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When I returned from
 so many journeys,
 I stayed suspended and green
 between sun and geography -
 I saw how wings worked,
 how perfumes are transmitted
 by feathery telegraph,
 and from above I saw the path,
 the springs and the roof tiles,
 the fishermen at their trades,
 the trousers of the foam;
 I saw it all from my green sky.
 —Pablo Neruda, "Bird"



JOSHUA FRANZOS

As Pablo Neruda's bird does, this is a time for us to suspend the moment, view our landscape, and observe the particular.

An April 2014 *PNAS* article by several of today's leading scientists—Bruce Alberts, Harold Varmus, Shirley Tilghman, and Marc Kirschner—urges a new approach to federal funding for biomedical science. Our funding system is infirm and the prognosis is certainly not good if our government fails us. The situation is becoming even more difficult as academic medical centers deal with dwindling clinical revenues—the major source of our leverage as we partner with federal support, i.e., the National Institutes of Health.

Only 17 percent of NIH research grants were funded in 2013, down from 32 percent a decade ago. Even established investigators with top-ranked proposals have been denied funding. The situation is even worse for young scientists. In response, researchers are mainly submitting conservative grant proposals with short-term goals (in this "golden age" of science, as Alberts notes!).

Alberts et al. offer a possible antidote quite similar to one I suggested in the late '80s, also a time of declining NIH support, though mild compared to now: Our nation should focus on supporting not our most promising projects, but rather our most promising and accomplished scientists—the person, not the project.

This would give investigators time to think and imagine, rather than chase after grants, as well as the chance to take risks in the lab.

Both the Howard Hughes Medical Institute Investigator and MacArthur Fellows programs recognize the value in investing in people. Hughes requires that its investigators have a demonstrated track record of pushing their field very substantially forward. That criterion has worked well for evaluating midcareer and senior scientists. It is stickier to determine who among our junior scholars are capable of cutting-edge work. But it can be done. Here I repeat some of the observations that I made 24 years ago (*The New Biologist* 2, 207, 1990).

There are various stripes of intelligence, of course; great science is often done by people who have more than mathematical/logical intelligence. If you want to determine the course of a trafficked organelle, for example, aesthetic and spatial abilities would help. Likewise, interpersonal intelligence, to articulate ideas and collaborate with colleagues, seems essential.

We want investigators who can absorb the fount of knowledge they've inherited while also being capable of openness, independence, and boldness, even in the face of attack. And there's no substitute for diligence. Breakthroughs require both sudden inspiration and a chronology of hard and meticulous work.

Then there are the more subtle facets of the creative mind. Thomas Kuhn spoke of seeking out those who can think both convergently and divergently at once, and who are free of angst in doing so.

Like other geniuses, the poet Neruda sees similarities among the disparate, or as Samuel Johnson wrote, "The yoking together, by violence, of unlike things." Consider how Neruda ends "Bird": *I had no more alphabet than the swallows in their courses/the tiny, shining water of the small bird on fire/which dances out of the pollen.*

We must invest in great human potential, in the promise of shimmering pollen, in those small birds on fire.

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