SOCIETY OF ACTUARIES

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Dark Side of the Moon

By Clark Ramsey

Welcome to the latest issue of the newsletter of the Forecasting & Futurism Section. But before I begin to talk about your section, please join me for a brief detour …

It was not until 1959 that Luna 3, a robotic Soviet spacecraft, rounded the moon and provided mankind its first glimpse of the far side of the moon, which is often less accurately referred to as the "dark" side of the moon. For all the preceding millennia that humans had walked the Earth and gazed up at our nearest and brightest celestial neighbor, it was always the same side of the moon that they saw. However the moon came to be the Earth's outsized satellite, it likely only required a few million years for Earth's gravity to tidally lock the moon to the Earth, so that the moon's orbit around the Earth takes almost exactly the same amount of time as the moon takes to rotate once on its axis. The first human eyes to see the far side of the moon live were those of the astronauts on the American spacecraft Apollo 18 in 1968. Five years later, Pink Floyd released their epochal album *Dark Side of the Moon*. Perhaps the fact that I will almost certainly be hearing selections from *Dark Side of the Moon* at my upcoming 40th high school reunion is what sent me on this digression.

Prior to Luna 3's poor, grainy 1959 photos, humans collectively had essentially zero data points about the far side of the moon. Those pictures may have been low-resolution, but they provided our first real data, and were sufficient to reveal that there were striking differences between the near and far sides of the moon. Later spacecraft, both robotic and manned, have added immense volumes of data, but in many important ways we remain largely ignorant about the far side of the moon and the reasons that its mountainous, relatively mare-free terrain stands in such stark contrast to the side we have known for so long.

Our knowledge of the far side thus stood at essentially zero until a little more than half a century ago, and now that knowledge is extensive in some ways and yet still quite deficient in others. This is not unlike what we may see in an actuarial career. In our actuarial lives, we sometimes face situations that require forecasting from little or no data, perhaps in pricing or reserving for a new product or for an existing product in a new market. The brave actuaries who first priced long-term care insurance lacked data on voluntary lapse rates for this new coverage, so they often made the assumption that experience would be similar to life insurance products. Before Luna 3, astronomers had in a similar manner assumed that the far side of the moon would be the same as the visible side. In both of these cases, subsequent data proved otherwise—the far side was very different from the near side, and long-term care lapse rates did not look much like those on life insurance.

Other times we may have an abundance of data, but the route to meaningfully interpreting that data in a manner that facilitates preparing whatever forecasts are desired may not be clear. How do we navigate through these varied circumstances? Having a wide variety of forecasting and futurism tools at our disposal would serve us well, and that of course is the reason for the Forecasting & Futurism Section's existence.

Your section council has been very active; here are some of the ways that we are striving to help you expand your forecasting and futurism toolkit:

Complexity science is one of the primary focus areas for the section, and **genetic algorithm** techniques in turn are at the center of several section efforts. Many of you were able to attend our webcast on genetic algorithms last December. We will sponsor two genetic algorithm sessions at the Annual Meeting; it is not unlikely that a new webcast will follow from these sessions. We are also once again sponsoring an iPad contest, with this year's topic being "Build a Genetic Algorithm"; Albert Abalo writes about the contest in this issue. Give the contest a try; you might advance actuarial science and walk away with a new iPad to boot!

Together with the Joint Risk Management section, we sponsored a webcast on Emerging Risks. I hope you enjoyed it as much as I did.

Clark Ramsey

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We are very active with the Delphi technique, one of the judgmental forecasting methods that your section champions. Impending regulatory changes for long-term care created an immediate need to address what factors might contribute to an ideal solution to anticipated funding shortfalls. We are partnering on a Delphi study with the Long Term Care Think Tank, which is striving to use the Delphi study results to influence the future of long-term care in the United States. We are also participating in a Delphi study on future roles for actuaries, something which should be of interest to all of us.

Another branch of complexity science, **agent-based modeling,** will be the topic at sessions we will sponsor at both the Health Meeting and the Annual Meeting. In the coming months you will see Forecasting & Futurism involved in even more of the newer techniques useful for actuaries. In this issue we will introduce **hidden Markov models, Bayesian networks,** and **behavioral economics** and provide additional insights into **Delphi studies,** and **predictive modeling** choices.

I am also excited about the increased size of our team of volunteers this year. What used to be a small band of zealots doing just about everything, has grown to a lot of new contributors who bring their own special skills along with their enthusiasm. Forecasting & Futurism is one of the few sections that seems to be thriving during a general slide in section membership. We thank you for your continued support.

As always, the council welcomes your suggestions on how we can continue to make section membership more valuable to you. Please let me or any of the councilmembers know your thoughts and suggestions, and if you see me at a Society meeting, please feel free to introduce yourself.

My term as chair of the Forecasting and Futurism Section Council will end before our next newsletter, so I would like to take this opportunity to thank my fellow councilmembers and friends of the council. It has been an honor to be associated with this fine group of volunteers, and it is my sincere

IN OUR ACTUARIAL LIVES WE SOMETIMES FACE SITUATIONS THAT REQUIRE FORECASTING FROM LITTLE OR NO DATA.

hope that I am able to work with each of them again on future volunteer efforts. My time spent dealing with them and with Meg Weber and Christy Cook from the SOA staff has contributed to my professional and personal growth and has been a delightful experience.

Also rolling off the council this year are Brian Grossmiller, Jon Deuchler and Donald Krouse. Brian has served as secretary/treasurer and Health Meeting coordinator, as well as handling the section's member outreach and new member recruitment. He has also frequently served as a speaker at Society meetings and has enlivened our council calls with his unique sense of humor. Jon's term originally expired last year, but he graciously volunteered to serve another year when we had an unexpected opening on the council and has offered different perspectives and wise counsel in our deliberations. Donald preceded me as chair of the council and leaves a legacy of achievement for the section. I have a great deal of confidence in the remaining councilmembers, who will continue their terms into the next year. They provide a solid nucleus for the next council and will continue to move the section forward.

Enjoy your newsletter. As for me, I think I will read it while playing a little music in the background, perhaps a cut or two from *Dark Side of the Moon.* ▼