

Brian Vincent, *The Pass Family and the Smelting Industry in Bristol* (Avon Local History & Archaeology, 2022). 41 pp, numerous b/w illustrations and family tree. Paperback, £3.50. [ISBN 978-1-911592-35-8].

The Pass Family and the Smelting Industry in Bristol is the latest addition to the excellent series of booklets published by Avon Local History & Archaeology (ALHA); this is the thirty-fifth in the series and the fourth written by Professor Brian Vincent. The objectives of ALHA are to encourage and share research on the local history of the Avon region. Professor Vincent was formerly Leverhulme Professor of Physical Chemistry at the University of Bristol and his booklets focus on aspects of industry that were reliant on the application of chemistry.

In this short volume, Professor Vincent covers a very broad tapestry. He provides a *résumé* of the “classical” metals (including copper, tin and zinc) and the methods of smelting. The discussion then turns to the Pass family history, charting their fortunes over four generations from humble origins in Staffordshire, their move to Bristol and their rise from small scale metal workers to respected industrialists, despite the head of the family, Capper Pass I, being sentenced to fourteen years transportation to Australia in 1819 for receiving stolen copper! The parallel development of the Capper Pass Company is also charted, from a small furnace operated in the backyard of their modest family home in St Philips to a major smelting works in Bedminster. The account continues with the expansion of the company to a second site in Yorkshire, amalgamation with the international corporation Rio Tinto Zinc (RTZ) and the eventual closure of the smelting works in the 1980s as a consequence of the falling price of tin. The author concludes with notes on other Bristol companies engaged in processing non-ferrous metals in parallel with the Capper Pass Company.

The *résumé* of metals and smelting sets the scene by describing the metallurgical methods that would have been applied by the Capper Pass Company and the latter section places their work in the wider context of metallurgy in Bristol. Interestingly Capper Pass I moved south to Bristol at a time when the centre of gravity of other non-ferrous metal industries was moving north to Birmingham.

Professor Vincent describes the evolution of the Capper Pass Company through the nineteenth and twentieth centuries, reflecting on the varying demands for metals, the opportunities for exploiting that demand, and the pressures affecting the economic viability of the company. In 1807, Capper Pass I described himself as a “refiner of metals and brass caster” engaged in de-silvering redundant Sheffield plate and refining copper scrap. By the mid-nineteenth century the company was focusing on the smelting of lead and copper and the recovery of scrap zinc and brass but also experimented with refining tin. Their experiments resulted in a new process for making solder (an alloy of tin and lead) which by the late nineteenth century became their core business. In 1894 the firm became a limited company, trading as Capper Pass & Sons Ltd. Their fortunes declined during the First World War due to the loss of key workers to the army but after the war, new methods of refining tin by an electrolytic process were introduced which revived the company’s viability. Their potential for expansion was, however, limited by the confines of their site in Bristol. A new factory was established near Hull in Yorkshire, opening in 1937. During World War Two, the skills shortage experienced in World War One was avoided by many of Capper Pass’s trades being designated reserved occupations. Tin ore was however difficult to obtain and the company focused on the use of specialist smelting processes to extract the metal from low-grade ores and other feedstocks containing very low concentrations of tin. By the 1960s the site in Yorkshire outstripped the Bristol site and the head office was moved north with the Bristol site being sold for re-development. In the late 1960s the company became a wholly owned subsidiary of RTZ with the Yorkshire site producing approximately 10% of the world’s supply of tin, but by the 1980s there was strong international

competition and in 1985 the world price of tin collapsed. In 1991 RTZ were forced to close the site which was sold for decommissioning.

The family fortunes reflected the fortunes of the company. Capper Pass I moved in 1815 to Bristol where he set up a small business at the rear of his house in St Philips Marsh. Following his transportation to Australia, his son, Capper Pass II, eventually took control of the company and under his direction the firm prospered. By 1841 he was able to have a Regency-style house built for his family and sent his son, Alfred Capper Pass, to a private boarding school. Alfred Pass became head of the company in 1870 and by 1886 was living in Clifton. He was recognised as a leading industrialist and promoter of technical education. In 1895 he was appointed to the College Council of Bristol University and established the Capper Pass Scholarship in Metallurgical Research. He was also a founding member of the Bristol and South Wales section of the Society of the Chemical Industry. Alfred also played a major role in the life of Bristol, being a benefactor of Bristol General Hospital amongst other things. Alfred sent his son, Alfred Douglas Pass, to Harrow, following which he went to Kings College Cambridge where he gained a first in natural sciences. When Alfred died in 1905, he left a large legacy to the university which was used to found a chair of chemistry, known as the Capper Pass Chair.

Professor Vincent's booklet provides a fascinating account of the origins and evolution of a Victorian family of industrialists, their ethos of education and philanthropy, and how their company prospered into the early twentieth century but later succumbed to international trading pressures. It is a worthwhile read for anybody with a general interest in the industrial development of Bristol, for people with a deeper interest in the application of metallurgy or for those with an interest in the social evolution of the city.

Tony Coverdale