Tribute to

J. Keith Brimacombe

by

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" There is a rhythm to the seasons that reflects the human condition: birth in the spring, growth in the summer, the harvest of autumn, and the solitude of winter as nature takes pause"

These are the words of an extraordinary man, James Keith Brimacombe, whose life in this world ended during nature's pause in December of 1997. As the darkness of winter recedes, and we continue to struggle with our painful loss and profound sadness, we must seek consolation by recalling and celebrating his living. His own words remind us to turn to the beauty of spring which resembles the life, and the legacy of this wonderful human being.

Keith Brimacombe, whose light and love shone on us all, will remain a bright star in our firmament. His resplendent human qualities and radiant personality placed him in a realm apart- his warmth and kind heart, his mischievous sense of humour, his generosity of spirit, his unbridled goodness, his deep love of people, his unshakable integrity, his passion and exemplary dedication to making a difference. Keith was endowed with a brilliant intellect, exceptional creativity, and immense vision. He was a devoted father, a gifted teacher, a caring mentor and above all a beloved friend. But what were the well- springs of his considerable gifts?

I would like to take you back in time to Keith's boyhood in Rosalind, Alberta, a small farming community edged against a railway line. Sustained, even through the mists of decades, this seems to have been a formative magic time for him. I quote from his writings " .... *it certainly was one of unfocused curiosity. It was a time of poking into gopher holes, climbing tall trees in search of birds' nests, listening for the sound of the first meadow lark in the dawn quiet, smelling the sweetness of cut grass drying in the sun, testing the frozen surface of a bridge girder with your tongue*" . He spoke warmly of the caring home his parents provided for him, his four brothers and two sisters. But there is no doubt that living next door to his maternal grandparents, Grandpa and Grandma Mac, imbued his boyhood with an idyllic quality. Keith's love of the early morning stretches back in time to the dawn of those summer days of his childhood when he would creep out of bed to work in the vegetable garden with Grandpa Mac. He said the breakfast that followed was a culinary experience because you never knew what you were going to get. Keith was a tender-hearted teenager. With his first pay check at fifteen he bought his baby sister Judy a treat of glosette raisins. The generosity and love of his parents and grandparents left a strong impression on Keith who, through both nature and nurture, embodied all these human qualities. He confirmed this time as a good beginning when he said: *"When my own children, Kathryn and Jane entered the world, I wanted to provide the same home in a different time and in a different place".*

Clearly gifted, Keith chose engineering as a career at the University of British Columbia, because he loved people and problem solving. The study of metallurgical engineering appealed to him because of the searing temperatures and difficulty of pyrometallurgical production, as did the historic roots of the discipline and its role in shaping our civilization. And excel he did. Professor Ernie Peters who taught Keith as an undergraduate said to me over lunch the other day, " *When Keith was an undergraduate I realized that there had never been a student like him; when he left I realized that there would never be one like him again and there hasn't*".

An experience that profoundly shaped Keith's life and intellect was graduate work in London at the Imperial College of Science and Technology with Professor Denys Richardson- a colossus in metallurgical thermochemistry. But in Keith's words *"it was London with its rich history, beautiful parks and outstanding theatre which cast a spell on the boy from the prairies"*. He loved being in the Brompton Oratory listening to the rich repertoire of baroque music. The British pubs appealed to his love of human interaction and strong sense of camaraderie. To see such splendid actors and actresses such as Dame Margaret Rutherford, Maggie Smith, Alec Guiness and, above all, Sir Laurence Olivier live on stage touched the very core of Keith's sensibility. Keith would speak of the riveting performances of Laurence Olivier, recalling in his mind's eye the voice, the eyes, the body gestures of this great actor. And when Laurence Olivier died the tribute to him spoke of the glory of the actor, his courage, romanticism and optimism. Courage, romanticism and optimism are qualities which personify Keith, the man whose life we celebrate today.

When Hani Henein and I arrived at UBC in the late seventies to start our Ph.D. under his supervision, we found, to use Hani's words, *" a young professor full of sparkle in his eyes and ready to share himself"*. His love of the thrill of discovery was infectious. In research meetings, he would look at the seemingly disparate array of data you had brought and gently offer ideas that would reveal some insight; and then with consummate skill draw the same ideas from you and leave you with the sense that somehow they were your own. Through his creativity, of which I remained in awe throughout his life, we - I the student and he the mentor - would make a profound discovery that transformed our understanding of the process. To Keith this intellectual journey was the very essence of research. In later years, he would say that there was nothing more satisfying than watching the raw intellect and creativity of a student flower and blossom. On the rare occasions when this did not happen he felt a real sense of failure, even when the student graduated with a degree. To Keith we were all in a sense his children, part of his greater family and he cared deeply about our intellectual growth and our personal welfare.

One of Keith's most precious qualities was his love and concern for all who worked with him. I will never forget the time when my daughter Anji was approaching her first birthday, Keith offered to make her a birthday cake. I knew the man wrote brilliant papers, but bake a cake ... ? I wasn't so sure. None the less, I graciously accepted the offer and was told I had the choice of a mouse cake or a dog cake. My own talents did not run to baking a cake which involved such finesse, where one could execute such distinctions, and so without much thought I chose the dog cake. So on May 1st 1983, there were the Brimacombes on our doorstep, with Keith proudly carrying a wonderfully decorated pink dog cake. I will never forget the look on my daughter's face as she joyfully blew out the candle on her first birthday cake.

Keith was blessed with a mischievous sense of humour and an ability to tell stories seldom matched. He had countless warm humorous stories for every occasion and he took great joy in entertaining you over a meal, a drink or during a lecture. He loved humour and comedy and could adlib a John Cleese skit with astonishing mimicry. One of Keith's favourite stories was about Prof. Samis, a character well known to generations of metallurgical engineers from UBC. It was Keith's last day on campus before leaving for Imperial College to pursue graduate work, when he ran into Samis near the flagpole. Feeling deeply grateful for Samis' advice to go to London he told him, *"Prof. Samis I can't tell you how grateful I am for all you have done for me and I would like to thank you"*. At which point Prof. Samis apparently replied *"You know those devils have towed my car away again"*. A bit taken aback, Keith nevertheless reached down and grabbed Prof. Samis' hand and shook it and said *"I am sorry to hear this but thank you so much for all you've done"*. Two years later Keith recalls being in his lab at Imperial College when he heard this familiar voice and looking up beheld Samis, on a visit, who addressed him, *"You know those devils*

didn't tow my car away after all, I just forgot where I had parked it". Keith always said that you had to attend Samis' lectures in the third and fourth years because he always started his sentences in the third and finished them in the fourth. This ability to lighten a situation and brighten an encounter with humour was one of Keith's most endearing qualities.

It was Keith Brimacombe's dream to create the best process engineering research centre in the world. What he accomplished in pursuit of his dream is truly remarkable. Major advances in metallurgical engineering in this century as it relates to processes, can be traced to the intellectual efforts of a few giants and James Keith Brimacombe was unquestionably one of them. Keith Brimacombe changed the field irrevocably and there is no one in the world who is his equal. He was not only a visionary but a missionary. He believed passionately in translating research results into practical terms which would benefit workers on the shop floor and lead to the creation of wealth. To fulfill this mission he travelled the world to every continent to share his knowledge with people- from company Presidents to shop floor workers. He had a great love of life and thrived on human interaction. His capacity to enjoy the beauty of his surroundings was a reflection of his deep sensitivity. From a sunset on Lake Saima in Finland, to the majesty of Dubrovnik in former Yugoslavia, to the wilds and wonder of Kruegar park in South Africa, to the pastoral beauty of County Kerry in Ireland, he would regale his friends with eloquent joy.

I have not met a more people-centered human being than Keith Brimacombe. He believed in the richness that flows from men and women working in harmony for the greater good. He communicated this vision powerfully with these thoughts, *"Humanity is woven from the souls of men and women - the warp and woof of life's fabric. The threads of the male and female spirit are profoundly different, and the tapestry is constantly changing .... it is time that life's fabric was woven from threads that mutually enliven the human tapestry in which the colour and strength of one thread meshes with the warmth and texture of another in a vibrant balance."* Inspiring words !

But there was also a whimsical side to Keith which was disarming. Writing to Larry Kuhn on the occasion of Larry's retirement from the Iron and Steel Society, he said *"Here I am thinking Kuhn thoughts which are akin to the rhymes of Pooh-Bear- simple and nonsensical.I do not know why you remind me of Pooh Bear, because he never retired like you. I must have been thinking of Alex McClean; but then again Pooh Bear is perfectly understandable, while McLean speaks a mysterious language yet to be fathomed. Was it Dick Fruehan? Possibly but E.E. Milne never vested in Pooh Bear a laugh that would curdle milk. Now it comes back to me ... Pooh Bear reminds me of you because he was, and still is one of my favourite storybook characters and you are one of my favourite people. Pooh is changing the lives of countless children and you have influenced the careers and lives of innumerable people, like me ... That is where the comparison with Pooh Bear ends - unless, of course you harbour special knowledge on heffalumps".* When Keith was a starving graduate student in London, he found a way to send his baby sister Marg an entire set of Pooh Bear books for Christmas; and a little over a year ago, when he went to spend Christmas with sister Marg and her family, his last, he individually gift wrapped a series of Pooh Bear books for his little niece, Shea, and signed each one of them from a different character in the Pooh Bear series.

Keith Brimacombe was a born leader. Charisma and charm came naturally to him. Joe Defilippi, who worked with Keith on the TMS board describes Keith's leadership beautifully with these words *" What allowed him to do so much in such a short, too short a period of time ?. To me, Keith did so because he was a veritable Pied Piper. He had the rare ability to attract people to his cause, share his immense vision, and galvanize them into effective action - the marks of a true leader. And like the best of leaders he shared credit. It's easy to understand why people could not refuse calls for assistance from this humble, genuine, and caring man" .*

Keith loved the beauty of the written word and spent many hours in his study in the early mornings thinking and writing. He drew inspiration from the great American novelist John Steinbeck; he was touched by the poignant prose of Margaret Laurence; and the imagery created by poet, Robert Frost moved him. He would recite, the words of "Road not Taken"

I shall be telling this with a sigh
Somewhere ages and ages hence;
Two roads diverged in a wood, and
I took the one less travelled by.
And this has made all the difference.

In leaving UBC to take up the position of President and CEO of the Canada Foundation for Innovation, he said to us, *"I have accomplished more than I could have dreamed of in my own career - this is a chance for me to do something for Canada".*

Over these past three months the tributes to this irreplaceable man have poured in from many here at home and from around the world. I would be remiss if I did not share some of these with you because they are a measure of who he was and what he meant to all of us who loved him.

In this moment of grief, rejoice with me in the fact that we saw his brilliance shine so very brightly. He did more in one life time than others could possibly do with ten lives. He inspired a whole generation of students to be the very best that they could be. He left a legacy of excellence for all to follow and, despite his many accomplishments, he remained that most blessed type of person, a warm and considerate human being.
- Des Tromans, UBC a colleague of twenty seven years.

I'm glad that I had a chance to work with him. He was a larger than life person. A giant in science and engineering. He set a standard that is difficult to match.
- Tom Tiedje, UBC.

I had the good fortune to work with Keith as a Research Associate and to enjoy a camping and fishing trip with him. I still remember when we were to board the boat for fishing he joked, " you go, I will stay here, I am too young to die". That was five months ago. I deeply feel the loss of his personal warmth and friendship
- Daqing Jin, UBC

To say that Keith has been a tremendous positive influence on all our lives would be an understatement. Besides ours, his leadership, generosity, and enthusiasm has touched the lives of many others around the whole world. He devoted his life to making a difference. Keith genuinely cared about people. He took a personal interest in each of our lives and nurtured our careers in many ways, some of which were behind the scenes and we will never know. We owe him a debt of gratitude that we can never repay. We want you to know that the man you loved has made a real contribution to our society and is loved by many others as well, who will sorely miss him. The world has lost a great man who can never be replaced.
Briam Thomas, Alan Cramb, Ed Szekeres and Iain Sommerville -Co-instructors of the Continuous Casting Course.

Just one week before Christmas, I learned that we've lost yet another great man from the ranks of our society. J. Keith Brimacombe. A man of great intelligence, quick wit, sharp insight, professional accomplishment, well earned respect and vision. Many people talk the talk and don't walk the walk. At TMS, when Keith talked it, he walked it, no he ran it. He went everywhere but the Antarctica to cultivate a myriad international liaisons among TMS and other societies. It would not be inaccurate to say that much of TMS's modern profile has resulted from Keith's chiselling
- James Robinson, Editor, TMS

A wise old man once told me that each of us come into this world with a hammer and chisel and can chose in life to carve either stepping stones or stumbling blocks. Keith sculpted the finest stepping stones, and each of us who chose to follow the path he laid are better people for having done so. As we carry on without him, we cannot give him any greater tribute than to emulate his example.
-Joe Defilippi, a TMS colleague.

It was an unforgettable period that we stayed in Vancouver from 1982 to 1984. I really thank Keith for his great supervision and his friendly contact with us. Even after coming back to Japan I have been influenced by his leadership and character. As my best respected professor he is irreplaceable
- Eiichi Takeuchi, Nippon Steel Corporation.

Keith fulfilled the greatest calling of all - teaching. His thoughts and ideas had the power to change our industry - to challenge us and push us forward. He sharpened our minds and our principles, but most of all he was our friend and we'll miss him.
- Larry Kavanagh, Vice-President, American Iron and Steel Institute.

Keith was a truly remarkable person, not so much for his professional achievements, but as a human being who cared for others far more than for success. He has been my closest friend for over thirty-one years, since we were students in London.
- Peter Crimes.

I, like Peter, have lost my closest friend and cannot find words to describe my sadness and my deep sense of gratitude for his friendship.

Keith you have left us a great and inspiring legacy.
You have touched us all and we sorely miss you.
You inspired us to always pursue truth and appreciate beauty in our lives.
You taught us how to use our intellect and imaginations to advance
the frontier of our understanding.
You led us to always take the high road and to give of ourselves for the greater good.
You showed us how to look for the best in another human being and find joy
in the blessing of human interaction.
You taught us that we needed to discover who we are and to be the best that we can be.
You believed that life is a precious gift to be lived joyfully.
You taught us that to live life well is to share, to care, to give and to love.
You enriched our lives in immeasurable ways by your wonderfully warm spirit,
your sense of fun, your laughter and by your very living.
We will never forget you.

James Keith Brimacombe

Keith was born on December 7, 1943 in Windsor, Nova Scotia where his father was stationed as a flight instructor during World War II. The following year, the family returned to Rosalind, Alberta where Keith spent his boyhood years. To Keith, Rosalind was a very special place - "the best place for a boy to grow up", he always said. He was surrounded by the love of his family - his Mom and Dad, brothers, Grandma and Grandpa "Mac", aunts Colleen, Edith and Adeline, and his uncles Edmund, Gord and Stan. Keith enjoyed the activities of small town life: helping out in Grandpa's store, riding horses at Malone's farm, eating ice cream cones (sometimes with toupees!) dished up by the barber, and escaping to Grandma's house for milk and cookies when things got tough at home.

When Keith was ten years old his family moved to Lethbridge. There he worked as a boxboy at the local grocery store, spent time flying model airplanes, was active in the Air Cadets, and helped his mother with his baby sister Judy. In 1960 they moved to North Vancouver, Keith graduated from Delbrook High School in 1961.

Through the Air Force R.O.T.C. Program, Keith enrolled at UBC in the Faculty of Applied Science, where he excelled in his studies and took part in the social activities at St. Mark's College. His first international trip was to Baden-Baden, West Germany, as a reserve officer in training. Keith received his B.Sc. with honours in 1966 and in recognition of his academic achievement was awarded a Commonwealth Scholarship. He was accepted into the Royal School of Mines at Imperial College in London, England. During his three and a half years in London, Keith immersed himself in local culture, enjoying theatre, concerts, and exhibitions. He was a typical starving student, many of his meals consisted solely of baked beans! He met Margaret (Meg) in January of 1969 and they married a little over a year later on February 7, 1970, three days after Keith successfully defended his doctoral dissertation. They moved to Vancouver less than one month later where Keith began his career as an Assistant Professor of Metallurgical Engineering at UBC in April of 1970.

During the next twenty-seven years, Keith focussed his energies on the development of a world-class engineering program at UBC and consulted with colleagues worldwide. Keith's research led to major advances in metallurgical engineering processes that earned him the distinction of being an intellectual giant in his field. As founder and Director of the Centre for Metallurgical Process Engineering, his approach to the study of metallurgical processes altered the discipline - his exceptional creativity and intellectual rigour contributed to remarkable advances of a range of processes spanning both the ferrous and non-ferrous industries in Canada and around the world.

As Keith's professional life flourished, Keith and Meg were blessed with two daughters, Kathryn Margaret, born March 30, 1973 and Jane Margaret, born February 26, 1975. Keith and Meg were active, caring parents who supported their daughters' pursuits encouraging them to use their talents to the best of their abilities.

Keith developed close relationships with many of his students, especially those from overseas - relationships that continued over the years. A visit to Keith and Meg's home was often these students' first introduction to Canadian culture. Keith quickly put them at ease with his sense of humour, warmth and his concern for their well-being in a new environment.

For his pioneering efforts Keith received thirty major national and international awards. He was an Officer of the Order of Canada, a Fellow of the Royal Society of Canada, and was awarded an Honorary Doctorate from the Colorado School of Mines in 1994. He has also been awarded the Killam Memorial Prize from the Canada Council, the E.W.R. Steacie Memorial Fellowship from NSERC, the Ernest C. Manning Principal Prize, and the B.C. Science and Engineering Gold Medal. In June 1997 Keith was awarded NSERC's Canada Gold Medal for Science and Engineering. He was truly honoured to have received this major Canadian award and was so pleased to share this recognition with his mother and daughters at the ceremony in Ottawa.

Within professional societies he was recognized for his leadership and excellence and was a Fellow of the Metals, Minerals and Materials Society (TMS), (a distinguished group of 100 Living Fellows), a Fellow of CIM, a Fellow of the Canadian Academy of Engineers, a Distinguished Member of the Iron and Steel Society (ISS), a Foreign Associate of the National Academy of Engineering (U.S.A.).

It is difficult to capture the essence of such a unique and complex person. Keith was an inspiration to those who knew him and his dedication to excellence was unparalleled. Whether personally or professionally, Keith's influence will continue to shape our lives.

In honour of Keith's commitment to UBC and to the field, two memorial funds have been set up. The first will fund a scholarship at UBC and the second will be directed at funding a Brimacombe Prize for an outstanding young professional in the field. Donations to these funds may be sent to:

Dr. J. Keith Brimacombe Scholarship Fund
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