

## NEWS AND NOTICES

### Personal Items

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

Dr. Barry Arnold has been promoted from Assistant Professor to Associate Professor at Iowa State University.

Dr. Leo A. Aroian, formerly Senior Staff Mathematician at TRW Systems at Redondo Beach, California, is presently Professor of Industrial Administration at Union College, Schenectady, New York.

Dr. Herman Blasbalg has been appointed Head of the Communications Techniques Department of the MITRE Corporation, Bedford, Massachusetts.

Dr. Theophilos Cacoulios resigned from his position as Associate Professor of Operations Research at New York University and assumed duties as Professor in the Chair of Probability and Statistics at the University of Athens.

Jerome Cornfield, formerly Chief, Biometrics Research Branch, National Heart Institute, is now Research Professor of Biostatistics, University of Pittsburgh, Graduate School of Public Health.

James DeGracie, formerly of Iowa State University, has joined CEIR, Inc., at the Dugway Proving Ground, Utah.

David Gaylor, formerly at the Research Triangle Institute, is now with the National Environmental Health Sciences Center, National Institutes of Health, Research Triangle Park, North Carolina. Dr. Gaylor is also an Adjunct Associate Professor with the Department of Experimental Statistics, North Carolina State University.

Dr. Paul Hinz, formerly with the Forest Products Laboratory, Madison, Wisconsin, is now an Assistant Professor at Iowa State University.

Dr. Dean Isaacson, formerly at the University of Minnesota, is now at Iowa State University.

Naresh C. Jain has been promoted to Associate Professor in the Department of Mathematics, University of Minnesota, Minneapolis.

Dr. B. D. H. Latter, formerly of Iowa State University, has been named Chairman of the Genetics Section, Commonwealth Scientific and Industrial Research Organization, Australia.

John Lin, formerly Assistant Professor at University of Minnesota, Morris, has been appointed to the position of Instructor at Iowa State University.

Bud J. Meador, formerly Assistant Director of the Statistical Service Unit at the University of Illinois, has been appointed Supervisor of a new Statistical Data Processing Service at Iowa State University.

Dr. Glen Meeden, formerly at the University of Illinois, has been appointed Assistant Professor at Iowa State University.

Dr. J. S. Mehta of the University of Wisconsin has been appointed to the position of Assistant Professor at Temple University.

Richard Mensing has been promoted from Instructor to Assistant Professor at Iowa State University.

Dr. Walid A. Nuri has joined the Department of Statistics, College of Economics and Political Science, Baghdad, Iraq, after two years spent at the University of Southwestern Louisiana.

Associate Professor Madan L. Puri of the Courant Institute of Mathematical Sciences, New York University, has been appointed to a Professorship in the Department of Mathematics, Indiana State University, Bloomington, Indiana, effective September 1968.

Dr. K. Raghunandan of the Colorado State College has been appointed to the position of Assistant Professor at Temple University.

Stanley L. Sclove has joined the faculty of the Department of Statistics, Carnegie-Mellon University, Pittsburgh, as Assistant Professor. Formerly, Dr. Sclove was a Research Associate in the Department of Statistics at Stanford University.

B. V. Sukhatme has been promoted to the position of Professor in the Department of Statistics at Iowa State University.

Dr. Richard Warren has been promoted to the position of Professor in the Department of Statistics at Iowa State University.

Milton Winger, former Assistant Professor at the University of North Dakota, has been appointed to the position of Instructor at Iowa State University.

James Veal has been promoted from Graduate Assistant to Associate.

#### New Members

- Al-Bayyate, Hilal Aboud**, M.S.S.C., (American University of Beirut): Graduate Student, Department of Statistics, Virginia Polytechnic Institute.
- Anderson, Charles L.**, M.S., (Southern Methodist University); Graduate Student, Department of Statistics, Southern Methodist University.
- Baumann, Volker**, Privat-Dozent, (Universität Köln); Kustos und Privat-Dozent, Mathematisches Institut der Universität Köln.
- Choy, Seung C.**, B.S., (California Institute of Technology); Graduate Student, Department of Mathematics, University of California, San Diego.
- Dixon, Dennis O.**, M.S., (Southern Methodist University); Graduate Student, Department of Statistics, The Johns Hopkins University.
- Donnelly, Peter F.**, Ph.D., (The City University of New York); Economist, Federal Reserve Bank of New York.
- Dreze, Jean-Pierre**, M.S., (Université Libre de Bruxelles); Assistant, Département de Statistique Mathématique, Université Libre de Bruxelles.
- Gibbon, John**, Ph.D., (Columbia University); Senior Research Scientist, N.Y.S. Psychiatric Institute.
- Kitchens, Larry J.**, M.A., (University of Arizona); Graduate Student, Department of Mathematics, University of Arizona.
- Lehoczky, John P.**, M.S., (Stanford University); Graduate Student, Department of Statistics, Stanford University.

- Matsui, Takashi**, M.A., (Nihon University); Associate Analytic Statistician, Department of Statistics, Atomic Bomb Casualty Commission, Hiroshima.
- Reading, James Cardon**, M.S., (Stanford University); Graduate Student, Department of Statistics, Stanford University.
- Norland, Robert E.**, B.S., (Moravian College); Graduate Student, Department of Statistics, The Pennsylvania State University.
- Prorok, Philip C.**, M.S., (University of Chicago); Graduate Student, Department of Statistics, State University of New York at Buffalo.
- Roosma, Aino Piibe**, M.S., (Yale University); Operations Research Analyst, Manufacturers Hanover Trust Company.
- Scholz, Frierich-Wilhelm**, B.S., (University of Göttingen); Graduate Student, Department of Statistics, University of California, Berkeley.
- Smith, J. Terry**, M.A., (University of British Columbia); Graduate Student, Department of Statistics, The Johns Hopkins University.
- Tomkins, Robert J.**, M.S., (Purdue University); Graduate Student, Department of Statistics, Purdue University.
- Wu, Sing-Chou**, M.S., (Utah State University); Graduate Student, Department of Mathematics and Statistics, Colorado State University.

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#### NEW FELLOWS

The following individuals were elected Fellows of the Institute by the Council of the Institute of Mathematical Statistics:

R. E. Barlow	S. S. Gupta	M. M. Rao
D. E. Barton	John Hartigan	George Resnikoff
G. E. Baxter	J. F. C. Kingman	Joan Rosenblatt
Y. K. Belayev	Klaus Krickeberg	J. I. Rosenblatt
P. J. Bickel	Hirokichi Kudo	Esther Seiden
D. R. Brillinger	F. M. Lord	P. K. Sen
R. J. Buehler	Albert Mandansky	Jayaram Sethuraman
M. H. DeGroot	Benoit Mandelbrot	David Slepian
Martin Fox	Paul Meyer	Henry Teicher
S. W. Greenhouse	R. G. Miller, Jr.	Hermann Witting

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#### THE INSTITUTE OF MATHEMATICAL STATISTICS

##### 1969 COUNCIL

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

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

Ralph A. Bradley (1969)  
Chairman, Department of Statistics  
Florida State University  
Tallahassee, Florida 32306

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

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

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

Jerome Cornfield (1969)  
 Biometrics Research Bureau  
 National Institutes of Health  
 U.S. Public Health Service  
 Bethesda, Maryland

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

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

Ronald Pyke (1969)  
 Mathematics Department  
 University of Washington  
 Seattle, Washington 98105

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

C. R. Rao (1969)  
 B. T. Road  
 Calcutta, India

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#### REPORT OF THE PRESIDENT FOR 1968

During the year, the major activities of the Institute continued without incident. Leo Katz replaced G. E. Nicholson Jr. as Executive Secretary. Joan Rosenblatt is retiring as Program Secretary to be replaced by Robert V. Hogg.

One of the key developments this year has been in publications, other than the *Annals*.

The IMS-University of Chicago Statistical Research Monograph Series has published the book by Bechhofer, Kiefer, and Sobel entitled *Sequential Ranking and Identification Procedures*. The Committee on Mathematical Tables negotiated a contract with Markham Publishing Co. to publish a series of books on Mathematical Tables edited by D. Owen and H. L. Harter. The Committee of Presidents of Statistical Societies has given approval for the Committee on Classical and Historical Articles on Statistics to proceed with the publication of a two volume collection of articles on reliability to be edited by R. Barlow and F. Proschan.

Another type of publication is the Mathematics Offprint Service which is now beginning to operate under the auspices of the American Mathematical Society. The Council voted to have the Institute of Mathematical Statistics cooperate with MOS although it is difficult to predict what, if any, consequence this program will have on membership.

In the last few months the selective service policies of the United States has changed radically with respect to graduate students. These new policies are

almost sure to have a profound deleterious effect on Ph.D. training in Statistics in the U.S., an effect from which it will take many years to recover.

The next year's Committee on Nominations consists of John Bather, David Blackwell, J. F. Daly (Chairman), H. A. David, B. DeFinetti, V. Fabian, B. J. Flehinger, S. Gupta, and I. R. Savage.

I wish to thank the many people who served as officers and on committees during this year for their help in the smooth running of the Institute.

HERMAN CHERNOFF

### REPORT OF THE TREASURER FOR 1968

The report which follows covers the period July 1, 1967 to June 30, 1968. An audit of the Institute's fiscal affairs accompanies this report.

The Institute had 2691 paid members on June 30, 1968. This will increase somewhat by the end of the calendar year as some delinquent dues and new members come in. For comparison with last year, we compare the June 30 (fiscal year-end) figures.

	June 30, 1967	June 30, 1968
U.S.-Canada Members	1737	1759
Outside U.S.-Canada Members	488	506
Student Members	320	324
Institutional Members	57	78
Life Members	25	24
Total Members	2627	2691

Last year, the Treasurer predicted that the Institute's excess of income over expenditures "may well exceed \$30,000". This surplus was in fact nearly \$36,000.

The Treasurer's prediction error was caused by his anticipating a decline in the rate of page charge receipts due to a squeeze on federal grant funds. This had not yet taken effect by June 30, 1968.

The Treasurer still believes that page charge receipts, and back number sales will decline. Since the extent of this cannot be foreseen, only upper and lower bounds on the surplus of income over expenditures can be predicted.

The rise in the expenses of the Institute has been in the cost of producing and shipping the *Annals*. Below are given figures from the present Treasurer's first report Dec. 31, 1965, and from that of the most recent 12 month period, June 30, 1968.

	Expenditures and Income	
	Jan. 1-Dec. 31, 1965	July 1, 1967- June 30, 1968
<i>Annals</i> Exp.'s	\$ 71,835	\$ 83,547
Non- <i>Annals</i> Exp.'s	22,784	22,032
(Income)	101,627	141,406

The rises in the cost of printing, storing, maintaining and shipping the *Annals* seem to be inevitable. As long as page charge receipts and back-number sales provide surpluses, the Institute can continue to cope with the rises, although the surpluses must eventually dwindle into deficits. The Institute probably need do nothing about this until the next twelve-month period shows the extent of the decline in income, if any.

GEORGE RESNIKOFF

I have examined the attached financial statements of the Institute of Mathematical Statistics, consisting of the following:

Exhibit A—Balance Sheet, June 30, 1968;

Exhibit B—Statement of Operations for the Year Ended June 30, 1968;

Exhibit C—Statement of Changes in Surplus for the Year Ended June 30, 1968.

My examination was conducted in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as I considered necessary in the circumstances, except that equipment and supplies are expended in the year of purchase as normal accounting procedure and my examination of these items was limited to an audit acquisition of the current year.

In my opinion, subject to the above comments, the accompanying balance sheet, statement of operations, and statement of changes in surplus, together with the notes to financial statements, present fairly the financial position of the Institute of Mathematical Statistics at June 30, 1968 and the results of operations for the period then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

LEON M. DILLON

Exhibit A

INSTITUTE OF MATHEMATICAL STATISTICS

*Balance Sheet*

*June 30, 1968*

*Assets*

Current assets		
Cash in bank—checking accounts.....		\$4,862.46
Cash in bank—savings accounts.....		185,000.00
Receivables:		
Dues.....	\$300.00	
Advertising.....	148.75	
NSF Grant GY-2960.....	1,563.24	
		<hr/>
Total Receivables.....		2,011.99
Inventory—at cost:		
<i>Annals</i> .....	\$56,515.19	
Index.....	4,240.32	
		<hr/>
Total Inventory.....		60,755.51

Deferred charges:		
Deferred agency charges.....	\$1,079.00	
Executive secretary's balance at Michigan State University..	600.00	1,679.00
		<hr/>
Total assets.....		<u>\$254,308.96</u>
<i>Liabilities, Unearned Income and Surplus</i>		
Current liabilities		
Accounts payable.....	\$14,691.16	
Payroll taxes payable.....	526.66	
Advance payments and collections for others.....	1,687.50	
Accrued expenses.....	5,200.00	
Total Liabilities.....		\$22,105.32
Unearned portion of 1968 memberships and subscriptions.....		50,202.50
Surplus—Exhibit C.....		182,001.14
		<hr/>
Total liabilities, unearned income and surplus.....		<u>\$254,308.96</u>

Exhibit B

### INSTITUTE OF MATHEMATICAL STATISTICS

#### *Statement of Operations*

*For the Year Ended June 30, 1968*

Income		
Dues.....		\$52,568.00
Subscriptions.....	\$49,611.00	
Less agency charges.....	2,066.11	
		<hr/>
Net.....		47,544.89
Sales of back issues of <i>Annals</i> .....	\$17,103.08	
Less cost of back issues and agency charges.....	8,032.91	
		<hr/>
Net.....		9,070.17
Sales of indexes.....	\$245.00	
Less cost of indexes sold.....	73.92	
		<hr/>
Net.....		171.08
Advertising—net of agency charges.....		472.50
Page charges.....		21,300.00
Interest on savings accounts.....		8,653.08
Miscellaneous.....		1,644.67
		<hr/>
Total Income.....		\$141,424.39
Expenses		
Publication Expense		
Printing of <i>Annals</i> .....	\$68,474.92	
Maintenance and shipping of <i>Annals</i> and indexes.....	5,757.30	
Binding.....	806.75	
Editorial expense.....	8,507.53	
		<hr/>
Total.....		\$83,546.50

Treasurer's and Secretary's Office		
Salaries.....	\$8,776.50	
Bookkeeping.....	225.00	
Stationery and supplies.....	1,278.49	
Postage.....	545.12	
Telephone and cable.....	603.17	
IBM charges.....	1,033.71	
Employee expense.....	1,132.18	
Miscellaneous.....	183.48	
	<hr/>	
Total.....		13,777.65
General Expense		
Special printing and mailings.....	\$823.68	
Travel.....	305.00	
Accounting.....	1,950.00	
Contributions to other organizations.....	1,872.50	
Meetings expense—net of reimbursements.....	2,394.72	
Membership drives.....	407.49	
Miscellaneous.....	500.65	
	<hr/>	
Total.....		8,254.04
		<hr/>
Total Expenses.....		105,578.19
		<hr/>
Operating income—to Exhibit C.....		<u>\$35,846.20</u>
		Exhibit C

### INSTITUTE OF MATHEMATICAL STATISTICS

#### *Statement of Changes in Surplus*

*For the Year Ended June 30, 1968*

Surplus, July 1, 1967.....	\$146,154.94
Add operating income for the year ended June 30, 1968—Exhibit B.....	35,846.20
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Surplus, June 30, 1968—Exhibit A.....	<u>\$182,001.14</u>

#### *Changes in Allocated Surplus*

	Reserve for Life Members	Reserve for Replacement of <i>Annals</i>	General Purposes
Balance, July 1, 1967.....	\$2,757.50	\$19,200.61	\$124,196.83
Operating income.....			35,846.20
Decrease of reserve for replacement of <i>Annals</i> .....		(5,091.65)	5,091.65
	<hr/>	<hr/>	<hr/>
Balance, June 30, 1968.....	<u>\$2,757.50</u>	<u>\$14,108.96</u>	<u>\$165,134.68</u>

### REPORT OF THE PROGRAM SECRETARY FOR 1968

The 30th Annual Meeting of the Institute, the 116th meeting, was held at the Shoreham Hotel, Washington, D. C., December 27–30, 1967, in conjunction with



meetings of the American Statistical Association, and the Biometric Society (Eastern and Western North American Regions). Judah Rosenblatt (University of New Mexico) was chairman of the Program Committee and H. W. Lilliefors (George Washington University) was Assistant Secretary in charge of local arrangements. The Wald Lectures were given by Wassily Hoeffding (University of North Carolina) on "Recent Results in Parametric Large Sample Series." The Rietz Lecture was delivered by W. G. Cochran (Harvard University) on "Errors of Measurement in Statistics."

The Central Regional Meeting, the 117th meeting, was held at Michigan State University, East Lansing, Michigan, March 18–20, 1968. Y. S. Chow (Purdue University) was Program Chairman and K. J. Arnold was Assistant Secretary for the meeting.

The Eastern Regional Meeting, the 118th meeting was held at the Virginia Polytechnic Institute, Blacksburg, Virginia, April 8–10, 1968, in conjunction with meetings of the Biometric Society (Eastern North American Region) and the American Statistical Association. M. H. DeGroot (Carnegie-Mellon University) was Program Chairman and Boyd Harshbarger was Assistant Secretary of the meeting.

The regional Associate Program Secretaries during this year were B. M. Kurkjian, Harry Diamond Laboratories (Eastern), R. V. Hogg, University of Iowa (Central), and R. F. Tate, University of Oregon (Western).

To all of the persons whose time has been given for organizing meetings, and to the institutions that made it possible for them to do so, the Institute is deeply indebted. Host institutions in particular have given generous support to the Institute's meetings by providing facilities and services.

JOAN RAUP ROSENBLATT

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### REPORT OF THE EDITOR FOR 1968

During the year July 1, 1967–June 30, 1968, a total of 483 manuscripts was submitted to the *Annals*, amounting to 7558 typewritten pages. The number of submissions per week has been steadily increasing, as may be seen from the following table:

Week	No. of MS's rec'd	MS's per week	Total pages
1–13	106	8.15	1849
14–26	116	8.92	1827
27–39	128	9.85	1871
40–52	133	10.23	2011

From the experience of the last eight weeks one would estimate that manuscripts are coming in at a rate of over 550 per year.

Of the 222 manuscripts submitted during the first 26 weeks, 81 have been accepted, 76 rejected, 8 withdrawn, and 57 are pending. Thus 74 percent of these manuscripts have reached a decision, and of these 49 percent have been ac-

cepted, 51 percent rejected or withdrawn. Similar computations for the second half of the year would be of little interest, since many manuscripts received during this period are still pending, and the ratio of rejections to acceptances is distorted by rejections taking less time than acceptances.

The 7558 pages of manuscript, reduced by rejections to about one-half, would result in about 1900 printed pages. This, together with Abstracts, Book Reviews, News and Notices etc., should bring us well over 2000 pages. It is, therefore, proposed that the printing of up to 2200 pages be authorized as in the previous year.

Z. W. BIRNBAUM

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### REPORT OF THE MANAGING EDITOR FOR 1968

As had been agreed at the Council meeting held in Washington D. C. in December 1967, the publication of the *Annals* was continued with Waverly Press. The possibility of overseas printing arrangements, which had been investigated very actively during the previous two years, has not been seriously considered in past months. However, recent developments discussed below, may make it necessary (even though still undesirable from an operative point of view) to reconsider such an alternative.

Recently I was informed by Waverly Press that a 6 percent increase is to be added to our per page rate for the issues printed in 1969 and a subsequent 4 percent increase for the 1970 issues. These cost increases, unpleasant as they are for us to absorb, seem to reflect fairly accurately the price increases which are occurring nationally.

Thus the cost/page for 1968 through 1970 looks as follows:

	Total cost/page	Total cost (2,000 pages, 5,400 issues)
1968	\$37.00	\$74,000
1969	\$39.13	\$78,260
1970	\$40.64	\$81,280

I am personally convinced that Waverly Press is highly concerned about keeping the *Annals* and that the rate increases with which we are confronted are an unfortunate necessity from their point of view. Actually the increases for 1969 and 1970 are less than I had predicted in my report last year. Below is a table of the rate increases we have had to absorb since 1964:

March 1964:	5% increase
October 1965:	3% increase
February 1967:	8.4% increase
February 1968:	6.6% increase
February 1969:	6% increase
February 1970:	4% increase

These rate increases, accompanied by a higher press run mean that the cost of a 2,000 page volume in 1964 (actually we were publishing less then, another

factor which accounts for the huge differential in cost) was about \$60,000 while in 1970 it will be about \$81,000, a 35 % increase.

Another item, of less import, on which I should report is the following: The *Annals* has become one of the participating journals in the recently initiated Mathematical Off-print Service sponsored by the American Mathematical Society. Although it is not clear yet just how useful a specialized journal like the *Annals* will be in such a venture, it was felt that we should at least try it for awhile. One of the main factors in coming to this decision was the greatly expanded classification procedure of Probability-Statistics in *Mathematical Reviews*.

Finally, I wish to express thanks to Professor Norman Y. Luther for taking over many of my duties during the past twelve months while I was on leave.

PAUL L. MEYER

### ACKNOWLEDGEMENT OF REFEREES' SERVICES

Listed below are the names of referees of papers for which final editorial decisions were made during the year ending August 31, 1968. Thanks are due to all of them for the generous and unselfish help they have rendered to the *Annals*.

Z. W. BIRNBAUM

Albert, A. E.	Chacon, R.	Fleming, W.
Amos, D. E.	Chakravarti, I. M.	Folks, J. Leroy
Anderson, R. L.	Chase, G. R.	Fox, Martin
Anscombe, F. J.	Chew, M. C., Jr.	Franck, W. E.
Athreya, K. B.	Chow, Y. S.	Fraser, Donald A. S.
Austin, Donald	Cohen, Arthur	Freedman, David A.
Baez-Duarte, L.	Constantine, A. G.	Fristedt, B.
Baños, A.	Csörgö, M.	Gaffey, W. R.
Baranchik, A. J.	Cuppens, Roger	Gangolli, R.
Barlow, R. E.	Daley, D. J.	Garsia, Adriano
Bartholomew, D. J.	Darroch, J. N.	Gastwirth, J.
Barton, D. E.	Davis, J. A.	Gaver, Donald P., Jr.
Basu, A. P.	Denzel, E.	Gnanadesikan, R.
Bather, J.	Dickey, J. M.	Goodman, L.
Baum, L.	Dinges, Hermann	Govindarajulu, Z.
Berk, R. H.	Doksum, K.	Gundy, R.
Bickel, Peter J.	Dowling, Thomas A.	Gupta, Das
Billingsley, Patrick	Dunn, Olive Jean	Gupta, S. S.
Birnbaum, Z. W.	Dwass, Meyer	Guttman, Irwin
Blackwell, David	Easton, M.	Haggstrom, G.
Boes, Duane	Efron, Bradley	Hájek, J.
Bowden, Dave	Essen, Carl-Gustav	Hall, W. J.
Bradley, Ralph A.	Fairchild, William	Harary, Frank
Breiman, Leo	Farrell, Roger H.	Helmo, L.
Brown, L.	Feder, Paul	Hooke, Robert
Brunk, H. D.	Feldman, J.	Hartley, H. O.
Buehler, R. J.	Ferguson, Thomas S.	Hodges, Joseph
Burkholder, D.	Fishburn, P. C.	Holland, P.
Cacoullos, T.	Fisher, Lloyd	Huber, P. J.
Carlyle, J. W.	Fisk, Donald	Iglehart, D.

Isaac, Richard	Moore, D. S.	Shapiro, Jesse
Jain, N.	Nadas, A.	Sharpe, M.
James, Alan T.	Neuts, M.	Shih, C. T.
Jogdeo, K.	Ney, Peter	Shorack, G. R.
John, Peter W. M.	Noether, G. E.	Siegmund, D.
Johns, M. V., Jr.	Olkin, Ingram	Simons, Gordon
Johns, V.	Owen, D. B.	Skibinsky, M.
Johnson, R. A.	Parzen, Emanuel	Smith, C. A. B.
Karlin, Samuel	Paulson, E.	Sprott, D. A.
Katz, Melvin L.	Pillai, K. C. S.	Srivastava, J. N.
Kemperman, J. H. B.	Pinsky, M.	Srivastava, R. C.
Kesten, H.	Port, S.	Steck, G. P.
Khatri, C. G.	Portnoy, Steven L.	Steutel, F. W.
Kiefer, Jack C.	Pruitt, W. E.	Stigler, S.
Kimeldorf, George	Puri, Madan L.	Stout, W. F.
Kinney, J.	Purves, R.	Studden, William
Klotz, J.	Quade, Dana	Teicher, Henry
Knight, F.	Ralph, J.	Thomasian, A. J.
Koopmans, L. H.	Rao, M. M.	Thompson, W. A., Jr.
Laha, R. G.	Raychaudhari, D. M.	Truax, D. R.
Lamperti, J.	Robertson, T. A.	Van Ness, John
Leadbetter, M. R.	Rodine, Robert H.	Van Ryzin, J.
Lehmann, E. L.	Rosenblatt, Judah I.	Van Zwet, W. R.
Lientz, B. P.	Roussas, George	Varadhan, S. R. S.
Liggett, T.	Sacks, Jerome	Varberg, D. E.
Lorden, Gary	Samuel, Ester	Venter, J. H.
Low, Leone Y.	Samuels, S. M.	Wallace, D.
Lukacs, Eugene	Savage, I. R.	Wasan, M. T.
Madow, W. G.	Schaufele, R. A.	Weiss, Lionel
Mantel, Nathan	Schay, Geza	Wijsman, R. A.
Marsaglia, George	Scheur, Ernest M.	Wolff, Ron
Marshall, Albert W.	Schmetterer, L. K.	Wolfowitz, J.
Matthes, T. K.	Schwartz, R. E.	Woll, John
Mehra, K. L.	Seal, Hilary L.	Wolock, Fred W.
Menon, M. V. K.	Searle, S. R.	Woodward, G.
Mickey, M. R., Jr.	Seiden, Esther	Woodworth, G.
Mineka, John	Sen, P. K.	Wright, F. T.
Mitchell, Toby	Serfling, R. J.	Ylvisaker, N. D.
Molenaar, W.		Zacks, S.
		Zelen, Marvin

### REPORT OF THE MADISON, WISCONSIN MEETING OF THE INSTITUTE OF MATHEMATICAL STATISTICS

The one-hundred-nineteenth Meeting of the Institute of Mathematical Statistics and the thirty-first Annual Meeting was held at the University of Wisconsin, Madison, Wisconsin, on 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.

The Wald Lectures were delivered by Herman Chernoff, Stanford University,

on "Continuous Time Stopping Problems and Optimal Stochastic Control: I. Stopping Problems and the Heat Equation; II. Sequential Analysis and the One-Armed Bandit Problem; III. A Stochastic Control Problem and the Two-Armed Bandit Problem." A special invited paper "Recent Advances in Combinatorial Theory" was given by Gian-Carlo Rota, MIT.

Two hundred and thirty-three members of the Institute registered for the meeting. There were 82 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 19 invited papers were given.

1. "Local Times of Gaussian Processes", Simeon M. Berman, Courant Institute, NYU.
2. "Stochastic Differential Equations in Estimation Problems", G. Kallianpur, University of Minnesota.
3. "Renewal Theory and its Ramifications: A Second Look", Walter L. Smith, University of North Carolina.
4. "A Review of Nonparametric Estimation of Distributions", Robert V. Hogg, University of Iowa.
5. "Kolmogorov-Smirnov Statistics: The Utility Gap", George P. Steck, Sandia Corporation.
6. "Nonparametric Multivariate Analysis: A Unified Rank Order Approach", M. L. Puri, Courant Institute, NYU.
7. "Multiple Testing versus Multiple Estimation. Improper Confidence Sets. Estimation of Directions and Ratios", Henry Scheffé, University of California, Berkeley.
8. "On Some Classes of Experimental Designs", I. M. Chakravarti, University of North Carolina.
9. "Optimal Balanced Fractional Factorial Designs", J. N. Srivastava, Colorado State University.
10. "Kirkman's Schoolgirl Problem, or Resolvable Balanced Incomplete Block Designs", D. K. Ray-Chaudhuri and Richard M. Wilson, Ohio State University.
11. "Simultaneous Estimation of Parameters", Carl Morris, Rand Corporation.
12. "Analysis of Subclustering", Elizabeth L. Scott, University of California, Berkeley.
13. "Structural Inference and Marginal Likelihood for Transforms of the Multilinear Model", D. A. S. Fraser, University of Toronto, and L. M. Steinberg, Princeton University.
14. "Bayesian Inference for Large Samples", Morris H. DeGroot, Carnegie-Mellon University.
15. "Bayesian Analysis of Growth Curves", Seymour Geisser, SUNY, Buffalo. (Discussant: D. M. Allen, University of Kentucky.)
16. "Assessment of Assumptions for the Random Effects Model", George Tiao and M. Ali, University of Wisconsin.

17. "Investigation of Rules for Dealing with Outliers in Small Samples from the Normal Distribution II: Estimation of the Variance", Irwin Guttman, University of Wisconsin, and Dennis E. Smith, HRB-Singer, Inc.
18. "A Unified Derivation of Tests of Goodness of Fit Based on Spacings", B. K. Kale, University of Manitoba.
19. "On Expansion of Likelihood Functions and their Usage in Asymptotic Efficiency of Estimates and Construction of Asymptotically UMP Tests", George Roussas, University of Wisconsin.

The program committee consisted of R. J. Buehler (chairman), F. C. Andrews, B. Efron, M. R. Leadbetter, M. F. Neuts, D. K. Ray-Chaudhuri, G. P. Steck, G. Tiao. The secretaries for the meeting were J. R. Rosenblatt (program), R. V. Hogg (associate), G. Roussas (assistant). Several members of the Institute served as chairman of the various sessions.

ROBERT V. HOGG  
Associate Secretary

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### TWELFTH BIENNIAL INTERNATIONAL SEMINAR OF THE CANADIAN MATHEMATICAL CONGRESS

The 12th Biennial International Seminar of the Canadian Mathematical Congress will be held at the University of British Columbia in Vancouver, Canada, from August 11 through 27, 1969. This Seminar will be followed by the annual meeting of the Canadian Mathematical Congress at the University of Victoria in Victoria, Canada, August 28, 29, 30. Members of the Program Committee are S. A. Jennings, A. Joffe, J. G. McGregor, R. Pyke (Chairman) and D. A. Sprott, and of the Arrangements Committee are R. Harrop, S. A. Jennings (Chairman), E. Kennedy, B. N. Moysls and J. J. McNamee.

The main theme of the Seminar will be "Time Series and Stochastic Processes" although other areas of mathematics will be represented.

Further details will be announced at a later date.

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### PUBLICATIONS RECEIVED

- BILLINSLEY, PATRICK (1968). *Convergence of Probability Measures*. John Wiley and Sons, New York. xii + 253 pp. \$12.50.
- DEMBROWSKI, P. (1968). *Finite Geometries*. Springer-Verlag, New York. xi + 375 pp. \$17.00.
- GUE, RONALD L. and THOMAS, MICHAEL E. (1968). *Mathematical Methods in Operations Research*. The Macmillan Company, New York. xi + 385 pp. \$12.95.
- GULLBAUD, G. TH. (1968). *Statistique Des Chroniques*. Dunod, Paris. 128 pp.
- KREKO, BELA (1968). *Linear Programming*. American Elsevier Publishing Company, New York. xii + 355 pp. \$14.50.