ning shipwork. He is at the present time schedule engineer in charge of the production work of two foundries.

STANSFIELD, ALFRED, of Montreal, Que., transferred from the class of associate to that of member. He was born at Bradford, Yorkshire, and took his degree of D.Sc. at London University. In 1890 he became assistant to Sir Wm. Roberts-Austen at the Royal Mint, London, and later on was placed in charge of the metallurgical and assaying laboratories at the Royal College of Science, London. Since 1901 Mr. Stansfield has been Birks Professor of Metallurgy at McGill Univerity. As a representative of the Dominion Government Mines Branch, he made an extensive study of electric smelting of iron ores in Sweden. He has also conducted extensive experiments in electric smelting of zinc and production of zinc oxide paints at Shawinigan Falls, Que. He was for a time associated with J. W. Evans at Belleville, Ont., in the production of electric steel, and also ferro-molybdenum. In 1915 he was appointed a member of the Government by the Minister of Militia and Defence, and reported on the copper and zinc possibilities in Canada for the shell committee.

WAKEFIELD, JOHN ALBERT, of Winnipeg, Man., elected associate member. He was born at Forest, Ont., in 1886, and educated by private tuition in mathematics and physics. He took a course in municipal engineering with the American School of Correspondence, and later took an evening course in reinforced concrete design at the Manitoba University. During the following summer of 1905 he entered the engineer's Department at Winnipeg, and is at present engineer on survey and construction with the same department.

WALL, ALBERT FRASER, of Montreal, Que., transferred from the class of junior to associate member. He received his education at McGill University in Montreal, his native city, and subsequently became associated for eight months with John W. Kendrick Co. on railway examinations and valuations at Chicago and New York. He is at the present time superintendent of construction and maintenance for the Electrical Commission of the city of Montreal.

WATERS, WILLIAM L., of New York, has been elected member. He was born at London, Eng., in 1877, and took his degrees E.E., M.E., and C.E. in 1897 and 1898. Mr. Waters was for a time assistant engineer with Siemens Bros., London, Eng., and later on chief engineer with the National Electric Co., of Milwaukee, U.S.A. In 1912 and 1913 Mr. Waters went on a trip around the world reporting on various engineering projects for New York financial interests. He is at the present time consulting engineer in private practice in Montreal, New York, Chicago and San Francisco.

WELDON, RICHARD LAURENCE, Montreal, Que., transferred from the class of student to that of junior. He was born at Winnipeg, Man., and educated at McGill University, obtaining his B.Sc. degree in 1917. Since leaving college Mr. Weldon was for three months mechanical draftsman on plant construction and alterations with the Canadian Electro Products Co., Shawinigan Falls. He is at the present time demonstrator in the Department of Mechanical Engineering at McGill University, at the same time pursuing a post-graduate course.

WINFIELD, JAMES HENRY, of Halifax, N.S., elected member. He was born at Derby, England, and took an electrical course at the People's Palace Technical School, London. After graduating from college he served in various capacities with the Nova Scotia Telephone Co. until 1901, when he became general manager of the Maritime Telegraph and Telephone Co., Ltd. Mr. Winfield is also at the present time president of the Nova Scotia Society of Engineers.

WYAND, DOUGLAS, of Ottawa, Ont., elected associate member. He was born at London, England, in 1890, and attended for two years the Chelsea Technical School of that city. After leaving school he was for several years with the Can. Nor Ont. Ry., first as rodman and instrumentman, and later for two years as resident engineer of the Toronto-Ottawa line. For the past four years Mr. Wyand has been assistant superintendent and acting superintendent at the Gauge Laboratory, Imperial Ministry of Munitions, Ottawa, Ont.

YOUNG, RODERICK BEARCE, of Toronto, Ont., transferred from the class of junior to associate member. He was born at Minneapolis, Minn., in 1891, and obtained his B.A.Sc. degree at the University of Toronto. Since 1913 he has been associated with the Hydro-Electric Power Commission for two years, doing electrical and mechanical testing and research work, and since 1915 to date, as assistant laboratory engineer.

THE FUNCTION OF WATERSHED FORESTS*

S IENTIFIC data is not required to prove the effect of the forests upon Canadian streams. Every observer who has compared the flow and uniformity of streams under contrasting conditions of forest growth on the watersheds knows that tree life is a conserver of surplus moisture and a mighty aid in the regulation of the spring run-off.

In this connection it will be interesting to many readers to note the conclusions of Raphael Zon, Chief of Sylvics, U.S. Forest Service, Washington, after a very thorough examination of available evidence in the United States and foreign lands :--

"The available observations upon the behavior of streams in this country and abroad have established the following facts:

"1.—The total discharge of large rivers depends upon climate, precipitation and evaporation. The observed fluctuation in the total amount of water carried by rivers during a long period of years depends upon climatic cycles of wet and dry years.

"2.—The regularity of flow of rivers and streams throughout the year depends upon the storage capacity of the watershed, which feeds the stored water to the streams during the summer through underground seepage and by springs. In winter the rivers are fed directly by precipitation, which reaches them chiefly as surface run-off.

"3.—Among the factors such as climate and character of the soil, which affect the storage capacity of a watershed, and therefore the regularity of the streamflow, the forest plays an important part, especially on impermeable soils. The mean low stages as well as the moderately high stages in the rivers depend upon the extent of forest cover on the watersheds. The forest tends to equalize the flow throughout the year by making the low stages higher and the high stages lower.

"4.—Floods which are produced by exceptional meteorological conditions cannot be prevented by forests, but without their mitigating influence, the floods are more severe and destructive."

*From The Canadian Forestry Journal.