

DR. ROBERT (BOB) MACDONALD
SASKATCHEWAN GEOLOGICAL SOCIETY
HONOUR ROLL CITATION – 26TH JANUARY 2013

So geographers, in Afric-maps, with savage pictures fill their gaps; and o'er unhabitable downs place elephants for want of towns. (Jonathan Swift 1667 – 1745)

ON THE BEACH...

...I seem to have been only a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay undiscovered before me. (Sir Isaac Newton 1642 – 1727)

Bob Macdonald attended his first Primary School in Ilford, Essex from 1935 to 1937 and then moved on to Gubbin's Lane Primary School in Harold Wood, Essex until 1941. From there he went to the Royal Liberty Grammar School, at Hare Hall, Gidea Park, Romford, Essex until 1949. Bob was introduced to geology through evening classes at Walthamstow Polytechnic. This and the subsequent discovery that one of his teachers at the Liberty was a geologist qualified to teach the subject fostered his love of the science. In 1949 he won a Shell Scholarship to King's College London from which he graduated in 1952 with a First Class Bachelor of Science degree with Honours, in geology.

OUT OF AFRICA

There is always something new from Africa. (Pliny 23 – 79 A.D.)

UGANDA GEOLOGICAL SURVEY

Bob was recruited by the Crown Agents in 1953 to serve with the British Colonial Service in the Uganda Protectorate in Central Africa as a field geologist with the Uganda Geological Survey, mapping the Precambrian. By 1962, Bob was Principal Geologist in charge of field mapping programs and the supervision of water borehole drilling. During this time he completed his doctorate under the aegis of the University of London and received his Ph.D. in 1963

MAKERERE UNIVERSITY, UGANDA

The true University of these days is a collection of books. (Thomas Carlyle 1795 – 1881)
In 1968 Bob became a founding member of the Department of Geology at Makerere University, first as Reader and then from 1969 to 1974 as Professor. Ironically his inaugural Lecture was given on the eve of his departure!

BRAVE NEW WORLD

O brave new world, that has such people in't. (William Shakespeare 1564 – 1616, The Tempest)

SASKATCHEWAN GEOLOGICAL SURVEY

So it was that in 1974 Bob arrived in one of the newest parts of the New World to take up a contract position with the Saskatchewan Geological Survey, directing field programs in the Precambrian Shield. As the units which made up the Survey changed over the years from sectors, to sections, to divisions to branches, Bob occupied positions variously described as: 1977 - 1983 Chief Geologist, Precambrian Sector; 1984 – 1985 Head,

Precambrian Geology Section; 1986 – 1987 Head, Precambrian Geology Branch; 1988 -1995 Director, Precambrian Geology Branch.

THE MAPPING PROGRAM

Map me no maps, sir, my head is a map, a map of the whole world. (Henry Fielding 1707 – 1754)

From 1974 to 1990 Bob directed mapping programs over Precambrian Shield and Athabasca Basin that resulted in completion of coverage at 1:100,000. At the outset in 1974 only 15% of the Shield had been mapped at scale of 1:50,000 or greater and for many of the other areas all that was available were reconnaissance maps made by the Geological Survey of Canada. These maps, based on widely separated traverses and airborne reconnaissance, recognized only seven rock types using the colours: brown = pelites; yellow = psammites; pink = undifferentiated gneisses; blue = carbonates; green = greenstone; purple = mafic and ultramafic rocks; red = granitic rocks.

As part of the streamlining of the mapping programs Bob introduced a systematic numbering system for samples taken in the field that included date, project geologist's code and a four digit sample number (e.g. 13-05-0001). Prior to that each geologist had his or her own numbering system (or none at all) and samples could seldom be easily related to their map location. Samples were catalogued and stored systematically in the Subsurface Geological Laboratory on Dewdney Avenue where they could be retrieved for further work.

With the results of large areas of mapping at hand, he worked with John Lewry of the University of Regina and Tom Sibbald of the Survey on a domain classification system for the Precambrian Shield that used both lithology and structure to aid description of its different components. This system provided the framework within which the evolution of the Shield is being gradually unravelled.

THE REPORTING SYSTEM

Bring me no more reports; let them fly all: Till Birnam wood remove to Dunsinane... (William Shakespeare 1564 – 1616, Macbeth)

From 1975 onwards Bob developed and co-edited the *Summary of Investigations*, a report on the summer's mapping programs conducted by the Survey, the Geological Survey of Canada and the Universities of Saskatchewan and Regina. This, and talks based on the summer's work, were presented at the Annual Open House in November. The Open House, currently held in Saskatoon, is a meeting between representatives of the Federal & Provincial Surveys, the Mining and Exploration Industry and the Universities. The Summary had started life in 1965 as a brief report without maps, typed up, copied and stapled together in-house. Under Bob's guidance it quickly evolved into a printed and bound product, with a map package containing maps of the summer's mapping programs. It gained a colour picture cover in 1995 and today is available on-line.

In addition, during his time with the Survey, Bob authored or co-authored over forty published papers and reports on the geology of Saskatchewan.

COMPUTERIZATION

...is found, on enquiry, to be...a machine for converting the Heathen. (Thomas Carlyle 1795 – 1881)

He pioneered the use of computers in the Survey right from the start in the early 1980s, laying the foundations for the present Survey's highly digital data banks and maps. As the technology changed, Bob ensured that the Survey kept abreast of those changes. The evolution of computer technology caused the products of the survey to change from hand-drawn black-line maps through photo-reproduced hand-coloured editions to the present digitally produced coloured maps and reports. The first Survey computer was a word-processor to replace the electric typewriter used hitherto to type up reports from hand-written pages. The next was a first-generation Personal Computer that required a booting up disk and which could only handle about five pages of text per disk. But it was a beginning!

Bob also designed hand-held digital equipment for field use and carried out his first mapping traverse with this in 1995. Today, availability of global positioning, and compact recording devices that can down-load directly into the computer, are taken for granted.

COMPILATION MAP PRODUCTS

It is a capital mistake to theorize before one has data. (Sherlock Holmes in Sir Arthur Conan Doyle's Scandal in Bohemia)

In 1980 a two-sheet 1:1,000,000 geology map of Saskatchewan was published as the final product of a project Bob initiated with Paul Broughton. Prior to that there was only a much simplified map published by the Saskatchewan Research Council in 1976.

He went on to initiate the production of a series of coloured compilation bedrock geology maps at 1:250,000 with marginal notes with a matching series of metallogenic maps to follow. Two of the bedrock geology maps Bob compiled himself.

PROJECTS IN RETIREMENT

...there must be no retirement. With our backs to the wall, and believing in the justice of our cause, each one of us must fight on to the end (Earl Haig 1861 – 1928)

Between 1996 and 1997 under contract to Geological Survey and with the assistance of Bill Slimmon, his efforts produced the first digital geological map of Saskatchewan at 1:1 million scale. Published in 1998, it became the regional base for numerous other digital layers such as mineral deposits and petroleum geology, and eventually for the on-line Geological Atlas of Saskatchewan.

In 2000 Bob contributed a 1:2 million scale geology map of Saskatchewan and accompanying text for the first digital Atlas of Saskatchewan published by the University of Saskatchewan.

He continues his involvement with geology and with Uganda as Editor-in Chief of what will be a comprehensive volume on the Geology of Uganda, comprising papers on all its aspects by over forty authors.

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