9-2014

Substitute Innovation: Rethinking the Failure of Mid-Twentieth Century Regenerated Protein Fibres and their Legacy

Mary M. Brooks
Durham University, mmbrooks.consult@btinternet.com

Substitute Innovation: Rethinking the Failure of Mid-Twentieth Century Regenerated Protein Fibres and their Legacy

Mary M. Brooks

Politicians and planners in Europe and America in the 1930s and 1940s were increasingly anxious about wool supplies for military requirements and actively encouraged research into substitute fibres. Developing cheaper wool-like fibres to blend with, bulk out or substitute for imported wool were clearly desirable. Innovation energised by war informed the development of processes to transform proteins normally used for food (milk, soya, corn, and fish) or perceived as waste (egg whites, chicken feathers and slaughter-house products) into fibres. American and English regenerated protein fibres included National Dairy's milk fibre *Aralac*, Henry Ford's soyabean fibre and Imperial Chemical Industry's peanut fibre *Ardil*. These fibres present a story of technological exploration and failure interlinked with changing political priorities and economic pressures.

Existing technology used to produce regenerated cellulosic fibres was modified to make these new substitute regenerated protein fibres. 146 patents for producing fibres from protein sources have been identified, the vast majority filed in the 1930s and 1940s. These demonstrate both the on-going failures associated with these fibres and the drive to solve these problems. The first American patent for a casein-based fibre was a public service patent awarded to Stephen Gould and Earl Whittier, chemists at the US Department of Agriculture's Bureau of Dairy Industry., these fibres were marketed to consumers as modernistic, patriotic, nationalistic and utopian. Textiles became imbued with social, political and moral agency. However, their physical weaknesses outweighed their benefits. Moderately successful in wartime economic conditions, they rapidly faded from the market and popular memory.

The brief trajectory of these fibres prompted a revision of the traditional conceptualisation of innovation as developed by Usher and Schumpeter. A revised model of substitute innovation aids understanding of attitudes to new fibres which is relevant for the development, marketing and popular acceptance of today's regenerated fibres.

BROOKS, M. M. 2011-12. 'Another freak of fashion': Collectors, collecting, connoisseurship and changing views of 17th century English embroideries. *Text,* 39, 12-17.

BROOKS, M. M. 2012. Seeing the sacred: conflicting priorities in defining, interpreting and conserving Western sacred artefacts. *Material Religion*, 8(1), 10-29.

O'CONNOR, S. A. & BROOKS, M. M. 2011. *X-radiography of Textiles, Dress and Related Objects*. Amsterdam: Butterworth-Heinemann / Elsevier India.

BROOKS, M. M., FELLER, E. & J. HOLDSWORTH. 2011. *Micheál & Elizabeth Feller: The Needlework Collection I.* [Guildford]: Needleprint.

BROOKS, M.M. & EASTOP, D. D., eds. 2011. *Changing Views of Textile Conservation. Readings in Textile Conservation*. Los Angeles: Getty Conservation Institute.

BROOKS, M. M. 2005. Fibres from soyabeans ─ their past, present and future. In: R. S. Blackburn & E. Starr, eds. *Biodegradable and Sustainable Fibre*s. Cambridge: Woodhead, 369-440.