

A Tribute to **James J. Kay**

presented by David Waltner-Toews on July 11, 2004, at the Welcome Sessions of the International Society for Ecological Economics, Montreal, Canada

James Kay died, at 11 PM on May 30th of this year, just a few weeks short of his 50th birthday. He died with his eyes open, both literally and figuratively.

For many, James was an exquisite physicist, theoretician on complexity and thermodynamics. In his early work with Eric Schneider, he re-interpreted the second law of thermodynamics, applying it to understand how exergy gradients induce self-organizing structures, and how living systems organize so as to destroy exergy gradients at the fastest rates possible. His work was featured as a cover story on the *New Scientist*. His 1994 paper with Schneider was recently identified as one of the 12 most important papers in ecology in the 1990s and is included in the Oxford University Press *Readings in Ecology*. More recently, he extended and expanded on this work with Royden Fraser. Some have argued that in the unpublished papers on thermodynamics he left behind there is more than enough material for a Nobel Prize. I cannot say I understand that part of his work well enough to make such a judgement. I do know that he never stopped at exquisite theory.

I first knew James as a teacher when, as a veterinarian and public health epidemiologist, I was making my first tentative forays into the debates on sustainable development. I discovered what a wonderful teacher he was, translating the complex theories of thermodynamics into plain English and simple object lessons and diagrams. The irreducible uncertainty of complex life was to him not just a source of frustration, but of humility, and great wonder and amazement and good graphics. It was certainly at the core of how he approached the immense problems of science in the public domain, science for the public good.

He could move from thermodynamics to science fiction to municipal politics with ease, although some might argue that the latter two are not so different after all. He was the founding Chair of University of Waterloo's Greening the Campus Committee and a founding member of the City of Kitchener's Environment Committee, which developed a Strategic Plan for the Environment and an ecosystem-based master plan for the Huron Natural Area. He sat on the committee which developed the award winning (Canadian Institute of Planners) bicycle master plan for Kitchener, was on the City's committee for the transition to a hydrogen economy. He advised the Ontario Ministry of the Environment on how to develop indicators of ecological integrity, and delivered special guest lectures to the National Ministry of the Environment. He served on the Long Term Ecosystem Research and Monitoring Panel of the Royal Society of Canada and was a member of the Royal Swedish Academy of Sciences, Beijer Institute, Working Group on Complex Ecological Economic Systems Modeling. He was a very active member of the United States National Science Foundation Advisory Committee on Environmental Research and Education and had a profound influence on the shape of its 10 year outlook, *Complex Environmental Systems: Synthesis for Earth, Life and Society in the 21st Century*, published in 2003.

As academic friends will, we would sometimes commiserate about the immense inertia of formal institutional structures such as governments, granting councils and universities. But he wouldn't let us stop at just complaining. When we founded the Network for Ecosystem Sustainability and Health, James saw it as a way to re-invent the university, to create a forum for intellectual debate, teaching and practice, a critique of business as usual, a way to use new web-based technologies to create that extended peer group demanded by Post Normal Science.

In the last 10 years, many of us had the privilege of working with him on a kind of globalization of this parallel, publicly engaged university. Since the early 1990s, he had been part of an ad hoc international group of scholars studying uncertainty, complexity, and managing for sustainability. An earlier name for the group, the Cali Cartel, named after the working place for one of our members, seemed to create some traveling problems. Then, we had a memorable meeting at La Faloria Convent in Cortina, in the Italian Alps, in which we flew people across the Atlantic with no clear agenda and no committed funds, our only sponsor an Italian wine-maker who agreed to provide wine. It was one of the greatest scientific experiences of our lives. Like the fictional detective Dirk Gently, created by Douglas Adams, that hitch-hiker of the galaxy, we sought to solve the whole crime, to find the whole person, to find the whole solution to our global problems. Served pasta by the nuns and heavenly Italian wine, we read poetry and argued complex systems theories, explored the reasons for epidemics and the nature of agricultural development. When I suggested we might call ourselves the Dirk Gently Group, James, with typical impishness, insisted on referring to us as the Dirk Gently Gang.

Later, at the Ecological Economics meetings in Boston, and subsequent panels and special sessions in Cali, Columbia, Toronto, Guelph, James was always a central figure. Even this last November in Milan, and in March in Alexandria, when he was not there physically, we could feel his presence. Then again, there were the sessions he organized dedicated to theoretical ecology in the Biennial Workshop in Advances in Energy Studies of Porto Venere, Northern Italy, in which James always played the crucial role of the “skipper fighting in the typhoon”. More than once, he told me, after some memorable engagement at a workshop on exergy or energy or integrity or health, there had been blood on the floor. More than once, he confided in me that he was distressed at the way some scholars seemed to believe that one side had to win or lose these debates. Did we not believe in the reality of complexity? In the necessity for well argued, well articulated multiple perspectives? In the reality of trade-offs?

In the last year, he was annoyed by the fact that there is a lot of work still to be done, and his health problems were preventing him from doing all he would have liked to do. At the beginning of May, I visited him in the hospice shortly after he had moved in. It was an unsettled spring day, with temperatures around 20 C, bits of rain, bits of sunshine. The hospice is in a small gully, with a wetland nearby, and James had some bird feeders outside his floor-to-ceiling windowed doors. He immediately started talking about energetics and feed availability and species competition. We watched the young redwinged blackbirds, chipmunks, a flock of goldfinches. James was taking pictures with a new digital camera to document the ecology outside his window. The world never ceased to intrigue and amaze him. Until a couple of weeks before he died, he was still debating with Martin Bunch and I the fine details of diagrams of self-organizing systems to be included in a book we had been working on, it seems to me, almost forever, entitled, *The Ecosystem Approach: Complexity, Uncertainty, and Managing for Sustainability*. For some of us, like myself, who are at home with broad visions of health and sustainability, he could be an annoying bear of a man to work with, precisely because he was as demanding of his colleagues as he was of himself. He complained at how sloppily supposedly good scientists used words like attractors and phase changes, did not tolerate the kind of loose thinking or sloppy logic which some of us use to comfort ourselves with our cleverness. He wouldn't let us off the hook just because we were friends. And I think it is exactly because of this that I remember him as a friend, and not just a colleague.

Looking over the edge of eternity, he was worried that his work might not amount to what it should, that it would fall short of its potential. On May 19th, just a couple of weeks before he died, I dropped by his hospice on my way home from work, and talked with him over supper,

and then we wheeled out to the little wetland and looked at water and listened to the red-winged blackbirds. It's all going so fast, he said. I told him again about how he had connected so many diverse people from so many parts of the world, the marvelous influence he had. Only half joking, I think, he told me to keep saying that, as it made him feel better. He was pleased that Jona and Lise, his children, now both had their drivers' licenses; they were growing up and out into that world he so loved. I went home and worked in the back yard until dark and I had a sore back. I guess I just wanted to feel my body, knowing how easily it can slip away, how easily, if we let it, this world can slip away from us.

In spite of his regret at not having finished his work here, he left a huge legacy to us, in terms of books, papers, videos, tapes, intuitions, enthusiasm, contacts, friendships, shared experiences, memories, ongoing projects, personal example. Visit his website; it is a treasure. James would want us to share it, to use it, to let it multiply in the minds of students and scholars everywhere. It is time for us, now, to use our intellectual drivers' licenses, and get out there, not to let it all slip away, this world full of misery and wonder, immense problems and immense resilience. With James' passing, the world lost a champion of good science, good ecological economics, good citizenship. But most of all, for many of us on this strange and wonderful journey of life, we lost a traveling companion and a good friend.

David Waltner-Toews
for
Joan Martinez Alier
Tim Allen
Bruna de Marchi
Silvio Funtowicz
Gilberto Gallopin
Mario Giampietro
Giuseppe Munda
Jerry Ravetz
Henry Regier
Joe Tainter
Bob Ulanowicz