

## SIR CHARLES LYELL

### SELECTED STUDIES AND REMINISCENCES

#### LYELL'S SCHOOL-BOY DAYS

In his amusing history of his school-boy days, which is given in the "*Life of Sir Charles Lyell*," edited by his sister-in-law, Mrs. Lyell, Lyell shows that he went through all the fun and trouble, the games by day and the bolsterings by night, the keeping of pets and the petty warfares, of the English schoolboy. When eleven years of age, Lyell got into indifferent health at school after measles, and this necessitated his being less pressed at his lessons. He was fond of study, however, and this enforced idleness made him take to some of his father's amusements, among them that of entomology.

Young Lyell studied butterflies, and chased them in the fields and woodlands of the New Forest in Hampshire. He soon began to study the changes of form which insects undergo in their short lives, and to watch, hour after hour, the habits of the water-beetles and other aquatic insects. After spoiling a considerable number of hats in chasing butterflies, Lyell was supplied with a net, and a cabinet in which to place his stores of insect wealth. Oddly enough, some of the varieties of the butterflies

which young Lyell collected were of use in after years to Curtis, the entomologist. The boy had no companions in these "un-English" amusements, and was very grateful for the assistance of his father's head servant, who knew a few plants by sight, and helped his young master. "Instead of sympathy," wrote Lyell, "I received from almost every one beyond my home, either ridicule, or hints that the pursuits of other boys were more manly. Whether did I fancy that insects had no feeling? What could be the use of them? The contemptuous appellation of 'butterfly hunting' applied to my favorite employment, always nettled me." However, Lyell persisted, and when he got back to school he used to work at his favorite subject out of school hours.

Finding a number of expensive books in his father's library on entomology, with beautiful plates in them, the boy's common-sense told him that somebody prized all this knowledge, and that it must be valuable. Oddly enough, he took to reading Linnæus for descriptions of insects, and hunted up pictures of his captured butterflies in the plates of the more modern authors. Recovered in health, and fairly strong, Lyell, at thirteen years of age, was again sent to school. But the new school had all the demerits of the schools of the day, fighting, fagging, and bullying, being rampant. Lyell however came off well, although a weak and short-sighted boy.—PROFESSOR P. MARTIN DUNCAN, F. R. S., F. L. S., in "*Heroes of Science—Botanists, Zoologists, and Geologists*."

#### THE PUBLICATION OF THE "PRINCIPLES"

The publication [in May, 1833—when the author was in his thirty-sixth year] of the last volume of the "*Principles*

*of Geology*” formed an important epoch in Lyell’s life. It brought to a successful close a work on which his energies had been definitely concentrated for nearly five years, and for which he had been preparing himself during a considerably longer time. It placed him, before his fourth decade was completed, at once, and beyond all question, in the front rank of British geologists; it carried his reputation to every country where that science was cultivated. It proved the writer to be not only a careful observer and a reasoner of exceptional inductive power, but also a man of general culture and a master of his mother tongue. The book, moreover, marked an epoch in geology not less important; it produced an influence on the science greater and more permanent than any work which had been previously written, or has since appeared.—PROFESSOR T. G. BONNEY, D.Sc., LL. D., F. R. S., in “*Charles Lyell and Modern Geology*,” in “*The Century Science Series*.”

## THE DEATH OF LADY LYELL

In January, 1873, an unexpected and irreparable bereavement darkened the evening of Lyell’s days. On April 24th Lady Lyell, the companion and helpmate of forty years, was taken from him after a few days’ illness from an inflammatory cold. The shock was the more severe because the loss was so unforeseen. Lady Lyell was twelve years his junior, and had always enjoyed good health—“youthful and vigorous for her age,” as he writes—so that he “never contemplated surviving her and could hardly believe it when the calamity happened.” He bore the blow bravely, consoling himself by reflecting that the separation, at his age—nearly seventy-six—could not be

for very long, and, as he writes, endeavoring, “by daily work at my favorite science, to forget as far as possible the dreadful change which this has made in my existence.”

—PROFESSOR T. G. BONNEY, LL. D., F. R. S.

## LADY LYELL AND HER HELPFULNESS TO HER HUSBAND

Lady Lyell was a woman of rare excellence. “Strength and sweetness were hers, both in no common degree. The daughter of Leonard Horner, and the niece of Francis Horner, her own excellent understanding had been carefully trained, and she had that general knowledge and those intellectual tastes which we expect to find in an educated Englishwoman; and from her childhood she had breathed the refining air of taste, knowledge, and goodness. Her marriage gave a scientific turn to her thoughts and studies, and she became to her husband, not merely the truest of friends and the most affectionate and sympathetic of companions, but a very efficient helper. She was frank, generous, and true; her moral instincts were high and pure; she was faithful and firm in friendship; she was fearless in the expression of opinion without being aggressive; and she had that force of character and quiet energy of temperament that gave her the power to do all that she had resolved to do. She had more than a common share of personal beauty; but had she not been beautiful, she would have been lovely, such was the charm of her manners, which were the natural expression of warmth and tenderness of heart, of quick sympathies, and of a tact as delicate as a blind man’s touch.”—PROFESSOR T. G. BONNEY. *The quotation is from an obituary notice by G. S. Hillard, in the Boston “Daily Advertiser.”*

## LYELL'S PERSONALITY AND HABITS OF COMPOSITION

Lyell would have been a man of commanding presence, if his extremely short sight had not obliged him to stoop and peer into anything he wished to observe. This defect, in addition to the weakness of his eyes, was a serious impediment in field work. As Professor Ramsey remarked in 1851, after spending a few days with him in the south of England, he required people to point things out to him, and would have been unable to make a geological map, "but understood all when explained, and speculated thereon well." This defect of sight, according to Sir J. W. Dawson,\* who had been his companion in more than one excursion in Canada, was at times even a source of danger. "The expression of his face was one of thoughtful power and gracious benignity. In his work, Lyell was very methodical, beginning and ending at fixed hours. Accustomed to make use of the help of others on account of his weak sight, he was singularly unconscious of outward bodily movement, though highly sensitive to pain. When dictating, he was often restless, moving from his chair to his sofa, pacing the room, or sometimes flinging himself full length on two chairs, tracing patterns on the floor, as some thoughtful or eloquent passage flowed from his lips. But though a rapid writer and dictator, he was sensitively conscientious in the correction of his manuscript, partly from a strong sense of the duty of accuracy, partly from a desire to save his publisher the expense of proof corrections. Hence passages once finished

\* Late principal of the University of McGill College, Montreal.

were rarely altered, even after many years, unless new facts arose." \*—PROFESSOR T. G. BONNEY, LL. D., F. R. S.

## LYELL'S THIRST FOR KNOWLEDGE AND OPENNESS OF MIND

The characteristic with which any one who spent some time in Charles Lyell's company was most impressed, was his thirst for knowledge, combined with a singular openness, and perfect fairness of mind. He was absolutely free from all petty pride, and from "that common failing of men of science which causes them to cling with such tenacity to opinions once formed, even in the face of the strongest evidence." No man could have given a stronger proof of candor and plasticity of mind, and of his care for truth alone, than Lyell did in dealing with the question of the origin of the species. From the first he approached it without prejudice. So long as the facts adduced by Lamarck and others appeared to him insufficient to support their hypotheses, he gave the preference to some modification of the ordinarily accepted view—that a species began in a creative act—but after reading Darwin's classic work [*the "Origin of Species"*], and discussing the subject in private, not only with its author, but also with Sir Joseph Hooker and Professor Huxley, he was convinced that Darwin was right in his main contention, though he held back in regard to certain minor points, for which he thought the evidence as yet insufficient. Of his conduct in this matter, Darwin justly wrote: "Considering his age, his former views, and position in society, I think his action has been heroic." Dean

\* The sentences in quotation marks were supplied by Miss Buckley, Lyell's secretary. [T. G. B.]

Stanley, in the pulpit of Westminster Abbey, on the Sunday following the funeral, summed up in a few eloquent sentences the great moral lesson of Lyell's life. "From early youth to extreme old age it was to him a solemn religious duty to be incessantly learning, fearlessly correcting his own mistakes, always ready to receive and reproduce from others that which he had not in himself. Science and religion for him not only were not divorced, but were one and indivisible."—PROFESSOR T. G. BONNEY, LL. D., F. R. S.

#### LYELL'S RELIGIOUS VIEWS

Lyell's views on religious questions accorded, as might be expected, with the general bent of his mind. He was a member of the Church of England, appreciated its services, the charm of music, and the beauty of architecture, but he failed to understand why nonconformity should entail penalties, whether legal or social. His mind was essentially undogmatic; feeling that certainty was impossible in questions where the ordinary means of verification could not be employed, he abstained from speculation, and shrank from formulating his ideas, even when he was convinced of their general truth. He was content, however, to believe where he could not prove, and to trust, not faintly, the larger hope. So he worked on in calm confidence that the honest searcher after truth would never go far astray, and that the God of Nature and of Revelation was one. He sought in this life to follow the way of righteousness, justice, and goodness, and he died in the hope of immortality.—PROFESSOR T. G. BONNEY, LL. D., F. R. S.

#### LYELL'S CHIEF TITLE TO RENOWN

Sir Charles Lyell taught men to read the true history of the earth. It is difficult in the present day to understand rightly how great a work he accomplished, for though his ideas were ridiculed in the beginning, yet he lived long enough to see all men agree with him, and his doctrines received as self-evident truths. Like all other great men, he was humble and reverent in his study of nature. His one great desire was to arrive at truth, and by his conscientious and dispassionate writings he did much to persuade people to study geology calmly and wisely, instead of mixing it up with angry disputes, like those which, in the time of Galileo, disfigured astronomy. He traveled a great deal, especially in America, and worked out a great many facts in geology. But in future ages his name will stand out among those of other geologists chiefly as having shown that the *changes in the crust of our earth have been brought about in the course of long ages by causes like those which are still in action.*—ARABELLA B. BUCKLEY, in "*A Short History of Natural Science.*"

#### READERS' AND STUDENTS' NOTES

1. The standard life of Lyell is the "*Life, Letters and Journals,*" edited by his sister-in-law, Mrs. (Colonel) Lyell. But for the ordinary reader the best and most readable life of Lyell is the work by Professor Bonney in "*The Century Science Series,*" entitled "*Charles Lyell and Modern Geology.*" (New York:

The Macmillan Co. \$1.25). Professor Bonney's book is an exceedingly appreciative and instructive work.

2. The student who wishes to know how Lyell's work fitted in with that of other great men in the development of modern science will do best to read Miss Arabella B. Buckley's "*Short History of Natural Science.*" (New York: D. Appleton & Co.) Miss Buckley was for a long time secretary to Sir Charles Lyell, and her work—the best of its kind ever written—is dedicated to the memory of Sir Charles and Lady Lyell.

3. Professor Duncan's "*Heroes of Science—Botanists, Zoologists, and Geologists,*" is practically a history of the development of the sciences of botany, zoology, and geology. The author is himself a distinguished geologist. The concluding chapter of the book is devoted to an account of the life and work of Lyell. In great part this chapter is made up of Lyell's own writings. (New York: E. & J. B. Young & Co.)

Louis Agassiz