



Fortune Tellers, *Optical Engineering*, World Events, and the Future

Where do fortune tellers dance? At the Crystal Ball! With our current turbulent world, I will bet that fortune tellers are having to work overtime and that their crystal balls are quite foggy. However, there are national and world events that make the future of electro-optics and photonics a little more known. I would like to talk about two of these trends in this month's editorial.

As a self-appointed fortune teller, my first prediction for western countries is that the future of government funding for electro-optics and photonics research and development is going to decrease over the next 5 to 10 years. With the debt of some European Union countries and the United States, budget cuts are coming. This has been going on in Europe for some time and, in the UK, there has been significant consolidation of government research organizations that has already reduced research and development funding. In the U.S., the deficit and budget issues are a primary nationwide concern. Even the Chairman of the Military Joint Chiefs has publicly stated that the deficit has become so large that it is a national security issue.

What does this mean for electro-optics and photonics? It means that we have to develop electro-optical systems that cost less to develop, build, and maintain. In my area of defense, systems have been developed primarily based on new capability, increased performance, or reduced size, weight, and power (SWAP). In the future, I would say that SWAP might become CSWAP, or cost, size, weight, and power where cost is as important as, or more important than, the other parameters. The trend of "do more for less" will continue, and as scientists and engineers, it is our responsibility to respond to these challenges.

The second prediction is that electro-optics and photonics are going to continue to be more important in the areas of power and energy. Gas prices are at an all time high due to unrest in the Middle East (Iraq, Afghanistan, and now Egypt, Bahrain, Libya, Syria, Yemen, and Jordan). The Fukushima nuclear leak and safety concerns are causing nations to review national policies associated with nuclear energy. The bottom line is that it does not take a rocket scientist to understand that our primary sources of power and energy are limited and at risk. Electro-optics and photonics play a major role in solar energy production through photocells and other light-collecting technologies. Electro-optics and photonics can also contribute through the reduction in device energy consumption (e.g., more efficient lighting and more efficient displays). I expect that this is going to be a major growth area over the next few years and an ever-increasing market in the next few decades.

I am not that superstitious, but two years ago my girlfriend and I were in Jamaica and we met a fortune teller at a hotel luau. He was a big guy with dreadlocks and piercing sky-blue eyes (very unusual in Jamaica). He was a palm reader and my girlfriend begged me to participate, so I did. He told me I would have a very long life as long as I did not buy a new motorcycle. It was fine to keep my old one. My motorcycle is nearing 10 years old now, but it still runs well. I do not think I will be replacing it anytime soon. However, I should have asked him about rental motorcycles since I am riding one across Europe in June. I do not think I would change my plans either way, but the trip might be just a little longer!

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Editor