

UNITED STATES-JAPAN COOPERATIVE MEDICAL SCIENCE PROGRAM

JOINT MALNUTRITION PANEL CONFERENCE

TOKYO, JAPAN

February 5-7, 1967

Office of International Research
National Institutes of Health
Bethesda, Maryland
April 1967
Revised July 1967

PROGRAM OF PANEL MEETING

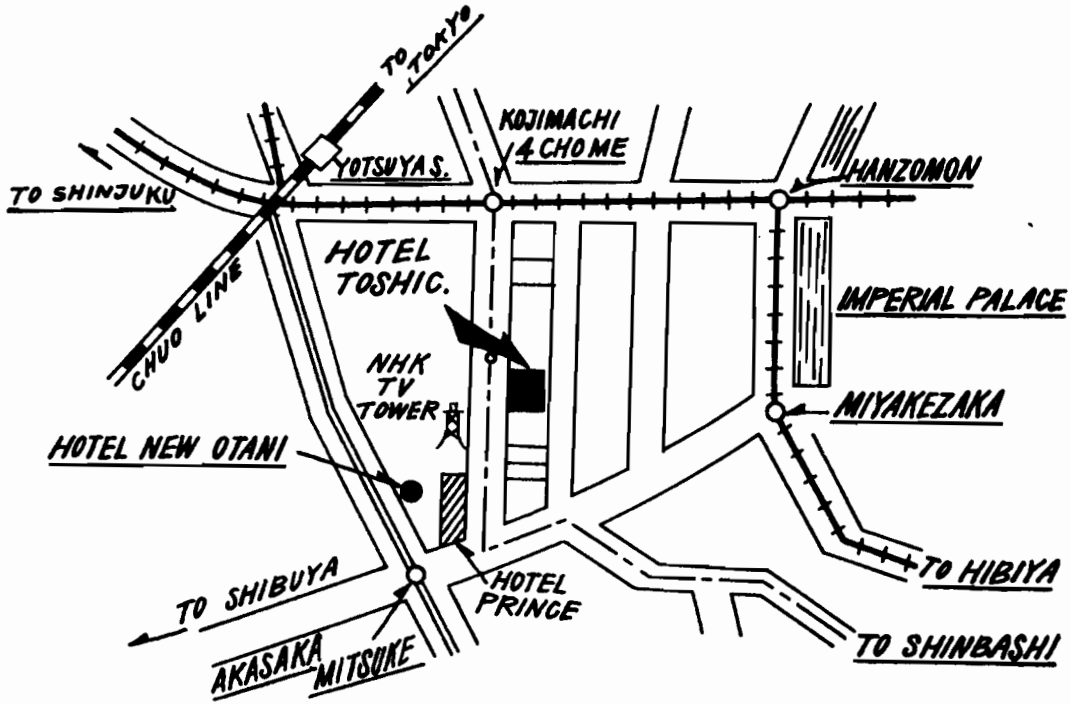
Date	Location		Hotel Toshi Center		Hotel New Otani		Sanno Hotel
	Time	Floors	1 Floor		16 Floor	1 Floor	
		Rooms	No. 3	No. 1	Akebono	Kaede	
5 Feb. Sunday	15.00—17.00	Secretariat Office Room Tel. 265-8211 ext-116			Joint Panel		Reception Tel. 591-9401
	18.30—20.30						
6 Feb. Monday	9.10—12.25	Tel. 265-8211 ext-116		Conference			
	13.30—17.00			Conference			
	18.30—20.30						
7 Feb. Tuesday	9.00—13.00			Conference			
	14.30—16.30			Joint Panel			

LOCATION FOR CONGRESS HALL

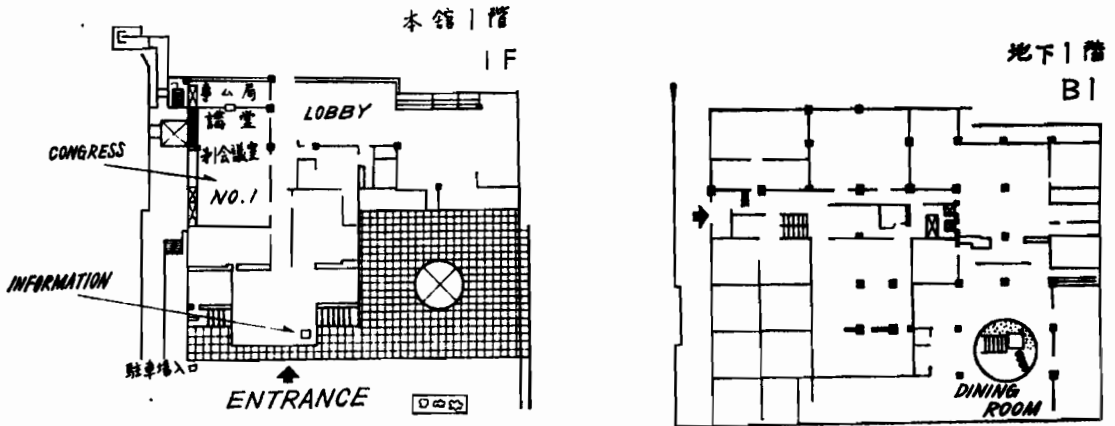
会場道順 (都市センター)

**THIS IS THE REGULAR ROUTE TO
HOTEL TOSHI CENTER**

ADDRESS 2-6 Hirakawa-cho Chiyoda-ku Tokyo TEL. (265) 8211



会議室等平面図
Congress Floors and Rooms



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AGENDA

MONDAY, FEBRUARY 6

A.M. 0910-0940 Opening Ceremonies

0910-0920 Dr. Toshio Kurokawa
Chairman, Japan Cooperative Medical Science Committee

0920-0930 Dr. Nevin Scrimshaw
Chairman of U.S. Malnutrition Panel

0930-0940 Dr. Norio Shimazono
Chairman of Japan Malnutrition Panel

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SCIENTIFIC SESSION

0940-1030 Interrelation of Malnutrition and Infection
Dr. Nevin Scrimshaw

1030-1045 Coffee Break

1045-1135 Nutritional Status in Japanese People from the Viewpoint
of the National Nutrition Survey
Dr. Toshio Oiso

1135-1225 Activity of Protein Synthesis of Rat Liver in Protein
Deficiency
Dr. Kikuo Ogata

Noon 1225-1330 Lunch Break

P.M. 1330-1420 Experimental Studies on Reserve Protein in Human Body
Dr. Hideo Koishi

1420-1510 Plasma Amino Acids and Hair Cystine in Children with
Mild Protein Deficiency
Dr. Toshio Oiso

1510-1525 Coffee Break
1525-1615 Improvement of the World Protein Requirements and the
Nutritional Properties of Cereal Proteins through
Genetic Manipulation
Dr. Norman Borlaug, Presented by Dr. John Weir

TUESDAY, FEBRUARY 7

A.M. 0900-0950 Malnutrition and Brain Function
Dr. David Coursin
0950-1040 Interrelationships of Essential Nutrients in Hematopoiesis
Dr. Robert Olson
1040-1055 Coffee Break
1055-1145 Studies on Anemia in Protein Deficiency
Dr. Hisato Yoshimura
1145-1235 Macrocytic Hyperchromic Anemia in Children with
Riboflavin and Folate Deficiency of Mild Degree:
Interrelationship between Riboflavin Deficiency and
Folic Acid Metabolism
Dr. Tsuneo Arakawa
P.M. 1235-1300 Malnutrition in Japan: So-called "Shibi-Gatchaki"
Dr. Tsuneo Arakawa

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CONFERENCE PARTICIPANTS

UNITED STATES

A. Panel Members:

Nevin S. Scrimshaw	Massachusetts Institute of Technology Cambridge, Massachusetts
Robert E. Olson	St. Louis University St. Louis, Missouri
Norman E. Borlaug	The Rockefeller Foundation Mexico City, Mexico
James S. Dinning	The Rockefeller Foundation Bangkok, Thailand

B. Other Participants and Observers:

John M. Weir	The Rockefeller Foundation New York City, New York
David B. Coursin	Lancaster, Pennsylvania
G. Donald Whedon	Director, National Institute of Arthritis and Metabolic Diseases National Institutes of Health
Thomas D. Dublin	Agency for International Development Washington D.C.
James K. Shafer	Agency for International Development Washington D.C.
William Insull, Jr.	Keio University Medical School (Western Reserve University Medical School, Cleveland, Ohio)

C. Staff:

Philip Ross	National Institutes of Health Bethesda, Maryland
Robert T. Webber	Science Attache American Embassy, Tokyo, Japan
David R. Kominz	National Institutes of Health Pacific Office, American Embassy Tokyo, Japan
Robert R. Omata	National Institutes of Health Pacific Office, American Embassy Tokyo, Japan
Gerard A. Launais	National Institutes of Health Pacific Office, American Embassy Tokyo, Japan
Mrs. Marian Adle	National Institutes of Health Pacific Office, American Embassy Tokyo, Japan

JAPAN

A. Panel Members:

Norio Shimazono	Professor, Department of Biochemistry, Tokyo Medical College
Hisato Yoshimura	Professor, Department of Physiology Kyoto Prefectural University of Medicine
Tsuneo Arakawa	Professor, Department of Pediatrics Tohoku University
Toshio Oiso	Director, National Institute of Nutrition

B. Other Participants and Observers:

Hideo Koishi	Professor, Faculty of Science of Living Osaka City University
Toshiyuki Iida	Professor, Kobe Women's Junior College

Tadashi Hayashi	Lecturer, Department of Pediatrics Faculty of Medicine Tohoku University
Kazuo Ohara	Lecturer, Department of Pediatrics Faculty of Medicine Tohoku University
Ototaka Higashi	Lecturer, Department of Pediatrics Faculty of Medicine Tohoku University
Einosuke Tamura	Chief, Division of Biochemistry National Institute of Nutrition
Shoji Kawada	Chief, Division of Pathology National Institute of Nutrition
Hiroshi Wako	Professor, Department of Pediatrics School of Medicine Iwate Medical University
Kikuo Ogata	Professor, Department of Biochemistry Niigata University School of Medicine
Tamio Yamakawa	Professor, Department of Biochemistry University of Tokyo
Yoshindo Sakurai	Professor, Faculty of Home Economics Nihon Women's University
Kiyoshi Ashida	Professor, Faculty of Agriculture Nagoya University
Takane Matsuo	Professor, Faculty of Agriculture University of Tokyo
Tokuji Watanabe	Chief, Division of Food Analysis Food Research Institute

C. Staff

Kenta Sakamura	Chief, Nutrition Section Public Health Bureau
Fujio Aiso	Public Health Bureau Ministry of Health and Welfare

Nobuo Onodera

Public Health Bureau
Ministry of Health and Welfare

Tomomichi Tezuka

Chief, Division of Nutritional
Improvement
National Institute of Nutrition

THE WORLD PROTEIN REQUIREMENTS AND THE IMPROVEMENT OF THE NUTRITIONAL
PROPERTIES OF CEREAL PROTEINS THROUGH GENETIC MANIPULATION

Dr. Norman E. Borlaug

Paper presented by John Weir

Protein deficiency is a world-wide problem. Even if grain with enough calories can be produced, the quality and quantity of proteins would not be sufficient for proper nutrition. Either 60-85% of that total calories must be fortified, or the protein content of present cereal grains must be improved considerably. In one state of India with 60 million people, where 85% of the calorie intake is from sorghum, 1.9 million tons of additional protein per year are needed to give a positive nitrogen balance to the population.

Cereal proteins are particularly important in the diet of people of developing nations where they generally contribute between 60-70 percent of the total protein intake as well as a high proportion of the calories. All predominately cereal diets are deficient in one or more essential amino acids, including lysine, tryptophane, threonine, and methionine.

Supplementation of cereal diets of low-income rural peoples with amino acids does not seem feasible. A corn gene, opaque-2, has been found which will increase the lysine content of the grain 69 to 100 percent and the tryptophane content by 66 percent when it was incorporated into ordinary commercial hybrid maize varieties. Field tests have substantiated the value of the increased protein content. A second gene, Floury-2, has also been found to produce high levels of lysine in maize.

Research is underway to search for genes that will increase lysine levels in wheat, rye, triticales, sorghum, millet and rice. Genes have been found in both maize and wheat which yield higher levels of total grain protein, independent of yield.

