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Book Review

Science and Technology in Medicine: An Illustrated Account Based on Ninety-Nine Landmark Publications from Five Centuries. By Andras Gedeon (Springer Science + Business Media Inc, New York, 2006, hb, ISBN-10: 0-387-2784-5) 551pp.

Between the ages of four and six years old, to divert my attention from the doctor's waiting room or my aunt's ill-tempered cat, my parents would hand me a slim hard-back volume produced by the Ladybird Book Company of Loughborough Leicestershire. For those readers too young, unable to remember, or never exposed to Ladybird books, they were a pocket-sized visual compendia of facts or more often short illustrated stories published specifically for children. In the 1970s Ladybird released a series of 'How it works' illustrated narratives of science, technology, and history that were guaranteed to seize most pre-schooler's attention. A recent perusal of Andras Gedeon's illustrated history of Science and Technology in Medicine seems to have had the same meditative (my parents would perhaps say calmative) effect upon me. In the format of a rather weighty coffee-table book, Gedeon has assiduously compiled an intriguing and informative collection of most of the important scientific discoveries that have been instrumental to the development of the current theories, practices, and present identity of allopathic medicine. 1

Through the use of images and a small amount of explanatory text, providing a biography and synopsis of the significance of each innovator's scientific discovery, the book presents a chronological description of the impact of mathematics and the physical sciences of chemistry, physics, and biology on the creation of a scientific basis to western medicine. Rather than a written history, the chosen format is to organise the 'eureka' moments into a catalogue or anthology of 'breakthrough' scientific publications. The first publication, the discovery the author has selected as the point of initiation for the hard sciences in modern medicine, is the anatomical diagrams of the sixteenth-century Nuremberg-based portrait painter Albrecht Dürer. In Gedeon's estimation, Dürer's attempt to render the human form in two dimensions by use of measurement and Euclidian geometry was the first significantly accurate mathematical abstraction of human morphology. The drawings offered a clear and systematised approach, which with the contemporary works of Leonardo da Vinci, were highly influential in the production of Andreas Vesalius De humani corporis fabrica. In turn Versalius' the human anatomical atlas, when combined with the timely and co-incident invention of the printing press and the stirrings of the Reformation, forever changed the nature of 2

authoritative knowledge in western medicine.

The catalogue ends with a paper published in 1975 by the physicist Michael Phelps, which revolutionised the use of PET computed tomography in medicine; the forerunner of the now highly prized three dimensional and dynamic MRI (molecular resonance imaging) scanner. Between these two moments in history, the reader is introduced to the scientific works of the obvious heroes of medical hagiography like Páre, Pasteur, Lister, and Röntgen; and thankfully, also to the many otherwise obscure contributors to medical science. In fact the lesser lights often provide the more interesting moments in this medical history. For example the story of the physiologist Augustus Waller, who with the aid of his wife and his bulldog 'Jimmy' developed a career as a scientific impresario with a brave family, while he was simultaneously refining an instrument and technique useful for the measurement of a patient's cardiac electrical activity to produce an ECG. His investigations and demonstrations eventually provided one of the tools necessary to establish a new subspecialty of internal medicine—cardiology. Hence, from the first mathematically informed visual quantification of the human body to the molecular imaging of twenty-first century nuclear medicine, the book describes how human beings and physicians with the aid of scientific theories, instruments, and technology have understood, represented, and endeavoured to intervene in the normal and pathological processes and structures of the human body.

The medical historian Ghislaine Lawrence has demonstrated that surgical instruments embody the specialised knowledge needed to perform surgery. When this idea is applied to all of medicine, most certainly the invention and gradual development of specialised medical technologies are both the cause and the result of the evolution of successive and increasingly successful theories of medicine. As a consequence, a book like this is inevitably 'whiggish' in its construction and innate teleology. An illustrated history of scientific failures and failed technologies in medical history would be a much larger and unwieldily production, too difficult to resource and perhaps only of interest to the more macabre general reader or scholars of social science and technology studies.

Within these limitations and unlike other illustrated histories of medicine, Gedeon lets the diagrams, instruments, and experimental records produced by the historical subject and their immediate and distant antecedents tell the story and contextualise the scientific discovery within the larger history of medicine. As a historian, he only asks questions of the reader and not his material. The reader is left to ponder why some papers are chosen and others neglected, and how some of the cognitive and instrumental leaps between the initial scientific publication and its specific medical application were made. Consequently this is a Ladybird book of medical, scientific, and technological primary sources, which will no doubt provide images that decorate many presentations at clinically and historically focused medical conferences for years to come.

By presenting a beautifully reproduced and clearly laid-out and labelled tableau of contemporary documents, and concise biographies, with a contextually targeted bibliography, this surprisingly informative book details the development of the web of science and technology that permeates and underpins the increasingly techno-scientific diagnostic and therapeutic practices of modern medicine.

CHRIS DEGELING
UNIVERSITY OF SYDNEY