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# Reliability Society Newsletter

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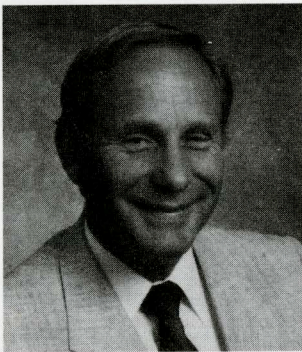
Editor: Bruce Bream

Vol. 37, No. 4, October 1991 (USPS 460-200)

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## Message from the President

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The French have an expression; you are our “**reason for being**”. The Society forms a professional network that can bring many advantages. All this is to say, I would like to hear from you. Today, I have two specific requests that I am making of you.

First, I'd like to share an experience that I have had teaching a course called “transformational leadership”. This is a team-building and empowering course.

One exercise we conduct is to give a team, of say seven people, four balls that are individually labelled. The teams are then time challenged to find the fastest process to circulate the balls past each team member with each team member touching them in sequence. After about 5-10 minutes, the teams develop a process that accomplishes this task fairly rapidly, about four seconds.

Then, I, as facilitator, disclose that a team at HP (fictitious) has accomplished this feat in 0.5 seconds. The teams immedi-

ately abandon their process and develop a new one that meets or beats the 0.5 second. They typically develop this new process faster than they did the first. Wow! The importance of a good benchmark.

A lot of us now are struggling to bring about jumps in our product reliability via six sigma programs or others.

1. I would like to hear of some of your success stories that we may all profit thereby. If you have one to share, please send it for publication in our newsletter.
2. I would like to put together a listing of key members by their specialty. This would create a network reference that would be made available to all members. To participate, I request that you send in your interest area (e.g. fibre optic reliability) to our Vice President of Technical Operations, Mr. Joe Gruessing, whose address is on the back of the front cover.

In future newsletters, I will let you know of our progress.

Also, by this time, we should all have received a copy of the Computer-Aided Engineering Conference proceedings. Hope you enjoy this bonus publication.

Dr. Samuel J. Keene  
President  
IEEE Reliability Society



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PAUL GOTTFRIED  
9251 THREE OAKS DR  
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## Editor's Column

In getting ready for the first edition as the new editor I thought a lot about the purpose of our newsletter. I think we'll all agree that it must center around disseminating information about events in the fields of reliability and maintainability. As a result you should see some changes to the newsletter. This involves notices of new books, bulletin boards, job fairs, editorials, and R&M military handbook status. Dr. Keene expressed his interest in hearing about your successes. You may also have a good lesson learned from a failure as well. Consider sharing your experience with us through the newsletter. I'm interested in hearing what you have to say about the current state of R&M engineering or events and ideas that may be of interest to others. If you have any thoughts on additions or changes to the newsletter, please drop me a note. I'm looking forward to an interesting and rewarding term as your newsletter editor.

Bruce Bream  
Editor  
IEEE Reliability Society Newsletter

### Reliability Society Newsletter Inputs

All RS newsletter inputs should be sent to:

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\* Note this is a new phone number

The schedule for submittals is:

Newsletter	Due Date
January	October 25
April	January 25
July	April 25
October	August 5

## Reliability Society Officers

### PRESIDENT

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C. W. Hamby  
STEMCO Suite 600  
8730 Georgia Ave.  
Silver Spring, MD 20910



## Chapter Activities

### BOSTON CHAPTER

The Boston Section has successfully started its 1991-1992 season on a positive note with an excellent talk on software reliability followed by the start of our Fall Lecture series on "Software Reliability Measurement, Assessment and Modeling". This lecture series is authored by Drs. Michael Elbert and David Heimann. In the next issue of the newsletter I will comment further on the lecture series since it has just started.

Alex Elentukh spoke at the Hanscom Air Force Base NCO club on Software Reliability Testing. This talk was well represented by the membership and was well received by all.

The Administrative Committee is now filled and we are looking forward to a highly positive and successful year. The AdCom for this year is as follows:

Chairperson:	Gary Kushner
Vice-Chairperson:	Ruth Evans
Treasurer:	Anita Cederholm
Secretary:	Mike Johnson
Junior Past Chairman:	Don Markuson
Senior Past Chairman:	Don Simpson
Monthly Programs:	Warren Snow
Publicity:	Sid Gorman
Arrangements:	Bill Rodriguez
Steering Committee Chairman:	Mark Snyder
Spring Seminar Chairman:	Jim Kalemba
Spring Seminar program:	Brian McQuillan
Technical Development Chairman:	Gene Bridgers

Regards,

Gary Kushner  
Boston Reliability Chapter Chairperson

### CLEVELAND CHAPTER

The Cleveland Chapter had two good meetings during this reporting period.

Our 7th meeting was on Achieving Quality In America. This meeting was from the George Washington University Center Video-conference Seminars. Two experts: Dr. Joseph Juran and Dr. Blanton Godfrey talked about:

- Quality Needs for Global Competitiveness
- Total Quality Management
- Quality Improvements Show Results

This meeting was well attended and enjoyed by all.

Our 8th meeting was on Neural Network Applications for the 1990's. This meeting was from the IEEE Learning Channel Video-conference Seminars via satellite. Three experts: Dr. James Anderson, Dr. Han Hammerstrom and Dr. Larry Jackel talked about:

- Present and Future Plans to Build Digital VLSI Circuitry
- Current Applications of Neural Networks
- Current and Future Applications

Every available seat was filled. Some were only able to get a copy of the notes. All went well.

Mr. Bruce Bream has been selected to serve as the Editor of the RS Newsletter. Congratulations Bruce! Gary Kushner and Mark Snyder did a fine job. Our thanks to them for all of their help.

Mr. Vince Lalli was nominated and elected as Chairperson for the Cleveland Section.

All-in-all here in Cleveland we are having fun serving our members and look forward to expanded activities in the future.

Vince Lalli,  
Chairman, Cleveland Chapter

### DALLAS CHAPTER

The Dallas Chapter has a full calendar of meetings planned for this year. A wide variety of topics are planned to meet the needs of the diverse spectrum of local Reliability and Maintainability society members. Topics will include stereo lithography, multi-discipline approach to Systems Engineering, software reliability, physics of failure, integrated diagnostics, and mechanical reliability. Invited speakers from outside the local area are planned to give our members a more national perspective on these topics.

The September meeting initiated our current year of activities and covered a topic of interest to all - Desert Storm. A recently retired Air Force pilot, Barry Wade of Texas Instruments, presented an informative presentation, utilizing video tape and 35mm slides to illustrate certain areas. His entertaining style of delivery added a lot to the meeting.

Of key interest to the Chapter is the desire to get more local members involved in their society and their local chapter. If you are a Reliability or Maintainability engineer in the local area, join us and participate.

Dennis Hoffman  
Dallas Chapter Chairman

### DENVER CHAPTER

The Denver Chapter held its 9th Symposium on Software Reliability. This was hosted at Loral in May. There were 70 attendees over the two day conference. Attendees came from all over the United States plus Canada, Scotland and England. A \$60 fee was charged for all attendees (except presenters). The Denver Chapter made over \$2,000 after expenses. We will use this to enhance our meetings and activities.

### LOS ANGELES CHAPTER

At the April meeting, Larry Stern, a Software Project Manager at Hughes Aircraft, spoke on "Software Project Management". Larry is currently chairman of the Los Angeles Computer Society. As we are a joint chapter, Larry has been a great asset to our program. In January he leaves us to fill the IEEE Congressional Fellow position.

In May, Dave Williams of TRW lectured and demonstrated the latest in computer generated music. Laurie Baum of TRW

entertained us with his hammered dulcimer while his computer accompanied him.

The June meeting had a presentation by R. Englehard of Hughes Aircraft where he discussed Design of Experiments/Variability Reduction. He currently teaches these courses at Hughes Aircraft. Seiji Sugihara of Aerospace also spoke on Taguchi Methods. Both of these speakers were on the TQM mini-course agenda.

In June, we offered a mini-course on TQM Process & Product Improvement Discoveries. Topics included:

- TQM Lessons Learned, R. Lockwood (Space Systems Division)
- Variability Reduction, R. Englehart (Hughes Aircraft)
- Cycle Time Management, A. Doggett (Hughes Aircraft)
- Quality Function Deployment, P. Wahl (Hughes Aircraft)
- Taguchi Methods, S. Sugihara (Hughes Aircraft)
- Statistical Process Control, R. Saver (Hughes Aircraft)
- Technical Risk Assessment, C. Orr (TRW)
- Concurrent Engineering, A. Edwards (Edward Assoc)
- Mysteries of EMC Exposed, A. Rivera (Hughes Aircraft)

All of these presentations were videotaped and are available through our videotape exchange program.

Upcoming meetings include:

July Rudy Marloth of Hughes Aircraft will lecture on the latest developments of Synthetic Array Radar. Rudy currently works on Advanced Synthetic Array Radar Systems (ASARS).

## Committee on Communications and Information Policy

The CCIP, a technical committee of IEEE-USA, addresses the interfaces between the electrical/electronic technical community and the political arena at the federal level, predominately in Washington, D.C. By establishing formal position papers or 'white papers' on subjects of interest to the Federal government, the CCIP acts as a technical ombudsman and educator of Congressmen, their staffers and FCC, GAO and OTA personnel.

There are five hardworking subcommittees that investigate, assess and prepare documentation for the entire Committee to review and approve. These subcommittees include:

### Information Security And Applications

'... to develop a comprehensive view of the problems related to privacy and security ...'

### Telecommunications Network

'... to examine personal communications services (PCS) issues associated with interconnection ...'

### Space And Spectrum

'... to review and address FCC dockets, notices and other rulemaking proposals dealing with spectrum and orbital allocations and regulations ...'

### Technological Leadership

'... to examine comparative positions of communications and information technology industries in the United States vis-a-vis those of selected foreign countries ...'

Security permitting, he will show actual photos generated.

August Bill Zeller of Hughes Aircraft will discuss the survey of the field of brain machines. The purposes and benefits will be discussed.

September Two speakers from Southern California Edison will discuss Alternate Energy Sources and Low Frequency EM Fields. The first speaker is Ron Luxa and he will primarily discuss wind power energy. The second speaker is Kirby Holt and he will discuss the danger or safety of EM fields. This will be a joint meeting with the LA Chapter of SSIT.

Our Videotape Exchange program has been very popular. We get 1-5 requests per week. Currently we have over 100 videotapes available. The latest listing can be viewed and downloaded through our electronic bulletin board.

Larry Stern asked for our assistance in his new project, the IEEE LA Council Employment Network. In cooperation with the LA Council PACE Committee, Larry has solicited the aid of Hughes Aircraft, Northrop and others to aid in the placement of unemployed engineers in the LA area. We are assisting in soliciting other companies to join in this campaign, finding available job openings, aiding applicants in writing resumes, and general assistance.

Loretta Arellano  
Los Angeles Chapter Chair

### High Performance Computing

'... to watch closely worldwide developments in technology markets and government policies that could affect United States high performance computing ...'

The Reliability Society is taking an active role in the committee discussions and will impact the finalization of any current statements in process when and where Reliability and Maintainability expertise, at a system design level, is applicable. We are looking for volunteers who can be called upon to review and assess the CCIP documents before they become finalized in light of Reliability/Maintainability concerns.

If you are interested in participating, send your name, address, business phone number, home phone number and a list of the technical areas you are qualified to address to:

Mr. Joe Gruessing, VP  
Technical Operations  
Reliability Society  
c/o Westinghouse Electric  
PO Box 726, MS 1701  
Baltimore, MD 21203

For further details, contact Hank Wolf at (703) 448-3394.



## Academic Education Committee Session

### 1992 Annual Reliability And Maintainability Symposium

January 22-24, 1992 Las Vegas, Nevada

The Academic Education Committee is a standing committee of our Society and reports directly to our president, Dr. Samuel Keene. It is part of a long range plan to make education a major part of the objectives of the Reliability Society.

As a part of the symposium we will be conducting an education session and would like to invite all participants to attend. At this session educational material will be presented

in the general area of integrating reliability/maintainability concepts into engineering education. Faculty and industry leaders, with experience in this discipline, will make presentations and share their experience with participants.

If you would like to join our panel of presenters, please call John Hadjilgiou, Chairman of the Academic Education Committee of the Reliability Society, at (407) 768-8000 Ext. 7331.

## Calling All Speakers

We continuously receive requests for qualified speakers for Local, Regional, and National Meetings. In response to this, the Reliability Society is constructing a "Speakers List". If you would like to be considered for inclusion on this list, or would like to nominate someone, please contact me for a nomination or registration form.

Mr. Thomas L. Fagan, ITT Defense  
1000 Wilson Blvd., 30th Floor  
Arlington, VA 22209  
Tel: (703) 247-2988 Fax: (703) 276-9706

## MIL-HDBK-217 Revision F

Work is proceeding at Rome Laboratories on Revision F of MIL-HDBK-217, *Reliability Prediction of Electronic Equipment*. Draft copies were sent out for review in April 1991 that resulted in some 300 comments. Rome Labs is reviewing each comment and writing responses to each. One of the major issues involves changes to the quality pi factor. Instead of a single quality factor there will be separate factors for each quality screen. This method is described in the paper, *Pi Factors Revisited*, from the 1990 RAM Symposium. If everything goes according to schedule, revision F may be published in the first quarter of 1992.

## Electronic Bulletin Boards

Los Angeles Chapter  
IEEE Bulletin Board  
(818) 768-7644  
300-2400 Baud (8N1)  
Free Membership (400+ members)

- Meeting Information - Jobline - Email -  
- Video Tape Exchange Information -  
- Shareware and Demos -

Statistical Applications Institute  
Statistics Bulletin Board System  
(316) 265-3036  
1200-2400 Baud (8N1)  
Free Membership

- Statistics Use in Industry, Medicine, and  
Society in General - Papers/Articles -  
- Programming Utilities - Tutorials -  
- Book Reviews, Demos -

## Conference Calendar

DATE	CONFERENCE	PLACE	CONTACT
1991 Oct 30-Nov 1	SAFECOMP '91 International Conference on Safety, Security, and Reliability of computer based systems	Trondheim, Norway	Irene Haugli Norwegian Society of Automatic Control P.O. Box 2312 Solli 0201 Oslo, Norway Tel: (47) 2 83 83 30 Fax: (47) 2 83 63 23
Nov 11-15	3rd International Symposium on the Physical and Failure Analysis of Integrated Circuits	Singapore	IPFA 91 Technical Program IEEE Singapore Section 16A Science Park Drive #03-03 The Pascal Singapore Science Park Singapore 0511 Tel: 773-0056 Fax: 773-0054
Dec 20	International Conference on Safety	Tokyo, Japan	Dr. Y. Suzuki Tokyo Metropolitan Institute of Technology 6-6 Asahigaoka, Hino-City Tokyo 191 Japan
1992 Jan 21-23	1992 Annual Reliability and Maintainability Symposium	Las Vegas, NV	Dr. R.J. Lumas Lockheed Space Operations MS LSO 291 110 Lockheed Way Titusville, FL 32780 Tel: (407) 867-5921 Fax: (407) 867-2131
Feb 3-5	SEMI-THERM Thermal characterization of devices, components, and systems, reliability screening and testing	Austin, TX	Mr. Bob Simons IBM Corporation Dept b02. Building 701 Poughkeepsie, NY 12602 Tel: (914) 435-1650 Fax: (914) 432-9805
Mar 30-Apr 2	1992 International Reliability Physics Symposium	San Diego, CA	USA: Harry A. Schafft General Chairman, 1992 IRPS NIST Bldg. 225, Rm. B360 Gaithersburg, MD 20899 Tel: (301)975-2234 Fax: (301)948-4081  Asia: Dr. Eiji Takeda IRPS Publicity Committee Hitachi Ltd. P.O. Box 2 Kokubunji, Tokyo 185, Japan Tel: (81) 423-23-1111 x3325 Fax: (81) 423-27-7699  Europe: Dr. Wolfgang Gerling IRPS Publicity Committee Siemens AG Balanstr. 73 D-8000 Munich 80, Germany Tel: (49) 89 4144-2825 Fax: (49) 89 4144-3828

(continued on next page)



**CONFERENCE CALENDAR** (continued from previous page)

DATE	CONFERENCE	PLACE	CONTACT
May 18-20	42nd Electronic Components & Technology Conference	San Diego, CA	Iwona Turlik Microelectronics Center of N.C. 3021 Cornwallis Road Research Triangle Park, NC 27709 Tel: (919) 248-1847 Fax: (919) 248-1455
Jun 10-12	European Safety and Reliability 92	Copenhagen, Denmark	Kurt Petersen Systems Analysis Dept. RISO National Laboratory PO Box 49 DK-4000 Roskilde, Denmark Tel: (45) 42 37 12 12 x3082 Fax: (45) 46 75 71 01

**CALL FOR PAPERS**

DATE	CONFERENCE	PLACE	CONTACT
1992 May 3-6	Custom Integrated Circuits Conference Abstracts due November 7, 1991	Boston, MA	Mrs. Roberta Kaspar Technical Program Coordinator CICC '92 1597 Ridge Road West Suite 101C Rochester, NY 14615-2514 Tel: (716) 865-7164
Oct 7-9 Papers due March 1, 1992	3rd International Symposium on Software Reliability Engineering	Research Triangle Park, NC	John C. Munson Division of Computer Science University of West Florida Pensacola, FL 32514 Tel: (904) 474-2989 jmunson@dcs119.dcsnod.uwf.edu

DATE	CONFERENCE	PLACE	CONTACT
1993 Sep 29-Oct 1	16th International Symposium on Computer Performance Modeling, Measurement and Evaluation	Rome, Italy	North America: Dr. Stephen S. Lavenberg IBM T.J. Watson Research Ctr. P.O. Box 704 Yorktown Heights, NY 10598 Tel: (914) 784-7573  Europe & Others: Prof. Giuseppe Iazeolla University of Rome II, Electronic Engineering Dept. Viale della Ricerca Scientifica 1-00173 - Roma - Italy Tel: 39-6-79794486



**IEEE VIDEOCONFERENCE**

**Software Testing and Reliability Satellite Videoconference**  
Oct 30, 12:00-3:00pm Eastern Time

Course Content:  
Application of cost effective testing and reliability measurement techniques  
Prevention and elimination of software faults to ensure software reliability  
Use of cleanroom engineering in development of zero-defect software  
Beneficial application of software operational testing and evaluation techniques

Contact:  
Judy Brady, IEEE Marketing, 445 Hoes Lane, Box 1331, Piscataway, NJ 08855-1331  
Tel: (908) 562-3991, Fax: (908) 981-8062

1992

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1992

**Annual RELIABILITY AND MAINTAINABILITY Symposium**

1992 January 21-23

Riviera Hotel

Las Vegas, Nevada USA

**Assurance Technologies – Discovering New Horizons**

Share your knowledge and expertise with your colleagues  
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Telecomputing, industrial globalization, technology transfer, and multinational joint ventures are just a few of the activities which will be accelerated in the new world economy. Corporate as well as governmental procurements and R&D decisions in a world economy will be significantly influenced by issues such as best value, market share, concurrent engineering, and product quality. The assurance technologies must be prepared to adapt to this changing competitive environment. The development of pioneering assurance techniques or modification of proven ones must address cost-effective solutions to meet these contemporary challenges. To encourage your colleagues to expand their horizons, your paper should advance our knowledge of pioneering assurance methods or enhance our understanding of established techniques. Papers stressing application to real-world challenges will receive priority consideration. Papers in the following categories or types of subjects are solicited:

**TECHNOLOGY**

CAD/CAM/CAT/CALS  
Design to Life-Cycle Cost  
Modeling & Simulation Methods  
Software Tools: R&M and Safety  
R&M Test & Demonstration  
Reliability Growth  
Screening and Failure Analysis  
FMEA and FMHEA  
Built-In-Test & Testability  
Worst-Case Analysis and Prediction  
Fault Trees & Diagramming Techniques  
Repair/Maintenance Methodologies  
R&M Cost-Benefit Analyses  
Software Safety and R&M  
Environmental Testing  
Sneak Circuit Analysis

**MANAGEMENT**

CAD/CAM/CAT/CALS  
Design to Life-Cycle Cost  
System Effectiveness  
R&M Contracting Management  
R&M Requirements  
Trend Analysis and Risk Management  
Database Management  
R&M Cost-Benefit Tradeoffs  
Testing Effectiveness  
Warranties/Guarantees  
Logistics Support  
Multinational & International Programs  
Reliability-Growth Management  
Product-Assurance Management  
Safety Management  
Training and Education

**INDUSTRY APPLICATIONS AND LESSONS LEARNED**

Aerospace & Defense  
Electric Power & Other Utilities  
Oil & Other Resource Industries  
Mechanical/Structures Equipment  
Transportation Methods and Systems  
Microelectronics  
Computer Hardware & Peripherals  
Software and Smartware  
Robotics and Artificial Intelligence  
Consumer Products  
Medical and Biotechnology  
Communication Systems  
Office Automation & Database Systems  
Electrical & Electronic Systems  
Telecomputing and Networks  
Chemical and Agrichemical Systems

**The P.K. McElroy Award**

The P.K. McElroy Award recognizes the best combination of the technical paper and its presentation. All submitted papers are graded by the Program Committee. The top contenders are selected and their presentations at the *Symposium* are monitored by a group of past General Chairman. The author(s) of the winning paper is recognized at the next *Symposium* and receives a plaque, a \$1000 honorarium, and gratis registration.

RAMS is a nonprofit symposium sponsored by the following Societies:

ASQC ■ IIE ■ IEEE ■ SOLE ■ IES ■ AIAA ■ SSS ■ SRE

For contact information see Conference Calendar.



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## JOB FAIRS

Job fairs and job search seminars are growing nationwide in an attempt to help unemployed members. Conducted by the Lendman Group, a national operator of technical job fairs, the events are produced under a contractual agreement with IEEE. IEEE-USA's Employment Assistance Committee oversees the job fairs and seminars on the national level.

Using its outplacement division personnel and materials, The Lendman Group provides a one-day job search seminar — a workshop on how to find employment — for IEEE members, in exchange for IEEE's co-sponsoring the job fairs. The seminars are usually scheduled in advance of the job fairs so that members have an opportunity to use their newly acquired job-seeking skills.

Job fairs and job search seminars have been scheduled through the remainder of 1991. For more information about planning these events, contact William R. Anderson at the IEEE-USA Office in Washington, D.C. at (202) 785-0017. For information or a schedule of job fairs and seminars contact the IEEE Career Fair Coordinator at (800) 562-2820; in Virginia, call (800) 533-1827.

# 217xF is here!

- Frustrated because MIL-HDBK-217F still isn't ready?
- Need to address VLSI, GaAs, and higher complexity technologies?
- Ready to start using more realistic failure rates than 217E provides?

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