

Currents and Shore Processes in Lake Ontario

By Alfred W. G. Wilson, Montreal.

Introduction:—Within the last twenty-five or thirty years there has gradually grown up, as an offshoot from the Science of Geology, a science whose specific object is the systematic study of land forms, their characteristics, origin and history—the Science of Physiography. Under the impetus of new methods of investigation there have been marked advances made in our knowledge of the history of land forms and their processes of growth and disintegration. The results of these investigations have a very direct bearing on all engineering operations which attempt to guide or control those natural processes which produce or modify topographic forms.

Shoreline processes and shoreline forms have been investigated by many observers, and many important papers have been published. It is only about ten years ago, however, that the subject was systematized by the recognition that there are progressive stages in the development of shorelines and shoreline topography; that initial forms, characteristic of newly formed lake basins or of sea coasts recently elevated, are followed by a sequential series of forms characteristic of later stages of the life history of shorelines, until extreme old age is reached.* The life history of shores, the processes which are involved in the formation of shore zones and the later development of any given shoreline have all a very direct bearing on the construction and maintenance of docks and harbors on all our large water bodies, whether lake or ocean, on the preservation of coast lines, and to a certain extent on water supply and sewage disposal.

The problems presented by Toronto Harbor, Toronto water supply and sewage disposal form no exception to the generalization, and it is because of their bearing on these problems that the data given in this paper are here presented.

Only a summary of the results of a study of the shorelines, and shoreline processes on lake Ontario can be given here, but, I wish especially to emphasize the fact that the

*Gulliver, Shoreline Topography Proceedings of American Academy of Arts and Science, vol. 34, 1899.