

THE UNIVERSITY OF TENNESSEE  
KNOXVILLE  
DEPARTMENT OF PHYSICS

718539

May 1, 1959

Dr. K. Z. Morgan  
Health Physics Division  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee

REPOSITORY MMES/X-10  
COLLECTION Office of Rad. Protection  
BOX No. Suppler's Files  
FOLDER \_\_\_\_\_

Dear Karl,

I am enclosing a copy of the paper which I have been invited to give at the Symposium on Metal-Binding in Medicine. The entire symposium will be published in book form.

When I was invited in February to give the paper, I thought I would just give a talk from slides I already had. On April 3 I got a letter saying that the papers would be published and that the manuscript had to be in their hands by April 30. This put a new light on things, so we got busy and got together our latest (as yet incomplete for all elements and tissues) treatment of the data. This was why I did not go to the New Orleans meeting and also why I did not submit the paper for review before it went to Philadelphia--it just made the deadline.

I am sending a copy of the paper to Dr. Anderson for review. If there is anything she objects to seriously, it can be changed in galley proof. Since I was allowed only a limited number of words and pages, the paper is almost too brief, but I felt the tables were the important thing since they include the information the doctors want most. I should add that the information contained in tables IV, V, VI and VII has been expressed as bar graphs on slides for oral presentation.

This paper is also the basis for the one I will give at the Health Physics Society meeting in Gatlinburg in June. At that meeting I will add information on foreign tissues. I do not intend to write the speech for that meeting but will speak from slides. I do intend, however, to submit a paper (or two) to the Health Physics Journal before the summer is over. I will send this through the regular channels and not be so rushed on it.

Sincerely,

IHT

Isabel H. Tipton

1134282

IHT:B

A-00279

CC: Dr. E.E. Anderson

Human Studies Project

THE HAHNEMANN MEDICAL COLLEGE  
AND HOSPITAL OF PHILADELPHIA  
PHILADELPHIA 2, PA.

# METAL-BINDING IN MEDICINE

*... a study of Chelation*

*Symposium sponsored by*

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL

DRAKE HOTEL, PHILADELPHIA, MAY 6-8, 1959

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# METAL-BINDING IN MEDICINE

## Meeting Schedule

Wednesday, May 6—12:45 to 5 P.M.

Thursday, May 7—8:30 to 5 P.M.

Friday, May 8—8:30 to 5 P.M.

*All Sessions Will Be Held In The Ballroom Of The Drake Hotel, Spruce Street, West of 15th, Philadelphia*

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## A NOTE OF WELCOME

This meeting is an attempt to bring together clinicians and research workers in the trace metal field. Perhaps it is a mistake to call this the first such meeting since there have been symposia in certain spheres of trace metal studies. We have attempted to make this meeting a comprehensive survey of activities in this field.

There seems little doubt that metal-binding compounds are the keys to the study of trace metals in medicine since they permit the introduction of metals into physiological processes or the removal of metals from these systems and from the body itself. Metal-binding compounds also represent the tangible means for the clinician to apply knowledge in this field.

The program for this meeting begins with more basic concepts in trace metal research and then follows the clinical applications of some of the metal-binding agents as they have developed during the past ten years. Recognition is given in a small group of presentations to the growing concept of metal-binding compounds as a means to introduce metals into the body. Finally, we are going to explore some intriguing applications of the metal-binding principle in certain broad fields of clinical therapy.

Please accept this note of welcome as your invitation to attend these meetings and participate in the discussions which are of particular interest to you.

MARVIN J. SEVEN  
*Department of Medicine  
Hahnemann Medical College*

## OPENING SESSION

WEDNESDAY, MAY 6, 12:45 P.M.

MODERATOR: Dr. George C. Cotzias

PANELISTS: Dr. E. M. Butt, Dr. Gunther L. Eichhorn, Dr. Arthur E. Martell, Dr. Henry A. Schroeder, Dr. Jack Schubert, Dr. Isabel H. Tipton, Dr. L. Lahut Uzman.

### TIME

- 12:45 Opening Remarks. *Dean Charles S. Cameron*  
1:00 The Relationship of Chemical Structure to Metal-Binding Action. *Dr. Arthur E. Martell*  
1:25 The Distribution of Trace Metals in the Human Body. *Dr. Isabel H. Tipton*  
1:50 Trace Metal Patterns—Laennec's Cirrhosis Associated with Alcoholism. *Dr. E. M. Butt*  
2:05 The Role of Metals in Enzyme Systems. *Dr. Gunther L. Eichhorn*  
2:25 Intermission.  
2:40 Trace Metals and Chronic Diseases. *Dr. Henry A. Schroeder*  
3:00 Manganese in Disease States. *Dr. George C. Cotzias*  
3:15 The Mechanism of Action of Chelating Agents on Metallic Elements in the Intact Animal. *Drs. Jack Schubert and Arthur Lindenbaum*  
3:30 Intermission.  
3:45 Panel Discussion.

## THURSDAY MORNING SESSION

MAY 7

MODERATOR: Dr. Henry A. Schroeder

PANELISTS: Dr. William G. Figueroa, Dr. Harry Foreman, Dr. Richard S. Gubner, Dr. J. R. Kitchell, Dr. Lawrence E. Meltzer, Dr. Frederic Rieders, Dr. Marvin J. Seven, Dr. Herta Spencer, Dr. Borys Surawicz, Dr. Marjorie B. Zucker.

### TIME

- 8:30 The Pharmacology of some useful Chelating Agents. *Dr. Harry Foreman*  
8:45 Observations on the Toxicity of Intravenous Chelating Agents. *Dr. Marvin J. Seven*

- 9:00 The Use of Chelating Agents in the Study of Mineral Metabolism in Man. *Dr. Herta Spencer*  
9:15 Calcium Binding in the Therapy of Digitalis Intoxication. *Dr. Richard S. Gubner*  
9:30 Experience with Intravenous Administration of Disodium and Dipotassium Versenate in Patients with Cardiac Arrhythmias. *Dr. Borys Surawicz*  
9:45 Intermission.  
10:00 The Treatment of Coronary Artery Disease with Disodium EDTA. *Drs. Lawrence E. Meltzer and J. R. Kitchell*  
10:15 Some Effects of EDTA on Blood Clotting. *Dr. Marjorie B. Zucker*  
10:30 Current Concepts in the Therapy of Lead Poisoning. *Dr. Frederic Rieders*  
10:45 The Enhancement of Iron Excretion in Iron Storage Diseases. *Dr. William G. Figueroa*  
11:00 Intermission.  
11:10 Panel Discussion.  
12:15 Lunch, Drake Ballroom.

## THURSDAY AFTERNOON SESSION

MAY 7

MODERATOR: Dr. Jack Schubert

PANELISTS: Dr. Heinrich Brieger, Dr. George L. Curran, Dr. Harry Foreman, Dr. Charles G. Mendelson, Dr. Merwin Moskowitz, Dr. H. Mitchell Perry, Jr., Dr. Henry A. Peters, Dr. J. M. Price, Dr. Henry A. Schroeder, Dr. Herta Spencer.

### TIME

- 1:15 Application of Chelating Agents to Hasten the Excretion of Radioactive Elements. *Dr. Harry Foreman*  
1:30 Removal of Radiostrontium from Man. (This paper represents some of the work of Dr. Daniel Laszlo.) *Dr. Herta Spencer*  
1:45 The Influence of Metal-Binding Agents on Tryptophan Metabolism and the Treatment of Scleroderma. *Dr. J. M. Price*  
2:05 Porphyria. *Dr. Henry A. Peters*  
2:20 Treatment of Occupational Metal Poisoning with Chelating Agents. *Dr. Heinrich Brieger*  
2:35 Intermission.

- 2:50 Protection Against Clostridium Perfringens Toxin by Metal-Binding Compounds.  
*Dr. Merwin Moskowitz*
- 3:05 The Influence of EDTA on Plasma Cholesterol.  
*Dr. H. Mitchell Perry, Jr.*
- 3:20 Effects of Vanadium on Lipid Metabolism.  
*Dr. George L. Curran*
- 3:35 Intermission.
- 3:45 Panel Discussion.

### FRIDAY MORNING, FIRST SESSION

MAY 8

MODERATOR: Dr. Harry Kroll

PANELISTS: Dr. Gunther L. Eichhorn, Dr. Joseph Greenberg, Dr. L. Audrey Johnson, Dr. Samuel Korman, Dr. Arthur E. Martell, Dr. Marvin J. Seven, Dr. Robert Shapiro, Dr. Herta Spencer.

#### TIME

- 8:30 Observations on the In Vivo Stability of Metal Chelates.  
*Dr. L. Audrey Johnson*
- 8:45 The Differentiation of Anemia in Man with an Iron Chelate.  
*Dr. Samuel Korman*
- 9:00 Chelates as Vehicles for the In Vivo Introduction of Radioisotopes.  
*Dr. Joseph Greenberg*
- 9:15 Chelation in Contrast Radiography.  
*Dr. Robert Shapiro*
- 9:30 Intermission and Panel Discussion.

### FRIDAY MORNING, SECOND SESSION

MAY 8

MODERATOR: Dr. I. Herbert Scheinberg

PANELISTS: Dr. H. Vasken Aposhian, Dr. Gunther L. Eichhorn, Dr. A. E. Martell, Dr. Marvin J. Seven, Dr. George S. Shields, Dr. Irmin Sternleib, Dr. L. Lahut Uzman, Dr. J. M. Walshe.

#### TIME

- 10:20 Copper Proteins in Mammalian Tissues.  
*Dr. George S. Shields*
- 10:35 Experience with Tissue Copper in Wilson's Disease and Results of Treatment.  
*Dr. L. Lahut Uzman*
- 10:50 Studies on the Action of Penicillamine.  
*Dr. J. M. Walshe*

- 11:05 Penicillamine in the Treatment of Wilson's Disease.  
*Drs. I. Herbert Scheinberg, Irmin Sternleib, Josephine Brosseau, and Anatol Morell.*
- 11:20 Protection by Penicillamine, N-Acetyl-DL-Penicillamine or Dimercaprol Against the Lethal Effects of Mercuric chloride in the Rat.  
*Dr. H. Vasken Aposhian*
- 11:35 Intermission and Panel Discussion.
- 1:00 Lunch, Drake Ballroom.

### FRIDAY AFTERNOON SESSION

MAY 8

MODERATOR: Dr. H. Mitchell Perry, Jr.

PANELISTS: Dr. Phillip Comens, Dr. George C. Cotzias, Dr. Gunther L. Eichhorn, Dr. Arthur Furst, Dr. Chalmers L. Gemmill, Dr. L. C. Hendershot, Dr. Arthur E. Martell, Dr. Merwin Moskowitz, Dr. Jack Schubert, Dr. Eugene D. Weinberg.

#### TIME

- 2:00 The Effect of Zinc, Nickel, and Manganese on Rat Dental Caries and Dental Enamel Metal Levels.  
*Dr. L. C. Hendershot*
- 2:15 The Hydralazine-Lupus Erythematosus Syndrome.  
*Dr. Phillip Comens*
- 2:30 Thyroxine and Trace Metals.  
*Dr. Chalmers L. Gemmill*
- 2:45 The Relationship of Metal-Binding to Salicylate Action.  
*Dr. Jack Schubert*
- 3:00 The Relationship of Metal-Binding to Antimicrobial Action.  
*Dr. Eugene D. Weinberg*
- 3:15 Chelation and Cancer—A Speculative Review.  
*Dr. Arthur Furst*
- 3:30 Intermission.
- 3:40 Panel Discussion.
- 5:00 Closing Remarks. *Dr. John H. Moyer*  
*Chairman, Department of Medicine*  
*Hahnemann Medical College*

## PARTICIPANTS

- DR. H. VASKEN APOSHIAN  
*Assistant Professor of Pharmacology, Vanderbilt University School of Medicine, Nashville, Tennessee.*
- DR. HEINRICH BRIEGER  
*Professor of Industrial Medicine, Director of Division of Industrial Medicine, Jefferson Medical College, Philadelphia, Pennsylvania.*
- DR. E. M. BUTT  
*Chief Pathologist, Los Angeles County Hospital; Professor of Pathology, University of Southern California School of Medicine, Los Angeles, California.*
- DR. PHILLIP COMENS  
*Instructor in Medicine, Washington University School of Medicine, St. Louis, Missouri.*
- DR. GEORGE C. COTZIAS  
*Medical Research Center, Brookhaven National Laboratory, Upton, New York.*
- DR. GEORGE L. CURRAN  
*Associate Professor of Gerontology and Medicine, University of Kansas Medical Center, Kansas City, Kansas.*
- DR. GUNTHER L. EICHHORN  
*Chief, Section on Molecular Biology, Gerontology Branch, National Heart Institute, National Institutes of Health, Bethesda, Maryland.*
- DR. WILLIAM G. FIGUEROA  
*Assistant Professor of Medicine, University of California School of Medicine, Los Angeles, California.*
- DR. HARRY FOREMAN  
*Staff Member, University of California Los Alamos Scientific Laboratory, Los Alamos, New Mexico.*
- DR. ARTHUR FURST  
*Professor of Pharmacology, Stanford University School of Medicine, Stanford, California.*
- DR. CHALMERS L. GEMMILL  
*Professor of Pharmacology, University of Virginia School of Medicine, Charlottesville, Virginia.*
- DR. JOSEPH GREENBERG  
*Chief, Division of Nuclear Medicine, The Long Island Jewish Hospital, New Hyde Park, New York.*
- DR. RICHARD S. GUBNER  
*Associate Director of Medical Research, Equitable Life Assurance Society, Clinical Associate Professor of Medicine, State University of New York School of Medicine, New York, New York.*
- DR. L. C. HENDERSHOT  
*Biochemical Research Laboratory, Dow Chemical Company, Midland, Michigan.*
- DR. L. AUDREY JOHNSON  
*Research Associate, Hahnemann Medical College, Philadelphia, Pennsylvania.*
- DR. J. R. KITCHELL  
*Chief of Cardiology, Presbyterian Hospital, Philadelphia, Pennsylvania.*
- DR. SAMUEL KORMAN  
*Assistant Attending Physician, Division of Neoplastic Diseases, Montefiore Hospital, New York.*
- DR. HARRY KROLL  
*Division of Neoplastic Diseases, Montefiore Hospital, New York, New York.*
- DR. ARTHUR E. MARTELL  
*Professor of Chemistry, Clark University, Worcester, Massachusetts.*
- DR. LAWRENCE E. MELTZER  
*Philadelphia General Hospital and Presbyterian Hospital, Philadelphia, Pennsylvania.*
- DR. CHARLES G. MENDELSON  
*Research Fellow in Dermatology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.*
- DR. MERWIN MOSKOWITZ  
*Associate Professor of Bacteriology, Purdue University, Lafayette, Indiana.*
- DR. H. MITCHELL PERRY, JR.  
*Assistant Professor of Medicine; Director, Hypertension Division, Washington University School of Medicine, St. Louis, Missouri.*
- DR. HENRY A. PETERS  
*Associate Professor, Neuropsychiatry, University of Wisconsin School of Medicine, Madison, Wisconsin.*
- DR. J. M. PRICE  
*Professor of Surgery in Cancer Research, American Cancer Society—Charles S. Hayden Foundation, Cancer Research Hospital, University of Wisconsin School of Medicine, Madison, Wisconsin.*
- DR. FREDERIC RIEDERS  
*Chief Toxicologist, Office of the Medical Examiner, Department of Public Health, Philadelphia, Pennsylvania.*

- DR. I. HERBERT SCHEINBERG  
*Professor of Medicine, Albert Einstein College of  
Medicine, New York, New York.*
- DR. HENRY A. SCHROEDER  
*Associate Professor of Clinical Physiology, Dartmouth  
Medical School, Hanover, N. H.; Director of Research,  
Brattleboro Retreat, Brattleboro, Vermont.*
- DR. JACK SCHUBERT  
*Division of Biological and Medical Research, Argonne  
National Laboratory, Lemont, Illinois.*
- DR. MARVIN J. SEVEN  
*Assistant Professor of Medicine, Hahnemann Medical  
College, Philadelphia, Pennsylvania.*
- DR. ROBERT SHAPIRO  
*Associate Clinical Professor of Radiology, Yale Uni-  
versity School of Medicine, New Haven, Connecticut.*
- DR. GEORGE S. SHIELDS  
*Instructor in Medicine, University of Utah College of  
Medicine, Salt Lake City, Utah.*
- DR. HERTA SPENCER  
*Associate Attending Physician, Division of Neoplastic  
Diseases, Montefiore Hospital, New York, New York.*
- DR. IRMIN STERNLEIB  
*Department of Medicine, Albert Einstein College of  
Medicine, New York, New York.*
- DR. BORYS SURAWICZ  
*Assistant Professor, Division of Experimental Medicine,  
University of Vermont College of Medicine, Burlington,  
Vermont.*
- DR. ISABEL TIPTON  
*Associate Professor of Physics, University of Tennessee,  
Knoxville, Tennessee.*
- DR. J. M. WALSHE  
*Assistant Director of Research, Department of Exper-  
imental Medicine, University of Cambridge, Cambridge,  
England.*
- DR. EUGENE D. WEINBERG  
*Associate Professor of Bacteriology, Indiana Uni-  
versity, Bloomington, Indiana.*
- DR. L. LAHUT UZMAN  
*Associate in Neurology, Harvard Medical School;  
Associate Visiting Neurologist, Boston City Hospital,  
Boston, Massachusetts.*
- DR. MARJORIE B. ZUCKER  
*Associate, Sloan-Kettering Institute for Cancer Re-  
search, New York, New York.*

## ANNOUNCEMENTS

### REGISTRATION

Sessions are open to all physicians and medical stu-  
dents. There will be no registration fee.

### ASSEMBLY ROOM

All sessions will be held in the ballroom of the Drake  
Hotel, Spruce Street, West of 15th, Philadelphia.  
Luncheon will be served in the ballroom for the par-  
ticipants and a limited number of advance registrants  
on Thursday, May 7, and Friday, May 8.

### HOTEL RESERVATIONS

Reservations may be made directly to the headquarters  
hotel, The Drake, in Philadelphia.

### PROCEEDINGS

Papers and panel discussions of the Symposium will  
be published at a later date by the J. B. Lippincott Co.

### AN INVITATION

You are invited to visit The Hahnemann Medical  
College and adjacent Hospital, located at 230 N. Broad  
Street, Philadelphia.