

# Glacial Till

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## Glacial Till

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Edited by R. F. Legget  
*Royal Society of Canada Publication*  
 No. 12 (National Research Council),  
 1976, 412 p.  
 \$20.00

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The opening statement by the editor as to the vast amount of work done and knowledge that has been accumulated on tills is apparent to all who have tried to follow the literature. The opportunity to develop some new approach to the subject through the conference and volume of proceedings seems to have been lost to a large extent as my reaction to both was that this was more of the same material that has been discussed elsewhere. This does not detract from the quality and interest of the presentations which are a most useful selection indicating the wide ranging concern with till (Glacial by definition) and the types of problems arising in the many fields which have to work with the material. The big gap, and probably the way in which research should be developing, is in the understanding on the physics of deposition of the material from a study of the active environment and from glaciological modelling. This approach contrasts with studies which infer depositional conditions from the character and structure of the deposits. The variability of the material makes such inference particularly difficult. Boulton's work which discusses the physics of deposition is the most thought provoking paper in the volume.

Looking at each of the sections of the book in more detail. *The Geology of Tills* adds little that is new mainly because it is dominated by the excellent researchers, Driemanis, Scott and Karraw who have been responsible for bringing the state of knowledge to its present high level but who are not now developing any fundamentally new approaches. *Pedology and Tills* strongly underlines the complexity brought about by pedogenic processes acting on a heterogeneous material like till. This section suggests that the concept of till

as one type of material is a problem when studying soil development. *Mineral Exploration and Till* presents some of the recent uses of techniques of exploration but emphasizes that these are again inhibited by the far from complete understanding of the mechanisms of deposition. *Geotechnical Aspects of Till* offers in parts of the most stimulation as it starts to dig into concepts of conditions of deposition necessary to produce certain properties of these materials. There is still an undercurrent which suggests the need for greater work to be done with present day glaciers, for example, p. 271, "It is assumed that particles were released from the ice by basal melting". How many of our conclusions are erroneous if based on assumptions? Therefore, although there is the presentation of a large amount of very absorbing material, the conference and the volume were disappointing in not bringing out sufficiently the need for new avenues of approach to the subject.

MS received June 26, 1976

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## Urban Geology of Edmonton

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C. P. Kathol and R. A. McPherson  
*Alberta Research Council*  
*Bulletin 32, 61 p., 1975.*  
 \$10.00

Reviewed by Robert F. Legget  
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The Foreword to the *Saskatoon Folio* (Christiansen, 1970) records the hope that "it will prove to be the precursor of many similar studies elsewhere in this country. . . (showing) what is desirable, if not indeed essential for all the urban areas of Canada. . . as they face the complex problems associated with the doubling of their populations before the end of the century."

News that a new report on the urban geology of Edmonton was to be published by the Research Council of Alberta was therefore most welcome. An earlier modest treatment, admirable in its brief but adequate contents, also issued by the Council, was titled "Part I" and so gave promise of a commendable but more complete publication (Bayrock and Berg, 1966). Spence Taylor's excellent, privately produced, atlas of the old coal workings under Edmonton showed how necessary a comprehensive guide was to the subsurface of the rapidly growing capital city of Alberta.

Bulletin No. 32 is now available. It is comprehensive, dealing with the geology of an area of 288 square miles, including the city of Edmonton. In one way it is too comprehensive. One hopes that the authors will not have cause to regret their inclusion of three maps showing the "suitability of the Edmonton area for deep sewer construction", an unwarranted intrusion into the practice of civil engineering judgement.

Unfortunately, its very "comprehensiveness" makes it the most awkward publication to handle that the reviewer can ever remember having in his hands. It consists of a quarto sized white plastic binder, almost three inches thick, in one pocket of which is a 61-page pamphlet and, in the other, 24 maps, tables, and sections, in a variety of sizes, folded to