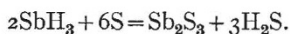


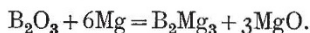
position among the large schools of England: the writer remembers well the succession of brilliant candidates he sent up for the Brackenbury science scholarships at Balliol between 1879 and 1886. For forty-seven years he continued to direct the chemical laboratories and to take his full share of teaching in the school.

Francis Jones must be placed in that small class of science masters who, in spite of incessant calls on their time and energy, have advanced chemistry in England. His first important paper on the properties and composition of stibine appeared in 1876 (*J. Chem. Soc.*). The composition of the hydride of antimony had previously been based on the analysis of the black compound thrown down when the gas mixed with hydrogen was passed through silver nitrate solution—presumed to be pure  $\text{SbAg}_3$ . But metallic silver is also deposited in this reaction, and the substance is really a mixture, as Jones showed by his analyses. His next attempts were to measure the increase in volume when 2 litres of the hydrogen and stibine were sparked, but the proportion of the stibine was too small to enable its composition to be determined from the increase in volume and the weight of antimony formed. He discovered, however, that stibine was decomposed by sulphur at ordinary temperatures in bright light:



By passing the mixed gases through weighed sulphur-tubes and absorbing the hydrogen sulphide, he showed that one atom of antimony was combined with three of hydrogen. The orange colour imparted by stibine to sulphur gives us a very delicate test for antimony.

In 1879 appeared the preliminary note on boron hydride. In his first experiments Jones attempted to make magnesium boride by the action of sodium on a mixture of magnesium chloride and potassium borofluoride—following the method for making silicon hydride. The reaction was violent, but no hydride resulted from acidifying the product. Then he tried with success the direct heating of magnesium powder with boron trioxide:



When hydrochloric acid was dropped on to the grey friable product a gas was evolved which burnt with a bright green flame and had a most disagreeable odour. He had obtained the hydride mixed with hydrogen.

Two years later a fuller paper was published (*J. Chem. Soc.*, 1891) by Francis Jones and R. L. Taylor. Other methods of preparing the hydride were given, but the simplest was that described above—which always contained a large excess of hydrogen. The hydride was decomposed by passage through a red-hot tube leaving a brown deposit of boron; when bubbled through silver nitrate it formed a black precipitate containing silver and boron. Combustion of the mixed gases by means of copper oxide showed the hydride molecule to contain more hydrogen than the molecule  $\text{H}_2$ , and to approximate to  $\text{H}_3$ . Twenty years later, Ramsay, by cooling the mixed gas with liquid air, extracted another hydride from it, to which he assigned the formula  $\text{B}_3\text{H}_3$ .

In 1884 Francis Jones published a simple method for detecting a chloride, bromide, and iodide when the

three salts are mixed together. By the addition of dilute sulphuric acid drop by drop to the salts in the presence of manganese dioxide and water the iodine can be boiled off, then the bromine, the residue with strong sulphuric giving the chlorine. His other published work dealt chiefly with the effect of different modes of heating and lighting on the air of living-rooms: he took an active interest in the crusade against air pollution.

For many years he acted on the council of the Manchester Literary and Philosophical Society, and was president for the two years 1909–11: he gave his services freely to the last, and his kindly and sage counsel was always appreciated. H. B. D.

MR. G. L. SMITH, who died at Chertsey on September 25, was head of the Instrument Research and Design Department of the Royal Aircraft Establishment. As such he was responsible for a large number of instruments used on aircraft. His remarkable genius for this type of work enabled him to accomplish much work of great importance, though his share in it is little known outside the circle of a few associates. Born at Aberdeen about 1870, Mr. Smith followed a number of scientific pursuits—among which may be mentioned the design and application of the aero fire alarm, which was extensively used in England and the United States. At the outbreak of the War, he offered his services to the Royal Aircraft Establishment, where he remained until illness compelled him to resign a few months before his death. While of a somewhat retiring and unobtrusive disposition, his kindly and sympathetic nature made him beloved and respected by every one.

G. M. B. D.

WE regret to announce the following deaths:

Dr. E. J. Babcock, professor of industrial chemistry, metallurgy and mining and dean of the College of Mining Engineering in the University of North Dakota, on September 3, aged sixty years.

Dr. H. R. Carter, assistant surgeon-general of the United States Public Health Service and a distinguished authority on yellow fever and malaria, on September 14, aged seventy-three years.

Prof. T. Case, formerly president of Corpus Christi College and Waynflete professor of moral and metaphysical philosophy in the University of Oxford, on October 31, aged eighty-one years.

Dr. Paul Héger, honorary professor of physiology in the Faculty of Medicine at the University of Brussels, aged seventy-nine years.

Dr. J. R. Henderson, C.I.E., formerly professor of zoology in Madras Christian College, and Superintendent of the Government Museum and Aquarium in Madras, on October 26, aged sixty-two years.

Prof. J. N. Langley, F.R.S., professor of physiology since 1903 in the University of Cambridge, on November 5, aged seventy-three years.

Prof. J. Massart, professor of botany in the University of Brussels, corresponding member of the Paris Academy of Sciences and foreign associate of the Royal Academy of the Lincei, aged sixty years.

Rev. E. F. Russell, of St. Alban's, Holborn, one of Huxley's early students, who contributed to our issue of May 9, p. 751, his recollections of Huxley and of the course of biology being given in 1875 at South Kensington, on November 7, aged eighty-two years.