Striving for Excellence

Photo: Paul Whitney, BGS

After an impressive career in research institutes in the USA, Canada and France, Dr. John Ludden has now taken on the challenging role of Executive Director of the British Geological Survey. We talk to him about his career and his hopes and plans for the institution.

Jane Whaley, Associate Editor

Dr. Ludden has one simple but ambitious plan for the British Geological Survey (BGS) - to make it the best geological survey organisation in the world. "We are well up in the rankings now, but by maintaining excellent standards, continuing to be at the forefront of scientific research and attracting well known scientists, we should become the best."

BGS undertakes vital work

"The Survey plays a very important part in research into earth sciences both in this country and internationally, and it is vital that we continue with this role. It is imperative that basic research into 'how the earth works' continues, such as key studies we are undertaking at the moment on redefining the earth's oldest fossils," says Dr. Ludden, newly appointed Director of the BGS. However, we must not lose sight of the 'small', less dramatic work while we are undertaking projects with high visibility and world class scientific input," John adds. "The BGS must continue to look at routine issues, like coastal erosion, weathering and variations in the water table. In fact, I think that our greatest value to the UK is in our long term records, which no university or other institute has the resources to undertake. Look, for example, at our extensive records from the oil industry – we have information on every drill hole in the North Sea."

Dr. Ludden is very enthusiastic about the overseas work which the organisation undertakes. "The BGS is well known for this and I think it is a vital area of activity," he explains. "At any one time we have about 30 people working overseas and it is amazing how much work they achieve. These overseas offices must be maintained, partly for the reputation and stature of Britain and the Survey, but primarily because of the importance of the work they undertake. For example, we have an ongoing project in Afghanistan at the moment, where we are involved in mapping and training local people. These projects help towards the strategic development of the host country and have impact on wealth creation and the development of partner institutions."

Dr. John Ludden is the recently appointed Executive Director of the British Geological Survey. He is a geochemist whose distinguished career has led him to senior research posts in the USA, Canada, France and now the UK.

Dr. John Ludden with other members of the board of the British Geological Survey at the annual BGS Forum.

Challenges ahead for the BGS

"I've worked with surveys, with mining and other industries, but I'm basically an academic, and I think I was taken on to maintain the academic excellence of the BGS while working within the need for commercialisation," says Dr. Ludden. "This is one of the many challenges which lie ahead of us. At the moment, 50% of our funding comes from commissioned work and 50% from NERC, the UK Natural Environment Research Council. From next year we will be required to compete for some of this NERC money with other centres such as the British Antarctic Survey and the Centre for Ecology and Hydrology. While this is a challenge to the BGS, it is also an opportunity to increase collaboration. Coming from outside, I can see that some of our research is too isolated and it is important for us to work with other organisations."

Collaboration, particularly at the European level, is one of the major features that Dr. Ludden believes he brings to the BGS. "I have a lot of experience of projects at the pan-European level, including the European Ocean Drilling Consortium, which I helped initiate. Through these, I have wide understanding of compiling joint funding bids."

"A growth area for the BGS is information services and products, which raise a significant amount of money for us," says Dr. Ludden. "However, we have a challenge in commercialisation and knowledge transfer in general. We need to develop new models for commercialising our products and expertise."

BGS and the hydrocarbon industry

Dr. Ludden would like to see more collaboration between the BGS and the oil industry. "We don't want to compete in finding oil," he explains, "but I am interested in working together, particularly on 'big science'. Major projects like detailed mapping of the Atlantic Margin, for instance, could be undertaken jointly and would be of benefit to all. The government could help in this area by instigating tax incentives to encourage oil companies to work with academic institutions."

"Our work on climate change and environmental issues, including the economics of CO_2 sequestration, is of vital importance to the hydrocarbon industry," Dr. Ludden adds, "especially our studies on the effect of reinjecting CO_2 to increase pressure in reservoirs.' Also of great interest and an area of potential collaboration is our work on extending the life of non-renewable resources, including projects where we have been investigating the behaviour of reservoirs under different conditions."

Distinguished academic career

'Striving for excellence' could be John Ludden's motto, and has marked out his distinguished career, both as an academic scientist and as a research institute manager. He gained a 1st in Environmental Sciences from Lancaster University, a subject he chose because, as a teenager, he liked fishing! "I wanted to be a hydrologist, but Environmental Sciences gave a wide back-

ground in Earth Sciences and I very soon became interested in volcanoes. This led me to a Ph.D. studying the petrology of volcanoes on Reunion Island in the Indian Ocean."

He took a post-doctoral fellowship at the Woods Hole Oceanographic Institute in 1976, before being made Assistant Professor and then Professor of Geology at the University of Montreal in Canada. As well as undertaking research, supervising Ph.D. students and running the department, John became proficient in French.

Dr Ludden's research has concentrated on the study of the sources of mafic magmas through time and on mineral exploration in the early earth. This has led him to many prestigious awards and positions, such as Outstanding Scientist, Association of Geologists, Quebec, and President of the International Association of Geochemistry, as well as a number of editorial and honorific posts in both North America and Europe. He has published over 100 papers and contributed to many books. However, it is in the field of research management that Dr. Ludden has most conspicuously made his mark.

Research management

He was first involved in this while Professor of Geology in Montreal, when he was simultaneously Director of the Institut de Recherche en Exploration Minérale. "Excellence is the key to being a good administrator in a research institution," John says. "The head of the organisation must ensure that academic standards are kept up, that good original papers are being published. He or she must be involved in all aspects of the organisation, teaching and research as well as administration."

John believes that sabbatical periods are very useful to enhance and broaden an academic's mind. One of his aims within the Geological Survey is to ensure that staff are able to visit universities or industry and that this is reciprocated, so the BGS may benefit from the experience and knowledge of visiting academics and industrialists.

After a sabbatical year in France gave Dr. Ludden "the flavour of Europe again," he became Director, Fédération de Recherche at the CNRS in Nancy, France in 1996. Then, in 2002, he became Director of the Earth Sciences division of the CNRS in Paris, providing management and scientific research strategy for the earth, ocean and atmospheric sciences at 35 laboratories across France. This was a very prestigious post which he enjoyed greatly. "A number of these senior posts in research organisations are held by non-French nationals, in order to broaden the institute's knowledge with expertise from outside France. Not being French had advantages – if I railroaded something through or went over several heads, they just assumed I didn't understand the system!"

"As the administrator of a French research institute you are expected to be an active scientist as well, so I was also Research Director at the Institut de Physique du Globe de Paris, where I worked on isotope geochemistry and petrology applied to sea-floor geosciences," Dr. Ludden adds. "Similarly, I want to ensure that in the BGS everyone involved in management, myself included, keeps up their academic life through research and visiting professorships."

John very much enjoyed living in France. "The lifestyle in Paris is great. Although ready for a change after a number of years in the CNRS, I had never really planned to return to the UK. Then the BGS post came up and it seemed the new challenge I was looking for – and it's nice to be back."

In other words …

Dr. John Ludden is obviously enjoying his new job. "My objective is that at the BGS we continue to undertake projects with high visibility and world class scientific impact, while meeting our important national needs."

In other words, BGS must strive for excellence!

Photo: J. Evans, BGS

In 1985 the BGS moved from London to Keyworth in Nottinghamshire, where most of the 800 people who work for the survey are now based. An aerial photograph of the main BGS buildings in Keyworth shows the rather sprawling nature of the campus. A major £10 million rebuilding programme is in place and by 2010 the Geological Survey will be housed in new purpose-built offices and laboratories on this site.

The British Geological Survey

The British Geological Survey, or the Geological Ordnance Survey, as it was then known, was set up in 1835, making it the world's oldest geological society. Its first Director was Henry Thomas De La Beche, who initially studied geology as a gentlemanly hobby, until financial difficulties led him to pursue it as a career. The setting up of the Survey had the strong support of the Geological Society and its President, Charles Lyell, who considered that its functions should always combine the academic side of geological science with commercial aspects "bearing on agriculture, mining, road-making, the formation of canals and rail-roads, and other branches of national industry."

In 1841 De La Beche also founded a small museum of geology, then known as the Museum of Economic Geology, which later developed into the Geological Museum, now part of the Natural History Museum in Kensington, London.

In 1845 the Geological Survey Act set in train the geological mapping of the whole of Great Britain and Ireland. Over the next century the Geological Survey of Britain, then based primarily in London, came under the direction of various parent organisations until the formation of the Natural Environment Research Council in 1965, when it was also joined with the Overseas Geological Survey. In 1984 it was renamed as the British Geological Survey.

The main remit of the BGS is to be the nation's principal supplier of geological information while acting as the primary custodian of the UK's geoscience information. It has a core programme of long-term surveying, monitoring and databasing, underpinned by applied research, whilst also undertaking commissioned projects which enhance the main objectives of the organisation.

As the Geological Ordnance was originally a military organisation, field officers of the Survey were required to wear a uniform of blue serge with brass buttons and top hat. Maybe Dr. Ludden should consider reinstating this during his tenure as Director!