

Disclosure of industry and government links during my research career

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University of Glasgow 1970-73. PhD studies, NERC scholarship; no restrictions on publication.

British Geological Survey, Edinburgh 1973-87. My work in the BGS from 1973 to 1986 was funded entirely by the UK Department of Energy (DEn) as part of a Commissioned Research programme on the geology of the offshore UK region. 'Commissioned research' was the brainchild of Lord Rothschild, who in 1971 proposed that government departments should 'commission' the research they needed from other government organisations such as the BGS. I also gave geological advice to the Foreign & Commonwealth Office (F&CO) on matters pertaining to UK territorial claims offshore.

Publication of research was very restricted; each idea for a paper had to be approved in principle beforehand, then the draft had to be approved both by the internal BGS hierarchy, then by DEn and, if appropriate, F&CO. Lastly, approval was sought, if necessary, from oil companies or industry contractors if we were proposing to publish samples of their data. Industry permission was never a problem. DEn was initially reluctant to permit 'its' BGS staff to *waste time* on writing up interesting work for publication (commissioned research was novel to DEn - as was, indeed, the whole concept of research), but the department gradually realised that it was useful publicity. By the 1980s, however, I learned that some of my scientific views were not "*helpful*" (to whom or what? - a weasel word, and who decided that?), so publication on certain issues became impossible.

DEn was responsible for a serious experimental fiasco in 1985; OK, these things happen! But there followed by an attempt by DEn officials to implicate me in a cover-up. In brief, I was required to be seconded to London for 4-6 weeks to work on essentially useless data. You can imagine the morally

slippery slope I would have been on; the pressure to invent something, or to falsify the results. I refused point-blank to go along with their ploy, and due to the confidential nature of the work there was no-one else who could replace me. After several months of inaction, as successively higher ranks of the BGS and its parent body, NERC, were informed, I finally blew the whistle on it by informing someone in the higher echelons of government. Although I emerged unscathed from this episode (being savvy enough to inform only those who had a *right to know*, and finally acting through my lawyer), I knew that any further advancement within the BGS was at an end; trouble-makers are not welcome, and are certainly not promoted.

The role of NERC during this episode was disgraceful, although I was well supported by my immediately higher management within BGS. NERC was interested only in preserving good relations with its biggest commissioned research funder, DEn. On the government side, the great ship of state, F&CO, regarded DEn as an upstart little department created by that socialist Tony Benn, so DEn was going to great lengths to hide its monumental cock-up in order not to lose face with F&CO. The Law Lords, who had a right to know, were powerless to intervene, as I found, because they could only give advice 'if and when asked for it'. Any concept of scientific integrity, or even consideration of the long-term benefit to the British public, was simply irrelevant as far as NERC and DEn were concerned.

Chair of Geophysics, University of Glasgow, 1988-98. My new position at Glasgow University was called the Britoil Chair of Geophysics, but the Britoil title got quietly dropped after BP's take-over of Britoil later the same year. Britoil was based in Glasgow, and I had anticipated both close links and funding, but none of this materialised. BP soon 'rationalised' its UK operations by

moving the ex-Britoil staff out of Glasgow to Aberdeen or London.

My research group received very minor NERC and other public funding for research and for student support. There was one industrial link - the Mobil Fund, to the tune of £1000 a year I believe, to support undergraduate geophysical and hydrocarbon teaching and a prize. My consultancy income during this entire period was nil, as I never had any spare time for such activities. Any small fees and payments for specialist geophysical work carried out by me and my group (each of the order of a few thousand pounds or less) were paid into departmental funds. I sat on a British Nuclear Fuels Limited geological review committee for about two years; fees were paid into the department. All editorial and reviewing work was done *gratis*. Fees for examining masters or doctoral candidates were derisory, at around £50 per thesis. I kept these.

In 1994 I proposed, planned and carried out for UK Nirex Ltd the world's first high resolution 3-D seismic reflection survey of a potential underground nuclear waste repository. Nirex (now part of the Nuclear Decommissioning Agency) was the organisation charged with finding a suitable repository for Britain's nuclear waste. Nirex signed a contract with the university for £270K over one year for a trial 3D survey, a considerable rate of flow of money for an earth science grant in those days, but a bargain for Nirex. The survey was highly successful, confounding Nirex's earlier advice from industry consultants that such a survey would be impracticable and unnecessary. This was also the first 3-D survey ever undertaken by any academic research group.

But the 3D survey results, together with what I had learned about Nirex's geological picture, showed that Nirex simply did not understand the complex geology of the area. I subsequently appeared as an Expert Witness for objectors to Nirex's proposed Sellafield waste repository Planning Inquiry Appeal, and co-edited a book with Stuart Haszeldine (departmental colleague and another inquiry objector) of the objectors'

papers. I argued that the geology of the site was far more complex than Nirex believed. I did so without having to resort to using the 3D survey results, which I mistakenly believed were confidential, but the inquiry Inspector corrected that mistake by instructing me to tell him all that I knew.

Nirex had gone to great lengths to delay reviewing my final report for them, in the hope that it would not then be presented as evidence to the inquiry because it was 'unfinished' research. After the inquiry the Nirex CEO also wrote to the Principal of Glasgow University in a futile attempt to suppress our book, but it is to the credit of the Principal that he simply ignored the two letters. Nirex lost the planning appeal, and its proposed site at Sellafield was shut down.

The subsequent closure (or 'restructuring', as it is sometimes called - another weasely phrase) of the department of Geology & Applied Geology at Glasgow may have been in part due to this Nirex episode, as we had probably made some powerful enemies among nuclear industry supporters in Chemistry and perhaps in Physics. But the closure may simply have been made on financial grounds.

'Retirement' 1998 to date. I earned consultancy fees from government agencies and independent oil companies for geophysical services between 2002 and 2011. I do not object to conventional hydrocarbon exploration, but I continue to turn down any offers of work on unconventional. For the record, my fees for assisting parish councils and other objectors to potential fracking planning applications over the last year amounts to exactly £1600.

Lessons learned. Whenever I read a new piece of published 'research' (I place the word between commas, because what sometimes passes for research may be little more than advertising or PR) I ask myself, in addition to the usual sceptical approach to new results or ideas that any trained scientist will take; who funded it? Why do they want to publish it? Why now? What might have been left out?