

An Appreciation'

Hank Williams -Meticulous Scientist Wielding a Broad Brush

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HIS BACKGROUND

Harold (Hank) Williams, mapper and compiler extraordinary of the Appalachian-Caledonian orogen, one of the first global experts on ophiolite emplacement and on ancient continental margins, is probably Newfoundland's most accomplished and best known scientist. A much honoured researcher, rigorous but revered teacher and colourful, dynamic and inspirational lecturer, he is also a celebrity in both learned and less-than-learned circles as a fiddle virtuoso and as a savant and wit with a distinctively Newfoundland flavour.

Hank grew up on the socially and physically rugged south side of St. John's Harbour, the "Southside Hill". His father, Alexander Williams, died in 1939 when Hank was four years old and his mother, Catherine, was left in very straitened circumstances to raise and educate her family.

Hank prevailed, and worked his way through St. Mary's and St. Michael's schools. Music came early into his life and he learned to play the fiddle and other instruments by ear under the tutelage of Sam Learning and, later, Dave Tilley. After graduation from high school, a momentous decision was made as he transported fish from a wharf as part of a two-man barrow team. The old-timer at the other end of the barrow said, "Buddy, you'll probably spend the rest of yer life like me, carting fish, if ye don't go on to college."

And so it was on to the fledgling Memorial University, first in the Engineering Diploma program and then into Geology. He was the first geology graduate in 1956, with highest standing in the University and the Governor General's Gold Medal. He remained at Memorial for another year to complete a Master's degree under David M. Baird who was among the first to pick him as a winner. Jean King accepted the proposal to be his wife, mother to their three boys, true friend and sheet anchor to this day. His doctoral years at Toronto involved courses from J. Tuzo Wilson among others, and supervision by Wilson

Drloorhouse. The Geological Survey of Canada sponsored his thesis, and thus began a close relationship with that agency which continues to this day. The newly anointed Doctor Williams joined the Survey in 1961 and was assigned to the Appalachian Section, headed then by Ward Neale and later by W.H. (Bill) Poole, where he quickly established a reputation as an exceptional mapper and innovative synthesizer. He left in 1968 to accompany Ward to the small Geology Department at Memorial where he joined, among others, former classmate A.F. (Art) King and former young Survey colleague, M.J. (Ben) Kennedy. He has been at Memorial ever since where he was the first to receive the prestigious title of University Research Professor, the first to be appointed Alexander Murray Professor and where he now enjoys superannuated status. Is there anything more to say about the man and his work? You can bet your Logan boots there is!

HANK THE SCIENTIST

John Ziman, distinguished physicist and analyst of the scientific thinking process, states in his book *Reliable Knowledge*: "a great part of what is known to the science of geology is precisely what is to be found on a map ... the processes of real interest to geologists can scarcely be grasped except in mappable form." The work of Hank Williams epitomizes this statement. He has made major contributions in several fields of geology and geophysics, but all of them have stemmed initially from his own careful field observations and meticulous mapping, and all of them have been fed back into the hopper which has produced his widely acclaimed, broad brush compilations of the Appalachian-Caledonian mountain system. His position of leadership has arisen from his outstanding ability to integrate the results of regional geological mapping, in which his own well conceived and beautifully executed work has played a

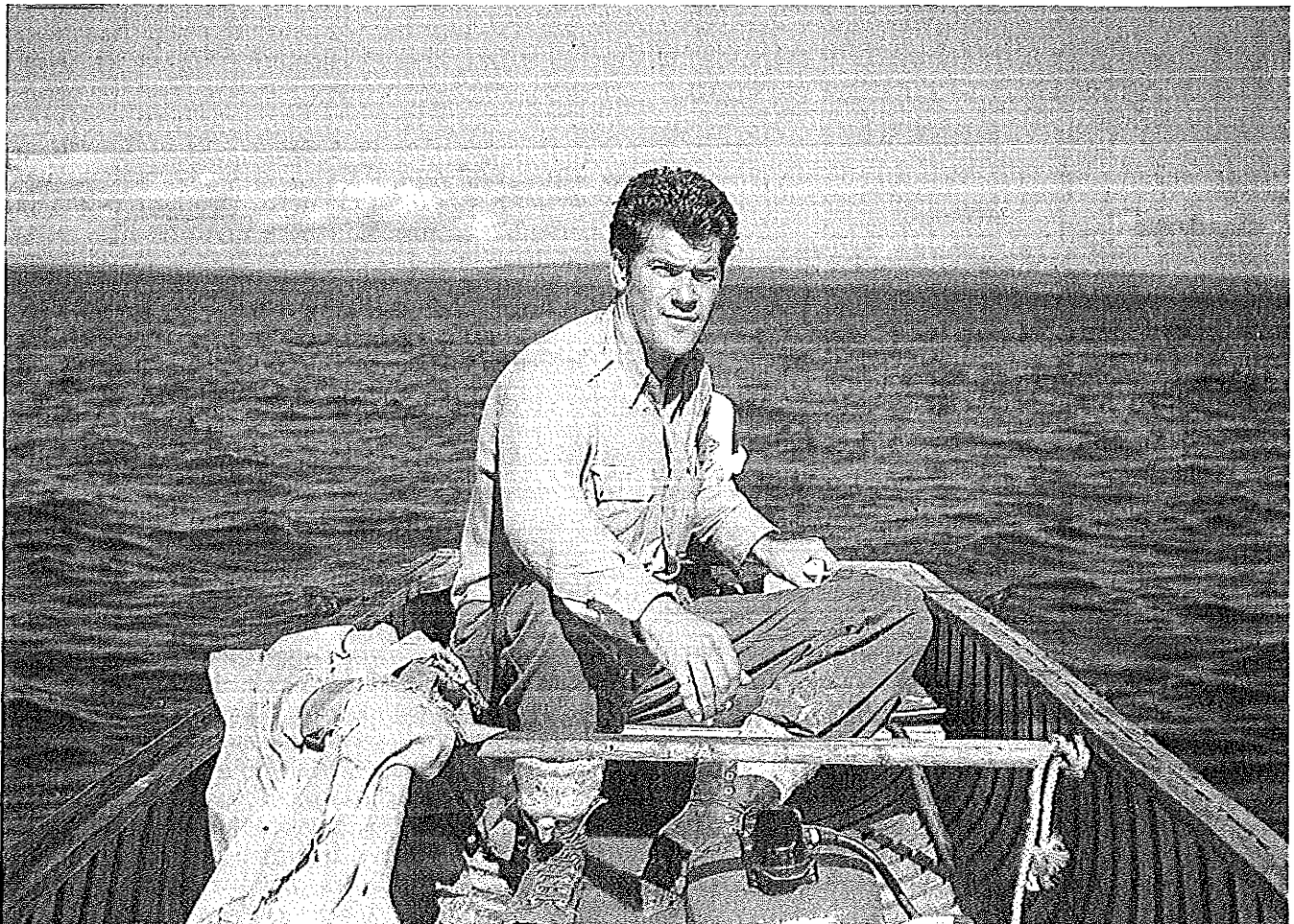
¹ Abridged from the introductory paper delivered at the Nuna Conference in honour of Dr. Harold Williams, Grand Falls, Newfoundland, August 12, 1994

major role, into compelling tectonic syntheses best illustrated by his elegant Tectonic-Lithofacies Map of the Appalachian Orogen. Professor B. Sturt of Bergen, Norway, writes of this map that it " ... must be regarded as the most outstanding contribution to Appalachian geology ... a classical work and few geology departments in the western hemisphere and Europe are without it on their walls." Professor Ben Kennedy of Dublin, Ireland, said long ago of the mapmaker: "He is seen as the giant of eastern Canadian geology and as the leader in overall understanding of the Appalachians."

Thirty years ago, Williams described on the geological symmetry in the rocks of his native Newfoundland, the northeastward termination of the Appalachians. That much-cited paper and his later (1967) map of the Island of Newfoundland were two of the keystones in the recognition by J. Tuzo Wilson and the development by John Dewey and others of the concept of an opening and closing proto-Atlantic (Iapetus) ocean. They were also accurate indicators of the course of his career over the next three decades: such dedication to field mapping that he arguably has more published maps to his credit than any

Canadian of his generation; and a continual contribution of new concepts, particularly in tectonics and orogenesis. The international recognition of his early work served as a springboard that launched him into field conferences and lecture tours in many parts of the world. Thus, when he writes or produces maps of the Appalachian-Caledonian system, he does it from the unique vantage point of one who has studied it from Alabama to Norway and has taken advantage of opportunities to compare and contrast it with other major mountain belts.

Hank's careful stratigraphic syntheses of the shelf-slope-deep ocean transitions have made him the reigning authority on the ancient margin of the Appalachians and an international authority on the history of passive margins elsewhere. His unravelling of the structural succession within the Taconic Klippe of Western Newfoundland is a masterly piece of stratigraphic work within a complex terrane. He was already established as an expert on the abduction process through a classic paper with his graduate student, W.R. (Ron) Smyth, on the metamorphic soles below ophiolite suites. His re-mapping of the Humber Arm Allochthon led to World Heritage rec-



Hank on Wekusho Lake, Manitoba, his Ph.D. thesis area, 1959.

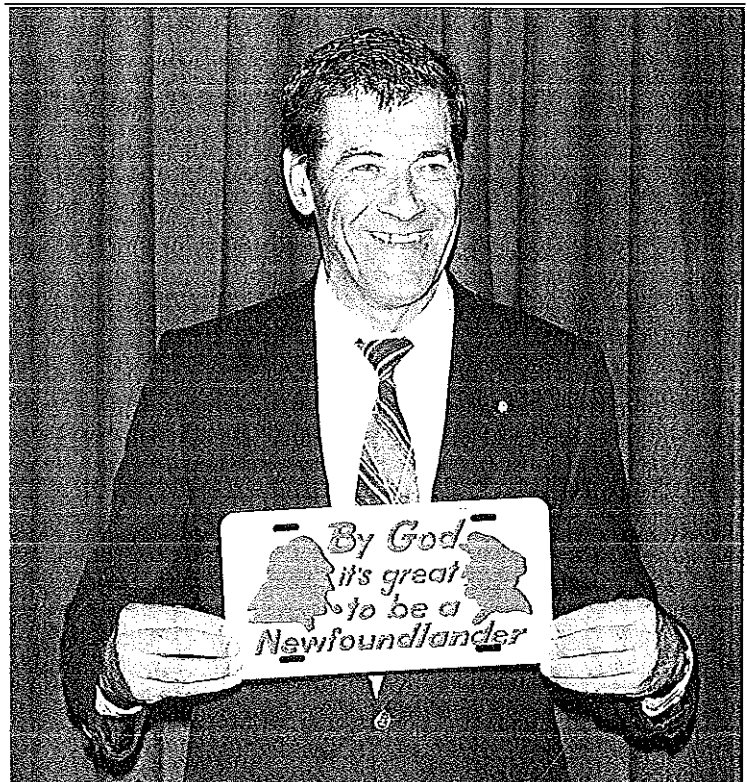
ognition of the Gros Morne National Park in which it is located. His interests in igneous petrology have included studies of sheeted dykes at Paleozoic spreading centres, island arc volcanic rocks, and rift-related volcanic and intrusive rocks. The latter began with a 1968 investigation of Late Precambrian basalts, first described as precursors to the Appalachian Geosyncline, but later (1972) related to opening of the Iapetus Ocean, and has continued with a widely cited 1987 paper (with Rick Hiscott) on the rift-drift transition.

This breadth of interest and his intimate knowledge of the Newfoundland transect led to the first realistic zonal division of the Canadian Appalachians in 1972. As Hank's knowledge of the complete orogen grew, modifications of these zones were projected throughout the Appalachians and into the Caledonides of Europe. All of this information was then compressed into the series of geological and geophysical maps of the Appalachians at 1:1,000,000 scale that were produced by Memorial University in the late 1970s and 1980. As Richard Haworth, then Chief Geophysicist of the British Geological Survey, stated at the time: "Few things are accomplished in any science without someone having the audacity, the confidence, and the respect to lead the charge. This is what Hank has done with Appalachian geology." When the DNAG/Geology of Canada series was

conceived, he was the obvious choice as editor and leader of the volume on the Appalachian-Caledonian orogen in Canada and Greenland. This massive work is now complete and will stand as a monument to both the man and the mountain belt for a great many years.

Hank Williams is a most generous, open person who readily shares his thoughts with students and colleagues from all over the world through his lucid, informal lectures, his clear and easy working style, his visits to workers in remote locations around the globe, and his warm invitations to others to participate in his own field projects. This is reflected in his bibliography, both in the wide geographic and disciplinary ranges of co-authors and in the names of graduate and undergraduate students from long ago who have returned to work and publish jointly with him.

His research has been widely recognized by prestigious awards, distinguished lecturing tours, and visiting professorial chairs. He was first to win both the Past President's Medal and the Logan Medal of the Geological Association of Canada. He was elected Fellow of the Royal Society of Canada at age 38, a very rare accolade, and 15 years later was awarded the Miller Medal by its Academy of Science. First winner of the R.J.W. Douglas Medal of the Canadian Society



G.V. Middleton presents the Geological Association of Canada 1988 Logan Medal to Hank Williams. This occasion makes Hank the first double GAG medallist, as he had been awarded the Past Presidents' Medal in 1976. A heartfelt moment from Hank's acceptance speech.

of Petroleum Geologists, he was also the first geoscientist to be awarded an Isaac Walton Killam Memorial Scholarship and the first scientist of any kind to hold this award for four full years. The list is very long and as this conference in his honour is added to it, we can be certain that it will not swell his head or diminish his productivity and zest for science.

Is his enormous volume of maps and papers ready for a final assessment? Not likely; let's wait for another few decades. Hank has had a growing fascination with computers and the donkey work that they can eliminate for mega-thinkers. So expect a continuing series of thematic maps of large parts of our continent. Together with Paul Hoffman and others, he has already had a preliminary crack at the anatomy of North America, so sometime soon, a detailed, computer-generated tectonic map of our entire continent may be in the cards. We wait confidently, knowing that whatever will be, will be daringly different, again pushing back the frontiers of our science.

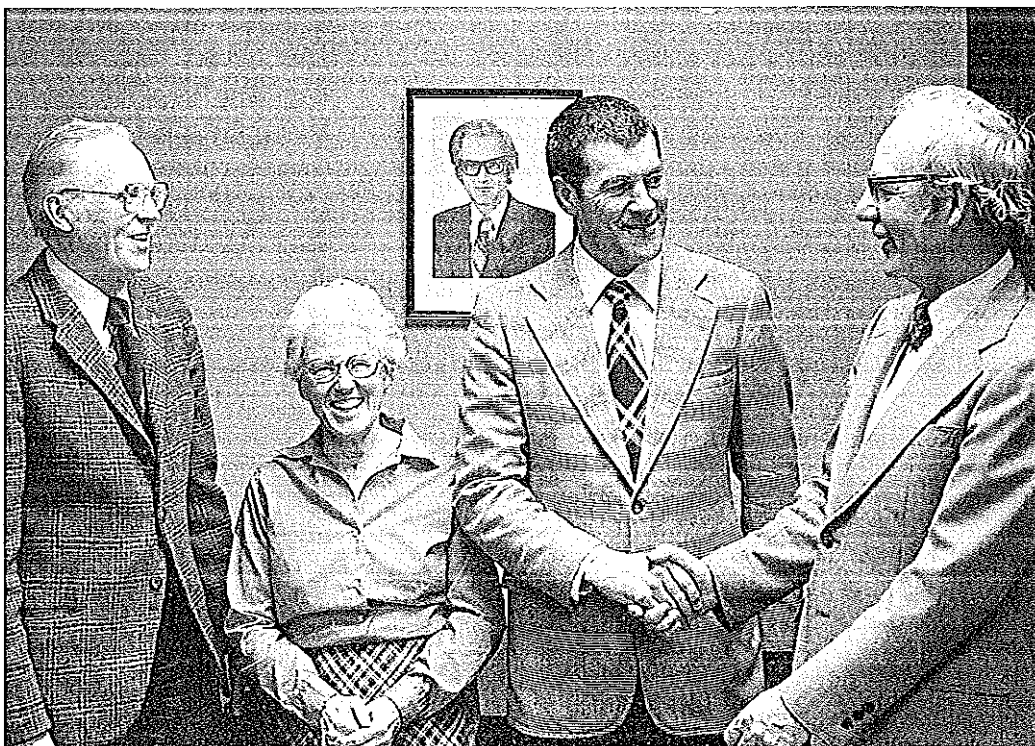
THE TEACHER AND TALKER

Hank Williams is known to two generations of students and to countless Geological Society of America (GSA) and Geological Association of Canada (GAC) members as an unusually gifted lecturer. This could be partly because his Avalon Peninsula Irish accent makes his students feel reassured and "at home". It also appeals to mainlanders and other foreigners who regard it as quaint, old-worldly and, some say,

"subtly authoritative". His presentations are always well prepared, easily understood by those for whom they are tailored, and well laced with appropriate humour. But the main reason audiences pay rapt attention is because what he says is always interesting and often profound. And there could be a trick of speech involved — Hank speaks fairly quickly in long, carefully constructed sentences and the active verb often comes near the end. One has to be attentive or one forgets what the verbs are activating!

In a letter read at the Grand Falls conference in his honour, Ingo Ermanovics, a field assistant during Hank's early Geological Survey of Canada days, wrote: "You taught me how to work hard, play hard, lose my fear of the sea, to be comfortable in the woods, play the banjo and make geological maps ... you sealed the choice of geology as my life's work and , your energy, genius for hard work and dedication to your craft has reaped benefits for us all." Similar tributes to his classroom lectures and his field trips abound. One ex-graduate student, Godfrey Nowlan, summed up his own and his classmates' experiences at Memorial by stating: "Hank knew his material so well that we all had enormous respect for him. You could relax and joke with him after class, but in a seminar he was very hard on you if you hadn't prepared properly and couldn't stand up to his rigorous questioning. He was a truly great teacher, probably the best I have known."

The ultimate tribute came from his peers at GSA and GAC meetings. Organizers consistently ached-



Ward Neale congratulates Hank on being the first recipient of the R.J.W. Douglas Medal awarded by the Canadian Society of Petroleum Geologists in 1981. Also present are Don Stott and Helen Belyea. Photograph of R.J.W. Douglas is in the background.

uled him for 8:00 A.M. lectures in the largest meeting rooms available. Attendance at early morning meetings is commonly abysmal, but Hank could pack in the troops at any time with his latest stirring tales of Appalachian development. A distinguished lecturer indeed!

THE LEGEND

The Great Map-Maker is a "character". People from across the continent and from Europe who have never met or heard him in person talk knowledgeably about his exploits. He is a conversation piece for many reasons: his distinctive, v-front hairline, his derring-do in small boats in rough seas, his conducted field trips, his addiction to ping pong tournaments, his music and his maps. All that can be done here is to illustrate a few of these attributes by examples.

He plays several instruments by ear, but chief among them are the fiddle, guitar and tin whistle. These see service regularly in a pub at Kelligrews, home to the "Kelligrews Soiree", and in other places around the Island and around the world. He has twice won the St. John's fiddling contest where competition is keen. It is, hence, not surprising that the fiddle went along when he organized the first trans-Island field trip for his students in 1969. This trip became an institution: many hundreds from around the world have participated over the last 25 years under various auspices, *e.g.*, the International Geological Congress and annual GAC—MAC meetings. Late nights of revelry accompanied by spirited fiddle music are prominent among the memories.

Hank's graduate students, all of whom have gone on to successful careers, adapted fast to this lifestyle and usually improved their singing and playing and sharpened their wits while at Memorial. Most have carried this acquired *joie de vivre* with them and have established little pockets of Newfoundlandia in far-away, sedate places such as Calgary and Victoria. Others came to regard the Island experience as microcosmic and, hence, felt at home wherever they ended up. Thus, U.S.-born Jim Hibbard, when working on a project in Japan, wrote back to say: "The rocks are the same as those I encountered in Newfie's Dunnage Zone and the people here talks some wonderful quare just like they does on the Rock."

Hank's fiddle also played a prominent part in GSA meetings, particularly those of the Northeast Section. It dominated soirees and "smokers" and often continued in his hotel room until the morning hours. In the mid-1970s, a stirring rendition of "Hi ho! Hi ho! It's off to work we go" led to the formation of the infamous Dwarf Line. Hank played the role of Snow White with seven eager volunteers on their knees, following him around the meeting room. Lou Pavlides of the United States Geological Survey served as impresario and one-man press gang and at a 1976 GSA meeting in Arlington, Virginia, recruited over a hundred people to shuffle along lock-step on their knees behind the maestro. This is recorded as

the longest "Dwarf Line" in GSA history. Snow White performances continued for many years amusing most but displeasing a few. Some of the latter actually wrote to the President of Memorial University, Moses Morgan, stating that the evening antics and the fiddle music were demeaning to science and that Professor Williams should be admonished. The President got a big chuckle out of this and replied that he had referred the matter to the academic freedom committee.

Political correctness came to the fore again at an early GSA Penrose Conference in California where, during a social gathering, Hank, a liberal but a bit of a traditionalist, was accused by feminists of being a male chauvinist. The conversation was interrupted by a long distance call from Newfoundland. "Not bad news, we hope", said one of the group when he returned. "No", said Hank, "it was just my wife Jean telling me we are going to move — she's bought a new house and is selling our old one." "Weren't you part of the decision?" asked one of the women. "No, I just make the important geological decisions and Jean makes all the other ones." The conversation about chauvinism was not resumed.

Hank is rather a modest chap as pointed out in several citations written by his admirers. However, he does not lightly dismiss the worth of his accomplishments. Some of these were recognized when the Gros Morne National Park in western Newfoundland was designated by UNESCO as a World Heritage Site. Our Bay of Islands klippe expert was naturally chosen as scientific guide to the guest of honour, HRH Prince Edward. "Aren't you lucky to be the one to guide the Prince?" asked a prominent onlooker. "No my son," says Hank, "Tis Buddy [*i.e.*, the Prince] who's the lucky one, think now he could have been stuck with some political ringer instead of spending his time with me, the guy who knows most about the history of the rocks in this Park."

The most popular story relates to the storage and marketing of his best known product: the Tectonic-Lithofacies Map of the Appalachian Orogen. Although several agencies and companies at home and abroad were interested in publishing it, there were annoying restrictions or format changes involved in all discussions. Our hero developed a bold plan — Memorial University could publish it and reap all the kudos. He went to President Morgan and sold the idea to the tune of a \$40,000 advance. Cartographic work and all other preparation was done at the University and the bold print which could be read from the back of a classroom (and which offended conservative cartographers) was speedily approved by the sole editor, one H. Williams. An incredibly optimistic 10,000 copies were ordered: from the start it aspired to be a Canadian best-seller. Hank had pre-advertised it for a year at every meeting he had attended. Finally, without notice and on a very rainy day, 10,000 maps were delivered to the Geology Department where there was no place to store them. A

quick decision was made to re-route the shipment to the Williams' home where, as a tolerant but puzzled Jean watched, 5 tons of maps were loaded onto the living room floor. The floor began to buckle at 4.85 tons so Hank took off to a nearby Canadian Tire store to purchase adjustable jacks which were quickly placed under the downbows to restore equilibrium. The maps remained in the living room, in slowly decreasing piles, for well over a year. As mentioned above, Hank makes the geological decisions in the family.

With the help of his trusted lieutenant, departmental secretary Glenys Woodland, he began marketing, selling and mailing off copies of the maps. One of the marketing strategies involved design of a postcard featuring a miniature of the map (and later, its successor geophysical compilations). These postcards are now collectors' items. Thousands of maps were sold, the advance was paid back to the University, other major map compilations were financed from the sales, and Hank contributed a \$50,000 endowment for science scholarships. Best of all, in classrooms around the world, students not only learned of Appalachian geology, but also learned that there was a Memorial University of Newfoundland that had the courage to publish innovative, cutting edge science.

From such stuff do legends grow.

FINALLY

What can we say in conclusion about a scientist who has over 250 titles to his credit at last count and who, for several years in the past two decades, has been the most cited Canadian geoscientist? - a geologist whose meticulously pondered conceptual contributions and bold, broad brush thematic maps have revolutionized our understanding of a Paleozoic mountain belt that spans two continents? - a lecturer with a global reputation who, as a musician and raconteur, lightens scientific conferences with his Newfoundland high spirits? - a chap from the Southside Hill of St. John's Harbour who has become a legend in his own time? Well, we can start by agreeing that the name of Harold Williams belongs with those of James Hall, James Dwight Dana, Marshall Kay, Phillip King and John Rodgers - the tectonic pathfinders who, for the past 150 years, have kept the Appalachians in the forefront of our understanding of mountain-building processes. Then, we can endorse the words of his friend and former professor, J. Tuzo Wilson: "I cannot think of any Canadian geologist more deserving of honour and recognition." Finally, we can wish him well for a future that will continue to provide the intellectual challenges on which he has thrived. Keep her nose into the wind, Hank!

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