

REVIEWS

A Calculating Profession: Victorian Actuaries among the Statisticians. By TIMOTHY L. ALBORN (*Science in Context*, 7, 3, 433–468, 1994)

Timothy L. Alborn says that historians have examined what happens when other forms of intellectual activity intersect with science. More recent work on the sociology of professions has examined what happens when expert knowledge produced by groups does not overlap. Dr Alborn's paper observes what happened when actuaries forged an alliance with men of science in the 1820s and traces their later need to distance themselves from some of the scientific values.

The paper recounts a delightful cameo of Griffith Davies, in the 1830s, holding regularly what were virtually mini Royal Society meetings at his house, sipping gin and discussing vital statistics, with the likes of Benjamin Gompertz, Thomas Galloway, Augustus de Morgan, John Herschel and William Morgan. It ends chronologically with Karl Pearson, as the last scientist, before the profession departs company with the scientists. In between, we are treated with glimpses of the struggle for supremacy between the Actuaries' Club and the Institute of Actuaries, the Seventeen Offices' Table resulting from a fast reaction of the Griffith Davies group of actuaries to hearing that T. R. Edmonds had suggested to the London Statistical Society that statistics on assured lives should be published, the profession ostracising T. R. Edmonds 'an Owenite socialist' as a plagiarist, the H^M mortality table being the Institute's first published table, resulting from Samuel Brown learning that the Actuaries' Club was involved in a private collection of mortality data, and other items of interest.

The picture of the profession as consisting of commercial actuaries purely as calculators in the life assurance field, shifting their narrow boundaries as it suited them to flirt with science or not, is one with which the reviewer feels uncomfortable—but, perhaps as a commercial actuary, he would be expected to say that, wouldn't he? That picture may currently fit the United States scene, but it was not necessarily that way elsewhere, and is not yet. An alternative scenario is of actuarial science starting predominantly as the prerogative of a number of men eminent in other fields, followed by actuarial practitioners becoming necessary when commercial assurance companies began to proliferate, together with increasing specialisation resulting in all the professions and all the various branches of science going their own separate ways as the volume of knowledge increased so much that the overlaps of the early years were no longer possible. (The lives of the persons involved in actuarial science were much more interesting before specialisation started.) The *science* part of actuarial science still exists, and sits comfortably with academics in universities, with the practitioners in insurance companies and elsewhere.

Dr Alborn depicts commercial actuaries as departing from the welfare state and from the mathematicians who directly applied probability theory. There are plenty of other potentially controversial insights in this stimulating paper. Readers will look in vain for any sign of actuaries working in the sickness field, examining occupational and geographical mortality and morbidity. There is no mention of Hattendorf's 1868 statistical examination of means and variances of life assurance losses and the demonstration of the lack of correlation between years, and, indeed, no mention is made of any actuarial work outside Great Britain.

Dr Alborn illustrates his work with few inaccuracies. One only is mentioned here. The Seventeen Offices' Table was printed with contributing offices receiving copies, and was *not* kept and circulated in manuscript. Moreover, it *is* an important mortality table that was used in the U.K. and Continental Europe, and was still being used for life assurance premium calculations early this century. Indeed, this table was the Massachusetts standard valuation table at the start of actuarial supervision in the U.S.A.

Much of the history of the contribution of actuarial science to probability theory, other parts of mathematics and the community as a whole have yet to be researched and interpreted. The

field is wide, and not limited to one country. Dr Alborn has made a most valuable contribution which, it is hoped, will be followed by others.

TREVOR SIBBETT

Charles Babbage and the Assurance of Lives. By MARTIN CAMPBELL-KELLY (*IEEE Annals of the History of Computing*, 6, 3, 5–14, 1994)

Martin Campbell-Kelly argues that many of Babbage's contributions to knowledge, including life insurance, can fairly be regarded as of second rank, if not as second rate. Much of Babbage's reputation in the life insurance and actuarial field is said to have derived from his account, related in his autobiography, of the impact of *A Comparative View of the Various Institutions for the Assurance of Lives*, 1826, on the Life Assurance Bank of Gotha. There is no doubt of its influence in this respect.

Babbage was appointed actuary to the Protector Life Assurance Society, a company which advertised its forthcoming operations in the years 1824–26, but did not open to business. It was to have been a substantial operation, with a capital of £3 million and an impressive Board of Directors. Babbage's work for the company, together with a number of reforming ideas of his own, formed the basis for the 1826 book. The 1826 book is an early survey of the life assurance companies, together with critical comment. Its information is not generally available elsewhere, and to that extent it is certainly an important source. Dr Campbell-Kelly relates this well, but does not mention that, in addition, it influenced the formation of at least one Scottish life assurance operation. Nevertheless, much light is shed on the Protector Life Assurance Society and Babbage's life insurance work generally.

Dr Campbell-Kelly has not missed Babbage's empirical formula for the law of mortality:

$$l_x = 6199.8 - 9.29x - 1.5767 \frac{x(x-1)}{2}$$

which was intended to approximate to Richard Price's Swedish mortality table (the only source is a footnote in *J.I.A.* 6, 186). Dr Campbell-Kelly has given a good overview of Babbage's work in the field, and shows how it fits into Babbage's development. He gives a helpful list of references, and has provided a useful source document. Dr Campbell-Kelly is also the principal editor of *The Works of Charles Babbage*, 11 volumes.

TREVOR SIBBETT