



WELCOME

The ASQ Reliability Division is the largest group in the world promoting reliability training and education.

This newsletter covers professional development opportunities, plus division activities, information and news.

Chair's Note



David Auda

Chair, Reliability Division of ASQ

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Dear Friends,

We still need volunteers. Join us and help us make history!! You will be working in a diverse organization with challenging initiatives that will allow individuals to further develop and refine their leadership skills. Whatever your experience level, send a short introduction paragraph along with your resume to me at chair@asqrd.org.

Reliability Division Awards

The 2nd annual Quality Engineering Best Reliability Paper goes to the authors of the paper, “[Experiments for Reliability Achievement](#).” The paper appears in Quality Engineering, volume 25, issue 1, pp 54-72.

The authors are: Steven E. Rigdon, Brandon R. Englert, Isaac A. Lawson, Connie M. Borrer, Douglas C. Montgomery, and Rong Pan.

The best paper review team had considerable high marks and agreement for the paper being well written and useful to a practitioner. The authors will receive a cash award of \$1000 to be split among them. Congratulations to the authors! A formal announcement will be made with a plaque presentation at the annual ASQ Reliability Division banquet dinner to be held on Tuesday,

January 28, in conjunction with the RAMS conference to be held in Colorado Springs, CO.



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Announcements

The Reliability Calendar

Find a wide array of seminars, conferences, classes, webinars and more for your professional development from as many sources around the world as we can find. Visit www.reliabilitycalendar.com

ASQ RD LinkedIn Group

There is an ASQ RD Group within LinkedIn. Another forum to network, stay in touch and engage in professional discussions with your peers. Click here to link in.

ASQ RD webinars

Recorded webinars on topics relevant to reliability engineers delivered by subject matter experts. Visit <http://asq.org/reliability/quality-information/webinars-reliability.html>

Division Budget Update

ACCOUNT	DESCRIPTION	2013 Budget	2013 7/31/2013
	REVENUE		
4000	Dues	\$25,000	\$16,429
4100	Retail Sales	\$500	\$276
4200	Advertising	\$4,000	\$2,835
4300	Registrations	\$10,000	\$16,791
4870	Interest	\$200	\$192
4872	Dividends	\$600	
4990	Miscellaneous		
	TOTAL REVENUE	\$40,300	\$36,523
	EXPENSES		
5100	Printing & Production	800	351
5280	Promotional	500	0
5400	Postage & Shipping	1000	203
5500	Contract &	800	424
5573	Advertising	200	726
5675	Equipment Rentals	300	347
5800	Meetings & Banquets	6000	6196
5900	Travel	30500	14061
6000	Supplies	100	197
6100	Telephone/Web	1000	5943
6200	Partner Payment	3500	3500
6310	Awards & Gifts	1700	106
6328	Donations/Scholarship	0	0
6390	Other	2500	0
	TOTAL EXPENSES	\$48,900	\$32,054
	NET INCOME/(LOSS)	(\$8,600)	\$4,469

ASQ Reliability Division

Financial Summary for July 2013

The Division is in very good shape financially as of the end of July. The Annual Reliability and Maintainability Symposium (RAMS®) in January returned over \$10,000 to us and the Design for Experiments Workshop conducted by our Chair Elect, Trevor Chaney, returned \$1700 to us. We are using these earnings to fund our webinars and the development of a new ASQRD.ORG website (website development expenses are reflected in account 6100). Overall year to date our income has exceeded our expenses by \$4,500.

Update provided by RD Treasurer

Alfred Stevens.



Latest from OPS ALA Carte:

Ops is Teaching the CRE Prep Class.

We have been teaching this course for 15 years. It is being offered on-line via web conference. So whether you are trying to prepare for and pass the ASQ CRE exam or you just want a better understanding of reliability principles, this course is right for you. Just missed it in August, but See

http://www.opsalacarte.com/Pages/education/edu_9cre.htm for details and future offerings.

Also, check out our

New RELIAPEDIA website – Most complete library of technical articles and videos on reliability, completely searchable, comes with help desk for quick answers.



Professional Reliability Consulting, Testing, and Training Services

We provide *customized solutions* to optimize your product reliability.

- Assessments
- Goals
- Benchmarking
- Reliability Program Plans
- MTBF Pred
- FMECA
- EOL Assessment
- Warranty Analysis
- HALT/HASS
- ALTs
- Rel Demo Tests
- Software Reliability
- RCA
- DOE
- Training/Teaching
- RoHS/WEEE Transition



We own

one of the oldest & most experienced reliability labs

We Provide Confidence in Reliability!

Ph: (408) 654-0499 <> info@opsalacarte.com <> www.opsalacarte.com >

Introducing the Version 9 Family of Products Built on

THE SYNTHESIS PLATFORM®



ReliaSoft's long-awaited Version 9 release upgrades 12 powerful reliability engineering tools and integrates these applications into the revolutionary new Synthesis Platform. Created with your business needs in mind, the Synthesis Platform's intelligent integration between reliability program activities and tools will help maximize efficiency and effectiveness for your organization. Implementing any or all of the Version 9 applications will help enable you to experience time savings, increased agility and reductions in both time-to-market and cost, while maximizing your achieved reliability and associated return on investment.

New in this Version:



Intelligent integration between reliability engineering activities and applications through ReliaSoft's Object Based Reliability Modeling approach.

Enterprise ready allowing multiple users throughout the organization to share analysis information between all of ReliaSoft's Synthesis-enabled tools as well as advanced support for simultaneous users.

New analysis tools expand the capabilities of the applications that you have come to rely on over the past 20 years.

Completely updated user interface for each Synthesis Element.

Learn more about the Synthesis Platform at Synthesis.Reliasoft.com

See the Synthesis Platform in Action at a City Near You!

Spend a day with ReliaSoft's CEO Pantelis Vassiliou, a world-renowned expert in reliability engineering, to get an exclusive inside look at a new continuous self-improving Design for Reliability (DFR) process that transforms how we approach reliability engineering, as well as the groundbreaking new Synthesis Platform that simplifies and manages the process. There is no fee for this seminar. For more information or to register for this event, visit <http://www.reliability3.com>

ReliaSoft®

SOFTWARE TOOLS, EDUCATION AND CONSULTING TO EMPOWER THE RELIABILITY PROFESSIONAL

ReliaSoft Corporation is the global leader in reliability engineering software, training and services that combine the latest theoretical advances with essential tools for the practitioner in the field. We are dedicated to meeting the reliability, quality and maintenance planning needs of product manufacturers and equipment operators worldwide.



SOFTWARE TOOLS

Acclaimed for their ease of use, analytical power and unparalleled technical support, ReliaSoft's software tools facilitate a comprehensive set of reliability-related analysis techniques. The new **Synthesis Platform®** facilitates intelligent integration between analysis tools.

THE SYNTHESIS PLATFORM INTEGRATION TO EMPOWER THE RELIABILITY ORGANIZATION

 **WEIBULL++**
Life data analysis

 **BLOCKSIM**
System analysis using block diagrams or fault trees

 **ALTA**
Accelerated life testing data analysis

 **XFMEA**
FMEA/FMECA and related analyses

 **DOE++**
Experiment design and analysis

 **RCM++**
Reliability centered maintenance analysis

 **RGA**
Reliability growth analysis

 **RENO**
Visual stochastic event simulation and risk analysis

 **λPREDICT**
Standards based reliability prediction

 **XFRACAS**
FRACA/FRACAS activities

 **MPC**
MSG-3 aircraft systems and powerplant analysis

 **Orion eAPI**
Web-based asset performance management

 **RBI**
Risk Based Inspection



EDUCATION

ReliaSoft offers an extensive curriculum of reliability training courses that provide thorough coverage of the underlying principles and theory as well as the applicable software tools. The complete course list and calendar of upcoming public seminars are published on the web.



CONSULTING

ReliaSoft's expert reliability consulting services team offers a uniquely powerful combination of industry insight, unparalleled subject mastery and, most important of all, direct access to all of ReliaSoft's global resources, expertise and contacts.

<http://www.reliasoft.com>



IEEE



Reliability
Division

2013 Workshop on Accelerated Stress Testing & Reliability

Theme: Accelerating Reliability into the 21st Century

October 9 - 11, 2013
San Diego, California

The challenge of managing Reliability in a dynamic global market is increasing. ASTR 2013 will provide a forum to exchange knowledge and share ideas that address industry endeavors to limit field failures of products and to revisit existing qualification procedures. The focus will be on improving strategies to screen defects and weaknesses in electronic, electro-mechanical, and structural systems while reconciling high product Quality and Reliability with low product development cost and time to market. The program will feature industry leading keynote speakers and selected presentations.

Workshop [Registration](#) is now open!

Hotel information and discount [registration](#) is available!

Workshops include:

1. Accelerated Life Test (Not HALT but ALT), Mike Silverman , Ops A La Carte
2. Quantitative Accelerated Life Testing: Data Analysis and Test Design, Harry Guo, Reli-
asoft
3. Accelerated Simulation of Thermal and Mechanical Reliability of Electronic Devices and
Circuits,
Alexander Shalumov
4. Chi-Squared Accelerated Reliability Growth (CARG) Model, Alec Feinberg
5. Reliability Analysis and Testing of Medical Devices, Andrew Serrian, Minnetronix
6. Lithium Battery Analysis: Probability of Failure Assessment Using Logistic Regression,

1st day tutorials:

- “Reliability vs Robust Design”
- “40 Years of HALT - What Have We Learned? “
- “Prognostics”
- “Reliability Growth Testing “

Regional Councilors– who they are, what they do

Needed:

USA Reliability Division Regional Councilors

The regional councilors support the Reliability Division mission and the ASQ strategic plan objectives, showing evidence of this activity in a measurable manner.

We are actively seeking individuals who are willing to energetically promote the practice of the reliability toolset, bring greater awareness of the benefits of the practice to the community at large, and increase the capability of the division. This is a leadership position, requiring competencies in communications, tactical planning, interpersonal skills and refinement of influential leadership skills. Contact Dan Burrows (d1c1b1@hotmail.com) or Dave Auda (davidauda@yahoo.com)



US and Canada Regional Councilor Geographical Breakdown

Regional Councilors

USA

Region 1 - Mohammed Pourgol-Mohammad

Region 2 - *Open*

Region 3 - *Open*

Region 4 - *Open*

Region 5 - Deniz Eroglu

Region 6 - *Open*

Region 7 - *Open*

Region 8 - *Open*

Region 9 - *Open*

Region 10 - Guangbin Yang

Region 11 - Jason Overstreet

Region 12 - Dan Burrows, (Jim McLinn, Co-Councilor)

Region 13 - Mitchell Rausch , *Need co-councilor*

Region 14 - *Open*

Region 15 - *Open*

Canada – *Open*

Interested in Being an International Regional Councilor for ASQ-RD?

Same requirements as North America Regional Councilors:

- willing to energetically promote the practice of the reliability toolset,
- bring greater awareness of the benefits of the practice to the community at large
- increase the capability of the division.

This is a leadership position, requiring competencies in communications, tactical planning, interpersonal skills and refinement of influential leadership skills.

Contact Ernesto Primera

Ernesto.primera@gmail.com

International Regional Councilors

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CALL FOR PAPERS

\$1000 Annual Award for Best RELIABILITY Paper

Quality Engineering is a technical journal of ASQ published by Taylor & Francis. It is directed to professionals in all engineering and management fields interested in quality improvement and reliability.

Continuing with the ASQ Reliability Division's mission to publish more technical papers on reliability, a special edition is planned to be published in April, 2015. Papers in this issue will still be eligible for the ongoing \$1000 annual award for the best Reliability focused paper published in Quality Engineering.

All submitted papers will be reviewed on an accelerated basis to allow for rapid feedback to authors to meet the timeline needed for publication. Papers should be focused on reliability and can be an applied paper, a theoretical topic or a case study.

All papers submitted for this effort should clearly state in the submission letter by adding "RELIABILITY SPECIAL ISSUE" in the cover letter. Additionally, authors can send a message directly to the Guest Editor, Trevor Craney at Trevor.A.Craney@shell.com, to alert him that they have submitted the paper for this special issue.

Deadline for paper submission: May 16, 2014.

To be eligible for the best paper award, at least one of the authors for a paper must be a member of the ASQ Reliability Division when their paper is published.

Reliability Division Webinar Series

Reliability division offers free Webinars in English, Spanish, and Chinese featuring leading international practitioners, academicians, and consultants. Enhance your reliability knowledge. For more information, click here: <http://reliabilitycalendar.org/webinars/>

The ASQ Reliability Division Webinar Series remains popular. Since the Webinar and Short Course programs were first offered in November 2010, the Reliability Division has provided 93 webinars providing nearly 8700 hours of professional development to its members at no cost. The most recent topics included webinars on:

[“Introduction to Vibration Qualification Testing”](#)

[“Planning an Effective Reliability Demonstration Test”](#)

[“Cost-Optimized of Reliability Test with Bayesian Methods”](#)

[“Field Data Analysis & Statistical Warranty Forecasting”](#)

[“Comparing Individual Reliability to Population Reliability for Aging Systems”](#)

[“Parametric Reliability Analysis”](#)

In addition, to date we have provided Recertification Units RU's to over 4500 individuals. If you would like to suggest a topic or volunteer to present a webinar, please contact Fred Schenkelberg webinars@asqrd.org or Dave Auda at chair@asqrd.org. Recordings of previous webinars are available to Reliability Division members on the ASQ Reliability

Reverend Thomas Bayes died in 1761. On his death bed he gave his friend, Richard Price, an unpublished paper, and requested it not be published, but several years later Richard published the paper anyway. The paper produced a branch of statistics based on the Bayes theorem; and subsequently used by Reliability Engineers. The Bayesians that follow this school are considered to be the “wild-eyed” radicals of statistics. What was so controversial about the theorem? Bayes suggested we convolute our personal opinion, the “prior distribution,” with the likelihood function to obtain the “posterior distribution,” that engineers would call the “results.” This process is “fudging” the answer and is repugnant to most engineers. However, when engineers have little or no information or data, they often rely on “engineering judgment” which I equate to prior opinion. (paraphrased from Bob Abernethy's “The New Weibull Handbook”)

Webinar Outreach

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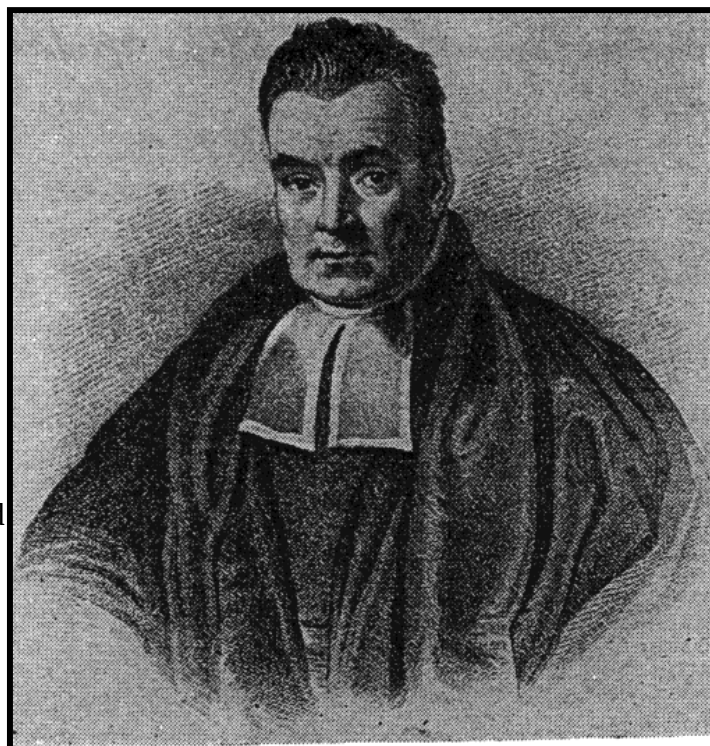
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Speaker Manager

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REV. T. BAYES

Other Information

When is the next Reliability Certification exam?

The ASQ certification exam dates (by type of certification) is at :

<http://prdweb.asq.org/certification/control/dates>

Current CRE statistics:

There are currently 2,709 people holding CRE certification, 1249 of the CRE's are in the U.S. For calendar year 2012 there were 302 newly certified CRE's.

Local ASQ Sections and international organizations host exams all over the world. You will be asked to designate a preferred examination site on your application. If you are not a member of ASQ, please [find the Section that is closest to your location](#). If you live in a country other than the United States, Canada or Mexico, international certification affiliates administer certification exams. [Find an international certification exam location](#). ASQ will make every effort to accommodate your request. ASQ offers some [translated certification exams](#).

Volunteer Opportunities for CRE Exam Review:

As a workshop participant for the CRE exam you will assist the team in preparing the next CRE exam and you will receive 2 RUs towards recertification. Some pre-work is required and participants must sign a nondisclosure agreement which limits CRE exam preparation training for a period of two years. ASQ refunds travel expenses for the workshop.

Reliability Training Material:

Slides from Quanterion Solutions Inc Lunchtime Learning series. Topics include Reliability distributions, Weibull analysis, FMEA, DOE. Slides available at: <http://quanterion.com/Training/LunchtimeLearning/index.asp>

Upcoming Reliability Events

Click on Reliability Calendar for a current calendar:

<http://reliabilitycalendar.org/>

RAMS 2014:

The 60th Annual Reliability & Maintainability Symposium (RAMS®) will be held at [The Broadmoor](#) in Colorado Springs, Colorado on **January 27 - 30, 2014.**

<http://www.rams.org/>

LINKS

The LinkedIn groups Reliability Calendar

<http://www.linkedin.com/e/-mpj7v-gq000w4o-54/vgh/3997941/>

Tech Briefs

<http://www.linkedin.com/groups?about=&gid=3994573>

ASQ Reliability Division(1500+ members on LinkedIn)

<http://www.linkedin.com/groups?about=&gid=1875217>

William Sealy Gosset, alias "Student," was an immensely talented scientist of diverse interests, but he will be remembered primarily for his contributions to the development of modern statistics. Born in Canterbury in 1876, he was educated at Winchester and New College, Oxford, where he studied chemistry and mathematics. At the turn of the 19th century, Arthur Guinness, Son & Co. became interested in hiring scientists to analyze data concerned with various aspects of its brewing process. Gosset was to be one of the first of these scientists, and so it was that in 1899 he moved to Dublin to take up a job as a brewer at St. James' Gate. In 1935 he left Dublin to become head brewer at the new Guinness Park Royal brewery in London, but he died soon thereafter at the young age of 61 in 1937. After initially finding his feet at the brewery in Dublin, Gosset wrote a report for Guinness in 1904 called "The Application of the Law of Error to Work of the Brewery." The report emphasized the importance of probability theory in setting an exact value on the results of brewery experiments, many of which were probable but not certain. Most of the report was the classic theory of errors (Airy and Merriman) being applied to brewery analysis, but it also showed signs of a curious mind at work exploring new statistical horizons. The report concluded that a mathematician should be consulted about special problems with small samples in the brewery. Taken from: Philip J. Boland (1984): "A Biographical Glimpse of William Sealy Gosset", *The American Statistician*, 38:3, 179-183.

2014



The Annual Reliability and Maintainability Symposium ([RAMS® 2014](#)) will be held **January 27-30, 2014** at the Broadmoor Hotel in Colorado Springs, Colorado.

The theme of the Symposium is **ENGINEERING CUSTOMER TRUST**

Program Highlights:

Our 2014 program promises to be technically diverse and rich in skill enhancement, providing the latest innovations, solutions and lessons learned from leading R&M professionals.

The program will include 4 tracks: 2 are dedicated to the tutorials program and 2 are dedicated to paper sessions. There will be 5 core tutorials, 17 elective tutorials, and 24 paper sessions. In addition to the Advisory Board panel, we have 3 other panel sessions. RAMS will also have a poster session which offers a great opportunity for discussions with the authors.

For program details, see the [Preliminary Program Matrix](#).

More information is just a click away on our website, including the [General Chair's message](#),

Our Keynote Speaker will be Rear Admiral Thomas H. "Hank" Bond, Jr., Director of Command and Control Systems (J6) for NORAD / USNORTHCOM, headquartered in Colorado Springs.

Our Banquet Speaker will be Mr. Mark Sirangelo, Corporate Vice president and Head of Sierra Nevada Corporation's (SNC) Space Systems.

Special Arrangements for Attendees & Guests:

Information about the special arrangements being made for tours, transportation, and a spouse hospitality program will be posted on our website soon. We encourage you to attend RAMS® with your family, spouse, or significant other and enjoy the beautiful Colorado Springs attractions while gaining and sharing knowledge.

(Interested in skiing right after the conference? Identify your interest in a weekend ski trip when registering.)

Advance Registration:

Take advantage of early bird rates and [click here](#) to register for RAMS® 2014. We look forward to seeing you in Colorado Springs at RAMS® 2014!

Click for [Advance Flyer](#)

ASQ Learning Institute™ Fall Training

The ASQ Learning Institute™ provides you with career enhancing training to help you make an impact in your career and your organization. Take advantage of member pricing, and register for one of these upcoming courses. To register, [click here](#) or call [800-248-1946](tel:800-248-1946) and provide promo code **MFGEM**.

Virtual (online, instructor-led) Courses:

[Risk Management for Medical Device](#)

[Meeting FSSC 22000 Requirements Using ISO 22000](#)

Classroom (instructor-led) Courses:

[AS9100:2009 Lead Auditor Training \(Rev. C\) \(RABQSA Certified\)](#)

[Certified Biomedical Auditor Certification Preparation](#)

[Internal Auditor Training for AS9100](#) and [ISO 13485 Lead Auditor Training \(RABQSA Certified\)](#)

Many of our courses also count toward [recertification units \(RUs\)](#)!

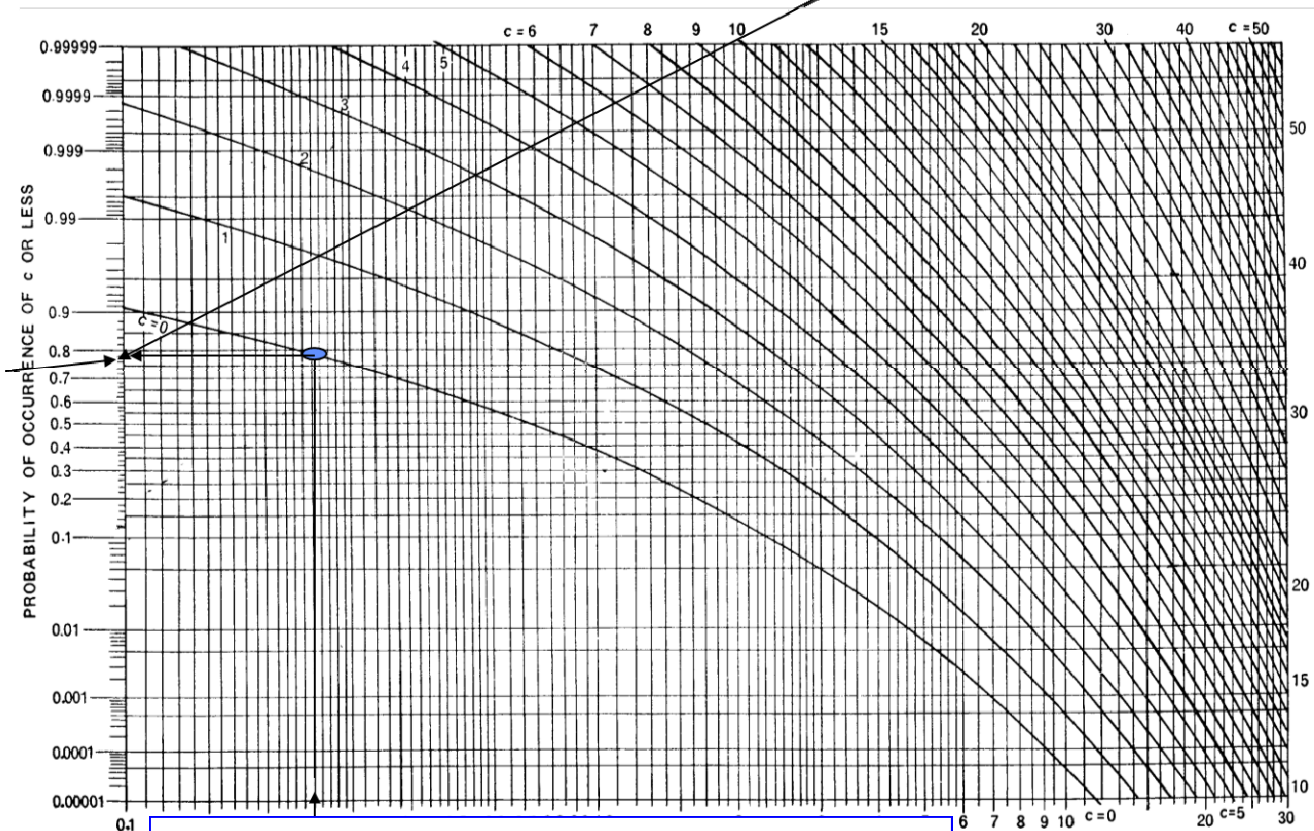
ASQ On-site Training - Wherever, Whenever

If your organization is looking to train a group of 5 or more, let us bring our training to you with ASQ On-site Training. All courses can be customized to meet your needs. To learn more, visit asq.org/on-site-training.

For those who teach Reliability: An old Nomograph that can save Risk Analysts and Reliability Engineers a lot of time: “Cumulative Sums of the Poisson” - affectionately called the “Thorndike Chart.”

If you ever had to explain to a customer that the expected number of “catastrophic” events over the next (say) 10 years is a small fraction < 1 ..(say 0.26 events).. Using the Thorndike chart you can see that using $\mu=0.26$, the Probability of seeing 1 (or more) events over the same time period is 0.24. Much easier to explain to a customer than 0.26 “expected” events!!

The probability of having 1 or more is $1-0.76=0.24$



$\mu = Np = \text{Expected value} = 0.26$ (from your risk analysis)

Excerpt #2 from “A History of Reliability” by Jim McLinn

In the 1920's designers were still responsible for reliability while repair people took care of the field failures. There wasn't much planned proactive prevention or economic justification for preventing field failures throughout the 1920s and 30s, F.W. Taylor worked on ways to make products more consistent and the manufacturing process more efficient. He was the first to separate the engineering from management and the control function [21]. Charles Lindberg required that the 9 cylinder air cooled engine for his 1927 transatlantic flight be capable of 40 continuous hours of operation without maintenance [22]. Much individual progress was made into the 1930s in a few specific industries, but this was not a manufacturing trend and was not driven by public demand. Quality and process measures were still in their infancy, but slowly growing. The next decades would see scientific lot sample sizes created, sampling for continuous inspection and measures of conformance. Walodde Weibull was already working in Sweden during this period and investigated the fatigue of materials. This process was driven by the desire to create more robust designs. He eventually discovered a recurrent model and then created a distribution to describe it. We now call this distribution Weibull [1], but the modern format is different from what he used in the 1930s. During the 1930s as a response to observing time to failure distributions or material strength, Weibull evolved the applications and uses of the distribution. In the 1930s, Rosen and Rammler were also investigating a similar distribution to describe the fineness of powdered coal [16] which was another application for either quality or reliability applications

By the 1940s, reliability and reliability engineering still did not exist as a formal structured approach to quality improvement or ensuring the longevity of products. World War II introduced many new electronics and mechanical products into the military in a short time. These ranged from electronic switches, proximity fuses, vacuum tube portable radios, radar and electronic detonators. Electronic tube computers were even started near the end of the war, but did not come into completion until several years after the war. Not long after the U.S. got into the war, it was discovered that over 50% of the airborne electronics equipment in storage was unable to meet the requirements of the Army Air Core and/or the Navy [1, page 3] when called upon to be used in combat. This would or could greatly impact the U.S. troop's ability to function. Studies were done on a one time or incident basis during the war. Systematic approaches were not considered in that era.

William Sealy Gosset, alias "Student," was an immensely talented scientist of diverse interests, but he will be remembered primarily for his contributions to the development of modern statistics. Born in Canterbury in 1876, he was educated at Winchester and New College, Oxford, where he studied chemistry and mathematics. At the turn of the 19th century, Arthur Guinness, Son & Co. became interested in hiring scientists to analyze data concerned with various aspects of its brewing process. Gosset was to be one of the first of these scientists, and so it was that in 1899 he moved to Dublin to take up a job as a brewer at St. James' Gate. In 1935 he left Dublin to become head brewer at the new Guinness Park Royal brewery in London, but he died soon thereafter at the young age of 61 in 1937. After initially finding his feet at the brewery in Dublin, Gosset wrote a report for Guinness in 1904 called "The Application of the Law of Error to Work of the Brewery." The report emphasized the importance of probability theory in setting an exact value on the results of brewery experiments, many of which were probable but not certain. Most of the report was the classic theory of errors (Airy and Merriman) being applied to brewery analysis, but it also showed signs of a curious mind at work exploring new statistical horizons. The report concluded that a mathematician should be consulted about special problems with small samples in the brewery. Taken from: Philip J. Boland (1984): "A Biographical Glimpse of William Sealy Gosset", *The American Statistician*, 38:3, 179-183.

Are you interested in volunteering? Would you like to develop your leadership and team work skills, in a team where you can make a difference?

ASQ Reliability Division leadership team is looking for a secretarial co-chair and treasurer co-chair to join us. Responsibilities include documentation and communication within the division, with the members and with ASQ Global. You will find the requirements for the position in this document

<http://asq.org/member-leader-community/positions/division-secretary/details/index.html>

<http://asq.org/member-leader-community/positions/division-treasurer/details/index.html>

If you are interested, please send your details to chair@asqrd.org.

Division Store

Mechanical Design Reliability - by James A. McLinn, CRE & Fellow, ASQ

Mechanical design reliability has been a sparsely covered topic. This monograph is instructive for practical engineers desiring to understand and test materials and mechanical systems. It addresses the concepts of stress, strain, tension, shear and material fatigue. Elastic limits and plastic deformation is modeled as well as creep situations. Accelerated life, Miner's rule and non-normal material strength and variable load distributions are modeled and illustrated in the 80 pages. Available at \$25.00 each, plus postage.

Practical Weibull Analysis - 5th edition by James A. McLinn, CRE & Fellow, ASQ

This monograph presents practical discussion and examples of essential Weibull topics. Most textbooks on this subject require extensive statistical background. This book was designed to be direct and to the point. In 75 pages it leads the reader quickly through the principles of Weibull analysis. The useful examples and Weibull graphs illustrate applications such as confidence calculations, non-straight lines on a Weibull plot, optimum replacement costs, maintainability, and analysis of accelerated life tests and multiple stress tests. Just \$30.00 each, plus postage.

Credible Reliability Prediction - by Laurence George, PhD., ASQ Fellow

This monograph extends MTBF prediction to predict the age-specific reliability of redundant, stand-by, complex, and life-limited systems. The method uses field reliability data and proportional hazards models. Data are from older, comparable products because product generations have similar reliability functions despite changes. Price is \$25.00 each, plus postage. Electronic version available.

Practical Accelerated Life Testing - by James A McLinn, CRE & Fellow ASQ

A 125 page book that simply and uniquely delineates the key steps and guidelines for setting-up and administering accelerated life tests. In eight sections it covers a brief history of accelerated methods, applications of the techniques, guidelines for test selecting test environments, common test methods, practical guidelines for test set-up, key parameters to monitor, sample size decisions, models for analysis and examples of analysis of difficult results. Important guidelines and pitfalls to avoid are given. Examples include multiple level tests and step-stress tests. Just \$30.00 each, plus postage.

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Payment by Credit Card or PayPal in US Dollars. Send orders to James McLinn at JMRel2@aol.com. You will be sent an invoice via PayPal and upon payment your order will be sent to you. You do not need a PayPal account.

Division Store (continued)

Develop Reliable Software at Low Life Cycle Cost: With Upgraded Software Reliability Engineering - by Norman F. Schneidewind, Ph.D. and related articles by Samuel J. Keene, Ph.D.

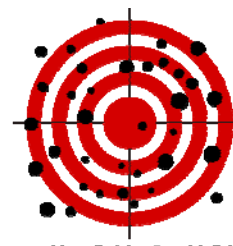
The contents of this monograph present for software engineers, reliability engineers and software quality specialists, and managers practical tools and methods which the authors have perfected and applied in a broad range of enterprises. They include strategy and tactics for improvement of the software engineering process, software reliability models, development of trustworthy code, and reliability assessment throughout the product life cycle. Price is \$25.00 each, plus postage.

Design For Reliability - by Xijin (Bill) Tian, Ph.D., with added chapters by Drs. L.L. George, S.J. Keene, plus T. Craney and J. McLinn

This new monograph contains the entire series of articles written by Dr. Tian plus much more! The authors clearly describe practical methods they employ in effectively ensuring that high reliability goals are achieved. They integrate reliability improvement practices and methods congruent with project design rules. The additional chapters present relevant material by Drs. Larry George and Sam Keene, plus input from Trevor Craney, and James McLinn. The contents offer a practical Benchmark of resource for reliability and maintainability engineers. Price is \$30.00 each, plus postage.

Homeland Security And Reliability Airport Model - by Norman F. Schneidewind, IEEE Congressional Fellow, IEEE Fellow, Professor Emeritus: Information Sciences, Naval Postgraduate School

Dr. Schneidewind's model presented in this monograph addresses the airport security problem. It facilitated his specific recommendations to the U.S. Congress for legislative or management action to close the security loopholes. Model quantitative results are used to delineate the implications for changes in security policy at the nation's airports. The work presents solutions which maybe extended to many other security settings. Price is \$20.00 each, plus postage.



Unreliable



Reliable

2014 ASQ-RD Leadership Positions

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ASQ-RD Mission

The mission of the Reliability Division is:

- * Provide a global forum for networking among practitioners of reliability engineering, management and related topics,
- * Facilitate growth and development of division members,
- * Promote reliability engineering principles and serve as a technical resource on reliability engineering for ASQ, standards agencies, industry, government, academia and related disciplines
- * Sponsor, present and promote reliability, maintainability, and related training materials for courses, symposia, and conferences.

Some Results from the ASQ-RD Survey

What ASQ Certification do you hold?

	Response Percent	Response Count
CRE	62.2%	150
CQE	32.0%	77
CQT	5.4%	13
CQI	3.3%	8
CSSGB	5.0%	12
CSSBB	12.0%	29
CMBB	0.8%	2
CSQE	3.3%	8
CQPA	0.8%	2
CQIA	1.7%	4
CQA	10.4%	25
CMQ/OE	12.4%	30
CCT	2.1%	5
CBA	1.2%	3
CHA	0.8%	2
CPGP	0.0%	0
Lean	0.0%	0
None	23.7%	57
answered question		241

Do you currently have a 6 Sigma Cert that was NOT obtained through ASQ?

	Response Percent	Response Count
Yes: Master Black Belt	5.0%	12
Yes: Black Belt	10.0%	24
Yes: Green Belt	13.7%	33
Yes: other Belt	3.7%	9
No	68.5%	165
answered question		241

What % of your job involves Reliability?

	Response Percent	Response Count
More than 50%	56.8%	137
Between 25% and 50%	22.4%	54
Less than 25%	20.7%	50
answered question		241

What is your Achieved Education Level?

	Response Percent	Response Count
Graduate degree (Doctorate or Masters degree)	60.2%	145
Bachelors degree	34.0%	82
Trade or Associate degree	5.0%	12
High School diploma	0.8%	2
None of the above	0.0%	0
answered question		241

How Many Years of Professional work experience do you have?

	Response Percent	Response Count
More than 20	58.5%	141
10 - 20 years	34.0%	82
Less than 10	7.5%	18
answered question		241

Which of the Following best describes your current position?

	Response Percent	Response Count
Individual Contributor	49.0%	118
Manager	29.0%	70
Executive	5.0%	12
Consultant	14.5%	35
Professor	2.5%	6
Student	0.0%	0
answered question		241

In your hiring, do you look for the CRE as a helpful or deciding factor?

	Response Percent	Response Count
Yes	75.9%	183
No	24.1%	58
answered question		241