NEWS AND NOTICES

Personal Items

Readers are invited to submit items of personal interest to the Treasurer of the Institute

Dr. Jagdish C. Ahuja has been promoted to Professor in the Department of Mathematics at Portland State University.

Dr. Richard E. Barlow now has a joint appointment with the Statistics Department and the Operations Research Department at the University of California, Berkeley.

Percy A. Pierre has been awarded a White House Fellowship for one year beginning 1 September 1969 with the President's Council on Urban Affairs.

Dr. Frank Proschan will be on leave from the Boeing Scientific Research Laboratories as Visiting Professor in the Department of Operations Research, Stanford University, from August 1969 through June 1970.

Dr. J. Van Ryzin has resigned his position as an Associate Professor in the Department of Mathematics at the University of Wisconsin-Milwaukee to accept an appointment as an Associate Professor of Statistics at the University of Wisconsin, Madison.

Dr. Martin B. Wilk has been promoted to Statistical Director, Management Sciences Research, at Bell Telephone Laboratories, Murray Hill, New Jersey.

New Members

Baron, John A., M.S., (Stanford University); Graduate Student, Stanford University.

Byers, Frances, B.A., (Rosemont College); Graduate Fellow, University of Pennsylvania.

Carpenter, Daniel D., M.S., (University of California at Los Angeles); Senior Staff Engineer, TRW Systems Group.

Daenzer, Terry Roger, M.P.H. (University of Michigan); Graduate Student, University of Washington.

Fischbach, Thomas J., M.S., (University of Wisconsin); Statistician, Center for Research and Development for Study of Cognitive Learning, University of Wisconsin.

Froehlich, B. Robert, B.S., (University of California at Berkeley); Graduate Student, University of Minnesota.

Garza-Hernandez, Tomas, Ph.D., (University of London); Lecturer, El Colegio de Mexico.

Goel, Prem Kumar, M.S., (Carnegie–Mellon University); Graduate Student, Carnegie–Mellon University.

Griffiths, Gary N., M.S., (Kansas State College of Pittsburg); Teaching-Research Fellow, University of Iowa.

Hamann, Jay R., B.E.E., (University of Minnesota); Graduate Student, University of Minnesota.

Hatch, Lawrence O., Ph.D., (University of Connecticut); Assistant Professor, United States Coast Guard Academy.

Hemstead, Robert J., Ph.D., (California Institute of Technology); Assistant Professor, Oberlin College.

Henrichon, Ernest G. Jr., Ph.D., (Purdue University); Project Scientist, Information Research Associates, Inc.

Hern, Thomas A., M.S., (Ohio State University); Teaching Assistant, Ohio State University.

Hightower, James K., Ph.D., (Claremont Graduate School); Associate Professor, California State College at Fullerton.

Inagaki, Nobuo, M.A., (Osaka University); Research Worker, The Institute of Statistical Mathematics.

James, Richard E., M.S., (Purdue University); Graduate Student, Purdue University.

Janardan, K. G., M.Sc., (University of Mysore); Graduate Student; Pennsylvania State University.

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Katzoff, Myron J., B.S., (University of Maryland); Graduate Student, George Washington University.

Klimko, Lawrence A., Ph.D., (Ohio State University); Assistant Professor, Pennsylvania State University.

Kôno, Kazumasa, M.S., (Kyushu University); Assistant Professor, Kyushu University.

Kunes, Laurence E., M.Sc., (Ohio State University); Graduate Assistant, Ohio State University.

Labelle, Denis, B.Sc. (University of Montreal); Graduate Student, University of Montreal.

Laverty, William H., B.Sc., (University of Toronto); Graduate Student, University of Toronto.

Lunde, Stanley E., M.A., (Claremont Graduate School); Graduate Student, Claremont Graduate School.

McElroy, Dovalee, M.S., (Southern Methodist University); Graduate Student, Southern Methodist University.

McIntyre, James Steve, B.S., (California State University at Hayward); Instructor, California State University at Hayward.

Mayer, Lawrence S., M.S., (Ohio State University); Graduate Student, Ohio State University.

Mekkelson, Donald L., M.S., (University of Iowa); Graduate Student, University of Iowa.

Moeschberger, Melvin L., M.S., (Ohio University); Research Assistant, University of North Carolina.

Moussa, Effat A., M.Sc., (University of Chicago); Teaching Assistant, University of Iowa.

Råde, Lennart P. J., Fil.lic., (University of Gothenburg); Universitetslector, Chalmers Institute of Technology and the University of Gothenburg.

Rousu, Dwight N., B.S., (Valparaiso University); Associate Engineer, Boeing Company.

Sakaguchi, Kôji, M.S., (Kyushu University); Lecturer, Kyushu University.

Sansing, Raymond C., M.S. (Southern Methodist University); Graduate Student, Southern Methodist University.

Singh, Mohan Bir, M.Sc., (University of Alberta); Graduate; Student, McGill University.

Swartz, G. Boyd, M.S.E.E., (Lehigh University); Graduate Student, New York University.

Takahasi, Koiti, M.A., (Tohoku University); Head of a Research Section, The Institute of Statistical Mathematics.

Tripathi, Ram Chandra, M.A., (Banaras Hindu University); Research Assistant, University of Wisconsin.

Truelove, Alan J., Ph.D., (University of California at Los Angeles); Mathematician, MATHEMATICA.

Zalinger, David A., B.Sc., (University of Colorado); Graduate Student, University of Victoria.

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THE INSTITUTE OF MATHEMATICAL STATISTICS
1970 COUNCIL

Patrick Billingsley (1971)
Department of Statistics
University of Chicago
Chicago, Illinois 60637

Donald L. Burkholder (1971)
Mathematics Department
University of Illinois
Urbana, Illinois 61801

Lincoln Moses (1972)
Department of Statistics
Stanford University
Stanford, California 94305

Ingram Olkin (1972)
Department of Statistics
Stanford University
Stanford, California 94305

Anders Hald (1970)
Department of Statistics
University of Copenhagen
Furesovej 83
Virum, Denmark

J. L. Hodges, Jr. (1971)
Department of Statistics
University of California
Berkeley, California 94720

Mark Kac (1971)
Mathematics Department
Rockefeller University
66th Street and York Avenue
New York, New York 10021

Lucien M. LeCam (1970)
Department of Statistics
University of California
Berkeley, California 94720

Gerald J. Lieberman (1970)
Department of Statistics
Stanford University
Stanford, California 94305

Dennis V. Lindley (1970)
Department of Statistics
University College
University of London
London, England

John Pratt (1972)
Harvard Business School
Harvard University
343 Morgan Hall
Boston, Massachusetts 02163

Charles Stein (1972)
Department of Statistics
Stanford University
Stanford, California 94305

REPORT OF THE PRESIDENT FOR 1969

During the year the Institute continued its usual activities, as described in detail in the reports of the other officers. Paul L. Meyer retired as Managing Editor and was replaced by K. J. C. Smith. A committee under the chairmanship of W. J. Hall has been appointed to select a new Editor to replace Z. W. Birnbaum, who will retire from the editorship in 1970.

The first volume of the IMS publication, "Selected Tables in Mathematical Statistics," edited by H. L. Harter and D. B. Owen with the cooperation of the Committee on Mathematical Tables, is expected to go to press in September, 1969.

The Nominating Committee for next year's election consists of R. R. Bahadur, M. H. De Groot, A. Dvoretzky, R. H. Farrell, J. Hájek, T. E. Harris (chairman), H. O. Hartley, G. B. Kallianpur and M. Rosenblatt.

I wish to thank all those who served as officers and on committees for their valuable contributions to the Institute's activities.

WASSILY HOEFFDING

REPORT OF THE TREASURER FOR 1969

This report covers the period July 1, 1968 to June 30, 1969.

The Institute had 2857 paid members as of June 30, 1969. This number will increase slightly by the end of the calendar year as some delinquent members come in. For comparison with last year, the June 30 (fiscal year-end) figures are given.

	June 30, 1968	June 30, 1969
U.S.-Canada Members	1759	1835
Outside U.S.-Canada Members	506	530
Student Members	324	386
Institutional Members	78	82
Life Members	24	24
Total	2691	2857

There were increases in all categories of membership except that of Life Membership which is no longer available. There was a net increase of 166 members.

The Institute had 1975 paid subscribers on June 30, 1969. Of these, 830 were from the U.S. and Canada, 1145 from other countries. This represents an increase of 132 subscribers during the period of this report.

These increases in memberships and subscriptions yielded revenue increases of $5,778 which offset a decline in page charge revenue amounting to $4,554. Total income rose $3,909.

The expenses not directly connected with editing, printing, and shipping of the Annals showed a decrease of $1,200 from the previous year.

The costs directly connected with producing and shipping the Annals increased $13,109. This was due to two factors. One factor is the increases imposed by Waverly Press in each of the years, 1968 and 1969. The other factor is the increase in the number of pages published which came to 2301 pages for the 6 issues published during the fiscal (not calendar) year. This represents an increase of 165 pages over the previous 6 issues, or, in dollars, an increase of about $5,105. The price rises imposed by Waverly Press resulted in cost increase of about $7,914.

The net result of the changes in income and expenditure was an excess of income over outgo amounting to $27,225. This compares with an excess of $35,846 for the previous year, a decrease of $8,621. Of this excess for the current year, $10,000 was from interest, $7,000 represents increase in inventory, and the remaining $10,000 was from profit on operations.

In conclusion, there was a substantial membership and subscriber gain, an accelerating decrease in page charge collections, and a sharp rise in the cost of producing and distributing the Annals. The Treasurer predicts that the coming year will again show an addition to the Institute's surplus.

<div align="right">GEORGE RESNIKOFF</div>

We have examined the balance sheet of the Institute of Mathematical Statistics at June 30, 1969 and the related statements of operations and changes in surplus for the fiscal year then ended. Our examination was made in accordance with generally accepted auditing standards but it did not include all of the tests of the accounting records and other auditing procedures which we considered necessary, in that, under the terms of our engagement we did not test the physical existence or the pricing of the inventories.

Because of the materiality of the inventories in relation to the total assets, and, as we did not apply generally accepted auditing procedures with respect to the inventories, we are unable to express an independent accounts opinion on the accompanying financial statements.

<div align="right">EDWARD P. CLARK, C.P.A.
Clark, Mitchell & Co.</div>

<div align="right">Exhibit A</div>

INSTITUTE OF MATHEMATICAL STATISTICS

<div align="center">

Balance Sheet
June 30, 1969
Assets

</div>

Current Assets

Cash in banks—checking accounts		$16,043.44
Cash in banks—savings accounts		220,391.24
Receivables:		
Dues	$240.00	
NSF Grant—GY 4740	3,000.83	
Total Receivables		3,240.83

Inventory—At cost:

Annals	$63,656.75	
Index	3,626.38	
Total Inventory		67,283.13
Deferred agancy charges		1,079.00
Total Assets		$308,037.64

Liabilities, Unearned Income and Surplus

Current Liabilities

Accounts payable	$38,138.30	
Payroll taxes payable	350.59	
Advance payments and collections for others	2,725.73	
Accrued expenses	5,410.00	
Due on account of Executive Secretary at Michigan State University	98.70	
Total Liabilities		$46,723.32
Unearned portion of 1969 memberships and subscriptions		52,088.12
Surplus—Exhibit C		209,226.20
Total Liabilities, Unearned Income and Surplus		$308,037.64

Exhibit B

INSTITUTE OF MATHEMATICAL STATISTICS

Statement of Operations
For the Year Ended June 30, 1969

Income

Dues		$54,941.15
Subscriptions	$53,474.98	
Less: Agency charges	2,516.03	
Net		50,958.95
Sales of back issues of *Annals*	$15,545.06	
Less: Cost of back issues	6,644.06	
Net		8,901.00
Sale of indexes	$ 1,890.00	
Less: Cost of indexes sold	710.68	
Net		1,179.32
Advertising		525.00
Page charges		16,746.50
Interest on savings accounts		10,169.47
Miscellaneous		911.27
Total Income		$144,332.66

Expenses

Publication Expense

Printing of *Annals*	$80,382.35	
Maintenance and shipping of *Annals* and indexes	6,868.87	
Binding	1,064.75	
Editorial expense	7,960.02	
Total		$96,275.99

Treasurer's and Secretary's Office

Salaries	$ 8,972.52	
Bookkeeping	150.00	
Stationery and supplies	742.92	
Postage	709.92	
Telephone and cable	641.74	
IBM charges	1,158.55	
Employee expense	699.43	
Miscellaneous	274.87	
Total		13,349.95

General Expense

Special printing and mailing	$ 1,000.00	
Travel	100.32	
Accounting	1,200.00	
Contributions to other organizations	1,633.25	
Meetings—Net of reimbursements	2,041.40	
Membership and index drive	1,506.69	
Total		7,481.66
Total Expense		117,107.60
Operating Income		$ 27,225.06

Exhibit C

INSTITUTE OF MATHEMATICAL STATISTICS

Statement of Changes in Surplus
For the Year Ended June 30, 1969

Surplus—July 1, 1968	$182,001.14
Add	
Operating income for the year ended June 30, 1969–Exhibit B	27,225.06
Surplus—June 30, 1969	$209,226.20

Changes in Allocated Surplus

	Reserve for Life Members	Reserve for Replacement of *Annals*	General Purposes
Balance—July 1, 1968	$ 2,757.50	$14,108.96	$165,134.68
Operating income—Exhibit B			27,225.06
Decrease in reserve for replacement of *Annals*		$(4,810.56)	4,810.56
Balance—June 30, 1969	$ 2,757.50	$ 9,298.40	$197,170.30

REPORT OF THE PROGRAM SECRETARY FOR 1969

The 31st Annual Meeting (119th meeting) of the Institute of Mathematical Statistics was held at the University of Wisconsin, Madison, Wisconsin, August 27–30, 1968, in conjunction with meetings of the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics. Robert J. Buehler (University of Minnesota) was chairman of the Program Committee and George Roussas (University of Wisconsin) was Assistant Secretary in charge of local arrangements. The Wald lectures were delivered by Herman Chernoff (Stanford University) on "Continuous Time Stopping Problems and Optimal Stochastic Control". A special invited paper "Recent Advances in Combinatorial Theory" was given by Gian-Carlo Rota (MIT).

The European Meeting (120th) was held in Amsterdam, Netherlands, September 2–7, 1968. J. Hemmelrijk (University of Amsterdam) served as both the chairman of the Program Committee and the Associate Secretary.

The Central Regional Meeting (121st) was held at the University of Iowa, Iowa City, Iowa, April 23–25, 1969 in conjunction with meetings of the Biometric Society (ENAR) and the American Statistical Association. H. T. David (Iowa State University) was program chairman and J. D. Cryer (University of Iowa) was assistant secretary for the meeting.

The Western Regional meeting (122nd) was held at the Naval Postgraduate School, Monterey, California, May 7–9, 1969. D. R. Truax (University of Oregon) was program chairman and W. M. Woods was assistant secretary of the meeting.

The regional Associate Program Secretaries during this year were B. M. Kurkjian, U. S. Army Materiel Command (Eastern), J. H. Klotz, University of Wisconsin (Central), and R. F. Tate, University of Oregon (Western).

To all persons and institutions that have made these meetings possible, the Institute is truly indebted.

ROBERT V. HOGG

REPORT OF THE EDITOR FOR 1969

During the year July 1, 1968–June 30, 1969, a total of 455 manuscripts was submitted to the *Annals of Mathematical Statistics*, amounting to 7668 pages. Compared with the preceding year, this is a slight decrease in the number of manuscripts and a slight increase in the total number of pages.

Of the 455 manuscripts submitted, 103 have been accepted, 103 rejected, 8 withdrawn, and 241 were still pending on August 1, 1969.

Z. W. BIRNBAUM

REPORT OF THE MANAGING EDITOR FOR 1969

During 1969, several minor stylistic changes were made in the format of the *Annals of Mathematical Statistics*. The List of I. M. S. Institutional Members, News and Notices, and Publications Received sections of the *Annals* were printed in smaller eight-point type. In addition, correction notes are now listed individually under the name of the author in the table of contents for each issue as well as in the annual table of contents.

Late abstracts have caused problems in scheduling programs for meetings. In an attempt to reduce the number of these late abstracts, the deadline date for submitting abstracts of contributed papers will be printed on the back cover of the *Annals* with the announcement of the appropriate meeting, beginning with the 1970 Spring meetings.

Manuscripts accepted for publication in the *Annals* have been appearing in print, generally three and one-half to five months from the acceptance date of the paper, in the next issue to go to the printer. Beginning with the August issue, a backlog of manuscripts has

been growing. A number of manuscripts have had to be delayed one issue. The backlog amounted to approximately 50 pages for the August issue, 100 pages for the October issue, and an estimated 125 pages for the December issue.

I am grateful for the advice, assistance, and cooperation given me by Z. W. Birnbaum, Paul L. Meyer, and others in taking over the Managing Editor's office.

K. J. C. SMITH

REPORT OF THE NEW YORK MEETING OF THE INSTITUTE OF MATHEMATICAL STATISTICS

The one-hundred twenty-third Meeting of the Institute of Mathematical Statistics and the thirty-second Annual Meeting was held at the Statler Hilton Hotel in New York City, on August 19–22, 1969 in conjunction with meetings of the American Statistical Association, the Biometric Society, ENAR and WNAR, and other Allied Societies.

The Wald Lectures were delivered by H. Robbins, Columbia University, on: I "Boundary Crossing Probabilities for the Wiener Process, and Invariance Theorems for Sample Sums"; II "Open-ended Tests: The Parametric Case"; III "Open-Ended Tests: The Non-parametric Case." The Rietz Lecture was given by A. Dvoretzky, Hebrew University, Jerusalem on "Central Limit Theorem for Dependent Random Variables and Some Applications." A special invited paper was given by H. P. McKean, Jr., Rockefeller University on "Prediction of Stationary Gaussian Processes Using a Finite Segment of the Past."

Five hundred and sixty-five members of the Institute registered for the meeting. There were 114 contributed papers which were presented either in person or by title. The abstracts of these papers can be found in earlier issues of these Annals. The following 15 invited papers were given.

1. "Age Distributions," M. S. Bartlett, University of Oxford.
2. "Characterization Theorems for Certain Stochastic Processes," E. Lukacs, Catholic University.
3. "Convergence Rates in the Law of Large Numbers for Weighted Sums of Independent Random Variables," D. L. Hanson, University of Missouri.
4. "Robustness of Estimators and Tests Based on Gauss-Markov Model," C. R. Rao, Indian Statistical Institute.
5. "Characteristic Functions of Functions," I. J. Good, Virginia Polytechnic Institute.
6. 'Identification and Input Signal Synthesis Problems in Discrete-Time Stochastic Control Systems," M. Aoki, University of California.
7. "Confidence Interval Estimation of Functions of the Normal Mean and Variance," C. Land, Oregon State University.
8. "Time Series Analysis in Relation to Forecasting and Control," G. Box, University of Wisconsin.
9. "Ordered Alternatives: A Review," D. Bartholomew, University of Kent.
10. "The Statistical Properties of Multidimensional Scaling: A Review," J. Kruskal, Bell Telephone Laboratories.
11. "Decision-Theoretic Tests for Linear Hypothesis, With Replacements for the Usual F-Ratio Test," J. Dickey, State University of New York, Buffalo.
12. "Estimation of Density Functions by Orthogonal Series and an Application to Hypothesis Testing," S. Schwartz, Princeton University.
13. "A Comparison of Probability Density Estimates," G. Anderson, McMaster University.
14. "Smoothed Distribution Function and Density Estimates in Hypothesis Testing," R. Beran, University of California, Berkeley.
    (Discussion: M. Rosenblatt, University of California, San Diego, C. Quesenberry, North Carolina State University.)

15. "Some Weak Convergence Applications to Statistics," P. J. Bickel, University of California, Berkeley.

The program committee consisted of H. D. Brunk (chairman), F. C. Andrews, E. L. Crow, I. J. Good, E. S. Keeping, D. V. Lindley, F. Proschan, R. Pyke, M. Zelen. The secretaries for the meeting were R. V. Hogg (program), B. Kurkjian (associate), J. Nadler (assistant). Several members of the Institute served as chairmen of the various sessions.

BADRIG M. KURKJIAN
Associate Secretary

MINUTES OF THE 1969 BUSINESS MEETING AT NEW YORK CITY

The 1969 Business Meeting of the Institute of Mathematical Statistics was held in the Statler Hilton Hotel, New York, on 20 August 1969. The meeting was called to order by President Wassily Hoeffding at 5:10 p.m. Ballots were distributed to those members who had not cast their ballots earlier. The minutes of the 1968 business meeting in Madison, Wisconsin were read and approved. It was announced that the Committee on Fellows had made no recommendations and consequently no new fellows were elected by the 1969 council.

President Hoeffding announced that a new Managing Editor of the *Annals* had been selected by the Council and had taken office on 1 July 1969. Professor K. J. C. Smith was introduced as the new Managing Editor.

Professor Howard Levene reported for the tellers that Professor William Kruskal had been elected the new President-Elect of the Institute to succeed as President for 1971. The new Council members elected are: Lincoln Moses, Ingram Olkin, John Pratt, and Charles Stein, all with terms extending through 1972.

Hoeffding announced that the Wald Lectures in 1970 would be delivered by Professor Murray Rosenblatt and that two special invited papers would probably be arranged for the 1970 meeting in Laramie.

President Hoeffding announced that Albert Marshall had been named a new Associate Editor of the *Annals*, that a committee to find a new editor had been named with Professor W. J. Hall, University of Rochester, as Chairman, and that Volume I of the special mathematical tables sponsored by IMS has been delivered to the publishers and should appear shortly.

Program Secretary Hogg reported on his activities for the year since the last business meeting. He announced that the 1970 Annual Meeting will be held in Laramie, Wyoming in connection with meetings of the AMS and MAA, that regional meetings will be held in the eastern region at Chapel Hill in 1970 and at Pennsylvania State University in 1971, the latter jointly with ENAR, and in the central region at Dallas in 1970, at Columbia, Missouri in 1971, and at Ames, Iowa in 1972, the last again with ENAR. No meetings have been approved for 1970 or later in the western region.

Summaries of the reports of the Editor, Z. W. Birnbaum, the Managing Editor, K. J. C. Smith, and the Treasurer, G. J. Resnikoff, were presented. Smith proposed a vote of thanks to Professor Paul Meyer for his services to IMS; the vote was carried by acclamation.

President Hoeffding announced the personnel of the 1970 Nominating Committee. Professor T. E. Harris, University of Southern California, is Chairman; other members of the Committee are: Bahadur, DeGroot, Dvoretzsky, Hájek, Hartley, Kallianpur, and Rosenblatt. Hoeffding then turned over the meeting to Professor Jack Kiefer, President for 1970.

President Kiefer underlined the importance of the task of the Committee to Select a New Editor, under the chairmanship of W. J. Hall. He urged that those present send suggestions for nominations to Professor Hall and mentioned that the Committee will also consider the total operations of the *Annals* and would welcome suggestions along these lines from members.

Martin Fox moved that IMS express its wish *not* to meet in the Statler-Hilton again and that this sentiment be conveyed to the American Statistical Association. President Kiefer mentioned that discontent with hotel reservations, etc., might be referred to the Committee on Operations. Fox's motion was passed unanimously.

There being no response to a call for further new business, the meeting was adjourned at 5:55 p.m.

LEO KATZ
Executive Secretary

GIFTS TO INSTITUTE RECEIVED

The Institute of Mathematical Statistics has received two gifts in recent years. These gifts have not previously been acknowledged in the *Annals*. In 1966, a former student of Harold Hotelling anonymously donated approximately one thousand dollars to the I.M.S., to be used for the development, dissemination, and application of mathematical statistics. The second gift of about $4,000 was bequeathed to the I.M.S. from the estate of the late Paul Dorweiler of Hartford, Connecticut. Mr. Dorweiler, who died in 1968, was a member of the Institute.

The I.M.S. Council expresses the deep gratitude of the Institute of Mathematical Statistics for these two gifts and is considering specific recommendations on appropriate use of these and similar gifts which may be received by the I.M.S. in the future.