AMERICAN MATHEMATICAL SOCIETY

Notices

Edited by J. H. Curtiss

CONTENTS

Published by the Society

CALENDAR OF MEETINGS

Note: This Calendar lists all of the meetings which have been approved by the Council up to the date at which this issue of the *Notices* was sent to press. The meeting dates which fall rather far in the future are subject to change. This is particularly true of the meetings to which no numbers have yet been assigned.

Meeting No.	Date	Place	Deadline for Abstracts
527	October 27, 1956	Cambridge, Massachusetts	Sept. 13
528	November 17, 1956	Pasadena, California	Oct. 4
529	November 23–24, 1956	Evanston, Illinois	Oct. 4
530	November 30–December 1, 1956	Lexington, Kentucky	Oct. 4
531	December 27–29, 1956 (63rd Annual Meeting)	Rochester, New York	Nov. 13
	April 5–6, 1957	New York, New York	Feb. 20
	August 26–30, 1957 (62nd Summer Meeting)	University Park, Pennsylvania	July 12
	October 26, 1957	Washington, D. C.	Sept. 12
	November, 1957	Columbia, Missouri	
	January, 1958 (64th Annual Meeting)		
	November, 1958	Evanston, Illinois	
	November, 1959	Detroit, Michigan	

SIXTY-FIRST SUMMER MEETING
and
THIRTY-SIXTH COLLOQUIUM

University of Washington
Seattle, Washington
August 21–24, 1956

PROGRAM

The sixty-first summer meeting and the thirty-sixth Colloquium of the American Mathematical Society will be held from Tuesday, August 21, through Friday, August 24, at the University of Washington, Seattle 5, Washington. The following organizations will also meet in Seattle that week: Mathematical Association of America, Institute of Mathematical Statistics, Biometric Society, and Econometric Society. Some mention of their programs will be found under the Time Table for the Society's meeting, and under *Programs of Other Organizations*, but for details one should consult the programs of the individual organizations.

Professor Salomon Bochner of Princeton University will deliver the Colloquium Lectures on Tuesday at 2:00 P.M. and Wednesday at 9:00 A.M. in the Health Sciences Auditorium, and on Thursday and Friday at 9:00 A.M. in Guggenheim Auditorium. His title is *Harmonic analysis and probability*.

By invitation of the Committee to Select Hour Speakers for Annual and Summer Meetings, addresses will be presented as follows: Professor C. B. Allendoerfer, University of Washington, *Some recent advances in differential geometry in the large,* Health Sciences Auditorium, 11:00 A.M. Wednesday; Professor Kenkichi Iwasawa, Massachusetts Institute of Technology, *A theorem on Abelian groups and its application in algebraic number theory,* and Professor Sarvadaman Chowla, University of Colorado, *Difference sets and finite geometries,* both at 10:30 A.M. in Guggenheim Auditorium, on Thursday and Friday respectively.

At 1:00 P.M. on Friday (Bagley Hall, Room 131), there will be a special session of invited papers in Applied Mathematics, the speakers being Professor Bernard Friedman, Professor Paul Chambré, Dr. William Nachbar, Professor J. W. Carr, III, and Dr. R. L. Brock.

3

At 4:00 P.M. on Thursday (Bagley Hall, Room 131), there will be a joint session of the Society with the Institute of Mathematical Statistics. The Institute is represented by the first two speakers, the Society by the remaining seven.

Sessions for contributed papers are scheduled at various times, details being included in the body of the program. Sessions for late papers will be arranged if necessary.

There will be a Business Meeting of the Society in Health Sciences Auditorium at 10:00 A.M. on Wednesday.

The Council of the Society will meet at 5:00 P.M. on Tuesday, in the Leary Lounge of the Women's Residence Hall. After an adjournment for dinner, the meeting will continue during the evening.

The Employment Register will be available throughout the meeting. Details will be available at the registration desk.

REGISTRATION

Registration headquarters will be on the second floor of the Student Union Building (HUB) and will be open Sunday afternoon and evening and from 8:30 to 5:00, Monday through Friday. All those attending the meetings are requested to register as soon as possible. A directory of all persons registered, an information desk, a mail room, the employment register, and the textbook exhibits will be located in the registration area.

There will be a local registration fee of $1.00 for each adult.

ROOMS AND MEALS

Dormitory accommodations for 300 people are available in the Women's Residence Hall. Single rooms are $2.50 and double rooms (bunk beds) are $1.75 per person per night. Dormitory rooms may be occupied from Sunday evening, August 19, until the following Saturday. A reservation form is to be found on page 55, and members are requested to fill it out and return it to Mr. Pringle in time to arrive by August 4 regardless of whether or not they wish dormitory accommodations.

Several Seattle hotels have reserved rooms for members. Reservations should be made directly with the hotel management at least two weeks before arrival date, mentioning the Society.

Meany Hotel ($5.00–$6.00) ($7.50–$10.00)

Wilsonian Hotel ($4.00) ($6.00–$7.00)

Western Hotels (Address reservations to Western Hotels Sales Department) ($4.50–$9.00) ($6.50–$10.00)

The Roosevelt	The New Washington	The Windsor
The Mayflower	The Vance	The Camlin

The prices quoted are for single and double accommodations respectively. The Meany and the Wilsonian are within easy walking distance of the University campus; the six Western Hotels are in downtown Seattle, some three miles from the campus.

The following motels are convenient to the University: Forty-second Street Motel, N. 42nd and Aurora; Green Lake Motel, 8900 Aurora; Lew-Al Motel, 8601 29th N. E; Liberty-Bell Auto Court, 9920 Aurora; North Seattle Motel, 11522 Aurora; Rainbow Motel, 10531 Aurora; Royal Motel Court, 10745 Aurora.

Camping facilities are available within forty miles of the campus. Details will be available at the registration desk.

All meals will be served in the Cafeteria of the Student Union Building (HUB) at approximately 75¢ for breakfast, $1.00 for lunch, and $1.25 for dinner.

ENTERTAINMENT AND RECREATION

Lounges on the first floor of the Student Union Building (HUB) will be open daily from 7:30 A.M. to 9:00 P.M.; lounges in the Women's Residence Hall will be available at all times. The Coffee Shop on the ground floor of the HUB will be open from 9:00 A.M. to 7:00 P.M. daily and will offer fountain specialties, coffee, pastries, etc.

The University golf course (50¢ per round) and tennis courts are available to members and their families. Canoes can be rented from the University at 50¢ per hour or $2.00 per day. One of the University swimming pools will be open from 1:00 to 5:00 P.M. daily; interested parties should bring their own suits and towels.

The facilities of the Officers' Club at the Sand Point Naval Air Station are available for an informal pay-as-you-go party Tuesday evening.

There will be a salmon bake on Wednesday afternoon at 4:00 at Seward Park. The price is $1.00 per plate for children under twelve and $2.00 per plate for adults.

A boat cruise along Lake Washington, through the Government Locks, around Bainbridge Island, along the Seattle waterfront, and return, has been arranged for families of members Thursday afternoon from 4:00 to 8:00. The cost of the cruise will be $1.00 per child under 16 and $2.00 each for adults. A buffet supper can be obtained on the boat for $1.35 per plate.

A limited number of seats at $1.00 each have been reserved at the

Penthouse Theater on the University campus for Thursday evening; the performance begins at 8:00.

TRANSPORTATION

Seattle is served by United and Northwest Airlines from the east, Western and United from the south, and West Coast from Idaho and Oregon. The Seattle-Tacoma Airport is 15 miles south of Seattle, and limousine service ($1.25 per person) to the Olympic Hotel at 4th and Seneca is available almost continuously. Taxi fare from the Olympic Hotel to the University campus is $1.80; taxi fare from the airport to the campus is $5.00.

Busses 4, 7, and 8 of the Seattle Transit System offer transportation at 25¢ from 4th and Pike, and 3rd Ave., respectively, to within one block of the University campus (8 blocks from registration headquarters). Bus 4 leaves at 20-minute intervals and busses 7 and 8 at five-minute intervals until midnight; busses 7 and 8 continue to run at hourly intervals until dawn.

Railroads serving Seattle are the Northern Pacific, Great Northern, and Milwaukee Road from the east and the Union Pacific and Southern Pacific from the south. A short walk from the depot puts one on the route of the city transit system, or he may taxi to the campus for $2.00.

The principal highways through Seattle are U.S. 2, U.S. 10, and U.S. 99.

MAIL AND TELEGRAMS

Correspondence for those attending the meetings should be addressed in care of the American Mathematical Society, University of Washington, Seattle 5, Washington. Mail may be obtained at the mail room in the registration area.

Committee on arrangements:

R. A. Beaumont   H. M. Gehman
Z. W. Birnbaum   V. L. Klee, Jr.
D. G. Chapman   A. E. Livingston, Chairman
D. B. Dekker

V. L. Klee, Jr.
Associate Secretary

Los Angeles, California
July 6, 1956

TIME TABLE
(Pacific Standard Time)

SUNDAY, AUGUST 19

Afternoon and evening. Registration, Student Union Building.

MONDAY, AUGUST 20

8:30 A.M.–5:00 P.M. Registration, Student Union Building.

9:00 A.M. MAA Session, Guggenheim Auditorium. Hedrick Lecture I, J. C. Oxtoby.

10:00 A.M. MAA Session, Guggenheim Auditorium. Mathematical Competitions, W. H. Fagerstrom, H. M. Bacon, L. E. Bush.

2:00 P.M. MAA Session, Guggenheim Auditorium. Hedrick Lecture II, J. C. Oxtoby.

3:00 P.M. MAA Session, Guggenheim Auditorium. Dynamic Programming, Richard Bellman.

4:00 P.M. MAA Session, Guggenheim Auditorium. Games of Survival, L. S. Shapley.

7:30 P.M. MAA Board of Governors, McKee Lounge in the Women's Residence Hall.

Employment Register

TUESDAY, AUGUST 21

8:30 A.M.–5:00 P.M. Registration, Student Union Building.

9:00 A.M. MAA Session, Guggenheim Auditorium. Hedrick Lecture III, J. C. Oxtoby.

10:00 A.M. MAA Business Meeting, Guggenheim Auditorium.

10:00 A.M. IMS Session

11:00 A.M. MAA Session, Guggenheim Auditorium. Report from the Commission on Mathematics of the College Entrance Examination Board. G. B. Thomas, Jr., A. E. Meder, Jr.

11:30 A.M. IMS Session

2:00 P.M. Colloquium Lecture I, Health Sciences Auditorium, Salomon Bochner.

3:00 P.M. IMS Session

3:30 P.M. Sessions for contributed papers, Bagley Hall
Analysis, Room 140
Functional Analysis, Room 131
Geometry, Room 236.

5:00 P.M. Council, Leary Lounge in the Women's Residence Hall.

7:30 P.M.   MAA Section Officers, McKee Lounge in the Women's Residence Hall.

Evening.   Informal "pay-as-you-go" party at the Officers' Club of the Sand Point Naval Air Station.

Employment Register.

WEDNESDAY, AUGUST 22

8:30 A.M.–5:00 P.M. Registration, Student Union Building.

9:00 A.M.   Colloquium Lecture II, Health Sciences Auditorium, Salomon Bochner.

9:00 A.M.   IMS Session

10:00 A.M.   Business Meeting, Health Sciences Auditorium.

10:30 A.M.   IMS Session

11:00 A.M.   Invited Address, Health Sciences Auditorium, C. B. Allendoerfer.

1:30 P.M.   Sessions for contributed papers, Bagley Hall
Algebra, Room 140
Analysis, Room 131
Topology, Room 236

1:30 P.M.   IMS Session

4:00 P.M.   Salmon bake, Seward Park.

Employment Register

THURSDAY, AUGUST 23

8:30 A.M.–5:00 P.M. Registration, Student Union Building.

Meetings of the Biometric Society, and the Econometric Society.

9:00 A.M.   Colloquium Lecture III, Guggenheim Auditorium, Salomon Bochner.

9:00 A.M.   IMS Session

10:30 A.M.   Invited Address, Guggenheim Auditorium, Kenkichi Iwasawa.

11:00 A.M.   IMS Session

1:00 P.M.   Sessions for contributed papers, Bagley Hall
Algebra and Theory of Numbers, Room 236
Applied Mathematics, Room 131
Topology, Room 140

2:00 P.M.   IMS Session

3:15 P.M.   Sessions for contributed papers, Bagley Hall
Algebra, Room 140
Analysis, Room 236

4:00 P.M. Joint Session for contributed papers, I M S and A M S , Bagley Hall, Room 131.

4:00 P.M. Boat trip.

8:00 P.M. Theater party.

Employment Register

FRIDAY, AUGUST 24

8:30 A.M.–5:00 P.M. Registration, Student Union Building.

Meetings of the Biometric Society, and the Econometric Society.

9:00 A.M. Colloquium Lecture IV, Guggenheim Auditorium, Salomon Bochner.

9:00 A.M. IMS Session

10:30 A.M. Invited Address, Guggenheim Auditorium, Sarvadaman Chowla.

1:00 P.M. Session of invited papers in Applied Mathematics, Bagley Hall, Room 131.

1:00 P.M. Sessions for contributed papers, Bagley Hall
Analysis, Room 140
Logic and Foundations, Room 236

2:00 P.M. IMS Session

3:15 P.M. Sessions for late contributed papers, Bagley Hall.

Employment Register.

PROGRAM OF THE SESSIONS
(Time limit for each contributed paper, 10 minutes)

TUESDAY, 2:00 P.M.
Colloquium Lecture I, Health Sciences Auditorium
> Harmonic analysis and probability (One hour)
> Professor Salomon Bochner, Princeton University

TUESDAY, 3:30 P.M.

Session on Analysis, Bagley Hall, Room 140

(1) A Prufer transformation for matrix differential equations
> Professor J. H. Barrett, University of Delaware and Yale University

(2) Differential operators with perturbed domains
> Mr. C. A. Swanson, California Institute of Technology

(3) The first boundary value problem for a linear parabolic equation containing a small parameter
> Dr. D. G. Aronson, University of Illinois

(4) Asymptotic development of the solution of Dirichlet's problem at analytic corners
> Dr. W. R. Wasow, University of California, Los Angeles

(5) Asymptotic solutions of differential equations with a turning point and singularities
> Dr. R. C. Thorne, California Institute of Technology
> (Introduced by Professor H. F. Bohnenblust)

(6) Dissipative hyperbolic systems
> Professor R. S. Phillips, University of Southern California

(7) Periodic surfaces. I
> Professor S. P. Diliberto, University of California, Berkeley

(8) A new sufficient condition for periodic solutions of a class of weakly nonlinear differential equations
> Dr. J. K. Hale, Sandia Corporation

Session on Functional Analysis, Bagley Hall, Room 131

(9) Three test problems in operator theory
> Professor R. V. Kadison, Columbia University, and Professor I. M. Singer, Columbia University and Massachusetts Institute of Technology

(10) Bounded directed families of self-adjoint elements in AW^* algebras
   Dr. P. C. Curtis, Jr., University of California, Los Angeles, and Ramo-Wooldridge Corporation

(11) C^*algebras with trace
   Dr. R. T. Prosser, Duke University

(12) Removing ideals by Banach algebra extension
   Professor Richard Arens, University of California, Los Angeles

(13) The second conjugate of a semigroup algebra
   Professor M. M. Day, University of Illinois

(14) The Myers' F_T functionals as integrals
   Reverend L. J. Heider, Marquette University

(15) Boolean rings and Banach lattices
   Professor B. J. Eisenstadt and Professor G. G. Lorentz, Wayne State University

(16) The set of all generalized limits of bounded sequences. II
   Professor Meyer Jerison, Purdue University

(17) Functions of measures and Lambda spaces
   Professor B. J. Eisenstadt and Professor G. G. Lorentz, Wayne State University

Session on Geometry, Bagley Hall, Room 236

(18) Asymmetry of convex curves with respect to centroids of area
   Professor B. M. Stewart, Michigan State University

(19) A three point convexity property
   Professor F. A. Valentine, University of California, Los Angeles

(20) On generalized Cotes' spirals
   Professor R. M. Winger, University of Washington

(21) Transitivities in finite projective planes and related topics
   Professor T. G. Ostrom, Montana State University

(22) The von Neumann coordinatization theorem for complemented modular lattices
   Professor K. D. Fryer, Royal Military College of Canada, and Professor I. Halperin, Queen's University
       (Introduced by Professor H. W. Ellis)

(23) Minimal simple paths spanning a finite set
   Dr. T. T. Tanimoto, International Business Machines Corporation

(24) Ternary rings in relation to incidence matrices
    Professor W. R. Cowell, Montana State University

(25) Fibonacci sequence applied to quadratic transformations
    Professor J. C. Morelock, Professor N. C. Perry, Alabama Polytechnic Institute, and Professor W. R. Hutcherson, University of Florida

WEDNESDAY, 9:00 A.M.

Colloquium Lecture II, Health Sciences Auditorium

Harmonic analysis and probability (One hour)
Professor Salomon Bochner, Princeton University

WEDNESDAY, 11:00 A.M.

Invited Address, Health Sciences Auditorium

Some recent advances in differential geometry in the large (One hour)
Professor C. B. Allendoerfer, University of Washington

WEDNESDAY, 1:30 P.M.

Session on Algebra, Bagley Hall, Room 140

(26) New results concerning isomorphism of Boolean algebras and commutative semigroups. Preliminary report
    Dr. William Hanf, Lockheed Missile Systems Division, and Professor Alfred Tarski, University of California, Berkeley

(27) Results on direct decompositions of groups and other algebraic systems
    Professor Bjarni Jónsson, University of California, Berkeley

(28) Two general theorems concerning free algebras
    Professor Bjarni Jónsson and Professor Alfred Tarski, University of California, Berkeley

(29) The structure of commutative Moufang loops
    Professor R. H. Bruck, University of Wisconsin

(30) Homomorphisms of distributive lattices
    Professor R. P. Dilworth, California Institute of Technology

(31) An order preserving map on the subgroup lattice of the automorphism group
    Professor Franklin Haimo, Washington University

(32) Notes on the foundations of lattice theory. III
  Dr. D. O. Ellis, National Cash Register Company

Session on Analysis, Bagley Hall, Room 131
  (33) A note on the Laguerre method for separating the roots of an algebraic equation
    Professor Stephen Kulik, University of South Carolina
  (34) A generalization of Toeplitz's theorem in Hilbert space
    Dr. Y. K. Wong, Princeton University
  (35) On schlicht functions with real coefficients. II
    Dr. Edgar Reich, RAND Corporation
  (36) A new inequality for the unique continuation theorem. Preliminary report
    Mr. R. N. Pederson, University of Minnesota
  (37) Some remarks on potentials of linear mass distributions
    Professor M. G. Arsove, University of Washington
  (38) Heat conduction in general regions
    Professor W. B. Fulks, University of Minnesota
  (39) On the Almansi-Nicolesco theorem. Preliminary report
    Professor F. W. Perkins, Dartmouth College
  (40) Deviation of nonadditive set functions
    Dr. L. S. Shapley, RAND Corporation

Session on Topology, Bagley Hall, Room 236
  (41) Abstract multi-derivatives on infinitely-differentiable manifolds
    Professor L. E. Pursell, Grinnell College
  (42) A note concerning regular measures
    Professor R. E. Zink, Purdue University
  (43) On minimal completely regular spaces associated with a given ring of continuous functions
    Professor Melvin Henriksen, Purdue University
  (44) Rings with Hausdorff structure space. I
    Professor Leonard Gillman, Purdue University
  (45) On a compact Lie group acting on a manifold
    Professor P. S. Mostert, Tulane University

THURSDAY, 9:00 A.M.

Colloquium Lecture III, Guggenheim Auditorium
    Harmonic analysis and probability (One hour)
    Professor Salomon Bochner, Princeton University

Invited Address, Guggenheim Auditorium

A theorem on Abelian groups and its application in algebraic number theory (One hour)

Professor Kenkichi Iwasawa, Massachusetts Institute of Technology

THURSDAY, 1:00 P.M.

Session on Algebra and Theory of Numbers, Bagley Hall, Room 236

(46) Strongly normic polynomials
Professor D. J. Lewis, University of Notre Dame

(47) Continued fractions and indefinite forms
Professor Burrowes Hunt, Reed College

(48) Quadratic forms
Professor N. C. Ankeny, Massachusetts Institute of Technology

(49) Patterns and prime pairs
Professor C. N. Moore, University of Cincinnati

(50) On the frequency of small fractional parts in certain real sequences
Professor W. J. LeVeque, University of Michigan

(51) Dirichlet series and summation formulas
Dr. Abe Sklar, California Institute of Technology and Illinois Institute of Technology

(52) On the triangles of Bancroft Brown
Mr. H. W. Becker, Radio Engineering Institute

Session on Applied Mathematics, Bagley Hall, Room 131

(53) Tip effect of an oscillating finite thin wing in supersonic flow
Dr. T. C. H. Li, Convair
(Introduced by Dr. H. E. Salzer)

(54) Numerical solution of the multigroup Boltzmann transport equation for nuclear reactor design
Dr. E. H. Bareiss, David Taylor Model Basin
(Introduced by Dr. Feodor Theilheimer)

(55) Wave refraction at an interface. Preliminary report
Dr. C. M. Ablow, Stanford Research Institute

14

(56) A rational description of explosive-induced shock waves in metals. Preliminary report
Professor M. L. Friberg and Dr. C. R. Cassity, New Mexico Institute of Mining and Technology

(57) A method of matrix inversion applicable to a digital computer
Dr. T. C. Doyle, Los Alamos Scientific Laboratory

(58) The application of stability analysis in the numerical solution of quasi-linear parabolic differential equations
Dr. Jim Douglas, Jr., Humble Oil and Refining Company

(59) Zero crossings of a sine wave plus random noise
Dr. J. S. Bendat, Ramo-Wooldridge Corporation

(60) The eigenvectors of a matrix and the second quantization
Professor W. Band, Professor J. L. Brenner, and Professor P. A. Clement, State College of Washington

(61) Laplace transforms applied to interest functions
Professor H. E. Stelson, Michigan State University

(62) On isotropic functions of linear transformations
Dr. Walter Noll, University of Southern California

Session on Topology, Bagley Hall, Room 140

(63) Spaces with two dimensional rulings
Professor J. M. Slye, University of Minnesota

(64) The fixed point property for certain continua
Dr. R. E. Chamberlin, Sandia Corporation

(65) One-dimensional continuous curves and a homogeneity theorem
Professor R. D. Anderson, Louisiana State University

(66) Homogeneity of infinite-dimensional parallelotopes
Professor V. L. Klee, Jr., University of California, Los Angeles and University of Washington

(67) A necessary and sufficient condition that a 3-manifold be S^3
Professor R. H. Bing, University of Wisconsin

(68) Dimension and non-density preservation of mappings
Professor G. T. Whyburn, University of Virginia

(69) On bounded subsets of topological lattices
Dr. L. W. Anderson, Tulane University

(70) Clans with zero on an interval
Professor Haskell Cohen and Professor L. I. Wade, Louisiana State University

Session on Algebra, Bagley Hall, Room 140

(71) Embedding of general algebraic systems into systems of transformations
> Professor Gerald Berman and Professor R. J. Silverman, Illinois Institute of Technology

(72) D-regularity
> Professor N. J. Divinsky, University of Manitoba

(73) Weakly standard rings
> Professor R. L. San Soucie, University of Oregon

(74) On algebras of (γ, δ) type
> Professor L. A. Kokoris, Washington University

(75) Combinatorial properties of $0, 1$ matrices
> Professor H. J. Ryser, Ohio State University

(76) A fixed point theorem for affine transformations
> Professor C. M. Fulton and Professor D. A. Norton, University of California, Davis

(77) New proof of a theorem of Taussky and Geiringer
> Professor J. L. Brenner, State College of Washington

Session on Analysis, Bagley Hall, Room 236

(78) Sets of divergence of ordinary Dirichlet series
> Dr. G. U. Brauer, University of Minnesota

(79) On C-fractions belonging to a set Γ
> Professor F. M. Wright, Iowa State College of Agricultural and Mechanic Arts

(80) A new class of continued fraction expansions for the ratios of Heine functions
> Professor Evelyn Frank, University of Illinois

(81) On representations for certain variational problems. Preliminary report
> Professor O. O. Pardee, Syracuse University

(82) Extremal problems for real star mappings
> Dr. J. J. Harton, Jr., Motorola, Incorporated

(83) Some extremal problems in univalent functions
> Dr. Vikramaditya Singh, Stanford University

(84) The solution of an extremum problem in the complex domain by the variation of Schiffer
> Professor E. B. McLeod, Jr., Oregon State College

Session on Statistics and Probability, Bagley Hall, Room 131

(85) The quadratic birth process
>Professor P. W. M. John, University of New Mexico
>>(Introduced by Professor V. L. Klee, Jr.)

(86) On a uniqueness property not enjoyed by the normal distribution
>Dr. G. P. Steck, Sandia Corporation

(87) Moment generating functions of quadratic forms in serially correlated normal variables
>Professor R. B. Leipnik, University of Washington

(88) Solution of a ranking problem from paired comparisons
>Dr. L. R. Ford, Jr., RAND Corporation

(89) Coincidence probabilities. Preliminary report
>Professor Samuel Karlin, California Institute of Technology, and Dr. J. L. McGregor, Stanford University

(90) A mean martingale convergence theorem
>Dr. L. L. Helms, Convair

(91) Stochastic convergence of semimartingales
>Dr. Klaus Krickeberg, University of Wisconsin

(92) A general convergence theorem for sequences of stochastic processes
>Dr. E. G. Kimme, Oregon State College

(93) Almost sure everywhere divergence of random series
>Professor Aryeh Dvoretzky, Hebrew University and Columbia University

FRIDAY, 9:00 A.M.

Colloquium Lecture IV, Guggenheim Auditorium
>Harmonic analysis and probability (One hour)
>>Professor Salomon Bochner, Princeton University

FRIDAY, 10:30 A.M.

Invited Address, Guggenheim Auditorium
>Difference sets and finite geometries (One hour)
>>Professor Sarvadaman Chowla, University of Colorado

FRIDAY, 1:00 P.M.

Session of Invited Papers in Applied Mathematics (20 minutes each), Bagley Hall, Room 133

(94) Two theorems on wave propagation
Professor Bernard Friedman, New York University

(95) Chemical surface reactions in flow systems
Professor P. L. Chambré, University of California, Berkeley

(96) Note on expotential approximations for the rectangular plate
Dr. William Nachbar, Lockheed Aircraft Corporation

(97) Title to be announced
Professor J. W. Carr, III, University of Michigan

(98) Mathematics as applied to the analysis of electronic detection systems
Dr. R. L. Brock, Boeing Airplane Company

FRIDAY, 1:00 P.M.

Session on Analysis, Bagley Hall, Room 140

(99) Infrapolynomials
Professor T. S. Motzkin, University of California, Los Angeles, and Professor J. L. Walsh, Harvard University

(100) A note on the asymptotic behavior of Laguerre polynomials and functions for large n
Professor N. D. Kazarinoff, Purdue University and Professor R. W. McKelvey, University of Colorado

(101) On a class of polynomials related to the Hermite polynomials
Professor T. S. Chihara, Seattle University

(102) Complete orthonormal sequences of functions uniformly small on a subset
Dr. J. A. Hummel, Stanford University

(103) A generalized Green's relation R for a $(n-1)$-dimensional Cartan hypersurface
Mr. W. D. Maness, Chance Vought Aircraft
(Introduced by Dr. P. O. Bell)

(104) Global aspects of complete linear differential systems. Preliminary report
Mr. Robert Hermann, University of Chicago

(105) Exterior differential system and mapping of surfaces with associated vector fields in correspondence
Professor T. K. Pan, University of Oklahoma

18

Session on Logic and Foundations, Bagley Hall, Room 236

(106) On arithmetical classes which are closed under homomorphisms
Dr. C. C. Chang, Cornell University

(107) Elementary formal systems
Mr. R. M. Smullyan, Dartmouth College and Massachusetts Institute of Technology
(Introduced by Professor John McCarthy)

(108) Models of set theories
Dr. Richard Montague, University of California, Los Angeles
(Introduced by Dr. R. L. Vaught)

(109) Regular classes of relational systems. Preliminary report
Dr. Steven Orey, University of Minnesota

(110) An interpretation for some set theories. Preliminary report
Professor P. C. Gilmore, Pennsylvania State University

(111) Restricted set-theoretical definitions in arithmetic
Professor R. M. Robinson, University of California, Berkeley

SUPPLEMENTARY PROGRAM
(To be presented by title)

(112) Zero-dimensional compact groups of homeomorphisms
Professor R. D. Anderson, Louisiana State University

(113) Peculiar speeds of stars
Mr. G. A. Baker, Jr., University of California, Berkeley, and Professor G. A. Baker, Sr., University of California, Davis

(114) Multiplicative functionals on semi-groups of continuous functions. Preliminary report
Mr. H. S. Bear and Professor Bertram Yood, University of Oregon

(115) Pythagorean off-resonance systems
Mr. H. W. Becker, Radio Engineering Institute

(116) On singularities of solutions of certain differential equations in three variables. I
Professor Stefan Bergman, Stanford University

(117) On singularities of solutions of certain differential equations in three variables. II
Professor Stefan Bergman, Stanford University

(118) Algebraic systems with n operations
Professor Gerald Berman and Professor R. J. Silverman, Illinois Institute of Technology

19

(119) On random elements in Orlicz spaces. Preliminary report
   Dr. A. T. Bharucha-Reid, University of California, Berkeley
(120) Global subsets of the n-sphere
   Professor L. M. Blumenthal, University of Missouri
(121) On methods of determining all types of Grave-Cayley algebras with some applications
   Professor Volodymyr Bohun-Chudyniv, Library of Congress and Atlanta University
(122) On the unions of chains of models
   Dr. C. C. Chang, Cornell University
(123) Generalizations of the Euler ϕ-function
   Professor Eckford Cohen, University of Tennessee
(124) Cauchy products of certain types of arithmetical functions
   Professor Eckford Cohen, University of Tennessee
(125) Some algebraic number theory estimates based on the Dedekind eta-function
   Professor Harvey Cohn, Wayne University and National Bureau of Standards, Washington
(126) A simple ordering for linear graphs. Preliminary report
   Mr. D. W. Crowe, University of British Columbia
(127) Torsion in Engel modules
   Dr. R. L. Davis, University of Michigan
(128) Amenability of semigroups. II
   Professor M. M. Day, University of Illinois
(129) Means and ergodicity. II
   Professor M. M. Day, University of Illinois
(130) Periodic surfaces. II
   Professor S. P. Diliberto, University of California, Berkeley
(131) A uniqueness theorem for the solution of a Stefan problem
   Dr. Jim Douglas, Jr., Humble Oil and Refining Company
(132) A note on the numerical solution of parabolic differential equations
   Dr. Jim Douglas, Jr., Humble Oil and Refining Company
(133) On the fundamental theorems of the differential and integral calculus
   Professor I. S. Gal, Cornell University
(134) On a function space. Preliminary report
   Mr. Jesus Gil de Lamadrid, Ohio State University

(135) Almost periodic functions on the half-line
      Dr. Karel deLeeuw, University of Wisconsin

(136) Conditional and unconditional convergence in Banach spaces
      Professor B. R. Gelbaum, University of Minnesota

(137) Notes on Banach spaces and bases
      Professor B. R. Gelbaum, University of Minnesota

(138) Rings with Hausdorff structure space. II
      Professor Leonard Gillman, Purdue University

(139) Compatible semi norms in a vector lattice. I
      Professor Casper Goffman, University of Oklahoma

(140) Convergence in norm of integral means
      Professor Casper Goffman, University of Oklahoma

(141) Algebraic results on homogeneous linear differential equations
      Dr. Lawrence Goldman, Columbia University

(142) On vertices of space curves
      Mr. Donald Greenspan, University of Maryland

(143) On a class of linear differential equations with periodic coefficients
      Dr. J. K. Hale, Sandia Corporation

(144) On linear systems with integral valued solutions. I
      Dr. Isidore Heller, George Washington University

(145) On linear systems with integral valued solutions. II
      Dr. Isidore Heller, George Washington University

(146) On sets of generators in a free Abelian group
      Dr. Isidore Heller, George Washington University

(147) On the edges of a simplex
      Dr. Isidore Heller, George Washington University

(148) Weighted partitions for skew matrices over a finite field
      Professor J. H. Hodges, University of Buffalo

(149) Collineations and generalized incidence matrices. Preliminary report
      Dr. D. R. Hughes, Ohio State University

(150) A counterexample to the Poincaré inequality
      Dr. J. A. Hummel, Stanford University

(151) Types of (n, k) adherence and indecomposability
      Mr. R. P. Hunter, University of Miami
        (Introduced by Professor P. M. Swingle)

(152) Ideals in rings of continuous functions. I
      Mr. C. W. Kohls, Purdue University

(153) Ideals in rings of continuous functions. II
      Mr. C. W. Kohls, Purdue University

(154) The space of prime ideals of a ring
      Mr. C. W. Kohls, Purdue University

(155) Stable oscillating systems having quadratic damping
      Professor Erwin Kreyszig, Ohio State University
        (Introduced by Professor V. L. Klee, Jr.)

(156) On solutions of partial differential equations generated by Bergman operators
      Professor Erwin Kreyszig, Ohio State University
        (Introduced by Professor V. L. Klee, Jr.)

(157) On singularities of partial differential equations with analytic coefficients
      Professor Erwin Kreyszig, Ohio State University
        (Introduced by Professor V. L. Klee, Jr.)

(158) The Hausdorff-Young theorem for locally compact unimodular groups. Preliminary report
      Mr. R. A. Kunze, University of Chicago

(159) Automorphisms of the general linear group over a principal ideal domain
      Professor Joseph Landin, University of Illinois, and Professor Irving Reiner, University of Illinois and Institute for Advanced Study

(160) An abstract stability theorem. II
      Professor P. D. Lax, New York University

(161) The asymptotic behavior of the stable initial manifolds of a system of nonlinear differential equations
      Dr. J. J. Levin, Massachusetts Institute of Technology

(162) Some growth theorems for linear ordinary differential equations
      Professor W. S. Loud, University of Minnesota and Massachusetts Institute of Technology

(163) Behavior of certain forced non-linear systems with large forcing
      Professor W. S. Loud, University of Minnesota and Massachusetts Institute of Technology

(164) The categorical bar construction and the homology of rings
      Professor Saunders MacLane, University of Chicago

(165) Relative homology for Abelian groups and modules
      Professor Saunders MacLane, University of Chicago

(166) Some cohomology invariants of higher kind
      Professor W. S. Massey, Brown University

(167) On uniform semigroups
Mr. D. W. Miller, University of Nebraska

(168) On the solutions of the differential equation $rt - s^2 = 1$
Dr. J. C. C. Nitsche, Stanford University

(169) An analytic function connected with the minimal surface equation and Bernstein's theorem
Dr. J. C. C. Nitsche, Stanford University

(170) On the solutions of the differential equation $\Delta\phi = \exp\phi$
Dr. J. C. C. Nitsche, Stanford University

(171) On the ends of the fundamental groups of 3-manifolds with boundary
Dr. C. D. Papakyriakopoulos, Institute for Advanced Study

(172) On the unique continuation theorem for systems of elliptic equations. Preliminary report
Mr. R. N. Pederson, University of Minnesota

(173) A topological proof of a theorem of complex analysis
Professor R. L. Plunkett, Florida State University

(174) Some enumeration problems for trees
Professor Geert Prins and Professor Frank Harary, University of Michigan

(175) Uniqueness theorem for the Tricomi problem
Professor M. H. Protter, University of California, Berkeley

(176) A covering theorem for transformations
Professor P. V. Reichelderfer, Ohio State University

(177) A note on the Malcev theorem
Dr. R. B. Reisel, Loyola University

(178) On the structure of the infinite general linear group
Professor Alex Rosenberg, Northwestern University and Institute for Advanced Study

(179) Continuous functions on compact spaces without perfect subsets
Professor Walter Rudin, University of Rochester

(180) Subalgebras of group algebras
Professor Walter Rudin, University of Rochester

(181) On the minimum order of graphs with given automorphism group
Dr. G. O. Sabidussi, University of Minnesota

(182) Graph properties independent of the automorphism group
Dr. G. O. Sabidussi, University of Minnesota

(183) Diagonalization of a complemented algebra
Dr. P. P. Saworotnow, Catholic University of America

(184) On the existence of linear functionals invariant under operators. Preliminary report
    Professor H. M. Schaerf, Washington University

(185) On the existence of invariant measures. Preliminary report
    Professor H. M. Schaerf, Washington University

(186) Localization on spheres
    Professor V. L. Shapiro, Rutgers University

(187) Game solutions with arbitrary components
    Dr. L. S. Shapley, RAND Corporation

(188) Some theorems on asymptotic series
    Professor I. M. Sheffer, Pennsylvania State University

(189) Regular curves on Riemannian manifolds
    Mr. Stephen Smale, University of Michigan

(190) On definability by recursion
    Mr. R. M. Smullyan, Dartmouth College and Massachusetts Institute of Technology
        (Introduced by Professor John McCarthy)

(191) Approximate factorization of homogeneous linear ordinary differential operators
    Professor Walter Strodt, Columbia University

(192) Uniformly quasi-linear algebraic ordinary differential equations
    Professor Walter Strodt, Columbia University

(193) Asymptotically quasi-linear algebraic ordinary differential equations
    Professor Walter Strodt, Columbia University

(194) On a problem of R. Bellman
    Professor Walter Strodt, Columbia University

(195) Indecomposable trajectories in phase space
    Professor P. M. Swingle and Mr. R. P. Hunter, University of Miami

(196) A note on second-order nonlinear differential equations
    Professor W. R. Utz, University of Missouri

(197) Sub-quasigroups of finite quasigroups
    Professor D. W. Wall, University of North Carolina

(198) A generalized Hansen series
    Reverend C. J. Wallen and Professor Francis Regan, Saint Louis University

(199) On the covering of E_n by spheres
      Mr. Donald Warncke, Brooklyn, New York, and Mr. Fred Supnick, City College, New York

(200) A formulation and solutions of the equations of ideal fluid flow
      Mr. Robert Wasserman, University of Michigan

(201) Note on Hurwitz's condition on dynamic stability
      Dr. Y. K. Wong, Princeton University

(202) On matrices with nonnegative elements
      Dr. Y. K. Wong, Princeton University

PROGRAMS OF OTHER ORGANIZATIONS

THE MATHEMATICAL ASSOCIATION OF AMERICA
Thirty-Seventh Summer Meeting
Seattle, Washington
August 20–21, 1956

The thirty-seventh summer meeting of the Mathematical Association of America will be held at the University of Washington, Seattle, Washington, on Monday and Tuesday, August 20–21, 1956, in conjunction with the summer meetings of the American Mathematical Society, the Biometric Society, the Econometric Society, and the Institute of Mathematical Statistics.

Sessions of the Mathematical Association will be held on Monday at 9:00 a.m. and 2:00 p.m., and on Tuesday at 9:00 a.m. All sessions will be held in the Guggenheim Auditorium. At these sessions the fifth series of Earle Raymond Hedrick Lectures will be delivered by Professor J. C. Oxtoby of Bryn Mawr College on the topic of *Category and Measure.*

The Board of Governors of the Association will meet on Monday evening at 7:30 in the lounge of McKee Hall in the Women's Residence Hall.

A meeting of officers of the Sections of the Association will be held on Tuesday evening at 7:30 in the lounge of McKee Hall in the Women's Residence Hall.

First session: Monday, 9:00 A.M., Guggenheim Auditorium
The Earl Raymond Hedrick Lectures: Category and Measure;
    Lecture I   Professor J. C. Oxtoby, Bryn Mawr College
The Metropolitan New York Mathematical Competition
               Professor W. H. Fagerstrom, City College of New York
The Stanford University Competitive Examination in Mathematics
               Professor H. M. Bacon, Stanford University
The William Lowell Putnam Mathematical Competition
               Professor L. E. Bush, Kent State University

Second session: Monday, 2:00 P.M., Guggenheim Auditorium
The Earle Raymond Hedrick Lectures: Category and Measure;
    Lecture II   Professor J. C. Oxtoby, Bryn Mawr College
Dynamic Programming
               Dr. Richard Bellman, RAND Corporation
Games of Survival
               Dr. L. S. Shapley, California Institute of Technology

Third session: Tuesday, 9:00 A.M., Guggenheim Auditorium
The Earle Raymond Hedrick Lectures: Category and Measure;

    Lecture III Professor J. C. Oxtoby, Bryn Mawr College

Business Meeting of the Association.

Report from the Commission on Mathematics of the College
    Entrance Examination Board
                  Professor G. B. Thomas, Jr., Massachusetts Institute
                    of Technology
                  Dean A. E. Meder, Jr., Rutgers University

THE INSTITUTE OF MATHEMATICAL STATISTICS

Seattle, Washington

August 21–24, 1956

Tentative Program as of June 29, 1956

TUESDAY, AUGUST 21, 1956

10:00 A.M. INVITED PAPERS I

Chairman: Benjamin Epstein, Stanford University and Wayne University

Papers: 1. *The Asymptotic Attainment of Bayes Risk,* David Black-
             well, University of California, Berkeley

          2. *Some problems in Asymptotic Theory,* Lucien Le Cam,
             University of California, Berkeley

11:30 A.M. SPECIAL INVITED ADDRESS

Chairman: William Kruskal, University of California, Berkeley

Paper: *Asymptotic Theory of Kolomogorov, Smirnov, and von
           Mises Type Statistics,* Donald A. Darling, Univer-
           sity of Michigan

3:00 P.M. APPLICATIONS TO PHYSICAL SCIENCES

Chairman: Harold Hotelling, University of North Carolina

Papers: 1. *Problem of Rotation of Galaxies of Different Types—
             Statistical Aspects,* N. U. Mayall, Lick Observatory

          2. *Internal Motions in Gaseous Masses of Cosmical Dimen-
             sions,* Guido Münch and O. C. Wilson, Mount Wilson
             and Mount Palomar Observatories, California Insti-
             tute of Technology

          3. *Review of Certain Astronomical Problems and Their Sta-
             tistical Treatments,* J. Neyman and E. L. Scott, Uni-
             versity of California, Berkeley

4. *Use of the rth Brightest Star in a Galaxy As a Distance Indicator,* Mandakini Sani, University of California, Berkeley

5. *Contribution to the Problem of Interlocking of Clusters of Galaxies,* Arthur Shapiro, University of California, Berkeley

6. *Distribution of the Number of Droplets in Unit Lengths of a Track of a Cosmic Ray Particle in a Cloud Chamber,* Robert Read, University of California, Berkeley

7. *Effect of Expansion of the Universe on the Serial Correlations of Counts of Images of Galaxies in Regularly Spaced Squares. —A Simplified Model,* Martin Fox, University of California, Berkeley

WEDNESDAY, AUGUST 22, 1956

9:00 A.M. INVITED PAPERS II

Chairman: M. R. Mickey, The RAND Corporation

Papers: 1. *Confidence Regions for Dependent Regression,* Paul G. Hoel, University of California, Los Angeles

2. *Functional Relationships with all Variables Subject to Error,* John Gurland, Iowa State College

10:30 A.M. INVITED PAPERS III

Chairman: W. J. Dixon, University of California, Los Angeles

1. *A Theory of Some Multiple Decision Problems,* E. L. Lehmann, University of California, Berkeley

2. *Optimal Multivariate Tests,* Charles Stein, Stanford University

3. *Some Non-parametric Tests for Independence,* Julius R. Blum, Indiana University

1:30 P.M. MATHEMATICAL PROBLEMS IN INCOMPLETE BLOCK DESIGNS

Chairman: Burton W. Jones, University of Colorado

Papers: 1. *Recent Advances in Partially Balanced Designs,* R. C. Bose, University of North Carolina

2. (Title to be announced), H. J. Ryser, Ohio State University

9:00 A.M. INVITED PAPERS IV

Papers: 1. *What Judgments Are Sufficient for Statistics?* I. J. Good, Cheltenham, England

2. *Law of Small Numbers,* William Kruskal, University of California, Berkeley

11:00 A.M. PREDICTION PROBLEMS (Joint with Biometric Society)

Papers: 1. *New Light on the Multiple Correlation Coefficient,* Harold Hotelling, University of North Carolina

2. P. Horst, University of Washington

3. V. A. Miller, University of Washington

2:00 P.M. INVITED PAPERS V

Chairman: D. R. Cox, University of Cambridge and University of North Carolina

Papers: 1. *Transient Queue Phenomena,* Walter L. Smith, University of North Carolina

2. *Some Queuing Statistics,* Edgar Reich, The RAND Corporation and University of Minnesota

3. *Some Models of Birth and Death Processes—Linear Growth and Queuing Problems,* Samuel Karlin, Stanford University

4:00 P.M. CONTRIBUTED PAPERS

FRIDAY, AUGUST 24, 1956

9:00 A.M. INVITED PAPERS VI

Papers: 1. *The Sequential Item Selection Problem in Classification Studies—The Case of Dichotomous Variables,* Howard Raiffa, Center for Advanced Study in the Behavioral Sciences

2. *On the Use of Concomitant Variables in the Selection of an Experimental Design,* D. R. Cox, University of Cambridge and University of North Carolina

3. *Some Non-parametric Generalizations of Analysis of Variance and Multivariate Analysis,* S. N. Roy, University of North Carolina

2:00 P.M.   INVITED PAPERS VII

Papers: 1.   *The Distribution of Shadows with Applications to Traffic and Counter Problems,* Herman Chernoff, Stanford University

2.   *Bounds for Stochastic Processes,* Z. W. Birnbaum, University of Washington

3.   *Quasi-Martingales and Stochastic Integrals,* Herman Rubin, University of Oregon

THE ECONOMETRIC SOCIETY

Seattle, Washington

August 21–23, 1956

Tentative Program of Joint Session with the
Institute of Mathematical Statistics

Martin Beckman	*Duopoly in Two Markets—A Game Model*
W. Ochard-Hays	*Evolution of Linear Programming Computing Procedures*
Selmer Johnson	*Optimal Sequential Testing*
Jack Abrams	*A Note on the Optimal Character of the (s, S) Policy in the Diverting Problem*
Arnold Zellner	*The Short Run Consumption Function*
Carl Brunner	*An Empirical Investigation into the Theory of Money Supply*
Norman Breckner	*Hypotheses and Tests of Effect of Liquidity on Investment*
Martin Shubik	*Application of Theory of Games to Industrial Competition*
Leonid Hurwitz	*Resource Allocation as a Dynamic Process*
Thomas Marschak	*Criteria for Choice between Centralization and Decentralization*
Richard Bellman	*On the Application of Dynamic Programming to Scheduling Problems*
S. G. Allen and G. Feeney	*Ordering Policy for Poisson Determined Supply and Demand*
Herbert Scarf	*The Min—Max Solution of a One-Stage Inventory Problem*
Irma Adelman	*General Equilibrium Analysis of Money*

Joint session with I.M.S. on Inventory Policy

THE BIOMETRIC SOCIETY

Seattle, Washington
August 23–24, 1956

The Biometric Society will meet on Thursday and Friday, August 23–24, 1956. An invited address will be given by Professor N. Rashevsky of the University of Illinois on *Mathematical Models and General Principles in Biology and Sociology.*

THE ECONOMETRIC SOCIETY

Detroit, Michigan
September 7–10, 1956

This meeting will be held on September 7–10, 1956 at the Sheraton-Cadillac Hotel. The following is a tentative list of papers which will be presented in joint sessions with the American Statistical Association:

Zvi Griliches	*Hybrid Corn: An exploration in Economics of Technological Change*
Richard F. Muth	*The Demand for Non-Farm Housing*
Peter de Janosi	*The Demand for Automobiles*
Irving Morrissett	*Determinants of Components of Consumer Saving*
John Mattilla	*Factor Analysis of Job Evaluation Plans*
Victor Smith	*Linear Programming for British Agriculture*
Charles Tiebout	*The Community Income Multiplier, A Case Study*
William Cromarty	*A Structural Model for American Agriculture*
George Katona and Eva Mueller	*Some Early Results of a Panel Study of Changes in Attitudes and Changes in Spending Behavior*

THE AMERICAN STATISTICAL ASSOCIATION

Detroit, Michigan
September 7–10, 1956

The American Statistical Association will meet on September 7–10, 1956 at the Sheraton-Cadillac Hotel in Detroit. Two sessions on training and computational methods as part of the statistical curriculum are scheduled. The program for these sessions is as follows:

Session 1

The Training and Research Program Adopted at Certain Universities

1.1 P. S. Dwyer (University of Michigan)
Basic Instruction in Statistical Computations
(With particular reference to desk computers and small I.B.M. Models)

1.2 C. F. Kossack (Purdue University)
Organization and Supervision of the Programming of Research Computations
(With particular reference to the Datatron)

1.3 F. M. Verzuh (Massachusetts Institute of Technology)
Courses in Programming for High Speed Computors
(With particular reference to the I.B.M. 650 and Whirlwind)

1 Discussant

Sesion 2

The Computational Tasks Arising at Computing Centers and Training Given to Personnel

2.1 J. Cameron and M. Abramowitz (National Bureau of Standards)
The Requirements of Scientific Computations Arising in Government Computing Centers
(With particular reference to the SEAC)

2.2 J. F. Daly (Bureau of the Census)
The Organizational Problems Arising in the Bureau of the Census Large Scale Statistical Computations
(With particular reference to the UNIVAC)

2.3 H. R. J. Grosch and D. L. Shell (General Electric Company)
Computational Problems in Industrial Research and Development and Training given to Personnel
(With particular reference to the I.B.M. 700 models)

1 Discussant

NEWS ITEMS AND ANNOUNCEMENTS

NEW METHODS OF PUBLISHING ABSTRACTS. At the Seattle meeting the Council will discuss certain possible alternative methods of publishing abstracts of papers presented at the Society meetings. The purpose of this news item is to issue a general invitation to the membership for comments on the alternatives proposed below. The comments should be transmitted orally or in writing to the Secretary of the Society, Professor E. G. Begle, or to any member of the Council.

The Society at present publishes the abstracts of the papers presented at each Society meeting in the *Bulletin* some three months after the meeting. The Society published 860 abstracts in this manner in 1955 at a cost of just over $6,000.

There have been requests from certain members that ways should be found to make the abstracts available to the members in advance of each meeting, or at least during the meeting. A number of alternatives along these lines were worked up and presented to the Council at its April meeting in New York. The Council expressed interest in two of the plans. The two plans under consideration are as follows:

Plan A. Abstracts of those papers *to be presented in person* at a given meeting will be multilithed at Headquarters Offices and assembled in packets. These packets will be brought to the meeting and made available there. No mailing of packets to members. All abstracts will be published about three months later in the *Bulletin,* as now. (This plan will cost the Society about $2,000 extra per year.)

Plan B. Abstracts will no longer be published in the *Bulletin* at all, but instead in the *Notices.* Since the *Notices* is printed by photo-offset, we shall retype the abstracts for camera copy at the Headquarters Offices on some sort of modern typewriter (but not on vari-type machines, which are at present used for *Notices*). Abstracts of all papers *to be presented in person* at a given meeting will appear in the issue of the *Notices* which announces and carries the program of the meeting. Abstracts of papers to be presented by title will probably appear in later issues. To insure a measure of permanence for the published abstracts, we shall make up a limited number of bound volumes of the *Notices* at the end of each year and offer them for sale at cost. (This plan might *save* the Society about $3,000 a year because letter-press publication of abstracts in the *Bulletin* is very expensive.)

At present the deadline for abstracts is about 6 weeks before a meeting. Either of the above plans would advance the deadline by only about a week. A greater advance in the deadline would apparently not be ac-

ceptable to the Council, and this has eliminated various other plans, such as early publication in the *Bulletin*.

BACKLOGS OF CERTAIN MATHEMATICAL RESEARCH JOURNALS. It has come to the attention of the Trustees of the Society that the major mathematical research journals now have widely differing backlogs and publication times. A news item concerning these backlogs will henceforth be published twice a year in the *Notices*.

The present news item will refer to backlogs as of May 31, 1956. The definition of backlog which we shall use is this: It is the estimate as of May 31, 1956, of the total number of printed pages of research which will have been *accepted* by the next time that manuscripts are to be sent to the printer, reduced by the equivalent in printed pages of the manuscripts which are then to be sent to the printer. In other words, backlog in this sense is the number of accepted printed pages which will miss the boat the next time the boat leaves.

We supplement this rather technical definition by a simple characterization of the waiting time as observed from the last issue published and received in the Headquarters Offices prior to May 31.

In interpreting these figures, the frequency of publication must be taken into account. The *Transactions*, the *Proceedings*, and the *Annals*, each now appear six times a year. The other journals are quarterlies.

The results are given in the following table:

	Backlog (in pages) on May 31, 1956	Observed waiting times (in months) between receipt of manuscript (in final revised form) and month of publication		
		Least	Median	Greatest
Transactions	36	4	8	13
Proceedings	301	11	11	14
American Journal	Not available	4	7	19
Annals	492	9	14	18
Duke Journal	96	4	9	13
Canadian Journal	116	6	9	14
Pacific Journal	260	20	24	27

SECOND GROUP OF REGULAR POSTDOCTORAL FELLOWSHIPS OF THE NATIONAL SCIENCE FOUNDATION. Applications will be accepted through September 4, 1956, for the second group of regular postdoctoral fellowships to be awarded by the National Science Foundation

during the current calendar year, Alan T. Waterman, Foundation Director, recently announced. Names of successful fellowship candidates will be announced on October 16, 1956. These are in addition to a second group of awards planned under the Senior Postdoctoral Program as announced by the Foundation on June 10, 1956.

Regular postdoctoral fellowship awards are part of the Foundation's annual fellowship program now entering its sixth year. Decision to award the postdoctoral fellowships for a second time during the current year was made in order to permit those who completed academic requirements since the last group of fellowships was awarded (March 1956) to begin postdoctoral studies earlier than would otherwise be possible. Applications are not restricted to those who received their Ph.D. degrees in June, however.

Candidates must be United States citizens who will begin or continue studies at the postdoctoral level in life and physical sciences (including interdisciplinary fields) and fields of convergence between natural and social sciences at any time within one year after announcement of awards. It is expected that in most cases individuals receiving fellowships will begin their fellowship activities within nine months after the award date.

Selection will be made solely on the basis of ability and will be based on academic records, written evaluation of each individual by faculty advisers or other qualified observers, and a proposed plan of research. Applicants will be rated by special fellowship panels established by the National Academy of Sciences. Final selection will be made by the National Science Foundation.

Stipend for National Science Foundation postdoctoral fellowships is $3,400 a year. Dependency allowances will be made to married Fellows. A limited allowance to aid in defraying a Fellow's cost of travel will be paid as will tuition and certain fees collected from individuals of similar academic standing.

SECOND SENIOR POSTDOCTORAL AWARD PROGRAM OF THE NATIONAL SCIENCE FOUNDATION. Applications will be accepted through September 4, 1956 for the second group of Senior postdoctoral fellowships to be awarded by the National Science Foundation during the current calendar year, Alan T. Waterman, Foundation Director, recently announced. Fellowships will be awarded in mathematical, physical, medical, biological, engineering and other sciences, including anthropology, psychology (other than clinical), geography, certain interdisciplinary fields, and areas of convergence between the natural and social sciences. Names of successful fellowship candidates will be announced on Octo-

ber 16, 1956.

To be eligible for these awards, candidates must be citizens of the United States with demonstrated ability and special aptitude for advanced training and productive scholarship in the sciences. In addition, candidates must have at least five years experience beyond the science doctorate or its equivalent.

Fellows will be selected on the basis of ability as evidenced by letters of recommendation and other evidence of attainment. Candidates' qualifications will be evaluated by carefully chosen panels of scientists. Final selection of Fellows will be made by the National Science Foundation. Annual stipends from $2,000 to $10,000 adjusted to match as closely as feasible the regular salaries of the award recipients, may be applied toward study or research in an accredited non-profit institution of higher learning in the United States or abroad. A limited allowance to aid in defraying costs of travel for a Fellow and his dependents will also be available.

Applications and further details may be obtained from the Division of Scientific Personnel and Education, National Science Foundation, Washington 25, D. C.

POSTDOCTORAL RESEARCH ASSOCIATESHIPS IN MATHEMATICS OF THE OFFICE OF NAVAL RESEARCH. The Office of Naval Research has announced the awards of six postdoctoral research associateships in mathematics for the academic year 1956–57. These awards were made upon the recommendation of the NRC Committee on Mathematics Advisory to ONR. The recipients of the research associateships are given below, together with the specific field of research and the institution making the appointment.

> Anatole Beck, Ph. D., Yale University, 1956; Topological Algebra, Tulane University.
>
> James M. G. Fell, Ph. D., University of California, 1951; Investigations in C^* Algebras, University of Washington.
>
> Klaus Krickeberg, Ph. D., University of Berlin, 1952; Theory of Measure, Area, and Generalized Surfaces, University of Wisconsin.
>
> George R. Livesay, Ph. D., University of Illinois, 1952; Topology, Fixed Point Theorems, Cornell University.
>
> Zdzislaw A. Melzak, Ph. D., Massachusetts Institute of Technology, 1956; Fractional Iteration of Functions of One Variable, University of Michigan.
>
> Jean-Pierre G. Meyer, Ph. D., Cornell University, 1954; Algebraic Topology, Brown University.

A SYMPOSIUM ON DIGITAL AND ANALOG COMPUTERS will be held August 30–31 at the Hotel Albany in Denver. The symposium will be sponsored by the Denver Research Institute of the University of Denver in cooperation with the National Simulation Council and the National Machine Accountants Association (mile high chapter). The symposium will consider applications of digital and analog techniques to engineering and business problems. Participants will be Dr. John W. Carr of the University of Michigan, Dr. Ascher Opler of the Dow Chemical Company of Pittsburg, California, and Mr. John H. McLeod, Jr. of the Convair Division of the General Dynamics Corporation, who is Chairman of the Steering Committee of the National Simulation Council. Program and registration information will be mailed in July. The Denver Research Institute has arranged with Dr. Carr to conduct a special advanced course in computer techniques during the week September 4–7. For further information write to William B. Kennedy, The Denver Research Institute, University of Denver, Denver 10, Colorado.

THE MATHEMATICS DEPARTMENT OF CATHOLIC UNIVERSITY is pleased to announce a lecture series in the field of Mathematical Statistics. The lecture series will start with the beginning of the academic year 1956–57, probably in October. It is planned to invite prominent mathematical statisticians from the East Coast or visiting the East Coast to give addresses. The cooperation of other universities and interested organizations in the area will be sought. Inquiries concerning the lecture series may be addressed to the Department of Mathematics of Catholic University.

NEW ADDRESS OF THE AIR FORCE OFFICE OF SCIENTIFIC RESEARCH. The Air Force Office of Scientific Research announces its move to Building Temporary T, Wing 4, located at 14th Street and Constitution Avenue in Washington, D. C. on July 2, 1956. Correspondence, after July 2, 1956, should be addressed to:

Commander, Air Force Office of Scientific Research, Washington 25, D. C.

THE MATHEMATICS RESEARCH CENTER OF THE U. S. ARMY. Planning of the Mathematics Research Center, U. S. Army, located on the campus of the University of Wisconsin, has been gaining momentum during the months that have passed since last November's public announcement of the selection of the site. Dr. R. E. Langer, of the University's Mathematics Department, has been appointed Director of the Center. A contract for its operation was recently finalized between the University

and the Army. An Army-wide steering group has been named.

Indicative of the significance attached to the Center by Army research policy makers is their stated intention of funding it, when at full strength, at an annual cost of approximately $800,000.

At the present time the Center's offices are located within the University of Wisconsin Mathematics Department. Ultimately the Center will be housed in a new building to be constructed by the University, and will occupy a major part of this building.

The general objective of the Army in establishing the Center is to provide a nucleus of highly qualified mathematicians responsive to Army, who will carry on investigations slanted toward general problems having Army relevance, and who can be called upon for advice on problems which may be outside the specific capabilities of Army facilities. It is also felt that the existence of the Center will enhance the use of mathematical techniques in solving many problems to which a non-mathematical approach has been made in the past.

Included in mathematical areas having Army problem implications are numerical analysis, engineering physics of high speed computers, statistics and probability, applied mathematics analysis, linear and non-linear programming, and other highly technical activities. The Army has had a long history in the development of the high speed electronic digital computer. The first of these machines to be developed in this country was designed under Army Ordnance auspices at the Moore School of Electrical Engineering, University of Pennsylvania, and completed in 1946. Establishment of the Mathematics Research Center represents a continued awareness by Army of the need for vigorous support in this area. A large scale high speed computer facility will be installed at the Center.

The permanent staff of the Center will be kept small. It will be supplemented by a larger and gradually rotating corps of scientists from the university world whose sojourns at the Center will be on visiting bases for periods of various lengths, and by personnel from Army facilities. The work of the Center will supplement rather than replace present Army mathematics endeavors. Work will be undertaken at the periphery of the Army's research and development program, with especial attention given to long-range problems. The staff will also participate in the development of mathematical theory by engaging to a considerable extent in self-conceived basic research investigations.

Last February the Army Chief of Staff issued regulations creating the Army Mathematics Steering Group which has the general function of assisting the Chief of Research and other Army staff elements in planning, coordinating, and supervising the mathematics research interests of

the Army, and of assisting in the operation of the Mathematics Research Center. The Group will furnish technical guidance to the Director of the Center, coordinate use of the Center by agencies of the Army staff, and review and guide the Center's program.

Colonel Paul N. Gillon, Commanding Officer of the Office of Ordnance Research, which is the administrative office for the $4,000,000 annual program of basic research sponsored by the Ordnance Corps, has been named Chairman of the Mathematics Steering Group.

Membership of the Group is now complete. In addition to Colonel Gillon, the names of the members, and the offices which they represent, are as follows: Dr. Ivan R. Hershner, Chief of Research and Development; Lt. Colonel Mark H. Terrel, Deputy Chief of Staff for Military Operations; Dr. Paul H. Anderson, Deputy Chief of Staff for Logistics; James T. Daly, Comptroller of the Army; Dr. Kenneth F. Thomson, Adjutant General; Dr. Clifford J. Maloney, Chief Chemical Officer; Dr. Werner K. Weihe, Chief of Engineers; Dr. Charles V. L. Smith, Chief of Ordnance; R. Palmer Benedict, Quartermaster General; Joseph Weinstein, Chief Signal Officer; Major John A. Hilcken, Surgeon General; Major Joseph K. Franaszek, Chief of Transportation; Dr. Robert T. Herbst, Chief of Ordnance (technical administration of the contract); Dr. Harold F. Bright, Human Resources Research Office; Dr. Nicholas M. Smith, Operations Research Office. Membership also includes four academic mathematics advisors, representing the Chief of Research and Development. These are: Dr. J. J. Gergen, Duke University; Dr. Herman H. Goldstine, Institute for Advanced Study; Dr. Francis J. Murray, Columbia University; and Dr. Samuel S. Wilks, Princeton University. Dr. R. E. Langer, Director of the Center, will serve the steering group in an advisory capacity.

ANOTHER MEMOIR. Memoirs 20, *The Neumann's Problem For Differential Forms On Riemannian Manifolds*, by P. E. Conner is now available. The price is $1.60 list and $1.20 to members.

"The object of this paper is the generalization to manifolds with boundary and to differential forms the classical Green's and Neumann's problems for functions on Euclidean domains. The methods used are appropriate extensions of those of Poincaré and Fredholm in integral equations. Our principal results consist in establishing the existence and complete continuity of the Green's and Neumann's operators for forms on manifolds with boundary."

QUALITY CONTROL AND APPLIED STATISTICS ABSTRACTS. Interscience Publishers, Inc. announces the inauguration of *QUALITY CONTROL AND APPLIED STATISTICS ABSTRACTS*, a *monthly loose-leaf abstract service* covering the world literature on Quality Control, Operations Research and Industrial Applications of Statistical Methods of all kinds. More than 400 journals will be scanned for articles that present new information in the field, and the abstracts will be sufficiently comprehensive to show the significant contribution of each article, so that it will usually be unnecessary to consult the original paper.

The Editors of the new Abstract Service are Dr. Robert S. Titchen, Operations Analyst, Division of Defense Laboratories, M. I. T. (Navy Department, Washington, D. C.); Mr. Arnold J. Rosenthal, Senior Research Chemist, Celanese Corporation, Summit, N. J.; Mr. Bruce Bollerman, Director of Quality Control, Electronic Tube Coil Company, Orange, N. J., and Mr. Frank Nistico, Supervisor of Evaluation Engineering, General Electric Company, Cincinnati, Ohio.

QUALITY CONTROL AND APPLIED STATISTICS ABSTRACTS will consist of one volume of about 1,000 pages yearly, divided among 12 issues, beginning in June 1956. The subscription price is $60.00 per volume.

A PRIZE FOR PROFESSOR SOLOMON LEFSCHETZ. Word has just been received that the Accademia Nazionale dei Lincei has awarded the International Prize of 5 million lire of the Antonio Feltrinelli Foundation for Mathematics, Mechanics and Applications to Dr. Solomon Lefschetz for the totality of his mathematical work. The prize will be conferred by the Academy at its closing session of the year about June 10. Dr. Lefschetz is research professor of mathematics emeritus at Princeton University and is at present attached as professor to the Institute of Mathematics of the Universidad Nacional Autonoma de Mexico.

Editorial Note: The value of the prize in American dollars is approximately $7,850.

THE SWORD OF PROFESSOR GEORGES DARMOIS. The friends and students of Professor Georges Darmois have decided to render testimony to the occasion of his recent election to the Academy of Sciences by presenting him with his academician's sword. For this purpose a committee has been formed under the direction of M. Danjon. Contributions are invited and should be sent before November 1956 to M. Lichnerowicz, at 6, avenue Paul Appell Paris (14e). The contributions can be sent to the account of Postal Checks No. 13 601 42 in Paris. Bank checks and UNESCO coupons are also acceptable.

PERSONAL ITEMS

Professor M. A. Basoco and Dr. F. W. Anderson of the University of Nebraska have been awarded Faculty Summer Research Fellowships.

Assistant Professor P. F. Conrad of Tulane University has been awarded a Fulbright Fellowship for the coming academic year and will be at the University of Colombo, Ceylon.

Associate Professor W. H. J. Fuchs of Cornell University has been awarded a Guggenheim Fellowship and will spend the year at the Polytechnic School in Zurich.

Associate Professor E. H. C. Hildebrandt of Northwestern University has been awarded a Fulbright lectureship to teach at the Higher Teachers Training College in Bagdad, Iraq, during 1956–57.

Among the nine new members recently appointed to the National Science Board are Professor E. J. McShane of the University of Virginia and Dr. Warren Weaver of the Rockefeller Foundation.

Professor Marston Morse of the Institute for Advanced Study, has been elected "correspondant" of the French Academy of Sciences.

Dr. T. Y. Thomas of Indiana University has been elevated to a distinguished service professorship, the University's highest academic rank.

Dr. H. R. Bailey of the Naval Ordnance Plant has accepted a position as a mathematician with the Ohio Oil Company, Littleton, Colorado.

Assistant Professor Jerome Blackman of Syracuse University has been appointed to an acting assistant professorship at Cornell University.

Dr. Archie Blake of Westinghouse Electric Corporation has accepted a position as systems staff mathematician with Bendix Aviation Corporation.

Professor Emeritus Louis Brand of the University of Cincinnati has been appointed Whitney Visiting Professor at Trinity College for 1956–57.

Professor A. R. Brown, Jr. of Drury College has accepted a position as chief, Office of Ballistic Computations, Air Force Armament Center, Eglin Air Force Base, Florida.

Dr. D. A. Buchsbaum of the University of Chicago has been appointed to an assistant professorship at Brown University.

Mr. C. N. Campopiano of the Sperry Gyroscope Company has accepted a position as research associate at the Micro-wave Research Institute of Polytechnic Institute of Brooklyn.

Assistant Professor R. A. Clark of the Case Institute of Technology has been appointed to a visiting assistant professorship at Massachusetts Institute of Technology.

Assistant Professor Eckford Cohen of the University of South Carolina has been appointed to an assistant professorship at the University

of Tennessee.

Associate Professor Harvey Cohn of Wayne University has been appointed to an associate professorship at Washington University.

Assistant Professor R. M. Conkling of the University of New Hampshire has been appointed to an assistant professorship at New Mexico College of Agriculture and Mechanic Arts.

Reverend H. F. DeBaggis of the University of Notre Dame has been appointed to a professorship at Carroll College.

Assistant Professor M. R. Demers of the University of Nevada has been appointed a research assistant at Brown University.

Dr. Philip Dwinger of Amsterdam, the Netherlands, has been appointed to an assistant professorship at Purdue University.

Assistant Professor M. P. Emerson of Harpur College, State University of New York, has been appointed to an associate professorship at Southwest Missouri State College.

Dr. Jacqueline P. Evans of Smith College has been appointed to an assistant professorship at Wellesley College.

Dr. W. C. Fox of Massachusetts Institute of Technology has been appointed to an assistant professorship at Northwestern University.

Professor S. H. Gould of Williams College has been appointed Executive Editor of Mathematical Reviews.

Mr. E. E. Grace of the University of North Carolina has been appointed to an assistant professorship at Emory University.

Dr. R. C. Gunning of the University of Chicago has been appointed a Higgins lecturer at Princeton University.

Professor Dick Wick Hall of the University of Maryland has been appointed to a professorship at Harpur College, State University of New York.

Dr. Carl Hammer of the Franklin Institute has accepted a position as director of the UNIVAC European Computing Center, Frankfurt/Main, Germany.

Mr. W. L. Harkness of the University of Virginia has accepted a position as mathematician with the Department of Defense, Washington, D. C.

Dr. J. J. Harton, Jr. of the University of California, Berkeley, has accepted a position as mathematician with Motorola Inc., Riverside, California.

Professor M. H. Heins of Brown University is on leave of absence for a year of study at the Institute for Advanced study.

Professor Melvin Henriksen, Purdue University, is on leave of absence and will spend the year at the Institute for Advanced Study with an Alfred P. Sloan Foundation grant.

Assistant Professor G. A. Hunt of Cornell University is on leave of absence and visiting at Princeton University.

Associate Professor Arno Jaeger, University of Cincinnati, is on leave of absence to study in Europe.

Dr. M. A. Kervaire of Berne University, Switzerland, has been appointed a visiting lecturer at Massachusetts Institute of Technology.

Professor S. C. Kleene, University of Wisconsin, will be on leave of absence during the coming academic year as a visiting professor at Princeton University.

Assistant Professor L. A. Kokoris of Washington University has been appointed a visiting lecturer at Yale University.

Assistant Professor H. T. La Borde of the University of the South has been appointed to an assistant professorship at the University of Cincinnati.

Dr. Eugene Levin of the University of California, Los Angeles, has accepted a position as supervisor of the mathematical analysis group at Ramo-Wooldridge Corporation, Los Angeles, California.

Mr. J. P. Line of the University of Rochester has been appointed to an assistant professorship at Georgia Institute of Technology.

Dr. Eugene Lukacs of the Office of Naval Research has been appointed to a professorship at the Catholic University of America.

Dr. Nathaniel Macon of Alabama Polytechnic Institute has accepted a position as numerical methods analyst with the General Electric Company, Cincinnati, Ohio.

Assistant Professor Imanuel Marx of the University of Michigan has been appointed to an assistant professorship at Purdue University.

Dr. Jean-Pierre Meyer has been appointed a research associate at Brown University.

Dr. W. E. Mientka of the University of Massachusetts has been appointed to an assistant professorship at the University of Nevada.

Assistant Professor J. F. Nash, Jr. of Massachusetts Institute of Technology is on leave of absence at the Institute for Advanced Study.

Dr. Albert Nijenhuis of the University of Chicago has been appointed to an assistant professorship at the University of Washington.

Dr. Rufus Oldenburger of the Woodward Governor Company has been appointed to a professorship at Purdue University.

Mr. F. J. Palas of the University of Oklahoma has been appointed to an assistant professorship at Southern Methodist University.

Dr. C. Y. Pauc of the Faculté des Sciences de Rennes, France, has been appointed to a visiting professorship at Purdue University.

Dr. F. P. Peterson of the University of Chicago has been appointed a lecturer at Princeton University.

Professor H. B. Ribeiro of the University of Nebraska is on leave at the University of Münster, Germany, for six months.

Mr. H. L. Rolf of Vanderbilt University has been appointed to an assistant professorship at Baylor University.

Assistant Professor W. C. Royster of Alabama Polytechnic Institute has been appointed to an assistant professorship at the University of Kentucky.

Dr Theodore Rubin of the University of Pittsburgh has accepted a position as senior research engineer with Convair, San Diego, California.

Mr. Herbert Ruderfer has accepted a position as senior mathematician with International Business Machines Corporation, New York, N. Y.

Dr. R. C. Seber of the State University of Iowa has been appointed to an assistant professorship at Western Michigan College.

Professor Henry Sharp, Jr. of the Georgia Institute of Technology has been appointed to an assistant professorship at Emory University.

Dr. H. S. C. Sharp of the United States Coast Guard Academy has been appointed to an associate professorship at Purdue University.

Dr. F. W. Sinden has accepted a position as a member of the technical staff of Bell Telephone Laboratories, Murray Hill, New Jersey.

Assistant Professor I. M. Singer of the University of California, Los Angeles, has been appointed to an assistant professorship at Massachusetts Institute of Technology.

Professor Jerome C. Smith of Lafayette College has been appointed to a professorship at High Point College.

Associate Professor G. B. Thomas, Jr. of Massachusetts Institute of Technology is on leave of absence at Stanford University.

Mr. R. C. Thompson of the University of British Columbia has accepted a position as defense scientific officer with the Defense Research Board, Ottawa, Canada.

Professor R. N. Tompson of Florida State University has been appointed to a professorship at the University of Nevada.

Assistant Professor M. J. Walsh of Florida State University has been appointed to an assistant professorship at the University of Wyoming.

Professor James A. Ward of the University of Kentucky has accepted a position as mathematician at the Holloman Air Force Base, New Mexicc

Dr. L. E. Ward, Jr. of the University of Utah has accepted a position as mathematician with the Naval Ordnance Test Station, China Lake, California.

Assistant Professor John Wermer of Brown University is on leave of absence for a year of study at the Institute for Advanced Study.

Dr. R. F. Williams of the University of Wisconsin has been appointed

to an assistant professorship at Purdue University.

Mr. D. M. G. Wishart of the Royal Air Force Technical School has been appointed a lecturer at the University of Aberdeen.

Dr. M. A. Woodbury of the George Washington University has been appointed to a research professorship at the New York University College of Engineering.

Dr. C. T. Yang of the Institute for Advanced Study has been appointed to an assistant professorship at the University of Pennsylvania.

Dr. R. E. Zink of the George Washington University has been appointed to an assistant professorship at Purdue University.

The following promotions are announced:

F. W. Anderson, University of Nebraska, to an assistant professorship.

H. D. Block, Cornell University, to an assistant professorship.

H. F. Bohnenblust, California Institute of Technology, to the Deanship of Graduate Studies.

J. O. Chellevold of Wartburg College has been selected as the new Dean of Wartburg.

A. H. Copeland, Jr., Purdue University, to an assistant professorship. Dr. Copeland received a research grant from Purdue University for the summer of 1956.

J. B. Diaz, Institute for Fluid Dynamics and Applied Mathematics, University of Maryland, to a research professorship. Professor Diaz also has been appointed to a visiting professorship at Massachusetts Insitiute of Technology.

John Dyer-Bennet, Purdue University, to associate professorship.

Leonard Gillman, Purdue University, to an associate professorship.

C. B. Hanneken, Marquette University, to an assistant professorship.

Alex Heller, University of Illinois, to an associate professorship.

C. S. Herz, Cornell University, to an assistant professorship.

Meyer Jerison, Purdue University, to an associate professorship.

R. V. Kadison, Columbia University, to an associate professorship. Also Professor Kadison, on partial leave from Columbia, will be research associate at Massachusetts Institute of Technology.

G. L. Krabbe, Purdue University, to an assistant professorship.

W. G. Leavitt, University of Nebraska, to a professorship.

H. D. Lipsich, University of Cincinnati, to an associate professorship.

C. I. Lubin, University of Cincinnati, to a professorship.

G. W. Mackey, Harvard University, to a professorship.

May H. Maria, Brooklyn College, to an assistant professorship.

C. J. Neugebauer, Purdue University, to an assistant professorship.

T. S. Peterson of Portland State College has been appointed Chair-

man of the Division of Science.

Harry Pollard, Cornell University, to a professorship.

Gustav Rabson, Antioch College, has been appointed to an associate professorship.

D. B. Ray, Cornell University, to an assistant professorship.

E. P. Specker, Swiss Federal School of Technology to a professorship.

The following appointments to instructorships are announced:

Dartmouth College: Dr. R. E. Williamson; Illinois Institute of Technology: R. J. Mihalek; Massachusetts Institute of Technology: Dr. W. L. Baily, Dr. R. T. Prosser, Dr. E. M. Stein, Mr. K. M. Hoffman, and Dr. Leonard Roberts; University of Nebraska: Dr. D. L. Guy, and Mr. M. L. Keedy; Northwestern University: Mr. W. L. Hoyt; Polytechnic Institute of Brooklyn: N. W. Savage; Purdue University: Dr. Frank Kozin, Dr. M. J. Mansfield; University of Wisconsin: Dr. J. B. Kruskal, Jr., Dr. L. F. McAuley.

Deaths:

Professor G. R. Clements, Ret., of the United States Naval Academy, died on March 25, 1956 at the age of seventy-one years. He had been a member of the Society for forty-nine years.

Mr. T. I. Gilroy of the University of Wisconsin died in July, 1955 at the age of thirty-five years.

Professor V. D. Gokhale of Atlanta University died on June 1, 1956 at the age of sixty-two years. He had been a member of the Society for the past twenty years, and previously from 1922 to 1926.

Assistant Professor Emeritus C. C. Grove of the City College of New York died on January 12, 1956 at the age of eighty years. He had been a member of the Society for forty-nine years.

Professor Emeritus G. W. Mullins of Columbia University died on March 11, 1956 at the age of seventy-five years. He had been a member of the Society for forty-two years.

Dr. M. M. Slotnick of New York City died on May 7, 1956 at the age of fifty-four years. He had been a member of the Society for thirty-three years.

Sir Edmund T. Whittaker of Edinburgh, Scotland died on March 24, 1956 at the age of eighty-two years. He had been a member of the Society for fifty-nine years.

NEW PUBLICATIONS

Aleksandrov, P. S. *Combinatorial topology.* Vol. 1. Rochester, Graylock, 1956. 16 + 225 pp. $4.95.

Alekseeva, V. P. See *Matematika i mehanika v izdaniyah Akademiya Nauk SSSR.*

Astronomical cuneiform texts. Babylonian ephemerides of the Seleucid period for the motion of the Sun, the Moon and the Planets. Vol. I. *Introduction. The Moon.* Vol. II. *The Planets. Indices.* Vol. III. *Plates.* Ed. by O. Neugebauer. London, Lund Humphries, 1955. 16 + pp. 1–278; 12 + pp. 279–511; 7 + 255 plates.

Automata studies. (Annals of Mathematics Studies, no. 34.) Princeton University Press, 1956. 9 + 285 pp. $4.00.

Barbensi, G. *Paolo Ruffini.* Modena, Accademia di Scienze Lettere e Arti, 1956. 10 + 128 pp., 1 plate.

Bateman, H. See Dryden, H. L.

Becker, R. *Theorie der Wärme.* Berlin, Springer, 1955. 8 + 320 pp. 39.60 DM.

Belen'kiǐ, N. S. *Tablicy obratnyh čisel.* Moscow, Gosudarstvennoe Statističeskoe Izdatel'stvo, 1955. 311 pp. 16.35 rubles.

Bianchi, L. *Opere.* Vol. IV. Part I. *Deformazioni delle quadriche, teoria delle trasformazioni delle superficie applicabili sulle quadriche.* Ed. by the Unione Matematica Italiana with the assistance of the Consiglio Nazionale delle Ricerche. Rome, Cremonese, 1956. 481 pp. 4500 Lire.

Bilimović, A. See *Euklidovi Elementi.*

Blaschke, W. *Kreis und Kugel.* 2d ed. Berlin, de Gruyter, 1956. 8 + 167 pp. 18.60 DM.

Blaschke, W., and Müller, H. R. *Ebene Kinematik.* Munich, Oldenbourg, 1956. 269 pp. 26.80 DM.

Bourbaki, N. *Eléments de mathématique.* XX. Part 1. *Les structures fondamentales de l'analyse.* Book I. *Théorie des ensembles.* Chapter III. *Ensembles ordonnés. Cardinaux. Nombres entiers.* (Actualités Sci. Ind., no. 1243.) Paris, Hermann, 1956. 2 + 118 pp.

Bravo Gala, L. See Struik, D. J.

Brillouin, L. *Science and information theory.* New York, Academic Press, 1956. 17 + 320 pp. $6.80.

Carathéodory, C. *Mass und Integral und ihre Algebraisierung.* Ed by P. Finsler, A. Rosenthal, and R. Steuerwald. Basel, Birkhäuser, 1956. 337 pp. 38.50 DM.

Carmichael, R. D. *Introduction to the theory of groups of finite order.* New York, Dover, 1956. 14 + 447 pp. Paperbound, $2.00; cloth-

bound, $3.95.

Cartan, H., and Eilenberg, S. *Homological algebra.* Princeton University Press, 1956. 15 + 390 pp. $7.50.

Cartwright, M. L. *Integral functions.* Cambridge University Press, 1956. 8 + 135 pp. $3.50.

Četaev, N. G. *Ustoĭčivost' dviženiya.* 2d ed. Moscow, Gosudarstv. Izdat. Tehn.-Teor. Lit., 1955. 207 pp. 7 rubles.

Church, A. *Introduction to mathematical logic.* Vol. I. Princeton University Press, 1956. 10 + 376 pp. $7.50.

Clagett, M. *Greek science in antiquity.* New York, Abelard-Schumann, 1955. 12 + 217 pp.

Cohen, R. S. See Hertz, H.

Cowper, A. D. See Einstein, A.

Dinnik, A. N. *Izbrannye trudy.* Vol. II. *Priloženie funkciĭ Besselya k zadačam teorii uprugosti.* Kiev, Izdat. Akad. Nauk Ukrainskoĭ SSR, 1955. 223 pp. 14.65 rubles.

Doetsch, G. *Handbuch der Laplace-Transformation.* Vol. II. *Anwendungen der Laplace-Transformation.* Section 1. Basel, Birkhäuser, 1955. 436 pp. 56.15 Swiss fr.

Dowgird, Z. *Krakowiany i ich zastosowanie w mechanice budowli.* [Cracovians and their application in structural mechanics.] Warsaw, Państwowe Wydawnictwo Naukowe, 1956. 168 pp. 18 zł.

Dryden, H. L., Murnaghan, F. D., and Bateman, H. *Hydrodynamics.* New York, Dover, 1956. 634 pp. $2.50.

Duff, G. F. D. *Partial differential equations.* (Mathematical expositions, no. 9.) University of Toronto Press, 1956. 10 + 248 pp. $6.50.

Eilenberg, S. See Cartan, H.

Einstein, A. *Investigations on the theory of the Brownian movement.* Ed. with notes by R. Fürth. Trans. by A. D. Cowper. New York, Dover, 1956. 6 + 122 pp. $1.25.

Èl'sgol'c, L. È. *Kačestvennye metody v matematičeskom analize.* Moscow, Gosudarstv. Izdat. Tehn.-Teor. Lit., 1955. 300 pp. 10.15 rubles.

Erdélyi, A. *Asymptotic factorization of ordinary linear differential operators containing a large parameter.* (Tech. Rep. 8.) Pasadena, California Institute of Technology, 1956. 28 pp.

Erdélyi, A. *Differential equations with transition points.* I. *The first approximation.* (Tech. Rep. 6.) Pasadena, California Institute of Technology, 1955. 22 pp.

Erdélyi, A., Kennedy, M., and McGregor, J. L. *Asymptotic forms of Coulomb wave functions.* I. With an appendix by C. A. Swanson. (Tech. Rep. 4.) Pasadena, California Institute of Technology, 1955. 29 pp.

Erdélyi, A., and Swanson, C. A. *Asymptotic forms of Coulomb wave functions*. II. (Tech. Rep. 5.) Passadena, California Institute of Technology, 1955. 24 pp.

Euclid. *The thirteen books of Euclid's Elements translated from the text of Heiberg with introduction and commentary by Thomas L. Heath*. 2d ed. Vol. I: *Introduction and Books I, II*. Vol. II: *Books III-IX*. Vol. III: *Books X-XIII and Appendix*. New York, Dover, 1956. 11 + 432 pp.; 1 + 436 pp.; 1 + 546 pp. Paperbound, $1.95 per vol.; clothbound, $4.00 per vol.

Euklidovi Elementi. Στοιχεία, Knj. 3, 4, 5, 6, 7, 8. [Euclid's Elements. Στοιχεία, Books 3, 4, 5, 6, 7, 8.] Trans. and annotated by A. Bilimović, Beograd, Srpska Akademija Nauka, 1953, 1953, 1953, 1955, 1955. 48 pp., 31 pp., 58 pp., 57 pp., 58 pp.

Finsler, P. See Carathéodory, C.

Fürth, R. See Einstein, A.

Garnier, R. *Cours de cinématique*. Vol. II. *Roulement et viration. La formule de Savary et son extension à l'espace*. 3d ed, Paris, Gauthier-Villars, 1956. 10 + 341 pp. 5000 fr.

Gol'denblat, I. I. *Nekotorye voprosy mehaniki deformiruemyh sred*. Moscow, Gosudarstv. Izdat. Tehn.-Teor. Lit., 1955. 271 pp. 9.55 rubles.

Haack, W. *Elementare Differentialgeometrie*. Basel, Birkhäuser, 1955. 8 + 239 pp. 22 Swiss fr.

Hamel, G. *Mechanik der Kontinua*. Ed. by I. Szabó. Stuttgart, Teubner, 1956. 210 pp. 29.70 DM.

Handbuch der Physik. Vol. I. *Mathematische Methoden* I. Berlin, Springer, 1956. 7 + 364 pp. 72.00 DM.

Heath, T. L. See Euclid.

von Helmholtz, H. See Hertz, H.

Hertz, H. *The principles of mechanics*. Preface by H. von Helmholtz. Trans. by D. E. Jones and J. T. Walley. Introduction by R. S. Cohen. New York, Dover, 1956. 42 + 274 pp. Paperbound, $1.75; clothbound, $3.50.

Hirzebruch, F. *Neue topologische Methoden in der algebraischen Geometrie*. (Ergebnisse der Mathematik und ihrer Grenzgebiete, N. F., no. 9.) Berlin, Springer, 1956. 8 + 165 pp. 30.80 DM.

Jenaer Jahrbuch 1955. Part 1. Jena, Fischer, 1955. 4 + 148 pp.

Jones, D. E. See Hertz, H.

Kennedy, M. See Erdélyi, A.

Kestin, J. See Schlichting, H.

Klein, F. *Famous problems of elementary geometry. The duplication of the cube, the trisection of an angle, the quadrature of the circle*. New York, Dover, 1956. 11 + 92 pp. $1.00.

Kockel, B. *Darstellungstheoretische Behandlung einfacher wellenme-chanischer Probleme.* Leipzig, Teubner, 1955. 232 pp., 6 tables. 18.50 DM.

Kol'man, E. *Bernard Bol'cano.* Moscow, Izdat. Akad. Nauk SSSR, 1955. 224 pp. 9 rubles.

v. Korshenewsky, N. See Laurent, T.

Laurent, T. *Vierpoltheorie und Frequenztransformation.* Trans. by N.V. Korshenewsky. Berlin, Springer, 1956. 12 + 299 pp. 34.50 DM.

Łoś, J. See Mazurkiewicz, S.

Lyusternik, L. A. *Kratčaišie linii. Variacionnye zadači.* Moscow, Gosu-darstv. Izdat. Tehn.-Teor. Lit., 1955. 103 pp. 1.50 rubles.

McGregor, J. L. See Erdélyi, A.

Mandel'štam, L. I. *Lekcii po kolebaniyam (1930–1932 gg.).* Moscow, Izdat. Akad. Nauk SSSR, 1955. 503 pp. 23 rubles.

Manning, H. P. *Geometry of four dimensions.* New York, Dover, 1956. 9 + 348 pp. Paperbound, $1.95; clothbound, $3.95.

Matematika i mehanika v izdaniyah Akademiya Nauk SSSR. Bibliografiya. 2. 1936–1947. Compiled by V. P. Alekseeva, ed. by V. I. Smirnov. Moscow, Izdat. Akad. Nauk SSSR, 1955. 515 pp. 17.35 rubles.

Matveev, N. M. *Metody integrirovaniya obyknovennyh differencial'nyh uravnenii.* Izdatel'stvo Leningradskogo Universiteta, 1955. 655 pp. 22 rubles.

Mazurkiewicz, S. *Podstawy rachunku prawdopodobieństwa.* [Foundations of the calculus of probability.] Prepared for print from the late au-thor's manuscripts by J. Łoś. Warsaw, Państwowe Wydawnictwo Naukowe, 1956. 4 + 270 pp. 27 zł.

Milanković, M. *Osnovi nebeske mehanike.* [Elements of celestial me-chanics.] 2d ed. Beograd, Naučna Knjiga, 1955. 100 pp.

Miller, J. C. P. See *Tables of Weber parabolic cylinder functions.*

Müller, H. R. See Blaschke, W.

Murnaghan, F. D. See Dryden, H. L.

Neugebauer, O. See *Astronomical cuneiform texts.*

Neville, E. H. *Rectangular-polar conversion tables.* (Royal Society Mathematical Tables, vol. 2.) Cambridge University Press, 1956. 32 + 109 pp. $5.50.

Nievergelt, E. See van der Waerden, B. L.

Novikov, P. S. *Ob algoritmičeskoi nerazrešimosti problemy toždestva slov v teorii group.* (Trudy Mat. Inst. im. Steklov., no. 44.) Moscow, Izdat. Akad. Nauk SSSR, 1955. 143 pp. 6.30 rubles.

Ostmann, H. H. *Additive Zahlentheorie.* Part 1. *Allgemeine Untersu-chungen.* (Ergebnisse der Mathematik und ihrer Grenzgebiete, N. F., no. 7.) Berlin, Springer, 1956. 7 + 233 pp. 29.80 DM.

Otto, E. *Nomografia.* [Nomography.] Warsaw, Państwowe Wydawnictwo
Naukowe, 1956. 220 pp. 17.40 zł.

Pöschl, K. *Mathematische Methoden in der Hochfrequenztechnik.* Ber-
lin, Springer, 1956. 8 + 331 pp. 36.00 DM.

*Proceedings of the Second International Congress of the International
Union for the Philosophy of Science, Zurich, 1954.* Vol. II. Neuchâtel,
Griffon, 1955. 152 pp.

*Proceedings of the Second U.S. National Congress of Applied Mechanics,
Ann Arbor, 1954.* New York, American Society of Mechanical Engin-
eers, 1955. 20 + 821 pp. $9.00.

*Report of an international conference on operator theory and group repre-
sentations, Arden House, Harriman, N.Y. 1955.* Washington, National
Academy of Sciences and National Research Council, 1955. 37 pp.

Ricci-Curbastro, G. *Opere.* Vol. I. *Note e memorie.* Ed by the Unione
Matematica Italiana and with the assistance of the Consiglio Nazio-
nale delle Ricerche. Rome, Cremonese, 1956. 11 +441 pp. 4000 Lire.

Rosenthal, A. See Carathéodory, C.

Rothe, R., and Schmeidler, W. *Höhere Mathematik für Mathematiker,
Physiker, Ingenieure.* Part VII. *Räumliche und ebene Potentialfunk-
tionen. Konforme Abbildung. Integralgleichungen. Variationsrechnung.*
Stuttgart, Teubner, 1956. 218 pp. 22.40 DM.

Schlichting, H. *Boundary layer theory.* Trans. by J. Kestin. New York,
McGraw-Hill, 1955. 20 + 535 pp. $15.00.

Schmeidler, W. See Rothe, R.

Scorza Dragoni, G. See Severi, F.

Selecta Hermann Weyl. Basel, Birkhäuser, 1956. 592 pp., 1 plate. 48.90
Swiss fr.

*Séminaire Henri Cartan de l'Ecole Normale Supérieure, 1950–1951. Coho-
mologie des groupes, suite spectrale, faisceaux.* 2d ed. Paris, Sec-
rétariat mathématique, 1955. 188 pp.

*Séminaire Henri Cartan de l'Ecole Normale Supérieure, 1954–1955. Al-
gèbres d'Eilenberg-MacLane et homotopie.* 2d ed. Paris, Secrétariat
mathématique, 1956. 3 + 234 pp., polycopiées. 1200 fr.

*Séminaire M. Krasner de la Faculté des Sciences de Paris, 1953–1954.
Théorie des corps valués.* Paris, Secrétariat mathématique, 1956.
Vol. 1, 52 + 25 + 46 + 39 pp., multigraphiées; Vol. 2, 131 pp.,
multigraphiées.

Severi, F., and Scorza Dragoni, G. *Lezioni di analisi.* Vol. II. *Serie di
funzioni, applicazioni grometriche, integrali rettilinei, funzioni di
più variabili, derivazione e integrazione ad esse inerenti.* 4th ed.
Bologna, Zuffi, 1955. 7 + 398 pp. 4500 Lire.

Smirnov, A. D. *Tablicy funkciĭ Èǐri i special'nyh vyroždennyh gipergeo-*

metričeskih funkciĭ dlya asimptotičeskih rešeniĭ differencial'nyh uravneniĭ vtorogo poryadka. Moscow, Izdat. Akad. Nauk SSSR, 1955. 261 pp., 2 inserts. 28 rubles.

Smirnov, V. I. See *Matematika i mehanika v izdaniyah Akademiya Nauk SSSR.*

Speiser, A. *Die geistige Arbeit.* Basel, Birkhäuser, 1955. 7 + 207 pp. 19.25 Swiss fr.

Steuerwald, R. See Carathéodory, C.

Strubecker, K. *Einführung in die höhere Mathematik mit besonderer Berücksichtigung ihrer Anwendungen auf Geometrie, Physik, Naturwissenschaften und Technik.* Vol. I. *Grundlagen.* Munich, Oldenbourg, 1956. 15 + 821 pp. 36.00 DM.

Struik, D. J. *Geometría diferencial clásica.* Trans. by L. Bravo Gala. Madrid, Aguilar, 1955. 9 + 256 pp.

Swanson, C. A. See Erdélyi, A.

Szabó, I. See Hamel, G.

Tables of Weber parabolic cylinder functions, giving solutions of the differential equation $d^2y/dx^2 + (x^2/4 - a)y = 0$. Computed by Scientific Computing Service Limited. Ed by and with mathematical introduction by J. C. P. Miller. London, Her Majesty's Stationery Office, 1955. 63s; $11.68.

Vajda, S. *The theory of games and linear programming.* London, Methuen, 1956. 5 + 106 pp. $1.75.

van der Waerden, B. L., and Nievergelt, E. *Tafeln zum Vergleich zweier Stichproben mittels X-Test und Zeichentest. Tables for comparing two samples by X-test and sign test.* Berlin, Springer, 1956. 4 + 34 pp. 4.80 DM.

Walley, J. T. See Hertz, H.

Winogradow, I. M. *Elemente der Zahlentheorie.* Munich, Oldenbourg, 1956. 8 + 156 pp. 10.50 DM.

Wittich, H. *Neuere Untersuchungen über eindeutige analytische Funktionen.* (Ergebnisse der Mathematik und ihrer Grenzgebiete, N. F., no. 8.) Berlin, Springer, 1955. 4 + 163 pp. 25.60 DM.

Yiftah, S. *Constantes fondamentales des théories physiques.* Paris, Gauthier-Villars, 1956. 12 + 124 pp. 2,300 fr.

CATALOGUE OF LECTURE NOTES ON MATHEMATICS TOPICS

Supplement No. 4

DUKE UNIVERSITY

The following item may be ordered from: Department of Mathematics, Duke University, Durham, North Carolina.

J. R. SHOENFIELD, *The structure of locally compact groups*, 63 pp., unbound $1.00

Note: Further supplements to the Catalogue of Lecture Notes published in December, 1955 will not be published. A new catalogue will be assembled during the fall and published in the December, 1956 issue.

CHANGES OF ADDRESS AND DIRECTORY INFORMATION

Changes of address should be sent to the Society *at least 30 days* before the change is to become effective. Please indicate the date you will be at the new address. Since our journals are mailed directly by the printer, time is needed for making the changes, preparing a list, and mailing the list to the printer. In order to keep the Directory up-to-date at all times, *complete information concerning your position should be included with your change of address.*

A form for change of address and listing of position was included in the June issue of the *Notices*.

It is called to your attention at this time that the closing date for the COMBINED LIST OF MEMBERS is October 15th.

SEATTLE MEETING
August 21–24, 1956

RESERVATION FORM

Please fill out the reservation form, detach on the dotted line, and mail to Mr. J. Arthur Pringle, Director of Student Residences, 23 Administration Building, University of Washington, Seattle 5, Washington.

The form should be mailed to reach Seattle by August 4.

Please detach on this line

AMERICAN MATHEMATICAL SOCIETY

RESERVATION FORM
Seattle Meeting

Name ....
       (Please print)

Institution ....

Arrival date ......a.m............p.m. Departure date ....a.m...........p.m.

Dormitory accommodations desired for .... Men, ... Women, ... Girls, ...(ages), ...Boys, ...(ages). Indicate relationship to you. (Rates specified in program; payable on registration.)

Number desiring cafeteria breakfast .... lunch ....dinner ....

Those who wish to stay at a hotel or motel should make their own reservations from the list on the program.

Number expecting to attend Salmon Bake ....Will drive own car ☐
                                          Will require transportation ☐

Number expecting to take boat trip ....