



Joint Newsletter for the Section on Physical and Engineering Sciences and the Quality and Productivity Section of the American Statistical Association

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From the Q&P Associate Editor....

Esteban Walker

Hard to believe, but yet another summer is here. I started the job of Q&P Associate Editor in 1999 and it has been a learning experience that has brought me closer to my fellow members, or Q&Pers, as we call ourselves. Currently, I am on a year leave from the University of Tennessee. Since January I am working as a biostatistician at the Cleveland Clinic, and enjoying the change. Therefore, this is a good time for me to resign and let someone else do the job. Hopefully, someone energetic, with exciting ideas who can help to carry out the mission of our Section.

A couple of things that happened during my tenure and I am proud of were the creation of the column "You Might Have Missed..." which presents reviews of articles with Q&P content, and the electronic publication of the newsletter.

In closing, I want to thank all the members of the Section for their support and in particular, Leslie Moore and Pete Hovey, Senior Editors of the SPES/Q&P Newsletter during my years for their patience and excellent work.

Adios!

Message from the Outgoing SPES Associate Newsletter Editor

Jim Rutherford

Chevron Oronite Company, LLC

So long, it has been fun. It really has. There were many interesting people to meet. Good luck to my successor, William Brenneman.

Message from the Senior Editor

Pete Hovey

I am rerunning the article on SPES presentation awards because I inadvertently put the wrong version in the Newsletter in December. I sent a correction, but thought it best to republish the corrected article. My apologies to those affected by the mistake.

This has been a year of change for the SPES/Q&P Newsletter. We changed from print to electronic formats in December and we will be changing all the editors within the next year. Please be helpful to the new editors. We are constantly looking for content, especially contributed application articles. Also, let me know if there are any problems with distribution of the newsletter.

Message from the SPES Chair

Robert N. Rodriguez, SPES Chair

What do Dayton, Mount Holyoke College, San Francisco, and El Paso have in common this year? All four are venues for conferences which are either co-sponsored by SPES, supported by SPES, or organized—at least in part—by SPES members. If the SPES web site is not already a “favorite” in your browser, then I encourage you to go to www.amstat.org/sections/spes and learn more about the following events:

Spring Research Conference on Statistics in Industry and Technology, Dayton, Ohio, June 4-6. The following SPES members serve on the management committee for the conference: Max Morris, Vijay Nair, Derek Bingham, Bruce Ankenman, Andrew Booker, and Fred Hulting. The program organizers are Russ Lenth, William Brenneman, and Pete Hovey. SPES co-sponsors the conference with the Institute of Mathematical Statistics and funds three student scholarships.

Gordon Research Conference, Mount Holyoke College, MA, July 27-August 1. This year’s chair is Mary Beth Seasholtz. SPES is helping to support the conference with a financial contribution.

Joint Statistical Meetings, San Francisco, August 3-7. Our SPES program chair, Mark Vangel, has assembled an outstanding set of invited and contributed sessions. By the time this newsletter is distributed, you will be able to access the preliminary program and register for JSM on the JSM web site www.amstat.org/meetings. Our program-chair elect, Stan Young, has organized a number of roundtable luncheon discussion topics, and SPES is again covering the cost of the luncheon as an award for up to ten Young Investigators. The joint SPES/Q&P mixer is again planned for Tuesday evening from 5:30 to 7:30 pm (the traditional time), and—as usual—this will provide an opportunity for giving out awards for outstanding presentations at JSM 2003 (organized by William Li) and for socializing with food, drink, and door prizes.

Fall Technical Conference, El Paso, Texas, October 16–17. The SPES representative on the organizing committee is Christina Mastrangelo. This year, it will be my privilege to introduce the speaker at the Friday luncheon, Robert L. Mason, who is the President of the ASA and a long-time SPES member.

Proceedings for the SRC and the SPES sessions at JSM and the FTC will be published on a CD, which will be available through the ASA. Will Guthrie serves as our publications chair.

SPES is a successful ASA Section because so many individuals contribute to it in both elected and volunteer positions, and I want to express my appreciation to everyone who is listed on the SPES web site. I want to take this opportunity to thank Jim Rutherford, who is stepping down as associate edi-

tor for this newsletter and to welcome William Brenneman, the incoming associate editor, who will be working with Pete Hovey, our senior editor. Finally, I would like to thank the following individuals who agreed to run in this year’s election of officers: Bruce Ankenman, Ana Ivelisse Avilés, Roger L. Berger, Derek R. Bingham, Angela M. Dean, L. Allison Jones-Farmer, Max D. Morris, and Joanne Wendelberger. The Section is greatly enriched by their willingness to serve.

SPES always has opportunities for individuals who would like to contribute time and ideas to the Section. If you would like to become more active, please contact me at Bob.Rodriguez@sas.com or introduce yourself in Dayton, Mount Holyoke College, San Francisco, or El Paso. I am looking forward to meeting you!

Message from the Q&P Chair

Lonnie C. Vance, General Motors, Ret.

Hi everyone! I am very pleased to serve as Q&P Section Chair for 2003. I want to thank Fred Faltin, 2002 Section Chair, for his leadership of the Section and for personally including me in the activities in 2002. This has made a smooth transition for me, and I only hope I can come close to filling Fred’s shoes. He continues to be very active as Past Chair as well. Thanks, Fred.

The SPES/Q&P Newsletter

This will be our second newsletter that is electronic. Hopefully, all of the glitches that might have occurred with the December 2002 newsletter have been worked out. Pete Hovey and others did an outstanding job converting over to the new format. Whether we like it or not, electronic is the way to go. How many faxes have you received in the last few months? Just a friendly reminder that if you still have not updated your email address at ASA, go to www.amstat.org, click on Members Only, and update your files.

Q&P Section Updates

The focus of our tactical and strategic plans over the last several years has been to make communication easier and to keep our membership informed. The Q&P web site provides our members with a listing of current and upcoming conferences, a list of Section officers (past and present), newsletters (past and present) and other items of importance. One of our efforts in 2003 is to enhance even further our web site. Ramon Leon, our able webmaster for many years, and Gwen Stimely have volunteered to undertake this endeavor. Although we are very proud of our current web site, there is always room for continual improvement. If you have suggestions or comments, please let me or other members of the Executive Committee know.

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message from Q&P Chair continued...

In 2002 we combined the roles of the Publicity and Publications Officers, and Mark Vandeven in this position is doing an excellent job providing news about our Section in *Amstat News* and other places. If you have possible items of interest, let Mark know. We have taken the position that more and more of our information will be on our web site first. Our *Amstat News* articles may also include reminders about new things on our web site.

The Quality and Productivity Research Conference

By the time you read this, the 20th annual QPRC will have been held at the IBM Thomas J. Watson Research Center in Yorktown Heights, New York, on May 21–23, 2003. The QPRC was jointly sponsored by IBM and Rutgers University. The conference theme was: Data + Statistics = Competitive Advantage. I'm sure that it was a huge success. The organizing committee of Susan Albin (Rutgers University), Paul Tobias (Sematech, Ret.), Scott Vander Wiel (Bell Labs), and Emmanuel Yashchin (IBM Research) put together an outstanding program. Emmanuel was a great source of information and help concerning the QPRC to the Q&P Section. As usual, Jeff Hooper provided a historical perspective in the planning of the conference. On May 20, there was a preconference tutorial "Experimenting with Mixtures" presented by John A. Cornell, University of Florida. The dinner party honored Professor Peter W. M. John, and several student awards were presented. That leads me to the next topic.

The Mary G. Natrella Scholarship

In conjunction with the QPRC again this year, our Section awarded Mary G. Natrella Scholarships to deserving students interested in pursuing careers in quality and productivity. A separate article in this newsletter contains more detail about the scholarship and this year's winners. Several needed changes to the Mary G. Natrella Scholarship application process were undertaken by the MGNS Committee chaired by Carroll Croarkin. The committee improved the scholarship guidelines, criteria for selection, and other requirements, and updated the application form. Fred Faltin took the proposed improvements and personally called the Natrella Family to obtain their input and approval. We believe these changes have eliminated much of the ambiguity in earlier documents. Other members of the MGNS Committee are Keith Eberhardt, Cheryl Jennings, and Scott Kowalski. Thanks to the committee for a fine job.

The 2003 Joint Statistical Meetings

This year's JSM will be held on August 2–7, 2003 in beautiful San Francisco. Details can be found at www.amstat.org. Q&P has a number of invited sessions, contributed paper sessions, and roundtable luncheons. Thanks go to Christine Anderson-Cook, Program Chair, for putting this program together, and to Tim Robinson, Continuing Education (CE) Chair, who organized the roundtable lun-



cheons and a CE course. The Q&P Section is sponsoring a CE course on Saturday, August 2, 2003 on Statistical Leadership by Roger Hoerl.

The Tactical Planning Meeting

The Tactical Planning Meeting of the Q&P Section will be held on Sunday, August 3, 2003 from 1:00 pm—5:00 pm, location TBD. The Executive Committee Meeting will be on Tuesday, August 5, 8:00 am—9:30 am, location TBD. And don't forget the SPES/Q&P Mixer held on Tuesday evening with free drinks, snacks, and lots of door prizes!!

The Fall Technical Conference

The Q & P Section is becoming more of a presence in the planning of the Fall Technical Conference (FTC). Tim Robinson, representing the Q&P Section, attended a FTC Planning Meeting in Denver. He felt very positive about our opportunities to contribute. A big thanks to Tim for representing us by traveling to Denver on his own time and expense.

A Few Closing Thoughts

Esteban Walker, our able newsletter editor for many years, has asked to be relieved of his duties after the June Newsletter. He has done a remarkable job, and we want to thank him and wish him best wishes in his new career. The newsletter editor is not an easy job, and we need to find a replacement. In addition, next year Q&P is responsible for naming the editor for the joint SPES/Q&P Section Newsletter taking over for Pete Hovey. This is a three-year assignment. We will be asking interested people to fill these positions.

By the time you read this, the newly elected officers for Q&P will be known. I want to congratulate those elected and to thank all of the nominees for being a part of this process. There are no losers in this election. We would like to tap the resources of some of you who were not elected to be candidates for some of our appointed positions.

Being active in the Section is a great way to contribute to our association and to meet new people with similar interests. We welcome all volunteers!

Q&P at the 2003 JSM

Tim Robinson

Roundtable luncheons

The topics, speakers, and schedule are as follows:

Tuesday, August 5 (12:30-2:00pm) *Role of Statistics in the Engineering Design Process*—Bruce Ankenman will lead this discussion on the engineering design process, the impact that statistical methods have had on the process, failures of implementation and communication of these methods, and how statistics and statisticians positively impact the engineering design process in the future.

Monday, August 4 (12:30-2:00pm) *An Overview of Life Test Planning*—James Colton from Minitab Inc. will discuss some of the existing statistical methods for planning life tests and in doing so, answer important questions involving estimation, the accelerated life test plan, and reliability planning.

Wednesday, August 6 (12:30-2:00pm) *Leading Six Sigma: Obtaining More Critical Roles for Statisticians*—Roger Hoerl from the GE Corporation will discuss potential ways that statisticians can prepare for, and make a convincing case for, critical leadership roles in Six Sigma initiatives.

Wednesday, August 6 (12:30-2:00pm) *Data Mining Experiences: Successes and Obstacles*—Dick De Veaux will discuss some of the challenges of bringing a large data mining project to a successful conclusion.

Tuesday, August 5 (12:30-2:00pm) *The Impact of Variations on Central Composite Designs*—Shari Kraber from Stat-Ease, Inc. will discuss the implications of changing the alpha values on central composite designs when there are large numbers of design factors.

Continuing Education

Saturday, August 2 Course on Statistical Leadership. Roger Hoerl from the GE Corporation. Those interested in learning more about how to better define or develop their role as a statistician should attend.

SPES Roundtable Luncheons at JSM 2003

Stan Young, NISS, Program Chair-Elect

Where is statistics going and how can we make our knowledge more accessible? We are moving to larger, more complex data sets. We need to know how to design large data sets and—designed or not—we need strategies and methods for large data set analysis. If you are interested in what is happening on the edge, the SPES Roundtable Luncheons at this year's JSM in San Francisco will fill the bill.

There are two roundtables on Monday. Mike Emptage of GSK hopes for serious discussion of experiments run in 96 and 384 well plates. The nemesis of design, systematic placement of experimental material, is alive and well, so statisticians need strategies and analysis methods. David Rocke of UC Davis will lead a discussion of robust methods of analysis for massive data sets. How do you find and down-weight outliers when there are millions of data points? Bad numbers can mess up the analysis of large data sets and there are so many numbers that human examination and removal are not feasible. We need robust methods. What is available?

On Tuesday, Brad Jones of SAS will lead a discussion of space-filling designs. These have been used in computer experiments and in drug discovery, but they should appeal to anyone designing for complex systems where the response surface has lots of spikes. If you are searching for a needle in a haystack, space-filling designs give you a systematic search strategy.

On Wednesday, Andy Liaw of Merck will lead a discussion of model averaging with decision trees. The goal is to provide improved prediction from massive, irregular data sets. Potential uses include finance, credit scoring, selection for mail order catalogues, drug discovery, and health prediction. Also on Wednesday, Bill Notz, current editor of *Technometrics*, will lead a wide-ranging discussion of electronic publishing in the Internet age. How do we make our publications more available? The

National Academy has called for data used in publications to be electronically available.

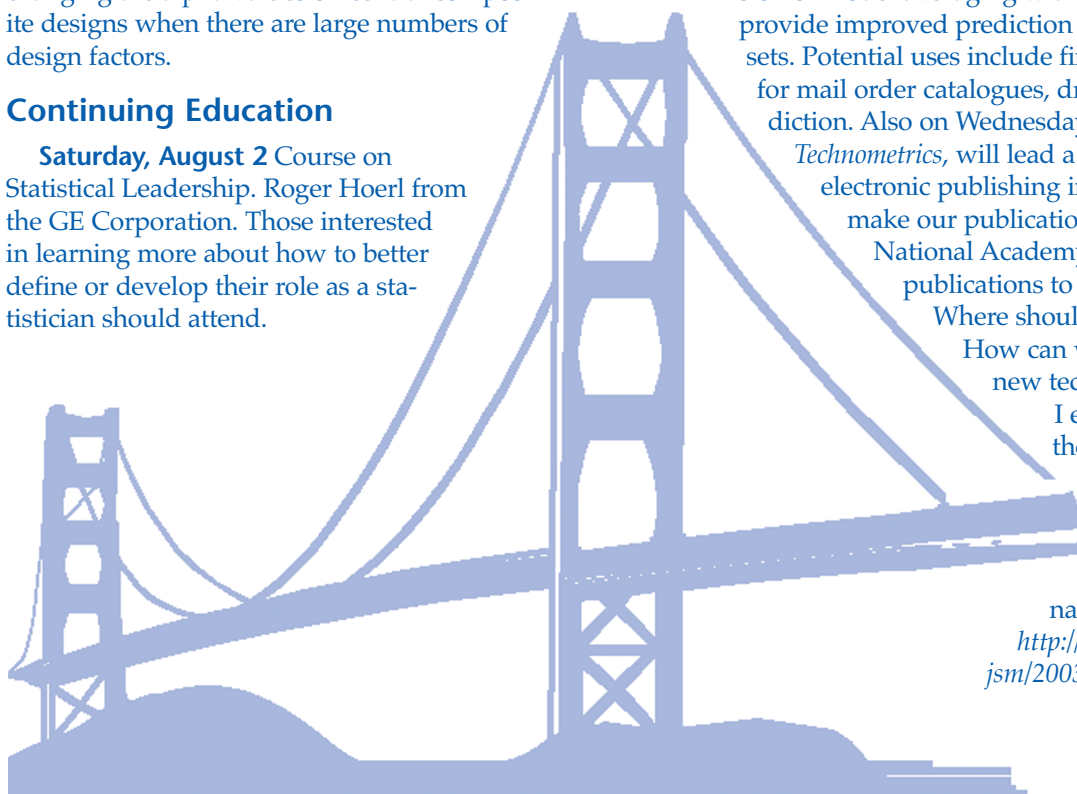
Where should we stand on this question?

How can we take better advantage of the new technologies?

I encourage you to attend one of these roundtables and contribute to the discussion. You will be well rewarded!

Abstracts for the roundtables appear in the JSM preliminary program that can be found at

<http://www.amstat.org/meetings/jsm/2003/onlineprogram/index.cfm>.



SPES and Q&P Sessions at JSM 2003

DATE/TIME	TITLE	SPONSOR	TYPE
8/3 2:00 pm–3:50 pm	Methods for Mining Video Data	Q&P	Invited Papers
8/3 2:00 pm–3:50 pm	Statistics of fMRI	SPES	Invited Papers
8/3 2:00 pm–3:50 pm	Theory and Applications of Experimental Design I	SPES,Q&P	Contributed Papers
8/3 4:00 pm–5:50 pm	Applications in Spatio-Temporal Modelling: From the F-22 to fMRI	SPES,Q&P	Invited Papers
8/3 4:00 pm–5:50 pm	Integrating Data Mining into a Statistical Consulting Practice	Q&P	Invited Papers
8/3 4:00 pm–5:50 pm	Applications	Q&P	Contributed Papers
8/4 8:30 am–10:20 am	The Modeling Error Problem in Extrapolation	SPES,Q&P	Invited Papers
8/4 8:30 am–10:20 am	Statistical Consulting from Undergrad to Outer Space	SPES,Q&P	Contributed Papers
8/4 8:30 am–10:20 am	Regression and Multivariate Analysis	SPES,Q&P	Contributed Papers
8/4 9:00 am–10:50 am	Regular Contributed Posters	Q&P, SPES	Contributed Posters
8/4 10:30 am–12:20 pm	Genetic Algorithms for Optimization	Q&P, SPES	Invited Papers
8/4 10:30 am–12:20 pm	Statistical Challenges in Functional Neuroimaging	SPES	Invited Papers
8/4 12:30 pm–1:50 pm	Section on Physical and Engineering Sciences Roundtable Luncheons (Fee Event)	SPES	Roundtable Luncheons
8/4 12:30 pm–1:50 pm	Section on Quality and Productivity Roundtable Luncheons (Fee Event)	Q&P	Roundtable Luncheons
8/4 2:00 pm–3:50 pm	Statistically Motivated Developments in Machine Learning	Q&P	Invited Papers
8/4 2:00 pm–3:50 pm	Working with Clients: Beyond the Statistics	SPES	Topic Contributed Papers
8/4 2:00 pm–3:50 pm	Case Studies in the Analysis of Designed Experiments	SPES,Q&P	Topic Contributed Papers
8/4 2:00 pm–3:50 pm	Reliability and Failure Times	Q&P	Contributed Papers
TUESDAY			
8/5 8:30 am–10:20 am	Collaborations in Seismology and Statistics: Recent Discoveries About our Planet	SPES	Invited Papers
8/5 8:30 am–10:20 am	Issues in Reliability	SPES	Contributed Papers
8/5 10:30 am–12:20 pm	Large Experimental Design Problems	SPES,Q&P	Invited Papers
8/5 10:30 am–12:20 pm	Univariate Statistical Process Control	Q&P	Contributed Papers
8/5 12:30 pm–1:50 pm	Section on Physical and Engineering Sciences Roundtable Luncheons (Fee Event)	SPES	Roundtable
8/5 12:30 pm–1:50 pm	Section on Quality and Productivity Roundtable Luncheon (Fee Event)	Q&P	Roundtable Luncheons
8/5 2:00 pm–3:50 pm	Pattern Recognition in Large Scale Genetic Data	SPES	Invited Papers
WEDNESDAY			
8/6 8:30 am–10:20 am	Errors in Variable and Multivariate Calibration	SPES,Q&P	Invited Papers
8/6 8:30 am–10:20 am	Data-Based Improvement of Statistical Practice	SPES,Q&P	Topic Contributed Papers
8/6 8:30 am–10:20 am	Kernel and Spline Smoothing	Q&P, SPES	Topic Contributed Papers
8/6 8:30 am–10:20 am	Signal Processing, Network Tomography, and Remote Sensing	SPES,Q&P	Contributed Papers
8/6 10:30 am–12:20 pm	Expanding the Role of Statisticians as Leaders in Research and Industry	Q&P, SPES	Invited Papers
8/6 10:30 am–12:20 pm	Modern Statistical Metrology	SPES	Contributed Papers
8/6 12:00 pm–1:50 pm	Regular Contributed Posters	SPES	Contributed Poster
8/6 12:30 pm–1:50 pm	Section on Physical and Engineering Sciences Roundtable Luncheons (Fee Event)	SPES	Roundtable Luncheons
8/6 12:30 pm–1:50 pm	Section on Quality and Productivity Roundtable Luncheons (Fee Event)	Q&P	Roundtable Luncheons
8/6 2:00 pm–3:50 pm	Recent Developments in Modelling and Estimation of Non-stationary Time Series	Q&P	Invited Papers
8/6 2:00 pm–3:50 pm	Missing Data Problems in Regression	Q&P	Invited Papers
8/6 2:00 pm–3:50 pm	Topics in Spline Smoothing	Q&P	Invited Papers
8/6 2:00 pm–3:50 pm	Multivariate Statistical Process Control	Q&P	Contributed Papers
8/6 2:00 pm–3:50 pm	Theory and Applications of Experimental Design II	SPES,Q&P	Contributed Papers
THURSDAY			
8/7 10:30 am–12:20 pm	Industrial Experiments with Restrictions on Randomization	Q&P, SPES	Invited Papers
8/7 10:30 am–12:20 pm	Applications of Time Series and Stochastic Processes	SPES	Contributed Papers

SPES Awards for Outstanding Presentations Announced

William Li, Awards Chair, University of Minnesota

The Section on Physical and Engineering Sciences is pleased to announce the results of its annual Outstanding Presentation competition for papers given at the 2002 JSM in New York City. These awards are based on audience evaluation of papers contributed to SPES-sponsored sessions at the Joint Statistical Meetings. The purpose of the awards is to encourage continuous improvement in the presentation of statistical information by recognizing at least some of the truly excellent talks given each year in SPES sessions. The winners will receive cash awards as part of their recognition. \$100 will be awarded for best presentation, \$50 will be awarded for runner-up, and \$25 will be given for honorable mentions. Certificates will also be awarded. The awards this year, which will be presented at the SPES mixer during the meetings in San Francisco, are:

Outstanding Presentation Award to Dr. Russell Barton, of the Pennsylvania State University, for his SPES Contributed Paper presentation, "Experiment Designs for Simultaneous Forward and Inverse Approximations".

Runner-Up Outstanding Presentation Award to Dr. Alexandra Kapatou, of the University of Michigan, for his SPES Contributed Paper presentation, "Robustness of Multivariate EWMA Control Charts When the Covariance Matrix is Estimated Using Small Samples".

Honorable Mention Outstanding Presentation Award to Dr. Woolcott Smith, of the Temple University, for his SPES Contributed Paper presentation, "Projection Pursuit for k-Dimensional Instabilities".

Honorable Mention Outstanding Presentation Award to Dr. Mark Vangel, of the Dana-Farber Cancer Institute, for his SPES Contributed Paper presentation, "Bayesian Multiple-Use Calibration"

Honorable Mention Outstanding Presentation Award to Dr. Michael Conerly, of the Alabama University, for his SPES Contributed Paper presentation, "A Best Subsets Approach for Interpreting Out-of-Control Signals from Hotelling's T² Chart".

Honorable Mention Outstanding Presentation Award to Dr. Ivelisse Aviles, of the National Institute of Standards & Technology, for her SPES Contributed Paper presentation, "Optimal Designs for Mixed-Effects Models with Two Random Nested Factors".

I would also like to thank all session chairs for helping organize the evaluations. They are Dr. David Banaszak of Air Force Research Laboratory, Dr. David A. Harville of

IBM T. J. Watson Research Center, Dr. Douglas DePriest of Hampton University, Dr. Martin Meckesheimer of the Boeing Company, Dr. Peter W. Hovey of University of Dayton, Dr. Michael Trosset of College of William & Mary, Dr. David Banks of Food & Drug Administration, Dr. Justin Wade Davis of University of Missouri—Columbia, Dr. Richard N. McGrath of Bowling Green State University, Dr. Felix Famoye of Central Michigan University, and Dr. Jonathan Hosking of IBM Research Division. In addition, Dr. Bob Rodriguez helped collect some evaluation forms, and Dr. Wayne Nelson also kindly offered to help with the data collection for the awards. Without the help of session chairs and dedicated volunteers, the SPES awards program would not be possible.

If you would like to see your name listed among the SPES Outstanding Presentation Award winners next year, just start sharpening your speaking skills for San Francisco! If you would like to help with the data collection for the Presentation Awards at future meetings, please contact me at wli@csom.umn.edu or 612-625-6841. Volunteers will be recognized on the SPES web site and in the newsletter. Your involvement would be much appreciated.

The 47th Annual Fall Technical Conference

Home on the Moo...ving Range:
Innovative Uses of Statistics To Improve Quality

October 17-18, 2003
El Paso, Texas



The Journal of Quality Technology invited session will feature two talks: 'Robust Parameter Design with Categorical Noise Variables' by William Brenneman and William Myers of The Procter & Gamble Company and 'A Review of Methods for Measurement Systems Capability Analysis' by Richard Burdick, Connie Borrer, and Doug Montgomery of Arizona State University. The *Technometrics* invited session will feature one talk: 'A Review and Analysis of the Mahalanobis-Taguchi System' by William Woodall, Rachele Koudelik, Kwok-Leung Tsui, Seoung Bum Kim, Zachary Stoumbos, and Christos Carvounis.

The conference will feature 16 other sessions which will cover a variety of topics on quality control, design of experiments, and interesting case studies. More information regarding the conference program can be found at http://www.cpid.net/47FTC_Information.htm.

Awards

Mary G. Natrella Scholarship

Mary G. Natrella was an expert on the application of modern statistical techniques in physical science experimentation and engineering testing and worked for thirty-six years as a statistician at the National Bureau of Standards (now NIST) before retiring in 1986. Her major and most enduring accomplishment was authorship of the book, NBS 91, Experimental Statistics, published and widely circulated by the Bureau of Standards.

She was always very involved in teaching statistical methods to NBS scientists, consulting on applications of statistical methods in the physical sciences and engineering. Early in her career she participated on the team that produced sampling standards used throughout the government (MIL-STD-105A). She was also active on the American Society for Testing Materials (ASTM) E-11 which is the ASTM sub-committee responsible for producing statistical standards.

The Quality and Productivity section is pleased to announce that Adnan Bashir of Florida State University and James Williams of Virginia Tech are being awarded the Mary G. Natrella Scholarship. This scholarship provides the students with a \$1000 award. In addition, each student receives a travel stipend, which includes registration, hotel and conference meals to present current research topics at the Q&P Research Conference in Yorktown Heights, NY. The award is given to students who display many of the qualities that embodied Mary Natrella's service to the statistical profession such as mentoring, teaching, professional service, leadership and community service.

Adnan Bashir is a Ph.D. student in the Department of Industrial and Manufacturing Engineering at FAMU/Florida State University. He spent several years working in various parts of the world before arriving at FAMU/FSU. Adnan has been awarded a Florida State University Dissertation Grant and the FAMU/FSU College

of Engineering Award for Best Senior Design Project. Mr. Bashir presented a talk entitled "Constructing Improved Supersaturated Designs with Genetic Algorithms" at the 2003 Q&P Research Conference.

James Williams is a Ph.D. candidate in the Department of Statistics at Virginia Tech. He received two awards of excellence from Du Pont business clients while serving as an intern. James will present a talk at the JSM on leadership skills, has been active in ASA and gives back to the community by serving as a Scoutmaster for a local boys scout troop. At the 2003 Q&P Research Conference, Mr. Williams presented the talk "Phase I Monitoring of Nonlinear Profiles".

The scholarship fund was established in 2000 to honor Mary's 36 years as an author, teacher, and consulting statistician, and her many contributions to the statistical community. An announcement and details for those interested in applying for the 2004 Mary G. Natrella scholarship will be made in late fall of 2003 on both the Q&P web site and in the Q&P newsletter.



Call for Continuing Education Courses for 2004 JSM Meetings

Margie Nemeth, SPES Education Chair

The Education Committee is soliciting proposals for Continuing Education courses for the 2004 JSM meetings in Toronto. Please send course title, short description of the course, syllabus, instructor name(s), and length (e.g., 1/2 day, 1 day, 2 days) of course to:

Margaret A. Nemeth, Ph.D.
Associate Fellow and Team Leader
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Register **ONLINE**
for 2003 JSM

www.amstat.org/meetings/jsm/2003
click on
Conference Information

You Might Have Missed...

Esteban Walker, Editor

Tagaras, George and Nikolaidis, Yiannis, "Comparing the Effectiveness of Various Bayesian Xbar Control Charts," *Operations Research*, Volume 50, No. 5, September-October 2002, pp. 878-888

This paper examines and compares adaptive Bayesian Xbar control charts. The idea of adaptive control charts is that some basic control chart parameter (or more than one) such as the sampling interval, the subgroup size or the control limits is allowed to vary during use of the chart, based on recent sample information (To take a simple example in a case of one point being plotted per day, if a point plotted were "very near" a control limit, an adaptive rule might direct that the next subgroup be obtained in an hour. The idea of this adaptation on sampling interval is that when the data support the idea that the process may have changed, the sampling should be intensified).

The authors do interesting numerical studies comparing Xbar charts with fixed subgroup size and sampling interval with three alternatives making, the subgroup size, the sampling interval, or both adaptive. They conclude "the control chart parameter having the most positive impact on the economic performance by being adaptive is the sampling interval." They recommend, "It is therefore sufficient in most cases to use control charts with adaptive sampling intervals rather than other types of partially adaptive charts or the more complicated fully adaptive control charts."

This reviewer would like to point out that investigations of the type done in the research being reported on basically view the control chart as a tool for detecting a process' movement from an in control state to an out of control state, in order that the process can be quickly restored to its original in control condition. Although this is one significant and common application of the control chart, we would urge that readers not forget that control charts also have important applications in learning about a process—enabling the process manager to understand the nature and magnitude of various sources of variability in the process. In fact, this purpose (learning) is often, in this reviewer's experience, the application leading to greater economic gains than that of quick detection of process changes. This does not take away from the current paper, but merely serves to remind us again that advice on the subject of what type control chart to use for economically optimal detection of process changes may not be equally valid advice regarding what type of control chart to use to rapidly and efficiently learn about that process with a view to improving its long-term performance.

I do recommend a reading of this paper for those interested in adaptive control charts. The authors make interesting contributions (reviewer: William C. Parr).

Cheng, Andrew Y., Liu, Regina Y. and Luxhoj, James T., "Monitoring Multivariate Aviation Safety Data by Data Depth: Control Charts and Threshold Systems," *IIE Transactions*, Vol. 32, pp. 861-872, 2000.

The authors develop and illustrate a nonparametric methodology for monitoring multivariate measurements simultaneously. Although many process observations and quality characteristics are usually multivariate in nature, most SPC techniques are not developed for monitoring multivariate measurements simultaneously. This methodology is based on *data depth*, a concept introduced by Liu (1990). A data depth is a measure of how "deep" or "central" each multivariate observation is with respect to a reference data set. The authors demonstrate an intuitive approach for defining a reference data set and then illustrate their methodology via airline safety data. The methodology is compared to the classical multivariate approach of using the Hotelling T^2 chart. The data depth approach is shown to be more sensitive than Hotelling's T^2 . It should also be pointed out that another added advantage of the data depth approach vs. Hotelling T^2 is that the data depth approach is completely nonparametric whereas the Hotelling's T^2 statistic assumes multivariate normality. The data depth approach is intuitive and does not appear to be computationally impractical (reviewer: Timothy Robinson).

Patchong, Alain, Lemoine, Thierry and Kern, Gilles, "Improving Car Body Production at PSA Peugeot" *Interfaces*, Vol. 33, pp. 36-49, 2003.

This manuscript documents a three-pronged strategy employed by PSA Peugeot to improve production growth, innovation of vehicles, and profitability. To do this, the PSA management decided to pursue a common-platform policy in which they hoped to reach a 60% level of common parts among all cars assembled on the same platform. Traditionally, all PSA cars were assembled in the same single-flow process, beginning with the car body shop. The car body shops were identified as the bottleneck of the plants. Whenever new car models were introduced, PSA had to redesign and reconstruct all the production lines, thus introducing inefficiency. Also, when the control system went down, the shop ceased operations and growth and profitability were hampered. To overcome this, OR personnel developed a new standard shop architecture. Using discrete-flow simulation and a self-developed interface, parameters affecting shop efficiency were identified and control policies were determined which enhanced the efficiency of product delivery. The article gives a nice overview of the various problems encoun-

tered along the way as well as proposed solutions. The impact of the strategy is impressive as the authors claimed to have 'brought PSA an additional \$130 million of additional profit in 2001'. In addition, the strategy has been presented to several top engineering schools and most of PSA's suppliers have implemented the methodology in their own corporate practices. (reviewer: Timothy Robinson).

Austin, M., Gibb, K., Milos, N., Scott, D. A., Raboern, G. W., "Understanding Variation in Revenue and Expenses," *Healthcare Financial Management*, December 2002, pp. 70-73.

This objective of this article is to introduce the basic concepts of control charts and illustrate their use to analyze financial data from health care organizations. The authors mention the fact that all processes have variation and discuss the concepts of special and common cause, and how to use control charts to distinguish between the two types of variation. The use of the charts is illustrated with revenue and expense data from a department of dentistry. After reading this article the reader is left with the impression that the use of control charts is simple and straightforward. Those who have been studying and applying these methods for some time know that this is far from the truth. Charting financial data is particularly tricky since the chart must adjust for cyclical and seasonal effects and even trends. Without these adjustments the chart is useless and would be misleading. The article also suggests that processes that are in control produce data that are normally distributed. Einstein said: "Make things as simple as possible, but not simpler." I think that Einstein would not be happy reading this article (reviewer: Esteban Walker).

Xu, Yan, "Cause-classified Control Chart and its application," *Managerial Auditing Journal*, Vol. 16, No. 4, pp. 227-233, 2001.

This paper discusses a "new" type of control chart for the case low frequency of nonconformities. This chart, called cause-classified, is simply a regular np chart augmented by a concurrent count of the causes of the nonconformities. Also included is a bar chart of the causes. Even though they are not well documented, the author claims that this chart has lead to large improvements in the postal service and telecommunications in China. There is really nothing new here. As a matter of fact, if a quality manager can't do better by thinking logically, he/she should do something else. An np chart supplemented with individual charts for each cause could provide better information. On the other hand, if this tool has had half the impact that the author claims, it is hard to argue on its value. (reviewer: Esteban Walker)

American Statistical Association

OPEN MEETING JSM 2003



Robert L. Mason, Chair
Sunday, August 3, 2003, 6 p.m.

*Come hear what your
association is doing*

Come to the open meeting at JSM, meet your officers, hear about the following items, among others, and voice your opinions about ASA:

- Areas of strategic focus (membership being a priority)
- New ASA staff members
- Changes in the Center for Statistics Education structure
- New trends in statistics research
- Update on ASA finances
- Publications marketing efforts
- Studies on the future of ASA magazines
- ASA role in homeland security
- ASA development activities

Please plan to attend and lend your voice to the discussions of important issues affecting the future of ASA.

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