**Elements of acoustic phonetics.** 2nd edn. By Peter Ladefoged. Stanford, Chicago, & London: University of Chicago Press, 1995. Pp. viii, 216. Cloth $39.95, paper $14.95.

*Elements* is a revision and expansion of Ladefoged's classic introduction to acoustic phonetics, first published (according to the preface) around 1957, though the earliest copyright date given is 1962. The new edition has eleven chapters, compared to seven in the original. In this edition, L adds material on 'modern insights into the nature of speech…resonances of the vocal tract and how formants are related to different cavities (vii) and, most notably, various aspects of computer speech processing.

This book takes the reader from the most basic descriptions of what sound is, how it is produced, and how it is perceived by the human ear, to the concepts of complex waves, Fourier analysis, and the decibel scale. A picture of the complexity of the many resonators in the human vocal cavity is slowly built up through simplified graphic analogies. The reader is finally told that the real situation is in fact much more complicated than all the mental exercises they have been through to understand parts of it would suggest, thus giving them a healthy respect and feel for how the real thing functions.

L holds the reader's hand through anything at all mathematical – which would seem to reflect his understanding of the panic many linguist types feel when confronted with formulae and calculations. Everything is carefully explained so as to be as accessible as possible, even for the numerically challenged. It is clear from this book that L's position in the field is well-deserved, not only as a phonetician but as a skilled and patient educator. It is perhaps this point that makes *Elements* stand out most in the crowd of acoustic phonetics texts available.

The reader is likely to often have a feeling of 'Yes, of course, I knew that' as they read and think through the material; when in fact it might be the first time they really get it as regards some particular phenomenon, such as why 70.7% is such a special number, what the 'radiation factor' is, and differences in the behavior of damped and undamped resonators. So it is an excellent primer for beginners, as well as a useful and thorough review book for any linguist, particularly someone teaching any kind of phonetics-related course.

The coverage of digital speech processing is quite excellent and clarifies concepts with broader application beyond just speech processing, such as the difference in range between 8-bit and 16-bit quantization, what sampling frequency is needed for what kind of sound signals, and the use of filters in processing audio signals. Only in the last chapter do the calculations become a little lengthy and overwhelming though they are in principle not hard to understand. Whatever pain may be required to wade through the material, the reader who plans to tackle further works on computer speech processing will find the information in *Elements* to be solid and indispensable.

This is above all a *content* book – not well suited to just browsing (unless you're already quite well versed in the concepts presented), but one worth careful sentence-by-sentence absorption and rereading. [Karen Steffen Chung, *National Taiwan University*.]