

get, depending on the individual, very mixed reviews in their adopted countries – the classic examples of this are, perhaps, some of the ‘assisted passage’ British in Australia who became known as ‘whingeing Poms’) In addition to his numerous friendships and important personal relationships emerging from his professional life, David made two highly significant contributions to the mathematics education community in Canada and beyond. In the best ‘elsewhereperson’ tradition, these both emerged from experience he brought to one culture from another.

The first of these, building on his editorial experience with *Mathematics Teaching*, is the journal in which these remarks are situated. It would be, in a sense, redundant to point to the many characteristics of this publication which are a direct result of David’s values and expertise. Individuals who are regular readers will already have come to appreciate, consciously or unconsciously, the clarity, range and depth which distinguish *FLM* articles from the more ‘templatic’ offerings of other publications in the field

The second, considerably influenced by his ATM experience, is the Canadian Mathematics Education Study Group. Shortly after arriving at Concordia, David wrote to mathematicians and mathematics educators at most major universities in Canada asking whether they saw any value in trying to create some form of activity in mathematics education at a national level. Several respondents indicated that they felt that existing channels of communication, especially through the NCTM, adequately met their needs

Two to the most encouraging responses came, independently, from Queen’s University in Kingston. The first was from me. Intrigued by the possibility of working with David on a project of this sort, I expressed a strong interest. More significantly, the long-time head of the Department of Mathematics, John Coleman, also responded positively. David followed through on these two offers with typical efficiency and imagination. Using funds made available through John’s leadership of a national study of the role of the mathematical sciences commissioned by the Science Council of Canada, an invitational meeting was held in Kingston in 1977. This gathering led directly to the formation of CMESG. In his characteristically patient, sensitive and thoughtful way, David led the construction of this group with its clear connections to the tenor of the ATM

These two institutions have come to be defining features in the professional lives of almost everyone in the Canadian mathematics education community. We owe David Wheeler a great deal for his imagination, intelligence, dedication and discipline. Our lives have been very much enriched by his decision to not just visit, but to come to live with us.

Remembering David

BETTY JOHNSTON

I was going to start this story in Leicester, England, but in fact it begins more than thirty years ago in Africa, in a

remote high school in Ghana. Where would you go in England, we asked the volunteer British teachers, if you wanted an exciting post-graduate education qualification in mathematics (for me), in sociology (for Ken)? Ah, Leicester, said Tom, it’s got a good sociology diploma and there’s this great guy – David Wheeler – who teaches maths education. Definitely Leicester.

A Midland town, parks and large houses, an attic flat at the top of an elegant brick house. Shared bathroom, with a bath once a week! Walking to class, through autumn, winter, spring. Mulled wine, pubs, a tight budget. We have just scraped in with our colonial credentials – the following year the rules change, and we would have had to pay impossible fees. New Zealand relatives send a side of lamb to keep us from perceived starvation. So, once a week, proper coffee and a record borrowed for sixpence from the local library.

I am in a small group of maths education students and David is our tutor. I am a little older than the others, having taught for a few years. Most will be high school teachers but I am not sure – perhaps there is room for more active engagement in primary classrooms? David says to try both. Maths changes for me. It shifts from its hard edges, its rules, to openness, conversation, possibilities. Demanding as before, but less predictable and ?? . Films, discovery.

He is a provocative tutor. He discusses our assignments, but refuses to grade them. We are becoming teachers, he argues, and must learn to grade ourselves as we will be grading others. The students mutter, “He has us in little boxes, he’s just not telling us”. It is hard to let go of the need for judgement, for praise. Later, I read a furious footnote in one of his articles:

Automatically praising kids is an abominable practice, debilitating to both parties; after a time, everyone becomes intellectually and morally flabby, especially the teacher.

Out walking one Sunday afternoon, we pass David’s house, and unthinkingly casual – New Zealanders that we are – we knock on the door. He is taken by a very English surprise – caught in a courteous confusion. We don’t stay long. It is only shortly before he dies that I appreciate the patterned dailiness of his life

We are back in the southern hemisphere, Australia, Sydney. Children enter our world. We share a large old house with others, fringe hippies. Vietnam is an issue, anything is possible. Fired by teaching in Leicestershire schools, we are appalled by the routineness of NSW primary schools. With others, we begin a small progressive school.

Airmail envelopes with blue and red stripes bring news over those next ten years. I enjoy the letters, they are sharp and quick, always interesting. We exchange ideas about books and writing, films, sometimes people, sometimes food, rarely maths. I cannot share music far – I look on in envy at this detailed pleasure. And now David is coming to stay with us while he is a keynote speaker at a conference in Sydney.

So for the first time, I attend a maths education conference, and to some extent enjoy it. I meet one or two people who later become friends. It is good to have David with us, but I wonder if it is maths that we have in common. More perhaps to do with learning and teaching, people and reading? One of my sons is doing badly at maths. How can that be, I ask David, and what should I do? He says, far too many people are already good at maths. Is he able to cope with life? Does he have enough skills for that? And, of course, he does. (Later, he gets 6% for School Certificate maths, but now, nearly twenty years on, he understands mortgages well enough.) We eat out, have coffee, David catches the ferry across the harbour, and walks the long distance home.

This journal, with its significantly uncapitalised and focused title, arrives three times a year in my letter box – the only maths education journal I actually look forward to reading. At least it will be interesting. Probably it will be provocative, often it will make links with surprising ideas and fields. Like David himself, it will certainly not be intellectually flabby.

Vancouver, its mountains close and generous against the sky. Everywhere, daffodils and trees in blossom. Round English Bay, Sunday morning walkers with dogs, and coffee in silver thermos cups. Bicyclists in Stanley Park. And from here, on the sloping road near David's, blossom against the bay, the mountains, the sky.

And David is sick. Stubborn, sometimes furious, always independent, in and out of hospital, a despair and a delight to a group of his friends, who talk and do crosswords with him, care for him, bring CDs and tulips, keep up with his extensive email friendships, and meet each other, some for the first time. But it is the last time that I see David.

I miss his edginess, his provocation. It would be so easy to become morally, intellectually, emotionally flabby. I miss him.

Mathematics is About

TOM KIEREN

Many years ago I was speaking at a conference in Regina, Western Canada. On one of my OHPs I had the phrase: "MATHEMATICS IS ABOUT ...". David Wheeler was at that conference too and happened to listen to my presentation. Afterwards, he came up to me and commented on some things I had said. In referring to the slide mentioned above, he said when he first saw it he took it to mean that mathematics was *about* – that is, that somehow we were always in the presence of mathematics: it was around us to be seen or looked at.

Of course, that was not what I had meant at all. I was trying to make the point that for each of us our mathematics knowing is in some way about other experiences we have had or, as Freudenthal suggests, it is a way for us to organize our experiences. David had a comment on that too. I had explicitly invoked 'recursion' to capture the sense of 'about-

ness' suggested by the phrase above. Rightfully so, David both questioned my use of the word 'recursion' and cautioned me about using words in imprecise ways in talking about mathematics or its knowing and of coming up with jargon in the process. Those of you who know us both will not be surprised that it was neither the first nor the last time David so cautioned me.

Although I frequently was subject to and likely earned his friendly criticism over the years, ideas that came up in David's responses to my words (as well as in his own thinking and writing to be sure) still crop up in my own thinking about mathematics and its knowing. Consider his comments above. When we think about mathematics knowing today, it is tempting to think about the mental operations and abstractions that a person uses to think and act mathematically. Or it is reasonable to think about our interactions with others, especially more knowledgeable others, as a source of or at least a basis for our own knowing of mathematics.

David's comment on mathematics being around us or our being in its presence reminds me to think about the cultural dimension of our thinking. David was blessed with co-ordinated hindsight and foresight, in that he could consider the mathematical problem-solving actions of a student in front of him in light of the nature of ideas and practices of the historic as well as the contemporary mathematical communities. As I observe the actions of students of many ages, I am prompted to ask in what ways the 'mathematics being about' or the 'presence of mathematics' might be observed to occasion the knowing actions or might be used to do so.

I have continued to use recursion as a way of thinking about and observing how students modify their own thinking over time (and through re-presentation possibly modify the thinking of others). In so doing, I am necessarily conscious of my use of the word and particularly its implications for the way in which the person uses and modifies their 'memories' and changes their own mental structures. I am also necessarily conscious of how one represents such changes or growth in thinking for others. Whenever I do this, I think of that long-ago challenge from David.

Finally, I have not stopped using words in unusual ways or even coining them in my writing and speaking. But I never do so that I am not prompted to think about the consequences for me and others as we think about how persons come to know mathematics and use that knowing in helping students in their knowing or devising elements of a 'better' mathematics curriculum. I hope I am thinking more clearly both about mathematics and its knowing. To the extent I am successful, it is in part that David and his work has occasioned and continues to occasion my own knowing.

Recalling David Wheeler

JEREMY KILPATRICK

In early 1989, David began his role as chair of the International Program Committee of the Seventh International