

LABORATORY MEDICINE

ADVANCES IN PATHOLOGY ANATOMIC AND CLINICAL

— Volume 2 —



Editor
EMMANUEL LEVY

Pergamon Press

LABORATORY MEDICINE

Advances in Pathology

(Anatomic and Clinical)

Proceedings of the XIth Triennial World Congress of the
World Association of Societies of Pathology (Anatomic and Clinical)

Volume 2

Anatomic Pathology
Cytopathology
Forensic Pathology and Toxicology

Editor

EMMANUEL LEVY

M.D., Ph.D., F.R.C.Path., F.I.A.C.

*Institute of Pathology and Clinical Laboratories
Emek Medical Centre of the Histadrut Sick Fund, Afula, Israel*



PERGAMON PRESS

OXFORD · NEW YORK · TORONTO · SYDNEY · PARIS · FRANKFURT

U.K.	Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, England
U.S.A.	Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, New York 10523, U.S.A.
CANADA	Pergamon Press Canada Ltd., Suite 104, 150 Consumers Rd., Willowdale, Ontario M2J 1P9, Canada
AUSTRALIA	Pergamon Press (Aust.) Pty. Ltd., P.O. Box 544, Potts Point, N.S.W. 2011, Australia
FRANCE	Pergamon Press SARL, 24 rue des Ecoles, 75240 Paris, Cedex 05, France
FEDERAL REPUBLIC OF GERMANY	Pergamon Press GmbH, 6242 Kronberg-Taunus, Hammerweg 6, Federal Republic of Germany

Copyright © 1982 Pergamon Press Ltd.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means: electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the publishers.

First edition 1982

Library of Congress Cataloging in Publication Data

World Association of Societies of Pathology (Anatomic and Clinical). World Congresses (11th : 1981 : Jerusalem)
Laboratory medicine.
Includes index.
1. Diagnosis, Laboratory—Congresses. 2. Pathology—Congresses. I. Levy, Emmanuel, 1916- . II. Title.
[DNLM: 1. Pathology—Congresses. W3 W0512J 11th 1981L/QZ4 W927 1981L]
RB37.A2W67 1981 616.07 82-11202

British Library Cataloguing in Publication Data

World Congress of the World Association of Societies of Pathology (Anatomic and Clinical) (11th: 1981: Jerusalem)
Advances in pathology: anatomic and clinical.
Vol. 2: Anatomic pathology, cytopathology, forensic pathology and toxicology
1. Pathology—Congresses
I. Title II. Levy, Emmanuel
616.07 RB111
ISBN 0-08-028879-0
ISBN 0-08-029777-3 (set)

In order to make this volume available as economically and as rapidly as possible the authors' typescripts have been reproduced in their original forms. This method unfortunately has its typographical limitations but it is hoped that they in no way distract the reader.

Printed in Great Britain by Hazell Watson & Viney Limited

WORLD ASSOCIATION OF SOCIETIES OF PATHOLOGY (ANATOMIC AND CLINICAL)

Eleventh Triennium 1978-1981 — Role of Officers

PRESIDENT

Hubert A. Sissons, M.D.
Department of Laboratories
Hospital for Joint Diseases
Orthopaedic Institute
301 East 17th Street
New York, N.Y. 10003
USA

VICE-PRESIDENT

Tadashi Kawai, M.D.
Jichi Medical School
Minamikawachi-Machi
Tochigi-Ken 329-04
Japan

PAST PRESIDENT

Peter I. A. Hendry, M.D.
P.O. Box 801-M
Newcastle, NSW 2300
Australia

TREASURER

William F. Mahoney, M.D.
ASCP-Office
2100 West Harrison Street
Chicago, Illinois 60612
USA

SECRETARY

Alex C. Ritchie, M.D.
Banting Institute
100 College Street
Toronto, Ontario M5G 1L5
Canada

MEMBER AT LARGE

Hermann Lommel, M.D.
Postfach 10 08 44
Manforter Str. 225
D-5090 Leverkusen 1
Federal Republic of Germany

MEMBER AT LARGE

Evaldo Melo, M.D.
Rua Cubatao, 196
Caixa Postal 30895
Sao Paulo
Brazil

WASP Auxiliary President: Paula Della Vida
Congress Ladies Committee Chairman: Hermine Levy

XI TRIENNIAL WORLD CONGRESS OF THE WORLD ASSOCIATION OF SOCIETIES OF PATHOLOGY (ANATOMIC AND CLINICAL)

Laboratory Medicine

Patron of the Congress:

H. E. Yitzhak Navon, President of the State of Israel

Honorary President:

Henry Ungar, Emeritus Professor of Pathology
Hebrew University — Hadassah School of Medicine, Jerusalem

Host Society:

Israel Society of Pathology

With the Assistance of:

Ministry of Health

Ministry of Industry, Trade and Tourism

Bar-Ilan University — Department of Life Sciences

Ben Gurion University of the Negev — Faculty of Health Sciences

Hebrew University — Hadassah School of Medicine

Kimron Veterinary Institute

Technion, Israel Institute of Technology — Faculty of Medicine

Tel Aviv University — Sackler School of Medicine

Weizmann Institute of Science

Kupat-Holim, Health Insurance Institution of the General Federation of Labor
in Israel

The Israel Academy of Sciences and Humanities

Association for the Advancement of Science in Israel

Israel Cancer Association

Israel Society of Clinical Pathology

Israel Society of Occupational Health Physicians

Israel Society of Hematology

Israel Society of Medical Mycology

Israel Society of Microbiology

American Society of Clinical Pathologists

Association of Latin American Societies of Pathology and Clinical Pathology

College of American Pathologists

European Federation of Societies of Cytology

The German Society for Laboratory Medicine

German Society of Pathology

International Union Against Cancer

Japan Society of Clinical Pathology

Spanish Association of Clinical Biopathology

Spanish Society of Cytology

Organizing Committee:

E. Levy — Chairman

H. Suprun

G. Wellisch

FOREWORD

Although in many countries the national meetings of societies of pathology and clinical pathology embrace many aspects of the medical laboratory, this is not the case usually with international meetings which, because of ever increasing super-specialisation, concentrate on more and more limited aspects. The WASP congresses therefore fulfil a very important and indispensable function in maintaining an overall view of laboratory endeavour. In the XIth Triennial World congress in Jerusalem the objective set for the congress was two-fold: to encompass as fully as possible all aspects of anatomic and clinical pathology in the widest sense, and to give emphasis to the implications of these endeavours for patient care. The motto adopted therefore for the congress was "Laboratory Medicine". The guiding principle was to try and provide everyone working in the medical laboratory a full scientific programme of the widest possible choice.

Due to the combined efforts of the ten Israeli societies in the field of pathology and clinical pathology with the assistance of the American Society of Clinical Pathology, the College of American Pathologists, the German Society for Laboratory Medicine and the European Federation of Societies of Cytology together with individual members of WASP affiliated societies, it was possible to put together a programme which included the following nine major topic fields: microbiology, biochemistry, immunology, haematology, anatomic pathology, cytopathology, forensic pathology and toxicology, laboratory organisation and control, and workshops and slide seminars. There were eight parallel sessions twice a day every day.

The presentations included pure research, clinical research, latest developments in diagnostic methods, practical problems in establishing diagnoses, systems of efficiency and organisation, and implications for patient management. Apart from pathologists and clinical pathologists, clinicians also contributed.

Participants at the congress received a book of abstracts containing the 342 papers presented. Inevitably the proceedings of a congress such as this cannot be expected to contain the full text of every paper presented, and this book of proceedings represents a selection of more than 200.

It has been my pleasure to read all these papers and thus find compensation for having been excluded by my obligations during the congress from sitting in at sessions. It has been very satisfying to note that the free papers are of the same high standard as those of the invited papers. This collection represents a concentration of the latest knowledge in all fields and the numerous references given constitute a most valuable source of up-to-date information.

Because of the obvious need to publish within a reasonable period following the congress the task of editing was a very concentrated one, particularly in view of the large number of manuscripts. The official language of the congress was English, but it was not stated to be the Queen's English. I happen to be a cockney. I decided therefore that my task in editing was to help ensure that the text conveyed clearly the intention of the authors, and no attempt was made to change the style of the English to conform with the stereotyped concise syntax usually demanded by scientific journals. This has the attraction, in my view, that in many of the articles of whose authors the mother tongue is not English, there is the unmistakable and often delightful syntax and nuance of their own language translated.

This gives an unmistakable international flavour to the proceedings which is appropriate, since participants at the congress represented 32 countries outside Israel.

I hope that this book of proceedings will give pleasure and enlightenment to its readers and will serve as a valuable source book for some time to come.

Emmanuel Levy

Editor and Chairman of the
Organising Committee of the
Congress

CONTENTS

ANATOMICAL PATHOLOGY

PATHOLOGY OF JUXTAGLOMERULA APPARATUS

- Pathobiology of Juxtaglomerular Cells
M. CANTIN, O. KUCHEL, P. HAMET and J. GENEST 3
- The JGA and the Renin-Angiotensin System in Health and Disease
G. BONER and J. B. ROSENFELD 7

PATHOLOGY OF OVARIAN TUMORS

- A Retrospective Study of Malignant Ovarian Tumors,
Correlating their Histopathology with Prognosis and
Response to Therapy
G. DALLENBACH-HELLWEG and S. SIEVERS 11
- Preliminary Experience in Histochemical Detection of
Estrogen and Progesterone Steroid Receptors in Ovarian
Tumors
K. CZERWENKA, M. BÖHM, M. BINDER, G. BREITENECKER
and S. SZALAY 21
- Tumor Markers in Ovarian Cancer
N. LIVNI, S. O. ANTEBY, E. MOR, Y. GURSKI and E. OKON 23

BREAST DISEASE

- Model Systems to Study Breast Carcinogenesis
J. RUSSO, L. K. TAY and I. H. RUSSO 27

Histochemical Determination of Sex-Steroid Receptors in Human Breast Tumors. Comparison to Histopathology and DCC-Method K. CZERWENKA, M. BÖHM and M. BINDER	31
Aspects of the Treatment of Breast Cancer E. ROBINSON, R. BOROVIK and D. SAPIR	37
Morphology of Breast Tumours: Early Lesions T. J. ANDERSON	41
Morphology of Breast Tumours, Functional Aspects and Prognostic Factors Including Lymph Nodes F. HARTVEIT	45
CARDIOVASCULAR PATHOLOGY	
True Anatomic Left Ventricular Aneurysm in Coronary Heart Disease H. S. CABIN and W. C. ROBERTS	49
Necropsy Evaluation of Coronary Angiography J. M. ISNER and W. C. ROBERTS	53
Hyperlipoproteinemia and Coronary Artery Disease H. S. CABIN and W. C. ROBERTS	57
The Pathology of Pacemakers J. M. ISNER and D. N. SALEM	61
LYMPHOMA	
Current Problems in Hodgkin's Disease S. POPPEMA	67
Malignant Lymphomas in Japan T. SUCHI	71
Histiocytic Sarcoma (True histiocytic lymphoma): A Clinicopathological Study of 20 Cases C. J. L. M. MEIJER, P. v. d. VALK, R. WILLEMSE, J. te VELDE, P. J. SPAANDER and J. LINDEMAN	77
ELECTRON MICROSCOPY	
Value of Resin-embedded Semi-thin Sections and Electron Microscopy in the Diagnosis of Renal Biopsies F. SKJØRTEN and S. HALVORSEN	83
Electron Microscopy in Thyroid Pathology M. SOBRINHO-SIMÕES, V. GONÇALVES and J. V. JOHANNESSEN	87
Electron Microscopy in the Diagnosis of Pituitary Disorders E. HORVATH	93

Ultrastructural Observations on the Secretory Mechanisms of the Plasma Cells in Patients with Multiple Myeloma M. DJALDETTI	97
Electron Microscopy in the Diagnosis of Lymphoproliferative Disorders of Peripheral Lymphoreticular and Mononuclear Phagocytic System K. HENRY	103
Primary and Secondary Tumors of the Pleura H. J. SOBEL, E. MARQUET and R. SCHWARZ	107
SOME RECENT ADVANCES IN LIVER PATHOLOGY	
Connective Tissue in Liver Cirrhosis G. POTT	111
The Intracellular and Intralobular Distribution of Hepatic Copper. Pathogenetic and Diagnostic Implications S. GOLDFISCHER and I. STERNLIEB	115
Liver Iron Overload in Childhood: A Review T. C. IANCU	123
Porphyria Cutanea Tarda. A Cause of C.A.L.D. with Specific Treatment J. M. CORTÉS, M. D. SÁNCHEZ-LARREA and H. OLIVA	129
Ferric Tubular Transformation (Iron Piecemeal). An Early Histologic Marker and a Possible Mechanism in the Development of Hemochromatosis J. M. CORTÉS, M. D. SÁNCHEZ-LARREA and H. OLIVA	133
Electron Microscopic Studies of the Chimpanzee's Liver in Experimental Non-A, Non-B Hepatitis Virus Infection T. SHIKATA, T. KARASAWA, Y. K. SHIMIZU and K. ABE	137
Chronic Hepatitis - A Reassessment M. SAGIV and B. CZERNOBILSKY	141
Hepatocellular Carcinoma in an Urbanized Black Community: A Changing Pattern A. C. PATERSON and C. ISAACSON	145
Cholestasis in Infancy B. H. RUEBNER	149
Hepatic Copper and Copper Associated Protein in Indian Childhood Cirrhosis R. MEHROTRA, R. K. PANDEY, P. K. MISRA, P. NATH and A. CHAWLA	157
Experimental TAA - AND CCl ₄ - Liver Injury, Fibrosis and Cirrhosis with Special Reference to Possible Reversibility J. LINDNER, P. SCHMIEGELOW, G. HEINZ, I. MANGOLD, K. GRASEDYCK and U. LANGNESS	163

NEUROPATHOLOGY

- Do Defined Placental Lesions Produce Perinatal Brain Damage?
E. JIMENEZ, H. HAHM, R. FERSZT, R. HOHLE and M. VOGEL 171
- Unconventional E/M Tests on Platelets in Neuromuscular Disease
R. YAROM, S. MEYER, Y. HAVIVI, R. S. SHALEV and N. AMIR 175
- Electron Microscopic Evaluation of Lymphocytes in Lysosomal Disorders
H. H. GOEBEL, U. BURCK, A. KOHLSCHÜTTER, K. IKEDA and F. SCHULZ 179
- Caprine-Arthritis-Encephalitis Relationship to Maedi-Visna Disease Complex
K. PERK, A. GAZIT, A. YANIV, M. DVIR and S. IRVING 183

CONNECTIVE TISSUE DISEASES

- Ultrastructural Cytochemistry of Connective Tissue Glycoconjugates
S. S. SPICER, M. TAKAGI and R. T. PARMLEY 187
- Connective Tissue Diseases: Basic Processes, with Special Reference to Inflammation
J. LINDNER, S. ALBRECHT, P. SCHMIEGELOW, B. SCHUTTE and U. LANGNESS 193
- The Ultrastructure of Granuloma
W. GUSEK 201
- Persistence of Reovirus, Mycoplasma and Erysipelothrix in the Spontaneous and Experimental Chronic Polyarthritits of Rheumatoid Character in Animals
L. C. SCHULZ, W. HERMANN, K. H. BÖHM, H. KIRCHHOFF and J. MARQUARDT 205
- Mesenchymal Cell Proliferation and Fibrosis in Protracted Shock
W. DROMMER, I. LANGER, A. NAFADY and F.-J. KAUP 209
- Isolation of Glycoprotein-Complexes Resistant Against 4 M Guanidine-HCl from Proteoglycan Aggregates of Calf Rib Cartilage
T. O. KLEINE and A. SINGH 213
- Influence of Zinc and Copper on Lapine Articular Chondrocyte Proliferation and Proteoglycan Metabolism *in vitro*
C. J. KIRKPATRICK, W. MOHR and O. HAFERKAMP 219
- Collagenolytic Activity of Human Dentin Matrix
I. BINDERMAN, D. DAYAN and G. L. MECHANIC 223
- Control of Cell Shape, Growth and Differentiation by the Extracellular Matrix
I. VLODAVSKY, R. ATZMON, Y. ARIAV and Z. FUKS 227

Contents

xiii

Chairman's Concluding Remarks J. LINDNER	233
---	-----

AGING

Lipid Pigments. A Pathogenetic Mechanism or a Sign of Aging? M. WOLMAN	237
---	-----

Human Pituitary Adenomas in Old Age K. KOVACS	241
--	-----

Age-Dependent Incidence of Spontaneous Tumors in Rats and Problems in Tumor Research H. UECKERBERG, L. LÜTZEN and G. TRIEB	245
---	-----

Comments on the Changes in the Human Pineal Gland in Old Age W. GUSEK	253
--	-----

The Effect of Age and Exercise on Some Biochemical and Morphological Parameters in Striated and Cardiac Muscles D. GERSHON, M. SILBERMANN, R. COLEMAN, S. FINKELBRAND, E. STEINHAGEN-THIESEN and A. Z. REZNICK	257
---	-----

Indications for Disorganization of Metabolic Pathways in Skeletal Muscle of Aged Persons Investigated by Histometric and Enzymatic Methods T. O. KLEINE, G. K. SCHLENSKA and K. H. SCHWERMER	261
---	-----

Age-Dependent Gene Indication in Quail Oviduct. Alterations on the Post-Transcriptional Level W. E. G. MÜLLER, R. K. ZAHN and H. C. SCHRÖDER	265
---	-----

Aging of Mesenchymal Organs J. LINDNER, S. ALBRECHT, K. AYISI, G. HEINZ, I. MANGOLD, K. SAMES, P. SCHMIEGELOW, K. GRASEDYCK and U. LANGNESS	271
--	-----

Changes in the Heart Valves of Dog and Man Associated with Aging J. C. WHITNEY	281
---	-----

Chairman's Concluding Remarks J. LINDNER	285
---	-----

PATHOLOGY OF SKELETON

The Neuromuscular Component in the Multifactorial Pathogenesis of Idiopathic Scoliosis: Report of a 4-year Research Project R. YAROM, G. C. ROBIN and A. MUHLRAD	289
---	-----

Recurrent Osteoblastoma of the Spine S. KENAN, Y. FLOMAN, G. C. ROBIN and A. LAUFER	293
--	-----

A COMPARISON BETWEEN CHRONIC VASCULAR CHANGES IN DIABETIC
RETINOPATHY AND DIABETIC CHRONIC VASCULAR CHANGES ELSEWHERE
IN THE BODY

Chairmen's Introduction T. KUWABARA and I. C. MICHAELSON	297
Epistemology and Epidemiology of the Arteriolar Capillaropathies of the Ocular Fundus with Remarks on an Experimental Model of a Vascular Retinopathy Based on its Multiple Causation I. C. MICHAELSON and C. MEYER	299
The Biochemical Basis of Diabetic Retinopathy R. N. FRANK	307
Elucidation of the Neovascular Process and Possible Modalities in Ocular Therapy D. BENEZRA	315
Microaneurysmal Formation and Vascular Dilatation in the Reaction Stage of Diabetic Retinopathy as a Prototype of the Chronic Vascular Retinopathies Y. YASSUR, R. AXER-SIEGEL, S. COHEN, D. BENEZRA and J. MICHAELSON	319
Diabetic Heart Disease: Microvascular Abnormalities in Clinical and Experimental Cardiomyopathy S. M. FACTOR, S. CHO and E. H. SONNENBLICK	323
Chairman's Summary I. C. MICHAELSON	329

HYPERPLASTIC AND TUMOR CONDITIONS

Atypical Hyperplasia of the Prostate B. HELPAP	335
Autoradiographic Investigations on Squamous Cell Carcinomas of the Oropharynx Before and After Therapy of Methotrexate and Irradiation B. HELPAP	339
Classification and Immunohistology of Clinically Silent Adenomas in Postmortem Pituitaries W. SAEGAR and W. SCHMIDT	343
Fibrous Variant of Adenolymphoma (Warthin's Tumor) D. DAYAN, R. DAVID and A. BUCHNER	349
Bacteriocins in Diagnosis of Lymphoma, Analyzed by Flowcytometry H. FARKAS-HIMSLEY and C. E. MUSCLOW	353
Hyperaldosteronism Due to Unilateral Hyperplasia of the Outer Adrenal Cortex. A Histologic and Electron Microscopic Study of Two Cases D. MURRAY, K. KOVACS, E. HORVATH and W. SINGER	359

Morphologic Differentiation of Sellar Lesions Associated with Hyperprolactinemia E. HORVATH and K. KOVACS	363
Non-Human Primates as an Animal Model for Studying the Dynamics of A, B and H Isoantigens in Transitional Cell Epithelium (i.e. Urothelium) J. ALROY, D. KERR, V. GAVRIS, J. A. HEANEY, R. T. BRONSON and A. UCCI	367
Ovarian Tumors - A Small but Important Part in the Biopsy Material of an Institute of Pathology G. ZIEGER and W. HIRSCH	373
Neoplastic Involvement of Nipple (NIN) in Carcinoma of the Breast R. GOLOUH and J. LAMOVEC	377
Microglandular Hyperplasia of Uterine Cervix. A Clinico-pathological Prospective Study of 50 Cases H. KERNER, E. PEER, E. PALDI and C. LICHTIG	381
Immunofluorescence Findings in Breast Carcinoma G. SYRÉ	385
Pathological and Biometric Studies Regarding the Frequency of Local Recurrence After Surgery for Rectal Carcinoma J. GIEDL, P. HERMANEK and A. ALTENDORF	389
CARDIOVASCULAR AND PULMONARY PATHOLOGY	
Fatty Plaques are the First Lesion of Atheroma in the Human Coronary Artery B. FOX, K. R. JAMES, B. MORGAN and W. A. SEED	393
Age Determination of Infarcts in the Guinea-Pig Placenta E. JIMINEZ, M. VOGEL, R. HOHLE, R. FERSZT and H. HAHM	397
Right Ventricular Hypertrophy in Experimental Lung Fibrosis in the Rat H. BREINING, J. HATZIBUJAS, M. C. STUMPF and J. ROSMANITH	401
Earliest Stages of Ateriopathies: Role of Medial Smooth Muscle Cell Surface Disorders Ph. M. J. GENDRE	403
Rheological Activity of L. Eburnamonine: Blood Filterability and Metabolic State of Red Cells in Diabetic Patients C. Le DEVEHAT, B. CIRETTE, A. LEMOINE, E. ROUX and M. RAMET	407
Experimental Myocarditis: <i>in vitro</i> Studies of Direct Cytotoxicity, Complement Dependent Cytotoxicity and Antibody Dependent Cellular Cytotoxicity R. MORE, Y. GALON and A. LAUFER	413

Ultrastructural Studies on the <i>ex vivo</i> Metabolic Conditioning of the Heart for Transplantation D. LAKY, E. PAUȘESCU and M. V. POPESCU	417
On the Nature and Enzyme Histochemical Features of Lipid Cells in Early Experimental Rabbit Atherosclerosis J. L. de FARIA and L. L. de FARIA	423
Vascular Changes of Endometrium in Early Pregnancy: A Possible Marker for Eclampsia C. LICHTIG and J. M. BRANDES	427
Diffuse Interstitial Pulmonary Fibrosis. An Immunohistochemical Study M. LURIE and S. A. SPITZER	431
GENERAL PATHOLOGY VARIOUS	
Distribution of Endocrine Cells and Melanin-containing Cells in the Various Zones of the Anal Canal Epithelium C. FENGER and H. LYON	437
Surface Structure of the Anal Canal Mucosa as Visualised by Stereo Microscopy C. FENGER and K. NIELSEN	441
Electron Microscopy Study of Hepatocytes in Experimental Halothane Toxicity J. M. JIMENEZ, G. ALCANTARA and A. WUSTERHAUS	445
Pathology and Clinical Aspects of Caustic Burns of the Intestinal Tract H. BARTELS, B. ULTSCHE, N. RUPP, M. V. CLARMANN, W. ERHARDT and G. BLUMEL	449
A Comparative Study of Membrano-Proliferative Glomerulonephritis in Pediatric and Adult Populations C. LICHTIG and E. GOLDIN	453
A Comparative Study of Focal Glomerulo-Nephritis With and Without Deposits on Electronmicroscopy and Immunofluorescence C. LICHTIG and I. BRIL	459
Sparing of Normal Tissues by Low Doses of Methyl-CCNU Administered Prior to High Doses of Methyl-CCNU or Melphalan in Mice A. ZIMBER, I. LIVNAT and K. PERK	465

CYTOPATHOLOGY

CURRENT STATUS OF AUTOMATION IN CANCER CYTOLOGY - PROBLEMS AND SOLUTIONS

- Flow Cytometry in Clinical Oncology
C. J. HERMAN and G. P. VOOIJS 471
- Automation in Cytology, State of the Art in West Germany
E. SPRENGER 475
- Overview in the UK of Cell Sample Preparation Procedure and Detection of Markers in Cytology Automation
O. A. N. HUSAIN 479

CYTOPATHOLOGY AS AN INDEPENDENT SPECIALITY

- Introduction
O. A. N. HUSAIN 483
- Personal Aspects of Cytopathology as an Independent Speciality
N. SÖDERSTRÖM 487
- Conclusion
E. SPRENGER 491

CYTOPATHOLOGY VARIOUS

- Fine Needle Aspiration Cytology Under Directed Computerized Axial Tomography
L. NATHAN, M. HUSAIN, P. CASCADE and A. CLARKE 495
- Cytopathologic Feature of Primary Carcinoma of Male Urethra: Two Cases of Report
M. MORI and Y. KAWAGUCHI 499
- Imprint Cytology and Frozen Section Histology in Rapid Diagnosis of Malignant Melanoma
R. SHAFIR, Y. HISS, H. TSUR and J. J. BUBIS 503
- Lobular Carcinoma of the Breast: Histology *vs* Aspiration Cytology
J. LAMOVEC, M. US-KRAŠOVEC and R. GOLOUH 507

FORENSIC PATHOLOGY AND TOXICOLOGY

FORENSIC TOXICOLOGY, INDUSTRIAL AND ENVIRONMENTAL MEDICINE

- Statistical and Epidemiological Detection and Validation of Toxicity
F. SPERLING 513

FORENSIC AND INDUSTRIAL TOXICOLOGY

The Epidemiological Spectrum of Asbestos Disease: Lessons from the Past for the Future A. FISCHBEIN and I. J. SELIKOFF	517
Characterization and Identification of Asbestos Minerals in Human Tissues A. N. ROHL, T. EHRENREICH and A. M. LANGER	523
Asbestosis: Pathogenesis and Diagnosis T. EHRENREICH and I. J. SELIKOFF	527
The Marked Enhancement of Heme Degradation Produced by Organic Derivatives of Metals A. KAPPAS and D. W. ROSENBERG	531
Occupational and Pediatric Lead Poisoning: Natural History and Epidemiology of a Public Health Problem A. FISCHBEIN	535
Occupational Lead Poisoning: Population Studies. The Clinical Correlates of Biochemical Abnormalities R. LILIS	541
Asbestos-Related Pleural Mesothelioma in the Trieste Area C. BIANCHI, L. GIARELLI, L. Di BONITO, G. GRANDI, A. BROLLO and L. BITTESINI	545
Asbestos Exposure, Immune Stimulation and Lymphoid Malignancy E. KAGAN and R. J. JACOBSON	549
Forensic Medicine and Industrial and Environmental Toxicology M. ROGEV	555

ASPECTS OF GUNSHOT WOUNDS

Analysis of Long Range Bullet Entrance Holes by Atomic Absorption Spectrophotometry and Scanning Electron Microscopy M. RAVREBY	561
--	-----

INDEX

567