

a compound of a very positive with a very negative element, or radical, than is required to separate a compound of a less positive with a less negative element, or radical. But, at the same time, Faraday's researches strengthened that part of the Berzelian doctrine which asserted the existence of a close connexion between electrical and chemical forces.

Looking to-day at Faraday's words: "The electricity of the voltaic pile . . . is entirely due to chemical action, and is proportionate in its intensity to the intensities of the affinities concerned in its production, and in its quantity to the quantity of matter which has been chemically active during its evolution," we immediately recognise in them the roots of the magnificent development which the doctrine of chemical affinity has shown since those times by the labours of

Willard Gibbs, von Helmholtz, and van 't Hoff. While the whole of the present electric industry is based on Faraday's discoveries in the fields of converting electric energy into mechanical power or, reciprocally, of obtaining electric energy by an expenditure of mechanical work, electro-chemical industry owes its existence to his far-reaching researches in the field of chemistry.

It would be carrying coals to Newcastle to give here an account of the influence of these achievements upon our purely theoretical conceptions and upon the conveniences of modern life, which could never have been dreamed of by our ancestors. Recalling this to mind, we cannot but repeat Shakespeare's words:

"He was a man, take him for all in all,
I shall not look upon his like again."

The Royal Institution.

NEW HONORARY MEMBERS.

THE proceedings at the centenary celebrations at the Royal Institution were marked by the presentation of diplomas of honorary membership to six distinguished foreign chemical workers. The presentations were made by the president of the Institution, His Grace the Duke of Northumberland, and the recipients, two of whom were represented by fellow-countrymen who were able to be present, were introduced by the secretary of the Institution, Sir Arthur Keith, in the following words:

GABRIEL ÉMILE BERTRAND, professor of biological chemistry at the Sorbonne, Paris, and Director of the Laboratory of Biological Chemistry at the Institut Pasteur. Prof. Bertrand is distinguished as an inquirer into bacterial activity, particularly in connexion with oxidation phenomena, of which he has made a special study. He has also paid great attention to the influence of minute quantities of metals not usually regarded as acting upon the course of vital change.

ERNST JULIUS COHEN, professor of general chemistry and inorganic chemistry, University of Utrecht, Holland. Prof. Cohen is an acknowledged leader in physical chemistry, the biographer in England of his master, Van 't Hoff, and like him, a devoted student of Byron.

PIERO GINORI-CONTI, Senatore, president Associazione Italiana de Chimica, Generale ed Applicata, Rome, Italy. Prince Ginori-Conti has acquired distinction by capturing natural steam and using it as a source of energy, at the same time extracting from it large quantities of boric acid. He manufactures per-

borates from this latter by Faraday's method of electrolytic oxidation.

JAMES FLACK NORRIS, professor of organic chemistry, Massachusetts Institute of Technology, and secretary of the American National Research Council. Prof. Norris is president of the American Chemical Society, a constituency of 15,000 chemists. He is professor in the most noted of American Technical Schools, the Massachusetts Institute of Technology, and himself a well-known original worker.

JOJI SAKURAI, president of the Japanese National Research Council, emeritus professor, Imperial University of Tokyo, Japan, and member of the Japanese House of Peers. Prof. Sakurai was a student under the late Prof. A. Williamson at University College, London, one of the first small band of Japanese students who came to Europe to acquire a knowledge of western science. Working upon foundations laid by the late Prof. Divers, he has long been noted as the inspiring mind in Japanese chemistry. A founder of the National Research Council of Japan, he is now actively engaged in promoting the application of science generally in his country.

FREDERIC SWARTS, professor of chemistry, University of Ghent, Belgium, and member of the Royal Academy of Belgium. Prof. Swarts is the son and successor of the successor of Kekulé in Gand. His father was Kekulé's assistant at the time (1868) Sir James Dewar worked in Gand, together with Körner, celebrated as the first to disclose the value of Kekulé's benzene symbol. Prof. Swarts is distinguished as a student of the organic compounds of fluorine.