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Reliability Society Newsletter

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Editors: Gary Kushner and Mark Snyder
Vol. 35, No. 2, March 1989 (USPS 460-200)

RS Newsletter Inputs

All RS Newsletter inputs should be sent to one of the associate editors, **Gary Kushner**, or **Mark Snyder**, per the following schedule:

For October Newsletter	by July 25
For January Newsletter:	by Oct. 25
For April Newsletter:	by Jan. 25
For July Newsletter:	by Apr. 25

Editors: **Gary Kushner**
499 Bringham St.
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Digital Equipment Corporation
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BxC1-3/B6
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Past gifts to Reliability Society.
We will present translations in the next issue.



Chapter News

Boston

On January 18th our chapter meeting was held at HANSCOM AFB Officers' club in Lexington, MA. Phil Babcock from Charles Stark Draper Labs presented "Next Generation of Reliability Analysis Tools" as the topic of our January Chapter meeting. Phil spoke primarily about the availability of computer programs today, where they are strong, where they are weak, and when ever possible he threw in personal anecdotes. He then moved on to cover briefly where he thought the industry was heading. The meeting was preceded by a social hour and dinner.

The February and March meetings also took place at the Officers' Club. The February talk was entitled "High Density Memory: MIL-2178 vs. Empirical" and the March meeting talk was entitled "Design for Automatic Test." Both topics of obvious interest to our local-area Reliability Engineering professionals was evidenced by the high turn-outs. The February talk was given by Vivian Thorsen from Raytheon Corporation and Treasurer of the Boston Section Reliability Chapter. The March Speaker was Jim Deckert.

This month we are putting finishing touches on arrangements for our 27th Annual Spring Seminar entitled "If Quality Is Free, Then Reliability Saves." Over the past several years this all day event has been drawing a large crowd and it looks like this year will be no exception. The seminar will be held at the Sheraton Tara in Framingham, MA on Thursday, April 27th. Some of the speakers presenting papers will be:

Peter Bachant, System Effectiveness Associates, "Solving Reliability Integration as a Part of the CALS Program"

Gene Carrubba, Codex Corporation, "Incorporating Software Reliability Program Requirements into MIL-Standard 785"

Oliver C. Ibe and Anne S. Wein, DEC, "Availability Analysis of systems with Partially observed Failures"

Dr. Michael Elbert, Robert J. Shelton, and Dr. Thomas F. Weyant, DEC, "The New Method for Analyzing Maintainability Without Actual Data"

Daniel J. O'Leary, NESLAB Instruments, Inc., "Inspection Plans and Products Sold under Warranty"

John Peter Rooney, Codex Corporation, MIL-Handbook-217 User Survey"

Dr. Vanzetti, "Laser Infrared Feedback Enhances Solder Joint Reliability"

Those Events round out our activities for this year. We are looking forward to an equally active agenda during the Fall of 1989 and Spring of 1990.

Baltimore Chapter

The Baltimore Chapter is proceeding with a program for the membership. In January, Steven Buswell and Paul Sesto of Westinghouse Electric Corp. spoke on "An Expert System to Facilitate Fault Isolation". February's meeting was entitled "Automated Maintainability & Testability Analysis Supports Concurrent Engineering" by Martin McEnroe & Laura Hildebrand of Westinghouse Electric Corp.

Dallas

Mr. Louis Boudreaux with Texas Instruments is currently working to form a chapter. There are presently 18 members in the area who have signed a petition to form the chapter. His phone number is (214) 575-5687. There have presently been two meetings. The first was for the chapter ADCOM and the second was for the entire chapter with 40 plus attending. The next meeting was scheduled for either March or April.

Denver Chapter

A joint ASQC and IEEE Reliability Society meeting was held on February 16, 1989. Mr. Ken Shipe of Martin-Marietta Astronautics Product Excellence group was the featured speaker. Mr. Shipe spoke on RAM CAD status and implementation.

The Chapters new officers are: Juan Hernandez as chapter chairman, Bob Jacquess as Vice-Chairman, John Adams as Treasurer, Craig Williams as Secretary, and Ley Andrews as the newsletter chairman.

The chapter has a program of monthly workshops on Software Reliability in addition to the regular meetings.

Los Angeles Chapter

Eight Technical presentations included:
Processor Speeds, Methods for Benchmarking
Designing for Communication Networks of the Future
Architecture of a Successful Software Environment
Designing Reliable User Interfaces

Fibre Optics—Past, Present, and Future
Electronics Parts Purchasing
Computer Virus
Desktop Publishing

A mini-course on Artificial Intelligence was held in July. Case Tools seminar was presented in December.

The Chapter purchased a personal computer and has been operating a bulletin board since July. We offer information about the chapter including: monthly technical meetings, the video tape exchange program, listing of officers, job listings, electronic mail and the Open Forum (for an exchange of ideas, comments, etc.)

North Jersey Chapter

The North Jersey Chapter of the IEEE Reliability Society and students and faculty of the New Jersey Institute of Technology (NJIT) jointly sponsored a Symposium on Testability at the Institute on October 18, 1988. A total of 33 guests, including students, attended the symposium, which was followed by a dinner meeting with the speakers in the NJIT Faculty Dining Room.

The program was introduced by Present Chairman Mallik Arjunan and Past Chairman Raymond W. Sears, Jr. Dr. Raj Misra of NJIT ably served as the Sessions Moderator. The Keynote speech for the symposium was delivered by Col. Robert Pinnizotto (USAF) of the Air Force Logistics Command in Dayton, OH. A paper entitled "Reliability Impact of Diagnostics on Fault Tolerance" was presented by Frank Born of Rome Air Development Center, Griffiss AFB, NY. Mary Nolan of Giordano Associates in Pine Brook, NJ, discussed "Army Initiatives in Design Testability" and the preparation of MIL-STD-2165.

The Symposium was well received by the participants and attendees. Reliability Chapter Officers who also assisted were Henry Moss, John Wronka, Shyam Pandey and Sergei Bogaenko. Additionally, Dr. Gary Thomas, Vinu Sundaresen and the students of New Jersey Institute of Technology were instrumental in making the Symposium an informative and successful venture.

Recently our elections were held for the new ADCOM for 1989-1990. Congratulations to Bernhard Bang (president) as he receives the Japanese gift to the local chapter as it is being handed down from three of our past presidents. From left to right, Al Plait (sr. past president), Bernhard Bang (president), Naomi McAfee (sr. past president), and Tom Fagan (jr. past president).

Our new president (Bernhard Bang) on left with Naomi McAfee (past president) and three of Bernhard's committee, Tony Coppola (VP meetings), Al Tamburrino (VP membership), and Paul Gottfried (VP publications).

Bob Jacquess receives a plaque of appreciation for his activities as chairman of the awards committee by outgoing President Tom Fagan.

In this picture, General Goodell receives an award presented by Al Plait from the Reliability chapter.

Philadelphia Chapter

In response to the Society's Newsletter inputs for the Chapter's activities, below are the meetings held for this period. If you require additional information, please feel free to contact me.

September 27, 1988

- Procurement for Reliability of Products
Mr. Harvey E. Schock, Jr., Consultant
- Neatness Doesn't Count After All
Dr. Hugh Kenner, Johns Hopkins University

October 18, 1988

- Image Processing Techniques for Military Application
Dr. Frank P. Kuhl, U.S. Army Armament Research and Development Center (ARDC)
- The Executive Master of Science in Engineering (EXMSE) Program at the University of Pennsylvania
Dr. Dwight L. Jaggard

November 15, 1988

- The Aircraft Warning Service, Hawaii (AWS, H) and the Signal Company, Aircraft Warning, Hawaii (SCAWH)
Mr. Stephen L. Johnston, Consultant

Reliability Society Officers

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Bernard Bang
Westinghouse Electric Corp.
P.O. Box 1521
MS-3G07
Baltimore, MD 21203

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Rome Air Dev. Ctr.
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VP PUBLICATIONS

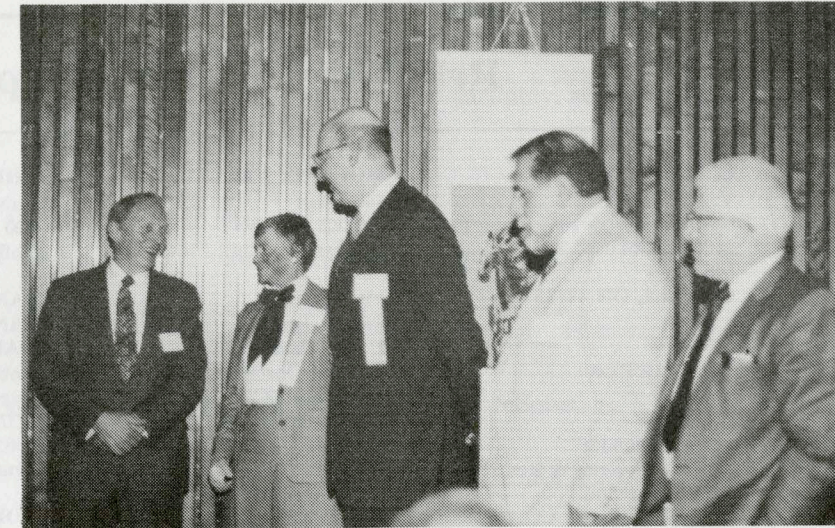
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Bob Jacquess receives a plaque of appreciation for his activities as chairman of the awards committee by outgoing President Tom Fagan.

Reliability Society Chapter Chairmen

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Bristol, TN 37620

WASHINGTON/NORTHERN VIRGINIA

William E. Breslyn
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Kensington, MD 20895

New Fellows

Congratulations to the following members of the Reliability Society who were recently elected to the IEEE grade of Fellow.

Prof. Bill D. Carroll
Dept. of Comput. Sci. Eng.
Univ. of Texas-Arlington
P.O. Box 19015
Arlington, TX 76019-0015

For contributions leading to the development of the theory for generalized text functions for combinatorial circuits.

Mr. Thomas L. Fagan, Jr.
Man Tech Intl. Corp.
2121 Eisenhower Ave.
Alexandria, VA 22314

For contributions to, and technical leadership in, the field of reliability engineering.

Dr. Amrit L. Goel
5011 Woodside Rd.
Fayetteville, NY 13066

For contributions to the reliability of computer software.

Fellows Cont.

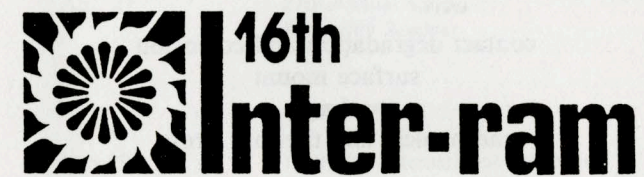
Dr. Wayne B. Nelson
739 Huntingdon Dr.
Schenectady, NY 12309

For contributions to reliability, accelerated test analysis, and reliability education.

Prof. Subrahmanyam S. Venkata
Dept. of Elect. Engi., FT-10
Univ. of Washington
Seattle, WA 98195

For leadership in electric-power education and research in energy transmission technology.

In the next issue we will present a more personal look at our new fellows.



INTERNATIONAL —
RELIABILITY · AVAILABILITY · MAINTAINABILITY
Conference for the Electric Power Industry

1989 May 29-June 1

Monterey, California USA

RAM-Solutions for the Competitive 90's

CONFERENCE THEME

The theme emphasizes practical applications of RAM techniques in operating, maintaining, improving, upgrading and extending the life of existing production and delivery systems. It reflects increasing concerns with a future of moderate and uncertain growth, limited resources, complex regulatory requirements, and increasing public involvement and competition as considerations for system operations.

The present situation has also resulted in an increased emphasis and stress on delivery systems. Therefore, in addition to transmission and generation, specific sessions dealing with maintaining and improving distribution systems are planned.

PAPERS

Papers should be consistent with the theme of the Conference. They should discuss practical RAM techniques which have been successfully applied to enhance system performance. In particular, papers dealing with specific case histories are welcome.

ABSTRACTS — [Due 1988 October 1]

A 250-word abstract in English must be forwarded to the Conference Technical Program Chairman, as listed below.

Abstracts should be structured with the following three sections: problem or questions addressed; work performed; and results and/or conclusions reached. Abstracts should be typed on a single sheet and should include the title; names and affiliations of all authors; address and telephone number of presenting author; and a list of 5 key words. A short (150 word) professional biography for each of the authors should accompany the abstract, and the presenter should be identified.

The selection results will be transmitted to the authors by 1988 December 1. Completed papers of 4000 words or less will be required by 1989 February 15.

EXHIBITS

Arrangements are being made for an exhibition during the conference in the conference hotel. Industrial, Technological and Educational exhibits will be welcome. Exhibitors are encouraged to make arrangements as soon as possible.

1989 INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM

April 10-13, 1989 • Hyatt Regency • Phoenix, Arizona

The 27th Annual Symposium, co-sponsored by the IEEE Reliability Society and the Electron Devices Society, has as its major theme, building-in and validating for present and developing VLSI and hybrid technologies.

PAPERS on the following subjects.

- VLSI Package Design and Construction for High Reliability
- Building-in Reliability: Design and Process Control for Si and GaAs
 - Designing circuits, multi-chip assemblies, and subsystems
 - Materials selection and control; epoxy adhesives
 - Process design and control; computer-integrated manufacturing
 - Packaging (bonding, die and substrate attachment, coating, encapsulation, sealing, glass-metal seals)
- Analysis for Reliability
 - Failure analysis techniques (new, advanced, simplified)
 - Failure mechanisms and models, for example:

electrostatic discharge	contact degradation and corrosion
hot carrier effect	surface mount
electromigration	packages
oxide breakdown	mechanical and thermal stress
- Methodologies

wafer-level controls	screening
accelerated stress	field failure mechanisms
test combinations	burn in effectiveness and strategy
statistical process control	analytical instruments and techniques

For general conference information contact:

Bruce Euzent
General Chairman, 1989 IRPS
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SYMPOSIUM FEATURES

- Proceedings at Symposium
- Tutorials and Workshops
- Hands-on, one-on-one, analytical equipment demonstrations.
- Awards Presentations
- Authors corners and attendee lounge for discussions

Conference Calendar

DATE	CONFERENCE	PLACE	CONTACT
1989			
Apr. 11-13	1989 International Reliability Physics Symposium	Phoenix, AZ	Alfred Tamburrino Member, Board of Director RADC/RBRP Griffiss AFB, NY 13441 (315) 330-2813
Apr. 12-13	Product Assurance Forum '89	Dover, NJ	Sid Markowitz Registration Chairman U.S. Army Picatinny Arsenal Building 62 Dover, NJ 07806-5000 (201) 724-2378
Apr. 27	27th Annual Spring Reliability Seminar	Framingham, MA	John Morgan Digital Equipment Corp. ML1-2/U2 146 Main St. Maynard, MA 01754
May 29 - Jun. 1	1989 16th International Reliability, Availability Maintainability Conference for the Electric Power Industry	Monterey, CA	Robert W. Filipovits General Vice Chairman Pennsylvania Power & Light P.O. Box 3328 Wescosville, PA 18106 (215) 398-5158
June 14-16	Reliability '89	Brighton, England	R. Campbell Reliability '89 National Centre of Systems Reliability UKAEA, Wigshaw Lane Culcheth, Warrington WA3 4NE England 0925-31244 X4243 Telex: 629301 Atomry G.
Aug. 21-25	Semiconductor Packaging, Testing and Reliability	Davos, Switzerland	Dr. Birgit E. Jacobson CEI-Europe P.O. Box 910 612 01 Finspang Tel: 0122-17 570 Telefax: 0122-143 47
Sept. 25-28	Autotestcon	Philadelphia, PA	Fred Liguori 38 Clubhouse Road Browns Mills, NJ 08015
Sept. 26-29	V International Conference on Performance Evaluation, Reliability and Exploitation of Computer Systems, Relcomex '89	Ksiaz Castle, Poland	Relomex '89 Institute of Engineering Cybernetics Wroclaw Technical Univ. Janiszewskiego Str. 11-17 50-372 Wroclaw, Poland Prof. Wojciech Zamojski (Tel. 21-26-77) Dr. Ireneusz Jozwiak (Tel. 20-28-23) Telex 0712254 PWR PL 0712559 PWR PL

Oct. 9-11	Reliability, Achievement—The Commercial Incentive	Stavanger, Norway	Terje Aven Statoil Box 300 4001 Stavanger, Norway +47-4-80 80 80 Telex: 73 600 Stast N Telefax: +47-4-80-98-89
1990			
Jan. 30 - Feb. 1	1990 Annual Reliability and Maintainability Symposium	Los Angeles, CA	V. R. Monshaw RCA Corporation Astro-Electronics P.O. Box 800 MS 55 Princeton, NJ 08540 (609) 426-2182
Mar. 26-29	1990 International Reliability Physics Symposium	New Orleans, LA	Alfred Tamburrino Member, Board of Director RADC/RBRP Griffiss AFB, NY 13441 (315) 330-2813
1991			
Jan. 29-31	Annual Reliability and Maintainability Symposium	Orlando, FL	V. R. Monshaw RCA, Astro-Electronics P.O. Box 800, MS 55 Princeton, NJ 08540 (609) 426-2182
Apr. 8-11	1991 International Reliability Physics Symposium	Las Vegas, NV	Alfred Tamburrino Member, Board of Director RADC/RBRP Griffiss AFB, NY 13441 (315) 330-2813
Sept. 24-26	1991 IEEE Autotestcon	Anaheim, CA	Robert C. Rassa Mantech Advance Systems International 150 S. Los Robles Ave. - Suite 350 Pasadena, CA 91101
1992			
Jan. 27-29	Annual Reliability and Maintainability Symposium	Las Vegas, NV	V. R. Monshaw RCA, Astro-Electronics P.O. Box 800, MS 55 Princeton, NJ 08540 (609) 426-2182
1993			
Jan. 26-28	Annual Reliability and Maintainability Symposium	Atlanta, GA	V. R. Monshaw RCA, Astro-Electronics P.O. Box 800, MS 55 Princeton, NJ 08540 (609) 426-2182

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Look no further. RELEX is the newest, easiest to use reliability prediction package available. RELEX was designed and developed to achieve one important goal: to produce a quality, user-friendly prediction package.

Take a look at just a few of RELEX's outstanding advantages and impressive features designed to meet your needs. Then contact Innovative Software Designs to step into the future with RELEX, the next generation in reliability prediction software. ■

Advanced Data Entry

RELEX has an unbeatable, flexible data entry system. RELEX not only introduces a new approach to data entry, but provides you with a choice of several input formats.

Using RELEX's data entry system, a list of all possible choices automatically pops up when data is needed. All you

Part Type	<input type="text"/>
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	Semiconductor
	Resistor
	Capacitor
	...

need to do is press a key to make a selection. Or, if you prefer, you can interface RELEX directly to your CAD or database application to input data. You can even create input files using your favorite word processor or editor. RELEX easily interfaces to standard word processing, database, and spreadsheet packages including dBASE, Lotus 1-2-3, Paradox, WordPerfect, Microsoft Excel and others.

Data entry is made even easier with several additional features. RELEX provides on-line context sensitive help, data validations, and default value assignments. Along with the ability to create your own parts databases, RELEX includes an extensive dictionary of standard parts. Function key operations allow you to quickly scan parts in your database, search for similar part numbers, duplicate part data, edit data, and more. ■

Unique Calculations and Report Generation

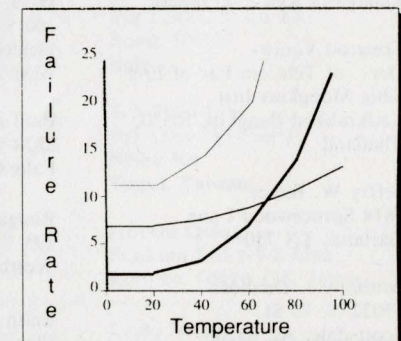
Calculations are fast and accurate. You can compute failure rate, MTBF, and mission reliability. You can easily run trade studies, perform system modeling, make global changes, and check derating limits. You can even get an *instant pi factor* display as you are entering data!

Outstanding Features of RELEX

- User-Friendly and Easy to Use
- Various Data Entry Formats
- CAD and Database Interfaces
- On-line Context Sensitive Help
- Extensive Parts Database
- Instant Pi Factors
- User Definable Reports
- Graphical Capabilities
- ISD Quality
- And much, much more ...

MIL-HDBK-217E Pi Factors	
Part Number :	54LS00
Pi e :	9.00000
Pi l :	1.00000
Pi q :	2.00000
Pi t :	0.10131
Pi v :	1.00000
C1 :	0.01000
C2 :	0.00366
Failure Rate :	0.067845

Outputting with RELEX has been advanced to new levels. You can design your own report format, or use supplied formats. You can preview your report, sort your output, and set up your printer. You can even graph failure rate versus temperature. ■



The Quality Commitment

With RELEX, we have produced a reliability prediction package which achieves the high quality standards we have at ISD. You will be amazed at how easy RELEX is to understand. You will appreciate how fast you can learn to use the package. And you will be most impressed with RELEX's flexibility and features. Contact Innovative Software Designs to learn more. ■



Innovative Software Designs, Inc.

One Kimball Ridge Court ■ Baltimore, MD 21228

(301) 747-8543

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New Members

The Reliability Society would like to welcome the following new members:

Hubert C. Daugherty 827 St. Francis Houston, TX 77079	Adriano De Acutis Viale Manzoni 13 00185 Roma, Italy	Steven Mahon 2503 S. Cottage Grove Urbana, IL 61801	Ralford O. Shipley 464 Palmetto Dr. Sunnyvale, CA 94086
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Tech Ops Committee Reports

Systems Screening Committee: William E. Wallace, Jr.
Chairman

Bill's report is attached in which he has reviewed the draft of NAVMAT P-9492. I commend reading his report but the gist is his disappointment in the lack of specific recommendations on how to carry out such a program (test levels, etc.), and some technical disagreements. Bill has done a lot of work and I thank him. Inputs from others are still encouraged.

Nuclear Reliability Committee: David J. Campbell,
Chairman

At the last ADCOM meeting, Dave presented a desire to create a probability Risk Assessment (PRA) procedures guide. He has contacted his peers and finds not much interest. Therefore, the plan will be set aside. In the meantime, the NRC has issued a general letter requiring all nuclear facilities to produce a PRA. Some guidelines are included. Dave feels that these are inadequate and is now considering a symposium on PRA procedures.

Human Performance Reliability Committee: Ken LaSala,
Chairman

Working with others, he anticipates that a letter of inquiry will be released in February, asking industry and government, what work is being done to estimate Human Performance Reliability, what models and techniques are being used?

Mechanical Reliability Committee: Richard Doyle,
Chairman

Dick is now gathering committee members for his effort to determine the Mechanical Reliability of Electrical Systems. His roster of members is attached. I am enthusiastic about this effort since I believe it is an arena that needs attention.

Energy Systems Reliability Committee: Dr. Chanan Singh,
Chairman

Dr. Chanan is in contact with Dr. Thad Regulinski regarding a special issue on power system reliability.

1988 Software Reliability Technical Committee Report

Irv Doshay, Chairman

It is beginning to appear that Software Reliability is finally coming of age to join the actual practice of Hardware Reliability in the form of Combined Hardware/Software Reliability Analysis and Control Techniques. RADC is currently funding a project which has as its objective the preparation of a manual of practical techniques that would cover the entire realm of necessary tasks. A book by Musa, Iannino, and Okumoto was published by McGraw-Hill on Software Reliability Measurement, Prediction and Application and it is currently being reviewed by the undersigned. Preliminary findings are that it is well supported by detailed mathematical formulii, along with support data and or derivation. However, the most useful facet of the text is likely to be the simple examples that abound in every chapter.

The IEEE Standard, P982 on Software Reliability has finally received the blessing of "all the gods" and in the process of the Institute's preparation for release in March (this year). However, draft copies are still available from the Institute. (345 E. 47th St., New York, NY 10017)

Much activity is underway by the EIA, and is covered by Myron Lipow, who is our key advocate working with the EIA Government Committees (G33, 34, and 41). His report is attached below. Of special note is the expectancy of a revised MIL-STD-785 to include Software Reliability. It is also noted that MIL-STD-882B has been updated with a Notice 1, that included extensive additions covering Software Safety (which are basically outgrowths of the seriousness of software reliability).

Report on Software Reliability Activity, 1988

January 1988

At the EIA G-34 (Computer Resources Committee) meeting, January 19-20, in Washington, DC, the continuation of MIL-STD-785 B upgrade activity was planned. This was a joint meeting of the G-34 Software Reliability Subcommittee of G-34 and the chairman (E. Godin) of the G-41 Reliability Committee. This meeting followed a detailed review of MIL-STD-785B in November, 1987 at the Savannah EIA G-33/G-34 Workshop, whose report was prepared and issued in early 1988.

June 1988

At the June 21, 22 meeting of the G-34 Committee in Washington, the Software Reliability Subcommittee met, along with the chairman and members of G-41 to discuss unresolved issues on MIL-STD-785B. On 23 June, assignments to draft the changes to the MIL-STD-785B tasks were accepted by attendees and their associates.

September 1988

At the annual workshop of the G-33/G34 Committees in Minneapolis, September 26-29, the edited draft changes were brought to the meeting of Sub-Panel 2A (of the Software Quality Panel), which consisted primarily of G-34 and

G-41 members, and final versions of the changes to MIL-STD-785B to be proposed were agreed upon. Highlights of the panel discussions were:

- 1) Review of new material on software sneak analysis, submitted by Charles Carpenter of Mitre Corporation.
- 2) New material was incorporated into the Parts Program (Task 207) which involves reusable software components, a keystone of the DoD STARS Program, and one of the major efforts of the Software Productivity Consortium.
- 3) A resolution for further cooperation between the G-41 and G-34 committees to follow up the proposed changes to the MIL-STD-785B to be submitted through the EIA to the Office of Primary Responsibility of the MIL-STD, as well as to work on software reliability technology applications.

The final report of SubPanel 2A was submitted to the Workshop Chairman in December 1988, and contains all the details of the proposed changes to MIL-STD-785B.

Myron Lipow
9 January, 1989

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Maintainability Committee Report

The maintainability committee is a part of the technical operating segment of the Reliability Society of the IEEE. It is responsible for matters associated with the disciplines of maintainability and testability engineering as they relate to electrical and mechanical design. The purpose of the committee is to provide a focal point for the dissemination of discipline related activities. It shall function to provide traditional maintainability/testability coverage and keep the membership of the society abreast of new initiatives and advances in the state of the art. Initiatives such as Modular Avionics Systems Architecture (MASA), R&M 2000, Avionics Integrity Program (AVIP), etc. will be included in committee operations to the extent that is required to provide adequate coverage. The recent emphasis on Computer Aided Acquisition and Logistic Support (CALs) and "Concurrent" engineering will be tracked to assure that coordination and linkages to the maintainability area are actively reviewed and, as applicable, presented to the society membership.

There are several objectives that will be pursued for 1989 that hopefully will broaden and strengthen the coverage of maintainability within the society. Initially it will be of utmost importance to recruit interested IEEE members to

assist and participate in committee functions. This participation will be managed to minimize the time burden on committee members and supporters. It is desired that a cadre of professionals that work these specialty areas be assembled to form a core group. This group will be responsible for the promotion of the committees objectives and the expansion of maintainability activities within the society. In addition, it is expected that interfaced with other professional/industrial organizations will be established to provide for the exchange of information and activities pertinent to this committee. Another action that will facilitate meeting these objectives will be the establishment of a unique newsletter column. The planning for this has begun and will hopefully satisfy the appetite of those looking for information about this field. Those IEEE members that are interested in this committee or who would like to contribute information are asked to contact the chairman.

Mr. J. A. Gruessing, Chairman
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Maintainability/Testability Affairs

IDSS CAD Tool Development

A recent article in the ATE Newsletter (October 88') provided insight into the Navy's IDSS Program. This program will provide a new approach to diagnostic development placing most emphasis on the application of CAD tools to the process. The program known as the Integrated Diagnostic Support System is being developed to utilize two CAD tools to support both hardware and software design while additional interfacing tools complement associate maintenance function development. Two of the tools will be available about mid-year for "Beta" site testing with distribution to interested contracting design facilities. The software is written in the ADA programming language and can be hosted on workstations using UNIX or VMS operating systems.

These tools will be made available at no cost to contractor representatives. The CAD programs that will be available are the Weapon System Testability Analysis (WSTA) and the Adaptive Diagnostic Authoring (ADA) tools. The WSTA will be capable of generating optimum test strategy in terms of test time and cost. It will use digital and analog topology coupled with logistics support analysis data as tool inputs to produce maintainability and testability figures of merit. The ADA tool will develop the diagnostic software program through the validation of WSTA test strategy, IDSS data base information, and integration of production rules. The article indicated that additional information could be obtained from Jim Cigler (202) 692-0170.

Transactions Changes

The recent changes in the structure of the *Transactions'* editorial functions have been followed by an increase in the number of Associate Editors. This increase allows the Associate Editors to focus on papers closely related to their specialty areas. It also requires a new mechanism for distributing manuscripts among the Associate Editors. The implementing procedures are:

- 1) ALL manuscripts are to be sent to the Managing Editor
Dr. Ralph A. Evans
IEEE Transactions on Reliability
804 Vickers Avenue
Durham, NC 27701 USA

in accordance with the instructions for *Submission of Manuscripts* in "Information for Readers & Authors" at the rear of each issue of the *Transactions*. (This does not apply to manuscripts for Special Issues.)

2. The Managing Editor will acknowledge the submittal, send a special yellow IEEE Copyright Form to the author, and forward the manuscript to the editor (as Associate Editor or the Editor) who will handle the refereeing/acceptance process in its entirety.

3. All further correspondence about the manuscript will be with that editor, until (and if) the manuscript is to be published. The author will receive appropriate instructions at that time.

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- AVAILABILITY ANALYSIS OF SYSTEMS WITH PARTIALLY OBSERVABLE FAILURES.
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Note: a \$25 rebate will be provided to non-members that join the IEEE within a reasonable time.

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