

SCIENTIFIC.

"THE GREAT ICE AGE."

BY JAMES GEIKE.

James Geike, the great Scotch scientist, is the author of the famous book entitled, "The Great Ice Age." In 1861, Mr. Geike was appointed to an important position in the British Geological Survey, and, no doubt, while pursuing the work in that position, he gathered the material for "The Great Ice Age."

The book explains, by means of astronomical facts, and also by means of the various glacial deposits, the order of succession of the climatal changes that occurred during the glacial epoch, and also the time that these successions occurred; the book further explains, by means of the implements found in the deposits of the various successions, at what time man first occupied what is now called the glacial region.

The author has made the above very clear by taking, as a foundation for the explanation of the theories he has advanced, the glacial deposits of Scotland. He then shows, by comparing the deposits of Scotland with those of North America and Northern Europe, that the same changes occurred in the two last named countries as in the first.

The following, which is a synopsis of the book, will give the reader some idea of the character of the work.

The first, or oldest deposit, which is composed of till, shows that Scotland was, at one time, covered by an immense field of ice, with here and there, gigantic glaciers finding their way down the mountains and valleys into the sea. The next deposit, which consists of loose debris, is the result of a more genial climate, as is shown by the animal remains and the signs of vegetation that it contains; in this layer, or inter-glacial deposit, as it is called, are found signs of human habitation. Next comes the last deposit, one of glacial clay, which shows that immense glaciers again filled the ravines and the valleys, though no field of ice covered the land, showing that the last glacial epoch was not so severe as the first. Again, and for the last time, the arctic climate disappears, and, in its place, once more came a warm climate, which, comparatively speaking, might be called a perpetual summer.

The author then goes on to explain the causes

of these phenomena. The earth gradually changes its relative position to the sun, and, at the end of every ten thousand years, its position is such as to produce great physical changes upon the earth, thus conferring upon it, at certain times, an intensely severe climate. At the end of another ten thousand years, its position is reversed and consequently its climate is also reversed. Judging from these theories, the time that has elapsed since the inter-glacial period, or the time since man first occupied the glacial region, can be determined with a certain amount of accuracy.

The book is very easy of comprehension, the style being simple, and the expression accurate. Each point that is developed is made plain by simple illustrations, so that even those who are not versed in the subject of Geology can readily grasp the theories advanced.

The practical value of the book lies in the fact that it exercises the reasoning powers, and also in this, that, through its perusal, any ordinary student can obtain a fair knowledge of the climatal successions of the glacial epoch.

"The Great Ice Age" has done great service, for it has marked a new era in the investigation of the subject of which it treats. Considering that most of the theories advanced in the book are new, and that to establish these the old ones had to be overthrown, Mr. Geike has certainly accomplished a great work, and Science cannot easily repay him for the service he has done in her favor.

M. C.

THE COMING METAL.

It has long been known that the element Aluminum is more abundant than any other metal; in fact, that the stability of the crust of the earth on which we tread is largely dependent upon the strong cementing bond of Aluminum that holds the rocks and clays in such a firm grasp that even the elements and the tooth of time cannot destroy it. So strongly has Aluminum held all other elements in her embrace that it has greatly baffled the skill of the chemist ever since its first discovery to separate it, *i. e.*, to obtain it in a state of purity from its environments.

Sir Humphry Davy, in 1807, tried to isolate the metal Aluminum by decomposing its Oxide Alumina with the electric current, and while he failed in the attempt, the brilliancy of his thought is fully proven in the fact that now,