

SUBJECTS INVESTIGATED.

Broadly speaking, the subjects of investigation undertaken by our graduate students have been closely allied to contemporary problems of major importance in engineering. The failure of the first Quebec Bridge in 1907, materially a disaster of the first magnitude and a serious blow to the prestige of modern structural science, gave rise to many searching investigations including questions of secondary stresses in bridge trusses, strength of compression members, effects of pin friction, etc. More recently the technique of welding structural steel by means of the electric arc has been developed, and many problems have arisen requiring careful laboratory investigation and mathematical analysis. Although the actual amount of investigation possible at any one time is necessarily limited, continuity of effort has been secured by careful planning of the work in successive years. In this way considerable progress has been made in the study of secondary stresses, and of the fundamental laws governing the distribution of stress in riveted and welded joints. In this effort we have had the closest co-operation and assistance from the Dominion Bridge Company, both in the supply of specimens and in the planning of the tests. Similar conditions exist in hydraulic research, in which two students are engaged during the present session. It is expected that the laboratory facilities recently made available will stimulate further interest in hydraulic work.