THE McCOLLUM-PRATT INSTITUTE

SYMPOSIUM

ON

"CHEMICAL BASIS OF HEREDITY"

JUNE 19–22nd, 1956

AT

THE JOHNS HOPKINS UNIVERSITY

BALTIMORE, MARYLAND

The McCollum-Pratt Institute of The Johns Hopkins University was founded in 1948 to investigate the importance of inorganic ions in the metabolism of plants and animals. One of the functions of the Institute is to bring together outstanding authorities in the field of Biochemistry and Physiology. Therefore the Institute has held each year a symposium devoted to the discussion of a particular area within these major fields.

In 1950 the major topic of discussion was Copper Metabolism and in 1951 and 1952 the general problems concerned with the intermediary metabolism of phosphorus and phosphorus-containing compounds were reviewed. Various fundamental concepts related directly or indirectly to the mechanism of enzyme action were discussed during the 1953 symposium. In 1954 a symposium on Amino Acid Metabolism was held while the major topic for review last year was Inorganic Nitrogen Metabolism.

The current symposium, 1956, is concerned with various biological and chemical aspects of heredity. We would like to acknowledge this year the support of the Atomic Energy Commission in helping defray part of the expense of the Symposium.

PROGRAM OF EVENTS

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TUESDAY, JUNE 19, 1956

8:30 A. M. Registration

9:15 A. M. Introductory Comments—W. D. McElroy, Director
McCollum-Pratt Institute

SESSION I **Cellular Units of Heredity**

Moderator: Dr. Bentley Glass, Dept. of Biology
Johns Hopkins University, Baltimore

9:30 A. M. **A. The Role of the Nucleus in Heredity**
Dr. George W. Beadle, Dept. of Biology
California Institute of Technology, Pasadena

10:15 A. M. **B. Chromosome Structure**
Dr. Hans Ris, Dept. of Zoology
University of Wisconsin, Madison

11:00 A. M. Discussion

12:00 Noon Lunch—Faculty Club

1:30 P. M. **C. Size of the Nuclear Unit of Heredity**
Dr. Seymour Benzer, Biophysical Laboratory
Purdue University, Lafayette, Ind.

2:10 P. M. **D. Pseudoallelism and Abberent Recombination Phenomena**
Dr. H. K. Mitchell, Dept. of Biology
California Institute of Technology, Pasadena

2:50 P. M. Discussion

3:15 P. M. Recess

3:30 P. M. **E. Role of the Cytoplasm in Heredity**
Dr. David L. Nanney, Dept. of Zoology
University of Michigan, Ann Arbor

4:10 P. M. **F. Mutability of Genetic Units**

Dr. Marcus Rhoades, Dept. of Botany
University of Illinois, Urbana

5:00 P. M. Discussion

5:30 P. M. Refreshments—Faculty Club

6:15 P. M. Dinner—Faculty Club

WEDNESDAY, JUNE 20, 1956

SESSION II **Role of the Nucleus, Nucleic Acids and Associated Structures in Cell Division and Protein Synthesis**

Moderator: Dr. Boris Ephrussi, Laboratoire de Genetique
Université de Paris, Paris

9:00 A. M. **A. Chemical Changes during Cell Division**

Dr. Daniel Mazia, Dept. Zoology
University of California, Berkeley

9:40 A. M. **B. The Nucleus and Protein Synthesis**

Dr. Vincent Allfrey, Rockefeller Institute
for Medical Research, New York

10:20 A. M. Discussion

10:45 A. M. **C. Nucleic Acids and Protein Synthesis**

Dr. Sol Spiegelman, Dept. of Bacteriology
University of Illinois, Urbana

11:25 A. M. Discussion

12:00 Noon Lunch—Faculty Club

SESSION III **Nucleic Acids as Transforming Agents**

Moderator: Dr. S. Luria, Dept. of Bacteriology
University of Illinois, Urbana

1:30 P. M. **A. Transformation of Cellular Characteristics by DNA**

Dr. H. Ephrussi Taylor, Laboratoire de Genetique
Université de Paris, Paris

2:10 P. M. Dr. R. D. Hotchkiss, Rockefeller Institute
of Medical Research, New York

2:50 P. M. Discussion

3:30 P. M. Recess

3:45 P. M. **B. Properties of the Transforming Principle**

Dr. S. Zamenhof, Dept. of Biochemistry
Columbia University, New York

4:30 P. M. Discussion

5:30 P. M. Refreshments—Faculty Club

6:15 P. M. Dinner—Faculty Club

THURSDAY, JUNE 21, 1956

SESSION IV **Viruses as Bearers of Heritable Characteristics**

Moderator: Dr. Roger Herriott, School of Hygiene and Public Health, Johns Hopkins University

9:00 A. M. **A. Transduction**

Dr. Philip Hartman, Dept. of Bacteriology
Harvard University, Cambridge

9:40 A. M. Discussion

10:00 A. M. **B. Lysogenicity**

Dr. François Jacob, Pasteur Institute, Paris

10:40 A. M. Discussion

11:00 A. M. **C. The Nature of the Progeny of Virus Reconstituted from Protein and Nucleic Acid of Different Strains of Tobacco Mosaic Virus**

Dr. H. Fraenkel-Conrat and Dr. Robley Williams
Virus Laboratory, Univ. of California, Berkeley

11:40 A. M. Discussion

12:00 Noon Lunch—Faculty Club

SESSION V **Nucleic Acids—Chemical Composition and Structure**

Moderator: Dr. Paul Doty, Dept. of Chemistry
Harvard University, Cambridge

1:30 P. M. **A. Base Composition of DNA and RNA in Various Species**

Dr. E. Chargaff, Dept. of Biochemistry
Columbia University, New York

2:00 P. M. **B. Nucleotide Sequence**

Dr. Roy Markham, Molteno Institute
University of Cambridge, England

2:30 P. M. Discussion

3:00 P. M. Recess

3:15 P. M. **C. Structure of DNA**

Dr. F. H. C. Crick, Cavendish Laboratory
University of Cambridge, England

3:45 P. M. **D. Structure of RNA**

Dr. James Watson, Cavendish Laboratory
University of Cambridge, England

4:15 P. M. Discussion

5:00 P. M. **E. Importance of Helices in Molecules of Biological Origin**

Dr. Barbara Low
Harvard Medical School, Boston

7:00 P. M. Refreshments and Banquet—Sheraton Belvedere Hotel
(Wives invited—Dress optional)

FRIDAY, JUNE 22, 1956

SESSION VI **Synthesis of Nucleotides and Nucleic Acids**

Moderator: Dr. Gerhard Schmidt, Medical School
Tufts College, Boston

9:30 A. M. **A. Nucleotide Synthesis**

Dr. Arthur Kornberg, Dept. of Microbiology
Washington University, St. Louis

10:10 A. M. **B. Polynucleotide Synthesis**

Dr. S. Ochoa, Dept. of Biochemistry
New York University, New York

10:50 A. M. Discussion

11:15 A. M. **C. In Vivo Synthesis of Nucleic Acid**

Dr. Seymour Cohen, Dept. of Pediatrics
University of Pennsylvania, Philadelphia

12:00 Noon Discussion

12:30 P. M. Lunch

SESSION VII **Mechanism of Duplication—Present and Future Problems**

Moderator: Dr. J. Lederberg, Dept. of Genetics
University of Wisconsin, Madison

2:00 P. M. **A. The Mechanism of Duplication**

Dr. Max Delbruck, Dept. of Biology
California Institute of Technology, Pasadena
and
Dr. G. Stent, Virus Laboratory
University of California, Berkeley

3:00 P. M. **B. Panel Discussion—Speculations on Present and Future Problems**

Discussion Leader: Dr. J. Lederberg

4:30 P. M. Farewell Party—Faculty Club