PREFACE

The papers in Volume 3 illustrate once again the extent to which the collating and questioning of new nutritional ideas are important factors in advancing our understanding of a wide range of problems of human and animal health and well-being.

At one end of the range of problems are three papers concerned with malnutrition in the developing world. One from Jamaica by *Simeon and Grantham-McGregor* relates to the serious and sometimes long-term effects that nutritional deficiencies (mainly but not exclusively in protein/energy terms) may have on mental development in children. In a paper from India *Shetty* considers how adaptive changes to energy deficiency are mediated at a basic level. He describes how these changes may lead to greater metabolic efficiency but concludes that, in general, they have less importance in chronic malnutrition than may be indicated from short-term studies. *Walker* considers some of the causes of protein/energy malnutrition in children in the developing world which often include factors other than simple food shortage particularly when weaning begins. She emphasizes the importance of encouraging effective local treatment of appropriately chosen weaning foods to achieve an adequate density of digestible energy.

Another group of papers deals, in the main, with the effects of nutrition on clinical disorders in man. *Williams and Dickerson* report on such effects on cancer initiation and promotion with particular attention, not only to different amounts but to different kinds of fat and to intakes of various micronutrients. Manipulation of nutrients may have practical value but this has yet to be firmly established. Effects of high sodium intakes causing calcium loss in the urine not always compensated by increased intestinal absorption are considered by *Shortt and Flynn* with particular reference to osteoporosis; they conclude that more work relating to sodium intake in post-menopausal women should be done. Although aluminium is not itself a nutrient it is present in many diets and may contaminate solutions given parenterally in clinical treatment. Evidence given by *Klein* shows that parenteral administration may lead to bone disease. There is also evidence that aluminium may be associated with several neurodegenerative disorders including Alzheimers' disease but firm evidence linking these disorders with oral consumption is lacking.

Further papers are concerned with the effects of nutrition on metabolic control mechanisms. That by *Ross and Buchanan* deals with the complex factors regulating growth hormone secretion in man in a variety of nutritionally induced or related clinical disorders. A complementary paper by *Pell and Bates* considers nutritional influences on the varied ways in which growth hormone action is expressed in man and various animals either directly or indirectly by, for example, regulating anabolic hormones. Other biologically active factors which have led to an important development in our understanding of metabolic control and particularly immunofunction in recent years are the range of

polypeptides known as cytokines. *Grimble* discusses ways in which nutrition may affect the production and/or expression of these factors.

Papers in a final group are concerned primarily with fundamental work in animal nutrition related both to the developed and developing world. Some aspects of the influence of nutritional factors on whole body protein turnover (and therefore of net protein deposition or mobilization) have been studied extensively in the chicken. *Muramatsu* considers this work and the extent to which the findings may relate to other animals including man. The paper by *Low* on the regulation of gut processes shows how difficult it has proved to be, even in simple-stomached animals, to apply findings from physiological studies to what happens when 'normal' mixed food is given. Most reported work is in the pig but the findings have much wider implications. *Robinson* emphasizes the importance of considering the underlying mechanisms by which nutrients may influence different parts of the reproductive cycle in farm animals but warns that beneficial nutritional intervention at one stage may have deleterious effects at another. The paper on the efficient feeding of ruminants which concludes the present volume also puts emphasis on an understanding of basic metabolic issues. A consideration of these leads *Leng* to question the validity of applying principles established in temperate countries for animals receiving considerable amounts of concentrates to developing tropical countries where poor quality forage may form most of the feed.