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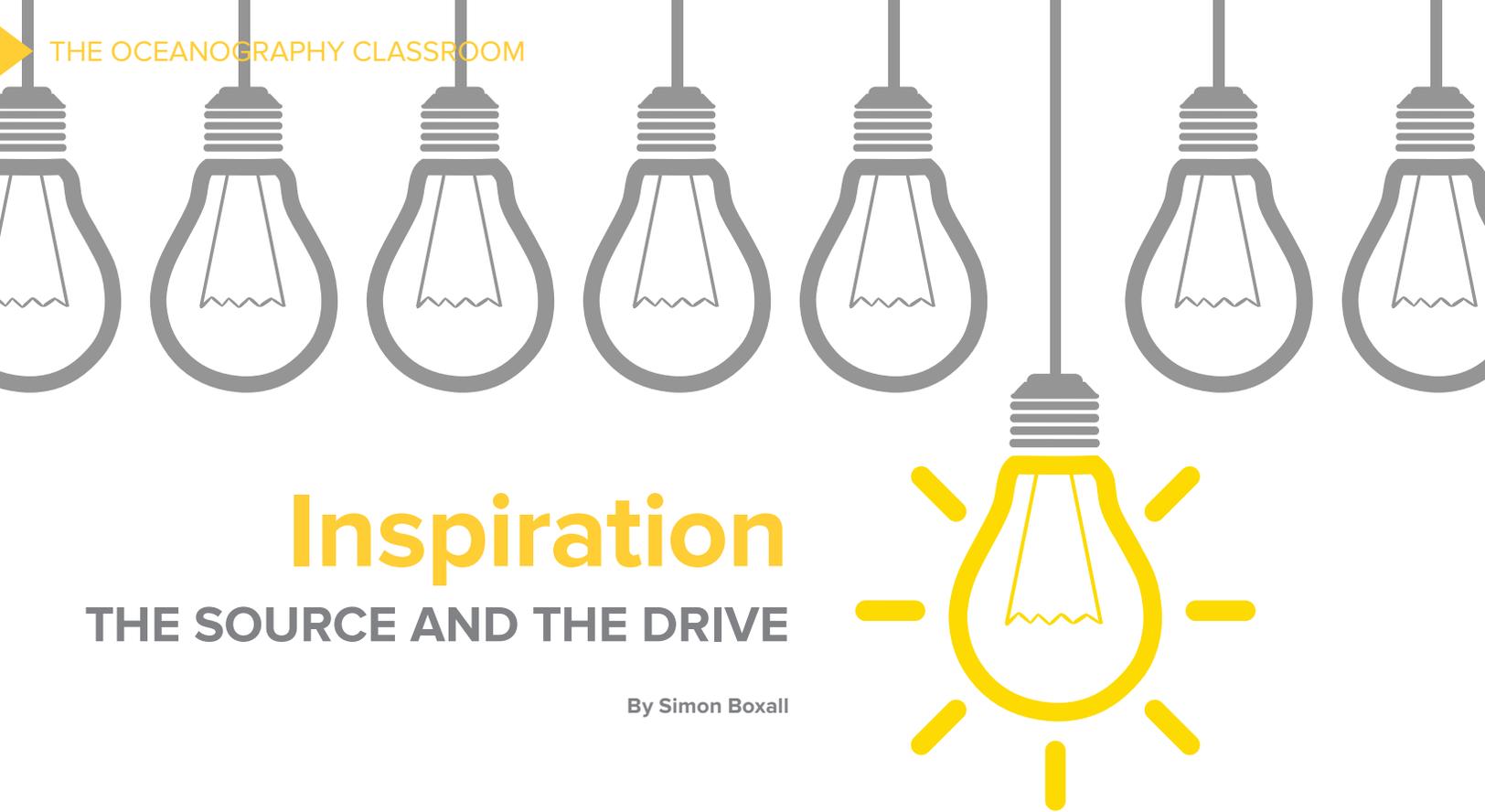
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Inspiration

THE SOURCE AND THE DRIVE

By Simon Boxall

When writing this regular article, I rely on, and hope for, inspiration...which at times does come a bit late in the day. The first editions of *The Oceanography Classroom* were relatively simple. There was much to cover in the topic, and it was hard to know in the early days where to start. As time has gone on, new ideas have flowed, but more like a hose with a slight kink in it. While I sit down and tend to write in one run, the ideas come most commonly as I drive on long solo journeys. I find the peace and quiet of a drive—no phone, no distractions—a good time to mull over ideas, phrases, and anecdotes, and end up writing the bulk of an article or report in my mind. It is at these times that inspiration hits, whether an article for *Oceanography*, a new idea for research, or a plan to improve teaching. If only Apple could come up with “iMind,” directly linked to a printer. My productivity goes up the more I have to travel—though often I arrive with absolutely no memory of the car journey I have just undertaken and assume or hope nothing untoward happened en route. Perhaps as well as banning mobile phones while driving, authorities should

also ban deep thinking!

As an oceanographer, being at sea should inspire me, gazing across miles of open ocean. It does, and it never bores me, but usually I am also pondering where to deploy the next CTD or how to get a net down to 1,000 m with only 800 m of trawl line. My train of thought gets too distracted.

But what is “inspiration” and how important is it in the world of science? The first definition of inspiration in the *Oxford English Dictionary* is “Divine prompting or guidance.” I fear if my editor had to wait for divine intervention it could be some years before anything came out of the Boxall creative mind. At second place, the *OED* describes it as “a thought or utterance that is a brilliant or timely idea.” I might draw the line at brilliant, being modest by nature, but timely, yes.

Inspiration is not just important in producing an article for *Oceanography* but is at the core of all we do as scientists. Without inspiration (in the second of the *OED* senses), we would never undertake new lines of research, and most commercial companies in the marine sector would eventually fail. Einstein is

quoted as saying, “The true sign of intelligence is not knowledge but imagination.” One could substitute inspiration for imagination there. But how does one inspire students of oceanography and fire up their imagination, and by its virtue their intelligence?

I genuinely think most people have the ability to be inspirational, and ultimately to be outstanding at what they do. The difficult question is in what. Determining the origins of the universe, or producing the richest and smoothest ristretto coffee? Let’s face it—without that coffee, what chance have the astrophysicists of achieving their goal? Inspiration does not mean having to come up with groundbreaking ideas such as the prime driving mechanisms of the Gulf Stream or the existence of gravity—Henry Stommel and Isaac Newton nailed those quite well. In the modern-day research environment, steps of discovery are often smaller, but nonetheless important for progress. There are a few big discoveries that come along—proof of the Higgs boson particle being a good example. Many are subtle variations on a theme, which together lead to a better understanding of the world we live in.

One of the problems for science advancement is that we tend to start on one track in our career and stick with it—regardless of whether we are inspired by it. I see this on a regular basis in our own subject. Oceanography is not widely covered at school level, and many people get little or no exposure to it in their early years. A few come across it and think it is for them, going directly into the subject at university. Many of these students do excel, but every year we will get a few in our degree courses who, at some stage, admit that this is not the subject that inspires them. The bold ones will switch courses or even leave university and go and do something that does inspire them—this has ranged from llama farming to running a hammock-making business. Others will run to the end of their course and move into something at post-graduate level—accountancy, law, and teaching are quite common. A very small number will spend the rest of their working life sadly uninspired.

Some people discover oceanography partway through their working life through a talk they hear or a program on television, or they might start off on one science subject at university and get exposure to oceanography through a single module as part of their course. These latecomers to the subject are usually very inspired and soak up ideas and concepts like blotting paper. A good example is a student of mine we will call Emily. Emily was under pressure to follow the family tradition into medicine. Her family came from a long line of surgeons and doctors in the United States. Her parents, brother, and sister were all in the business and, by all accounts, were inspired by it. However, Emily was not inspired, far from it in fact. She was brought up on Martha's Vineyard, a stone's throw—or at least a short ferry ride—from Woods Hole Oceanographic Institution and was inspired to one day be an oceanographer. Understandably, her parents considered this an unsuitable path for their daughter (all that messing about on the water can't be considered as a serious career)

and came to a compromise with her to do a degree in biochemistry at a renowned US university—not quite medicine but a step in the right direction, so not a complete disappointment in their eyes.

Emily hated biochemistry, was totally uninspired, and plodded along in the lower cohort of her year. After two years, her parents gave in to her wishes and she applied to transfer to Southampton to study oceanography. Given her background and through talking to her, I could see the potential she had for the subject. We took her as a direct entry to the second year of the course as she already had two years of university science under her belt. She proved to be not just an inspired and motivated student—those who worked with her, staff and fellow students, found her to be an inspiration for them. Following Einstein, it wasn't her knowledge but her imagination for the subject that took her to being the top student in her year, by quite some margin.

Emily will be one of the big names in oceanography in years to come, but what inspired her? It would be nice to say it was the excellent teaching she received. There is little doubt that educators can be inspirational or, conversely, can put a student off a subject forever; however, inspiration ultimately comes from the individual self. In my student days I had a number of very inspirational professors, and they helped me develop my own love of the subject. It wasn't the knowledge they gave me but rather the ability to explore my subject and begin to understand and enjoy it. They made it fun—a dirty word among some educationalists—and inspired me to take it further. Educating Emily has been an experience where we learn as much from her ideas as she does from us, and we need to be receptive of those ideas. Some of her moments of inspiration may falter based on more experienced knowledge, but we only move forward with fresh and inspirational ideas and we need to be careful not to quash that.

Given that my most inspiring ideas come in the car, does this mean that I

should teach while driving up and down the freeway for greatest impact? That would definitely fall on the wrong side of the law—delivering a PowerPoint while changing lanes at 70 mph is a definite no-no. What we can do is provide opportunities, through our more routine lecturing and tutoring programs, alongside practical work on the water. Learning is also enabled by getting students involved in internships at partner institutes around the globe to experience the wide diversity in the way different groups tackle scientific problems. The most able students get actively involved in ongoing research projects as part of their final year dissertations, and quite a few end up with their names on the papers that are subsequently published. But it is not just about the research pathways. We need inspired scientists in industry just as much as in research. By collaborating with companies, both locally and internationally, we can provide students with an incredible number of opportunities to work alongside commercial scientists and engineers and become inspired by the outcomes and applications they develop—from offshore renewables to more sustainable ways of fishing.

With my next article in mind, I am heading off on a 2,000-mile drive to buy some milk, and seek inspiration. However, are there any areas of education in the marine sector you would like covered in the future? Send your suggestion on a postcard, please. 📧

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