DEPARTMENT OF THE ARMY
ARMY MATERIALS AND MECHANICS RESEARCH CENTER
WATERTOWN, MASSACHUSETTS 02172

DRXMR-SM

14 April 1982

Robert L. Launer
US Army Research Office
Mathematics Division
P.O. Box 12211
Research Triangle Park, North Carolina 27709

Bob:

I nominate Prof. Emmanuel Parzen of Texas A and M University for the Wilks Award. His contributions in the area of exploratory data analysis have been very helpful to the AMMRC staff. At present most experimental data from composite and ceramic materials tests at this installation is initially evaluated using Dr. Parzen's Quantile Box Plot, Quantile Histogram in order to determine acceptance of material preparation and test procedures. Dr. Parzen has been available for consultation (telephone conversation) on a number of occasions resulting in solution to problems beyond our staffs capability. He promptly sends any literature relevant to the prescribed problems. In summation, his promptness and willingness to aid in AMMRC statistical problems is outstanding.

Prof. G. Box, B. Harris and R. Johnson of Wisconsin and Prof. Robert Hogg of Iowa have also provided AMMRC with considerable aid in the following areas: quality control, exploratory data analysis and reliability. It is difficult to select one individual when any one of these gentlemen could equally well qualify for the Wilks Award.

Sincerely,

Don Neal

Don Neal
Mechanics of Materials Division

AMSC

SCHOOL OF OPERATIONS RESEARCH
AND INDUSTRIAL ENGINEERING

Cornell University
COLLEGE OF ENGINEERING
UPSON HALL
ITHACA, NEW YORK 14853

Director 607/256-3410
Associate Director 607/256-5088
Faculty 607/256-4856

April 30, 1982

Dr. Jagdish Chandra
Chairman, Army Mathematics
Steering Committee
U.S. Army Research Office
P.O Box 12211
Research Triangle Park, NC 27709

Dear Jagdish:

This is a belated answer to your letter of March 31st in which you officially invited me to participate as a voting member of the Army Wilks Selection Committee for the years 1982 and 1983. As I indicated at Raleigh, I am delighted to serve in this capacity, and to help in any way that I can. Thanks again for having invited me.

Cordially,

Bob

Robert Bechhofer
Professor

RB/atk

STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305

DEPARTMENT OF STATISTICS
Sequoia Hall

June 22, 1982

Professor Frank Proschan
Statistics Department
Florida State University
Tallahassee, FL 32306

Dear Professor Proschan:

I am very pleased to inform you of your selection as the 1982 Wilks Medalist of the American Statistical Association. The presentation of the medal, certificate and honorarium will take place during the 1982 Annual Meetings in Cincinnati at 8:30 p.m. on Tuesday, August 17 in Stouffer's Cincinnati Towers. We hope you can be there in person to accept the award.

Sincerely yours,

Herbert Solomon

Herbert Solomon
Chairman, 1982 Wilks Committee

HS:ck

cc: Dr. Fred Leone, ASA

SELECTION COMMITTEE GUIDELINES

FOR

THE WILKS AWARD FOR CONTRIBUTIONS TO STATISTICAL METHODOLOGIES IN ARMY RESEARCH, DEVELOPMENT, AND TESTING

July 1982

COORDINATED BY

THE ARMY MATHEMATICS STEERING COMMITTEE

BACKGROUND

On December 31, 1980, Mr. Philip G. Rust of Thomasville, Georgia donated $10,000 to the U. S. Army for the establishment of an annual award to an individual for contributions to Army statistical methodology. The award is to commemorate the late Professor Samuel S. Wilks of Princeton University and is given with the following conditions:

a) The award must be presented at the annual Army Design of Experiments Conference.

b) The title of the award must contain the word Army and the name Wilks.

c) The award is to be given to an individual for contributions to statistical methodologies in Army research, development and testing.

The original bequest has been coordinated with the Secretary of Defense in accordance with AR 1-100. Monies are invested by the U. S. Army Finance and Accounting Center, Department of the Army Financial Operations, Dept. 130/(FINCO-B-D), Indianapolis, IN 46249 (AV 699-3026, Ms. Susan Sullivan) in accordance with the direction of the Chairman, AMSC.

The guidelines given below will be used by the selection committee until changes are issued by the AMSC.

GUIDELINES

1. Name and Purpose of the Award.

a) The award will be called The Wilks Award for Contributions to Statistical Methodologies in Army Research, Development and Testing.

b) The AMSC adopted the following statement as the official basis for the award:

"The Wilks award is given each year to a statistician for his/her advancement of scientific or technical knowledge in Army statistics and contributions to statistical theory."

2. Composition of Selection Committee.

a) The selection committee for the "Wilks Award for Contributions in Army Research, Development and Testing" shall consist of five (5) members--three (3) members from the U. S. Army community and two (2) members from among professional statisticians in the academic or industrial community or from other government agencies.

b) The members and their chairman are to be selected by the Probability and Statistics Subcommittee (PSS) at any scheduled meeting but not later than March 1 preceding the DOE conference.

c) The selection committee is to complete the selection process by August 31.

d) The selection committee appointments are to be for a term of one (1) year; however, members may be reappointed four times for a total appointment period of five successive years.

3. Nomination Procedures.

a) Solicitations for nominations for the award should be made through the announcement letter for the Annual Design of Experiments Conference, or any other appropriate method.

b) Nominations for the award may be accepted from anyone at anytime by any member of the committee. The names and all accompanying information should be forwarded to the selection committee chairman by August 1.

c) It is the responsibility of the person making the nomination to furnish the nature and extent of the contributions of the nominee. It is anticipated that this information will be known by the selection committee in the vast majority of cases. The committee will not be held accountable, however, for obtaining this information. This does not preclude a member from doing so, nor does this imply that a member may not make nominations for the award.

d) Individuals, while serving as selection committee members, will not be considered for the Wilks award.

e) Nominees will be considered by the selection committee for two years, and may be carried over for further consideration at the discretion of the committee.

f) Nominees may be employees of the U. S. Government.

4. Voting Procedures.

a) The committee chairman is responsible for circulating the names and all pertinent information which he receives relating to the nominations to each committee member by August 15. Each committee member should deliberate privately and forward his or her vote to the chairman by September 1. The results will be circulated to the committee unless any member requests that his vote be kept in confidence.

b) Each member of the committee should vote for three nominees in a priority order; first, second, and third place.

The winner will be determined by first place votes. If this results in a tie, then those tied names will be compared with the vote count extended to first and second place votes. If this results in a tie, the second round winners will be compared with the vote count extended to first, second, and third place votes. If this results in a tie, then the chairman of the AMSC will cast the deciding vote.

5. Reporting Procedures.

a) The selection committee chairman will inform the chairman of the AMSC at least 30 days prior to the Design of Experiments Conference so that the travel arrangements for the winner to attend the conference can be completed and so that the winner's honorarium can be prepared. The AMSC chairman will in turn inform the U. S. Army Finance and Accounting Center at the address given in BACKGROUND section, above.

b) The winner of the award will be formally announced at the annual Army Design of Experiments Conference.

c) The selection committee chairman will inform the chairman of the PSS so that a formal report may be made at the next semiannual AMSC meeting.

6. Amount to be Awarded.

a) The amount of the award is currently set at $500. If the base amount of the original bequest increases significantly in the future, this amount may be increased. This is accomplished by first notifying the Office of the Secretary of the Army, Gift Fund Office (AV 221-9591, Mr. Feazell). Then the Army Finance and Accounting Center is instructed to transfer money in a specific amount through the Army Research Office, Comptroller (DRXRO-FA). This should not at any time reduce the overall amount below $10,000.

b) The AMSC, through the PSS, may also present a plaque or medal in conjunction with the award. This may be paid for by the revenues earned by the original bequest. The procedure for coordinating this is the same as in 6a) above.

7. Transfer of Money.

When the annual winner of the award has been chosen by the selection committee, the Army Finance and Accounting Center will be informed so that a check may be written in the proper amount to the winner. The check is forwarded through DARCOM HQ (AV 284-9190/9277, Mr. Kutzer). This person should be contacted and instructed on what the check is for so that no unusual delays are experienced in processing the check at HQ DARCOM.

8. Review and Authority.

In a letter dated June 9, 1981, Mr. Philip G. Rust formally charged the chairman of the AMSC with administering this award with the highest regard for professionalism and in accordance with the original purpose and intent of the award. Mr. Rust feels that the AMSC "is the proper and natural organization for administering the award."

The selection committee will report the name of the winner to the AMSC at the first semiannual meeting following the selection. This may be accomplished through the report of the PSS.

9. Awards Coordination.

This award should not be confused with another award which has a very similar name--The S. S. Wilks Memorial Medal and Award. That award is administered by the American Statistical Association (ASA) and is also based on a gift from Mr. Philip G. Rust. The ASA has asked that the Army selection committee cooperate by not awarding the Army/Wilks award to anyone who has ever received the ASA/Wilks award until a policy can be determined by the ASA and AMSC, jointly.

DRXRO-MA 21 July 1982

Dr. D. B. Tang
Chief, Department of Biostatistics/
Applied Math
Division of Biometrics & Medical
Info Processing
Walter Reed Army Institute of Research
Washington, DC 20012

Dear Doug:

The nominations for the 1982 Wilks Award for Statistical Methodology in Army Research, Development and Testing are enclosed. There are 5 new names and 8 carryovers from last year. I would like to choose the winner a little earlier this year because of the lengthy process time for getting the winner's check through DARCOM HQ. Please try to forward your vote to me by August 12.

I have enclosed a copy of the old Ground Rules and Guidelines for the 2 new members of the subcommittee. I am revising these, but the voting procedure will be the same--vote for first, second and third place.

The new procedure contains a provision for eliminating names from the list before voting. It is Mr. Rust's desire that the winner be an active researcher in statistics who has made an important contribution to the solution of an Army laboratory problem in statistics (or ballistics) or who has developed methodology which is important to Army statistical practice. I believe it would be possible to filter this list to remove any names which obviously do not qualify. This would make our work on voting a little easier. I have accepted all nominations. I would appreciate your thoughts.

Sincerely,

2 Incl
As stated

ROBERT L. LAUNER
Selection Committee Chairman

DRXRO-MA 21 July 1982

Dr. J. R. Moore
Probability & Statistics Branch
Ballistic Research Laboratory
Aberdeen Proving Ground, MD 21005

Dear Dear Dick:

The nominations for the 1982 Wilks Award for Statistical Methodology in Army Research, Development and Testing are enclosed. There are 5 new names and 8 carryovers from last year. I would like to choose the winner a little earlier this year because of the lengthy process time for getting the winner's check through DARCOM HQ. Please try to forward your vote to me by August 12.

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Sincerely,

2 Incl
As stated

ROBERT L. LAUNER
Selection Committee Chairman

DRXRO-MA 21 July 1982

Professor R. E. Bechhofer
Department of Operations Research
Cornell University
Ithaca, NY 14853

Dear Bob:

The nominations for the 1982 Wilks Award for Statistical Methodology in Army Research, Development and Testing are enclosed. There are 5 new names and 8 carryovers from last year. I would like to choose the winner a little earlier this year because of the lengthy process time for getting the winner's check through DARCOM HQ. Please try to forward your vote to me by August 12.

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Sincerely,

2 Incl
As stated

ROBERT L. LAUNER
Selection Committee Chairman

DRXRO-MA

21 July 1982

Professor H. A. David
Department of Statistics
Iowa State University
Ames, IA 50011

Dear Herb:

The nominations for the 1982 Wilks Award for Statistical Methodology in Army Research, Development and Testing are enclosed. There are 5 new names and 8 carryovers from last year. I would like to choose the winner a little earlier this year because of the lengthy process time for getting the winner's check through DARCOM HQ. Please try to forward your vote to me by August 12.

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Sincerely,

2 Incl
As stated

ROBERT L. LAUNER
Selection Committee Chairman

... for fundamental contributions to statistical theory, for important advances in reliability theory and methodology, and for frequent tutorial presentations ~~at Army laboratories~~ and many other ~~laboratory Army inter~~ ~~(scientific)~~ interactions with scientists within Army laboratories.

Wilks Award Nominees for 1982

Carryover Nominees

Dr. Marion Bryson, Scientific Advisor, Combat Developments Experimentation Command, Fort Ord, California

Prof. A. C. Cohen, University of Georgia

Prof. John Gurland, University of Wisconsin

Prof. Bernard Harris, University of Wisconsin

Prof. Boyd Harshbarger, VPI&SU (Retired)

Prof. J. Stuart Hunter, Princeton University

Prof. Badrig M. Kurkjian, University of Alabama

Dr. Clifford J. Maloney, Consultant, Bethesda, Maryland

New Nominees

Prof. Richard Barlow, Berkeley University

Prof. Robert Hogg, University of Iowa

Prof. Richard Johnson, University of Wisconsin

Prof. Emanuel Parzen, Texas A&M University

Prof. Nozer Singpurwalla, George Washington University

Background of the Nominees for 1982

BRYSON

Methodology: Analysis of dirty data from field experimentations. Formerly Associate Professor, Mathematics and Community Health Sciences, Duke University, 1958-68.

Interactions: Half-time position with ARO-D. Past president and member of the board of directors, Military Operations Research Society. Invited speaker, DOE, 1974. Local host for 23rd and 28th DOE.

COHEN

Methodology: Extensive work in life testing, especially in parametric estimation using censored samples.

Interactions: Invited speaker at 4th and 16th DOE. Also clinical panelist at many DOE conferences and advisor to P&S subcommittee. Coordinator for 3rd DOE.

GURLAND

HARRIS

Methodology: Extensive work in statistical reliability. Author of text in probability. Recently developed new methodologies and optimality results for the long unsolved problem of confidence bounds for system reliability reported at 26th DOE. Work is progressing.

Interactions: Member of the MRC, University of Wisconsin, for approximately 15 years. Clinical panelist at numerous DOEs. Served as advisor to P&S subcommittee and advisor to the DoD Nuclear Systems Reliability committee. Invited speaker at ARO workshop in 1981. Numerous presentations at DOE conference. Local host, 23rd DOE. Many Army interactions.

HARSHBARGER

Interactions: Invited speaker at 6th DOE and invited panel chairman at 14th DOE. Invited panelist at other DOEs and advisor to P&S subcommittee.

HUNTER

Interactions: Invited speaker at 11th, 18th, and 22nd DOE and invited panelist at 6th DOE. Several years as advisor to the P&S subcommittee.

KURKJIAN

Interactions: Chief Mathematician of the Army for approximately 10 years. Coordinated many consulting and research activities in Army labs. Clinical panelist at several DOEs and member of the P&S subcommittee.

MALONEY

Interactions: Chief of the Statistics Branch at Fort Detrick for many years. Invited speaker at the 15th DOE. Chairman of local arrangements for the 5th DOE. Member of the P&S subcommittee for very many years and clinical panelist for several DOEs. Presented paper at 1st DOE and many others.

BARLOW

Methodology: Well known for his extensive work in reliability and applied probability. Co-author with Proschan of Mathematical Theory of Reliability, Statistical Theory of Reliability, and a text on Data Analysis in Reliability (to appear). Also Statistical Inference under Order Restrictions with Bartholomew, Bremner and Brunk.

Interactions: ARO contractor.

HOGG

Methodology: Co-author of Introduction to Mathematical Statistics with A. T. Craig. Well known expositor on statistical robustness.

Interactions: Speaker at 22nd DOE and ARO workshop on robustness, 1980.

JOHNSON

Methodology: Extensive work in statistical reliability. ARO contractor for 2 years (joint with ONR).

Interactions: Invited speaker at 24th DOE.

PARZEN

Methodology: Introduced reproducing kernel Hilbert space methods to spectral analysis of time series. Wrote Modern Probability theory, book on Stochastic Processes, book on time series. Recently developed a complete theory for data analysis based on the quantile function.

Interactions: Invited speaker at 14th DOE and ARO workshop on robustness, 1980. Recent important interaction with USAMMRC, Watertown, in analyzing failure data of composites.

SINGPURWALLA

Methodology: Well known for extensive work in reliability. Co-author of Methods for Statistical Analysis of Reliability and Life Data with Mann and Shafer. Also (to appear) book on time series with T. W. Anderson. Contributed to methodology for analyzing quantile data from kinetic energy penetrators at BRL.

Interactions: Invited speaker at 22nd and 27th DOE, and ARO/ONR workshop on reliability, 1981. Working group on K/E penetrators, 27th DOE meeting. Numerous interactions and discussions with Army personnel, especially BRL statisticians.

BERNARD HARRIS

RESEARCH COMPLETED IN LAST TWO YEARS

A Note on a Difficulty Inherent in Estimating Reliability from Stress-Strength Relationships (with A. P. Soms), MRC TSR #2123 (submitted for publication).

Recent Advances in Statistical Methods for System Reliability Using Bernoulli Sampling of Components (with A. P. Soms), to appear in Proceedings of ARO/ONR Workshop on Reliability Academic Press, Douglas de Priest, Editor).

Improved Sudakov-Type Bounds for Optimal Confidence Limits on the Reliability of Series Systems (with A. P. Soms), to appear.

Bounds for Optimal Confidence Limits for Series Systems (with A. P. Soms) MRC TSR #2093, June 1980, Submitted for publication.

Optimal Upper Confidence Limits for Products of Poisson Parameters with Applications to the Interval Estimation of the Failure Probability of Parallel Systems (with A. P. Soms) MRC TSR #2122, September 1980, submitted for publication.

Additional Results on Optimal Upper Confidence Limits for the Product of Poisson Parameters (with A. P. Soms), to appear.

CURRENT RESEARCH

At present I am completing a report which examines the sensitivity to changes in loss functions of reliability estimates for type II censored exponential lifetime data. The comparisons are made by means of complete asymptotic expansions of the estimators, some of which are expressed in terms of Riemann zeta functions and generalized Riemann zeta functions. This constitutes part of the research outlined in Appendix D-2 of the current contract.

As is evident from the above listing, all of the Technical Reports released during the past two years were in the area of reliability theory and predominantly in the area of systems reliability, a topic which was not mentioned in Appendix D-2 in the previous contract proposal. However, two observations: the role of Sudakov's inequality and some thoughts on potential applications of the notion of Schur concavity, led to significant breakthroughs in this area. One report is in the area of stress-strength models, which was specifically listed as a topic for investigation.

The papers in system reliability listed above provide methods for obtaining confidence limits which are Buehler optimal, for data obtained by Bernoulli sampling on stochastically independent components for a number of ordering functions. The ordering functions, which satisfy the requisite hypotheses of the theorems in the above reports, include many of those traditionally employed in applications such as the natural estimator of the system reliability for series systems. In particular, it is shown that the Lindstrom-Madden technique (commonly suggested in the engineering literature) has nearly optimal properties and is conservative.

PLANNED RESEARCH

The study of the sensitivity to changes in loss functions is to be extended to the case of type I censoring. Additional studies of the properties of stress-strength models are contemplated. These include the use of quantal responses, as well as an investigation of multivariate models. Further, it is known that stress-strength models are often very model sensitive, in that minor perturbations of the stochastic structure may have an enormous effect on the conclusion. Consequently, I have plans to study some failure models that have been constructed for the purpose of determining if these provide an alternative to the use of stress-strength techniques. My present involvement as an advisor to the Nuclear Regulatory Commission has generated interest in the study of common cause failure models and I have constructed a model for such failures and intend to investigate its properties.

bh:fjf
8/81

BERNARD HARRIS ----

Born: June 20, 1926 Widower - 4 children

Education:

City College of New York	1942-1946	B. B. A. 1946
George Washington University	1950-1953	M. A. 1953
Stanford University	1955-1956	Ph. D. 1958

Additional graduate study at George Washington University, 1954-1955 and American University, 1953-1954.

Employment:

U. S. Census Bureau	Mathematical Statistician	1950-1952
George Washington University	Instructor (part-time)	1952-1957
National Security Agency	Mathematician	1952-1958
Stanford University	Research Associate	Summer 1957
American University	Lecturer (part-time)	1957-1958
University of Nebraska	Assistant Professor of Mathematics	1958-1961
	Associate Professor of Mathematics	1961-1964
	Director of Statistics Division, Department of Mathematics	1962-1964
University of Wisconsin	Visitor at Mathematics Research Center	1963-1964
	Professor, Mathematics Research Center and Statistics Department	1964-
	Acting Associate Director Mathematics Research Center	1972-1973
	Acting Director Mathematics Research Center	Spring 1973
Technological University, Eindhoven, Netherlands	Visiting Professor Department of Mathematics	Feb., 1970- Aug., 1970
Technische Universität, München, Germany	Visiting Professor Mathematics Institute	1973-1974

Also Consultant to U. S. Department of Agriculture 1959-1962
Visiting Faculty Associate, Boeing Airplane Company 1961
Consultant to various government and industrial organizations 1958-1963
Mathematician U. S. D. A. (W. A. E. basis) 1963-1965

Teaching Activities:

The courses Dr. Harris has taught include Stochastic Processes, Information Theory, Statistical Decision Theory, Mathematical Statistics, Theory of Probability, Matrix Theory, Multivariate Analysis, Advanced Probability Theory, Analysis of Variance, Selected Topics in Graph Theory, Comparison of Experiments, Reliability Theory, Measure Theory.

Other Important Activities:

President	Nebraska Chapter, American Statistical Association 1958-1960
Member	Board of Directors, Amer. Statistical Asso., 1978-1980
Reviewer	Math. Reviews, Reviews I.S.I., Applied Statistics Abstracts, Zentralblatt.
Program Committee	Institute of Mathematical Statistics (Central Region) 1963, 1964, 1973
Program Chairman	Institute of Mathematical Statistics 1966
Special Invited Papers Committee	Institute of Mathematical Statistics, 1967, 1968, 1972

Chairman of Committees planning symposia for the Mathematics Research Center-Fall 1966 - Spectral Analysis of Time Series, Fall 1969 - Graph Theory.

Member of Program Committee - Symposium on Markov Processes and Potential Theory, Mathematics Research Center, Spring 1967.

Member of Ford Foundation Committee (1962-1964) studying mathematical training of faculties of Schools of Commerce in midwestern universities and supervising a corresponding summer institute.

[illegible]ber - Program Committee 1967, 1969, 1971, 1973, 1975, 1976, 1977 Army Conference on Design of Experiments

[illegible] - Program Committee-Symposium on Optimizing Methods in Statistics, [illegible]mbus, Ohio, 1971

[illegible]gram Committee - Symposium on Classification and Clustering, [illegible] Wisconsin, 1975.

[illegible]C Subcommittee on Probability and Statistics, 1964-1978.

[illegible]OD Methodology Working Group on Nuclear Weapon Reliability Assessment

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[illegible]mmitee on freedom of dissemination of scientific [illegible]mation 1980

Member - AMSC Subcommittee on Probability and Statistics, 1981

Chairman - Subcommittee on Models and Analysis, ASA Comm. on Nuclear Regulatory Research 1980-1983.

Member, Editorial Board - Stochastics and Decisions

Referee	Annals of Math. Stat., Journal of Amer. Stat. Assn., SIAM Journal, Bull. Am. Math. Soc., Proc. Am. Math. Soc., Pacific J. Math., Technometrics, Linear Algebra and Appl. Annals of Statistics., American Math. Monthly.
Chairman	Elections Committee-Institute of Mathematical Statistics 1968
Fellow	American Statistical Association Institute of Mathematical Statistics
Visiting Lecturer	Institute of Mathematical Statistics 1968-1969, 1969-1970
Member	International Statistical Institute 1974- (Honorary Society)
Contributing Editor	Current Index to Statistics, 1977 --

Invited Addresses:

Institute of Mathematical Statistics (Central Region)	1963
Institute of Mathematical Statistics (Central Region)	1966
American Geophysical Union	1961
Symposium on Erosion and Sedimentation (AGU)	1961
Conference on Graphic Enumeration Methods (Ann Arbor)	1966
NATO-Advanced Study Institute-Combinatorial Mathematics, Varenna, Italy	1966
International Conference on Graph Theory, University of the West Indies, Mona, Jamaica	1969
Calgary International Conference on Combinatorial Structures and their Applications, Calgary, Alberta	1969
Bolyai János Colloquium on Combinatorial Mathematics, Balatonfüred, Hungary	1969
Spezialtagung über Statistik (Verteilungsunabhängige Verfahren) Oberwolfach, Germany	1970
Symposium on Optimizing Methods in Statistics, Columbus, Ohio	1971
Tagung über Mathematische Statistik, Oberwolfach, Germany	1972
Dutch Statistical Union (Mathematical Statistics Group), Delft, Netherlands	1972
TIMS, ORSA, AIEE Meeting, Atlantic City, New Jersey	1972
Conference on Reliability and Biometry, Tallahassee, Florida	1973
Tagung über Mathematische Stochastik, Oberwolfach, Germany	1974
Greek Mathematical Society, Athens	1974
Conference on Theory and Applications of Reliability, Tampa, Florida	1975
Bolyai János Colloquium on Information Theory, Keszthely, Hungary	1975
Fifth Hungarian Colloquium on Combinatorics, Keszthely, Hungary	1976
Lectures on Statistical Decision Theory, National Research Council of Italy, (Lectures held at University of Rome)	1976
International Conference on Optimization in Statistics, Powai, India	1977
SIAM Meeting, Knoxville, Tennessee	1978
International Conference on Statistics, Tokyo	1979
NSF-CBMS Regional Conference, Columbia, Missouri	1979

ARO-ONR Workshop on Systems Reliability (3 addresses: 2 presented by myself, one by A. P. Soms) 1981

Books:

Theory of Probability, Addison-Wesley, 1966.
Spectral Analysis of Times Series, John Wiley, 1967 (Editor).
Graph Theory and Its Applications, Academic Press, 1970 (Editor).

Publications: (excluding books)

Bounds on Integrals with Applications to Cataloging Problems, The Annals of Mathematical Statistics, Vol. 30 (1959) pp. 521-548.

Probability Distributions Related to Random Mappings, The Annals of Mathematical Statistics, Vol. 31 (1960) pp. 1045-1062 (reprinted in Selecta, Autumn 1964).

Determining Bounds on Expected Values of Certain Functions, The Annals of Mathematical Statistics, Vol. 33 (1962) pp. 1454-1457.

Application of the Multiple Regression Approach in Evaluating Parameters Affecting Water Yields of River Basins, Journal of Geophysical Research, Vol. 65 (1960) pp. 1273-1268 (with A. L. Sharp, et al.).

An Improved Statistical Model for Evaluating Parameters Affecting Water Yields of River Basins, Journal of Geophysical Research, Vol. 66 (1961) pp. 3319-3335 (reprinted in Selected papers in Hydrology, 1961) (with A. L. Sharp, et al.).

Discussion of Paper by Mark A. Melton, "Methods for Measuring the Effect of Environmental Factors on Channel Properties", Journal of Geophysical Research, Vol. 67 (1962) pp. 1493-1494 (invited discussant in symposium on erosion and sedimentation held in Washington, D. C. April 18-21, 1961).

A Comparison of Five Rain-Gage Installations, Journal of Geophysical Research, Vol. 68 (1963) pp. 4723-4729 (with A. L. Sharp et al.).

Decision procedures for Finite Decision Problems under Complete Ignorance, The Annals of Mathematical Statistics, Vol. 35 (1964) pp. 1644-1655 (with F. V. Atkinson and J. D. Church).

The Characterization of Solution Sets for Generalized Reduced Moments Problems and its Application to Numerical Integration, SIAM Review, Vol. 8 (1966) pp. 86-99 (with E. B. Cobb).

The Number of Idempotent Elements of Symmetric Semigroups, Journal of Combinatorial Theory, Vol. 3 (1967) pp. 122-135 (with L. Schoenfeld).

An Asymptotic Lower Bound for the Entropy of Discrete Populations with Application to the Estimation of Entorpy for Approximately Uniform Populations, Annals of the Institute of Statistical Mathematics, Vol. 18 (1966) pp. 289-297 (with E. B. Cobb).

Publications: (continued)

Statistical Inference in the Classical Occupancy Problem - Unbiased Estimation of the Number of Cells, Journal of the American Statistical Association, Vol. 63 (1968) pp. 837-847.

Some Results in the Foundations of Statistical Decision Theory, Tenth Conference on Design of Experiments in Army Research (1965), 299-307.

Estimation of Entropy, Eleventh Conference on Design of Experiments in Army Research (1966), 511-517.

The Probability of Survival of a Subterranean Target under Intensive Attack, Naval Research Logistics Quarterly, Vol. 14 (1967) pp. 435-451 (with H. F. Karreman and J. B. Rosser).

Estimates of $P(Y < X)$ and Their Application to Reliability Problems for Both Continuous and Quantal Response Data, Thirteenth Conference on Design of Experiments in Army Research, (1968) 345-349 (with J. D. Church).

Asymptotic Expansions for the Coefficients of Analytic Functions, Illinois Journal of Mathematics, Vol. 12 (1968) pp. 264-277 (with L. Schoenfeld).

A Note on the Number of Idempotent Elements in Symmetric Semigroups, American Mathematical Monthly, Vol. 74 (1967) pp. 1234-1235.

Introduction to the Theory of Spectral Analysis of Time Series, in "Spectral Analysis of Time Series", John Wiley, New York, (1967) pp. 3-23.

The Estimation of Reliability from Stress-Strength Relationships, Technometrics, Vol. 12 (1970) pp. 49-54 (with J. D. Church).

Hypothesis Testing and Confidence Intervals for Products and Quotients of Poisson Parameters with Applications to Reliability, Journal of the American Statistical Association, Vol. 66 (1971) pp. 609-613 (a preliminary version of this paper is in Fourteenth Conference on Design of Experiments in Army Research, (1969) pp. 421-434.)

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A Composition Theorem for the Enumeration of Certain Subsets of Symmetric Semigroups and the Corresponding Sets of Labeled Functional Digraphs, Colloquia Mathematica Societatis János Bolyai, Vol. 4, (1969), 637-650 (with Lowell Schoenfeld).

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ypothesis Testing and Confidence Intervals for a Multiplicative Poisson Model with Applications to Reliability and Bioassay, in "Reliability and Biometry", Frank Proschan, Ed., SIAM Publishing (1974), pp. 363-378 (with A.P. Soms).

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he Statistical Estimation of Entropy in the Non-parametric Case, (extends previous paper), Colloquia Mathematical Societatis János Bolyai, 16, 1975, 323-355.

he Concept of a Best Approximation as an Optimality Criterion in Statistical Decision Theory, (with G. Heindl). "Optimizing Methods in Statistic", J.S. Rustagi, Ed., Academic Press, 1979.

A Survey of Statistical Methods in Systems Reliability Using Bernoulli Sampling of Components, The Theory and Applications of Reliability, Vol. II, C.P. Tsokos, I.N. Shimi, Editors, Academic Press, New York 1977.

n a Theorem of Voloshin Concerning Enumeration of Function Compositions. Colloquia Mathematica Societatis János Bolyai, 18, 1978, 553-566.

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he Use of the Tetrachoric Series for Evaluating Multivariate Normal Probabilities, (with A.P. Soms), Journal of Multivariate Analysis, 10, 1980, pp. 252-267.

he Convergence Properties of M.G. Kendall's Tetrachoric Series, Bulletin of the International Statistical Institute, 47 (1977), 224-227.

esting Hypotheses for Effects on Survival by the Analysis of a Matched Retrospective Design (with A.A. Tsiatis) to appear, Bulletin of the International Statistical Institute.

ntropy, Enclyclopedia of Statistical Sciences, John Wiley, to appear.

n Testing for Sufficiency Am. Stat. 27 (1973), 192, (with A.P. Soms).

A Note on a Difficulty Inherent in Estimating Reliability from Stress-Strength Relationships (with A. P. Soms), MRC TSR #2123 (submitted for publication).

Recent Advances in Statistical Methods for System Reliability Using Bernoulli Sampling of Components (with A. P. Soms), to appear in Proceedings of ARO/ONR Workshop on Reliability Academic Press, Douglas de Priest, Editor).

Improved Sudakov-Type Bounds for Optimal Confidence Limits on the Reliability of Series Systems (with A. P. Soms), to appear.

Bounds for Optimal Confidence Limits for Series Systems (with A. P. Soms) MRC TSR #2093, June 1980, Submitted for publication.

Optimal Upper Confidence Limits for Products of Poisson Parameters with Applications to the Interval Estimation of the Failure Probability of Parallel Systems (with A. P. Soms) MRC TSR #2122, September 1980, submitted for publication.

Additional Results on Optimal Upper Confidence Limits for the Product of Poisson Parameters (with A. P. Soms), to appear.

Book Reviews:

J. H. B. Kemperman, The Passage Problem for a Stationary Markov Chain; for Technometrics.
M. Loéve, Probability Theory; for SIAM Reviews.
J. Bracken and A. Schleifer, Jr., Tables for Normal Sampling with Unknown Variance; for Industrial Quality Control.
I. J. Good, The Estimation of Probabilities; for SIAM Reviews.
K. Wellnitz, Moderne Wahrscheinlichkeitsrechnung; for Math. Reviews.
R. K. Jeffrey, Logic of Decision; for SIAM Reviews.
J. F. C. Kingman and S. T. Taylor, Introduction to Measure and Probability; for Reviews of the International Statistical Institute.
M. G. Bulmer, Principles of Statistics; for Math. Reviews.
H. G. Tucker, A. Graduate Course in Probability; for Technometrics.
P. Whittle, Probability; for Math. Reviews.
D. A. S. Fraser, The Structure of Inference, for SIAM Reviews.
J. Bendat and A. Piersol, Random Data: Analysis and Measurement Procedures, for Technometrics.
L. E. Maistrov, Probability Theory, A Historical Sketch, for SIAM Reviews
W. J. Adams, The Life and Times of the Central Limit Theorem, for SIAM Reviews

Lecture Notes: (Mimeographed)

The Principle of Invariance in Statistical Inference 1963.
Information Theory 1960 (partially revised 1962).
Regression Theory 1968 (MRC Orientation Lecture Series Number 7).
Lectures in Statistical Decision Theory 1976 (Seminar conducted at University of Rome)

Invited Colloquium Lectures:

Stanford University 1957
National Bureau of Standards 1958
University of Nebraska (several)
Virginia Polytechnic Institute (1959)
University of Wisconsin (several, Statistics Department, Mathematics Research Center, Applied Mathematics Group).
Oshkosh State University (1964)
Purdue University (1966)
University of Minnesota (1966)
Ohio State University (1967)
New Orleans, Louisiana State University Branch (1967)
Ballistics Research Laboratories (1967)
Michigan State University (1968)
McGill University (1968)
Université de Montréal (1968)
New Mexico State University (1968)

Invited Colloquium Lectures: (continued)

Oak Ridge National Laboratory (1969)
George Washington University (1969-Statistics Department)
University of Cincinnati (1969-IMS Visiting Lecturer)
Oshkosh State University (1969-IMS Visiting Lecturer)
University of Nebraska (1969)
Bell Telephone Laboratories (1969)
University of Manitoba (1969)
Technological University, Eindhoven, Netherlands (2 lectures) (1970)
University of Utrecht, Netherlands (1970)
University of Lund, Sweden (4 lectures) (1970)
University of Copenhagen, Denmark (1970)
University of Stuttgart, Germany (1970)
Ruhr-Gebiet Universität, Bochum, Germany (1970)
Bolyai Insitute, Budapest, Hungary (1970)
Technische Hochschule, Munich, Germany (1970)
Swiss Universities Statistics Colloquium (held at Eidgenössische Technische Hochschule, Zürich, Switzerland) (1970)
George Washington University (1971-Statistics Department)
George Washington University (1971-Mathematics Department)
Centre de Recherches Mathématiques, Université de Montréal (2 lectures) (1971)
Universität Karlsruhe, Germany (2 lectures) (1972)
University of Copenhagen, Denmark (1972)
University of Lund, Sweden (4 lectures) (1972)
Katholieke Universiteit te Leuven, Belgium (1972)
Ruhr-Gebiet Universität, Bochum, Germany (1972)
Technological University, Eindhoven, Netherlands (1972)
Chalmers University of Technology, Göteborg, Sweden (1972)
Mathematisch Centrum, Amsterdam, Netherlands (1972)
University of Amsterdam, Netherlands (1972)

Technische Hochschule, Graz	1974
Universität Bern	1974
Universität Marburg	1974
University of Paris IX (2 lectures)	1974
University of Athens	1974
University of Patras	1974
University of Lund	1974
Royal Institute of Technology Stockholm	1974
University of Uppsala	1974
Technological University Eindhoven	1974
Mathematisch Centrum Amsterdam	1974
Katholieke Universiteit te Nijmegen	1974
University of Leiden	1974
Technological University Twente	1974
Technische Universität, München	1974
University of Texas, Austin	1975
Ohio State University	1975
Technological University, Eindhoven	1976
University of Stuttgart, Germany	1976
University of Arizona	1977
George Washington University	1978
Colloquium Lectures, University of Illinois, Urbana	1981

Ph. D. Students

E. B. Cobb
J. D. Church
S. L. Lai
C. J. Park
E. Nordbrock
A. P. Soms
E. Markowitz
L. J. Chao

10/10/77

SCHOOL OF OPERATIONS RESEARCH
AND INDUSTRIAL ENGINEERING

Cornell University
COLLEGE OF ENGINEERING
UPSON HALL
ITHACA, NEW YORK 14853

Director 607/256-3410
Associate Director 607/256-5088
Faculty 607/256-4856

July 28, 1982

Dr. Robert L. Launer
Mathematics Division
U.S. Army Research Office
P.O. Box 12211
Research Triangle Park
North Carolina 27709

Dear Bob:

This is in answer to your letter of July 21, 1982 concerning the 1982 Wilks Award for Statistical Methodology in Army Research Development and Testing. My votes are as follows:

1. Bernard Harris
2. Nozer Singpurwalla
3. Emanuel Parzen

For the purposes of this award I think that at this time there is a wide gap between Singpurwalla and Parzen. Unfortunately I do not feel too well qualified to vote for the non-academic nominees.

I would suggest that the names of A.C. Cohen, John Gurland, Boyd Harshbarger, and possibly Robert Hogg be deleted from the list; in the case of Hogg there are many in the statistical community who have done more work on robustness than he.

I would like to see the name of Dick Moore added to the list for next year although I am not an appropriate person to nominate him. I believe that he is on the Committee this year in which case I suggest that he be replaced next year by someone such as Malcolm Taylor or Jerry Thomas at BRL so that he will be eligible for election.

Best regards,

Bob

Robert Bechhofer
Professor

vh

IOWA STATE
UNIVERSITY

Statistical Laboratory
and
Department of Statistics
Snedecor Hall
Ames, Iowa 50011

Telephone: 515-294-3440

July 30, 1982

Dr. Robert L. Launer
U.S. Army Research Office
P.O. Box 12211
Research Triangle Park, North Carolina 27709

Dear Bob:

My choices for the 1982 Wilks award are as follows:

1) Emanuel Parzen
2) Bernard Harris
3) Nozer Singpurwalla

All three fit in comfortably with Mr. Rust's intent for the award, as do many of the other nominees. It would still be helpful, however, to develop statements differentiating specifically the Wilks award from the Wilks memorial medal and award. Also, a list of previous recipients of both awards would be most desirable. These suggestions are, of course, for your consideration in the future administration of the award.

With kind regards,

Sincerely yours,

Herb

H. A. David

ah

DEPARTMENT OF THE ARMY
U. S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
U. S. ARMY BALLISTIC RESEARCH LABORATORY
ABERDEEN PROVING GROUND, MARYLAND 21005

REPLY TO
ATTENTION OF

DRDAR-BLB

10 August 1982

Dr. Robert L. Launer
US Army Research Office
P.O. Box 12211
Research Triangle Park, NC 27709

Dear Bob;

My selections for the 1982 Wilks Award are:

First choice:	Prof. Badrig M. Kurkjian
Second choice:	Dr. Marion Bryson
Third choice:	Prof. Bernard Harris.

I called my selection in to your secretary today because you are on vacation this week and I'll be on vacation next week and it's the only way I can meet your August 12 deadline.

If you need to get in touch with me next week I will be at Wrightsville Beach, N.C.

I hope you had a pleasant vacation.

Sincerely,

Dick

J. RICHARD MOORE
Chief, Probability & Statistics Branch
Ballistic Modeling Division

REPLY TO ATTENTION OF:

DRXRO-MA

25 August 1982

Professor Robert Bechhofer
School of Operations Research &
Industrial Engineering
Cornell University
Ithaca, NY 14853

Dear Bob:

The votes have been cast and a winner of the 1982 Wilks/Army Award has been chosen. The votes are (in alphabetical order by committeeman):

Bechhofer	David	Launer	Moore	Tang
Harris	Parzen	Harris	Kurkjian	Kurkjian
Singpurwalla	Harris	Singpurwalla	Bryson	Bryson
Parzen	Singpurwalla	Parzen	Harris	Harris

Thank you for your time and assistance in this matter.

Sincerely,

ROBERT L. LAUNER
Mathematics Division

REPLY TO ATTENTION OF:

DRXRO-MA

25 August 1982

Professor Herbert A. David, Head
Department of Statistics and
Director, Statistical Laboratory
Iowa State University
Ames, Iowa 50011

Dear Herb:

The votes have been cast and a winner of the 1982 Wilks/Army Award has been chosen. The votes are (in alphabetical order by committeeman):

Bechhofer	David	Launer	Moore	Tang
Harris	Parzen	Harris	Kurkjian	Kurkjian
Singpurwalla	Harris	Singpurwalla	Bryson	Bryson
Parzen	Singpurwalla	Parzen	Harris	Harris

Thank you for your time and assistance in this matter.

Sincerely,

ROBERT L. LAUNER
Mathematics Division

REPLY TO ATTENTION OF:

DRXRO-MA

25 August 1982

Dr. Douglas B. Tang
Chief, Department of Biostatistics/
Applied Math
Division of Biometrics & Medical
Information Processing
Walter Reed Army Institute of Research
Washington, DC 20012

Dear Doug:

The votes have been cast and a winner of the 1982 Wilks/Army Award has been chosen. The votes are (in alphabetical order by committeeman):

Bechhofer	David	Launer	Moore	Tang
Harris	Parzen	Harris	Kurkjian	Kurkjian
Singpurwalla	Harris	Singpurwalla	Bryson	Bryson
Parzen	Singpurwalla	Parzen	Harris	Harris

Thank you for your time and assistance in this matter.

Sincerely,

Bob

ROBERT L. LAUNER
Mathematics Division

REPLY TO ATTENTION OF:

DRXRO-MA

25 August 1982

Dr. J. Richard Moore
Operations Research Analyst
Concepts Analysis Lab
Ballistic Research Laboratory
Aberdeen Proving Ground, MD 21005

Dear Dick:

The votes have been cast and a winner of the 1982 Wilks/Army Award has been chosen. The votes are (in alphabetical order by committeeman):

Bechhofer	David	Launer	Moore	Tang
Harris	Parzen	Harris	Kurkjian	Kurkjian
Singpurwalla	Harris	Singpurwalla	Bryson	Bryson
Parzen	Singpurwalla	Parzen	Harris	Harris

Thank you for your time and assistance in this matter.

Sincerely,

ROBERT L. LAUNER
Mathematics Division

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
DRXRO- MA	Request for Supplies or Services Purchase/Delivery Order No.:

TO	FROM	DATE	CMT 1
EM/PBO	Math Division	16 Dec 82	

PART I: REQUEST

1. Identification of supply or service including all pertinent data. For honorariums provide all data on a separate sheet, including tasks to be performed and reasons for selecting the candidate on a sole source basis. Request disbursement of $500 be made to Prof. nard Harris, University of Wisconsin as winner of the 1982 Wilks Award. k will be mailed with appropriate cover letter by the Math Division.

NSN:

2. The supply or service is required by ASAP.

JAGDISH CHANDRA, Director — 17 Dec 82
Signature, Division/Office Chief — DATE

PART II: EM/PBO ACTION

PD

( ) Authorized ( ) Not authorized

( ) GSA Stores/Depots ( ) Federal Supply Schedules

( ) Federal Prison Industries (supplies/services)

( ) Agencies for the Blind (supplies/services) ( ) Other

( ) None of the above

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NORMAN D. LATTA, EM/PBO — DATE

PART III: APPROVAL/DISAPPROVAL

FUNDS:

( ) Admin ( ) Mission

Recommend ( ) Approval ( ) Disapproval

ROBERT R. COLLIER, DAC, F&A Officer

( ) Approved ( ) Disapproved

PAUL E. NIXON, JR. LTC, IN, Deputy Director

( ) Approved ( ) Disapproved

Recommend ( ) Approval ( ) Disapproval

HERMAN ROBL, Technical Director

( ) Approved ( ) Disapproved

ROBERT E. WEIGLE, Director

PART IV: IMPREST FUND ACTION

TO: CH, SSB, ASSO FROM: Procurement Office DATE:

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( ) Additional comments, see reverse.

Signature, Contract Specialist — DATE

PART V: FUNDING COORDINATION

Funds requested: $_____; $_____ (trans); TOTAL $_____

ROBERT R. COLLIER, DAC, F&A Officer

AROOP1
August 82

DA FORM AUG 80 2496 — PREVIOUS EDITIONS WILL BE USED

January 18, 1983

Mathematical Sciences

Professor Bernard Harris
Mathematics Research Center
University of Wisconsin-Madison
610 Walnut Street
Madison, Wisconsin 53706

Dear Professor Harris:

It is a pleasure to forward the enclosed check which represents the honorarium associated with the second Wilks Award for Contributions to Statistical Methodologies in Army Research, Development and Testing.

The delay was unavoidable and entirely due to administrative complications. I hope that your personal feeling of honor is not diminished by the delay.

I would like to sincerely congratulate you on behalf of the Army Mathematics Steering Committee and the Subcommittee on Probability and Statistics.

Sincerely,

Enclosure

JAGDISH CHANDRA
Director
Mathematical Sciences Division

Letter

JC

UNIVERSITY OF WISCONSIN-MADISON
MADISON 53706

MATHEMATICS RESEARCH CENTER

610 WALNUT STREET
TELEPHONE (608) 263-2661

March 23, 1983

Dr. Jagdish Chandra
Director
Mathematical Sciences Division
Department of the Army
U.S. Army Research Office
P. O. Box 12211
Research Triangle Park, NC 27709

Dear Dr. Chandra:

I am writing you to acknowledge receipt of the honorarium for the Wilks award. Thank you for your congratulations. I am deeply honored to have been designated as the recipient of the award.

Sincerely yours,

Bernard Harris

BH:gm

UNIVERSITY OF WISCONSIN-MADISON
MADISON 53706

MATHEMATICS RESEARCH CENTER

610 WALNUT STREET
TELEPHONE (608) 263-2661

April 22, 1983

Director
Ballistic Research Laboratory
ATTN: DRDAR-BLB
Dr. Malcolm Taylor
Aberdeen Proving Ground, MD 21005

Dear Malcolm:

I am writing you to let you know that I have received the plaque. It looks very distinguished and I think that you have done an excellent job in designing it.

Thanks very much. I am deeply honored to have been presented with it.

Sincerely,

Bernard Harris

BH:gm

xc: R. Launer