

to produce extremely great results over a period of time. Although he called his idea "natural selection" he later said that perhaps it might better have been described by the term "survival of the fittest," which Herbert Spencer had originated and used in various writings during the years preceding the eventual publication of Darwin's *Origin of Species*.

As soon as this idea occurred to Darwin he decided to gather facts that would support it. He wrote out a statement of his theory and placed it in a safe, returning to it from time to time to add further evidence, and intending eventually to publish a large work in which he would deal fully with the matter.

THE WRITING OF THE BOOK

In 1858 a young friend of Darwin named Alfred Russell Wallace was engaged in scientific study in the East Indies. As he pondered over the varieties of plants and animals that he saw there, he recalled having read Malthus' *Essay on Population* and hit upon exactly the same theory that had already entered Darwin's mind from the same source. He immediately wrote an article presenting his idea rather fully, and sent it to Darwin who was greatly surprised to find that Wallace had advanced exactly the same theory that he himself had thought of twenty years earlier. He feared that Wallace might publish it first and thus be considered as its originator. Yet he did not wish to do anything that would be unfair to Wallace. When he discussed the matter with his friends, and showed them the great similarity between Wallace's article and his own previous statement, they suggested that he allow them to read both statements at a meeting of a scientific society.

Darwin accepted the suggestion. At the meeting of the Linnean Society on July 1, 1858, separate statements of the views of both Darwin and Wallace were read, along with a prefatory letter explaining the circumstances. The thirty scientists present seem to have felt no particular interest in the presentation. A few months later, when the president of the Linnean Society reviewed the events of the year 1858, he declared that he could find no memorable scientific progress to record.

Darwin soon began to fear that either Wallace or someone else would publish the theory ahead of him. His friends urged him immediately to put it in print himself. He therefore spent several months writing a book, which he called: *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*.

One of Darwin's friends asked a London firm to issue Darwin's book. When the publisher looked it over he felt that it would not sell. However, he was well impressed with its observations about pigeons, and urged Darwin instead to write a book on that subject, saying, "Everybody is interested in pigeons." However, Darwin insisted that the book be published exactly as it was, and the publisher hesitantly agreed to do so.

WHY THE BOOK WAS SO IMPORTANT

Much to the surprise of both Darwin and the publisher the book was immediately received with great acclaim. The reason for this is easy to see. As we have noticed, many who desired to abandon the Biblical teaching about creation had become fascinated by the idea of evolution. This idea had been strongly criticized by outstanding scientists such as Thomas Henry Huxley who was firmly convinced that species are so fixed that there can be no change from one into another. The idea of evolution

appeared to lack scientific respectability, yet many wished to believe it. Now a book by a well-known scientist had appeared, presenting a method which its author felt was sufficient to explain the origin of every type of life from a previous type, and thus to make divine creation quite unnecessary.

Darwin's reputation was an important factor in the attention that the book received. He was known as a careful analytical scientist who for eight years had devoted all his time to studying barnacles and writing a large work on the subject. When Bulwer-Lytton had introduced in one of his novels a Professor Long, who was said to have written two large volumes about limpets, many people had immediately recognized Darwin as the original of the character. The fact that a scientist with such a reputation would write a scholarly book in support of evolution immediately gave respectability to the idea and pushed it to the forefront of discussion.

There were, of course, many people who were strongly convinced of the full truth of the Bible, and on this ground opposed any idea of a purely mechanistic origin of the various types of life. There were also many scientists who did not believe in evolution, and who were inclined to be extremely skeptical of the book.

Now that it was possible to use the name of Darwin to advance the theory of evolution, it would doubtless have received far greater acceptance than before. Yet it is highly questionable whether 1859 would have been such an important date in the history of thought, or whether the theory would have received more than a small part of the recognition that came to it so soon, if it had not been for the activities of two fiery advocates, Thomas Henry Huxley in England and Ernst Haeckel in Germany.

THOMAS HENRY HUXLEY

Since Huxley's support was so important in the establishment of the evolutionary theory we should pay some attention to the career of this remarkable man.

Huxley was 16 years younger than Darwin. He was a man of great intelligence, devoted to the study of science. He was also a man of strong emotions, much interested in religious philosophy and metaphysics. As a boy he had been obliged to listen to long and dry sermons which greatly repelled him, and he had developed a strong animosity to the church.

An interesting illustration of Huxley's attitude toward the church is found in his description, on an experience while engaged in the study of anatomy. At one time during his medical course he found it very difficult to remember which side of the heart the mitral valve was on. Then, he said, it occurred to him that a bishop has a mitre. After that he had no further difficulty. Since a bishop could not possibly be right, the mitral valve must naturally be on the left!

At a later time Huxley expressed his idea of theologians in these words: "Extinguished theologians lie about the cradle of every science as the strangled snakes beside that of Hercules; and history records that whenever science and orthodoxy have been fairly opposed, the latter has been forced to retire from the lists, bleeding and crushed if not annihilated; scotched, if not slain."

Huxley was a comparatively late convert to evolution. For a long time he held firmly to the belief that each of the many thousands of species was a distinct unit. When he first became acquainted with Darwin he was strongly convinced that no species could ever develop into a dif-