THE NUTRITION FOUNDATION

The Chemical Senses and Nutrition

A MONOGRAPH EDITED BY

Morley R. Kare
Owen Maller

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THE CHEMICAL SENSES AND NUTRITION

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Foreword

It was a decade ago that the cooperation between the Monell Chemical Senses Center and The Nutrition Foundation resulted in the development of a monograph on the chemical senses, which has become a standard reference work for those in this field. Since the appearance of that work, an increased awareness has developed among the medical profession of the importance of understanding these specialized senses and the psychological and behavioral phenomena to which they are related or which are influenced or governed by these senses. This past decade has seen much progress in understanding the basic physiology, molecular biology, and biochemistry of the chemical senses. Accordingly, The Nutrition Foundation and The Monell Chemical Senses Center have again joined in sponsoring a current examination of the field and of the decade of progress against the complex background of considerations of the functions of and reactions to the chemical senses.

In order to accomplish this expeditiously and to produce an authoritative, current review, this effort was planned in two stages. First, there was a workshop of scientists engaged actively in advancing knowledge in this field for the purpose of providing an opportunity to freely exchange information and experiences and to critically examine the views of individual workers. Second, following these exchanges, the prepared manuscripts were modified and edited for prompt publication. Therefore, this volume reflects the beneficial exchange that occurred in the workshop and provides a particularly well-considered update of the subject of the chemical senses in relation to nutrition.

The conference and the publication of this monograph were supported jointly by The Nutrition Foundation and The Monell Chemical Senses Center, and assisted by a grant from the National Institutes of Health (National Institute for Dental Research 1 R13 DE 04533).

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the conference and the preparation of this book is gratefully acknowledged. In the desire for rapid publication, there has been limited opportunity, particularly for the foreign contributors, for proof correction. The discussions have been condensed. The editors assume responsibility for any changes in these sections.

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Preface

Ten years after the appearance of the first book on the chemical senses and nutrition, additional research data justified a second volume. These papers constitute an overview by leading scientists in the field of the growing understanding of the role of the chemical senses in nutrition.

It is extremely important to be aware of the involvement of the phenomena of taste and smell in many aspects of human behavior. It is, however, critically important to the entire field of nutrition to be able to identify and evaluate olfactory and gustatory interactions. Taste and smell are the two senses that basically control a vast number of human reactions. One or another of these senses may reach a high level of acuity among animal species. A vast array of materials and environments is identifiable by a combination of taste and smell factors.

The world is currently facing a burgeoning population, a problem with which we have thus far not been able to cope successfully; population stabilization has been effective in only a very few nations. Thus, while the world continues to advance in its technology, its educational systems, and other social objectives, it has not yet been possible to establish "universal family planning." In former times, when the world's population was relatively small, the increase in numbers was hardly perceptible. One result of the rapid growth in modern times has been the obvious pressures of people upon environment. Through neglect, mismanagement, and other forces, a vast array of disruptive factors has been brought to bear on our natural environment. These include floods, droughts, earthquakes, forest fires, erosion, and the full complement of those phenomena that have taken great toll of the world's resources. Moreover, under continuing pressure, man's inroads into forests, fuel, minerals, and other reserves steadily increase the growing threat to our environment.

Obviously, if we are unable to provide the essential foods for all the world's population, there will be a gradual erosion of the social scene.