



## Your new MQD officers for 2012 ~ 2013

(Left to right)

*Dilip Shah - Chair*

*Heather Wade - Chair elect*

*Chris Grachanen - Treasurer*

*Jay Bucher - Secretary*

## The Standard

Vol 25, No. 4, December 2011

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### Letters to the Editor

*The Standard* welcomes letters from members and subscribers. Letters should clearly state whether the author is expressing opinion or presenting facts with supporting information. Commendation, encouragement, constructive critique, suggestions, and alternative approaches are accepted. If the content is more than 200 words, we may delete portions to hold that limit. We reserve the right to edit letters and papers.

### Information for Authors

*The Standard* publishes papers on the quality of measurements and the measurement of quality at all levels ranging from relatively simple tutorial material to state-of-the-art. Papers published in *The Standard* are not referred in the usual sense, except to ascertain that facts are correctly stated and to assure that opinion and fact are clearly distinguished one from another. The Editor reserves the right to edit any paper. Please single space after sentences and use Times New Roman, 12 pt font.

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## FROM THE DESK OF THE EDITOR/PUBLISHER/CHAIR

The cover photo is of course from the NCSL International Workshop & Symposium held in Maryland this past August. However, I thought it appropriate for the membership to be able to place a face with the name of their new officers for the coming term of January, 2012 through December, 2013 (two years). Some might say quite the group of pirates; but I can attest from experience that you would be hard pressed to find a more dedicated foursome of professional individuals who have stepped up to the plate to ensure that the Measurement Quality Division of ASQ continues to grow and excel under their stewardship. They have supported me not only as the Chair of the division, but as the editor and publisher of this newsletter since the beginning of 2005. I would also like to thank the division chairs and members who have given freely of their time and energy this past 2 1/2 years to make the division one of the best in ASQ. As it says on our MQD Challenge Coin: *Volunteers aren't paid ... Not because they're worthless, but because they're priceless!* I couldn't have said it better myself. Thank you to all.



From the officers and chairs of the Measurement Quality Division, I'm honored to wish all of our members and readers:

**A very  
Merry Christmas,  
And a joyous and  
Happy New Year!**

*The Standard* is published quarterly by the Measurement Quality Division of ASQ; deadlines are February 15, May 15, August 15 and November 15. Text information intended for publication can be sent via electronic mail as an attachment in MS Word format (Times New Roman, 12 pt). Use single spacing between sentences. Graphics/illustrations must be sent as a separate attachment, in jpg format. Photographs of MQD activities are always welcome. Publication of articles, product releases, advertisements or technical information does not imply endorsement by MQD or ASQ. While *The Standard* makes every effort to ensure the accuracy of articles, the publication disclaims responsibility for statements of fact or opinion made by the authors or other contributors. Material from *The Standard* may not be reproduced without permission of ASQ. Copyrights in the United States and all other countries are reserved. Website information: MQD's homepage can be found at <http://www.asq.org/measure>. © 2011 ASQ, MQD. All rights reserved.

## The Chair's Corner

Jay L. Bucher



Greetings to all the members of the Measurement Quality Division. This being the last issue for me to comment as your Chair, I thought I might give an overview of what your officers and chairs have been doing during my term, which turned out to be two and a half years in length.

This past October, Dilip Shah and I were presenters at the annual Measurement Science Conference (MSC) Fall Tutorials. The attendance was not as big as the previous year, but the metrology community was still well represented. As usual, the staff of MSC did an outstanding job of putting together the location, logistics, food and snacks. They even gave away two (2) new iPad 2s during a raffle at lunch time. I used my own iPad 2 to give part of my presentation, and it turned out great. I hope to again use it during my two tutorial workshops in March during MSC 2012 at Disneyland in California. Dilip will also be presenting as well as conducting his CCT refresher course. More information can be found in the pamphlet at the end of this issue.

As you may have seen in the last issue of *The Standard*, we turned out in force at this year's annual NCSL International Workshop & Symposium the end of August in Maryland. We gave numerous presentations as well as manned the MQD booth throughout the event. My thanks again go out to Dilip, Heather, and Chris for their support and dedication to helping the cause of education and training within the metrology community.

I would be remiss if I did not mention that Heather Wade's paper presented at MSC 2011 was reprinted in the Oct/Nov/Dec 2011 edition of *Cal Lab: The International Journal of Metrology*. Heather has also previously supported our articles in the *Measure For Measure* column of *Quality Progress*, ASQ's monthly magazine, as a reviewer, which, at least from my perspective, has been very helpful.

The division remains financially solvent, which is one of the reasons we have been able to support manning a booth during MSC, NCSL International, WCQI, ASEE, and providing manpower and support for future education and training workshops, classes and symposiums, one of which will be the STEP as mention in the following article by Dilip.

I would like to give a huge thank you to Elias Monreal for all his hard work and support as the Membership Chair. We have not only continued to maintain and grow our membership under his leadership, but were recently recognized among the top divisions of ASQ for our growth rate. His article is also included in this issue.

Dilip and Chris continue to support the Measure For Measure column, keeping alive the late Phil Stein's column. I thank them for their dedication, and unrelenting support to the continuing to come up with highly relevant, interesting, and educational topics to help the education and training of current and future calibration and metrology personnel. Their unselfish work has paid dividends for many years, and will continue to do so for many years to come.

And last but certainly not least, I would like to recognize our ASQ Community Development Administrator, Jessie Kasberger (formerly Schultz). Not only does she get the job done right the first time, and in a very timely manner, but with a smile in her voice and contagious attitude that has been sorely missed in years past. Thank you so much, Jessie, for all you do to support our division, membership and officers. We would be lost without you. I wish Dilip, Heather and Chris the very best during the next term, and hope our members support them as they have me.

## Measurement Quality Division Participates in the STEP Conference

*By Dilip Shah*

During October 25-26, 2011, I had the honor of volunteering with my fellow Metrology Ambassadors Elizabeth Gentry of NIST and Paul Selzer of Abbott Labs at the 12<sup>th</sup> Annual STEP conference in Riverside, CA through ASQ Measurement Quality Division sponsorship.

The Science and Technology Education Partnership (STEP) was established to bridge the skills gap between our K-12 students and high-technology industry needs. STEP produces its flagship science and technology education event every year, the STEP Conference. The first of its kind in the region, this conference serves to ignite the imagination of thousands of students, so that they might pursue promising careers in high-technology fields. It also provides hands-on training to hundreds of K-12 teachers, ensuring they have the latest tools to keep our students competitive in the global marketplace. Through the assistance of STEP and support from our industry and academic partners.

It was very exciting to provide information on metrology and the SI units of measurements at the NIST booth. We must have had about 1 200 to 1 500 students and teachers visit. All three of us were busy assembling material to distribute to the kids. If the motivation from this conference help guide the students to a career in science, it will be worth it. And I am sure some students will be motivated towards that dream from what I saw. Who knows, one of the students from this group may turn out to be the next Steve Jobs, Edison or Einstein.

STEP Conference is run by dedicated volunteers and I would like to thank all of the volunteers who spend countless hours of their time towards this worthwhile effort.

For further information about STEP conference, go to the following link:  
<http://myscienceeducation.com/index.htm>

*(All STEP photos courtesy of U.S. Navy, photos by Greg Vojtko)*



**Dilip Shah, Paul Selzer and Elizabeth Gentry**

*(Continued on page 5)*

*(Continued from page 4)*



**Paul Selzer and Dilip Shah working at the NIST Booth**



**Dilip Shah and Paul Selzer**

## MQD TREASURER'S REPORT

Nov 2011

As per 30 September 2011 Bank Statement



MQD continues to have a strong balance sheet (Statement of Financial Position) with over \$166,500.00 combined checking and saving account balances.

Commercial Checking Account Ending Leger Balance as of 31 Sep 2011:	\$86,555.60
Commercial Checking Account Outstanding Checks as of 31 Sep 2011:	\$0.00
Money Market Saving Account Ending Balance as of 31 Sep 2011:	\$80,043.35
Membership Revenue for three months ending 31 Sep 2011:	\$6,579.00
Investment Income for three months ending 31 Sep 2011:	\$40.00
Royalties Income for the period from Jan to Jun 2011:	\$1019.00
Total revenues for all sources for three months ending 31 Sep 2011:	\$7,639.00
Budgeted MQD Expenses for three months ending 31 Sep 2011:	\$17,407.00

Respectfully Submitted,

*Christopher L. Grachanen*  
ASQ MQD Treasurer

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## THE LEARNING CURVE

By Phil Painchaud



This is the sixty-eighth contiguous column in this journal originally intended to be a platform for the readers of this journal and this author to comment on the subject of **Metrology Education**. It was initially charted by our Late Editor-in-Chief, De Wayne Sharp as a platform for discussions on that general subject. It was particularly intended to be a platform for the readers of this column to express **THEIR** views on that subject. We now are into our twenty-first year of attempting to coerce our readers to mount this platform and to expound **their thoughts** on the subject of **METROLOGY EDUCATION**. The response has ranged from grossly unimpressive to abolishment.

This apathy or irresolution by our readers has required this author to develop great deal of latitude in choosing alternate theses for some columns and for the continuation of his sometimes bombastic writing style. As has too often happened previously this time we have a dearth of new information relative to Metrology Education thus causing us to digress and discuss other matters. So, following our long established custom, this Column will as usual be in the form of an open letter to our boss the Editor-in-Chief.

Dear Boss:

It is sometimes difficult for me to realize that I have been at the task of “riding herd” on this column for two decades. I guess that I have not been an outstanding “trail boss” as my reader response has averaged less than five per decade. I am appalled at times by this lack of response and at the same time hearing all of the commotion that I hear from other sources about “Why aren’t we educating more Metrologists?” The Metrologists of my generation are dying off and who is to replace them, surely not the technicians and calibrators who are vitally needed to do the vital jobs that they were trained for? Some of the Metrology Engineers might if they are able to get additional advance education in the basic sciences. Enough said on this subject for the moment. Let us go on to something else.

Those of you who bothered to read the URL that my daughters gave to me for my birthday a couple of years ago should know that at one time I was the original Administrative Secretary of the IEEE Committee on Pulse Techniques. I held that position from 1966 to 1971. That group was originally chartered directly by the IEEE Board of Directors with the task of standardizing the measurements, terminology, and the associated hardware in the area of Time Domain, i.e. Pulses rather than continuous sinusoidal like waveforms. It was a humongous task as the Committee had at various times as many as forty-five members, coming and going and averaging thirty-eight members from seven nations and representing least thirty different technologies. Communication had to be mostly by postal mail because the personal computer, the internet, and E-mail had not been invented at that time. As might be expected with that number of members there was bound to be a few that were particularly outstanding.

The individual that I found the most interesting was the sole female on the Committee. She had the unusual ability to force you to think and think deeply even during an ordinary conversation. In technical discussion she forced us, me included, to expound correctly on theoretical matters that I did not realize that I knew. Who was she? Her name was Connie Franklin. When she first joined the Committee she was employed by EG&G Inc. at their Boston facility

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working on matters related to data reduction of test data resulting from the nuclear tests being conducted by the Government. Later (circa 1967) she was transferred to their Santa Barbara, California facility to perform mathematical analyses on the same data to facilitate the design of new measurement hardware for the tests at the Nevada Test Site.

Upon her move to California, I got to see her more frequently and had many extended conversations. We never knew her age (you don't ask a lady that question) but it had to be well past sixty-five. When I asked her at what university she got her obviously very advanced education in mathematics, she replied that her college training was in Liberal Arts! It seems that in those days young ladies were not welcome at the prominent Ivy League universities, this despite the fact that her father, Leo Weiner was Professor of Philology at Harvard and should have had enough influence to cause it to happen. So she attended Radcliff College, a school that was affiliated with Harvard but was strictly for women.

When I pressed her for the source of her mathematical background, she told me that her brother had taught her mathematics so she could become the critic of his work at MIT as he developed his advanced theories. "Who was your brother?" I asked. "Norbert Weiner", she replied. WOW! Norbert Weiner was one of the greatest theoretical minds of the Twentieth Century and father of the science of Cybernetics! I recall that his "earthshaking" book on the subject was published in 1946, just after WW II while I was a student under the G.I. Bill. I could not afford to purchase a copy at the time, so I had to absorb what I could from others who could and had studied it. But I could recall that during my stay at MIT some fellows that I lived with talking about the kindly gentleman who, as they were often struggling with homework while in the cafeteria, would drop by and tutor them on solutions to their problems. Unfortunately for me, our paths never crossed.

Now this brings us to the question of "What is CYBERNETICS?" Well to be ridiculously over simplified, Cybernetics is the science of automatic control and control systems. Think for a moment every computer ever built is a form of a control system. The computer that I am using to write this column depends on the principles that Weiner laid down in his definition of the science of Cybernetics. The computer built into your automobile is based on these principles as does the control system in the microwave oven in your kitchen, and as do the circuits in your television that respond to your remote controller. And of vital interest to the Metrologist, much of the new instrumentation that has come on the market during the past couple of decades has internally, control and/or computing circuits also dependent upon Weiner's definitions.

After a couple of years at Santa Barbara, EG&G moved her to their New Mexico facility to do time domain analysis's on the raw data from the nuclear tests. While there she passed away on October 20, 1973. A short time afterward a mutual friend was visiting the facility and was asked, "Do you know someone name Phil Painchaud"? "I certainly do, why?" "Well Connie left us with a piece of paper, a memorial, and asked us to fill in the date of her expiration, frame it, and send it to him. And we don't know who or where he is". Our mutual friend obliged and personally brought it to me, and it now hangs on the wall just outside of my office. It is a beautiful piece of poetry. (I will be pleased to send a copy of the text to anyone who wishes.)

With that bit of ancient history out of the way let us get on to something more recent. I was dismayed with an article in a recent issue of this publication concerning a statistical analy-

*(Continued on page 9)*

*(Continued from page 8)*

sis of this Division's membership. In my opinion the sample sizes taken were unacceptably too small. I fully realize that the analyst was working from data taken from voluntary questionnaire returns that are often underwhelming (as they apparently were in this case). But that is not an acceptable excuse as biased data can skew the resulting analysis to unbelievable results.

The standard sampling directives all assume that all items in the batch are similar or nearly similar and that the sampling and analysis is intended to determine the probably of some percentage being non-conforming to the specified standards. This is all well and good for piece parts like nuts and bolts, resistors, capacitors, and the like. Sampling of human beings is another matter. I believe that this Division has approximately three thousand members and no two of us are exactly alike, we all have different DNA (unless some of us are identical twins). Thus when statistically analyzing a group of people, especially where the matters of interest concern their thought processes and their likes and dislikes, and other psychological factors, the sample size must be considerably greater than 0.00134% of the total batch as it was in much of the published article.

I refuse to go much further in evaluating that article as I am not a professional statistician and thus am not qualified to argue with those who are. My only achievement in statistics was back in 1969 proving to the experts in NBS (forerunner of NIST) that Random and Systematic Errors (and Uncertainties) could be combined to render a single Figure of Merit. Up until then they were considered totally incompatible.

Well Boss I think that wraps it up for this issue. If anyone wants to argue with me, and I wish that someone might, I can still be reached at the same old stomping grounds.

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**TO:** Measurement Quality Division(MQD)  
**FROM:** Elías Monréal  
**DATE:** 11-14-11  
**RE:** 2011-Q4 Membership Chair Report for *The Standard*

**SAC-DAC Meeting:**

Measurement Quality Division(MQD) officers, Dilip Shah(Chair-Elect), Heather Wade(Secretary) and Elías Monréal (Membership Chair), were present at the joint Section Affairs Council(SAC) and Division Affairs Council(DAC) Meeting on November 12-13, 2011. Dilip, Heather, and Elías were learning, interacting, and sharing best practices with other division member leaders on how to best serve you...our members. Enclosed are photos of them and various participants at the meeting.



Heather Wade(Secretary), Dilip Shah(Chair-Elect), and Elías Monréal (Membership Chair)



**<= Measurement Quality Division  
Membership Distribution**

**Certified Calibration Technician =>  
Certification Distribution**



**Membership Report:**

Currently, we are the 10<sup>th</sup> largest of ASQ's 25 Divisions(moved up two positions from a year ago!) with 3109 members. Please view our current membership segmentation:

MBRTYPE	END_OF_LAST_YEAR (6-30-11)	END_OF_MONTH_TOTAL (10-11)	GROWTH	TOTRENEW	NEW	RETENTION	
FORUM			0	0	0	NA	
STUDENT	35	37	5.7		2	12	5.7
ASSOCIATE	133	130	-2.3		24	20	18
FULL	1480	1505	1.7		236	222	15.9
SENIOR	1415	1314	-7.1		332	27	23.5
FELLOW	29	29	0		4	0	13.8
SUSTAINING	30	33	10		6	7	20
HONORARY	1	1	0		0	0	0
ORGANIZATION	48	51	6.2		14	0	29.2
ORGMEMBER	8	9	12.5		0	1	0
SCHOOL			0		0	0	NA
DISTRICT			0		0	0	NA
TOTAL	3179	3109	-2.2		618	289	19.4

**Satisfaction & Loyalty Survey:**

ASQ conducted its yearly Satisfaction and Loyalty survey. MQD's Satisfaction and Loyalty values were above the Division average. Our own survey resulted in 110 completed surveys compare to 24. Below are the Satisfaction and Loyalty results:

Division Name	Total Number of Respondents	Division Satisfaction Questions								Satisfaction score
		This division offers significant networking opportunities with other professionals in my field	This division's newsletters, website and other publications contribute to my job and career growth	This division offers conferences, courses, workshops and materials that provide useful knowledge	This division provides valuable resources and support pertaining to my specific industry and interests	The cost of this division's conferences, courses, workshops and materials are competitive considering the value they provide	This division's leadership is accessible for questions, concerns and suggestions	This division provides open opportunities to be active in leadership	How do you rate your overall satisfaction with this division?	
Measurement Quality	24	6.52	7.26	6.91	6.92	6.65	7.00	6.56	7.25	6.884
All Divisions	840	6.36	6.63	6.91	6.63	6.74	6.78	6.85	6.90	6.725

Division Names	Total Number of Respondents	Division Loyalty Questions				Loyalty score
		Based on this division experience, how likely are you to renew your ASQ membership?	How likely are you to recommend ASQ division membership to a business associate?	Please rate the overall value you receive as a member of ASQ		
Measurement Quality	24	8.26	7.75	8.04	8.017	
All Divisions	840	7.98	7.30	7.67	7.651	

Division you are evaluating.	What is the one thing you would like to see improved in this division?
Measurement Quality	Add a Linked-In group for MQD
Measurement Quality	bring back the quarterly newsletter mailed to my house ... I really miss it ... and I don't like strictly electronic news ... it's too much trouble for me, I can't lay it next to my "reading chair" in the living room to read at my leisure. To read it on the screen is tiring, and it takes me away from my family members if "I'm on the computer." And don't tell me I can print it out and put it next to my "reading chair." What a waste of paper since I can't print it out double sided, etc. So send it to me in the mail!!
Measurement Quality	Communication with the members; provide some value to members; virtual seminars, webinars to help members grow professionally.
Measurement Quality	Compiled survey results into actions items or QMP Item(s).
Measurement Quality	I don't have enough experience with the division to give an answer. Quite satisfied at present.
Measurement Quality	I found through navigating the ASQ website that "The Standard" newsletter is published periodically. After being a member for two years, I had no idea this was available. I receive little to no correspondence from the division.
Measurement Quality	I will like an improvement in the preparation of candidates for certification, not just for the certificate but a very practical understanding of the course work.
Measurement Quality	More training and experience sharing
Measurement Quality	The only interaction I've had with the division has been the journal; I'm not aware of any other division activities.



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**Race to Retain:**

CONGRATULATIONS to MQD for implementing and reporting identified successful practices and achieving the noted % increase in member retention. We were recipients of the Blue Ribbon (4% or greater improvement) and the Top Prize. The Top Prize is a special visit from President Jim Rooney is available for the Top 10 Sections, Top 3 Regions, and Top 5 Divisions that have shown the most improvement over the previous year.

**Blue Ribbon (4% or greater improvement)**

Greater Danbury Section  
Customer-Supplier  
Arko Section  
Palomar Section  
**Measurement Quality**  
Tijuana Section  
Lean Enterprise  
Statistics  
Hawaii Section  
Southwest Florida Section  
Quality Management  
Northeastern Illinois Section  
Hiawatha Section  
Reliability  
Palmetto Section  
Tulsa Section  
Central Mississippi Section  
Montreal Section

**Audit**  
Greater Detroit Section  
Dallas Section  
St. Louis Section  
Food-Drug-Cosmetic  
Phoenix Section  
Elyria-Lorian Section  
Hamilton Section  
REGION 10  
Education  
Charlotte Section  
San Fernando Valley Section  
REGION 12  
Boston Section  
REGION 08  
REGION 15A  
REGION 15B

**Top Prize**

A special visit from President Jim Rooney is available for the Top 10 Sections, Top 3 Regions, and Top 5 Divisions that have shown the most improvement over the previous year.

**Top 10 Sections**

Greater Danbury 500  
Arko 1419  
Palomar 706  
Tijuana 712  
Hawaii 623  
Southwest Florida 1530  
Northeastern Illinois 1212  
Hiawatha 1214  
Palmetto 1111  
Tulsa 1409

**Top 3 Regions**

REGION 10  
REGION 11A  
REGION 12

**Top 5 Divisions**

Customer-Supplier  
**Measurement Quality**  
Lean Enterprise  
Statistics  
Quality Management

Questions, comments, or concerns? Feel free to contact me at [emonreal@itde.com](mailto:emonreal@itde.com) or (520) 241-0478.

Adíos,  
Eliás Monréal  
ASQ-CQIA,CMI,CQT,CSSGB,CCT,CQA,CQE,CMQ/OE  
MQD Membership Chair



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# TECHNICAL EXCHANGE

NCSL INTERNATIONAL

**January 26 and 27, 2012**  
**Embassy Suites Airport Hotel and Convention Center**  
Charleston, South Carolina

## JOIN OUR FORUM FOR EXCHANGING IDEAS, MEASUREMENT TECHNIQUES, BEST PRACTICES AND INNOVATIONS

The Technical Exchange, developed by NCSL International (NCSLI), is a new educational event designed to provide you regional access to low-cost, high-quality metrology training solutions. At this two-day event you will get metrology training covering several fields. Each training session is taught by subject matter experts from throughout the industry.

The NCSLI Technical Exchange provides a forum for exchanging ideas, measurement techniques, best practices and innovations with others interested in metrology industry trends. It will build or enhance specific hands-on skills in the calibration of measurement and test equipment, and teach best practices along with introducing new and innovative calibration hardware, software and calibration services.

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### TECHNICAL EXCHANGE Tutorials at a glance

Understanding *ISO/IEC 17025* Requirements and Most Common Deficiencies  
Rob Knake, A2LA

Applying *NCSLI RP-16* to Metrology Lab Design and Construction  
Douglas Cooper, Precision Environments, Inc.

Microwave Measurement Basics  
Ronald Ginley, NIST

for complete tutorial program please visit [ncsli.org](http://ncsli.org)



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NCSLI has arranged a group rate on your room, and provided a group code when booking. See [hotel link at ncsli.org](http://hotel link at ncsli.org)

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Measurement Science Conference is to provide a forum and venue to advance education, renew and contacts and partnerships, and provide emerging novations in our profession. I hope you will join us enlightening MSC. Please consider taking the NIST through Wednesday), the MSC 2012 Tutorial (y and Wednesday) and the Technical Programs (y) as a unique and valuable part of the MSC consider the Hands-On Workshops on Friday for raining for your company's technical personnel. In ion aspects of the conference there will be over 100 their products and techniques that support our

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