

OBITUARIES.

James Scott Maclaurin (1864–1939).

WITH the passing of Dr. J. S. Maclaurin, Dominion Analyst from 1901 to 1930, New Zealand has lost not only a responsible official with a long record of able service, but one of her outstanding scientific men.

Dr Maclaurin came to New Zealand in early boyhood with his parents, who settled in the Waikato. Educated first at a public school, then at Auckland Grammar School, he attended the Auckland University College, specialising in the study of Chemistry under Professor F. D. Brown. He graduated B.Sc. in 1891, gained first class Honours in 1892, and in 1897 was awarded the degree of Doctor of Science for outstanding research on the solution of gold in dilute solutions of potassium cyanide. This research aroused great interest in gold mining circles throughout the world, confirming as it did that oxygen was necessary for the solution of the gold, and was the basis of many subsequent improvements in the cyanide process for treatment of gold ores. It gained for him election to the Fellowship of the Chemical Society, of London. It also enabled him to qualify for an 1851 Exhibition Scholarship, but this he declined, and the way was thus opened for Ernest Rutherford, who took up the scholarship, to enter at Cambridge on the career which made him the most famous scientist of his day.

Dr. Maclaurin remained in Auckland as an analytical chemist in association with Mr. J. A. Pond, and in 1901 was appointed Colonial Analyst in Wellington, the title being changed to that of Dominion Analyst in 1909, when New Zealand was raised to Dominion status. At first he was associated only with the Mines and Public Health Departments, but gradually other Departments drew on his services, and he became in effect the chief chemical adviser to the Government. In 1909 he was appointed Chief Inspector of Explosives, and by introducing an effective system of testing and inspection re-organised the administration of the Explosives and Dangerous Goods Act. He was largely responsible for the form in which the Gas Regulations issued in 1924, were finally drafted, and as Chief Gas Examiner, controlled gas and meter testing throughout New Zealand. In all his activities he quickly gained the full confidence of his associates, and was equally successful in administrative and in purely scientific work.

Dr. Maclaurin's work for all Departments was invariably thorough. As a witness in police cases he was convincing and eminently fair, and throughout his long career his evidence in court was never shaken. Due to the confidence reposed in him by the Health Department and the acceptance of his recommendations regarding samples analysed under the Sale of Foods and Drugs Act, food adulteration was persistently checked, and has never reached serious proportions in New Zealand.

Few persons had a better acquaintance with the mineral resources of New Zealand than he. As analyst to the Geological Survey he had examined rocks and minerals from all districts, and though no outstanding discoveries resulted, a considerable fund of useful knowledge was built up. Iron ores from Parapara, also Taranaki iron-sand were analysed fully, also the iron manufactured from them by companies at Onekaka and New Plymouth respectively. Petroleum oils from New Plymouth, Waitangi (Gisborne), Waiotapu, and Kotuku were all examined, also natural gas from many places. Shales from Orepuki, Waikaia, and Totara North were considered as possible alternative sources of oil. Extraction of mercury from ores at Puhī Puhī was investigated. Peat samples of a special series, collected throughout the Dominion, were analysed for a Royal Commission in 1913, and some work was undertaken later on the distillation of Kauri-swamp peat. Coal from every known occurrence in New Zealand was analysed, and briquetting of slack, also low temperature carbonisation of typical coals, investigated on a semi-commercial scale. Keen interest was taken in improvement of ventilation and other safety measures in mines.

Always alert for new methods, Dr. Maclaurin introduced the freezing point determination for detection of added water, and the reductase test into the routine of milk testing in the Dominion Laboratory long before they were in general use in similar laboratories elsewhere. New methods, however, were never accepted without rigorous trial.

In his later years Dr. Maclaurin devoted all the time that could be spared from other duties to research on Kauri gum and *Phormium tenax* (New Zealand flax). He developed solvents for kauri gum and for resin in buried kauri timber. He also patented a process for purification of fine swamp gum, based on differential flotation in a salt solution of definite density before and after the application of a vacuum. With phormium he investigated the economics of chemical bleaching and its effect on the strength of the fibre, also the production of fibre by an "explosion" process. He also did considerable laboratory work on the production of cellulose from phormium. It is to be regretted that none of this work on kauri gum or phormium was published.

Dr. Maclaurin was very conversant with the mineral waters of New Zealand, having carefully analysed practically all of them. Always observant for any unusual feature, he noted the presence and determined the amount of pentathionic acid in water from White Island, an acid not previously known to occur in nature. His work on the radio activity and radium content of gases, waters, and sinters of the thermal regions, for which he constructed most of the required apparatus, was outstanding in merit.

Most of Dr. Maclaurin's work fulfilled its purpose at the time, and is now buried in Departmental files. That carried out for the Geological Survey personally or under his direction can be found in the Survey publications. Analyses of general interest were

included in the Annual Reports of the Laboratory. Apart from these, Dr. Maclaurin's publications were:—

Journal Chemical Society.

The Dissolution of Gold in a Solution of Potassium Cyanide, *Trans.*, p. 724, (1893).

The Action of Potassium Cyanide Solutions on Gold and Silver, *Trans.*, p. 199 (1895).

Double Sulphides of Gold and Other Metals, *Trans.*, p. 1269 (1896).

The Relative Weights of Gold and Silver dissolved by Potassium Cyanide solutions from Alloys of these Metals, *Trans.*, p. 1276 (1896).

Transactions New Zealand Institute.

Action of Potassium Cyanide Solution upon Gold, vol. 28, p. 695 (1895).

Composition of the Soil of the Taupo Plains (in association with J. A. Pond), vol. 32, p. 227 (1899).

A Rapid and Accurate Method of Estimating Iron in Iron Ores (in association with W. Donovan), vol. 41, p. 49 (1908).

The First-Noted Occurrence of Pentathionic Acid in Natural Waters, vol. 43, p. 9 (1910).

N.Z. Journal of Science and Technology.

Industrial Alcohol in New Zealand, vol. 1, no. 3, p. 180 (May, 1918).

Appendices Annual Reports Dominion Laboratory.

Report on Analyses of New Zealand Coals, 40th A.R., 1906.

Milk Standards, Forty-third A.R., 1909.

Radioactivity of the Thermal Waters of Rotorua, Taupo, and Te Aroha, 44th A.R., 1910.

The Cryoscopic Method for the Detection of Added Water in Milk, 47th A.R., 1913.

Analyses of New Zealand Coals, 55th A.R., 1921.

Treatment of Cinnabar Ore by the Thornhill Sodium Sulphide Process, 56th A.R., 1923.

Briquetting of New Zealand Coals, 58th A.R., 1926.

Dr. Maclaurin was a Fellow of the Chemical Society, a Member of the Society of Chemical Industry, a Member of the Society of Public Analysts, all of Great Britain, and a Fellow of the Royal Society of New Zealand. Indifferent health precluded him from taking an active part in the meetings of local societies. One recalls, however, with deep feeling such personal qualities as accurate knowledge, insight, skill, kindness, courtesy, ready access, and willingness to help any who approached him.

One monument to his memory is the Dominion Laboratory organisation which he built up. Beginning with one cadet assistant, he leaves behind him a central laboratory in Wellington with three branches in other cities and a staff which includes thirty-two graduate chemists. More enduring still is the intangible stimulus that men of Dr. Maclaurin's high principle and achievement give to the enriching of national character and life.

W. D.