HENRY FORD HOSPITAL INTERNATIONAL SYMPOSIUM

Hepatitis Frontiers

Editors

FRANK W. HARTMAN, M.D.

Medical Research Adviser, Director of Professional Services, Office of the Surgeon General U.S.A.F., Washington, D. C.; formerly Director of Laboratories, Henry Ford Hospital

GERALD A. LoGRIPPO, M.D.

Associate in Charge, Division of Microbiology, Department of Laboratories, Henry Ford Hospital

JOHN G. MATEER, M.D.

Physician in Chief, Department of Medicine, Henry Ford Hospital

JAMES BARRON, M.D.

Associate Surgeon, Division of General Surgery, Henry Ford Hospital

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Participants in the Formal Program

J. GARRETT ALLEN, M.D.
Professor of Surgery, William H. Danforth Laboratory for Research in Surgery, University of Chicago, Chicago, Illinois.

HARLAN DWIGHT ANDERSON, PH.D.
Associate Director, Division of Laboratories, Michigan Department of Health, Lansing, Michigan.

ARCHIE HERBERT BAGGENSTOSS, M.D.
Section of Pathologic Anatomy, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

FREDERICK B. BANG, M.D.
Professor of Pathobiology, School of Public Health; Associate Professor of Medicine, School of Medicine, Johns Hopkins University, Baltimore, Maryland.

JAMES BARRON, M.D.
Associate Surgeon, Division of General Surgery, Henry Ford Hospital, Detroit, Michigan.

CHARLES HERBERT BEST, M.D.
Professor of Physiology, University of Toronto, Toronto, Canada.

MOGENS BJØRNEBOE, M.D.
Blegdamshopital, Copenhagen, Denmark.

HENRY L. BOCKUS, M.D.
Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

JESSE L. BOLLMAN, M.D.
Section of Biochemistry, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

GERRIT BRAS, M.D.
Department of Pathology, University of British West Indies, Jamaica, British West Indies.

RALPH W. BRAUER, PH.D.
Head, Pharmacology Branch, U.S. Naval Radiological Defense Laboratory, San Francisco, California.

THOMAS C. CHALMERS, M.D.
Chief of Medicine, Lemuel Shattuck Hospital; Clinical Associate in Medicine, Harvard Medical School, Boston, Massachusetts.

GILBERT DALLDORF, M.D.
Director of Laboratories and Research, State of New York, Department of Health, Albany, New York.

CHARLES S. DAVIDSON, M.D.
Thorndike Memorial Laboratory and Second and Fourth (Harvard) Medical Services, Boston City Hospital; Associate Professor, Department of Medicine, Harvard Medical School, Boston, Massachusetts.

HECTOR DUCCI, M.D.
Section A of Medicine, University of Chile Medical School, Hospital del Salvador, Santiago, Chile.

EDWARD A. GALL, M.D.
Professor of Pathology, College of Medicine, University of Cincinnati and the Cincinnati General Hospital, Cincinnati, Ohio.

SVEN GARD, M.D.
Department of Virus Research, Karolinska Institute, Medical School; State Bacteriological Laboratory, Stockholm, Sweden.

ROSS L. GAULD, M.D.
Chief, Department of Epidemiology, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Division of Preventive Medicine, Washington, D. C.

SAM T. GIBSON, M.D.
Medical Director, Blood Program, American National Red Cross, Washington, D. C.

PAUL GYÖRGY, M.D.
Professor of Pediatrics, School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

FRANK W. HARTMAN, M.D.
Medical Research Adviser, Director of Professional Services, Office of the Surgeon General U.S.A.F., Washington, D. C.

W. PAUL HAVENS, JR., M.D.
The Jefferson Medical College, Philadelphia, Pennsylvania.

KENNETH R. HILL, M.D.
Professor of Pathology, University of British West Indies, Jamaica, British West Indies.

CHARLES JOHNSTON, M.D.
Professor of Surgery, Wayne University Medical School, Detroit, Michigan.

RUSSELL T. JORDAN, M.D.
Chairman, Department of Microbiology, Division of Research, City of Hope Medical Research Institute, Duarte, California.

ANNETTA R. KELLY, PH.D.
Associate in Pharmacology, Henry Ford Hospital, Detroit, Michigan.

LLOYD L. KEMPE, PH.D.
Associate Professor, Department of Bacteriology, University of Michigan Medical School, Ann Arbor, Michigan.

SAUL KRUGMAN, M.D.
Department of Pediatrics, New York University College of Medicine, New York, New York. Willowbrook State School, Staten Island, New York.

HENRY G. KUNKEL, M.D.
The Rockefeller Institute for Medical Research, New York, New York.

GERALD A. LoGRIPPO, M.D.
Associate in Charge, Division of Microbiology, Henry Ford Hospital, Detroit, Michigan.

FREDERIC OGDEN MacCALLUM, M.D.
Virus Reference Laboratory, Central Public Health Laboratory, London, England.

NOEL FRANCIS MACLAGAN, M.D.
Professor, Department of Chemical Pathology, University of London, London, England.

G. ADOLPH MARTINI, M.D.
I. Medical Klinik, Universität Krankenhaus, Hamburg-Eppendorf, Germany.

JOHN G. MATEER, M.D.
Physician in Chief, Department of Medicine, Henry Ford Hospital, Detroit, Michigan.

I. WILLIAM McLEAN, Jr., M.D.
Research Division, Parke, Davis and Company, Detroit, Michigan.

JOSEPH L. MELNICK, Ph.D.
Yale University School of Medicine, Section of Preventive Medicine, New Haven, Connecticut.

DWIGHT J. MULFORD, Ph.D.
Professor, Department of Biochemistry, University of Kansas, Lawrence, Kansas.

RODERICK MURRAY, M.D.
Director, Division of Biologics Standards, National Institutes of Health, Washington, D. C.

JOHN R. NEEFE, M.D.
627 Eleventh Street North, St. Petersburg, Florida.

ROBERT F. NORRIS, M.D.
Director, William Pepper Laboratory of Clinical Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

JOHN R. PAUL, M.D.
Professor of Preventive Medicine, Yale University School of Medicine, New Haven, Connecticut.

ROBERT B. PENNELL, Ph.D.
Director, Protein Foundation Laboratories, Jamaica Plain, Massachusetts.

ERNEST C. POLLARD, Ph.D.
The Josiah Willard Gibbs Research Laboratories, Yale University, New Haven, Connecticut.

HANS POPPER, M.D.
Cook County Hospital, Chicago, Illinois.

ARON M. RAPPAPORT, M.D., PhD.
Associate Professor of Physiology, University of Toronto, Toronto, Canada.

JOHN G. REINHOLD, Ph.D.
William Pepper Laboratory of Clinical Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

CLARENCE E. RUPE, M.D.
Physician in Charge, Medical Clinic No. 4, Henry Ford Hospital, Detroit, Michigan.

VICTOR M. SBOROV, M.D.
945 Middlefield Road, Redwood City, California.

LEON SCHIFF, M.D., PHD.
Professor of Clinical Medicine, University of Cincinnati College of Medicine, Cincinnati, Ohio.

SHEILA SHERLOCK, M.D.
Department of Medicine, University of London, London, England.

HANS F. SMETANA, M.D.
Armed Forces Institute of Pathology, Washington, D. C.; Patel Chest Institute, Delhi University, Delhi, India.

JOSEPH STOKES, JR., M.D.
Professor of Pediatrics, University of Pennsylvania, Philadelphia, Pennsylvania.

WILLIAM S. TILLETT, M.D.
Professor of Medicine, New York University College of Medicine, New York, New York.

JOHN G. TRUMP, D.Sc.
Professor of Electrical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts.

G. VIOLLIER, M.D.
Medizinische-Universitäts-klinik, Basle, Switzerland.

R. VISWANATHAN, M.D.
Deputy Director General of Health Services, Government of India, New Delhi, India.

ROBERT WARD, M.D.
Department of Pediatrics, New York University College of Medicine, New York, New York.

CECIL J. WATSON, M.D.
Professor of Medicine, University of Minnesota School of Medicine, Minneapolis, Minnesota.

THOMAS H. WELLER, M.D.
Professor of Tropical Public Health, Harvard University School of Public Health, Boston, Massachusetts.

FELIX WRÓBLEWSKI, M.D.
Medical Service and Sloan-Kettering Institute, Memorial Center for Cancer and Allied Diseases, Cornell University Medical College, New York, New York.

Discussants

A. H. Baggenstoss
Rochester, Minnesota

M. Bjørneboe
Copenhagen, Denmark

Jesse L. Bollman
Rochester, Minnesota

Ralph W. Brauer
San Francisco, California

T. C. Chalmers
Boston, Massachusetts

Gilbert Dalldorf
New York, New York

Charles S. Davidson
Boston, Massachusetts

Héctor Ducci
Santiago, Chile

Alfred S. Evans
Madison, Wisconsin

William W. Faloon
Syracuse, New York

Thomas Francis
Ann Arbor, Michigan

Edward A. Gall
Cincinnati, Ohio

Sven Gard
Stockholm, Sweden

Kenneth R. Hill
Jamaica, British West Indies

Karol A. Hok
Berkeley, California

Charles Johnston
Detroit, Michigan

Russell T. Jordan
Duarte, California

Leo Krainer
Washington, D. C.

Henry G. Kunkel
New York, New York

Gerald A. LoGrippo
Detroit, Michigan

Walter N. Mack
East Lansing, Michigan

Noel F. Maclagan
London, England

G. A. Martini
Hamburg, Germany

James W. Mosley
Atlanta, Georgia

John R. Neefe
St. Petersburg, Florida

Robert F. Norris
Philadelphia, Pennsylvania

John R. Paul
New Haven, Connecticut

Ernest C. Pollard
New Haven, Connecticut

Hans Popper
Chicago, Illinois

A. M. Rappaport
Toronto, Canada

John G. Reinhold
Philadelphia, Pennsylvania

Andrew Sass-Kortsak
Toronto, Canada

Victor M. Sborov
Redwood City, California

Leon Schiff
Cincinnati, Ohio

Sheila Sherlock
London, England

Hans F. Smetana
Delhi, India

Joseph Stokes, Jr.
Philadelphia, Pennsylvania

Cyril Stulberg
Detroit, Michigan

Allen Taylor
Detroit, Michigan

John G. Trump
Boston, Massachusetts

Robert Ward
New York, New York

Cecil Watson
Minneapolis, Minnesota

Thomas H. Weller
Boston, Massachusetts

Felix Wróblewski
New York, New York

Foreword

In the past few years a number of timely and interesting symposia have been sponsored by the Henry Ford Hospital. These have been on an international level, bringing together from many parts of the world students of the subject under discussion. The symposia have made an unusually significant contribution to progress in various areas of medical research. This has been due, in part, to a fortunate choice of subject matter and to the participation of many well-qualified scholars; but the character of the symposia, their freedom of discussion and interchange of ideas and new information, has been the primary factor in their success.

It would indeed be difficult to conceive of any topic more appropriate than viral hepatitis for such a symposium, the transactions of which are recorded in the present volume. This subject touches intimately on a great many disciplines in the medical sciences, including among others the anatomy and physiology of the liver; its more tangible functions, and methods of measuring their aberration in disease, especially viral hepatitis; the pathology of hepatitis, and the fascinating and controversial question of its importance in relation to chronic liver disease, especially cirrhosis; clinical diagnosis and treatment; and, of paramount importance, virology and epidemiology. In World War II, as in previous wars, there was a striking increase in morbidity incidence of the disease, but its viral etiology was now recognized for the first time and genuine forward progress was begun. Nevertheless, infectious hepatitis is probably the most important of the viral diseases yet unconquered, at least insofar as any useful concentration of the virus is concerned. Thus the present symposium was especially timely in that some current, important advances in this area were described.

The wide range of subtopics undoubtedly contributed greatly to the general interest and the feeling that the symposium was soundly conceived and its program well planned. All who attended will be grateful to the planning committee and will appreciate the generous sponsorship of the Henry Ford Hospital and its staff; and all who have an opportunity to read these transactions will be grateful to the publisher, Little, Brown and Company, for assuming the financial responsibility for publication.

CECIL J. WATSON, M.D.

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PART I

Anatomy, Physiology and Pathology of the Liver

Moderator: CHARLES H. BEST, M.D. (*Toronto, Canada*)

I

*The Structural and Functional Acinar Unit of the Liver — Some Histopathological Considerations**

A. M. RAPPAPORT, M.D., PH.D.
(Toronto, Canada)

The liver is perhaps the organ most hailed for its various functions, but, amazingly, the least understood as to the microscopic structure of its units that carry out these multiple functions. In recent times there even has been a tendency to present this organ as an indivisible mass. This can only mean failing to see the trees for the woods. On the other hand one would be mistaken in assuming that the delimitation of structural and functional units in the liver results in substitution of a mosaic for organic unity. May I remind you that in other organs, the understanding of their function has been advanced by the description of their structural and functional units. Renal physiology, for example, is based on the structural concept of the nephron, which is also a functional unit.

I will attempt to present the structural units of the liver with respect to their circulatory, secretory and metabolic function, in the hope that future research may succeed in measuring their circulatory and metabolic activity. Also the pathology of such units will be sketched.

The structural and functional unit of the liver has been called by us liver acinus, a name given already by Malpighi (1666) [1] and later by Mascagni [2] to the smallest amount of hepatic parenchyma attached to the smallest branches of afferent vessels and bile ducts isolated by teasing the tissue. In our microscopic study we too have adopted the terminal branches of portal vein, hepatic artery and bile duct branching out from the smallest triangular portal field as the axis around which are organized small microscopic clumps of hepatic tissue, *irregular* in size and shape. This trio of associated channels presents the dynamic line along which nutrients and oxygen are moved into, and the secretory product — the bile — is moved out from, the parenchymal clump. The existence of such units has been proved [3] by simultaneous injection of two differently

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