In praise of prizes

Charles Day

Alfred Nobel died on 10 December 1896. On that day every year, new Nobel laureates gather in Stockholm to receive their awards from King Carl XVI Gustaf of Sweden and to join him and 1300 or so guests for a white-tie banquet in the Blue Hall of the Stockholm City Hall. Last year's menu featured a main course of crispy saddle of lamb, potato terrine with Svedjan crème, yellow beet, salt-baked celeriac, apple salad, and rosemary-spiced lamb gravy.

It's perhaps not surprising that a century-old prize has accreted criticism. The upper limit of three on the number of laureates per category seems arbitrary and unfair when four or more are deserving winners. It's also inappropriate, given that much of modern science is conducted by large teams. Another problem: The scientific landscape has changed since the first prizes were awarded in 1901. Molecular biology, neuroscience, and materials science were in their infancy back then. Chemistry, meanwhile, has evolved to the point that roughly half the laureates of the past decade have been biologists or physicists.

It's conceivable that the Nobel Prize could adapt. Nobel's will, whose provisions stipulate the limit on winners and define the categories, is a legal document. As such, it can presumably be changed by an act passed by Sweden's Riksdag. Even if the Nobel Prize continues as it is, there are other prestigious awards. Some, like Japan's Kyoto Prize and Hong Kong's Shaw Prize, were created, in part, to complement the Nobel categories.

There are now more Nobel-caliber awards than ever. Among the most recently founded is the Breakthrough Prize, whose showbiz-style ceremony, dubbed the Oscars of Science, brings glamorous celebrities to Silicon Valley to hand out the awards in fundamental physics, mathematics, and life sciences.

One criticism of prizes I hear is that they concentrate attention on and reward a small number of talented scientists. Jennifer Doudna, who, with Emmanuelle Charpentier, developed a way to use a protein called Cas9 to edit the genetic material of bacteria, has been awarded 25 prizes so far. Might the foundations who fund prizes deploy their munificence more effectively by funding science in general?

Some foundations do just that. The Kavli Foundation forged a legal partnership with the Norwegian Academy of Science and Letters and the Norwegian government to establish its prize in 2005. By then, it had been supporting research for four years. The Welch Foundation established its chemistry award in 1972 in its second decade of supporting basic chemistry research in Texas.

This year I was fortunate to receive an invitation to the Kavli Prize banquet, which took place in Oslo City Hall on 4 September. Norway's King Harald V was the guest of honor at the black-tie event. Among the people who spoke between courses were the mayor of Oslo, Marianne Borgen; Norway's minister of research and higher education, Iselin Nybø; and the European Commission's director general for research and innovation, Jean-Eric Paquet.

None of the three politicians is a scientist by training, yet they all affirmed the value of basic research. In her speech, Nybø said,

> Politicians want results. Preferably the day after a decision is made.
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> We want to see effects. So we can point to them and say: This research and these results exist because of us. Due to our generous budgets and our policies.
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> But the relationship between research and progress is, of course, far more complicated than this.
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> The progress of science is a collective enterprise. A revolutionary idea may have to rest for a hundred years before a new revolutionary idea allows it to be taken out of the lab and into the world.

In addition to focusing the attention of politicians on science, prizes like the Kavli stir up interest among the general public. As part of the celebration for this year's Shaw Prize, members of the public were invited to the Hong Kong Science Museum to hear lectures by the three awardees, astrophysicist Jean-Loup Puget, geneticist Mary-Claire King, and mathematician Luis Caffarelli. This year's winner of the Welch Award in Chemistry, Adriaan Bax, was interviewed by the *Houston Chronicle*. I doubt the newspaper would have covered Bax's field, NMR studies of biomolecules, without the award's halo.

Prizes appear elsewhere in this issue. Our in-depth Nobel coverage starts on page 14. And on page 50 you'll find the winning entry in our essay contest. PT