STATISTICAL SCIENCE

a review journal of the institute of mathematical statistics

Volume 6

Number 2

May 1991

Featuring

David Bellhouse on

THE GENOESE LOTTERY

Peter Kempthorne, Nitis Mukhopadhyay, Pranab K. Sen and Shelemyahu Zacks

RESEARCH—HOW TO DO IT: A PANEL DISCUSSION

MEETING THE NEEDS OF NEW STATISTICAL RESEARCHERS

New Researchers' Committee of the IMS

Donald Berry on

Inferences Using DNA Profiling in Forensic Identification and Paternity Cases

Lynne Billard and Marianne Ferber on ELIZABETH SCOTT: SCHOLAR, TEACHER, ADMINISTRATOR

and A Conversation with W. ALLEN WALLIS

EXECUTIVE EDITOR

Carl N. Morris
Harvard University

EDITORIAL ASSISTANT

Mary Stilwell

EDITORS

Ingram Olkin
Stanford University
Adrian F. M. Smith
Imperial College, London

Stephen Stigler
University of Chicago
James V. Zidek
University of British Columbia

MANAGING EDITOR

Roger L. Berger
North Carolina State University

PRODUCTION EDITOR

Patrick Kelly

FOUNDING EXECUTIVE EDITOR

Morris H. DeGroot, 1986-1988

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 Sciences
Department of Statistics
Science Center
Harvard University
1 Oxford Street
Cambridge, MA 02138

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 6, Number 2 May	
In This Issue	119 121
The Genoese Lottery	141
Peter Kempthorne, Nitis Mukhopadhyay, Pranab K. Sen and Shelemyahu Zacks Meeting the Needs of New Statistical Researchers	149
The New Researchers' Committee of the IMS (N. Altman, Chair) Inferences Using DNA Profiling in Forensic Identification and Paternity Cases	163
Donald A. Berry	175
Comment Kenneth Lange	190
Comment	192
Comment: Uncertainty in DNA Profile Evidence D. H. Kaye	196
Comment Ian Evett	200
Rejoinder	202
Elizabeth Scott: Scholar, Teacher, Administrator L. Billard and Marianne A. Ferber	206

Statistical Science (ISSN 0883-4237), Volume 6, Number 2, May 1991. Published quarterly 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 © 1991 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

Committee on Statistics Depts. of Mathematics and

Decision and Information Systems

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

DALHOUSIE UNIVERSITY Killam Memorial Library Halifax, Nova Scotia, Canada

FLORIDA STATE UNIVERSITY Dept. of Statistics

Tallahassee, Florida

GEORGE WASHINGTON UNIVERSITY

Dept. of Statistics Washington, D.C.

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

Depts. of Biostatistics and Mathematical Sciences

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

NORTH DAKOTA STATE UNIVERSITY LIBRARY

Fargo, North Dakota

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

SYRACUSE UNIVERSITY

Bird Library

Syracuse, New York

TEMPLE UNIVERSITY Dept. of Mathematics Philadelphia, Pennsylvania TEXAS TECH UNIVERSITY

Dept. of Mathematics Lubbock, Texas

University of Alberta

Department of Statistics and Applied Probability

Edmonton, Alberta, Canada 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 Connecticut

Dept. of Statistics Storrs, Connecticut

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 Sciencé

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 Montreal

Dept. of Mathematics Montreal, Quebec, Canada University of Nebraska Dept. of Mathematics and Statistics Lincoln, Nebraska

University of New Brunswick Library

Fredericton, New Brunswick, Canada 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 Pennsylvania

Dept. of Statistics

Philadelphia, Pennsylvania

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