

2003 Provincial Geologists' Medal

CITATION

PETER JAMES BARNETT

Ontario Geological Survey Ontario Ministry of Northern Development and Mines

Peter Barnett stands as an outstanding example of a Survey geologist; an acknowledged expert in his field, a geological mapper of international repute and a researcher who has advanced scientific boundaries to the benefit of both his profession and society. For over twenty-five years Peter has honed his craft as a Quaternary field geologist with the Ontario Geological Survey. His works add significantly to the knowledge base in fields as diverse as environmental and economic geology, remote sensing and archeology.

Peter's national and international recognition as a pre-eminent expert on the Quaternary geology is solidly founded upon years of fieldwork in a variety of environments and terrains. His exceptional skills of observation and interpretation allow him an unparalleled ability to generate multi-faceted geologic models that permit an understanding of complex settings. The applied aspects of his work are far-ranging and numerous. His recognition of tunnel valleys in south-central Ontario has significantly refined exploration strategies for municipal groundwater supplies and defined sources of mineral aggregate. Beyond this, his work on surficial stratigraphy and material properties has played a major role in land management issues as evidenced by utilization of his work in the assessment of landfill sites, shore bluff erosion studies and migration of toxic runoff. Peter's comprehensive knowledge of Ontario is clearly evident by his authorship of the seminal text entitled "*Quaternary Geology of Ontario*".

Peter's quest for knowledge and a fuller understanding of the earth's surface has led to his involvement in numerous productive research collaborations and partnerships. Unfailingly these were designed to investigate innovative concepts and methodologies. Collaboration with Geological Survey of Canada scientists on the Oak Ridges Moraine has resulted in a body of work that has dramatically advanced the understanding of the structure and formation of this majestic, resource-rich feature. In partnerships with the Canada Centre for Remote Sensing and academic researchers, Peter has developed applied mapping applications employing a variety of remote imaging tools, including RADARSAT

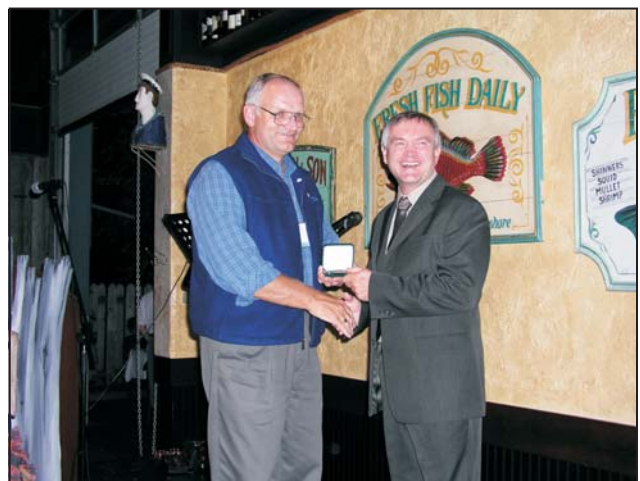
and hyperspectral technologies. His expertise in this field led to his appointment to the national RADARSAT Product Development Committee. Peter's involvement with a multidisciplinary investigation of the controversial Sheguiandah archeological site on Manitoulin Island, refined the date of human occupation and impacted the debate on the populating of North America.

Sharing and transferring of geoscientific knowledge is a quest endlessly pursued by Peter. This has taken many forms with notable examples being the organization of countless fieldtrips, mentoring of junior staff and education of the public. His commitment to the earth sciences extends well beyond his duties as a Survey geologist. Dedicating countless hours as a professor, he has enriched the lives of many students by bringing his passion for geology to the classroom. Such commitment has been rewarded by the success of numerous students whose careers he influenced and enriched.

On the basis of an exceptional portfolio of quality products, insightful research in a variety of fields, conducted both on his own and in numerous collaborations with academic and government agencies, his unflagging dedication to sharing his knowledge and adding meaningfully to environmental and development issues, Peter James Barnett is exceedingly deserving of the 2003 Provincial Geologists Medal.

BIOGRAPHICAL NOTE

Peter Barnett was born in St. Catharines, Ontario and spent his youth in the Niagara Peninsula region. An unbridled interest in the outdoors and the



OGS Peter Barnett receives CPG Medal for 2003

earth sciences grew to an encompassing life-long obsession with geology that has only grown stronger with time. Energized by fieldwork, Peter maintains a level of enthusiasm for science that inspires those with whom he comes in contact. Unassuming yet determined, he brings to his profession the unfettered belief that an understanding of the earth's structure and processes are paramount to the wise use and management of our environment and resources.

Peter studied at Brock University, where he received his honours B.Sc. in geology in 1972. Following this he undertook post-graduate studies at the University of Waterloo under the mentorship of Dr. Paul Karrow. His M.Sc., received in 1975, involved a detailed investigation of the regional stratigraphy and geochemical properties of Quaternary sediments in south-central Ontario. Peter joined the Engineering and Terrain Section of the Ontario Geological Survey (OGS) in 1975. His early work saw him completing a series of 1:50,000 scale surficial mapping projects and complementary reports for several areas in southwestern Ontario. This work was augmented by collaborative studies with the Ontario Centre for Remote Sensing to use airborne thermography to locate buried mineral aggregates.

Peter returned to the University of Waterloo to undertake a Ph.D., which was awarded in 1987. During his time at Waterloo, Peter received the W.B. Pearson award for outstanding creative research. His thesis research focused on mapping along the north shore of Lake Erie and resulted in the development of new depositional models for Quaternary deposits, specifically glaciolacustrine sediments, as well as a detailed glacial history for the area. This work would later play an important role in subsequent litigation involving erosion rates of the Lake Erie shore bluffs.

Continuing his career with the OGS, Peter undertook mapping and related geoscience investigations in several areas of Ontario. Mapping and drift studies over the Precambrian Grenville Province in the Bancroft area in the early 1980s resulted in the establishment of a framework for the interpretation of surficial data for environmental studies. Subsequent mapping in the Ottawa River Valley gave rise to a series of products and new geological models with implications to public health and safety and material properties. In the late 1980s to mid-1990s, Peter's mapping was concentrated in south-central Ontario in an area ranging from Lake Simcoe to Lake

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Obverse and reverse images of the 2003 Provincial Geologists Medal.

Ontario. The regional stratigraphy and concepts related to tunnel valley formation that he established, as a result of 1:50,000 and 1:20,000 scale mapping, were revolutionary. Work with researchers from the Geological Survey of Canada during the 1990s resulted in a new understanding of the construction of the Oak Ridges Moraine that has profound implications on groundwater management and the volume and location of industrial mineral resources.

Coincident with this mapping and research, Peter authored the “*Quaternary Geology of Ontario*”, a summary of the glacial activity, materials and ice age evolution of the province that is unsurpassed in its scope and comprehension. To complement this work he led the assembly and production of a series of 1:1 million scale maps illustrating the Quaternary Geology of Ontario. The four-map set, while being useful and functional, possesses a beauty that makes it a work of art.

Recently, Peter has continued to combine surficial mapping with applied research. His work in the Sudbury region has resulted in the production of a range of user-friendly products developed both on his own and in co-operation with others. From these efforts has emerged a regional GIS-based urban geological data set, a thematic “hillshade” Quaternary map and GIS-assisted methodologies for effective sampling in remote settings. Currently, Peter is involved in a multi-year partnership with the Canada Centre for Remote Sensing focused on mapping the far north of Ontario. It is the aim of this work to integrate traditional mapping with remotely sensed imagery and thus determine terrain characteristics affecting the harvesting of timber and reforestation.