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in his observations of pathology as in any other aspect of the anatomy of human or animal organs.

It is natural that those producing this book should be enthusiastic about the great achievements of Leonardo da Vinci. This has been expressed by presenting him in the guise of a modern anatomist and physiologist. Inclusion of a section on endocrinology however overstates the point. Of endocrinology Leonardo can of course have had no inkling, and it serves no useful purpose to Leonardo's thought or to history to serve up his observations or his Galenic humoral interpretations of phenomena, as endocrinological.

Like William Harvey, Leonardo was in many ways both ancient and modern in his outlook. As an observer and experimenter he was modern, but he followed the ancients in being a daring generalizer. Both his anatomy and his physiology were based on a whole-hearted application of the mechanistic principle to human and animal organs which he persistently called 'instruments'.

Students of Leonardo, particularly those with a medical background who are interested in his anatomical and physiological labours will be grateful for this work. It collates and arranges large portions of the jig-saw of his biological studies, and so renders them a great deal more accessible. But has it achieved the presentation of his anatomical and physiological ideas as he himself would have presented them? The answer must still be in the negative. This stage in Leonardine interpretation has yet to be reached. Leonardo did not subdivide and limit his studies of anatomy into systems as did Vesalius who was in this aspect so much the more 'modern' of the two. Leonardo, on the contrary was pursuing his mechanical principles deep into the field of animal physiology. Of this we can still have only a fragmentary appreciation when we limit our approach to his anatomical studies. The synthesis of his mechanics and his physiology and anatomy remains to be achieved in the future. For such an achievement this presentation of his studies of anatomy provides an important step.

KENNETH D. KEELE

The Health of Seamen, Selections from the Works of Dr. James Lind, Sir Gilbert Blane and Dr. Thomas Trotter, edited by CHRISTOPHER LLOYD, London, Publications of the Navy Records Society, Volume CVII, 1965, pp. x, 320, 50s.

The works from which these extracts have been taken are Lind's *A Treatise of the Scurvy* (1753) and *An Essay on the Most Effectual Means of Preserving the Health of Seamen in the Royal Navy* (1779); Blane's *Observations on the Diseases of Seamen* (1789) and *Select Dissertations* (1822); and Trotter's *Medicina Nautica* (1804). The volume is designed to draw attention to some of the rare and inaccessible works of the three pioneers of naval medicine, while the extracts, in the words of the preface, were chosen 'primarily for the benefit of the student of naval history; but it is also hoped that [they] will prove of interest to those concerned with medical history, because the Navy was the earliest organization to attempt what we should call a public health service.'

This volume is indeed of interest to medical historians. By having these important writings side by side one is presented with a richly detailed picture of eighteenth

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century naval life and the enormous problems in treating sickness and attempting to prevent it through improvements in hygiene, diet and clothing; enormous problems which were the heartfelt concern of the three thoughtful and conscientious physicians. The extracts also emphasize that improvements were not only delayed by conservatism and by administrative red-tape, but also because sound empirical observations were often frustrated by incorrect theory. One of the greatest hindrances to medical progress during the period covered in the book (and for many years afterwards) was the un-sound theories about the causes of infectious diseases which included, for example, that of spontaneous generation, a doctrine inimical to constructive ideas for preventing the spread of contagious diseases.

Another problem was to explain, in the absence of knowledge of vitamin C, why the many recommended anti-scorbutics were effective. It must be remembered that Lind believed that many vegetables and fermented beverages, besides the lemon, had therapeutic value. It is a pity that space could not have been found for Lind's discussion of the antiscorbutic value of vegetables as it would have rationalized the many antiscorbutics mentioned in the extracts from Lind's work.

But it would be unfair to criticize on the grounds of what might have been included, for the aims of the book are admirably fulfilled. This indexed volume will not only fascinate those with a passing interest in the subject, but also provide a valuable introduction for those directly involved in the study of eighteenth-century naval and medical history and who will eventually wish to turn to the original works themselves. It must also be pointed out that the extracts include some of the source material for volume III of *Medicine and the Navy 1200–1900*, (1961), by Lloyd and Coulter, a volume which is indispensable background reading to this first publication of the Navy Records Society to deal with medical history.

J. K. CRELLIN

English Hospital Statistics, 1861–1938, by ROBERT PINKER, London, Heinemann, 1966, pp. xii, 162, 25s.

This companion volume to Brian Abel-Smith's *The Hospitals, 1800–1948* will prove valuable as a reference book. It will also be welcomed by research workers, for it will save them much time and effort. Although the book is only small, it is patent that an enormous amount of labour has been involved in collecting a mass of statistics and reducing them to comprehensive and comprehensible tables. That the study was necessary at all, reveals once again the blatant shortcomings in the Government statistical and information service, particularly in the nineteenth century. The author's achievement lies in his overcoming the difficulty of having a chaos of data provided in varying degrees of accuracy by a conglomeration of authorities, and in being able to present a clear picture of the various types of hospitals and their growth. But inadequate statistics, particularly on a national scale were completely in keeping with the diverse and complex hospital service which existed in England, and which had evolved piecemeal and without legislative guidance or control.

Throughout the work we are cautioned that the figures are often estimated approximations and in some instances far from reliable. The first quarter of the book has had