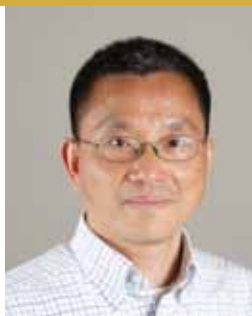


THE GLOBALIZATION OF CHINESE SCIENCE: A THREAT OR AN OPPORTUNITY?



Chen Zhu

Recently, I attended the 50th birthday party of a colleague and friend. The party brought together a dozen faculty members at Indiana University who specialize in fields ranging from English literature and law to nuclear physics. Our conversation mostly involved joking about the topic “What is your plan for the next 50 years?”, but at one point the host pulled me aside and asked me questions about China. “Where do you think China will go?” and “Is China a threat to the power of the United States?”

We have known the host and his family for years—our children have practically grown up together. We have discussed and debated many social and family issues, but these hard questions about China had not come up before. What triggered the questions now?

While my friend was referring to economic and military issues, China is also catching up in science. A report from The Royal Society of Great Britain, published on March 28, 2011, shows that China could overtake the United States as the world’s dominant publisher of scientific research by 2013 (Fig. 1). China is now second only to the US in terms of its share of the world’s scientific research papers written in English. In the geosciences, China is third in the number of articles published in English between January 2001 and June 2011, behind the United States and Great Britain (Thomson Reuters 2011).

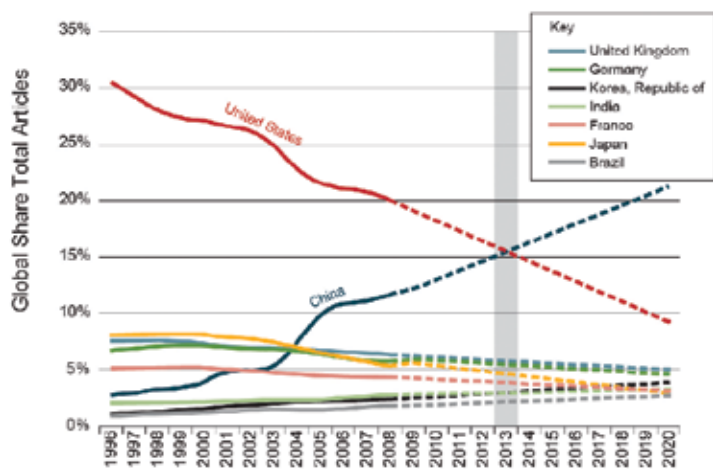


FIGURE 1 Country shares of total world article output in peer-reviewed international journals. Dotted lines are linear extrapolations. SOURCE: THE ROYAL SOCIETY (2011)

My geochemist colleagues coming back from the Goldschmidt Conference in Prague last August could not possibly have missed noticing that 5% or so of the participants were from China (144 out of 3711 delegates). Over the past five years, the number of Chinese scientists at Goldschmidt conferences has increased (there were just 67 in Vancouver in 2008). Are they a welcome expansion or a threat to the quality of programs? In some years, conferencegoers have expressed concerns about the disproportionate number of cancelled talks by Chinese geochemists. How many were due to the denial of visas, and how many abstracts were submitted by those who were only interested in the publication and had no intention of attending? There is a cultural clash here. While conferences are planned way ahead of time in the West, Chinese conferences are organized on ridiculously short notice by Western standards. The uncertainties with visas also

make planning extremely challenging: the Czech embassy in China did not recognize invitation letters for the 2011 Goldschmidt because they were issued from England!

The Chinese geoscience community could benefit tremendously from international exchange and exposure. Economic development in China has made travel to Prague affordable for student delegates, but the provincial mindset of some citizens of the Middle Kingdom has not been transformed as the economy has grown and globalized. The shiny new instruments recently installed in so many institutions in China do not automatically go hand in hand with a new culture of scientific inquiry. The idea that the pursuit of science comes from an inner thirst for knowledge and that the pursuit of knowledge is itself a reward is as foreign to most Chinese students as Czech food. Without this climate of intellectual inquiry taking root in China, one will just see an increasing volume of low-quality research that will overwhelm the review process. For example, Elsevier claims that 80% of manuscripts submitted from China to Elsevier journals were rejected between 2006 and 2010 (Kamalski and L’Huillier 2011). The Goldschmidt Conference, arguably the highest-quality venue in the field of geochemistry, is the best opportunity for Chinese scientists to see firsthand the highest-quality research.

Historically, geology has occupied a much more prominent role among the sciences in China than it has in the United States and Europe. This is particularly true today. Sustained economic development depends upon continual and secure supplies of natural resources, which has translated into substantial government investment in the field of geology, unseen in the West. It also helps that geologists in China have a sympathetic ear in the highest place: the current premier, Wen Jiabao, was not only trained as a geologist but also worked as one for a good part of his life. Geology is booming in China.

In some subdisciplines, Chinese geologists have already made serious impacts, such as in ultrahigh-pressure metamorphism and in paleontology. Will the substantial investment in China translate into advances in the geological sciences, not only in China but in the world as a whole?

I notice that many scientists in the West have explored collaboration with Chinese scientists. The abundant supply of research funds and eager students should provide opportunities for meaningful interactions, especially because of the difference in demography. Because the Cultural Revolution closed the universities from the mid-1960s to the mid-1970s, Chinese scientists are mostly young. Collaboration with and mentoring of young Chinese geologists by senior scientists in the West could be productive for both, since excessive competition and dwindling research resources in the West have prevented many scholars from reaching their full potential.

I think the common ground should be the pursuit of science and service to humanity. Better integration of Chinese Earth scientists into the international geological communities is needed for meaningful collaborations that will find solutions to the global challenges we all face. Tackling widespread environmental contamination in China, a product of the rapid economic expansion, could use expertise and experience from the West. And problems with a global dimension, like global warming, need global collaboration and cooperation.

The European Association of Geochemistry has recently launched an annual Distinguished Lecture Program, which aims to introduce scientists and students from underrepresented regions of the world to emerging research areas in geochemistry. The Goldschmidt Conference has an outreach opportunity at its own door, and in the future could provide more specific programs for delegates from less developed countries, such as short courses and workshops on specific science subjects, new frontiers, scientific writing, ethics, curriculum development, and editing.

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DINGWELL NAMED 3rd SECRETARY GENERAL OF THE EUROPEAN RESEARCH COUNCIL



Donald B. Dingwell
PHOTO: MIV PHOTOGRAPHY

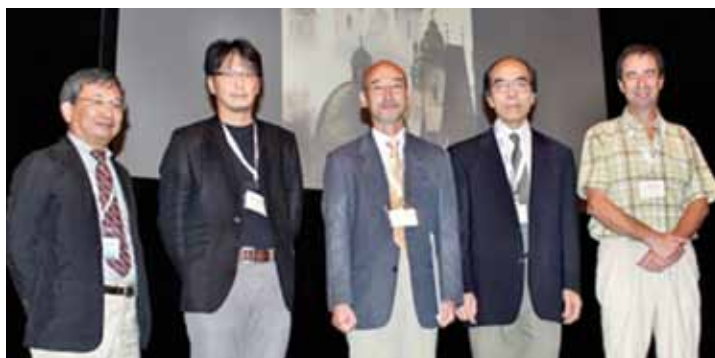
Donald Bruce Dingwell will serve as the Secretary General of the European Research Council (ERC) for 24 months, starting 1 September 2011. The Secretary General is the permanent representative of the Scientific Council in Brussels. In this position he will be a vital link between the governing scientific council and the executing ERC agency. With Dingwell as the third Secretary General, a Canadian-trained geoscientist follows the geneticist Ernst-Ludwig Winnacker and the economist Andreu Mas-Colell in this post.

Set up in 2007 by the European Union, the ERC is the first pan-European funding organization for frontier research. It aims to stimulate scientific excellence in Europe by encouraging competition for funding between the very best, creative researchers of any nationality and age. The ERC also strives to attract top researchers from anywhere in the world to come to Europe. The ERC, which is the newest, pioneering component of the EU's Seventh Research Framework Programme ('Ideas' Specific Programme), has a total budget of €7.5 billion from 2007 to 2013.

Dingwell holds the Chair of Mineralogy and Petrology at Germany's leading research university, the Ludwig Maximilian University of Munich, and is on partial leave of absence from his duties there. With experience as an external expert, a panel member and a grant research holder, he brings a unique background to the job. Combined with a decade of participation in European and national evaluation systems, he is preparing to embark on a campaign of internationalization of the granting system.

GEOCHEMICAL JOURNAL AWARDEES

The Geochemical Journal Award recognizes the most outstanding research article published during the current year, based on originality, quality, and the advancement of science, particularly geochemistry. Recipients of this year's Geochemical Journal Award are Dr. Jun-Ichi Matsuda of Osaka University and his colleagues, Dr. Takuya Matsumoto and Mr. Akihisa Suzuki. They published an "Express Letter" entitled "Helium in Old Porcelain: The Historical Variation of the He Isotopic Composition in Air." The paper deals with a long-standing debate on whether there is a variation of the atmospheric $^3\text{He}/^4\text{He}$ ratio due to the anthropogenic release of radiogenic ^4He contained in exploited fossil fuels. To confirm the temporal variation, capsules of paleoatmospheric helium need to be found and investigated. This is what the authors of this paper did. They nicely showed that vesicles in old porcelain could preserve old atmosphere. This paper provides additional insights into the anthropogenic effects on the chemistry and volatile content of the atmosphere. For the quality of the data, the significance of the results, and the novelty of the approach, this paper well deserves the Geochemical Journal Award of the Geochemical Society of Japan.



FROM LEFT TO RIGHT, Y. Sano (executive editor), Takuya Matsumoto (awardee), Jun-Ichi Matsuda (awardee), Mitsuru Ebihara (Geochemical Society of Japan president) and Bernard Marty (Goldschmidt 2011 Local Organizing Committee member)

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As for my friend's questions, I, like most people, cannot foresee where China will be more than 3 to 5 years down the road. But I do not believe that China will be a threat or challenge to the United States, militarily, economically, or scientifically. China has made a lot of progress, but unshackling the country from the burden of 2000 plus years of history is a challenge no less great than "moving the mountains."

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Chen Zhu is a professor of geological sciences at Indiana University, USA, and an adjunct professor at the University of Oslo, Norway. He received his PhD from Johns Hopkins University and completed a postdoctoral fellowship at Woods Hole Oceanographic Institution. He was a guest professor at the Swiss Federal Institute of Technology, Switzerland, in 2004 and 2008, and was a Fulbright Scholar at the University of Oslo in 2009. Zhu coauthored with Greg Anderson the textbook *Environmental Applications of Geochemical Modeling*. He has served as an associate editor for *Geochimica et Cosmochimica Acta* since 2005.

Triple Point raises issues of broad interest to the readers of *Elements*, and explores different themes of our science (teaching, publishing, historical aspects, etc.), our societies, funding, policy, and political issues. Contact Bruce Yardley (B.W.D. Yardley@leeds.ac.uk) if you have an issue you would like to write about.