1997 Max Hey Medal

Presentation, by the President, Professor A. H. Rankin, to Dr J. J. Wilkinson, 8 January 1998

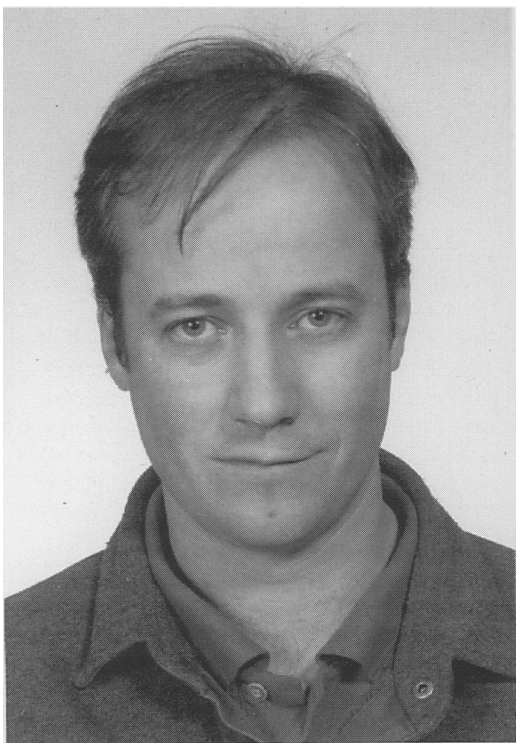
The Max Hey Medal was instigated by the Society in 1993 in commemoration of Dr Max Hey. Throughout his career Max became one of the most influential and internationally renowned British mineralogists, and a tireless Principal Editor of the *Mineralogical Magazine* for over a quarter of a century. The award is in recognition of existing and ongoing research excellence carried out by a younger member of the Society, normally under the age of 35, in the fields of either mineralogy, crystallography, or geochemistry.

I am delighted to introduce you to this year's recipient of the award, Dr Jamie Wilkinson from Imperial College.

Jamie's formative years were spent in East Anglia. After impeccable A-level results from The Thurston Upper School near Bury St. Edmunds, he crossed the Fens to read Natural Sciences at Cambridge University, intending to specialise in chemistry. Instead, beguiled by mineralogy and geology in his first year, he followed the degree route leading to a BA in Geological Sciences, which he received in 1986. He then moved to Southampton University on a NERC research studentship, and in 1990, under Bob Foster and Jim Andrew's supervision, he was awarded his PhD for research on the origin and evolution of Hercynian crustal fluids from Cornwall. In 1990 he moved to Imperial College on a three year, Shell-sponsored postdoctoral Fellowship to work with Jack Nolan and myself on the synthesis and chemical analysis of fluid inclusions in minerals. Since 1993, he has held the post of Minorco Lecturer in Mineral Deposit Geology at Imperial College, where he now leads an active and successful group of four research students involved with research on mineralization and fluid processes.

Jamie's personal research interests are centred on an understanding of fluid processes in a range of geological environments, especially those containing hydrothermal mineral deposits. Fluid inclusions play a significant role in this research and Jamie has been particularly successful in developing and applying micro-techniques for their geochemical analysis. Over the past five years he has published widely on this subject.

Two publications arising out of his early work on synthetic fluid inclusions spring particularly to mind. In one he recognised, for the first time, the existence of a strange, aqueous, gel-like fluid capable of transporting large amounts of silica at relatively low temperatures and pressures in alkaline environments (Wilkinson *et al.*, 1996). In another, published as an abstract for the 1990 annual Winter Conference of the Mineral



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Deposits Studies Group in Dublin, he charmed and intrigued the audience with a poster display of synthetic Guinness inclusions in halite. These amazing little droplets, prepared somewhat lightheartedly in collaboration with the group of researchers at Imperial College known as the 'Bubble Boys', were not without their scientific merit. They provided an excellent insight into the processes and controls of heterogeneous entrapment of co-existing aqueous and CO_2-rich fluids sometimes inferred in nature. More recently, Jamie's research has focused on the fluid, geochemical and structural controls of gold and base metal mineralization in SW England, Ireland and Tajikistan and on porphyry-style copper mineralization in Chile. Again, a number of important papers arising out of this research have recently been published or are currently in press.

Jamie Wilkinson, in recognition of your current and ongoing research into fluid and mineralization processes in crustal rocks, I am delighted to present to you the Max Hey medal of the Society. Many congratulations. May your research continue to flourish, and its outcomes continue to inform, charm and refresh our scientific community.

References

Wilkinson, J.J., Farmer, C.B. and Boys, the B. (1990) Unusual Guinness-rich synthetic fluid inclusions from Imperial College. *Mineral Deposits Studies Group Annual Conference, Trinity College, Dublin Programme with Abstracts.*

Wilkinson, J.J., Rankin, A.H. and Nolan, J. (1996) Silicothermal fluid: a novel medium for mass transport in the lithosphere. *Geology*, **24**, 395–8.

Acceptance speech by Dr J. J. Wilkinson

Mr President, Andy, I was delighted and surprised to receive your telephone call several months ago in which you told me I had been selected to receive the 1997 Max Hey Medal. My initial response was one of disbelief at being chosen for such an honour. Then, and now, I feel somewhat uncomfortable with the idea. There are too many young scientists of great ability for me to feel that I deserve this medal before them and I feel very fortunate to have been picked from amongst them.

I am not a Mineral Physicist, like most of the previous recipients of this award. I consider myself a member of that motley bunch of researchers calling themselves applied mineralogists, using minerals, and the fluid inclusions they contain, as a medium from which geological processes, particularly mineralizing processes, can be understood. I believe it's customary on such occasions to say a few words about one's past history so I'll try to shed some light on how I ended up, amongst other things, spending hours poring down a microscope watching bubbles.

My first geological exposure was at Lyme Regis where I spent a number of holidays fossil hunting with my sisters, encouraged by the amateur interest of our father. Coincidentally, my first publication was on palaeontology, specifically micropalaeontology, a short paper on Cornish spores — I guess I can probably safely claim that there aren't many mineralogists who know what *Grandispora echinata* looks like — thanks to Richard Knight. Research really began for me with my undergraduate mapping project at Lers in the French Pyrenees. I will never forget the experience of camping in the middle of nowhere and roaming the hills trying to make sense of a bit of the mantle surrounded by marble. I also vividly remember the practical problems of fieldwork; sunstroke, running out of food, a tent that became a boat, but most of all I recall the companionship of Stephen Bamforth and the postgraduate students whose occasional visits kept us going when times got tough. The desire to do further research stemmed from these experiences and I ended up going to Southampton to do my PhD working with Bob Foster and Jim Andrews. There, with Bob's notorious 'gold boys', I made many good friends and first met some of the people who were later to have a profound influence on my career — particularly Andy Rankin, then at Imperial College. It was the Fluid Inclusion User School, run by Andy with Tom Shepherd and Dave Alderton in 1987 which first opened my eyes to the fascination and breadth of applications of fluid inclusion studies which were to form the basis of my PhD research. It was also at Southampton that I got my first insights into those extraordinary anomalies in the Earth we call mineral deposits which were subsequently to become my main research interest.

Luck was on my side when, just as I was finishing my PhD in 1989, Andy, together with Jack Nolan, secured funding from NERC and

Shell UK to carry out experimental and analytical studies on natural and synthetic fluid inclusions. It was just what I was looking for and fortunately Andy and Jack decided to take me on. Here, I'd like to make a special mention of Jack Nolan who has been a constant source of support and encouragement ever since then. His careful and thorough approach to science and his commitment to both teaching and research have shown me standards to which I can only aspire.

My postdoc involved work on both hydrocarbon as well as mineralising fluid systems and introduced me to the fundamental yet frustrating nature of experimental studies. It was during this time that I carried out the work for which I am probably best known producing synthetic fluid inclusions containing Guinness for the 1990 Mineral Deposits Studies Group Meeting in Dublin.

The final leg of my career to date started when I was again in the right place at the right time to be appointed as the Minorco Lecturer in Mineral Deposit Studies at Imperial. Since then I have, as far as the demands of a University lecturer allow, developed my research and experience primarily in the field of hydrothermal geochemistry, particularly in relation to mineral deposit genesis and am fortunate to now have a lively and able group of research students.

Over the years, I have learned of the immense rewards to be obtained from working in a team. I have had the good fortune to have worked with many good scientists, young and older alike and from whom I've learnt much. There are a few I'd particularly like to mention: Robin Shail, the finest field geologist and writer I know, with whom I've collaborated on the geology of Southwest England; Steve Roberts and Richard Herrington for being instrumental in the development of many research ideas; Gawen Jenkin deserves a mention for the rigour of his science -- and the length of his faxes and e-mails, improving my inadequate forays into stable isotope geochemistry; Sarah Gleeson, for ever-present enthusiasm and friendship; and in more recent years, Kate Everett, Adrian Boyce and Garth Earls for many entertaining discussions. Finally, I'd like to mention Tony Fallick, my fellow medallist, for his help and inspiration over the years and his support for our science; and the late Dave Johnston, a great geologist and friend who is sadly missed. It has been a privilege and a pleasure to have worked with such a group of talented scientists.

It seemed appropriate, with this year's meeting being based at Imperial College, and with the very recent establishment of the new Huxley School to which I now belong, to finish with a quote from T.H. Huxley on applied science:

"I often wish that this phrase 'applied science', had never been invented. For it suggests that there is a sort of scientific knowledge of direct practical use, which can be studied apart from another sort of scientific knowledge, which is of no practical utility, and which is termed 'pure science'. But there is no more complete fallacy than this. What people call applied science is nothing but the application of pure science to particular classes of problems. It consists of deductions from those general principles, established by reasoning and observation, which constitute pure science. No one can safely make those deductions until he has a firm grasp of the principles; and he can obtain that grasp only by personal experience of the operations of observation and of reasoning on which they are founded." (Thomas Henry Huxley, 1825–1895).

To conclude, I am honoured to have been presented with this medal by the Mineralogical Society and I hope that I can continue to justify the Society's recognition in my future work.