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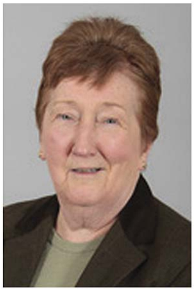
British Actuarial Journal celebrates its 20th anniversary

Introduction by Cathy Robertson, Editor of the *British Actuarial Journal*



It is now 20 years since the *British Actuarial Journal* (*BAJ*) was launched as the journal of both the Institute of Actuaries and the Faculty of Actuaries. To mark the occasion, we publish here three articles by eminent members of the profession.

The first one, written by David Wilkie, explains the rationale behind the decision to merge the *Transactions of the Faculty of Actuaries* (*TFA*) and the *Journal of the Institute of Actuaries* (*JIA*), a far-sighted decision given that it would be a further 15 years before the two professional bodies merged fully.

The second, written by David Hare, a past President of the Institute and Faculty of Actuaries (IFoA) highlights two major developments within the profession and the third, by Andrew Smith, gives an insight into the changes in the financial environment over the past 20 years and shows how the content of the *BAJ* reflects this.

I hope you enjoy reading these.

The Origins and History of *British Actuarial Journal*

Prof David Wilkie, F.F.A., F.I.A.

The origins of *BAJ* lie in a conversation I had, in about 1990, with a distinguished Fellow of the Institute, sadly no longer with us. We were discussing my stochastic investment model and he said that it was a pity that it had not been discussed by "the profession". I pointed out that it had been presented to the Faculty of Actuaries in 1984, and published in *TFA* in 1985. He had not realised this, although he was well informed about actuarial research in many countries other than Scotland.

I was a Fellow of both the Faculty and the Institute, and I had been used to receiving advance copies of all papers to be presented to both bodies, and at that time I kept myself well aware of them. However, I realised that members of the Institute (other than those in Scotland) were probably not informed about what went on at the Faculty, and did not of routine receive copies of *TFA*. Likewise, members of the Faculty (other than those in England) might well be unaware of the latest research at the Institute, and they did not routinely receive copies of the *JIA*. Some papers were presented at both bodies, and also some notes were published in both journals but there was a gap.

I was at that time on Institute Council and had become the member responsible for *JIA*. I decided that this was my opportunity. My good friend David Forfar was at that time the Honorary Librarian of the Faculty, and thus held the comparable job in relation to *TFA*. I discussed with him my idea of joining the two journals into one. He at once agreed with me. The main advantage was that all the papers published for both bodies would be available to all members of both.

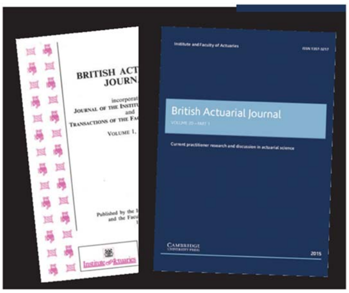
There were obvious extra costs of printing and distributing more copies to all members, but there might be some compensating savings. There would be the advantage of reducing the duplication when a paper was presented to both bodies (as a reasonable number were), or when routine notes were published in both journals. It might also streamline a bit the production process, one line, more fully staffed, being perhaps more efficient than two.

We presented our ideas to our respective Councils. At about this time more co-operation between the Institute and the Faculty was under way. Some examinations were being held jointly. So our proposals fell on fertile ground and were accepted by both Councils in 1993. We quickly decided that *British Actuarial Journal* was the obvious name. However, there were some compromises to be made.

The Institute had a bigger team of editors, under the control of the late Doreen Hart, with a number of assistants and some backup staff in the offices. The Faculty Editor did the whole job himself, sometimes rather slowly. Doreen was pleased to take on the whole team, with some extra personnel from Faculty members, including Hamish Scott.

The printing of *JIA* was done by the Alden Press in Oxford, quite satisfactorily. *TFA* had been printed by T & A Constable in Edinburgh, later Clark Constable, but that had ceased business, perhaps because they had stuck to traditional letterpress typesetting, with too little regard to more modern methods. One or two other printers had been used, but there was a potential vacancy. We decided to find a new printer, and after investigating half a dozen or so, picked on Bell and Bain in Glasgow, who seem to have done the job efficiently since then, and still do, even after the change to publication by Cambridge University Press.

There were minor points on which the two bodies had different conventions. The Institute preferred the "-ize" termination for many verbs (as Oxford University Press does); the Faculty preferred the "-ise" one (as Chambers and Cambridge University do). The Faculty printed a decimal fraction as, for example, "0·1234", with a preceding 0; the Institute printed "·1234" with no 0. There may have been some others. We standardised on the Faculty practice in every case. We used the same typeface anyway, so that was not a problem.



The "owls and woolsacks" design had come into general use for joint publications and we immediately used that for the covers. Personally, I liked it, and I am sorry that it was changed a few years later, but no doubt there were good reasons for that. The first number of *BAJ*, Volume 1, Part 1, was published in 1995, with the two Presidential Addresses for 1994 and subsequent sessional meetings at both bodies. It has continued since then and its subsequent progress is discussed in this issue by Andrew Smith and David Hare.

Although both *JIA* and *TFA* had concentrated on papers presented at sessional meetings with the consequent discussions, both had also published additional papers, notes, letters, etc. Papers on mortality prepared by the Continuous Mortality Investigation (CMI), which had often appeared in both *JIA* and *TFA* had already been hived off into *CMI Reports*, in 1971. Other occasional papers continued to appear in *BAJ*.

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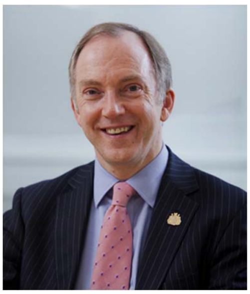
The need for an academic, peer-reviewed journal was recognised and, in 2006, the first volume of *Annals of Actuarial Science* (*AAS*) was published. The ambition for this journal was to attract submissions from the growing number of academic actuaries, for whom the regular publication of peer-reviewed research papers was important. The two journals complement each other; the practitioner-focussed *BAJ* sitting alongside *AAS*, which bridges the gap between theory and practice.

In my personal view, there is a challenge for the future of *BAJ* and its content. In recent years there have been big changes in the presentation of actuarial material in the United Kingdom. Annual conferences and one-day meetings, surely day meetings in various specialties allow new ideas to be presented and discussed in a quite different format. Sessional meetings are no longer the only or even the primary forum for discussion. Moreover, the professional numbers have increased. When I began as an actuarial student in 1951, there were about 300 Fellows of the Faculty, not all in Scotland, and about 100 would attend a sessional meeting, a large fraction of the total available membership. The Institute was larger, with about 1,000 Fellows, and perhaps 150 at a sessional meeting. The numbers at sessional meetings are still about the same, although the total membership has grown more than tenfold. Sessional meetings and what is presented at them are of less overall importance, though some papers remain individually significant.

This last point is a topic on which members will have views and the IFoA is presently consulting them through various channels. If you want to contribute to this discussion then please contact research@actuaries.org.uk.

What a Difference 20 Years Makes



Dr David Hare, F.I.A.

A great deal has changed in the 20 years since *BAJ* was first published. Combining the journals of the Faculty and Institute was an important milestone on the way to finally merging the two bodies some 15 years later. Today, the strength of the combined Institute and Faculty, and the clear strategic focus that it has, both in the UK and overseas, confirms the wisdom of all those who helped make the union happen.

Even before the merger of the journals, important steps had started to be taken to coordinate the education requirements and these culminated in the development of the "Principles of the Future Education Strategy" (Goford *et al*., 2001), which saw us change our approach to education to respond to the growing number of specialist practice areas in which actuaries work. As a result, for the last 10 years or so, actuarial students have attained Fellowship without passing Fellowship-level exams in all possible subjects. However, the core applications syllabus aims to give all students an adequate grounding in the basics of how actuarial techniques are applied across a wide range of subject areas. Nevertheless, this trend to specialism underlines the importance of the *BAJ* as a mechanism for sharing thinking across the different disciplines as a mitigant to silo thinking and collective blind spots in different areas of our profession.

The Morris (2005) review shone a spotlight on many aspects of the profession and led to fundamental changes in oversight and other areas. The proceedings of the sessional meetings of both the Faculty and the Institute at which Sir Derek and his team shared their thinking and listened to our reactions are recorded in the *BAJ* (Morris 2005a, 2005b). One of the important consequences of the passing of technical standard-setting responsibility to the Financial Reporting Council (FRC) was the introduction of the "Reliability

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Objective" and the emphasis on communication to the user of the actuarial work being carried out. Given the increasing complexity of actuarial work, and the risks that we help to quantify and manage (as demonstrated in many of the *BAJ* papers that Andrew Smith references in his companion article), the focus of Technical Actuarial Standard R on the effective communication of uncertainty is more important than ever.

Another consequence of the introduction of FRC oversight has been their influence on our regulation framework and, particularly, the increased emphasis and training on professionalism and the application of the Actuaries Code that is now in place in the IFoA. The lack of papers within *BAJ* on professionalism and ethics is quite striking, but perhaps demonstrates that *BAJ* is not the only dissemination tool that is used to ensure members are well informed on important topics.

As over the last 20 years, *BAJ* content pages continue to reflect the research activity and priorities of the IFoA. It is good to see conduct of business topics now being included in the sessional meetings programme – as a professional body that seeks to serve the public interest, it is important that we apply our actuarial skills and insights into all relevant areas affecting customers of financial institutions and members of pension schemes, and recent papers, for example, Ritchie *et al*. (2013), are an important early step in this process.

It is also good to see new subject areas being covered in *BAJ*. Although the study of climate change is not new, its coverage in actuarial literature is. We are already finding that the actuarial approach to risk modelling and management has much to offer such areas of science. I hope my own longevity experience is such that I will be able to see what developments the next 20 years bring!

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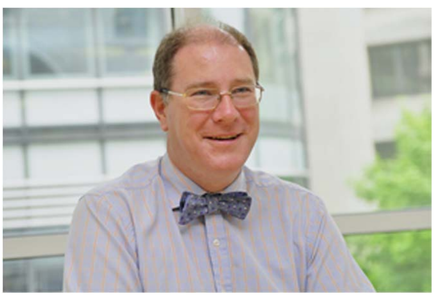
From Discretion to Markets – What Next for the *BAJ*?



Mr Andrew Smith, Hon F.I.A.

The last 20 years have seen a period of change across the areas of life and general insurance, investment, risk and pensions where may actuaries operate. For better or for worse, traditional pooled structures involving smoothed returns and actuarial discretion are gradually disappearing from the financial landscape, replaced with arrangements where each individual's entitlement is more precisely defined.

To understand the changes, we need to look back to the early 1990s. Insurance and pension funds operated a system of risk sharing between generations, which lengthened the investment horizon and allowed asset allocations with more risk in the short term but higher returns in the long term. The *JIA* and the *TFA*, predecessors of the *BAJ*, published authoritative papers on the funds' operations (Ross, 1989; Thornton & Wilson, 1992).

By the time *BAJ* came into being, actuaries were asking deeper questions about how these long-term funds operated. Stochastic modelling was the favoured tool. David Wilkie updated his famous stochastic investment model in 1995. *BAJ* carried several papers applying this model to life and pensions problems, such as Hardy (1996), Haberman *et al.* (2003), Wilkie *et al.* (2003). Most of this took the institutional structures and product designs as given, then considered alternative control approaches such as investment strategy, pension contributions or profit-sharing strategies. A few papers (Dempster *et al.*, 2003; Jarvis *et al.*, 2009) advocated dynamic optimisation tools to earn extra profits from exploiting market anomalies. Stochastic modelling was not restricted to asset models; England & Verrall (2002) described stochastic reserving models for non-life insurance, whereas Richards *et al.* (2014) describe several stochastic longevity models.

More disruptive than stochastic modelling was the impact of option pricing theory on actuarial work. Kemp (1997) introduced equity and interest rate derivatives, whereas Muir *et al.* (2007) described the credit derivatives market. Huber & Verrall (1999) advocated a more theoretically based approach to actuarial economic models in preference to the empirical data-based time series approach of Wilkie (1995), Varnell (2011) gives further details of what this means in practice. At the same time as the theoretical developments, regulatory and consumer pressures constrained actuarial discretion in pensions and insurance (Needleman & Roff, 1995; Shelley *et al.*, 2002) so that payouts from long-term funds were more mechanically linked to investment performance. There followed a series of papers applying option pricing theories (also called market-consistent valuation) to many areas of actuarial work: pensions (Exley *et al.*, 1997; Head *et al.*, 2000; Chapman *et al.*, 2001), life insurance (Hare *et al.*, 2000; Hibbert & Turnbull, 2003; Sheldon & Smith, 2004) and general insurance (Cumberworth *et al.*, 2000; Dreksler *et al.*, 2015).

In option pricing theory, assumed risk premiums cancel out in a hedging construction. Although traditional actuarial thought emphasised the importance of risk premiums to provide superior returns over the long term, option pricing approaches disregard the risk premiums, often producing guarantee costs substantially higher than previously thought. Historic prosperity of actuarial funds had relied on soaring equity markets, positive cash flows from growing funds and regulators that did not ask many awkward questions. As these indicators turned in the new millennium, many life and pension funds closed to new members and went into runoff. To add to the adverse environment, it also turned out that actuaries had underestimated longevity improvements (Willets *et al.*, 2004). There is an interesting debate to be had about whether market-based reporting merely documented actuarial liabilities as they runoff, or whether the new reporting techniques precipitated that decline (and, if so, whether this is a good thing).

Now authors are turning their eyes to how the insurance and pensions industries may adapt to a low interest environment (Fulcher *et al.*, 2014). We could move to an environment where all investment risk falls directly on the investor, but several papers (Clay *et al.*, 2001; Ledlie *et al.*, 2008; Eason *et al.*, 2013) consider there is a still a role for guaranteed products, albeit with greater transparency and scrutiny of actuarial discretion.

The more we work with models, the more aware we become of the social constraints on model use – the need for fast computation, reliable algorithms, conformity to industry norms, stable results and

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commercially acceptable numbers. Yet, the public discourse on models overwhelmingly relates to technical criteria such as goodness of statistical fit. A discourse is badly needed on the relationship between how models should be used and how in practice they are used. This is what I, personally, hope to find in the pages of *BAJ* in future.

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