address; the one on past and present relations between geology and mineralogy, the other on those between mineralogy and palæontology, where he attributed life to crystals, or his study of the borings in the Nile Delta, his petrological investigations of the rocks ejected from Krakatoa in 1883, and his studies of the materials from the Funafuti borings, all published by the Royal Society. The last involved much organisation, of which he took the lion's share. The Survey memoir on the geology of Rutland (1875) was written by him, and a small but excellent book on volcanoes in 1878. He twice revised and added much to Lyell's "Students' Elements of Geology" (1896 and 1911), and contributed the "Coming of Evolution" to a Cambridge series. In this small volume he tells the story, brightened by his reminiscences of the chief actors, in a most attractive way. He was a man whose like will not readily be found.

T. G. BONNEY.

DR. PIERRE CHAPPUIS-SARASIN.

PHYSICAL science has suffered a severe loss in the death of Dr. Pierre Chappuis-Sarasin, formerly of the Bureau International des Poids et Mesures at Sèvres, who passed away at Basle on February 15.

Dr. Chappuis was born in Switzerland in 1856, and his early youth was spent in his native country. In 1881 he joined the staff of the Bureau International, then under the directorship of Dr. O. J. Broch. One of the most important early tasks of the newly-founded International Committee of Weights and Measures was to place upon a proper basis the whole system of the measurement of temperature, to define with precision the temperature-scale to which all measurements relating to length and mass were to be referred, and to set up the necessary ultimate standards. The classic work of Regnault and of Rowland had shown that practical realisation of temperatures by the gas-thermometer depended on the working limits of pressure adopted and the choice of the gas selected as thermometric substance. It was to the solution of the problem of a satisfactory ultimate thermometric standard that Dr. Chappuis at once devoted himself, and his brilliant investigations carried on at the Bureau over a period of more than twenty-two years have won him a place in the very front rank of physicists concerned with the science of exact measurement. His classic memoir on the gas-thermometer published in vol. vi. of the "Travaux et Mémoires" describes his researches on the coefficient of expansion of different gases suitable for thermometric substances, and led to the adoption by the International Committee in 1884 of the fundamental hydrogen scale of temperature.

Among other investigations may be mentioned his determination of the volume of the kilogram of water, employing the optical methods of Benoit and Michelson, and measurements to very high precision of the expansion of mercury and of water.

Family claims and the call of his native moun-

tains led Chappuis to resign his connection with the Bureau and return to Switzerland in 1903, adopting the additional name of Sarasin, to which well-known family his wife belonged. He built himself a fine private laboratory at his house at Basle, where until quite lately he continued his researches. His last considerable piece of work, hitherto unpublished, was a redetermination of the sulphur boiling point. In these experiments the quartz reservoir of the gas-thermometer was directly immersed in sulphur vapour.

M. Chappuis was of a retiring disposition, disliking self-advertisement, and rarely appeared on scientific platforms. He visited the British Association at the Dover meeting. It is impossible for one who knew him well to conclude this memoir without a tribute to his genial disposition, his indomitable energy and high personal character. All who knew him in his hospitable home at Sèvres or Basle will feel they have lost a true friend.

J. A. HARKER.

A COMMONWEALTH INSTITUTE OF SCIENCE AND INDUSTRY.

WE have just received a copy of the report of a committee appointed in pursuance of a motion passed at a conference convened by the Prime Minister of the Commonwealth of Australia that "An Advisory Committee be constituted to formulate proposals to the Government to establish a Commonwealth Bureau of Science and Industry." The members of the committee were: Representatives of universities:—Sydney—Sir T. Anderson Stuart; Melbourne—Prof. Orme Masson; Queensland—Prof. A. J. Gibson; Adelaide—Sir Douglas Mawson. Interstate Commissioners:—Mr. A. B. Piddington, the Hon. G. Swinburne. The Associated Chambers of Commerce of Australia:—Mr. W. T. Appleton. The Associated Chambers of Manufactures of Australia:—Mr. W. W. Forwood, Messrs. G. D. Delprat, W. P. Wilkinson (Commonwealth analyst), W. S. Robinson, J. M. Higgins, W. Russell Grimwade, E. W. Knox. Ex-officio Members:—Prime Minister of the Commonwealth; the Hon. F. Hagelthorn, Minister of Agriculture, Victoria; the Hon. W. Lennon, Minister of Agriculture, Queensland; the Hon. C. Goode, Minister of Agriculture, South Australia.

It will be noticed that the committee includes representatives of commerce and manufacture as well as of science and departments of State. We understand that the committee's report, which is subjoined, has the approval of the Federal Government, and that it is probable a Bill will be laid before the Federal Parliament to give effect to the recommendations after the Prime Minister's return from his present visit to England. The proposals of the committee are on lines somewhat similar to those of the British Government's scheme for the organisation and development of scientific and industrial research. Primary as well as secondary industries are included, and particular notice may be directed to the recommendations as to the governing body