

deeper beneath the bottom of the sea than it is beneath the surface of dry land. But the rigidity of rock is not merely a function of temperature; it probably increases if the pressure increases, as we see, from all the meagre information in our possession. Thus we know that solid rock probably sinks in melted rock, and that, therefore, pressure raises its melting-point. Again, we know that the interior of the earth is probably at an enormously high temperature, and yet Sir William Thomson tells us that on the whole it is more rigid than glass. I have good reason for believing, therefore, that as the pressure on an isothermal surface beneath an ocean is much greater than on the same surface beneath dry land, a surface passing through all points where the rock is equally rigid or equally strong to resist tensile stresses, and which is the surface I really have to deal with in my paper, would probably be several miles deeper off the coast of Japan than it is directly underneath dry land." In my ignorance I cannot give with sufficient fullness the clear reasoning of my friend; but as what I have given seems to be a suitable reply to Mr. Fisher's letter, I must beg you to insert it, since Mr. Milne is too far away to reply for himself.

JOHN PERRY.

SCIENTIFIC CLUB, 18th May, 1880.

OBITUARY.

PROFESSOR K. A. L. VON SEEBACH.

BORN AUG. 13TH, 1839; DIED JAN. 21ST, 1880.

KARL ALBERT LUDWIG VON SEEBACH was born at Weimar, August 13th, 1839. When eight years of age, his father, Chamberlain Major von Seebach, placed him at Keilhau, near Rudolstadt, where, under the teaching of MM. Barop and Middendorf, he passed six happy years. In 1853 he returned to Weimar, and entered the Public Gymnasium under the direction of Hermann Sauppe. Here he enjoyed the advantage of good classical teaching, and at home acquired from his father the love of physical science. Major von Seebach had been a special favourite of the aged Goethe, who had given him a small collection of minerals with a catalogue in his own handwriting; this gave the young officer his first impulse in pursuit of science. Goethe's collection, augmented by the father for the benefit of his son, was by the youthful Seebach united to a series of geological and palæontological specimens; the whole of these treasures, at a later period, were presented to the Göttingen Museum. While still at school he wrote his first scientific paper, "The Entomostraca of the Thuringian Trias," which appeared in the *Zeitschrift der Deutschen geologischen Gesellschaft* (Jg. 1857). His varied attainments proved that scientific investigations had taken a firm hold on his mind; and when leaving in 1858, the highest certificate was bestowed on him by the Governors for his general excellence.

After his exertions at school and his rapid growth, a very wholesome year of mining at Kamsdorf, near Saalfeld in Thuringia, followed. He still further improved his scientific taste by an academic course, and at Easter, 1859, he began to study with Prof. Ferdinand

Römer at Breslau, for whom he possessed a grateful admiration to the last. These studies he continued in Göttingen and Berlin under Prof. Beyrich. In 1862 he wrote a memoir "On the Molluscan Fauna of the Weimar Trias."

After this course of study came scientific travels. First, in company with Professor Römer, he visited the Carpathians, and in 1861 Russia, in 1862 England, in 1863 Sweden.

At the conclusion of his University career in 1863, he was elected Professor Extraordinary of Geology and Palæontology in the University of Göttingen.

After the publication of his "Hannoverian Jura" in 1864, he obtained the title of Professor, and started upon a scientific expedition to Central America, which occupied him a part of 1864-65.

He was incessantly engaged upon the account of this expedition, but it so hindered his professorial labours, that only one preliminary account of the results has appeared. His investigations into the phenomena of volcanos were worthy the journey to Central America, and are well expressed in a letter on "The typical difference in the form and construction of volcanos and their causes." In 1866 he visited the Island of Santorin, and published an account of it in 1867, treating of its remarkable volcanic phenomena. A little later he started various scientific questions in a clear and intelligent form: "The waves of the sea and their geological action" (1872). "Central America and the interoceanic canal" (1873). In June, 1867, he married Berta Sauppe, the second daughter of his former master, the Professor of Philology and Classics in Göttingen. In 1870 Seebach was appointed permanent Professor.

From 1867 he worked at the Geognostic Charts of Prussia and Thuringia, and spent his summer vacation in the field. In 1872 the maps for Worbis and Niederorschel were finished; other completed works await publication. The completion of a new Natural History Museum, in which the geological and palæontological collections formed by far the largest share, was his latest task, and was a subject very near his heart. In the carrying out and executing of the plans he took a most active part. Late in 1877 the building was finished.

At that time the meeting of the German Geological Society was held in Vienna, when, contrary to Seebach's desire, the meeting for the ensuing year, 1878, was fixed to take place in Göttingen. This caused him to work in the draughty unfinished rooms, moving and arranging the collections, a task which he accomplished, but only at the cost of his already heavily overtaken strength.

A winter (1878-79) passed in Portugal, was to restore his health and relieve his bronchitis. The interest excited by a visit to this, as yet, little known land, restored for a time his strength, and renewed his scientific activity. In the spring of 1879 he returned to Göttingen, but only to retire to a couch, from which he was never again to rise.

On January 21st, 1880, he died, leaving a warm and lasting remembrance of his brave and true-hearted nature, which all who knew him will cherish.