

STATISTICAL SCIENCE

a review journal of the institute of mathematical statistics

Volume 4

Number 2

May 1989

Featuring

**David G. Kendall on
THE STATISTICAL THEORY OF SHAPE**

**Stephen M. Stigler on
GALTON'S ACCOUNT OF
THE INVENTION OF CORRELATION**

**B. E. Trumbo on
GETTING A RESEARCH GRANT**

**Daniel F. Heitjan on
GROUPED CONTINUOUS DATA**

An Interview with MAURICE BARTLETT

EXECUTIVE EDITOR

Carl N. Morris
University of Texas

EDITORIAL ASSISTANTS

Shell McKedy
Lisa Cohen

EDITORS

Ingram Olkin Stanford University	Stephen Stigler University of Chicago
Adrian F. M. Smith University of Nottingham	James V. Zidek University of British Columbia

MANAGING EDITOR

Paul Shaman
University of Pennsylvania

EDITORIAL ASSISTANT

Tanya Winder

The aim of *Statistical Science* is to present the full range of contemporary statistical thought at a technical level accessible to the broad community of practitioners, teachers, researchers, and students of statistics and probability.

The journal will publish discussions of methodological and theoretical topics of current interest and importance, surveys of substantive research areas with promising statistical applications, comprehensive book reviews, discussions of classic articles from the statistical literature, and interviews with distinguished statisticians and probabilists.

SUBMISSION POLICY

Statistical Science welcomes the submission of expository, review, and survey papers in all areas of the theory, methodology, and applications of statistics and probability. Articles that synthesize research that has been published in diverse sources or that has been developed from diverse points of view are especially valuable.

Four nonreturnable copies of any manuscript submitted for consideration are requested for the reviewing process. Copies should be mailed first class to:

Professor Carl N. Morris
Executive Editor, *Statistical Science*
Statistical Sciences Center, RLM 8.100
University of Texas
Austin, TX 78712

The manuscripts should be typed on $8\frac{1}{2} \times 11$ -inch white paper, on one side only, and double-spaced throughout, including the references, with margins of at least $1\frac{1}{2}$ inches on all four sides. Pages should be numbered consecutively. The manuscript should contain an abstract of 200 or fewer words, followed by approximately 5 or 6 key words or phrases. A short author's note providing the name, address, present position or rank, and affiliation of each author should also be included.

A condition of submission is that the manuscript has not previously been published and is not simultaneously being considered for publication elsewhere.

Statistical Science is copyrighted and authors will be asked to sign a copyright transfer to the IMS before publication.

STATISTICAL SCIENCE

Volume 4, Number 2

May 1989

Francis Galton's Account of the Invention of Correlation	<i>Stephen M. Stigler</i>	73
A Survey of the Statistical Theory of Shape	<i>David G. Kendall</i>	87
Comment	<i>Fred L. Bookstein</i>	99
Comment	<i>Christopher G. Small</i>	105
Comment: Some Contributions to Shape Analysis	<i>Kanti V. Mardia</i>	108
Comment	<i>Wilfrid S. Kendall</i>	111
Comment	<i>Geoffrey S. Watson</i>	113
Comment	<i>Dietrich Stoyan</i>	115
Rejoinder	<i>David G. Kendall</i>	116
How to Get Your First Research Grant	<i>B. E. Trumbo</i>	121
Comment	<i>James V. Zidek</i>	132
Comment	<i>Adrian F. M. Smith</i>	134
Comment	<i>Giorgio Dall'Aglio</i>	136
Comment	<i>José M. Bernardo</i>	138
Comment	<i>N. Flourney</i>	139
Comment	<i>Yashaswini Mittal</i>	141
Comment: Thinking about a Research Proposal?	<i>Judith S. Sunley</i>	144
Comment	<i>Edward J. Wegman</i>	146
Rejoinder	<i>B. E. Trumbo</i>	148
A Conversation with Maurice Bartlett	<i>Ingram Olkin</i>	151
Inference from Grouped Continuous Data: A Review	<i>Daniel F. Heitjan</i>	164
Comment	<i>James Burridge</i>	179
Rejoinder	<i>Daniel F. Heitjan</i>	182
Acknowledgment of Referees' Services		184
Correction Note		185

Statistical Science (ISSN 0883-4237), Volume 4, Number 2, May 1989. Published in February, May, August and November by the Institute of Mathematical Statistics, 3401 Investment Boulevard #7, Hayward, California 94545. Second-class postage paid at Hayward, California and at additional mailing offices. **Postmaster:** Send address changes to *Statistical Science*, Institute of Mathematical Statistics, 3401 Investment Boulevard #7, Hayward, California 94545.

Copyright © 1989 by the Institute of Mathematical Statistics
Printed in the United States of America

IMS CORPORATE MEMBERS

THE AEROSPACE CORPORATION
Los Angeles, California

AT&T BELL LABORATORIES
Murray Hill, New Jersey

BELL COMMUNICATIONS RESEARCH
Morristown, New Jersey

GENERAL MOTORS CORPORATION
Research Laboratories
Warren, Michigan

INTERNATIONAL BUSINESS MACHINES CORP.
Thomas J. Watson Research Center
Yorktown Heights, New York

SPRINGER-VERLAG NEW YORK INCORPORATED
New York, New York

IMS INSTITUTIONAL MEMBERS

ACADEMIA SINICA
Inst. of Statistical Science
Taipei, Taiwan

AMERICAN UNIVERSITY
Dept. of Mathematics and Statistics
Washington, D. C.

ARIZONA STATE UNIVERSITY
Dept. of Mathematics
Tempe, Arizona

AUSTRALIAN NATIONAL UNIVERSITY
Canberra, ACT, Australia

BOWLING GREEN STATE UNIVERSITY
Dept. of Mathematics and Statistics
Bowling Green, Ohio

CALIFORNIA STATE UNIVERSITY AT FULLERTON
Dept. of Mathematics
Fullerton, California

CASE WESTERN RESERVE UNIVERSITY
Dept. of Mathematics and Statistics
Cleveland, Ohio

CENTRE INTERNATIONAL DE RECONTRE MATH
Marseille, France

CORNELL UNIVERSITY
Dept. of Mathematics
Ithaca, New York

FLORIDA STATE UNIVERSITY
Dept. of Statistics
Tallahassee, Florida

HARVARD UNIVERSITY
Dept. of Biostatistics
Boston, Massachusetts

HARVARD UNIVERSITY
Dept. of Statistics
Cambridge, Massachusetts

INDIANA UNIVERSITY
Dept. of Mathematics
Bloomington, Indiana

INSTITUTO MEXICANO DEL PETROLEO
Mexico, DF, Mexico

IOWA STATE UNIVERSITY
Dept. of Statistics and Statistical Laboratory
Ames, Iowa

JOHNS HOPKINS UNIVERSITY
Dept. of Biostatistics
Baltimore, Maryland

KANSAS STATE UNIVERSITY
Dept. of Statistics
Manhattan, Kansas

MARA INSTITUTE OF TECHNOLOGY
Selangor, Malaysia

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Dept. of Mathematics
Cambridge, Massachusetts

MIAMI UNIVERSITY LIBRARY
Oxford, Ohio

MICHIGAN STATE UNIVERSITY
Dept. of Statistics and Probability
East Lansing, Michigan

NATIONAL SECURITY AGENCY
Fort George G. Meade, Maryland

NEW MEXICO STATE UNIVERSITY
Dept. of Mathematical Sciences
Las Cruces, New Mexico

NORTH CAROLINA STATE UNIVERSITY
Dept. of Statistics
Raleigh, North Carolina

NORTHERN ILLINOIS UNIVERSITY
Dept. of Mathematical Sciences
DeKalb, Illinois

OHIO STATE UNIVERSITY
Dept. of Statistics
Columbus, Ohio

OREGON STATE UNIVERSITY
Dept. of Statistics
Corvallis, Oregon

PENNSYLVANIA STATE UNIVERSITY
Dept. of Statistics
University Park, Pennsylvania

PRINCETON UNIVERSITY LIBRARY
Princeton, New Jersey

PURDUE UNIVERSITY LIBRARY
West Lafayette, Indiana

QUEEN'S UNIVERSITY
Dept. of Mathematics and Statistics
Kingston, Ontario, Canada

RICE UNIVERSITY LIBRARY
Houston, Texas

THE ROCKEFELLER UNIVERSITY LIBRARY
New York, New York

SIMON FRASER UNIVERSITY
Dept. of Mathematics and Statistics
Burnaby, British Columbia, Canada

SOUTHERN ILLINOIS UNIVERSITY
Dept. of Mathematics and Statistics
Edwardsville, Illinois

SOUTHERN METHODIST UNIVERSITY
Dept. of Statistics
Dallas, Texas

STANFORD UNIVERSITY
Dept. of Statistics
Stanford, California

TEMPLE UNIVERSITY
Dept. of Mathematics
Philadelphia, Pennsylvania

TEXAS TECH UNIVERSITY
Dept. of Mathematics
Lubbock, Texas

UNIVERSITY OF ARIZONA
Dept. of Mathematics
Tucson, Arizona

UNIVERSITY OF BRITISH COLUMBIA
Dept. of Statistics
Vancouver, British Columbia, Canada

UNIVERSITY OF CALGARY
Dept. of Mathematics and Statistics
Calgary, Alberta, Canada

UNIVERSITY OF CALIFORNIA
Dept. of Statistics
Berkeley, California

UNIVERSITY OF CALIFORNIA
Div. of Statistics
Davis, California

UNIVERSITY OF FLORIDA
Dept. of Statistics
Gainesville, Florida

UNIVERSITY OF GEORGIA
Dept. of Statistics
Athens, Georgia

UNIVERSITY OF ILLINOIS
Dept. of Statistics
Champaign, Illinois

UNIVERSITY OF ILLINOIS AT CHICAGO
Dept. of Mathematics, Statistics, and Computer Science
Chicago, Illinois

UNIVERSITY OF IOWA
Dept. of Statistics and Actuarial Science
Iowa City, Iowa

UNIVERSITY OF MARYLAND
Dept. of Mathematics
College Park, Maryland

UNIVERSITY OF MASSACHUSETTS
Dept. of Mathematics and Statistics
Amherst, Massachusetts

UNIVERSITY OF MICHIGAN
Dept. of Statistics
Ann Arbor, Michigan

UNIVERSITY OF MINNESOTA
School of Statistics
Minneapolis, Minnesota

UNIVERSITY OF MISSOURI
Dept. of Statistics
Columbia, Missouri

UNIVERSITY OF MONTREAL
Dept. of Mathematics
Montreal, Quebec, Canada

UNIVERSITY OF NEBRASKA
Dept. of Mathematics and Statistics
Lincoln, Nebraska

UNIVERSITY OF NEW MEXICO
Dept. of Mathematics and Statistics
Albuquerque, New Mexico

UNIVERSITY OF NORTH CAROLINA
Dept. of Statistics
Chapel Hill, North Carolina

UNIVERSITY OF OREGON
Dept. of Mathematics
Eugene, Oregon

UNIVERSITY OF OTTAWA
Dept. of Mathematics
Ottawa, Ontario, Canada

UNIVERSITY OF SOUTH CAROLINA
Dept. of Statistics
Columbia, South Carolina

UNIVERSITY OF STOCKHOLM
Institute of Actuarial Mathematics
and Mathematical Statistics
Stockholm, Sweden

UNIVERSITY OF TEXAS AT AUSTIN
Dept. of Mathematics
Austin, Texas

UNIVERSITY OF TEXAS AT SAN ANTONIO
Div. of Mathematics, Computer Science,
and Systems Design
San Antonio, Texas

UNIVERSITY OF VICTORIA
Dept. of Mathematics
Victoria, British Columbia, Canada

UNIVERSITY OF VIRGINIA
Dept. of Mathematics
Charlottesville, Virginia

UNIVERSITY OF WASHINGTON
Dept. of Statistics
Seattle, Washington

UNIVERSITY OF WATERLOO
Dept. of Statistics and Actuarial Sciences
Waterloo, Ontario, Canada

VIRGINIA COMMONWEALTH UNIVERSITY
Dept. of Mathematical Sciences
Richmond, Virginia

VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY
Dept. of Statistics
Blacksburg, Virginia

WAYNE STATE UNIVERSITY
Dept. of Mathematics
Detroit, Michigan

YORK UNIVERSITY
Dept. of Mathematics
Downsview, Ontario, Canada