

FOOD ALLERGY AND INTOLERANCE

JONATHAN BROSTOFF

MA DM FRCP FRCPath
Reader in Clinical Immunology
and Honorary Consultant Physician
Department of Immunology
Middlesex Hospital and Medical School
London

STEPHEN J. CHALLACOMBE

PhD BDS MRCPPath
Reader in Oral Immunology
and Honorary Consultant
Department of Oral Immunology and Microbiology
United Medical and Dental Schools of
Guy's and St Thomas' Hospitals, London



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1 Goldthorne Avenue
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FOOD ALLERGY

AND

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FOOD ALLERGY AND INTOLERANCE

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Contributors

Kjell Aas MD

Professor, Medical School, University of Oslo; Voksentoppen (Rikshospitalet), University Hospital, Ullveien 14, Voksenkollen, Oslo 3, Norway.

Virginia Alun Jones MBBChir

Clinical Research Fellow, Addenbrooke's Hospital, Department of Gastroenterology, Hills Road, Cambridge CB2 2QQ, UK.

P. Asquith MD, FRCP

Consultant Physician and Gastroenterologist, Honorary Senior Lecturer in Medicine and Immunology, Departments of Medicine and Immunology, University of Birmingham; Director of the Alistair Frazer and John Squire Metabolic and Clinical Investigation Unit.

David J. Atherton MA, MB, FRCP

Consultant Paediatric Dermatologist, Hospital for Sick Children, Great Ormond Street, London WC1, UK.

Nathan Becker MD

Assistant Clinical Professor of Medicine, University of California, San Francisco, Parnassus Avenue, San Francisco, California 94117, USA; Mount Zion Hospital, Ralph K. Davies Medical Center and St. Luke's Medical Center, San Francisco, California.

A. Dean Befus PhD

Professor, Department of Microbiology and Infectious Diseases, University of Calgary, Health Sciences Centre, 330 Hospital Drive N. W., Alberta, Canada T2N 4N1.

Iris R. Bell MD, PhD

Adjunct Assistant Professor, Department of Psychiatry, University of California, San Francisco, California; Langley Porter Psychiatric Institute, University of California, 401 Parnassus Avenue, San Francisco, California 94143, USA.

John Bienenstock FRCP, FRCP(C)

Professor and Chairman, Department of Pathology, 1200 Main Street West, Hamilton, Ontario, 8N 3Z5, Canada; McMaster University Medical Center, Chedoke McMaster Hospital, Hamilton, Ontario, Canada.

Angus Graham Bird BMBCh, MD, MRCP, MRCPATH

Senior Lecturer in Immunology, University of Newcastle Upon Tyne; Consultant Immunologist, Newcastle General Hospital, Westgate Road, Newcastle Upon Tyne, NE4 6BE, UK.

Dale E. Bockman PhD

Professor and Chairman of Anatomy, Department of Anatomy, Medical College of Georgia, Augusta, Georgia 30912, USA.

F. J. Bourne BVetMed, PhD, MRCVS

Professor of Veterinary Medicine, Department of Veterinary Medicine, University of Bristol, Bristol BS18 7DU, UK.

Per Brandtzaeg PhD

Professor of Pathology, The Medical Faculty, University of Oslo, Norway; Chief, Laboratory of Immunohistochemistry and Immunopathology (LIIPAT), The National Hospital, Rikshospitalet, 0027 Oslo 1, Norway.

Jonathan Brostoff MA, DM, FRCP, FRCPath

Reader in Clinical Immunology, Department of Immunology, Arthur Stanley House, Middlesex Hospital Medical School, 40-50 Tottenham Street, London W1P 9PG, UK; Honorary Consultant Physician, Middlesex Hospital.

Ollie Dawkins Brown MEd, MS

WJR & Associates Inc., dba/EHC-Dallas, 8345 Walnut Hill Lane, Suite 205, Dallas, Texas 75231, USA.

S. J. Challacombe PhD, BDS, MRCPPath

Reader in Oral Immunology, Consultant in Diagnostic Microbiology and Immunology, Honorary Consultant in Oral Medicine and Microbiology, United Medical and Dental Schools, Guy's Hospital, London SE1 9RT, UK.

John Richard Clamp MD, PhD, FRCP, FRCS

Professor, Department of Medicine, University of Bristol; Consultant, Bristol Royal Infirmary, Bristol BS2 8HW, UK.

Sylvia S. Crago PhD

Research Assistant Professor, Department of Cell Biology, University of New Mexico School of Medicine, Albuquerque, New Mexico 87131, USA.

Charlotte Cunningham-Rundles MD, PhD

Assistant Professor, Department of Medicine, Memorial Sloan-Kettering Cancer Center, New York, New York 10021, USA.

Morrell H. Draper OBE, MBBS, PhD, FRSE

Formerly with the International Programme on Chemical Safety (IPCS), World Health Organization, Geneva; sometime Senior Lecturer in Physiology, University of Edinburgh; Senior Medical Officer, Department of Health and Social Security, Division of Medical Aspects of Chemical Contamination of the Environment, Food and Smoking.

Joseph Egger MD

Kinderklinik, Dr. von Haunersches Kinderspital der Universität München, Lindwurmstrasse 4, 8000 Munich 2, FRG.

Ronald Finn MD, FRCP

Consultant Physician, Royal Liverpool Hospital, Prescot Street, Liverpool L7 8XP, UK; Lecturer in Clinical Medicine, University of Liverpool, Liverpool.

R. P. K. Ford MD, FRACP

Senior Lecturer, Christchurch Clinical School, Otago University, New Zealand; Community Paediatrician, Reserve Bank Building, 158 Hereford Street, Christchurch, New Zealand.

A. W. Frankland MA, DM, BCh

Consulting Allergist, Guy's Hospital, London SE1, UK.

David L. J. Freed MD

Allergy Specialist, Beaumont Hospital, Bolton, BL6 4LA, UK.

Oscar L. Frick MD, PhD

Professor of Pediatrics, University of California, San Francisco, San Francisco, California, 94143 USA; Attending Physician, University of California, San Francisco, Medical Center, San Francisco.

Lionel Fry BSc, MD, FRCP

Consultant Dermatologist, Department of Dermatology, St. Mary's Hospital, Praed Street, London W2 1NY, UK.

John W. Gerrard DM, FRCP(C)

Professor Emeritus, Department of Paediatrics, Room 1201, New Mall, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 0X0, Canada; Active Staff, University Hospital, Saskatoon.

Randall M. Goldblum MD

Professor, Division of Immunology/Allergy, Department of Pediatrics, University of Texas Medical Branch, Galveston, Texas 77550, USA.

Armond S. Goldman MD

Professor, Division of Immunology/Allergy, Department of Pediatrics, University of Texas Medical Branch, Galveston, Texas 77550, USA.

Antony J. Ham Pong MBBS

Clinical Lecturer in Pediatrics, University of Ottawa, Ottawa, Ontario, K1N 6N5 Canada; Associate Active FPAFF, Children's Hospital of Eastern Ontario, Ottawa.

D. J. Hendrick MD, FRCP, MFOM

Honorary Lecturer in Medicine and Occupational Health, University of Newcastle Upon Tyne; Consultant Physician, Newcastle General Hospital, Westgate Road, Newcastle Upon Tyne, NE4 6BE, UK.

John Oakley Hunter MA, MD, FRCP

Associate Lecturer, University of Cambridge, Cambridge; Consultant Physician, Addenbrooke's Hospital, Hills Road, Cambridge CB2 2QQ, UK.

Anand G. Kantak MD

Assistant Professor, Department of Pediatrics, University of Missouri, Columbia, Missouri 65211, USA.

George F. Kroker MD, FACA

Allergy Associates of La Crosse Ltd., 615 South 10th Street, P.O. Box 2408, La Crosse, Wisconsin 54602-2408, USA; St. Francis Medical Center, La Crosse, Wisconsin.

Michael E. Lamm MD

Professor and Chairman of Pathology, Case Western Reserve University School of Medicine, 2085 Adelbert Road, Cleveland, Ohio 44106, USA; Director, Department of Pathology, University Hospitals of Cleveland.

Tor Langeland MD

Department of Dermatology, Rikshospitalet, University Hospital, Oslo 1, Norway.

John L. Laseter PhD

President and Chief Executive Officer, Enviro-Health Systems, Inc., 990 North Bowser Road, Suite 800, Richardson, Texas 75081, USA.

Jonathan Leonard BSc, MD MRCP(UK)

Senior Registrar in Dermatology, St. Mary's Hospital, Praed Street, London W2 1NY, UK.

Alan Scott Levin MD

Adjunct Associate Professor, Department of Dermatology, University of California, San Francisco, San Francisco, California 94143, USA.

Colin H. Little MBBS, MRCP(UK), FRACP

26 Erin Street, Richmond 3121, Australia.

Christopher Mallinson FRCP

Consultant Physician, Lewisham and North Southwark Health Authority, Lewisham Hospital, High Street, London SE13 6LH, UK.

L. McEwen MA, BMBCh(Oxf.)

London Medical Centre, 144 Harley Street, London W1N 1AH, UK.

N. Mike MB, MRCP

Medical Registrar, Metabolic Unit, East Birmingham Hospital, Bordesley Green East, Birmingham B9 5ST, UK.

Melody J. Milam PhD

Fort Worth Psychological Center, 5508 Dunham, Fort Worth, Texas 76114, USA.

B. G. Miller BSc, PhD

Research Fellow, Department of Veterinary Medicine, University of Bristol, Bristol BS18 7DU, UK.

Joseph B. Miller MD

The Miller Center for Allergy, 273 Azalea Road, Three Office Park, Suite 110, Mobile, Alabama 36609, USA; Consultant to the Department of Pediatrics, University of South Alabama College of Medicine, Mobile, Alabama.

D. A. Moneret-Vautrin MD

Professor of Internal Medicine, Clinical Immunology and Allergology, Service de Médecine D, CHU Brabois, Route de Neufchâteau, Vandoeuvre-lès-Nancy, 54511 France.

Jean Monro MBBS, LRCP, MRCS

Medical Director, Allergy and Environmental Medicine Clinic, The Nightingale Hospital, 19 Lisson Grove, London NW1; Medical Director, Allergy and Environmental Medicine Clinic, 10 St. John's Road, Boxmor, Hemel Hempstead HP1 1JR, UK.

Allan McI. Mowat BSc, MB ChB, PhD, MRC

Senior Clinical Fellow, Department of Bacteriology and Immunology, Honorary Senior Registrar in Immunology, Western Infirmary, Glasgow G11 6NT, UK.

D. M. V. Parrott PhD, DSc, FRCPath, FRSE

Gardiner Professor, University of Glasgow; Head of Department, Bacteriology and Immunology, Western Infirmary and Gartnavel General Hospitals, Glasgow G11 6NT, UK.

Elide Pastorello MD

Research Assistant, Internal Medicine, 2nd Clinic, University of Milan, Via F. Sforza 35, Milan, Italy.

Fred L. Pearce PhD

Reader, Department of Chemistry, University College, London WC1 0AJ, UK.

D. J. Pearson MB, PhD, MRCP

Senior Lecturer in Medicine, University of Manchester, Manchester; Honorary Consultant Physician, University Hospital of South Manchester, Manchester, UK.

Z. Pelikan MD

Director, Department of Allergology and Immunology, Institute of Medical Sciences 'De Klokkenberg', Galderseweg 81, 4836 AE Breda, The Netherlands.

Alan Phillips BA(Hons)

Electron Microscopist, Queen Elizabeth Hospital for Children, Hackney Road, London E2 8PS, UK.

Julia M. Phillips-Quagliata PhD

Associate Professor of Pathology, Department of Pathology, New York University School of Medicine, 550 First Avenue, New York, New York 10016, USA.

Michael Pike MB, MRCP

Research Fellow, Institute of Child Health, 30 Guilford Street, London WC1N 1EH, UK; Senior Registrar in Paediatrics, Queen Mary's Hospital for Children, Carshalton, and St. George's Hospital, Tooting.

Michael John Radcliffe MB, MRCP

General Practitioner, The Medical Centre, Hythe, Southampton, SO4 52B, UK.

Doris J. Rapp BA, MA, MD

Clinical Associate Professor of Pediatrics, State University of New York at Buffalo, 3435 Main Street, Buffalo, New York 14214, USA; Courtesy Staff at Buffalo Children's Hospital, DeGraff Memorial Hospital and Kenmore Mercy Hospital.

William J. Rea MD, PA, FACS, FACA

WJR & Associates Inc., dba/EHC-Dallas, 8345 Walnut Hill Lane, Suite 205, Dallas, Texas 75231, USA.

K. J. B. Rix MPhil, MD, CBIol, MRCPsych

Senior Lecturer in Psychiatry, University of Leeds, Leeds; Consultant Psychiatrist, Department of Psychiatry, St. James's University Hospital, Leeds LS9 7TF, UK.

Duncan Alexander Findlay Robertson BSc, MD, MRCP

Lecturer in Medicine, Southampton University, Southampton; Senior Registrar, Southampton General Hospital, Tremona Road, Southampton, SO9 4XY, UK.

Bogdan Romanski

Professor Dr. hab. med., Professor at Medical Academy in Bydgoszcz, Poland; Chairman and Head of Department of Allergology and Internal Medicine, Medical Academy Hospital, Bydgoszcz, Poland; National Consultant of Allergology in Poland.

Mark G. P. Saifer PhD

Vice President and Research Director, DDI Pharmaceuticals, Inc., Mountain View, California, USA.

Phyllis L. Saifer MD, MPH

Allergy and Environmental Medicine Private Practice, 3031 Telegraph Avenue, Berkeley, California 94705, USA; President Elect and Newsletter Editor, American Academy of Environmental Medicine.

Douglas H. Sandberg MD

Professor of Pediatrics, University of Miami School of Medicine; University of Miami Jackson Memorial Medical Center, Miami, Florida 33101, USA.

Douglas B. Seba PhD

P.O. Box 23737, Washington, DC 20024, USA.

F. Shakib PhD

Head of Immunology Division, Midlands Asthma and Allergy Research Association, 12 Vernon Street, Derby DE1 1FT, UK.

John G. Shields PhD

Research Fellow, Department of Immunology, Institute of Child Health, University of London, 30 Guilford Street, London WC1N 1EH, UK.

Roy G. Shorter MD, FRCP, FACP, FRCPath

Professor of Medicine and Pathology, Mayo Medical School, Rochester, Minnesota 55905, USA.

John F. Soothill MA, MB, FRCP, FRCPath

Emeritus Professor of Immunology, Institute of Child Health, London University, Guilford Street, London WC1N 1EH, UK; Honorary Consultant Immunologist, Hospital for Sick Children, Great Ormond Street, London.

Donald E. Sprague MD, PA

WJR & Associates Inc., dba/EHC-Dallas, 8345 Walnut Hill Lane, Suite 205, Dallas, Texas 75231, USA.

C. R. Stokes BSc, PhD

Research Fellow, Department of Veterinary Medicine, University of Bristol, Bristol BS18 7DU, UK.

Stephan Strobel MD, PhD

Lecturer in Paediatric Immunology, Department of Immunology, Institute of Child Health, University of London, 30 Guilford Street, London WC1N 1EH, UK; Honorary Consultant in Infectious Diseases and Immunology, Hospital for Sick Children, Great Ormond Street, London.

Thomas B. Tomasi MD, PhD

Distinguished University Professor and Chairman, Department of Cell Biology, University of New Mexico School of Medicine, Albuquerque, New Mexico 87131, USA.

W. Allan Walker MD

Professor of Pediatrics, Harvard Medical School; Chief, Combined Program in Pediatric Gastroenterology and Nutrition, Children's Hospital, 300 Longwood Avenue, Boston, Massachusetts 02115, USA.

John Walker-Smith MD(Sydney), FRCP(Lon.) FRCP(Ed), FRACP

Professor of Paediatric Gastroenterology, Queen Elizabeth Hospital for Children, Hackney Road, London E2 8PS, UK.

Richard K. Winkelmann MD, PhD

Professor of Dermatology, Mayo Medical School, Rochester, Minnesota; Consultant in Dermatology, Mayo Clinic, Rochester, Minnesota 55905, USA.

Jan Wojtulewski MRCP

Consultant Physician, Department of Rheumatology, Eastbourne District General Hospital, King's Drive, Eastbourne, Sussex, BN21 2UD, UK.

Derek G. Wraith MD, FRCP

Honorary Consultant Physician, Allergy Clinic, St Thomas' Hospital, London SE1 7E11, UK, Churchill Hospital Oxford, and London Allergy Clinic.

Ralph Wright MA, MD, DPhil, FRCP

Professor of Medicine, Southampton University, Southampton; Professor of Medicine, Southampton General Hospital, Tremona Road, Southampton, SO9 4XY, UK.

L. J. F. Youlten MBBS, PhD

Honorary Lecturer in Medicine and Clinical Pharmacology, United Medical and Dental Schools of Guy's and St. Thomas' Hospitals, London; Honorary Consultant in Applied Pharmacology, Guy's Hospital, London SE1 9RT, UK.

Carlo Zanussi MD

Chief of Department, Internal Medicine, 2nd Clinic, University of Milan, Via F. Sforza 35, Milan, Italy.

Preface

As all who deal in the field will know, food allergy is an exciting, challenging, exasperating and sometimes controversial subject. Its study should be a clinical science with diagnosis based on a combination of clinical observations and scientific investigations.

The study of food allergy is incomplete without a fundamental knowledge of how food is processed by the body, in both normal and abnormal conditions, and of how the majority of us are tolerant from an immunological point of view of large quantities of foreign protein to which the body is exposed each day. This is a triumph of the body's adaptation to man's eating habits. It is when this tolerance is broken that maladaptation and disease occur.

The field of food allergy has generally been considered to be a clinical art rather than a laboratory science. There is more than an element of truth in this since clinical observations have often not been supported by reliable diagnostic tests or even laboratory data. This has led to scepticism of some of the clinical associations, especially when the mechanisms of any proposed food allergies are not understood.

Clinical pragmatism is accepted as fundamental in most of the major specialties, but food allergy seems to be an exception. Here there has been a strong tendency for the conventional physician to say that if the mechanism is not understood then food allergy does not exist, especially if the symptoms of the patient do not fit into a conventional diagnostic pigeonhole. This is of course unacceptable.

Clinical medicine is the practice of an art which combines clinical ability with sound judgement based on experience and an understanding of the scientific basis of the specialty. To make a diagnosis certainly requires clinical skill but does not necessarily need a complete understanding of the mechanisms underlying the disease process or an exact understanding of the aetiology. Clinical observation comes before scientific understanding and this is highlighted by many of the names that we give diseases such as Intrinsic Asthma, Essential Hypertension, Minimal Change Nephropathy, Nummular Eczema, and Irritable Bowel Syndrome. These are labels of ignorance and are hardly enlightening as to mechanism or cause.

In this book we have attempted to provide a scientific basis for the clinical observations of food allergy and intolerance. The importance attached to understanding the basic mechanisms underlying food allergy is, we hope, emphasized by a comprehensive review of the structure and function of the gut, its immune cells and secretions, the mechanisms of normal antigen handling, and the contribution that animal models can make to our understanding. This section also emphasizes the fact that, under normal conditions, processing of antigens in the gut may lead to protective effects at distant sites, especially with regard to secretory immunity and oral tolerance.

Certain food allergens have now been chemically characterized, and in the second section of the book the relevance of these in food allergic disease and as models for yet uncharacterized antigens or allergies is discussed.

A major part of the book is devoted to end-organ effects of food allergy or intolerance. Our objective has been to review the evidence for the involvement of

reactions to foods in the manifestation of disease at different sites and in different organs. We have brought together a group of scientists and clinicians whose main aim is to help us understand the immunopathological and other processes in our patients. Their points of view are diverse and some are considered unorthodox. There is no suggestion that, because we have invited particular authors to contribute to our book, we necessarily agree with their view. Occasionally the reverse is true! Differing views in clinical medicine are more the rule than the exception, but we hope that these chapters provide the link between clinical art and laboratory science.

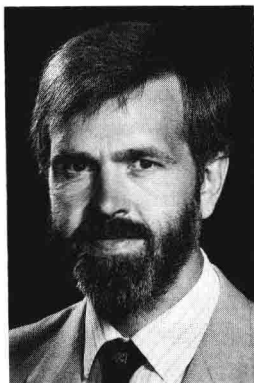
A thread running through all these chapters and those in Parts IV and V is that the cornerstone of diagnosis of food intolerance is the removal of that food from the patient's diet with concomitant improvement (or not) of the patient's symptoms and their reappearance on adding that food back—preferably in a double-blind manner. At the clinical level, the effect of the manoeuvre is all that matters to the patient—the mechanism is irrelevant. However, the more that is understood about mechanisms the closer we come to diagnostic tests, and the value of *in vivo* or *in vitro* tests in diagnosis has been critically reviewed.

The objective of increased understanding of food allergic disease must be the application of this knowledge to the treatment and prevention of disease in the patient. Antigen avoidance, hyposensitization, the usefulness of drugs and immunological intervention are all discussed in the final section. The prevalence of food allergy in the population is unknown, but it is possible that it may be as high as that of classical atopy (about 15%). It should be one of the easiest diseases to treat (by avoidance), which should therefore obviate the need for treatment with drugs.

We hope that the emphasis placed in this book on the correct methods for the diagnosis of food allergy may result in fewer patients being classified as food allergic without good evidence; but in contrast we hope too that increased understanding of food allergy will make physicians more aware that at least some of their polysymptomatic patients may have an organic basis for their complaints.

For many of the reasons outlined above, we feel that this is an exciting book which we hope will be found useful, stimulating and challenging. Increased understanding of the mechanisms of antigen handling, more accurate clinical diagnosis and the rapid development of laboratory tests all suggest that the extent of the role of food allergy or intolerance in disease will become even clearer in the near future.

As a postscript we would like to refer our readers to the words of Sir Peter Medawar (see p. 1017) which encapsulate what we must all be striving for.



Jonathan Brostoff
Stephen Challacombe

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There is something fascinating about science. One gets such wholesale return of conjecture out of such a trifling investment of fact.

Mark Twain

SYMPATHY FOR EDITORS

I note what you say about your aspiration to edit a magazine. I am sending to you by this mail a six-chambered revolver. Load it and fire every one into your head. You will thank me after you get to Hell and learn from other editors how dreadful their job was on earth.

H. L. Mencken

Letter to William Saroyan, January 25, 1936

Why do we Eat?

Although physiologists have described a number of possible mechanisms that can operate to drive an individual to seek food, it is doubtful if any of these are of much importance in the life of those living in affluent Western societies. Here, with a wide variety of attractive foods freely available, eating would seem to be governed by social custom rather than necessity. The characteristic pattern of three meals a day, interspersed with midmorning and afternoon coffee or tea (or 'coke') breaks, and possibly even a last nibble before bed, scarcely leaves any time for classical hunger to develop. Indeed, the fact that most individuals maintain a reasonably constant, albeit often excessive, weight despite the frequency of presentation of ample portions of attractive foods, directs attention to the reasons for a person desisting from eating further at a particular meal, i.e. the attainment of satiety.

Although the three meal pattern, as mentioned, would obviously preclude many of the classical hunger drive mechanisms, the matter may not be so simple. Many people working in the business and professional sectors adopt a rather different meal habit. Breakfast for them may consist merely of a cup of coffee, and so they go from their evening meal to the midday meal, a matter of some 17-18 hours, without significant food or concern about its absence. Such a prolonged abstinence should call into play classical hunger mechanisms, particularly as normal carbohydrate reserves should be exhausted. Clearly the particular eating habit and a metabolic adjustment can override the effect of the physiological stimuli to the hypothalamic hunger centres that would be expected in a person not accustomed to such an eating pattern.

In considering such mechanisms and their overriding, it is salutary to consider what drastic changes have taken place in the eating habits of the affluent in a relatively short time compared to the tens of thousands of years of existence wherein the dominant pattern of eating was firstly governed by the limits of hunter-gatherer societies and then by the greatly improved food situation provided by the larger agrarian societies. However, for the vast majority of mankind, even at best, food was usually in short supply, ranging from subsistence to the occasional modest surplus. This remains true today probably for the majority of the peoples of the earth. But for some hundreds of millions of people who now make up the burgeoning affluent society the situation is quite different. For them ample supplies of a wide variety of attractive foods are freely available. It needs to be appreciated that this situation is in reality a dramatically new development in human affairs. In fact its full flowering has only occurred during the past few decades, although the seeds were planted in the latter part of the eighteenth century, when the Industrial Revolution began. The first century of this was primarily concerned with the development of large-scale industries and thus the development of great wealth for relatively few. The welfare of the many was not considered a matter of importance by governments. In matters of nutrition, the factory workers, formerly farm workers, were in many areas markedly worse off. The twentieth century saw the shift in Western societies from a dominance of heavy industries to light industries and, of particular importance, an enormous expansion of the so-called service industries. This has produced an un-