

HHMI BULLETIN

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- FEATURES
- LETTER FROM ROBERT TJIAN
- CENTRIFUGE
- UPFRONT
- CHRONICLE
- PERSPECTIVES & OPINIONS
 - [Peering Back in Time](#)
 - [Going Meatless](#)
- LETTER TO THE EDITOR

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PERSPECTIVES & OPINIONS



PAGE 1 OF 2
WEB ONLY

GOING MEATLESS

- PATRICK O. BROWN -

AN ECONOMIC ARGUMENT TO LAY OFF THE BURGERS.

HHMI investigator Patrick O. Brown is taking a year-long sabbatical—not from research, but from teaching, lecturing, and grant writing—to change the way economists and politicians think about animal farming. It's not the first of his adventurous side projects outside his genetics lab: in 2000, Brown cofounded the Public Library of Science to provide open, online access to scientific papers. Changing the economics of meat production is his latest attempt to make the world a better place.

HHMI: WHEN DID YOU FIRST START THINKING ABOUT TRYING TO REDUCE MEAT PRODUCTION?

POB: I've been interested for a while in coming up with ways to make a difference in the global environment. And then I came across a 2006 report of a study by the United Nations Food and Agriculture Organization on the broad environmental impact of livestock farming. It was really well researched, scientifically rigorous, and well written. It concluded that at least 18 percent of net greenhouse gas production worldwide is directly related to animal farming. This is far more than transportation contributes to greenhouse gases. By my calculations, eating a typical hamburger is the equivalent of driving 120 miles in a typical American car. So this report spurred me to think more specifically about what could be done. Now I'm just freeing up some time to concentrate on it.

HHMI: WHY DO YOU THINK MEAT AND DAIRY PRODUCTION IS SO BAD FOR THE ENVIRONMENT?

POB: The first and foremost impact is greenhouse gas production. About a third of the Earth's surface that is not underwater is devoted to producing animals for human-based consumption and food for those animals. It's the biggest driver of deforestation in South America and most of South Asia. When you clear forest you turn most of that biomass into carbon dioxide, and you destroy the land's carbon-capturing ability. Animal digestion and waste are huge sources of methane, another very potent greenhouse gas. Finally, the biodegradation of manure produces large quantities of nitrous oxide, an even stronger greenhouse gas. In addition, livestock farming is the biggest human cause of water quality degradation, and deforestation for livestock farms is the biggest reason for loss of biodiversity.

HHMI: WHAT'S YOUR GOAL FOR THE NEXT YEAR?

POB: Basically, I want to reduce the production of animal-based food products. Obviously, I'm not talking about eradicating this in the near future. I'm trying to define realistic short-term goals and put together a comprehensive scientific analysis of alternatives. What would be the consequences of decreased animal farming for the environment, the economy, food security, and public health? My strategies are mostly based on changing the economic incentives for meat production. If I can develop a plan that makes meat and dairy production pay its freight in terms of the environmental impact, then meat prices will be driven up and demand will go down.

HHMI: HOW ARE YOU, AS ONE PERSON, PLANNING TO CHANGE THE WHOLE ECONOMICS OF MEAT PRODUCTION?

POB: It's all about taking advantage of systems that already have influence. I'm trying to build a network of people who will work with me on this. I've talked to a lot of people who are experts in their fields: economists, scientists, politicians, even the founders of a company in Portland that creates fake-meat products.

One of my first steps is to organize a National Research Council (NRC) study that will look at the effects of animal farming and define those scenarios I just mentioned. Although an NRC group has no political power, if it put together a rigorous analysis on meat production I think politicians would find it difficult to completely dismiss the issue.

Secondly, I want to reach out to lobby groups for big oil and use their power. This past year, a congressman added a passage into the appropriations bill that says no government agency can regulate greenhouse gases related to animal farming. The oil companies have a huge incentive to fight this amendment, because, by my reading, it basically gives the livestock industry a free ride in terms of greenhouse gases and leaves the oil industry to pick up their tab. So I want to bring that to their attention.

I think it's inevitable that over time there will be economic incentives for moving away from animal products because of the cost of emissions credits, whether I speed that up or not. So I also plan to argue to venture capitalists that they should invest in cheap, appealing plant-based foods. It's not inconceivable to have palatable foods with mass appeal that are made entirely from plants. They just have to be marketed right and people will follow. Then, when the price of meat goes through the roof, McDonald's and other fast-food restaurants will want to buy these alternative brands because that's the only way they'll make any money. And this is exactly the kind of investment that venture capitalists like because there's a chance for a huge payoff.

Photo: Darcy Padilla

PAGE 1 OF 2

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HHMI INVESTIGATOR



Patrick O. Brown

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FEATURES

LETTER FROM ROBERT TJIAN

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UPFRONT

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Peering Back In Time

Going Meatless

LETTER TO THE EDITOR

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PAGE 2 OF 2

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HHMI: DO YOU ALSO WANT TO CHANGE PEOPLE'S ATTITUDES ABOUT EATING MEAT ON A MORE INDIVIDUAL LEVEL?

POB: I think it's a losing battle to try to convince people they should stop eating meat because it's bad for the environment or harmful to animals. People are aware that many of their behaviors harm the environment and it doesn't motivate them to change much. If I went to someone waiting in line at McDonald's and told them "Don't buy that hamburger because it's the equivalent of driving to San Francisco and back," they'd say "Get out of my way." But if the price of a burger goes up from 99 cents to \$2.50, that might have some effect. So it makes more sense to try to change the industry and the economics of it, rather than the public.

HHMI: WHEN DID YOU STOP EATING MEAT AND WAS THAT A DIFFICULT TRANSITION?

POB: I gave up meat more than 30 years ago. At the time, it was just a personal ethical decision I made when I faced up to the fact that both the meat and dairy industries were intrinsically inhumane. It was a pretty easy transition: I was a first-year medical student and my diet consisted mainly of donuts, coffee, and whatever I could make in 90 seconds in a microwave (which was usually a quesadilla with carrots) so it wasn't much of a sacrifice. To be honest, though, it would be a lot easier now than it was 30 years ago since there are more options.

When I eat with my omnivore friends, they are almost always surprised to discover that a vegan meal can be as hearty, complex, and delicious as any they've had.

I don't think everyone should be driven by the same motivations that led me to give up meat. My current project is really unrelated—it's solely focused on the global environmental, economic, food security, and public health impact of animal farming. The ethical issues don't enter into it, since that's strictly a personal choice.

HHMI: THIS ISN'T THE FIRST TIME YOU'VE VENTURED INTO A LARGE PROJECT OUTSIDE YOUR RESEARCH AREA. WHAT DRAWS YOU TO DO THESE THINGS?

POB: I believe that everybody has a responsibility to do as much good and as little harm as possible. I love being a scientist because I love solving problems. So a big part of what appeals to me about these side projects is finding problems where I think I can do some good for the world, and they're intellectually challenging and require some not-straightforward thinking to solve. Figuring out open-access publishing or trying to change the livestock industry is just as much a research problem as figuring out how to make a transgenic mouse.

Pat Brown is professor of biochemistry at the Stanford School of Medicine and founding codirector of the Public Library of Science.

Interview by Sarah C.P. Williams.

PAGE 2 OF 2

Back

Back to Top