

Thrifty Science: Making the Most of Materials in the History of Experiment

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Simon Werrett is a Senior Lecturer in History at University College, London and has previously written two books relating to historical aspects in science. In his current book "Thrifty Science" he describes how the natural philosophers (the term scientist was not defined until 1833) of the 17th and 18th century conducted their experiments and entered on an age of reuse, recycling and innovative experiments. There are many famous names in the book associated with early discoveries; Francis Bacon, Joseph Banks, Robert Boyle, Margaret Cavendish, Benjamin Franklin, Isaac Newton and so the list goes on. The natural philosophers of their day worked largely in their own homes, utilizing kitchens, cellars and other aspects of their homes as their laboratories, laying the foundations of experimental science as it evolved to modern times. These early (mainly) men experimented with and created new knowledge using everyday utensils, and resources to create new 'natural' knowledge. As well as kitchen utensils, equipment and instruments were made then recycled once the experiments were completed for other experiments. Innovation was a continuing theme of these natural philosophers that often worked by borrowing and gifting equipment. By the 18th century a second hand market existed for equipment and frequently facilitated collaborations as well as attending scientific equipment auctions, often held in fashionable coffee shops.

An underlying concept for the early experimenters was thrift and there were a number of books available during that period expressing frugality linked with "household science". Homes not only served as living space but also doubled as laboratories and storage for scientific equipment. Kitchens were central to the natural philosopher with relatively constant heat where many principles were explored such as distillation, magnetism, medicinal compounds and the observation of the development of 'luminescent' meat while in storage. A home with a cellar was much valued by early anatomists where bodies could be stored and dissections take place. Static electricity was first described when one philosopher observed crackling and sparks when he removed his silk stockings, emphasizing the observational nature of these early researchers.

During this time period communication of experimental results developed with detailed recording of results (often in the kitchen recipe book), scientific meetings and publications. By the end of the 18th century thriving small businesses were evolving of instrument makers, glassmakers and repairers, and the development of business cards. Some activities were more diverse such as the record of shipping 24 tons of "London Urine" to Newcastle for the leather industry and the development of manures from rotting animal carcasses and drained rubbish heap water. As the early 19th century approached, there began the development of dedicated laboratory spaces and permanent instillation of equipment with a focus primarily on chemistry and physics. This began the turning point for "men of science" rather than natural philosophers but the "new" sciences were still a largely male domain. This book provides an excellent insight in to the early days of science, the development of scientific method and the people who helped create many of the basic laws and discoveries we use today.

The Auckland Hospital 'Central' Laboratory 1897-1950

Author: John Buchanan

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The author, John Buchanan was a Haematologist at the Auckland Hospital Laboratory where he worked for 34 years, retiring as Head of the Department of Molecular Medicine. Early on in his career the author developed an on-going interest in the history and development of laboratory services in Auckland and the people who were instrumental in developing the facility. This was aided by early written accounts of the pathology laboratory either being available and/or the ability to interview some of the people who worked in the early days of the laboratory and their memories of working with previous colleagues. The book traces not only the history of people and buildings but is an outstanding record of the provision of early pathology services and the knowledge base evolving in the disciplines. Very early in the development of services the primary focus was on 'bacteriology', public health and basic anatomical pathology. Diseases such as typhoid, scarlet fever, syphilis, tuberculosis and meningitis were the norm of the day with the laboratory staff preparing all their own media, reagents and vaccines. Biochemistry started to come into its own with the discovery of insulin and the relationship with blood 'sugar'; although patients were often 'titrated' with insulin use and blood 'sugar' measurements. Haematology gained ground with improved methods and measuring haemoglobin and packed cell volume. The embryonic development of Blood Banking is linked very well with the progressive discovery of blood groups (ABO) and subsequently the Rhesus system. Many of the laboratory staff started as untrained and training was on-the-job, however a limited number of people managed to study for a BSc part-time at night classes. Although there is an element of repetition in the book, this is to be expected when using personal accounts. The book is essentially in three parts, "The History", "Picture Gallery" and "Reminiscences" with the latter providing interviews with some of the early laboratory workers including Des Phillips. The author also documents the start of the NZIMLS Journal with a small historical context of the background. Overall, this is a very interesting account of the evolution of pathology services in New Zealand as seen through the development of personalities, skills and knowledge in the early days of diagnostic pathology.



Reviewed by Michael Legge, Deputy-Editor, New Zealand Journal of Medical Laboratory Science