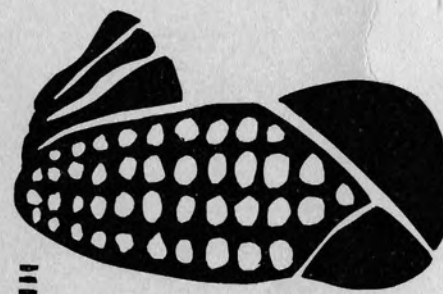

INTERNATIONAL

MAIZE

SYMPOSIUM

GENETICS AND BREEDING — '75



UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

SEPTEMBER 8-12, 1975

FOREWORD

The University of Illinois and the University of Western Ontario are proud to present the program of the International Maize Symposium: Breeding and Genetics - '75. We hope that during the symposium as you listen and question some of the outstanding authorities on maize genetics and breeding from around the world, you will be aware of the important role maize genetics and breeding has played in the development of the Science of Genetics as well as the ability of mankind to feed itself.

The sponsors wish to express particular gratitude to the following organizations which provided the financial support necessary to make the symposium a reality.

Anderson Foundation

Continental Grain Company

Corn Refiner's Association

DeKalb Ag Research

Funk Seeds International

Illinois Foundation Seeds

Moews Seed Company

Northrup, King and Company

Pioneer Hi-Bred International

The committees who have each contributed greatly to the preparations for the symposium are as follows.

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Dr. D. E. Alexander, USA, Executive Secretary
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E. B. Patterson

The program is administered by the Office of Continuing Education and Public Service, University of Illinois, Urbana-Champaign.

MONDAY, SEPTEMBER 8

8:30 a.m.

PLENARY SESSIONChairman - *G. F. Sprague*

Welcome: *Dr. G. A. Russell*, Vice Chancellor for Research and Dean, The Graduate College, University of Illinois, Urbana-Champaign.

Illinois Corn Breeding: The Early Years

Dr. G. W. Salisbury, Director of the Illinois Agricultural Experiment Station and Associate Dean, College of Agriculture, University of Illinois, Urbana-Champaign.

HISTORY OF HYBRID CORNChairman - *G. F. Sprague*

9:00 a.m.

Introductory Remarks - *G. F. Sprague*

9:10 a.m.

Maize Breeding During the Development and Early Years of Hybrid Maize

M. T. Jenkins

9:40 a.m.

Discussion

9:50 a.m.

The Hybrid Corn Industry in the United States

L. Steele

10:20 a.m.

Discussion

10:30 a.m.

Coffee

10:45 a.m.

Maize Production and Maize Breeding in Europe

V. Trifunovic and *A. Tavear*

11:15 a.m.

Discussion

11:25 a.m.

Recent Developments of Maize Breeding in the Tropics

E. J. Wellhausen

11:55 a.m.

Discussion

12:05 p.m.

Concluding Remarks - *G. F. Sprague*

MONDAY, SEPTEMBER 8

RESISTANCE TO DISEASE AND INSECTSChairman - *Alejandro Ortega*

1:45 p.m.

Introductory Remarks - *A. Ortega*

1:55 p.m.

Evolution and Dynamics of Corn Disease and Insect Problems Since the Advent of Corn Hybrids

A. J. Ullstrup

2:25 p.m.

Discussion

2:35 p.m.

Genetics of Insect Resistance in Maize

F. F. Dicke and *W. D. Guthrie*

3:05 p.m.

Discussion

3:15 p.m.

Coffee

3:30 p.m.

Genetics of Disease Resistance in Maize

A. L. Hooker

4:00 p.m.

Discussion

4:10 p.m.

Deployment of Disease and Insect Resistance in Maize: Breeding and Field Considerations

B. Tsotsis

4:40 p.m.

Discussion

4:50 p.m.

Concluding Remarks - *A. Ortega*

6:00 p.m.

Reception - Exhibit Hall, lower level

TUESDAY, SEPTEMBER 9

CORN BREEDINGChairman - *John H. Lonnquist*

- 8:30 a.m. Introductory Remarks - *J. H. Lonnquist*
- 8:40 a.m. Quantitative Genetics in Maize Breeding
R. E. Comstock
- 9:10 a.m. Discussion
- 9:20 a.m. Population Improvement in Maize
C. O. Gardner
- 9:50 a.m. Discussion
- 10:00 a.m. Coffee
- 10:15 a.m. Breeding for Industrial and Nutritional Quality in Maize
R. G. Creech
- 10:45 a.m. Discussion
- 10:55 a.m. Current and Future Use of Cytoplasmic Male Sterility for Hybrid Seed Production
D. N. Duvick and S. Noble
- 11:25 a.m. Discussion
- 11:35 a.m. Concluding Remarks - *J. H. Lonnquist*

WEDNESDAY, SEPTEMBER 10

CYTOGENETICSChairman - *Ellen Dempsey*

- 8:30 a.m. Introductory Remarks - *E. Dempsey*
- 8:40 a.m. Genetic Effects of Heterochromatin in Maize
M. M. Rhoades and E. Dempsey
- 9:10 a.m. Discussion
- 9:20 a.m. The Significance of Chromosome Constitutions in Tracing the Origins and Migrations of Races of Maize in the Americas
B. McClintock
- 9:50 a.m. Discussion
- 10:00 a.m. Coffee
- 10:15 a.m. Cytogenetics of Interchanges
C. R. Burnham
- 10:45 a.m. Discussion
- 10:55 a.m. Molecular Cytogenetics of the Nucleolus Organizer Region
R. L. Phillips
- 11:25 a.m. Discussion
- 11:35 a.m. Concluding Remarks - *E. Dempsey*

WEDNESDAY, SEPTEMBER 10

TISSUE BIONOMICSChairman - *James L. Brewbaker*

- 1:30 p.m. **Introductory Remarks** - *J. L. Brewbaker*
- 1:40 p.m. **The Aleurone Tissue as a Genetic Tool**
E. H. Coe, Jr.
- 2:10 p.m. **Influence of Parental Source on Gene Action
in Maize Endosperm**
J. L. Kermicle
- 2:40 p.m. **Discussion**
- 2:55 p.m. **Coffee**
- 3:10 p.m. **Cell and Tissue Cultures of Maize**
C. E. Green
- 3:40 p.m. **Genetic Modification of Cell Biochemistry
by Means of Plant Tissue Culture**
*J. Pollace, M. K. B. Berlyn, P. R. Day, and
I. Zelitch*
- 4:10 p.m. **Discussion**
- 4:25 p.m. **Maize Pollen Biology**
P. L. Pfahler
- 4:55 p.m. **Discussion**
- 5:05 p.m. **Concluding Remarks** - *J. L. Brewbaker*

THURSDAY, SEPTEMBER 11

NUCLEAR-CYTOPLASMIC INTERACTIONSChairman - *R. I. Brawn*

- 8:30 a.m. **Introductory Remarks** - *R. I. Brawn*
- 8:40 a.m. **Nuclear and Cytoplasmic Mutations to Fer-
tility in S Male-Sterile Maize**
J. R. Laughnan
- 9:10 a.m. **Discussion**
- 9:20 a.m. **The Genetic Control of Opaque-7 Expres-
sion in Corn**
R. A. Brink and K. S. McWhirter
- 9:50 a.m. **Discussion**
- 10:00 a.m. **Coffee**
- 10:15 a.m. **Gene Action and Endosperm Development
in Maize**
O. E. Nelson, Jr.
- 10:45 a.m. **Discussion**
- 10:55 a.m. **Some Biochemical Indicators of Genetic and
Developmental Control in Endosperm**
C. M. Wilson
- 11:25 a.m. **Discussion**
- 11:35 a.m. **Concluding Remarks** - *R. I. Brawn*

THURSDAY, SEPTEMBER 11

EVOLUTIONChairman - *William L. Brown*

- 1:30 p.m. Introductory Remarks - *W. L. Brown*
- 1:40 p.m. The Inheritance of Some Traits Essential to
Maize and Teosinte
W. C. Galinat
- 2:10 p.m. Teosinte and the Origin of Maize
G. W. Beadle
- 2:40 p.m. Discussion
- 3:00 p.m. Coffee
- 3:15 p.m. Tripsacum and the Origin of Maize
J. M. J. deWet and J. R. Harlan
- 3:45 p.m. A cursory Survey of the Races of Maize and
Current Attempts to Infer Racial Relations
M. M. Goodman
- 4:15 p.m. Discussion
- 4:45 p.m. Concluding Remarks - *W. L. Brown*
- 6:30 p.m. Social Hour (Cash Bar) - Exhibit Hall
- 7:30 p.m. Banquet
Speaker - *H. F. Robinson*, Chancellor, West-
ern Carolina University, Cullowhee, North
Carolina

FRIDAY, SEPTEMBER 12

GENE ACTION AND CONTROLChairman - *Irwin M. Greenblatt*

- 8:30 a.m. Introductory Remarks - *I. M. Greenblatt*
- 8:40 a.m. Glossy Mutants: Level of Action and Level
of Analysis
A. Bianchi
- 9:10 a.m. Discussion
- 9:20 a.m. Genetics of Alcohol Dehydrogenase in Maize
D. Schwartz
- 9:50 a.m. Discussion
- 10:00 a.m. Coffee
- 10:15 a.m. The Induction of Genetic Variability
M. G. Neuffer
- 10:45 a.m. Discussion
- 10:55 a.m. Controlling Elements: Components of
Systems
P. A. Peterson
- 11:25 a.m. Discussion
- 11:35 a.m. Concluding Remarks - *I. M. Greenblatt*
- 11:45 a.m. Adjournment of the Symposium -
G. F. Sprague

MONDAY, SEPTEMBER 8

Monday Morning: History of Hybrid Corn**Chairman: G. F. Sprague**

G. F. Sprague has been Professor of Plant Genetics, University of Illinois since retiring as Leader, Corn and Sorghum Investigations, ARS, USDA. Born in Nebraska, he received the Ph.D. from Cornell University. He is a member of the National Academy of Sciences. Several of Sprague's inbreds have been widely used in commercial hybrids.

Maize Breeding During the Development and Early Years of Hybrid Maize

Merle T. Jenkins retired as Principal Agronomist in Charge of Corn Investigations for ARS, USDA in 1958. Subsequently he served as Director of Research, Purdue Agricultural Alumni Seed Improvement Association, and Corn Breeder, FFR Cooperative, until his retirement in 1974. Born in South Dakota, he received the Ph.D. from Iowa State College in 1928. He inaugurated the cooperative hybrid corn breeding project at Iowa State University. During his stay at Iowa he developed many of the techniques basic to corn breeding progress as well as many lines and hybrids of wide commercial acceptance.

MONDAY, SEPTEMBER 8

Monday Morning: History of Hybrid Corn**The Hybrid Corn Industry in the United States**

Leon Steele is Director of Research and Vice-President, Funk Seeds International and President, Funk Seeds International of Canada. Born in Illinois, he received graduate training at the University of Illinois and was awarded a D.Sc. by Wesleyan University of Bloomington, Illinois. Steele was a protégé of J. R. Holbert, pioneer corn breeder, and continues a long tradition of corn improvement.

Maize Production and Maize Breeding in Europe

Vladimir C. Trifunovic is currently Director, Corn Institute, Zemun-Polje, Yugoslavia. Born in Serbia, he received the Ph.D. from the University of Belgrade. He has been a prime mover in the development and production of corn hybrid seed in Yugoslavia and in recent years in Iran.

MONDAY, SEPTEMBER 8

Monday Morning: History of Hybrid Corn**Recent Developments in Maize Breeding in the Tropics**

Edwin J. Wellhausen has been a Special Staff member of the Rockefeller Foundation following his retirement as Director General of CIMMYT, Mexico, D.F., and Associate Director of Agricultural Sciences, Rockefeller Foundation. Born in Oklahoma, he received the Ph.D. from Iowa State College in 1936. Most of his professional career was spent with the Rockefeller Foundation maize program in Mexico. He is particularly noted for his work in connection with the collection and classification of races of maize in Latin America.

Monday Afternoon: Resistance to Disease and Insects**Chairman: Alexandro Ortega**

Alexandro Ortega has been Entomologist, Head Plant Protection, CIMMYT's Maize Improvement Program since 1967. Born in Mexico, he received the Ph.D. from Ohio State University in 1960. From 1961-1966 he was head of the Entomology Department, National Institute of Agricultural Research, Ministry of Agriculture and Livestock, in Mexico.

MONDAY, SEPTEMBER 8

Monday Afternoon: Resistance to Disease and Insects**Evolution and Dynamics of Corn Disease and Insect Problems Since the Advent of Corn Hybrids**

A. J. Ullstrup retired from Purdue University in 1973 following a distinguished career as a corn pathologist which began at Purdue in 1938. Born in Wisconsin he received the Ph.D. from the University of Wisconsin in 1934. He is presently employed by Farmers Forage Research. He has long been recognized as an authority on diseases of maize and as a teacher of plant pathology.

Genetics of Insect Resistance in Maize

F. F. Dicke has been a consultant in the Department of Corn Breeding, Pioneer Hi-Bred International, Inc. since 1963. A native of Ohio, he joined the Bureau of Entomology of the U.S. Department of Agriculture in 1927. From 1942-1963 he participated in USDA and State Experiment Station cooperative maize research programs with emphasis on breeding for resistance to a complex of maize insects.

MONDAY, SEPTEMBER 8

Monday Afternoon: Resistance to Disease and Insects**Genetics of Disease Resistance in Maize**

Arthur L. Hooker has been Professor of Plant Pathology at the University of Illinois since 1958. Born in Wisconsin, he received the Ph.D. from the University of Wisconsin in 1952. He discovered the major gene, Ht, which controls resistance to Helminthosporium turcicum and is widely used in commercial hybrids of the US. He also discovered the existence of two races of H. maydis, O and T, and demonstrated that the leaf blight epiphytotic of 1970 was caused by race T which preferentially damaged T cytoplasm hybrids. His major research emphasis is in genetics and physiology of host-pathogen interactions and disease control through host resistance.

Deployment of Disease and Insect Resistance in Maize: Breeding and Field Considerations

Basis Tsotsis has been Corn Research Director for DeKalb Ag Research since 1965. Born in Greece, he received his Ph.D. from the University of Wisconsin in 1958. Major research efforts have been in development of disease and insect resistant corn hybrids and the integration of allied disciplines such as physiology, biochemistry and pathology with traditional corn breeding procedures.

TUESDAY, SEPTEMBER 9

Tuesday Morning: Corn Breeding

Chairman: J. H. Lonquist



John H. Lonquist has been Professor of Agronomy at the University of Wisconsin since 1970 following a three-year assignment as Director, International Maize Program CIMMYT. Born in Wisconsin, he received the Ph.D. from the University of Nebraska in 1949 and was Howard S. Wilson Regents Professor at the University of Nebraska before leaving for CIMMYT in 1970. His primary research interests have been selection methods and population improvement as related to productivity, pest resistance and protein quality.

Quantitative Genetics in Maize Breeding



Ralph E. Comstock has been Regents Professor of Genetics at the University of Minnesota since 1968. He received the Ph.D. from the University of Minnesota in 1938. For several years he was a member of the Experimental Statistics Department at North Carolina State College. He is widely known for his contributions to quantitative and population genetics theory for plant and animal breeding. Particularly noted are his contributions to development of reciprocal recurrent selection and experimental designs for estimating genetic variance components and average degree of dominance.

TUESDAY, SEPTEMBER 9

Tuesday Morning: Corn Breeding

Population Improvement in Maize



Charles O. Gardner is Meyer Katzman Professor of Agronomy at the University of Nebraska. Born in Nebraska, he received the Ph.D. in 1951 from North Carolina State University. He has been a faculty member of the University of Nebraska since 1952. He is currently President, Crop Science Society of America. His major research interests are in development of genetic models to better understand inheritance of quantitative traits in corn and sorghum and modification of population improvement systems.

Breeding for Industrial and Nutritional Quality in Maize



Roy G. Creech became head of the Agronomy Department, Mississippi State University in 1972 following 12 years in the Horticulture Department at The Pennsylvania State University. Born in Texas, he received his Ph.D. from Purdue University in 1960. He has made major research contributions on genetic control of starch quality and biochemistry using maize.

TUESDAY, SEPTEMBER 9

Tuesday Morning: Corn Breeding**Current and Future Use of Cytoplasmic Male Sterility for Hybrid Seed Production**

Donald N. Duvick has been Director, Department of Corn Breeding, Pioneer Hi-Bred International, Inc. since 1972. He has been a member of the corn breeding staff of Pioneer since receiving his Ph.D. from Washington University (St. Louis) in 1951. He has made major research contributions to the understanding of the nature and genetics of cytoplasmic inheritance and the cytology and biochemistry of developing maize endosperm.

WEDNESDAY, SEPTEMBER 10

Wednesday Morning: Cytogenetics**Chairperson: Ellen Dempsey**

Ellen Dempsey is presently Demonstrator, Indiana University where she has been since 1958. Following receiving an M.A. from Columbia University in 1947, she was a Research Assistant and Associate at the University of Illinois prior to going to Indiana University. Miss Dempsey made important contributions to publication of the Maize Genetics Coop Newsletter for many years.

WEDNESDAY, SEPTEMBER 10

Wednesday Morning: Cytogenetics**Genetic Effects of Heterochromatin in Maize**

Marcus M. Rhoades holds the title Distinguished Professor, Department of Plant Sciences, Indiana University. He received the Ph.D. from Cornell University in 1932. He is a member of both the National Academy of Sciences and the American Academy of Arts and Sciences. He is widely known as an outstanding teacher and researcher. His major research interests have been in genetics and cytogenetics of maize.

The Significance of Chromosome Constitutions in Tracing the Origins and Migrations of Races of Maize in the Americas

Barbara McClintock was for several years a staff member of the Carnegie Institution of Washington's Genetic Research Unit at Cold Spring Harbor. Born in Connecticut, she received the Ph.D. from Cornell University in 1927. Long recognized as America's most distinguished cytogeneticist she was awarded the National Medal of Science in 1970 and is a member of the National Academy of Sciences.

Wednesday Morning: Cytogenetics**Cytogenetics of Interchanges**

Charles R. Burnham has been Emeritus Professor, University of Minnesota since his retirement in 1972. Born in Wisconsin, he received the Ph.D. in 1929 from the University of Wisconsin. From 1938-1972 he was a member of the faculty of the University of Minnesota. He is well known for his teaching of cytogenetics and the book *Discussions in Cytogenetics*. His major research interests are the cytogenetics of plants including maize, barley, tomatoes, and *Datura*, and the utilization of translocations and inversions in studies of chromosome behavior.

Molecular Cytogenetics of the Nucleolus Organizer Region

Ronald L. Phillips is Associate Professor of Agronomy and Plant Genetics at the University of Minnesota. Born in Indiana, he received the Ph.D. from the University of Minnesota in 1966. He is active in teaching as well as research. His major research efforts are in the areas of nucleolus organizer genetics and relationship to protein and the tissue culture-cytogenetic interface with emphasis on a selection scheme for increased lysine, threonine and methionine.

Wednesday Afternoon: Tissue Bionomics**Chairman: J. L. Brewbaker**

J. L. Brewbaker is Professor of Horticulture at the University of Hawaii where he has been since 1961. Born in Minnesota, he received the Ph.D. from Cornell University in 1952. Author of "Agricultural Genetics," he has long been noted for his research on biochemical genetics of maize.

The Aleurone Tissue as a Genetic Tool

Edward H. Coe, Jr. has been a geneticist with ARS, USDA at the University of Missouri since 1955. He received his Ph.D. from the University of Illinois in 1954. Presently editor of the *Maize Genetics Cooperation Newsletter*, he has published extensively on anomalous fertilization events and genetic control of anthocyanin pigmentation in maize.

WEDNESDAY, SEPTEMBER 10

Wednesday Afternoon: Tissue Bionomics**Influence of Parental Source on Gene Action in Maize Endosperm**

J. L. Kermicle is Associate Professor of Genetics, University of Wisconsin-Madison, where he has been since 1963. Born in Illinois he received the Ph.D. from the University of Wisconsin in 1963.

Cell and Tissue Cultures of Maize

Charles E. Green, Jr. has been Assistant Professor at the University of Minnesota since 1972. Born in Montana, he received the Ph.D. from Montana State University in 1970. His primary research effort is in the development of cell and tissue culture methods for application in plant improvement.

WEDNESDAY, SEPTEMBER 10

Wednesday Afternoon: Tissue Bionomics

Use of Tissue Culture to Study Photosynthetic Biochem
Genetic Modification of Cell Biochemistry by Means of Plant Tissue Culture



M. K. B. Berlyn is Staff Scientist, University of Connecticut Agricultural Experiment Station. Born in Iowa, she received the Ph.D. in microbial genetics from Yale University in 1966. Her present research interests are centered on somatic cell genetics of higher plants with particular interest in mutants and processes affecting photosynthesis and respiration.

Maize Pollen Biology

Paul L. Pfahler is Professor of Agronomy at the University of Florida where he has been a member of the faculty since 1958. Born in Canada, he received the Ph.D. from Purdue University in 1957. His major research interests are in the reproductive biology of higher plants.

Thursday Morning: Nuclear-Cytoplasmic Interactions

Chairman: Robert I. Brawn



Robert I. Brawn has been Manager, Corn Research, for Funk Seeds International since 1971. Born in Pennsylvania, he received the Ph.D. from the University of Wisconsin in 1956. Prior to his appointment with Funk Seeds he had been on the faculty of the Agronomy Department, Macdonald College, McGill University. His major research activities have centered on corn genetics and breeding, particularly with reference to earliness.

Nuclear and Cytoplasmic Mutations to Fertility in S Male-Sterile Maize

John R. Laughnan is currently Professor of Genetics in the provisional Department of Genetics and Development, and of Plant Genetics in the Department of Agronomy, University of Illinois. Born in Wisconsin, he received the Ph.D. from the University of Missouri in 1946. His current research effort is aimed at a detailed understanding of extra-nuclear inheritance in corn.

Thursday Morning: Nuclear-Cytoplasmic Interactions

The Genetic Control of Opaque-7 Expression in Corn
Canalization of Endosperm Development in Opaque-7 Maize



R. A. Brink has been Emeritus Professor of Genetics from the University of Wisconsin since 1968. Born in Canada, he received the D.Sc. (Genetics) from Harvard in 1923. He began a distinguished career at the University of Wisconsin in 1922. A member of the National Academy of Sciences, he is widely known for such diverse research contributions as the study of paramutation in maize and the development of Vernal Alfalfa.

Gene Action and Endosperm Development in Maize

O. E. Nelson, Jr. has been Professor of Genetics, University of Wisconsin since 1969 following a long career at Purdue University. Born in Washington State, he received the Ph.D. from Yale University in 1947. Noted for the discovery of high lysine corn and his contributions to theoretical genetics he has received the Edward W. Browning Award and the Hoblitzelle National Award in Agricultural Sciences.

THURSDAY, SEPTEMBER 11

Thursday Morning: Nuclear-Cytoplasmic Interactions

Some Biochemical Indications of Genetic and Developmental Control in Endosperm



Curtis M. Wilson has been Research Chemist, ARS, USDA and Professor of Plant Physiology, Department of Agronomy, University of Illinois since 1959. He received the Ph.D. from the University of Wisconsin in 1954. His research activity includes basic biochemical investigations on protein in corn, especially those related to protein biosynthesis within the seed.

Thursday Afternoon: Evolution

Chairman: William L. Brown



William L. Brown is President of Pioneer Hi-Bred International. He received the Ph.D. (Cytogenetics) from Washington University in 1941. He began his career with Pioneer in 1945 as a cytogeneticist. He has long maintained a research interest in use of exotic germplasm in practical corn breeding.

THURSDAY, SEPTEMBER 11

Thursday Afternoon: Evolution

The Inheritance of Some Traits Essential to Maize and Teosinte



Walter C. Galinat is Professor, Suburban Experiment Station, University of Massachusetts. Born in Connecticut, he received the Ph.D. from the University of Wisconsin in 1953. While a research associate of Paul Mangelsdorf at Bussey Institute, Harvard University, he began study of the evolution of corn. His research interests include the combination of studies of archeological remains of corn's history and the morphological and cytological evidence from present day corn and its relatives on the evolution of maize.

Teosinte and the Origin of Maize



George W. Beadle has been President Emeritus, William E. Wrather Distinguished Service Professor and Honorary Trustee, University of Chicago, since 1969. Born in Nebraska, he received the Ph.D. from Cornell University in 1931. He also has received numerous honorary degrees. He won the Nobel prize in physiology and medicine (with Edward L. Tatum and Joshua Lederberg) for his work in biochemical genetics of *Neurospora*. He is a member of the National Academy of Sciences. Upon his retirement from the Presidency of the University of Chicago, Beadle's interest returned to the genetics of corn. He has since conducted a large and vigorous program on its origin.

THURSDAY, SEPTEMBER 11

Thursday Afternoon: EvolutionTripsacum and the Origin of Maize

J.M.J. De Wet has been Professor of Cytogenetics at the University of Illinois since 1967. Born in South Africa, he received the Ph.D. in genetics from the University of California (Berkeley) in 1952. His primary scientific interests are ethno-botany, evolutionary significance of polyploidy and gametophytic apomixis and biosystematics of cereals.

A cursory survey of the Races of Maize and Current Attempts to Infer Racial Relationships



Major M. Goodman is Associate Professor of Statistics, North Carolina State University. Born in Iowa, he received the Ph.D. from North Carolina State University in 1965. His major research interests are in numerical taxonomy and the evolution of cultivated plants, particularly maize.

FRIDAY, SEPTEMBER 12

Friday Morning: Gene Action and Control

Chairman: I. M. Greenblatt

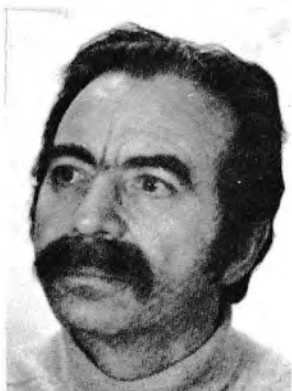
I. M. Greenblatt

Glossy Mutants: Levels of Action and Levels of Analysis

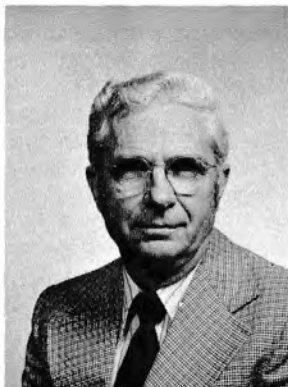


Angelo Bianchi is Director of the Experimental Institute for Cereal Research of Rome. Born in Italy, he obtained the Italian Doctor degrees in Natural Sciences (1948) and in Biological Sciences (1950). He is presently editor-in-chief of Genetica Agraria. His areas of research have included maize genetics and more recently plant breeding with emphasis on hybrid development and exploitation.

FRIDAY, SEPTEMBER 12

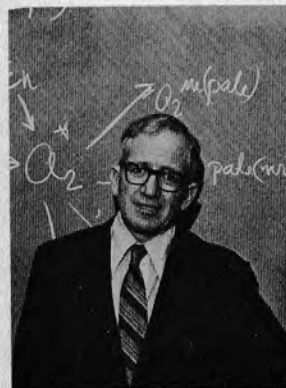
Friday Morning: Gene Action and Control**Genetics of Alcohol Dehydrogenase in Maize**

Drew Schwartz has been Professor of Genetics, Department of Plant Sciences, Indiana University since 1964. Born in Pennsylvania, he received the Ph.D. in Botany from Columbia University in 1950. His major research efforts have been on studies of biochemical genetics, particularly of the alcohol dehydrogenases in maize.

The Induction of Genetic Variability

M. G. Neuffer is Professor of Biological Sciences at the University of Missouri. Born in Idaho, he received the Ph.D. from the University of Missouri in 1952 and has been on the faculty since. He was primarily responsible for publication of Mutants of Maize. His major research interests are in maize genetics, especially mutator systems and chemical mutagenesis.

FRIDAY, SEPTEMBER 12

Friday Morning: Gene Action and Control**Controlling Elements - Components of Systems**

Peter A. Peterson is Professor, Departments of Agronomy and Genetics, Iowa State University. Born in Connecticut, he received the Ph.D. from the University of Illinois in 1953. His major scientific interests include maize genetics and cytogenetics with emphasis on controlling elements, recombination and the biochemical basis of altered cytoplasm.