

## OBITUARY.

## OTTO MARTIN TORELL.

(PLATE XV.)

BORN JUNE 5, 1828.

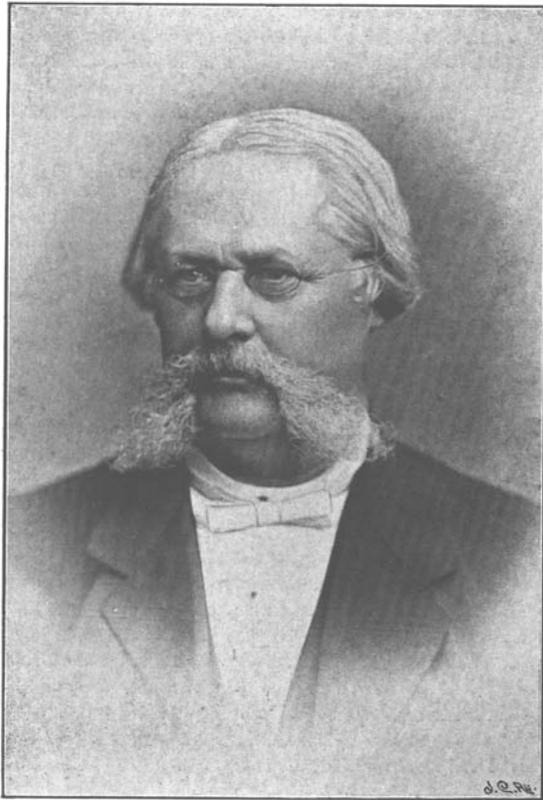
DIED SEPTEMBER 11, 1900.

THROUGH the kindness of Mr. Leonard Holmström, we are enabled to present our readers with an excellent portrait of the late Professor Torell, who from 1871 to 1897 was head of the Geological Survey of Sweden. The portrait originally accompanied a long article by Mr. Holmström in *Geologiska Föreningen i Stockholm's Förhandlingar* (xxiii, Häft 5) issued at the close of last year. Space does not permit us to publish even a condensation of this highly interesting account of the departed geologist, but Torell was known personally to so many of his colleagues in this country, which he frequently visited, that they will welcome some extracts therefrom.

Torell wrote little, partly from a disinclination for the mere physical act, partly from a striving after that completeness which can so rarely be attained, partly from a carelessness of personal fame, and partly perhaps because he was rather a propounder of new ideas than a patient elaborator of detail. His influence therefore on the geologists of the world was not quite so great as it might have been; but on those of his own country it was enormous. Mr. Holmström goes so far as to call him "in one sense *the creator of Swedish geology*." It is true that Sweden could show men eminent in that branch of learning before Torell's time, but it was not till his coming that geology was generally recognized as an independent science. He founded a school of geology in the University of Lund, which possessed neither professor, nor literature, nor collections for its study, and where even to-day there is no full professorship in the subject."

"He transformed the official Geological Survey of Sweden into a scientific institution of high rank. He himself was the founder of a truly scientific geology of the Quaternary period, through his genius and courage in championing the theory of a general glaciation of northern Europe, and for all time his name will be coupled with that bold hypothesis, which fought its way to victory in the teeth of contempt and official excommunication." On his first appearance before the German Geological Society, the geologists of Berlin could not listen to him with patience; but five years later they made him a chairman at their annual gathering.

It was in pursuit of evidence for or against his theory of an inland ice-sheet that he began the series of Arctic expeditions of which Sweden has such right to be proud, sacrificing to them no small part of his own means. A. E. Nordenskiöld, who was his companion, reminded us not long before his own death, that Torell's first expedition to Spitzbergen (1858) was made in an ordinary clinker-built fishing-smack, which leaked even before she left



*Otto Torell.*

Tromsö. Several of Torell's letters to Nordenskiöld are quoted by Mr. Holmström, and it is interesting to read the words: "for many years the quest of the Pole has been my *idée fixe*." None the less the Swedish expeditions have never been mere foolhardy or sensational attempts to beat the record of high latitude, but have borne that truly scientific character which Torell impressed on them from the first.

Instigated by Lovén, under whose penetrating influence he came at the age of 20, he undertook dredgings at Kristineberg, where now is the Swedish biological station, and it was here that he found *Yoldia arctica* in the fossil state. This discovery propounded the question as to the nature of former Arctic conditions in southern Scandinavia, which in after life he did so much to answer. At that time, however, the medical profession was his goal, and while conducting researches in comparative anatomy under Lovén, he also accompanied him on dredging expeditions in yet deeper waters, and accomplished much on his own account, especially on his journey to Iceland.

Whether as teacher at Lund, as friendly companion, or as head of an official establishment, Torell lost no opportunity of imparting some of his own enthusiasm to others, whether students, politicians, or wealthy landowners. He freed the Survey from the bonds of a rigorous officialdom, and encouraged the independent scientific work of the members of his staff in every possible way. But eager though he was to encourage science for its own sake, he was no less keen to apply it to the advantage of his native land. He conducted or instigated numerous surveys, both official and private, of the agronomic and technical geology of important districts. He founded the great cement industries of southern Sweden, bored for oil in the Silurian shales of Dalecarlia, showed the towns of Lund, Malmö, and Helsingborg how to get a constant supply of pure artesian water, helped to develop the sea-fisheries of Sweden, set on foot researches into the marl beds and phosphorite beds, and all materials suitable for the enrichment of the soil, fostered the building-stone industry, sought out uses for the vast deposits of peat, was a pioneer in the employment of water-gas, promoted railways to exploit the resources of northern Sweden, and toiled, albeit unsuccessfully, at the problem of extracting iron directly from the malm-ores.

Torell never became, as he intended and even wished, a practising physician. But he did not at first find the pursuit of pure science a satisfactory career, and in 1867 he even had thoughts of settling in England, which shows how bad things must have been with him. However, the appointment to the Geological Survey came at the right moment, and Sweden kept for herself one of her most eminent men of science and one of the most patriotic of her sons.

F. A. B.