

ASCB 50TH ANNIVERSARY ESSAY

Three Quite Different Things That Matter to Me

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I'm grateful to be asked to comment on cell biology and the next 50 years. There is much to say. But let me focus on just three quite different things that particularly matter to me.

1. SOME ADVICE TO THE YOUNG

I am somewhat abashed to say, right at the start of this piece, that I don't think of myself as a cell biologist—any more than as a geneticist or biochemist. One of the great glories of our field is that it is bursting the dam and flooding the plains. Cell biologists investigate not just the cell but also the whole organism and its ecosystem, and peer, with revelation, at individual molecules.

The cell is the defining unit of life, its complexities rich and inexhaustible, its beauty and perplexities beguiling. There is much to be gained from this vantage point. But there is more to be gained by moving around.

We commonly entreat the young to experience research in different locations. It is *far* more important to experience it from different disciplines. Train broadly. Think broadly. Read articles and go to talks quite outside your own field.

Make the acquaintance of engineers. They think about things in entirely different ways, and are admirably fearless in their approach. A clinician can tell you things about biology that will simply amaze you.

The best of our discoveries come from making unexpected connections. One thing is certain: the pace of discovery in biology will increase. Versatility and breadth of vision provide one key to long-term success. The other is passion. Be certain to work on important problems you are dying to solve. But remember, it is impossible to stay passionate about something you keep looking at in the same way.

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2. BETTERING THE PROFESSION

When I entered graduate school, a common attitude toward the training of students was "sink or swim." Things have improved. Mentorship is something many departments foster and faculty take pride in. There are websites, books, articles, and workshops to guide you in things as varied as giving a good talk or setting up your own lab. And although

I do long for a day when there are as many women running labs as there rightly ought to be, it is no longer a bone-chillingly exclusive Men's Club.

We could do better. We don't need a gentler profession, but we do need a kinder and more generous one. Give out your published reagents and transgenic animals. When you review a manuscript don't try to destroy someone, help them create a better paper and get out of their way. Spend a little time helping your colleagues to realize their full potential. When enough people behave this way, it creates an environment where you too will thrive and have a lot more fun. I am lucky enough to work at a place that is good at this. Such environments can be created by deliberate effort. Take a look at what Uri Alon and members the Weizmann

Institute are doing (www.weizmann.ac.il/mcb/UriAlon/nurturing/index.html).



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3. RESTORING MY FAITH

Spirituality is an innate and admirable human characteristic. It no doubt served us well in evolution. But, I fear certain perversions of that spirituality in theocratic dogma might lead to our undoing, in nuclear Jihad or Armageddon. And oh yes, we have ethnic cleansing, global warming, new and reemerging pathogens, and the loss of antibiotic resistance. I confess I sometimes get downhearted.

And then I catch a revelatory talk at a scientific meeting, hear from a colleague about some amazing new development, or listen to a student or postdoc's inspiring ideas ... and I find myself feeling joyful.

The world's most highly evolved life form is actually discovering how life itself works. How can we be so lucky as to find ourselves in the midst of it?

And perhaps the best part is that all the toil and inspiration just might provide keys to solving some of humankind's most terrible problems.

Cell biology, you restore my faith. Thanks!