

- Plan S will isolate countries that sign onto it from the rest of the international research community. It will lead to a loss of collaborations because researchers from Plan S—supporting countries will not be able to easily publish with colleagues from nonparticipating nations.
- The plan will inhibit the influx of international talent into countries that are under Plan S.
- Young scientists from countries whose funding agencies have signed onto Plan S will have difficulty finding positions abroad because they have not been able to publish in leading society journals.
- Plan S offers insufficient cost and quality controls. In fact, Plan S in its current form undermines both cost and quality controls.

A practical alternative to rapidly reduce the costs of scientific publishing is for libraries to take coordinated action and simply unsubscribe from high-cost for-profit journals. The incentive for researchers to publish in such journals would then quickly disappear. The Max Planck Society in Germany and many German universities have taken the lead on that approach; as of 1 January 2019, they ceased subscribing to all Elsevier journals. Such a coordinated action will strengthen the position of academic-society journals and will help them preserve the peer-review system and thus maintain quality control. The overall costs of journals then would fall quickly and dramatically.

Good scientific publishing is led by and for the scientific community through its academic societies and university presses. We scientists should be highly skeptical about both commercially driven and ideologically driven movements in scientific publishing. Preprint servers like arXiv.org can make open access easy and inexpensive, and coordinated efforts to avoid for-profit journals can support the tradition of refereed, quality-controlled scientific papers. Ready access and availability have already been achieved in many fields; remaining fields should follow their example.

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LETTERS

Let's expand the vision of a new Bell Labs!

Mark Raizen's commentary "Let's recreate Bell Labs!" appeared in the October 2018 issue of PHYSICS TODAY (page 10). I liked his idea and was quite taken by the scope of his vision. Unfortunately, my enthusiasm was dampened when I read the details of how his idea would work. I understand his desire that fellows "be selected for their track record of exceptional creativity." However, his assumption that they "could utilize the significant resources of their home institutions for fabrication and diagnostics" means that the research foundation and its fellowships would be available only to scientists at major, research-focused universities.

During my career at public regional universities, I have met many physicists who have great ideas. But due to the lack of resources, high teaching loads, few to no graduate students, and difficulties competing for grants, they never could capitalize on them. Since a large number of physicists work at smaller institutions, the structure that Raizen proposes for research at his Pointsman Foundation simply becomes a continuation of the conceit that only scientists at major institutions have anything to contribute.

I challenge Raizen to broaden his vision to truly maximize the impact of his lab. I recommend creating some fellowships—initially one or two but expanding to 10–20% of the total—explicitly for physicists from less affluent institutions. The new fellowships would, of necessity, be more expensive to implement than the other fellowships, since the foundation would have to provide the additional support that Raizen currently expects from home institutions.

Expanding the cadre of fellows and helping to strengthen research capabilities at smaller institutions offsets the added expense and would have an impact beyond the original intent outlined in the commentary. A research institute that includes the broadest possible group

of physicists maximizes the potential for discovery and innovation and also significantly benefits students at all levels as faculty return to their home institutions.

Raizen ends his commentary with a rousing call for action. Expanding his proposal to physicists across the profession would make his foundation even more successful.

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► **Raizen replies:** I thank Daniel Suson for his comments, and I agree that we must cast the broadest net possible to identify and promote creativity. That will include not only major research universities but smaller institutions where resources are scarcer and teaching loads are higher. We will make resources available at the Pointsman Foundation's laboratory by a combination of internal funding and facilities at nearby institutions. For example, the new Advanced Science Research Center at the Graduate Center, City University of New York, has state-of-the-art facilities available to other institutions and companies for a user fee. Having nearby facilities will be important to Pointsman fellows and to the lab's permanent scientific staff and will be a determining factor in the lab's location.

Another activity we will pursue is incubation of patented inventions that are aligned with the foundation's mission. We will license the intellectual property from the institutions, regardless of their size, and pay the inventors as consultants.

I must differ with Suson on one point: We will not apply quotas for any Pointsman fellows but simply look for the best ideas that can lead to breakthroughs and discoveries.

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Corrections

June 2019, page 42—In the caption for figure 1, the image should be attributed to Yasunobu Miyoshi.

May 2014, page 20—The length scale in the lower right panel of the figure should be given as 1 mm. PT