SOCIETY OF ACTUARIES Actuary of the Future Section

18 YEAR ANNIVERSARY

Actuary of the Future

ISSUE 31 | NOVEMBER 2011

Happy 18th Birthday Actuary of the Future!!

This year marks the 18th Birthday of the Actuary of the Future Section, and we plan to celebrate throughout the year!

Our kickoff celebration started with a hot breakfast at the SOA Annual Meeting in October 2011.

We would like to challenge our members to think back 18 years and tell us what you were doing back then. Submissions can be sent to aof@soa.org.

It could be as simple as
- writing your last actuarial exam
- your first job
- first day of kindergarten
- going to prom
- joining this section
- whatever you can remember!

Your stories will be featured in the 2012 newsletters.

In the meantime, the following is a list of what happened in 1993.

- World Wide Web was born
- Windows NT 3.1 is released by Microsoft
- Pentium microprocessor is introduced
- First cloning of a human embryo
- First bagless cyclonic vacuum cleaner sold by Dyson
- Bill Clinton was president
- The first Beanie Babies were launched

Source: http://www.thepeoplehistory.com/1993.html

HOW MUCH THINGS COST IN 1993

Yearly inflation rate USA 2.96%
Year end close Dow Jones Industrial Average 3654
Interest rates year end Federal Reserve 6.00%
Average cost of new house $113,200.00
Average income per year $31,230.00
Average monthly rent $532.00
Cost of a gallon of gas $1.16
Movie ticket $4.14
Average cost of new car $12,750.00
Loaf of bread $1.57
Tuition to Harvard University $23,514.00

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Actuary of the Future

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Chairperson's Corner

By Jennie McGinnis

More [*mawr, mohr*]: in greater quantity, amount, measure, degree or number.

As one of the first words that my son learned, it seems I haven't gone a day without hearing it multiple times. Of course, that's just at home – when it comes to work and extracurricular activities the word may not be used explicitly, but there's certainly an implication: to give more of ourselves, to accomplish more, to do more with less, and on the requests go. Luckily in my son's case the necessary response is typically getting more food or refilling his beverage – in either case, an easy task that provides me with a quick sense of accomplishment (until, that is, the call is for more ice cream … then I prepare for battle).

It strikes me that when the call for "more" comes from multiple directions it's difficult to know what's really needed and what the true priorities are. While discerning this in the workplace I've learned that there's also a need to reflect on such requests personally. When the request for more is made in the context of doing and accomplishing more than others in order to stand out in the crowd, are we making sure we're taking care of the "more" that's most important to us? Or are we (mistakenly, I would argue) fulfilling the request for "more" that moves us along our career path, but not necessarily the one that's in line with our ultimate goals?

The AOF Council has been faced with similar questions throughout the past year. What more can we do to meet our members' needs? Should we put more focus on the projects already in play to ensure that they're successful, or should the "more" be realized in an expansion of our offerings? Regardless, it requires more hands on deck – how do we get more members involved in volunteering with the section's activities? And, as a preliminary question to that, how do we grow our membership in the first place?

These are questions that are not easily answered, nor are their solutions quickly implemented. As a guide throughout these discussions, our mission ensures we stay true to our cause.

To identify and promote new opportunities, skills and ways of thinking to help actuaries excel on their career journeys.

There are a number of ways that we've accomplished this in the past year.

Section Council Intern (SCI) – Increases focus on affiliate (non-credentialed) members, who are the future of our profession (see Karan Phadke's article in this newsletter).

Delphi Study – Explores which fields may benefit from the use of actuarial solutions, and what we as an organization can do to support those moving into these fields.

Complexity Science – Introducing a new way of thinking about modeling problems in need of an actuarial solution (see Dave Snell's *Complexity Sciences-Simplified!* article in the May 2011 newsletter).

"Soft Skill" Development – Many of the sessions we sponsor at the SOA's flagship meetings relate to so-called soft skills, which continue to be cited as weak in the actuarial community. This is also true for our webcasts, and next year we'll officially launch a podcast series that addresses the same issue.

Collaboration – The concept of getting local, both with clubs and universities, has already proven successful when offering networking opportunities. We've also increased collaboration with other sections when planning professional development opportunities. Because we're a special interest, rather than line-of-business related, section we know that we need the support of those who specialize in the variety of fields in which actuaries participate in order to truly bring you the latest. We're continuing to seek new partnerships and think about how "going local" in other aspects of our offerings will better meet your needs.

Communication - We've also sought to keep you, as members, more informed about what we've been up to throughout the year. Our newsletter and website continue to be pivotal in accomplishing this. We also started sending monthly blast emails to keep you updated on a more regular basis (if you haven't been receiving these, please check your spam filter settings). An even more recent addition is the launch of our LinkedIn group.

You may be aware that we're marking our 18th anniversary this year. While we may now officially be part of the "grown up" club, we know that there's still plenty more room to grow. It's our hope that we'll continue to serve you and the changing needs of the profession well. We hope you'll join us in actively pursuing our mission.

As I complete my term on the council, I would like to close this article by saying thank you to all who have supported me over the past three years and especially in this past year while serving as Chair – I couldn't be *more* grateful. ☆

Jennie McGinnis, FSA, MAAA, CERA, is vice president at Swiss Re in Fort Wayne, Ind. She is also the special interest representative on the PDC. She can be reached at jennifer_mcginnis@swissre.com.

In our last edition, it was misstated that Michael McDermid had the FSA and MAAA designations, we apologize for the error.

Musings of an Intern

By Karan Phadke

Karan Phadke is an actuarial mathematics student at the University of Toronto. He can be reached at karan.phadke@utoronto.ca.

Some of the best experiences people have are from times when they worked on teams to achieve a common goal. As clichéd as that sounds, when I look back at my experience as the Section Council Intern (SCI) for the Actuary of the Future (AOF), I am inclined to agree. To provide some background, the Actuary of the Future Section's mission is to identify and promote new opportunities, skills and ways of thinking to help actuaries excel on their career journeys. So it makes a great deal of sense to get the perspectives of those who are embarking on the actuarial career path. With this in mind, the section established the position of SCI in late 2010. The purpose of the role is to allow non-credentialed affiliates to volunteer and contribute toward initiatives, and by implication, the direction of the profession itself. The purpose of this piece is to give applicants a glimpse into what they can expect and why it is an excellent volunteering opportunity.

I want to focus on two of my favorite experiences as the SCI. The first is my involvement in the annual strategic planning meeting in Chicago and the second is the AOF Podcast initiative (scheduled to be released soon).

The AOF kicks off every year with a strategic planning session in Chicago. This forum allows new section council members to meet each other and brainstorm about what the initiatives and focus of the section will be. The sheer depth of experience and knowledge of the council members really stood out. How often do you get to sit at a table and debate ideas with actuaries, consultants, directors and vice presidents? In addition to the quality of the discussions, a salient point was the mutual respect everyone had, and their willingness to listen to any idea. I can confidently say that it was very refreshing and definitely one of the highlights of my university experience.

My next-favorite SCI experience would definitely be the new podcast project. The idea (which was brought up at the planning session) was to start an expansive series that would cater to actuarial folk at all levels. The purpose of the podcast episodes would be to discuss trends, ideas and other interesting tidbits that would have educational value to the listener. I was fortunate enough to work one-on-one throughout the creation process with a very experienced actuary. It was especially exciting to see an idea through from concept to pilot. It also developed skills that are useful in the professional world, from brainstorming to writing episodes and eventually presenting the final cut. Furthermore, it gave me the opportunity to work with other SOA staff members and see how new projects are nurtured into fruition. The experience validated that the SCI position is one that can be extremely educational, and fun too.

In conclusion, it's safe to say that the past year serving as the SCI has been tremendously rewarding in ways that I didn't think were possible. The opportunity for collaboration, autonomy and ownership allows it to be as fulfilling as you let it. I would definitely encourage all professionals even slightly interested in the profession to look into volunteering with the SOA and/or your favorite section; it can cultivate relationships and opportunities that will pay dividends throughout your career. ☆

LIVING *to* 100

SOCIETY OF ACTUARIES
INTERNATIONAL SYMPOSIUM

SOA RELEASES NEW LIVING TO 100 SYMPOSIUM MONOGRAPH

PAPERS PRESENTED AT THE JANUARY 2011 SYMPOSIUM ARE NOW AVAILABLE IN AN ONLINE MONOGRAPH AT *LIVINGTO100.SOA.ORG*.

Find papers and transcripts from the January 2011 Living to 100 Symposium covering topics including mortality modeling, measurement and trends, obesity and other factors that may affect mortality, mortality compression, predictors of exceptional longevity, slowing the aging process and implications of increasing aging populations.

The transcripts of panel discussions and keynote presentations are also available at *LivingTo100.soa.org*.

LivingTo100.soa.org

COMING SOON:

Look for the fifth Living to 100 Symposium's call for papers.

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Did You Know?

This article contains a potpourri of facts about the activities and projects of the Actuary of the Future (AOF) Section. It is aimed at informing our members of what opportunities are available. If interested in learning more about the AOF, information can be found at *http://www.soa.org/professional-interests/actuary-of-the-future/aof-detail.aspx* or by contacting us at *AOF@soa.org*.

MENTOR PROGRAM

Our mentoring program aims to provide protégés (actuaries in the earlier stages of their career, including students interested in being actuaries) access to mentors who can serve as counselor, advisor and confidant to turn to with questions and concerns about personal and professional growth as actuaries. The interaction between a mentor and a protégé will provide learning and networking opportunities to each of them, be interesting, and also fun! More information can be found at http://www.soa.org/professional-interests/actuary-of-the-future/aof-mentor-prgm.aspx.

The mentor program is now on LinkedIn. Join the Younger Actuaries Program Mentoring Group!

NEWSLETTER

Current and past versions of the *Actuary of the Future* newsletter can be found via our website and are stored in PDF format. These issues can be downloaded to your Kindle, Nook, iPad or other electronic reader. Both the Kindle (from Amazon) and the Nook (from Barnes and Noble) have the capability of displaying a PDF.

However, neither the Nook nor the Kindle do a perfect job of rendering PDF documents. If your eyes are able to read small print, the Kindle can show an accurate copy of the PDF if you just copy it over to the documents folder. The Kindle also offers the scalable fonts via your Kindle user email account. This can be accomplished by sending the PDF document as an email attachment to your Kindle e-mail account (e.g., *mykindlename@free.kindle.com*) with the word 'convert' in the subject heading. This will result in an email reply (usually within a few minutes) that has a file for you to copy to your Kindle. If you send it to the non free account (e.g., *mykindlename@kindle.com*) then Amazon will send it wirelessly to your Kindle for you, at a cost of 10 cents.

The Nook has built-in software to allow font scaling for easier readability, but it sometimes changes formatting.

iPad users will notice that it is easier to read documents from the iPad in normal and low light conditions, while the Kindle and Nook users can read better in sunlight.

These readers allow you to take your newsletter along with you. Quoting the late Karl Malden, "Don't leave home without it!"

PODCASTS

The Actuary of the Future Section is developing podcast episodes on a variety of topics for your perusal. This ongoing series will cover trending material such as networking, complexity science, managerial issues, insurance, healthcare and more.

The purpose of the curriculum is to keep actuaries at all stages in their career path up to date with the latest and greatest in the profession. Many of the episodes will be aired in collaboration with the other sections, so it's a great opportunity to learn something new from experienced subject matter experts.

If you are interested in creating or helping with the development of the initiative please contact us at: *AOF@soa.org*.

Stay tuned in the upcoming months for the first of many podcasts!

ANNUAL PULSE SURVEY

We held our annual pulse survey in October. Thanks to all who provided feedback. Each year we review the results of this survey at our November face-to-face meeting. The results are used to determine which initiatives our members want us to participate in for the upcoming year.

SECTION COUNCIL

We would like to extend our gratitude to Kim Dwornick, Jennifer McGinnis and Janine Bender for your hard work and participation in the section council over the past three years. Please welcome our new council members Ben Wadsley, Mark Ma and Lee Shen.

Each council member holds a three-year position. Becoming a section council member is a great way to network with fellow actuaries from different companies and/or countries as well as keep up-to-date on the latest actuarial trends. These positions require at least one hour per month for the section council call. If you're interested in becoming a candidate for one of the council member positions, contact us at AOF@soa.org.

BECOMING A SECTION COUNCIL MEMBER IS A GREAT WAY TO NETWORK WITH FELLOW ACTUARIES FROM DIFFERENT COMPANIES AND/OR COUNTRIES …

CLUB CORNER

The following is a list of events recently held that were co-sponsored with the Actuary of the Future. If you would like to co-sponsor an event with us, please contact us at *AOF@soa.org.*

November 18, 2010
Speed networking event at the Actuaries' Club of Boston and the Actuaries' Club of Hartford & Springfield Joint Meeting

March 7, 2011
Speed networking event with the Philadelphia Actuaries' Club

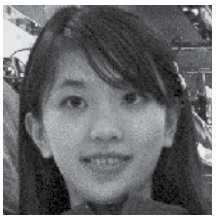
May 23, 2011
Speed networking event at the Actuaries' Club of Hartford & Springfield Spring Meeting

CONTACT US

Comments and suggestions are always welcome and can be sent to any council member listed on our website or to *AOF@soa.org.* ☆

Working in Japan as an Actuary

By Madeleine Zhang



Madeleine Zhang is a graduate student in actuarial science with Simon Fraser University. She can be reached at madeleine_zhang@sfu.ca

Mac Kurata is an actuarial recruiter with the Emerald Group specializing in the Japanese and Australian markets. He can be reached at mac.kurata@emerald-group.com

In this interview, I invite Mac Kurata, an actuarial recruiter specializing in the Japanese and Australian markets, to share his experience of working in Japan as an actuary.

What are the advantages of working in Japan?

- Getting to know one of the most sophisticated markets in Asia.
- Earning a good salary and experiencing the various cultural aspects of the country--the food, the history and the language.

What are the disadvantages?

It is difficult to get by in Japan without knowing the language.

What are the challenges of getting a job in Japan?

Conveying a positive impression to interviewers by telephone can be a challenge for candidates not based in Japan. The Japanese market is unique and it is not always easy for foreigners to understand the dynamics. I would certainly recommend using a native Japanese recruiter who is very familiar with local market and who is well connected with senior actuarial /management. Often, job descriptions are not available and recruiters have good insight into the market.

Must a candidate speak Japanese?

It is definitely an advantage to speak Japanese, although many actuarial positions often focus more on the `technical' skills rather than language skills.

Where are you seeing the greatest demand for actuaries in Japan?

- Junior level pricing roles
- Senior level valuation roles
- ALM/investment related (nontraditional) roles

Are there companies you are aware of who are seeking employees to move from abroad?
The companies in Japan are not explicitly looking for employees from abroad, but they are certainly open to them for some senior level roles.

How can a U.S./Canadian actuary working in a Japan keep up with exams?
You can work in Japan using SOA, IOA or IAA qualifications as a company can register you as a "student actuary" in the Japanese actuarial association.

How does the Japanese work culture differ from North America in your eyes?
In general, there is a still 'longer working hours' culture, but it is not as demanding as some other markets in Asia-Pacific markets such as Hong Kong and mainland China.

How do the salaries and cost of living compare to that of actuaries in North America?
Salaries in Tokyo compare favorably with the United States, and the income tax is lower. The cost of living is usually considered to be very high, but this isn't strictly true as people can easily choose more inexpensive options. There are also many conveniences and healthy lifestyle options as well.

What are the key attributes an actuary or actuarial student would need to work in Japan?
Technical skills are expected, but an open attitude to learning the language and the culture is an enormous advantage. Obviously, practical experience within the Japanese market would be highly advantageous as well.

How is the job market for entry-level actuaries?
The market for entry level is strong–many jobs are widely available in the market and, especially if you are bilingual, there will be even more opportunities to explore.

What is the best thing about working in Japan?
Cultural experience: Japanese food, great nature and environment with convenient transportation, safety and cleanliness. The beach and mountains are within an hour or two by train from Tokyo. ☆

Medicine, Mortality and Health in the 21st Century

By Gene Held

Gene Held is vice president at SCOR Global Life Americas. He can be reached at gheld@scor.com

At the turn of the 20th century doctors could do little for ailing patients other than wait for them to get better on their own or die. Although doctors understood the germ theory of disease, there were no antibiotics to fight infections and anesthetics were still in their infancy. Blood types were discovered in 1901 but widespread collection, typing, storage and dissemination of blood did not occur until World War II. People living in today's environment where antibiotics are commonplace, anesthetics are widely used, and surgery has benefitted from a host of advances have little realization of just how precarious good health was back then and what tremendous strides were made in the 20th century. Prospects for 21st century medicine border on science fiction: tissue regeneration, new organ growth and systems biology are currently the cutting edge of medical science, but may one day be as commonplace as antibiotics and transfusion are today.

Dr. Leroy Hood has written hundreds of scientific papers, participated in numerous biotechnology startups and received many prestigious awards. He also invented four key machines that played prominent roles in modern biotechnology: automated DNA sequencers and synthesizers and automated protein sequencers and synthesizers. Once the genome was sequenced in 2000, Hood quickly realized that further progress would depend upon a deeper knowledge of how genes interact. This is because most cellular processes involve the linking of many genes in complex feedback and feed-forward loops that have cascades of interactions. So Hood and two other scientists co-founded the Institute for Systems Biology (ISB) with the mission of transforming biomedical research by creating and using systems approaches to unravel the workings of complex biological interactions.

One of the basic premises of systems biology is that the reductionist approach normally used in science is inadequate. This is best explained by analogy. If you focused on identifying the engine, seat belts, and other parts of an automobile and learned how each of them worked you still would have no knowledge of how an automobile operates. It is only when you observe the entire system functioning as a unit that its emergent

properties become clear. Systems biology focuses on studying the entire system of biological interactions and understanding the properties emerging from that system. A system is said to be complex if its emergent properties are unpredictable. Living organisms are complex systems. Life is one of the emergent and unpredictable properties of biochemical systems.

Hood says, "Studying the interactions and interplay of many levels of biological information, systems biology will enable us not only to cure complex diseases but also to predict an individual's health and extend the human body's natural lifespan by preventing diseases. The new era of predictive, preventive and personalized medicine – made possible by systems biology – represents a profound shift in the practice of medicine and will reach into many corners of our lives."

More information can be found under the "Intro to Systems Biology" tab on the ISB website at *http://systemsbiology.org/*.

Another effort that goes hand in hand with ISB's systems biology approach is that of modeling a cell *in silico*. Instead of the traditional experiments done *in vivo* (in the body), or *in vitro* (in glass; a petri dish or test tube), *in silico* (in silicon) experiments are done in a computer. This ambitious effort may allow faster and cheaper development of drugs and a quicker understanding of how disease perturbs the body's systems. Because of limited knowledge of molecular dynamics and cell biology, as well as the enormous computing power required, today's efforts typically focus on models of cell behavior that center around the metabolic relationships of interest. However, as knowledge and computing power grow, these efforts may replace traditional techniques in medical research.

One medical technology in development for decades is finally entering medical practice: tissue regeneration. Dr. Anthony Atala of the Wake Forest Institute for Regenerative Medicine has grown nearly two dozen working body parts such as muscle, bone and a heart valve. A recent video on TED (Technology, Engineering, Design) highlights his work at *http://blog.ted.com/2011/03/07/printing-a-human-kidney-anthony-atala-on-ted-com/*. In it you will see Luke, now a healthy active college sophomore, but he was only 10 years old when Dr. Atala implanted a urinary bladder grown from Luke's own cells.

USING LIVERS FROM CADAVERS, HE AND HIS TEAM ARE LEARNING HOW TO GROW NEW ONES IDENTICAL TO THE PATIENT'S TISSUE.

Atala's research is wide-ranging and the technologies he's developing address an equally broad spectrum of needs. Using livers from cadavers, he and his team are learning how to grow new ones identical to the patient's tissue. To do this, the original cells are removed, leaving only a skeleton of the liver that includes the blood vessel tree. The patient's blood cells are perfused into the tree to regrow the vascular network, followed by the addition of the patient's liver cells. Dr. Atala's group is also working on a specialized scanner / printer that scans a patient's wound area and then 'prints' the various layers of the patient's cells directly onto the wound with a modified ink jet printer – like something from a science fiction movie.

They are also working on printing a kidney. Ninety percent of patients on transplant lists are waiting for a kidney. Because of the obesity epidemic the number of people developing diabetes and needing a new kidney is expected to grow. Dr. Atala's team uses a CT (X-ray) scan to image the patient's kidney layer by layer and sends the digitized information to a modified ink jet which prints the kidney. The entire process takes only seven hours. For now, the work is experimental, but it will eventually work its way into mainstream medicine.

CONTINUED ON **PAGE 12**

There are also several teams around the world that are trying to grow a human heart. Dr. Doris Taylor of the University of Minnesota reported on her team's progress at the American College of Cardiology in April of 2011. The team followed a process similar to what Dr. Atala uses with the liver. They acquired hearts from cadavers and added a detergent solution to remove the cells, leaving behind an extracellular matrix (ECM), or scaffold, consisting primarily of collagen. Adult stem cells from human patients were added and heart muscle began to grow on the scaffold. The heart normally begins beating within a week. Dr. Taylor has already accomplished this feat with rat hearts, but since human hearts to supply the ECM would not normally be available the team is investigating the use of pig hearts to obtain the extracellular matrix. There would be no transplant rejection because the heart cells are made from the patient's own stem cells, thereby side-stepping immune system rejection. A link to Dr. Taylor's work is *http://www.stemcell.umn.edu/faculty/Taylor_D/home.html.*

Dr. Stephen Badylak is deputy director of the McGowan Institute for Regenerative Medicine, a program of the University of Pittsburgh School of Medicine and UPMC Health System. When Dr. Badylak first developed his technique for regenerating human tissue in the mid-1980s he was reluctant to discuss it with clinicians because they simply didn't believe his results. In fact, the field of regenerative medicine did not even exist when he first published his results in 1989. Dr. Badylak had discovered that by using the extracellular matrix from pig tissue to stimulate the body he could regrow whatever type of tissue that had been damaged – whether muscle, skin or blood vessel. Information on that program and a bio of Dr. Badylak can be found at *http://www.mirm.pitt.edu/people/bios/Badylak1.asp.*

Studies to fully understand his discovery are ongoing, but it seems to work like this: an extracellular matrix (ECM) is obtained from pig intestines and administered to the wounded area as a powder or thin sheet. ECM is a kind of cellular glue that holds tissue together so the cells can do their work. It is composed of very large protein molecules such as laminin, collagen and fibronectin, and forms a scaffold for the tissue. The ECM from Dr. Badylak's powder or sheets eventually breaks down in the body and gets replaced. During this breakdown a group of peptides called crypteins are left behind. These peptides not only have potent antimicrobial effects, they are also very powerful signaling proteins and recruit swarms of stem cells to the area to recreate the needed tissue.

An article in the July 8, 2011 issue of *Discover* magazine illustrates how powerful this technology is. (See *http://discover.coverleaf.com/discovermagazine/20110708?sub_id=CFmdKrt5bHAUV#pg70)* Corporal Isaias Hernandez was the victim of a bomb blast in Iraq that ripped off 70 percent of his right thigh, exposing portions of it down to the bone. Doctors normally recommend amputation once a person has lost 40 percent or more of a muscle group.

Hernandez refused and instead underwent a painful surgery to replace some of the tissue with muscle from his back. The procedure didn't work well, and he was left with limited function and a lot of pain. After a long rehabilitation process, he saw a science documentary about regeneration that ultimately led him to Dr. Steven Wolf, who was also experimenting with ECM. The ensuing surgery was successful and Hernandez now has enough muscle mass in his right thigh to equal the strength of his good leg. Badylak currently is refining his technique in the hope of discovering how to regenerate an entire limb, much as salamanders do.

For decades the dogma within the scientific community has been that the diseases of old age are a result of the aging process; that is, of the body's reduced capacity to fend off disease. Delaying the aging process would allow people to live a longer, healthier life. It has recently been determined that rapamycin, a drug normally used in transplant recipients, can increase the life span of middle-aged mice by 28-38 percent. The equivalent achievement in humans would provide more extra years of life than curing cancer and heart disease combined. Independent studies using rapamycin were conducted at the University of Texas Health Science Center in San Antonio, the University of Michigan at Ann Arbor, and Jackson Hole Laboratory in Bar Harbor, Maine. The discovery was named in the Dec. 18, 2009 issue of *Science* magazine as the runner-up for research breakthrough of the year. Researchers said, "We believe this is the first convincing evidence that the aging process can be slowed and lifespan can be extended by a drug therapy starting at an advanced age." Rapamycin appears to partially shut down the same molecular pathway as caloric restriction, which has been repeatedly shown to extend life in species after species.

A second compound, reseveratrol (a substance found in grapes and red wine), may also delay the aging process. A previous article in *Actuary of the Future* detailed this research. See "Predicting the Future, Predicting Mortality" at *http://www.soa.org/library/newsletters/actuary-of-the-future/2008/november/afn-2008-iss25.pdf* for further information.

The *Living to 100 and Beyond* symposia (see *http://livingto100.soa.org/)* have dealt with the topic of aging both from a research / theoretical point of view and from an implications standpoint (Click on 'Monographs' to gain access to the articles presented at past symposia). Over the years it has featured many experts who have conveyed progress in medical and aging research as well as many participants who have presented papers detailing the societal and personal ramifications of increased life and health expectancy. "Plastic Omega" (*http://www.soa.org/library/monographs/life/living-to-100/2002/mono-2002-m-li-02-1-held.pdf*) reviews some of the research into the aging process. In addition, the book *Living to 100 and Beyond* by Tim Harris, who is co-chair of the symposium, does an excellent job of summarizing some of the issues raised by living longer.

The scientific literature and the popular press alike are filled with examples of technologies that seemed impossible only decades ago, but which will become commonplace in coming years. Some are already having an impact while others are farther over the horizon, but it is certain that the prospects for health and longevity in the 21st century will be much improved compared to previous eras. ☆

Risky Business

By Tom Bakos

Tom Bakos is a consulting actuary with Tom Bakos Consulting, Inc. in Ridgway, Colo. (and a former SOA Board member). He can be reached at tbakos@BakosEnterprises.com.

Risk is exposure to a contingent event. Risk is usually thought of as potentially creating a negative result – death or taxes, for example. But risk, more generally, may be thought of as exposure to any type of contingent event – even winning the lottery. Although when exposure to risk may result in a gain, it is often called "chance".

A contingent event is an event uncertain as to its occurrence, timing or severity. "Severity", of course, characterizes the negative side of a quantity measurement. Abundance might be substituted for severity when the deviation from expected is on the plus side. Typically, severity or abundance is measured against an expected or most likely outcome. For example, with respect to risks most commonly addressed by actuaries, actual to expected ratios express real results in terms of expectations.

BUT, I THINK, WITH OUR PLETHORA OF ACTUARIAL ORGANIZATIONS IN THE UNITED STATES AND WORLDWIDE WE HAVE, PERHAPS, UNNECESSARILY SUBDIVIDED OUR PROFESSION INTO LESS EFFECTIVE PIECES.

Actuaries everywhere and of all types analyze, measure and price risk in terms of probabilities and financial consequences. Through the processes actuaries use, the ***financial consequences*** of risk may be managed and, because of that, the full impact of risk may be mitigated. And, to some extent, because some behaviors may be changed with knowledge of probabilities (smoking vs. not smoking, building or not building on a flood plain, sources of cash flow, etc.) exposure to risk and, therefore, the financial consequences of such exposure can be minimized.

The Casualty Actuarial Society (CAS) identifies actuaries as follows: "Actuaries evaluate the financial impact of current economic, legal and social trends on future events." The CAS limits the future events it covers to property, casualty and similar risk exposures.

The Society of Actuaries (SOA) says: "An actuary is a business professional who analyzes the financial consequences of risk." The SOA limits itself to life insurance, retirement systems, health benefit systems, and financial and investment management but reserves a future in "other emerging areas of practice."

The International Actuarial Association (IAA) identifies no subject matter limitations while asserting the actuarial profession "worldwide as a major player in the decision-making process within the financial services industry, in the area of social protection and in the management of risk, contributing to the well-being of society as a whole."

The Institute and Faculty of Actuaries in the UK and the Institute of Actuaries of Australia say similar things about what actuaries do – we evaluate risk and opportunity, we make financial sense of the future – albeit in principally business situations the way they see it.

ACTUARIES MANAGE RISK

All of our profession's organizations are consistent in seeing actuaries as involved in managing risk through analysis and pricing. But, I think, with our plethora of actuarial organizations in the United States and worldwide we have, perhaps, unnecessarily subdivided our profession into less effective pieces. Actuaries are uniformly trained in risk. The mathematical, statistical, economic and financial analyses we use may be tweaked for one kind of risk or another but they are applicable to all.

For example, focusing on the U.S. environment, an FSA and an FCAS are both fully qualified actuaries. Our jointly adhered to U.S. Code allows each of us to practice in any actuarial field if we are qualified to do so (Precept 2). We are, in fact, joined together in the American Academy of Actuaries and, surprisingly, once qualified as either an FSA or an FCAS may practice in the other's field, in any other area of actuarial science, or in any area of risk subject only to a requirement that we be qualified to do so – a largely self-determined status.

ENTERPRISE RISK MANAGEMENT

Think in terms of enterprise risk management (ERM), a field involving the collective management of the individual risks affecting an entity. We, that is, the worldwide profession, have established a new, worldwide credential (CERA) for that. CERA is indicative of successfully passing multiple examinations on enterprise risk management which are substantially common among the worldwide actuarial organizations. Essentially, though, ERM is just about risk, the interaction of multiple risks or the relevance of multiple risks to each other – a topic, in general, very well understood by actuaries. In fact, in the SOA, a CERA is an ASA with a specialization in, so-called enterprise risk: insurance risks; financial market risks; strategic risks; operational risks; and systemic risks.

In the SOA, an individual on his or her way to fellowship (FSA) must choose one of five specialty tracks, one of which is Finance/ERM. The distinctions we make between the various branches of our profession can get a little bit confusing unless one recognizes that it is all about risk.

REAL LIFE EXAMPLE

Here's an example of risk analysis, probably enterprise risk analysis, that even a 12-year-old actuary would get. While traveling, I was recently selected at random for a "pat down" search by the TSA. It was conducted after I had handled the steely eyed stare of the initial screener and and all my stuff had gone through (successfully) the electronic and secret ray screening processes. I was shoeless when the beep signaled my diversion to a special holding area for people like me. My first thought was, this is random – apparently the dime and two pennies in my pocket were not a contributing factor! Would we underwrite life insurance that way? I made it through.

Then, I got on the plane along with a couple of hundred others all of whom had brought at least one or more cell phones, iPods, computers or other electronic devices onboard – none of which was to be turned on we were warned, even in "airplane mode", during takeoff or landing because, well, I don't really know why – but it was definitely not good. None of this is really new and I've gone through it all before, but not when I was in an enterprise risk frame of mind. Why, I wonder, am I trusted to ***voluntarily*** keep all of my electronic junk off, which is apparently dangerous but am allowed to bring on the plane anyway? But, if I tried to skip the random TSA check, giving a thumbs-up "I'm OK" sign, trust me as you are about to do when I board the plane with my cell phone, tablet and notebook computer, I'd be arrested and put in prison. What kind of ERM is that? Really?

WE SHOULD ORGANIZE!

So, I'm thinking ERM work is the kind of work actuaries can easily do, in keeping with the IAA goal of actuaries being worldwide global players in social protection, among other things. We actuaries of whatever sort have the basic training we need to do that well – training in risk analysis, evaluation, pricing and management. If only we could get our act together and organize instead of each of our current individualized tracks focuses on the nooks and crannies of risk.

We should recognize our common heritage – risk and the risky business we are all in. Maybe in the future we will recognize that a common education system emphasizing risk can unite us. We will no longer demand that actuarial candidates choose a specialty before they take their first exam. And, as the world moves toward a global economy, actuaries will also not need to select a national economy in which to practice but can specialize in one or more depending upon where their career path takes them. ☆

Stress Relief

By Steve Wyszomierski

Steve Wyszomierski is a senior actuarial consultant at Aetna. He can be reached at WyszomierskiS@aetna.com.

Wake up at 6:00a.m. (I cannot believe it is that time again.)
Feed the cat. (Not that she'd let me forget.)
Make coffee. (Remember to unplug the coffee maker afterward.)
Make Lunch (Need to be healthy.)
Eat Breakfast (Do I have time?)
Get dressed (Do I have a big meeting today? Is that tomorrow? Which tie matches this shirt?)
Drive into work (Snow again!??! Did I unplug the coffee pot? Did the garage door stay down? I need to call a guy about that.)
Signing into the computer at work (I only have one more try…what did I change my password to?)…

All of that before you ever start working. Then a whole new set of thoughts and concerns take hold. *Did I sound too harsh in that email? Did I review this data thoroughly enough? Should I ask my boss this, or plow through it myself? Pressing deadline … I need to move my study hours. These reserve factors look high, but we've been restating poorly of late. Oh man, I forgot that I needed to finish that portfolio refresh by tomorrow for underwriting and sales! Looks like no study hours tomorrow either. I wonder if I'll ever finish that MLC manual! Meeting at 10 a.m. with my boss about my rate filing… and oh yeah, my semi-annual review. I sure hope that goes well.*

So I think everyone gets the point by now. Being an actuary is stressful. It isn't all work. There are so many other issues going on every day as well—social life, health, financial, home, family, and the list goes on and on. If there is one thing an actuary needs to be both proficient and practical about, it is stress relief. Now, there is no chance of eliminating stress for an actuary, or any profession, but there are ways of dealing with it and minimizing it. Here are just some suggestions for dealing with those daily battles that can wear us all down.

HAVE A ROUTINE, BUT BE FLEXIBLE

Sometimes this is very hard. A routine can help alleviate a great majority of the small, everyday stressors which can overtax the mind and cloud one's ability to function normally. Think about the quick story at the beginning. *Remember to unplug the coffee maker. Did the garage door go down? Feed the cat?* Chances are, if you have worked this into a routine, you won't ever forget. I still check the coffee pot twice every morning, but it has been years since it was still plugged into the wall when I looked that last time before I left the house. Getting up at the same time, working out at the same time every day, studying every day, and even getting to sleep at a somewhat regular time will help your body and mind adapt to the little and constant concerns of life. If needed, make a schedule for yourself, and force a routine in every day. Even at work, schedule time every day to do certain projects or study. It will allow you to function at a higher level and will take care of some of those other concerns as well (study time, job performance, etc.).

On the flip side, don't be too rigid. If you need to, take a day off. This is meant quite literally. Schedule PTO when your boss allows. Spend the day sleeping in and doing activities other than work and studying, or thinking about work and studying. There will always be more to do at your job. It will always be there when you get back. After all, if for no other reason, PTO is part of your compensation package. Use it to its fullest. You would not give away a day's worth of pay, so don't allow PTO to go unused. Other than just taking time off, allow yourself a bit of flexibility as well. Once you have a schedule firmly established, it is okay to bend it a little. Sleep in once every two weeks (as long as you are allowed to show up to work a little later as well). Stay up a little later to watch the end of a game or your favorite movie. Stay at work for a little longer to get a project done … you will sleep better that night.

WORK OUT

Working in the health insurance field, perhaps I hear about the concept of "wellness" more than the average person, but a healthy mind can only occur in conjuncture with a healthy body. Even if working out is not necessarily your thing, there is a routine, class, exercise or activity out there for you. It does not have to be running or weight lifting. Take a yoga or Pilates class. Try out spinning and

bike riding. Learn a new sport by finding a class nearby (such as tennis, golf, fencing or whatever tickles your fancy). Break out those skills you honed while earning your letterman's jacket back in high school, and find a pick up league or an intramural team on which to play.

The hardest part is starting. Here is the best suggestion for getting the ball rolling: Join a gym. If there is one at your office (there is one at mine), join that one. If not, pick one close to your house. Go before work, during lunch or right after work. If you go home first, trust me, you won't feel like leaving later. Ask a trainer or a friend to help you set up a routine if you are just starting out. Work out with a friend. Not only will you push each other to work harder, but downtime adds an opportunity for you to socialize or vent, if necessary. Along the way, you are building a healthier body, a stronger relationship and a routine.

The beauty of working out is twofold: First, while you are doing it, you probably aren't thinking about all the other stuff that typically runs through your head, so it is a great mental break. Second, good health allows you to perform better at your job because you will be more attentive and energetic. And, of course, regular exercise can lower weight, decrease blood pressure and usually results in a better overall self-image.

HAVE A HOBBY

The more intense moments of stress for an actuarial student, at least in my experience, occur during study season. When the exam is a month away, and it feels like the entire world is against you learning the material, the focus of life can become getting work done, studying until it is time to sleep—lather, rinse, repeat. This is a very stress-inducing and taxing lifestyle because it allows no downtime whatsoever. While your job needs to be a priority, it cannot be all you do. Having other interests will give you a break from work and study material card memorization. Time away from material, work or study will lead to increased ability to learn and perform.

If a topic is confusing you, put it away. Go do something else, preferably something you really enjoy that doesn't involve math (which is hard to find for some of us … yours truly included). What do you enjoy? Watching TV? Buy your favorite series on DVD and watch an episode a day. Read a book. My lifelong goal is now (aside from obtaining my FSA) is to become the world's leading expert on baseball literature. Maybe you are a sucker for vampire novels, Harry Potter, or Danielle Steele. If you like learning and just can't get enough, turn your mind off of actuarial knowledge and pick up a new language or a book on string theory. There are plenty of other hobbies. Take care of some flowers/plants, take up fly fishing, get a pet, learn calligraphy or become a world-class cupcake baker (trust me, your coworkers will appreciate this one).

CREATE A SUPPORT SYSTEM

Sometimes, it is difficult to see past the blinders of work and studying. The narrowing of the mind to focus on these topics is sometimes necessary, but that does not mean the rest of the world stops. All of the above suggestions not-

withstanding, when you choose actuarial science, you know that sometimes a request by your boss has to take precedence over a happy hour, and studying on the weekends may cut into time spent seeing friends and family, or watching your favorite football team.

Having coworkers, mentors, friends and family who understand and support you can help you through challenging times. There may be days when your brain and body say they want to give up. Having a friend or group of friends there to remind you of what you are working for is important. Having a coworker to study with, to vent to, or just to take a walk with during the middle of a stressful day can help you decompress and refocus.

You may hit points in your career where you don't know what job opportunity is right for you, or you are having trouble balancing work and life. A mentor, preferably someone who is older and has been through the same rigors as you are currently battling, is a wonderful resource. Find someone whom you trust and you feel comfortable with, such as a former boss, and set up lunches or even half-hour meetings to discuss whatever is on your mind—finances, job security, relationships or career advice. Some companies may even have formal mentoring programs. Take advantage of these opportunities to learn from others, and reduce the worries weighing on your mind. Remember, these support systems will not just fall into place. As with any other relationship, work to build them and keep them strong must be nearly constant. You will probably find that, not only will you be able to lean on these people during your own stressful times, but you will also have a group to celebrate the good times and share mutual interests with along the way. This will make being an actuary, through all the studying and the working, that much more satisfying.

At the end of the day, all the things that make your mind spin will still be there. I wish I could give you the secret to eliminating these stressors for good. That doesn't mean, however, that stress levels cannot be significantly lowered. Try just a few of those suggestions above, and you may find yourself being able to see through that other "stuff" that clouds your head some days. The results will touch all parts of your life, from job performance, to health, to studying, to relationships with other people, and the list goes on and on. Now if you will excuse me, I think I've got to get home, but first…

Where did I put my keys?
Better question, which level did I park my car on?
Was I supposed to pick something up from the grocery store?
My car is making a funny noise (I need to get that checked out).
Did I lock my desk?
Oh yeah, I remember now, I needed to stop at the ATM (turn the car around)… ☆

Exploring The ABCs of ERM

By Efrem L. Epstein

In recent years, Enterprise Risk Management (ERM) has been one of the hottest topics of discussion within the actuarial profession. On May 18, 2011, the Actuarial Society of New York (ASNY) presented a seminar which highlighted current challenges and navigated potential solutions for life insurance companies seeking to integrate and maintain an effective ERM strategy.

Sim Segal, president of SimErgy Consulting, author of *Corporate Value of Enterprise Risk Management: The Next Step in Business Management* (recently adopted as required reading on the CERA syllabus) and a current VP of the Society of Actuaries, led off the seminar by offering his list of 10 key criteria for benchmarking an ERM program.

First, ERM programs must cover the scope of the entire enterprise, a characteristic that many programs surprisingly lack. Second, they must include all risk categories including operational and strategic risks. Segal noted that many ERM programs focus too heavily on financial and insurance risks, but industry research indicates that strategic and operational risks account for the bulk of firm volatility. Third, ERM programs should highlight the key risks: the top 20-30 threats. Fourth, it is critical to examine the integrated impact of two or more risks occurring simultaneously, since "combination punches" are often the most dangerous. Fifth, ERM metrics, such as enterprise risk exposure and risk appetite, should be aggregated to the enterprise level.

Too often the key findings of ERM are used only to identify and report, so Segal's sixth criterion is that ERM must be used for decision-making purposes. His seventh criterion is to include upside volatility, which is needed for risk-return management. Eighth, is to disclose all risks properly; Segal noted that improperly disclosed risks is the most overlooked risk in and of itself. Ninth, measure the impact of risk on company value. Segal's final criterion is to focus on the primary stakeholder, which for public companies is the shareholder, as opposed to rating agencies.

Damon Levine, vice president of ERM at Assurant, opened his presentation by citing the story of Aron Ralston, recently portrayed by James Franco in *127 Hours*. Mr. Levine noted that Ralston was a chronic adventure-seeker who had nearly died on at least three other occasions prior to his now legendary escape from being trapped under a boulder.

Similarly, companies should be aware that their own patterns of "near-misses" may suggest a higher than perceived likelihood of a true disaster unfolding and they shouldn't feign surprise when they are greeted by their next unplanned crisis.

Still, Mr. Levine suggested that companies should focus on an ERM program that breeds a risk-aware as opposed to a risk-averse culture. Emphasizing that "a good model will tell you things you didn't tell it to tell to you," he highlighted the need for companies to craft customized, consistent ERM models that balance simplicity and capability while taking into account the aggregate of risks. In addition, Mr. Levine noted that it is critical to build and

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maintain a corporate environment where risk managers can be intellectually honest in their assessments and can comfortably report the realistic upside and downside scenarios of every deal, transaction and opportunity.

The final presentation of the afternoon was courtesy of David Ingram, executive vice president of Willis RE and a member of the Actuarial Standards Board ERM Task Force which had recently released discussion drafts of standards for comments and feedback. Mr. Ingram opened by noting the significance of the task force, since standards mark the true sign of a profession's arrival. Correcting a common misconception, he noted that "risk measurement" is inaccurate terminology since risks are evaluated, not measured. Ingram suggested that a comprehensive ERM program should evaluate both risk tolerance and effective risk appetite and proper disclosures coupled with clear, transparent communication were essential. He closed by hinting that future task forces of the International Actuarial Association may expand and create a global standard for actuarial ERM practice. ☆

Risk Management for Small Businesses Takes off

By Cindy Weiss

This article is reprinted with permission from the University of Connecticut publication, CLAS Today.

Risk management is a growth area for large corporations, where having a chief risk officer on the executive team is now common enough to have earned its own acronym – CRO.

But how do small businesses manage risk, with their fewer resources and smaller staffs?

The Janet and Mark L. Goldenson Center in Actuarial Science at the University of Connecticut College of Liberal Arts and Sciences has developed a new Enterprise Risk Management (ERM) service for small businesses, analyzing areas where small businesses are at risk and offering advice on how to manage it.

The center sends teams of actuarial students to meet with the small business owner, collect data and information from interviews and financial reports, and over the course of six to eight weeks, analyze the business's weaknesses and prepare a plan to address them.

The students then present their data, charts and PowerPoints and leave a detailed report with the business owner.

"It was kind of an eye opener, what they showed us," says Jerry Puiia, co-owner with his brother, Joe Puiia, of three Between Rounds Bagels shops in Vernon, South Windsor, and Manchester, with a catering operation, too, and plans to franchise.

It's not that he couldn't have culled the information himself, says Jerry Puiia, who has a master's degree in engineering and an MBA and used to work as an engineer at Pratt and Whitney.

But operating a seven-day-a-week cash business leaves very little time to analyze the mountains of data that his computer systems collect.

The actuarial students, on the other hand, showed him a methodical way to analyze the information and see clear results, such as less profitable menu items that could be eliminated to streamline a drive-through service.

They can also offer business owners advice on how to attract young customers, says Jay Vadiveloo, director of the Goldenson Center and a senior consultant for Towers Watson, who advises the students. That may include advice on redesigning a website, marketing on Facebook or updating the look of a store.

The students benefit by learning to work as a team, adapting their analyses to the needs of each business and thinking out-of-the-box.

"I tell my students, the fact they've quantified something doesn't make it right, and the fact they can't quantity it doesn't make the risk go away."

Actuaries, once largely associated with insurance plans and pensions, have evolved to become risk managers

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Cindy Weiss is communications director for the College of Liberal Arts and Sciences at the University of Connecticut. She can be reached at cindy.weiss@uconn.edu.

who work in such areas as hedging, investments, and the derivatives market, he says.

Chartered Enterprise Risk Analyst, or CERA, is one of the latest actuarial qualifications, he notes.

"We're good at modeling risk."

Small businesses are particularly vulnerable to risk, he says. Their typical weaknesses are "key man" – all knowledge about the business is in the hands of one or two people; concentration – they are focused on only one product; and too-fast growth.

In 2009, the Small Business Association reported nearly 61,000 small business bankruptcy filings in the United States. Connecticut had more than 10,000 small businesses open that year and more than 13,000 close, according to one of his students' reports.

But the ERM for small businesses project does not work with brandnew businesses or shaky start-ups. Rather, it assesses risk for those that have established themselves but are looking for ways to compete in a tough economy.

In one project, students worked with a family-owned fuel company in eastern Connecticut that has been in business for more than 70 years but is finding itself vulnerable to oil price spikes. They showed the owner how he could use derivatives to hedge, speculate and reduce his own wholesale costs.

When the report is delivered, "We want the owner to walk away with deliverables," says Vadiveloo.
To date, the Goldenson Center's endowment has covered the cost of the risk assessments. But Vadiveloo would like to see the service expanded globally, perhaps funded by banks or large corporations that use small businesses as suppliers.

"If the small business sector is successful, it's a boost to the economy," he says. ☆

Observations from the Nonprofit Sector: A Roundtable Interview with Actuaries Working at Nonprofit Organizations

By Jennie McGinnis

Note: The views expressed in this article are those of the interviewees and do not necessarily reflect those of their employers.

While preparing the Chair's Corner article in the last issue of this newsletter I had the opportunity to hear from a number of actuaries working at the Society of Actuaries (SOA) regarding their thoughts about working at a nonprofit organization. Those conversations led me to pursue this article, which explores what it's like to be an actuary working at various nonprofits, each with its own mission and client base. Three esteemed actuaries agreed to share their experiences and what they've learned in taking on roles outside of the for-profit sector.

Sharon Giffen is the CFO of Foresters, a Canadian-based, multinational Fraternal Benefit Society (FBS). She has been with the organization for 11 years, starting in the pricing area, becoming chief actuary in 2006, and being appointed to her current role in 2009, in which she has accountability for actuarial, finance, investments, capital management, business intelligence, internal audit and risk management. With over 30 years of experience in the life insurance industry, she has worked for a variety of insurance organizations – large and small, stock and mutual – with over 20 of those years in marketing and product development roles in Canada and the United States.

FBSs are a unique form of organization; not quite a mutual since the members don't "own" the surplus and certainly not a stock company with shareholders. They are governed by their members with the goal of fulfilling the mission of the organization. Simply put, the business of a FBS is to sell insurance, at a profit, and deploy that profit in the execution of the mission.

Steve Goss has been chief actuary at the Social Security Administration since 2001. He joined the Office of the Chief Actuary in 1973 after graduating from the University of Virginia with a master's degree in mathematics. He graduated from the University of Pennsylvania in 1971 with a bachelor's degree majoring in mathematics and economics. He has worked in areas related to health insurance and long-term-care insurance as well as pension, disability, and survivor protection.

Sara Teppema has been the health staff fellow at the SOA since 2009. She has over 20 years of experience in health care consulting, primarily to employers but also to managed care plans, providers and government entities. Immediately prior to her current role she worked at Hewitt, helping large employers achieve the highest value for their employee health care plan dollar.

Which skills have proven useful throughout your career?

Sharon: Assuming that technical skills are the "price of admission", I have valued getting training, both in the classroom and on the job, for management and communication skills. Additionally, I had the benefit of some training in influencing and negotiating. All of these can be summed up by saying "listening skills". I believe

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one of the best things I learned many years ago is to be curious - when you think you understand, ask five more questions. Either you will discover that you didn't really understand, or you will have a broader, deeper understanding of the issue.

Steve: Agreed. Everyone who becomes an actuary has good analytical skills and these are essential. But listening and being open to new ideas and ways of approaching things is critical. In addition, recognizing when a new idea or approach is an improvement and adds to the product is important. Change for the sake of change with no net gain is not useful, and can even be wasteful.

Sara: Effective meeting facilitation, presentation skills, listening skills, negotiation skills, persistence and the ability to spot a good idea and bring it to fruition are all things that also have been useful to me.

Which skills have proven particularly useful in your current position?

Sara: When I came to the SOA, I was surprised at how much I used my client service skills. I think of SOA members as my clients, and try to apply "the client comes first" in what I do. I also seem to write a lot in my current role. Additionally, the ability to spot a good idea and be persistent in order to make it come to life is a skill that I didn't know I had, yet have found useful and also very satisfying.

Steve: Communication. Making a point as succinctly as possible, and yet clearly is perhaps more an art than a skill. To Sara's point, having a great idea is wonderful, but it is of no use unless you can convey it. There is an old principle that if everyone in the room has the same information and is thinking logically, then agreement will be easy. It is not always that simple, but striving for complete understanding and logical thinking can at least help uncover any true differences in values that might get in the way of agreement. This then helps set up the basis for compromising the hopefully few areas of difference.

ONE OF THE BEST THINGS I LEARNED MANY YEARS AGO IS TO BE CURIOUS - WHEN YOU THINK YOU UNDERSTAND, ASK FIVE MORE QUESTIONS.

An equally important skill or practice is to be prepared, as the Boy Scouts say. This means making sure you know the topic two or three levels deeper than is likely to come up in discussion. This helps you to feel confident in any discussion and to be effective and helpful in the development of ideas and decisions.

Sharon: Big picture, integrated thinking – the issues that I face today are multi-faceted and complex. Historically, my method of dealing with an issue is to work a bit longer or harder and I could always get the job done. Now, there is very rarely a right or wrong answer and no amount of additional analysis is going to make the answer clearer. We are always balancing the many conflicting priorities of our various objectives. Needless to say, multi-tasking is also critical – with the breadth of my mandate, I find myself switching gears among diverse topics frequently.

What similarities have you experienced between your current work and any prior 'for profit' work?

Steve: Clear thinking, effective communication, and a positive constructive attitude are universally important. Every job comes with relatively clear goals and objectives, both near term and long term. Knowing these and staying focused is important to getting the job done and being successful.

Sara: The ability to concisely convey and report information is very important, and this skill definitely translated from consulting to my work at the SOA. Client service skills are important everywhere: putting the client first, reliably getting things done well and on time, communication (and sometimes over-communication),

and problem solving are all useful skills in every sector.

What are the key differences between your current work and any prior 'for profit' work?

Sharon: At an FBS, we have the whole additional dynamic of the membership and the "business" of generating volunteerism – and what does that mean for the pricing of products or setting of reserves and cash flow testing? This is perhaps due more so to the fact that I am in the "corporate" office. Our divisional actuaries would see even less difference to working in a commercial company, as they don't need to deal with the fraternal side of the equation to the same extent.

Steve: Working as an actuary in the federal government means we directly serve the administration and both sides of the aisle in Congress. Therefore, unlike working for a single company, we serve many masters all at once, often on the same issue. Maintaining objectivity and the ability to shift gears in working to help different people with entirely different goals find a path to their respective objectives is critical. This results in a level of independence that is unusual but essential. Fortunately, politicians understand this and come to value objectivity and the opportunity to get a straight unvarnished opinion.

What was your largest surprise moving into 'non-profit' work?

Sara: I wasn't sure what to expect, but I remember when I first started, thinking "everyone is just as smart and just as wonderful as my old job, but they wear more comfortable shoes."

Seriously, the biggest surprise was that my role was relatively flexible, and I was able to make the role my own, and craft it to fit my skills and my impression of the necessary goals.

Steve: How hard people work and how motivated they are. When people see an objective they can feel committed to and have the support of co-workers in a positive friendly atmosphere it is remarkable how much you can get done. Without the pressure to make a profit, it is a little easier to maintain focus on quality and objectivity. There also seems to be a little better opportunity for more in-depth analysis, which always pays dividends.

Sharon: How strongly I identified with the mission of Foresters – our purpose (mission) is for healthy families and children's health – and I do not have children. It is impossible to think anything but that family is extremely important – and our purpose encompasses family in its broadest sense – so I can identify with my siblings and their children as my family.

In follow up to Stephen's comment, what is your response to those who have the impression that without profit as a driver those working at non-profits have minimal incentive to control expenses, meet deadlines, etc.?

Sharon: Quite the contrary! Employees of an FBS are always conscious that every dollar spent means less funding to fulfill the mission of the organization. Expense constraints are every bit as real as for any company watching their stock price – and we have no readily available source to raise additional capital, so the obligation to not waste can be the difference between solvency and insolvency. Additionally, we have the obligation to keep up-to-date with regulatory changes – in all three of our jurisdictions, including some rather unique require-

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ments for FBSs. Layer over that the ongoing need to explain to regulators, the rating agencies and the public what makes us different and what is the same as in a commercial insurer, and it is clear that this is no cushy place to be.

Sara: In the case of the SOA, we are motivated by serving our members, and my experience with SOA staff is that everyone works very hard to do that as efficiently as possible. As one of the actuaries on staff, I am also a member of the SOA, so I try to be a particularly careful steward of SOA member resources. Also, sometimes a profit-based motivation can get in the way of long term planning and investment, and I think the SOA is able to be forward-thinking and invest in areas that will be important to our members now and down the road.

Steve: I think most realize that in the current environment, both private nonprofit and government entities are so strapped for money that controlling expenses is not an issue. In addition to being nonprofit, government and private nonprofit organizations lack the competitive pressures of the marketplace to produce the most appealing product at the lowest price, to maximize profit. But because government and private nonprofits generally provide their services at no direct cost (on the margin), demand is infinitely high. This produces enormous pressure to produce a lot, as fast and efficiently as possible. We all want to satisfy our customers as best we can. I think it is fair to say that there is no shortage of oversight and pressure to produce in the government and private nonprofit sector, particularly for actuaries.

What would you say is the biggest contributing factor to having the position you hold today?

Sara: Rather suddenly, I realized I wanted to get out of the corporate world and thought it would be great if I could find something in the nonprofit sector. I heard the position was open and called a friend who worked at the SOA. Within days I had an interview scheduled! So, key contributing factors were a change of pace, and knowing who to talk to (networking).

Sharon: Somewhat similarly, I would say curiosity. I always have wanted to understand more and to be involved more broadly than the narrow definition of my role, whatever that is. I have never been afraid to delve into other areas, first to understand, then to offer ideas and suggestions. Of course, it is always important to ensure that the recipient of such ideas is open to them!

An important second factor is courage. I have made many career decisions where my rationale was not necessarily obvious to friends and colleagues – I have taken a number of nontraditional roles for actuaries, within the insurance business (e.g. underwriter and product wholesaler) and made some moves within the actuarial realm. I have welcomed the opportunity to try new skills – on the job (off the deep-end sometimes!) is the best classroom ever.

Steve: Luck most likely. But to a great degree perhaps balance both in abilities and goals. We have all seen folks who are brilliant technically but have a very hard time communicating. And we have seen the reverse. Being good enough in both of these areas is essential to become any kind of leader. Beyond that, genuinely caring about the work you do, the people you work with, and the people you work for make a difference. And these things show. Positive attitude, enthusiasm and cooperation can be infectious. If you do not enjoy what you are doing or do not care about the outcome you are unlikely to do well.

What do you wish you'd known before taking your current position or before moving into non-profit work?

Sharon: Nothing really – I guess I like surprises! Just having completed my second year as CFO, I am learning that much of my job is to be an advisor to my colleagues – it might have been good to know that without having to discover it!

Steve: There is the old saying that "the fun is in the going". Learning along the way has been fun and I am not sure I would change a thing. Perhaps the one thing I wish I had more fully understood early on is the importance of trying to boil down possibly complex topics into the simplest possible terms. Throwing around a lot of acronyms or talking in terms that your audience or colleagues are not familiar with is counterproductive and will diminish rather than enhance your value to others. I think most intuitively understand this, but keeping this constantly in mind is very important.

Sara: Since I've been a member of the SOA for 18 years, I had a pretty good sense of the association and its needs and goals in the health care area. That said, a nonprofit association is a different animal than a consulting firm, and it took a while to understand how to navigate the organization. I don't think an organization's culture is something you can learn in advance; similar to the other responses, you just need to "learn as you do".

To close, what would you advise someone seeking to follow in your footsteps?

Sharon: First, I'll comment on moving into an FBS; if you have something of an altruistic streak and want a very meaningful reason to go to work each day, then the fraternal industry is a great place to exercise your professional talents. I feel fortunate to work for a relatively large fraternal with multi-national reach. On the other hand, some of the smaller organizations offer the additional benefit (if you so see it) of working in an environment where the team is very small and you can get exposed to all of the issues that face any insurance actuary.

With respect to moving out of a strictly actuarial role into the broader finance role, do your best to get exposure to all aspects of the insurance business – and more than just superficially. It is extremely easy to talk to someone in another discipline and think you could do their job, or give them suggestions; it is harder when you walk a mile in their shoes.

DO YOUR BEST TO GET EXPOSURE TO ALL ASPECTS OF THE INSURANCE BUSINESS – AND MORE THAN JUST SUPERFICIALLY.

Sara: I like to say that actuaries can do anything if they are willing to learn and step out of their comfort zone. That comfort zone might be the level of management responsibility, it might be compensation, or it might be taking career risks or business decision risks. As in any situation, if you have a particular goal in mind, you should research as much as you can, set interim goals to help you get there, and network as much as possible along the way to learn from others.

Steve: Work hard and treat your coworkers like family. Never take a negative attitude by others personally. Some of your best business relationships will come from engaging others who may have been initially antagonistic, but who ultimately appreciate constructively engaging on areas of difference. Never ever forget that "it is amazing how much you can get done if you do not worry about who gets the credit." If you are positive, constructive and useful you will be recognized and rewarded in the end likely even more than is appropriate. ☆

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Network with a Purpose

By Mike Mullane

Mike Mullane is an analyst with Towers Watson. He can be reached at mike.mullane@towerswatson.com

The propagation of social and professional media outlets in the world today have led to a definitive spike in connectedness for people interacting from afar. Facebook, Twitter, LinkedIn, Monster.com, and many other websites have made it so anyone can communicate and network with their peers and colleagues from the comfort of their own home. However, I'd like to argue that in order to really get ahead and give yourself a leg up in the actuarial profession (and almost any other professional setting for that matter) is through good old-fashioned, face-to-face human interaction. I believe the keys to success in the future lie in the ability to be a flexible traveler with an array of interpersonal and communication skills rather than the technological savvy to manage numerous profiles and contacts through these networking mediums. Let me demonstrate this point by using the best method for basing assumptions in most models we develop, experience.

It took me a while to figure out what career path I wanted to take; to discover actuarial science and decide that it was the best possible fit for me. I was a senior in college with no exams taken (let alone passed) and no internships under my belt, but I knew, given my affinity for math and my interest in trying to predict the world's financial future by studying patterns and trends, the actuarial path was the one I would follow after graduating.

Now it is quite a humbling experience to enter a job market with credentials that immediately send your resume to the bottom of the pile. We live in a world where academics have become increasingly competitive and students are making career decisions at younger ages. They're not just taking the appropriate college courses to get to where they want to be; planning a career now starts in high school and even as far back as middle school in some cases. The status quo for securing an entry-level, full-time position as an actuary these days stands somewhere around two exams and an internship. I had none of these. I had a long way to go.

It took me two years to finally overcome the appropriate hurdles to secure a full-time actuarial analyst position (I'll leave the plausible effect of the economic downturn out of this), and while the exams were paramount, they are far from the reason why I eventually got the offer I was looking for. Networking and knowing the right people were a far better way to facilitate getting my proverbial foot in the door.

One way to network and try to get noticed in the professional world is through the sheer volume of applications and resumes you send out. The larger number of contacts, the more interviews you'll secure, the better the odds of landing a job. I've used a few professional networking websites and databases with moderate success in order to locate job opportunities and get interviews, and while they can be useful tools in one's search, the core characteristics necessary to find the best fit, to find the most appropriate and gratifying position for yourself, are personality and communication skills. Any number of actuarial students can pass exams and evaluate models. Being able to talk candidly with a prospective employer and effectively communicate your situation, qualifications and job preferences puts you in a higher echelon of candidates being considered for a position. It shows that you will be able to interact and communicate effectively with coworkers and clients if and when you do get hired.

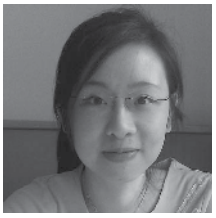
As I was reaching out to gain and develop contacts and secure interviews, I made sure to take every opportunity to meet in person to talk with people, even if it meant I'd have to do a significant amount of traveling. There were several instances in which I took interviews even though I had been told there were no positions available in the foreseeable future. Not only did I gain from hearing about others' experiences and progression through the actuarial ranks, but it was a great exercise in learning how to communicate and market myself to employers. I initially took an internship in retirement finance (and made sure to let them know it would be a short-term situation since my plan was to move into an actuarial position as soon as I could).

With two exams and a finance-related internship under my belt, I finally started getting results. After a full day of interviews and drawing on my two years of practice, I was offered my first actuarial internship, but the company wasn't completely sold on hiring me full-time immediately. It was only after I shared my willingness to travel when they offered to send me to work on a project in Atlanta (I live and work in Connecticut) that I was able to develop even more meaningful professional relationships in the course of my work. These relationships gave me the recommendations I needed to get over the hump and that is when I finally became a full-time actuarial analyst.

In conclusion, while these networking mediums can be a great way to get introduced to new contacts, the "bread and butter" of getting to where you want to be is in fostering those professional relationships and allowing people to get to know the real you. Combine that with the ability to pass exams and perform in a work environment, and you will find yourself on a much better path to success, a path I have only just begun. ☆

Two Things I Learned from My Internship

By Pammi Yeung



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The benefits of an internship are countless: applying classroom knowledge to hands-on situations, exploring career possibilities, developing new skills ... My first actuarial internship undoubtedly offered me all of the above; it also taught me the right attitude toward work and my co-workers.

Consulting firms serve their clients by providing expert advice. As an inexperienced intern, opportunities to work on projects for external clients may be rare. However, there are many ways in which an intern can add value to their firm. Internal projects are often ones that full-time employees do not have time to complete, and may consist of tasks such as data entry and data collection. While the work may not appear as exciting as work done directly for the firm's clients, it is meaningful and can not only lead to future projects, but also enhance a team's efficiency in those future projects. Internal projects also provide rich learning opportunities. The deadlines may not be as rigid as those set for client projects, allowing interns to gain a deeper understanding of their job and the inner workings of the firm. In some sense, my relationship with the analysts and consultants that I worked for is analogous to the client-firm relationship. If I do a good job on a project, my superiors will come to me in the future with more rewarding and challenging tasks.

College students are primarily evaluated on their individual academic achievements, sometimes relative to the achievements of their peers. The professional workplace is a much more team-oriented environment. On most projects you will be working with other interns or analysts; working effectively with your colleagues is essential. Moreover, many projects span a period of time longer than the typical internship. Interns will work on and sometimes complete projects that were started long before they joined the firm. They will also start on or make contributions to projects that will be completed by future interns. Looking at the bigger picture, clients assess the performance of a firm by the overall quality of the service and cannot measure the individual contributions of the firm's employees.

I've found that holding an internship has been an invaluable experience as I've had the chance to work with some knowledgeable people who have shaped my future career as an actuary. I've had the chance to make an impact on the company by working on some projects that will only help my colleagues in the future. ☆

Alternative Career Options for Actuarial Students

By YG Sun

"To be, or not to be." I, for one, have asked myself this question a few times while treading down the path of becoming an actuary. Some of you might have had similar thoughts, perhaps, when grinding through the MLC study manual. Of course, to doubt is human nature. Given the amount of experience an average actuarial student may have, it is not sufficient to provide a comprehensive understanding of the nature of actuarial work and the lifestyle it may or may not bring.

If you know for certain that this line of work is for you, I wish you the best of luck. If you think, for whatever the reason, you want to explore other career options before fully committing yourself to actuarial science, you are not alone.

Let me briefly share my story. After graduating from the University of Waterloo in Spring 2009, I landed a consulting internship with a local ERM firm. After that, I transitioned to a marketing analyst at a telecom. About a year ago I took up my current position with a Fortune 500 interactive entertainment company as a business analyst.

A lot of students tend to think that their education is for actuarial science and for actuarial science only. "How can I compete with a marketing/business/economics grad for that position?" Obviously actuarial exams and credentials are most widely known within the insurance spectrum, but an actuarial education can give you an edge when seeking employment elsewhere. One of the main reasons for me landing my current position is that I have an educational background in statistics and forecasting. It turns out my business unit was looking for someone who could provide sensible forecasts on sales and user activity data, and I was able to provide that expertise.

Trends clearly indicate that business is going analytical. I am confident that most business decisions made today are data driven. This is especially true for insurance and banking, but it applies beyond these two. Production, sales, marketing, operation—these functions are present in almost all companies, and they need analysts. Production analysts analyze the production capacity and delegate as such. Sales and marketing analysts gather consumer insights and conduct research. Operation analysts deal with external and internal operational issues. Not all business analysts have the same responsibilities and thus are required to have different levels of technical expertise, but a keen analytical mindset coupled with strong mathematical background should serve you well at any analytical position.

I believe that actuarial science is a great career choice for those who enjoy the work. I would not recommend that anyone diverges from the field unless they are absolutely sure. There are a lot of great opportunities outside of insurance and consulting, and with such rigorous training in actuarial science, any student should shine given the chance. ☆

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Job Search

By Daniel Song

Daniel Song is currently a model steward at MetLife. He can be reached at Daniel.Song@alico.com.

Disclaimer: This is a work of "faction". While this article is derived from actual events, details and events may have been modified for privacy reasons.

It's not about you.
This is the opposite of what I had been taught. Of course it was all about me. It was about my GPA, SAT scores, the college I went to, the job that I got, and the money that I made.

And at some point, I started to realize that people were keeping score.

If you had parents - and if you had parents with friends - you probably became aware of this in an unpleasant way. There is always going to be someone who is smarter, someone who gets better grades, someone who has a better job, someone who makes more money. And accepting your limitations and trying your best in your own endeavors never seems to be enough.

If you live to satisfy the critics, it'll always end up in disappointment - for you and the critic alike.
If there is one lesson I've learned, it's that the critics will never be satisfied. They're always bloodthirsty, always there to shoot you down. It doesn't matter how skilled you are, how hard you try, or how much integrity, gentleness, and respect you have for others. You will never satisfy your critics. You must find another standard, another set of goals.

So what is the answer?
You can't control how you are perceived, but you can control who you are.

Well, kind of true, but not quite. It is true that we can make better choices and conduct better lives. And I made several steps in that direction during my job search. I started getting up early in the morning, exercised on a daily basis and changed my diet. I studied for the actuarial exams nonstop. I continued to pursue my main hobbies and interests, which were church activities and the violin - but otherwise, I really trimmed the fat from my daily routine.

And it didn't end there. The job search started in earnest, as I pored over job openings on the internet. I contacted as many actuaries in the area as I could. I emailed several actuarial societies and clubs in the area, and finally found one I could join - the actuary club at UCLA. And through emails, telephone conversations, and actuary club meetings, I started to learn more and more about the profession.

One could say that I pursued the actuarial career religiously.

You're not the one in control.
It's foolish to think that you can do everything through your own power. Are you hard-working and disciplined? Yet, there are times when motivation disappears and your energy dissipates. Are you a social person? Yet people will let you down, and your social standing can turn on a dime. Are you kind and generous? Some stressful situation will come up that will test even your strongest traits. At some point you have to realize that there are things beyond your control.

Such was my fate when I started my internship, which finally came after a one-year job search, three exams passed, and constant efforts at networking. It's always easy to point fingers after the fact and see all the things you could've done better - but I can honestly say that I made my very best effort in my internship. I was consistent in my effort, my production, and improvement. From an objective perspective, I had a higher level of production, while doing more demanding work than the vast majority of interns and new hires - which I gathered through several conversations and objective data I was given access to. I made my best efforts to communicate with my co-workers in a professional manner, and did so both within and outside the office. There is little more I could've done - I was already at the limits of my capability, given my inexperience.

The end did come, however, and it was not pleasant. It was especially unpleasant because I had been hired after an interview process for a full-time position - I was told that this position would be an internship after the fact, and even then, it would be considered a "trial period". The review process came days before the final date of the internship - and on the final day of the internship, I was given one last exit interview and was summarily dismissed. I even put in several hours of work on the final day before the exit interview, finally being told to return the company equipment, pack up my desk and go home.

It's always good to know the truth - but it doesn't always help.

Yes, it's kind of contradictory. While unpleasant, it hardly came as a surprise. I had seen the signs. I had read a number of testimonies and comments on the web. I noticed that a number of interns and first-year associates had "left the company". Some were poor performers, some were good performers, others were superb performers. All of them worked very hard and there is little doubt that most of them were bright people. There was a consistent pattern to this, though - it always came down to workload, billable hours and profit margins. If someone had to be let go, a poor performance review could be manufactured at any time to justify the layoff.

THE TRUTH WAS THAT I NEEDED THE INTERNSHIP VERY BADLY, AND I WOULD HAVE BEEN HAPPY TO WORK FOR FIVE MONTHS AND LOOK FOR A FULL-TIME POSITION ELSEWHERE.

Yet, even had I known this from the beginning, what would this change?
Nothing.

The truth was that I needed the internship very badly, and I would have been happy to work for five months and look for a full-time position elsewhere. And in principle, my responsibilities didn't change. You see, there are some things one should do simply because it is the right thing to do. In my case, I was given a temporary position, was being paid well for it, and the company deserved nothing less than my best effort and performance. They got it.

Be quick to give credit to others, but take responsibility for your own actions.

I'm sure that under different circumstances, I could have been a greater asset to my first employer. But the circumstances were what they were; and even at the end of my internship I was simply not capable of keeping up with more experienced associates and managers. In the end, I must be held responsible. The company set a standard that I was not able to meet, and that is that.

With that said, the internship helped me tremendously. I was treated like an experienced employee almost from the outset, and was given the same responsibilities, guidance and expectations on performance. I was given no illusions at all as to what it would be like to work for the company on a full-time basis - no one wore a special mask reserved strictly for interns, one designed to attract the intern to the company, as opposed to what it was like to really work for the company. It was an extremely important lesson that could only be learned through experience, and I was given that. Alas, I had to

CONTINUED ON **PAGE 34**

learn this the hard way, but that was the only way it could be learned - better to learn it early, while the stakes were still low.

You are not alone.

It only seems like you are. After all, you're the one who had to face the inevitable termination. But you're not alone, and your worth is not based on a few parting shots received during your exit interview. There is more, much more. There are the people you have spoken to, made connections with. People who have helped you, and people you have helped. And after a while, the pieces begin to fit. It's not about you; it's never been about you. It's about others. It's always been about others. It's about communicating, understanding and helping others. Making sure to listen and take down notes so you'll remember things later. Being unafraid to ask questions when necessary. Appreciating and respecting others' skills, and finding a way to facilitate, helping them make the most of their talents. Taking a genuine interest in their lives, yet respecting their need to lead their own lives - instead of compelling them, or being compelled, to do things just to "fit in". Recognizing that differences exist, and learning to work together despite the differences - or because of the differences.

I've learned a lot of important lessons during my quest for a full-time job, which has finally come to an end. And I would like to thank all the people who have helped, supported and prayed for me throughout my ordeals during my job search - which had even greater trials than the ones I chose to reveal here. My only hope is to do for others what others have done for me - since there are so many people looking for the right guidance and advice - bright, talented, and motivated people looking to break into the profession.

I will do my best to be there for them. ☆

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