

Sir EDWARD BAILEY. *Charles Lyell*. London, etc., Thomas Nelson and Sons Ltd., 1962. 214 p. (British Men of Science.) 15s. od.

THIS is a remarkable book. Not only does it give in small compass a general picture of the more important events in the life of this distinguished geologist, but it also shows very clearly a phase in the development of modern geology.

Lyell was born in 1797 and died in 1875, and his work had a considerable influence on scientific thought in the nineteenth century.

In earlier days the "catastrophic" theories were paramount. The advocates of these theories believed, *inter alia*, that mountains had arisen suddenly because of cataclysmic disturbances. It was only by degrees that the "uniformitarian" aeon-long processes, which had been the same since the beginning of time, became understood and universally accepted.

Of these views Hutton was perhaps the greatest advocate, but he met with fierce opposition. Lyell at first was on the wrong side, but he ultimately saw the light.

In his chief work, *Principles of geology*, of which the sub-title was "*being an attempt to explain former changes in the Earth's surface by reference to causes now in operation*", he came to confirm Hutton's views. The first volume appeared in 1830 and many editions of the whole work were subsequently published, the tenth and eleventh in 1868 and 1872 respectively.

These early days also saw the beginning of glaciology, although many years were to elapse before it was no longer just a branch of the researches of geologists.

Lyell at first supported the view that erratics were transported from their original sites by rivers or by sea ice which had invaded the land. Later, however, he came to the conclusion that they had been deposited by former glaciers.

The same may be said of the Parallel Roads of Glen Roy in Inverness-shire, which he had thought were caused by marine invasions due to subsidence and uplift. Later, after Agassiz had shown that they had been caused by former glacierization, Lyell considered this to be probable and thus was one of the first to admit the possibility of the wide distribution of an ice cover over the British Isles.

Lyell travelled widely. He paid four visits to the United States, and several to Europe, including France and Sicily where he carried out much research, particularly on Tertiary formations. In Switzerland he became familiar with its glaciers and their morphological effects.

As a Fellow of the Royal Society and President of the Geological Society of London, Lyell met practically every noted scientist of the day, and among the most interesting features of the book are the references to a large number of these and the influence they had on him and his developing views.

Lyell was knighted in 1848 and received a Baronetcy in 1864.

This book is clearly written and eminently readable, and is illustrated with many pertinent drawings and photographs.

G. SELIGMAN