

# SCIENCE.

FRIDAY, NOVEMBER 30, 1883.

## JOACHIM BARRANDE.

### I., HIS LIFE.<sup>1</sup>

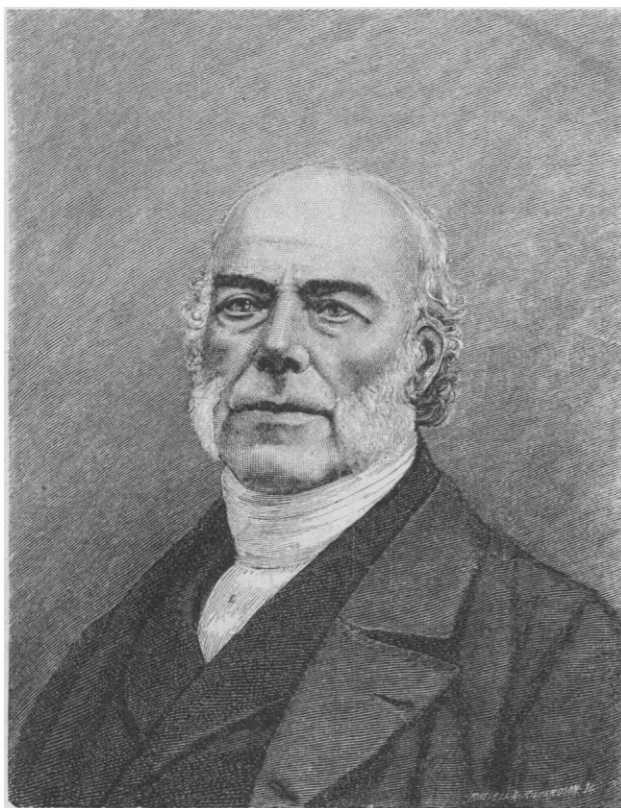
THE death of Joachim Barrande, who for more than half a century has attracted the respectful regards of the world of science, severs the last link between the times of Cuvier and our own. The example of this noble life may be truly said to have borne threefold fruit. He was, after Cuvier, intellectually by far the most dangerous of the opponents of evolution. He was great in his works, and great in the example of a life devoted to research and to the service of his unfortunate sovereign. He belonged to that illustrious body of men who acknowledged Cuvier as their teacher of science; and, in order to understand him, one must recognize this, and also realize that to him loyalty was inseparable from faith and truth. The chivalrous side of

his character is best illustrated by the reason which he gave for refusing peremptorily the high honor of an election to the French academy. He said simply that he had no desire for membership in a society with such avowed aims, but which had refused admission to some of his masters in science, — Alcide D'Orbigny,

Deshayes, and Edouard Lartet, who had taught him all that he knew. He dedicated himself to science always without personal reservation; but his opinions were never free. He was bound by his loyalty to the memory of his masters in science, and by his faith in the doctrine of the divine right of kings; and both in science and in politics he remained throughout life a consistent opponent of the new theories of evolution and republicanism.

Born in the year 1799, in the town of Saugues, department of Haute Loire, we

first hear of him in 1819, when he entered the École polytechnique of Paris, whence he graduated in 1821 among the first in his class, and then passed into the École des ponts et chaussées, graduating in 1824 with high honors.



*J. Barrande*

<sup>1</sup> We are indebted to Professor Jules Marcou, an intimate friend of M. Barrande, for the personal facts in this notice.

During these five years he was assiduous in his attendance on the various courses of lectures given by Cuvier, Brongniart, De Jussieu, Constant Prévost, and Desfontaines, upon zoölogy, geology, and botany, and constantly visited the collections of the Jardin des plantes. After graduation he was appointed engineer at a small town in the basin of the Loire; and there, during one of the visits of Duc D'Angoulême, then the dauphin of France, he was presented to the duke; and any one who has ever had the privilege of Barrande's acquaintance will readily understand the favorable impression his character and attainments made upon his royal highness. Subsequently the young engineer became the most favored candidate of the dauphin for the office of instructor in science to his nephew, the Comte de Chambord, the grandson of Charles X.; and he secured this post for him. The unsolicited appointment to what was considered and sought by learned men as one of the highest honors in the gift of the king, reads like the climax of a fairy-tale; and like that, also, the daring of the young engineer in accepting the appointment had the happiest results for himself and for his royal charge.

The revolution of 1830 put an end to the reign of Charles X., and drove the elder branch of the Bourbon family and their faithful servitor into exile; and it was during the sojourn in England and in Scotland that Barrande perfected himself in the use of the English language. In 1832 they removed to Prague, and carried with them this man who was to make Bohemia classic ground for the geologists of all countries. Barrande found himself here in a new field, where all his previous education and preparation were at fault; but for a true investigator, such as he was, this merely excited the greater interest. He and his pupil began by collecting every thing in the vicinity; and then, little by little, their attention was irresistibly drawn to the fascinatingly rich deposits of Silurian fossils.

Their collections in time became too extensive to be accommodated in the halls devoted to study at the Chateau de Hradschin, and

Barrande removed his collections to a house which he had purchased as a residence for himself. With immense labor, and without assistance from books, he built up the first steps of a classification by which he could arrange his collections in natural sequence and in their respective faunas. In 1840 he met with a copy of the 'Silurian system' of Murchison, and became assured of the fact that he was working among similar fossils and in the same geological period. This service was later gratefully and intentionally recognized in the general title of his works, 'Système silurien du centre de la Bohême.'

The royal family changed their residence, going first to Goritz, and then to Frohsdorf; but Barrande, though continuing to serve the Comte de Chambord, having exchanged the post of tutor for that of trusted friend and superintendent of finances, did not live in his household, being permitted to remain with his beloved collections at Prague. His duties, however, called him a part of the year to Paris; and he there leased apartments, first in the rue Mézières, and subsequently in the rue de l'Odéon. There are probably few geologists of reputation who have not, in passing through Paris, made these apartments a visit, and experienced the delight of being received by this stately and warm-hearted gentleman.

Besides the mastery of English, Barrande found it necessary to acquire German, which he spoke and wrote with facility, and also the Czech language, in order to direct and control the workmen employed by him as collectors of fossils. These men varied in number at different times, from six to twenty, and sometimes even to thirty. The practical difficulties which were overcome in this part of the work, and the anecdotes which might be related of the efforts made to deceive him about the localities of fossils, for which he had offered special rewards, would be instructive as well as amusing. We have, however, space only to relate that he acquired among his workmen the reputation of being a generous gentleman, but one of great firmness; and, being obliged also to account for powers beyond their com-

prehension, they attributed to him a mastery of the black art of divination, and a possible intimacy with the devil himself.

In finishing his work, neither money nor labor was spared: the best illustrators were constantly employed; and one, M. Humbert, became noted, lived constantly with him, and died in his employ after twenty-five years of service.

Barrande found it necessary to be his own publisher. He accordingly organized a French press at Prague; and the typography of his books justify his own assertion, that they could not have been printed with greater technical elegance by any press in Paris. We know from personal inspection that errors are very rare. The quotations, which generally show carelessness, if any part of a book does, excel in this respect; and the desire for correctness has been carried so far, that, instead of tables of 'corrigenda,' he has carefully corrected errors with printed slips pasted upon the pages of the text. All this was done while engaged in administering a fortune of about fifty millions of francs, and arranging many complicated questions of business connected with his position, and relations to the Comte de Chambord, which required much time, and many journeys to different parts of Europe. That this was accomplished successfully is shown by the terms of the will of this last heir of the elder Bourbons, who appointed him his executor. The expenses of the whole work were met by the personal sacrifice of his own income from all sources, but principally by the generous assistance of his royal friend. These presents were always made with the greatest delicacy by the count as his subscriptions to the '*Système silurien de la Bohême*;' and Barrande has recognized their essential importance in dedicating each of his volumes to this generous patron, and also by a direct statement that his own labors would have failed but for this assistance. The world of science owes to the Bourbon family its perpetual recognition of this example of friendship and generosity, which has brought out to full fruition the life of one of its representative men.

No government can point to a finer single monument to science than this one, created by an exile in a foreign country; and the sums expended were large, since, as we are assured, the average cost of each of the twenty-two volumes, as estimated by Barrande himself, was not less than twenty thousand francs, making a grand total of nearly ninety thousand dollars for the parts published up to the present time. M. Barrande never married; and his only surviving relatives are a sister, Mme. Vuillet, and a brother somewhat younger, M. Joseph Barrande, a distinguished engineer.

It is impossible adequately to present a life so varied and so full of activity in every direction, at once scientific, and yet so picturesque from political and social stand-points. He had become, before his death, the only survivor of the ancient servitors of the royal house of France; and the cause, and even the surroundings, of his death, completed the beautiful picture of his life of voluntary exile and chivalrous service. He sacrificed himself to his duty as executor, and died from a cold contracted from exposure while engaged in carrying out the last wishes of the man who had been to him pupil, friend, patron, and rightful sovereign. His decease took place Oct. 5, at the Chateau of Frohsdorf, near Vienna, under the same roof, and within a short time after the death of the Comte de Chambord. We who are republicans cannot estimate his motives, nor feel with him as a royalist, but we can respect the rare moral qualities of his devotion; and we feel, also, that it is essential to express our reverence and gratitude to the memory of a really great man for his consideration and kindness to all young students in science who have had occasion to come into personal or professional relations with him.

---

#### WHIRLWINDS, CYCLONES, AND TORNADOES.<sup>1</sup>—IV.

THE beginning of the upsetting in a tropical cyclone is not fully accounted for by observation. It is not so easily explained as the first

<sup>1</sup> Continued from No. 42.