purchase, 1984

Samuel Butler, 1835-1902

Unconscious Memory: A Comparison between the Theory of Dr. Ewald Hering . . . and the "Philosophy of the Unconscious" of Dr. Edward Von Hartmann; with . . . Preliminary Chapters Bearing on "Life and Habit," "Evolution, Old and New," and Mr. Charles Darwin's Edition of Dr. Krause's "Erasmus Darwin"
First edition
London: David Bogue, 1880
Gift of Carroll A. Wilson, Class of 1907

Concerned that Darwin had neglected to give credit to earlier writers on evolution, such as Lamarck, Buffon, and Darwin's grandfather, Erasmus, Butler dealt with their theories in *Evolution, Old and New*. In 1879, a translation of Ernst Krause's biography of Erasmus Darwin was published, which included not only a "preliminary notice" by Charles Darwin – in fact, longer than the main text – but also a passage which suggested that any serious attempt to revive Erasmus Darwin's ideas on evolution would be misguided. The latter, Butler saw, was a direct criticism of *Evolution, Old and New*, and had not been present in Krause's original German text. He soon replied to Darwin again in *Unconscious Memory*.

Samuel Butler, 1835-1902

"The Deadlock in Darwinism"
in *Essays on Life, Art and Science*
Edited by R.A. Streatfeild
First edition
London: Grant Richards, 1904
Gift of Carroll A. Wilson, Class of 1907

Bernard Shaw, 1856-1950

Back to Methuselah: A Metabiological Pentateuch
First edition
London: Constable, 1921
Library purchase, 1976

Butler continued his writings on evolution in *Luck, or Cunning* (1887) and finally "The Deadlock in Darwinism", first published in the *Universal Review* in 1890. He was joined as a critic of Darwin, at the beginning of the 20th century, by the playwright Bernard Shaw, who wrote at length about Darwinism as a preface to his *Back to Methuselah*.

"Evolution"
in *Sketches and Reminiscences of the Radical Club of Chestnut Street, Boston*
Edited by Mrs. John T. Sargent
First edition
Boston: James R. Osgood, 1880
Purchased on the Luther S. Mansfield Fund

John Burroughs, 1837-1921

"A Critical Glance into Darwin"
in *The Last Harvest*
First edition
Boston: Houghton Mifflin, 1922
Gift of Harriet Sprague

Shown here are two responses to Darwin in the United States. The first is a report of a lecture on evolution given by Edward Sylvester Morse (1838-1925) to the Radical Club of Boston. Among other things, he addressed the issue of the relationship of men and apes, about which "the members of the Club felt some delicacy about venturing into a discussion", given Morse's scientific expertise. The Reverend James Freeman Clarke stated that he thought the question

of Darwinism to be “yet hypothetical”, though “his own religious views . . . were no stumbling-block to his recognition of the plan of evolution should it be fairly based upon proof”.

In the second book, the naturalist John Burroughs “cannot believe that we live in a world of chance”, referring to Darwin’s mechanism of natural selection, but neither does he accept “the world-old notion of a creator and director, sitting apart from the universe and shaping and controlling all its affairs”.



SELECTED DARWIN RESOURCES
IN THE CHAPIN LIBRARY

- Eldredge, Niles. *Darwin: Discovering the Tree of Life*. New York: W.W. Norton, 2005.
- Freeman, R.B. *Charles Darwin: A Companion*. Folkestone, Kent: Dawson; Hamden, Conn.: Archon Books, 1978.
- Freeman, R.B. *The Works of Charles Darwin: An Annotated Bibliographical Handlist*. Second edition, revised and enlarged. Folkestone, Kent: Dawson; Hamden, Conn.: Archon Books, 1977.
- Glick, Thomas F., ed. *Darwinism in Texas: An Exhibition in the Texas History Center, April, 1972*. Austin: Humanities Research Center, University of Texas at Austin, 1972.

- Himmelfarb, Gertrude. *Darwin and the Darwinian Revolution*. London: Chatto & Windus, 1959.
- Landon, Richard G. *Species of Origin: A Bibliographical Exposition of the Works of Charles Darwin at the University of Toronto*. Toronto: University of Toronto Library, 1971.
- Willey, Basil. *Darwin and Butler: Two Versions of Evolution*. London: Chatto & Windus, 1960.

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- Barzun, Jacques. *Darwin, Marx, Wagner: Critique of a Heritage*. Revised second edition. Garden City, N.Y.: Doubleday Anchor Books, 1958.
- Darwin, Charles. *The Origin of Species by Means of Natural Selection, or, The Preservation of Favoured Races in the Struggle for Life*. Introduction by Sir Julian Huxley. New York: Mentor Book, 1958.
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- Eiseley, Loren. *Darwin’s Century: Evolution and the Men Who Discovered It*. Garden City, N.Y.: Anchor Books, 1961.