These items aside, the text is well written and readable, with clear, well chosen examples and illustrations, and is well up to the universally high standard of the author's work. There is a comprehensive list of 120 references, which is worthy of further investigation for specific subjects.

This textbook is thoroughly recommended reading for students and lecturers, and for practising aerodynamicists. Every engineering and university library should have copies. What a pity about the cover!

A.H.Fraser-Mitchell CEng, FRAeS

Flight Physics: Essentials of Aeronautical Disciplines and Technology, with Historical Notes

E. Torenbeek and H. Wittenberg

Springer, Tiergartenstrasse 17, D-69121 Heidelberg, Germany. 2009. 536pp. £53.99. ISBN 978-1-4020-8663-2.

This book is derived from a series of lectures for freshmen studying Aerospace Engineering at the Technical University of Delft, delivered by the authors between 1970 and 2000, and originally published in Dutch. This has been translated and re-edited by Torenbeek and S.Calvert. Sadly, Professor Wittenberg died before the publication of the present volume.

The book deals with most of the essential elements required for a good general level of understanding of how and why flight vehicles operate, why they are the shapes they are, and the medium in which they fly. Thus it combines aspects of aerodynamics, propulsion, performance and flight dynamics of fixed-wing aircraft in its first seven chapters, concentrating mainly on low speeds, where the compressibility of air is not too significant, though this effect is covered in a later chapter. This considers flight at high subsonic, transonic and supersonic speeds. A separate chapter deals with rotorcraft.

After an informative introduction, the first chapter is a good 'potted' overview of the history and development of aviation from its earliest days to the present time, with particular mention of Concorde. The chapters following cover the subjects listed earlier, and there is a useful Appendix about the principles of aerostatics, not easily found elsewhere.

A nice touch at the start of all these chapters are a few apt quotations – a famous (or infamous) example being a statement by Lord Kelvin in 1896 '*I have not the smallest molecule of faith in aerial navigation other than ballooning*.'

Another good touch is to append a bibliography after each chapter – the references are well chosen, well known, and are generally reasonably accessible for those who wish to delve deeper into any special area.

Wisely, the authors do not attempt to venture into highly specialised areas like very low speed aerodynamics at small scale, V/STOL aerodynamics with fixed wing aircraft, hypersonics or space mechanics. There is an extensive literature available elsewhere.

This excellent work can be recommended in the highest degree for its purpose. The authors have the laudable knack of being able to explain quite complicated concepts in simple (but not simplistic) language, with good definitions of the special terms used, and sufficient formulae to be meaningful. Their enthusiasm for the subject comes across strongly and will, hopefully, infect the readers as well, encouraging them to go to a further depth of understanding.

The hardback book's published price is quite a lot of money for a student – perhaps a softback will soon be published at a much lower price

This is a 'must have' for all interested in aviation at more than a shallow level.

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