Second International Conference on
Quantitative Genetics

PROGRAM

Raleigh, North Carolina
May 31-June 5, 1987
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Department of Genetics

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SATURDAY MAY 30, 1987

SATELLITE CONFERENCE
Quantitative Genetics in Forestry
Room 3533 Gardner Hall
North Carolina State University

Organizer: James H. Roberds, USA

8:00 am  Registration
Foyer of Williams Hall, NCSU Campus

9:00 am  Welcome
William R. Atchley
Head of Department of Genetics
North Carolina State University

9:10 am  "Joint analysis of genotypic and environmental effects:"
Hans-Rolf Gregorius, FEDERAL REPUBLIC OF GERMANY

10:10-10:30 am BREAK

10:30 am  "Genetic effects on growth and yield components in Southern Pines."
Warren L. Nance, USA

11:30 am  "Experimental design efficiencies for heritability estimation:"
Barbara McClatchy, USA

12:30-2:00 pm LUNCH BREAK

2:00 pm  "Estimation of mating system parameters for natural populations: assumptions and interpretation."
Francis C. Yeh, CANADA

3:00-3:30 pm BREAK

3:30 pm  "Mating patterns in seed orchards and their consequences."
W. Thomas Adams, USA

4:30 pm  Business Meeting
North American Quantitative Forest Genetics Group

SATURDAY MAY 30, 1987

SATELLITE CONFERENCE
Quantitative Genetics in Natural Populations
Room 2405A Williams Hall
North Carolina State University

Organizer: Michael Lynch, USA

8:00 am  Registration
Foyer of Williams Hall, NCSU Campus

8:45 am-9:30 pm  PARAMETER ESTIMATION: THEORY AND PRACTICE

8:45 am  Welcome
William R. Atchley
Head of Department of Genetics
North Carolina State University

9:00 am  "Statistical genetics of natural populations: putting theory into practice."
Thomas Mitchell-Olits, USA

10:00 am  "The advantages and disadvantages in applying likelihood methods in quantitative genetic studies of natural populations."
Ruth Shaw, USA

11:00-11:30 am BREAK

11:30 am  "The evolution of sexual communication: quantitative genetics as a tool for hypothesis testing and parameter estimation."
Christine Boake, USA

12:30-2:00 pm LUNCH BREAK

2:00 pm  "Genetic variability and demography: field estimates for aphids on two host plant species."
Sara Vial, USA

3:00 pm  "The non-integrated phenotype for body size in the Great Tit."
Arie van Nordwijk, SWITZERLAND

4:00-4:30 pm BREAK

4:30 pm  "Genetical integration of the Rhesus macaque cranium revisited."
James Cheverud, USA
SUNDAY MAY 31, 1987

SATellite Conference

Quantitative Genetics in Natural Populations

8:30 am-10:30 am EVOLUTIONARY CONSTRAINTS

8:30 am  "The role of nonlinearity in the evolution of quantitative characters."  
       Alexander Gimelfarb, USA

9:30 am  "Constraints on the evolution of complex quantitative characters."  
       Mark Kirkpatrick, USA

10:30-11:00 am BREAK

11:00 am-1:00 pm PALEONTOLOGY AND PHYLOGENY

11:00 am  "Estimation and interpretation of quantitative genetic parameters in micropaleontology."  
       Richard A. Reymert, SWEDEN

12:00 pm  "Use of quantitative characters in phylogenetic inference."  
       Joseph Felsenstein, USA

SUNDAY MAY 31, 1987

SeConD International Conference on QUANTITATIVE GENETICS

2:00 pm-10:00 pm CONFERENCE REGISTRATION  
       Expo Center  
       Mission Valley Inn

7:00 pm-10:00 pm MIXER  
       (Fee Event, Ticket Required)  
       Expo Center  
       Mission Valley Inn

All remaining functions in the Andrew Johnson Ballroom,  
Mission Valley Inn, unless otherwise indicated.
MONDAY JUNE 1, 1987

8:00 am WELCOME TO PARTICIPANTS
Daniel L. Solomon
Head of Department of Statistics
North Carolina State University
Bruce R. Poulton
Chancellor
North Carolina State University

8:15 am-10:00 am THEORETICAL ADVANCES

8:25 am  "The interrelations of mutation, population size, artificial and natural selection."
William G. Hill and Peter D. Keightley, UK

9:05 am  "Quantitative Genetics and Evolutionary Theory"
Russell Lande, USA

9:45 am  Discussion

10:00 am-10:30 am BREAK

10:30 am-12:15 pm FINDING GENES AFFECTING QUANTITATIVE TRAITS

10:30 am  Chairman's Mini-Review
Franz Pirchner, FEDERAL REPUBLIC OF GERMANY

10:40 am  "Characterizing genes affecting quantitative traits in humans."
Charles F. Sing, Eric Bourquinke, Patricia P. Moll and Alan R. Templeton, USA

11:20 am  "The genetics and endocrinology of the Boodljia Sheep F1 gene."
Laurie R. Piper and B.M. Binda, AUSTRALIA

12:00 pm  Discussion
12:15 pm-2:00 pm LUNCH BREAK

2:00 pm  Chairman's Mini-Review
Robert C. Elston, USA

2:10 pm  "An approach to the genetics of physiological homeostasis."
Edmond A. Murphy and Kenneth R. Barger, USA

2:50 pm  "The quantitative genetic study of human developmental changes: a model and its limitations."
Lindon J. Eaves, J. K. Hewitt and A. C. Heath, USA

3:30 pm  Discussion

MONDAY JUNE 1, 1987

3:30 pm-4:00 pm BREAK

4:00 pm-5:45 pm INBREEDING POPULATIONS

4:00 pm  Chairman's Mini-Review
Michel Gillois, FRANCE: Chairman

4:10 pm  "Selection response in inbred lines of White Leghorns Chickens."
Hans Abraham, USA

4:50 pm  "Control of genetic drift in a selected population."
Claude Chevalet, FRANCE

5:30 pm  Discussion

6:00 pm-8:00 pm PICNIC
North Patio, Student Center
North Carolina State University

8:00 pm-9:45 pm DEVELOPMENTS BASED ON WORK OF C. CLARK COCKERHAM
Stewart Theatre, Student Centre
North Carolina State University

8:00 pm  Chairman's Mini-Review
Bruce S. Weir, USA

8:15 pm  "Some applications of the co variance of relatives with inbreeding."
Anthony J. Wright, UK

8:45 pm  "Genotype-environment interaction in relation to the maintenance of genetic variability in populations of Drosophila melanogaster."
Terumi Mukai, JAPAN

9:15 pm  "A comparative analysis of the genetic structure of tribal human populations from Lowland South America and Highland New Guinea using F-statistics."
Peter E. Smouse and Jeffrey C. Long, USA

SIGHTSEEING TOUR
8:00 am-5:00 pm OLD SALEM
(Fee Event: Ticket Required)
TUESDAY JUNE 2, 1987

8:00 am-10:15 am CHANGES IN QUANTITATIVE GENETIC TECHNOLOGY

8:00 am Chairman's Mini-Review
Maurice Richard, UK

8:10 am "Potential for animal breeding: current and future."
Charles Smith, CANADA

8:50 am "RFLPs in genetic analysis and breeding manipulation of quantitative traits."
Morris Soller, ISRAEL

9:30 am "Biochemical markers in studying quantitative characters."
Aleksej A. Sozinov, USSR

10:10 am Discussion

10:15 am-10:45 am BREAK

10:45 am-12:30 pm GENOTYPE-ENVIRONMENT INTERACTION

10:45 am Chairman's Mini-Review
Arnold Hallauer, USA

10:55 am "Differential response to environmental stress."
Robert J. Baker, CANADA

11:35 am "The genetic basis of environmental sensitivity."
John L. Jinks and Harpal S. Pooni, UK

12:15 pm Discussion

12:30 pm-2:00 pm LUNCH BREAK

2:00 pm-3:45 pm QUANTITATIVE GENETICS IN FORESTRY

2:00 pm Chairman's Mini-Review
Johannes P. van Buijtenen, USA

2:10 pm "Recruitment for breeding populations: objectives, genetics and implementation."
Rowland D. Burdon, NEW ZEALAND

2:50 pm "Analysis of mating system in forest trees."
Gerhard Muller-Starck, FRG

3:30 pm Discussion

3:45 pm-4:15 pm BREAK

TUESDAY JUNE 2, 1987

4:15 pm-6:00 pm INSERTING SINGLE GENES AFFECTING QUANTITATIVE TRAITS

4:15 pm Chairman's Mini-Review
Joseph Schuler, SWITZERLAND

4:25 pm "Fate of genes inserted into plant cells by direct gene transfer."
Ray D. Shillito, USA

5:05 pm "Insertion of retroviral vectors into the avian germ line."
Lyman Crittenden and Donald W. Salter, USA

5:45 pm Discussion

6:00 pm-7:30 pm DINNER BREAK

7:30 pm-10:00 pm POSTER SESSION AND EXHIBITS
Expo Center
Mission Valley Inn

SIGHTSEEING TOUR
9:00 am-2:00 pm CAPITAL CITY TOUR
(Fee Event: Ticket Required)
WEDNESDAY JUNE 3, 1987

8:00 am-10:15 am MATHEMATICAL AND STATISTICAL ISSUES

8:00 am  Chairman's Mini-Review
          Charles R. Henderson, USA

8:10 am  Properties of mixed model methods for prediction of
genetic merit.*
          Brian W. Kennedy and D.A. Sorensen, CANADA

8:50 am  Selection and stochastic trends in the theory of molecular
         micro- and macroevolution.*
         Vadim A. Ratner, USSR

9:30 am  Population dynamics of quantitative traits under the action
         of selection and mutation: non-Gaussian models.*
         Samuel Karlin, USA

10:10 am Discussion

       10:15 am-10:45 am BREAK

10:45 am  Chairman's Mini-Review
          C. Robert Cocminger, USA

10:55 am  Path analysis of genetic and cultural transmission in
          human behavior.*
          David W. Fuhrer, USA

11:35 am  Genetic epidemiology of common diseases in man.*
          Lennart Isolius, SWEDEN

12:15 pm Discussion

       12:30 pm-2:00 pm LUNCH BREAK

       2:00 pm-6:00 pm SCIENTIFIC TOURS
       (Fee Events: Tickets Required)

Tour Number 1: National Institute of Environmental Health Sciences
Tour Number 2: Duke University Departments of Botany and Zoology
Tour Number 3: Gilb-Galigy Agricultural Biotechnology Research Unit
Tour Number 4: NCSU School of Veterinary Medicine and Animal Science Facilities
Tour Number 5: NCSU Arboretum and Genetics Gardens
Tour Number 6: SAS Institute
Clayton Experiment Station
Duke Primate Center

WEDNESDAY JUNE 3, 1987

6:30 pm-8:00 pm  PRE-DINNER COCKTAILS
                  (Cash Bar)
                  Expo Centre, Mission Valley Inn

8:00 pm-10:00 pm  BANQUET
                  (Fee Event; Ticket Required)
                  Andrew Johnson Ballroom, Mission Valley Inn

          Master of Ceremonies
          William R. Atchley
          Head of Department of Genetics
          North Carolina State University

          After Dinner Speaker
          Richard G. Lewontin
          Museum of Comparative Zoology
          Harvard University

SIGHTSEEING TOURS

9:00 am-1:00 pm  BURLINGTON OUTLET SHOPS

       2:00 pm-5:00 pm TRIPLE TOUR
       (Fee Events: Tickets Required)
THURSDAY JUNE 4, 1987

8:00 am-10:15 am EPIS,ASTIS AND HETEROSIS

8:00 am Chairman’s Mini-Review
Hartwig H. Geiger, FEDERAL REPUBLIC OF GERMANY

8:10 am “Means and variances in hybrid populations with disequilibrium in the parents.”
Albrecht E. Melchinger, FEDERAL REPUBLIC OF GERMANY

8:50 am “An operational genetical theory of heterosis, with applications in animal and plant breeding.”
J.S. Wu, PEOPLE’S REPUBLIC OF CHINA

9:30 am “Some methods of analysis of correlated characters.”
Lev A. Zhivotovsky, USSR

10:10 am Discussion
10:15 am-10:45 am BREAK

10:45 am-12:30 pm SELECTION ADVANCES IN DOMESTIC SPECIES

10:45 am Chairman’s Mini-Review
Dale Van Vleck, USA: Chairman

10:55 am “Current practice and future prospects in selection of farm animals.”
Louis Olliver, FRANCE

11:30 am “Theory for identification of lines or populations useful for improvement of parents of elite single crosses.”
John W. Dudley, USA

12:15 pm Discussion
12:30 pm-2:00 pm LUNCH BREAK

2:00 pm Chairman’s Mini-Review
J. Stuart F. Barker, AUSTRALIA

2:10 pm “Population genetic models for polygenic variation and evolution.”
Michael Turelli, USA

2:50 pm “Quantitative genetics in natural populations of garter snakes.”
Stevan Arnold, USA

3:30 pm Discussion
3:45 pm-4:15 pm BREAK

THURSDAY JUNE 4, 1987

4:15 pm-6:00 pm NEW SOURCES OF VARIATION

4:15 pm Chairman’s Mini-Review
Franklin D. Entzel, USA

4:25 pm “Transposable element-induced quantitative genetic variation in Drosophila.”
Trudy C. Mackay, UK

5:05 pm “Exchanges in the rRNA multigene family as a source of genetic variation.”
Richard Frankham, AUSTRALIA

5:45 pm Discussion

6:00 pm-7:30 pm DINNER BREAK

7:30 pm-10:00 pm POSTER SESSION AND EXHIBITS
Expo Center
Mission Valley Inn

SIGHTSEEING TOUR
9:00 am-5:00 pm ZOO AND POTTERIES
(Advance Event: Ticket Required)
FRIDAY JUNE 5, 1987

6:00 am-9:45 am QUANTITATIVE GENETICS IN CROP IMPROVEMENT

8:00 am  Chairman's Mini-Review
          F. Wolfgang Schnell, FEDERAL REPUBLIC OF GERMANY

8:10 am  "Quantitative genetics and corn breeding in Brazil."
          Roland Vencovsky, J. B. Miranda Filho and C. L. Souza, Jr.,
          BRAZIL

8:50 am  "Genetic expression for endosperm traits."
          Mo Huidong, PEOPLE'S REPUBLIC OF CHINA

9:30 am  Discussion

9:45 am-10:15 am BREAK

10:15 am-12:00 pm "NON-TRADITIONAL" SPECIES

10:15 am  Chairman's Mini-Review
          Eric Bradford, USA: Chairman

10:25 am  "A review of quantitative genetic research in salmonids at
          AKVAFORSK."
          Trygve Gjedram, Bjarne Gjerde and Terje Refstie, NORWAY

11:05 am  "Theories of metabolic control in quantitative genetics."
          Daniel L. Hartl, Daniel E. Dykhuizen, and Antony M. Dean,
          USA

11:45 am  Discussion

12:00 pm CONFERENCE CONCLUDES