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## [Trace elements in human and animal nutrition. Ed.](#)

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Book : [Trace elements in human and animal nutrition. Ed. 3.](#) 1971 pp.xiv+543 pp.

Abstract : Keeping up to date in trace element nutrition is a forbidding task and the advances in analytical techniques in the last decade have greatly simplified the analysis of many trace elements and extended the measurable range of concentrations. Biochemists and nutritionists have been quick to exploit the new techniques and there has been a plethora of publications, particularly on the metabolism of the elements Cu, Mn and Se. Trace elements have been shown to differ widely in their metabolic

species to differ in the way they metabolise a given element. Each trace element law unto itself and as such it demands specialist attention. All this needs to underline the remarkable achievement of Professor Underwood in producing this new edition of "Trace Elements in Human and Animal Nutrition". In successfully keeping up to date with no less than 27 trace elements, he acquires in the eyes of the sportsman a stature shared only by Goldsmith's village teacher-"that one small head could hold as much wisdom as any great head knew".

The author has been able to build on the solid foundation of two previous editions which have been widely used by those wishing to understand the nutritional roles of trace elements and their biochemical and pathological significance to animals and man. The earlier structure is maintained with the literature on each principal trace element subdivided into sections dealing with its distribution in animal tissues, metal deficiency symptoms and functions, dietary requirements, toxicity problems and their effects on human health. Cd, Cr, Ni, Si and V have been added to the list of elements covered in the new chapters: further symptoms of the concern over growing trace-element problems caused by increasing industrialization and urbanisation are the new contributions on Se, Ge and Zr in the section covering miscellaneous trace elements.

Whereas many authors would have been content to rest on their laurels, Professor Underwood has rewritten much of the material from earlier editions to accommodate the new perspectives opened up by recent research. The rapid growth in our knowledge of trace element metabolism is illustrated by the role described for Cu in the formation of elastin. This function of Cu was unknown when the last edition went to print in 1962; in the meantime its biochemical basis has been traced to the activity of a copper-containing enzyme, which oxidatively deaminates the epsilon-amino groups of lysine residues in elastin. This reaction leads to the formation of desmosine which is a cross-linkage group in elastin. Cu-deficient chicks, pigs and guinea pigs can suffer from aortic or arterial rupture due to the fundamental defect in elastin.

There are signs in the book that the strain of keeping pace with the explosion of knowledge in diverse fields was beginning to tell. In the chapter on copper, for example, some significant references appear to have been missed. One also has the impression that without the proceedings of the assembly of trace-element specialists in Aberdeen, the coverage of the period 1967-70 would have been incomplete. Nothing, however, detracts from the merit of this book, which will remain for many years a valuable source of reference to nutrition scientists, biochemists and medical researchers. Chapters on trace elements and others concerned with pollution of the environment are presented with an opportunity to base predictions of potential health hazards on scientific fact.

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