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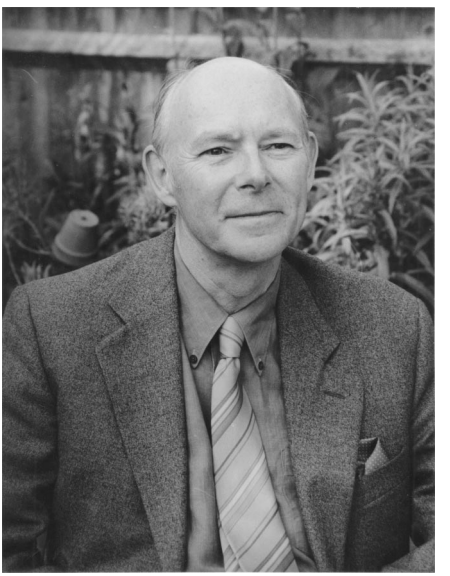
Association Announcement

Richard John Howarth: Krumbein Medallist



Richard Howarth

IAMG President Ricardo A. Olea presented Richard Howarth with the Twenty-third Krumbein Medal during the 31st International Geological Congress, which was held in Rio de Janeiro, Brazil, August 6–17, 2000.

The William Christian Krumbein Medal is the highest award given by our assocation. According to the by-laws, this medal is awarded to individuals who have made exceptional contributions in the field of mathematical geology. Conditions include (1) original contributions to the science, (2) service to the profession, and (3) support of the association.

Richard Howarth was born in Southport, England, on June 27, 1941, and grew up in London when his father, a banker, was transferred to the Midland Bank's head office in 1946. Richard later attended Highgate school in north London.

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Richard's interest in geology was kindled as a result of a family holiday at Lyme Regis, an area of the Dorset coast famous for its Jurassic sediments and ammonite fossil hunting. Despite pressure exerted by his art teachers—two of whom were later to become Royal Academicians—to make art his specialization and ultimate career, Richard decided to undertake a degree in geology at Bristol University in 1960.

Richard was first introduced to numerical geology in the course of a final-year paleontology project, when he was struck by a paper on numerical taxonomy. Little did he realize at that time how important to his career this chance discovery would be. In 1963, after graduation with a B.Sc. 2i with Honours and the Donald Ashby Prize in Geology, Richard decided to continue onto a Ph.D. and approached his Head of Department, the formidable Professor Frederick Whittard, about the new world of carbonate petrology as a potential thesis topic. He was, to put it bluntly, told to think again—"This is no job for a gentleman"! Richard instead took up a more "traditional" problem, under the supervision of Dr. (now Professor) Bernard Leake, that of determining whether the Boulder Bed succession, in the Dalradian of Co. Donegal, Ireland, was really of glacial origin or not.

As the outcrops in Donegal were much less extensive than those of the equivalent Scottish succession, which was being studied by Tony Spencer under Professor Wallace Pitcher at Liverpool University, Richard made extensive use of quantitative petrology and geochemistry to help resolve the issues. In the course of this work, he undertook the statistical calibration of the first XRF spectrometer to be installed in a British university geology department and began using multivariate methods for the interpretation of his geochemical and other data.

As his Ph.D. was conducted under the auspices of a Shell scholarship, on completion of his doctorate in 1966, Richard went to work for Bataafse Internationale Petroleum Mij. N.V.—later Shell International—at their head office in The Hague, Netherlands. There he undertook a top-secret project to use statistical tools to correlate stratigraphic sequences around the world with hydrocarbon occurrences. Although the project was highly successfull and he enjoyed working for Peter Diebold, a Swiss geologist whom Richard rates as one of the brightest he has ever met, it became apparent that, because of his specialized skills, he would be permanently based in The Hague. While he and his wife, Sarah, were considering whether to move to live in Amsterdam (within commuting distance of The Hague and a good deal livelier), Richard attended a meeting of the fledgling IAMG in England. As a result, he was asked by Professor John Webb to join the Applied Geochemistry Research Group (AGRG) at Imperial College.

Richard joined AGRG in 1968 as a Post-Doctoral Research Fellow and was subsequently appointed Probationary Lecturer (1972), Lecturer (1975) and Reader in Mathematical Geology (1978). Working initially under Webb, and Professor Iain Thornton following Webb's retirement in 1979, Richard's principal activities concerned the innovative application of statistical and computing methods to mapping

and interpretation of regional geochemical survey data for mineral exploration, geological, and epidemiological purposes. Richard wrote the software that underpinned the production of the pioneering regional geochemical atlases of Northern Ireland, England, and Wales, Uganda, Nepal, parts of Zimbabwe, Colorado, and Georgia in the US.

AGRG had enjoyed considerable support for its role as an entirely postgraduate teaching and research group under John Sutton and Rex Davis as Heads of the Imperial College Geology Department. Webb's retirement in 1979 coincided with a change in this regime, and when (Sir) John Knill became Head of Department, members of AGRG found themselves increasingly pushed into undergraduate teaching. Teaching statistics and computing to groups of largely reluctant geology undergraduates proved a particularly thankless task.

In 1985, following a research contract to produce an interactive statistical interpretation system for BP Minerals, Richard joined the central computing group of British Petroleum as an internal consultant. The following year, he was seconded to BP's Research Centre in Sunbury-on-Thames (just to the West of London) as head of the Computer Applications Section for the Stratigraphy Branch, and in 1988, he moved to become an internal consultant with the Applied Statistics Group (1988). Among the numerous projects Richard undertook at BP were biostratigraphic data analysis, chemical stratigraphy, applying estimation techniques for regional hydrocarbon reserve calculations, petrophysical data analysis and study of uncertainty in rock property prediction, inter-laboratory comparison of petrophysical data, calibration of Sr-isotope dating methods, techniques for univariate and multivariate laboratory quality control, human resource database studies, and statistical analysis of engine test and fuel oil databases. All of these were interesting and challenging, but eventually BP decided in one of its innumerable downsizing exercises of the time that statistics was not core to its business. Richard subsequently agreed to accept a redundancy package in 1992.

This enforced change of career proved remarkably beneficial, in that it freed Richard to undertake and indulge in activities he had been thinking about for many years but never had time to put into action. He now splits his time between acting as a self-employed consultant in mathematical geology and the role of Visiting Professor of Mathematical Geology at University College London. In his role as consultant, he has conducted projects as diverse as chemostratigraphy, company recruitment performance, and pipeline corrosion analysis. In contrast, at UCL he has concentrated on the application of modern statistical methods in the earth sciences and the history of the development and application of quantitative methods in geology and geophysics, and he is currently completing a book on the history of geophysics from its beginnings to the 1950s.

Richard has also increased his burgeoning publications list to over 140 during this period. This now includes several joint works: the internationally renowned *Wolfson Geochemical Atlas of England and Wales* (1979), *Statistics and Data*

Analysis in Geochemical Prospecting (1983), and *Applied Geochemistry in the 1980's* (1986), plus numerous journal contributions and reports on resource assessment, computer mapping, statistics, analytical error and quality control, pattern recognition, isotope stratigraphy and applied geochemistry, and historical studies. He has also continued his active role in supporting the IAMG, as a Charter Member (1968), Council Member (1977–84) and on the Editorial Boards of *Mathematical Geology* (1977–80) and *Computers & Geosciences* (1978–95), together with numerous other societies such as The Geological Society of London, where he acted as Honorary Secretary (1993–96), and is a Chartered geologist (1993).

Richard has somehow still managed to retain an interest in art. His large book collection includes works on late 20th century painting, sculpture, and photography, antiquarian science books, plus modern fiction and nonfiction. Taking into consideration Richard's catholic music tastes and a 25-year involvement with his local film society, we begin to appreciate the wide-ranging and eclectic interests that impact Richard's working and home life. It is amazing to us mere mortals that so much can be packed into one lifetime.

The International Association for Mathematical Geology recognizes his significant contribution to IAMG and the geoscience profession as a whole by awarding him the William Christian Krumbein Medal for the year 2000.

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