direction of the Analytical Methods Committee of Imperial Chemical Industries Limited. The revised edition, like its predecessor, is a manual of Imperial Chemical Industries practice, consisting mainly of the description of methods of analysis for the determination of low concentrations of a range of toxic substances found in factory atmospheres. New or improved analytical methods up to the end of 1963 have been examined for some sixty substances or groups of substances, and details are given, for each selected method, of the apparatus and reagents required, the sampling and test procedures and the calculation of results.

For many substances several test procedures, which fall into three categories, are described: rapid field tests based almost entirely on the series of booklets *Methods for the Detection of Toxic Substances in Air* published by H.M. Factory Inspectorate, Ministry of Labour; more precise methods including gas chromatographic techniques which require the facilities of a laboratory; and indicator tube tests for selected substances with the commendable advice to all users to follow Imperial Chemical Industries practice and calibrate each batch of tubes before use by means of atmospheres of known composition.

Brief descriptions are also given of the apparatus required for sampling industrial atmospheres (18 pp.), chemical methods of measuring toxic substances in air (8 pp.) and, in a chapter new to this edition, static and dynamic methods of preparing atmospheres of known composition (7 pp.).

Although there is a growing awareness in industry of the need to protect workers from the hazards of repeated exposure to low concentrations of air-borne contaminants, few books describing suitable methods of air analysis are available. This compilation of methods based on the wide experience of a large industrial organization is a welcome contribution to the subject. The book is well arranged, clearly and concisely written and contains useful diagrams, an ample index and adequate references. Without doubt it will be consulted frequently by those interested in the field of industrial hygiene. A. A. CHRISTIE

Calculus of Variations and Partial Differential Equations of the First Order

By C. Carathéodory. Part 1: Partial Differential Equations of the First Order. (Holden-Day Series in Mathematical Physics.) Pp. xvi+171. (San Francisco, London and Amsterdam: Holden-Day, Inc., 1965.) $8.50.

CARATHÉODORY'S *Variationsrechnung* first appeared in 1935 and was reviewed in *Nature* in the November 23 issue of that year. Part I of the book, entitled "Partial Differential Equations of the First Order", is described in that review as "an account remarkable . . . for lucidity and completeness"; and the review of the whole work concludes with the sentence "In sum, this book is indispensable".

In the 30 years since the publication of Carathéodory's book many advances have been made in the mathematical theory of partial differential equations, but most of these occurred in branches of the theory outside the area covered by Carathéodory, and the latter's book remains a classic. In view of continuing interest, Hölder edited a (German) reprint of Part I. The present translation is based on this reprint, which appeared in 1956 and in which a few minor errors, both typographical and mathematical, were corrected, some short comments were added in the text or in footnotes, and a brief supplement was provided.

Carathéodory's presentation of partial differential equations of the first order combines geometrical insight with analytical rigour, and the availability in English of this presentation will be welcome to many. The English translation is by J. J. Brandstatter of the Stanford Research Institute and is always accurate, and mostly readable and idiomatic. A. ERDÉLYI

MEETINGS

INTERNATIONAL NUTRITION

THE members of an international congress of biochemists concern themselves with biochemistry, and pure and applied chemists in the main discuss chemical science. Even physicists when they meet restrict themselves to matters of physics, leaving discussion of nuclear power to engineers, military strategists and politicians. At the seventh International Congress of Nutrition held in Hamburg during August 3–10, however, three kinds of discussions took place. The first of these comprised strictly scientific reports of experimental studies and clinical investigations, and the second were surveys of food intake in relation to nutritional requirement and population density; both clearly relevant to the professional competence of the participants of the congress. But who is professionally qualified to say how one nation, once poor, develops and becomes rich, why another falls into anarchy, poverty and malnutrition, while a third, desperately embracing technological innovation, loans, gifts and advice nevertheless fails to improve the lot of its population and while categorized as a "Developing Nation" finds itself unable to develop?

Perhaps nutritionists are unwise to argue as hotly as they do that nutrition is a science. Biochemistry budded off as a part of physiology, and nutrition—as a scientific speciality—was in its turn an offshoot of biochemistry. But nutritionists, having established themselves by such studies as the chemical analysis of foodstuffs, elucidation of the crystalline structure of thiamine (vitamin B_1) and of its biochemical mechanisms, have extended their territory to include "Food Habits in Pre-industrial Societies in Mezoamerica", "Rituals and Taboos" and "Poverty Dissected: An Anatomy Lesson in Rural Paraguay"—to cite just three of the papers read at Hamburg. It is true that the traditional customs in Central America and taboos and rituals in primitive and sophisticated countries alike exert an important influence on the foods the people eat and on their consequent state of nutrition. But a scientist whose authority depends on his training in biochemistry and physiology is an amateur when he attempts to draw deductions about matters on which the judgment of an ethnologist is needed. Understanding of the habits and customs of a nation or tribe will be as baffling to a dietitian educated in Boston who is mistakenly attempting to introduce the bottle feeding of infants into Tanzania as will the oddity to a visitor from Central Africa of the fact that the British are happy to receive pooled blood plasma by injection although during the Second World War they refused with disgust to allow the Ministry of Food to utilize the separated corpuscles for the manufacture of black pudding to be taken by mouth.

Because the study of nutrition throws light on the human condition, it is inevitable that nutritionists feel moved to allow their hearts and consciences to be influenced by what the evidence of their intellects brings to light. In Peru, the advent of industrialization and mining attracts peasants from the highlands of the interior to the slums of Lima where, as Dr. G. G. Graham of Baltimore observed, and showed to the Congress in a series of horrifying photographs, their children sicken and die of marasmus. Yet at the same time a developing fishing industry provides a flourishing export of fish flour. The adults who work in the copper mines and in the fish-flour factory share in the modest material prosperity, yet the young children suffer. Where, then, shall the nutritionist draw the line: at the scientific deduction that marasmus is a syndrome in infants resulting from lack of calories and protein? that the disease is aggravated by the export of fish rather than its distribution among the shanty dwellers of Lima? or that a more vigorous export