

## NEWSMAKER INTERVIEW

# Nobelist Paul Nurse to Pilot Royal Society, London Superlab

**NEW YORK CITY, NEW YORK**—In the late 1980s, working on yeast genetics experiments that would lead to a Nobel Prize, researchers in Paul Nurse's lab in Oxford, U.K., faced an unusual initiation rite: a ride in a two-seater glider piloted by their boss. The trip usually involved Nurse turning the dual controls over to his passenger, recalls his former postdoc Christopher Norbury, now a molecular biologist at the University of Oxford. "I loved it," but, Norbury tactfully notes, "a small minority didn't enjoy it so much." Nurse himself seemed to fear nothing, Norbury says.

Nurse, now the president of Rockefeller University in Manhattan, still flies; his latest outings are in a 1934 Boeing Stearman biplane with an open cockpit. And his fearlessness apparently remains intact, as he has recently agreed to leave Rockefeller to take on two of the highest-profile jobs in British science. Earlier this month, he was confirmed as president elect of the Royal Society, the U.K. scientific society founded 350 years ago. And last week, Nurse took on another challenge, agreeing to be the founding director and chief executive of the UK Centre for Medical Research and Innovation (UKCMRI). When it is up and running 5 years from now with 1500 researchers and staff members, it will be the largest research institution in Europe.

Leszek Borysiewicz, chief executive of the U.K. Medical Research Council, which is funding the majority of UKCMRI, calls the founding director position "perhaps the most important [science] job in Europe." And it's one that will need a steady pilot, given that UKCMRI is being born out of a controversial decision to relocate the MRC's legendary National Institute for Medical Research (NIMR) from its suburban Mill Hill campus outside London to the city center (*Science*, 14 December 2007, p. 1704). Many onlookers consider the NIMR move—which merges resources from Cancer Research UK, the Wellcome Trust, and University College London—a big gamble. It will tie up £600 million, or nearly a billion U.S. dollars, at a time when British science may be facing the toughest financial crisis in 2 decades.

For the past 2 years, Nurse has chaired the UKCMRI scientific planning committee, an appointment respected even by those critical of the decision to close NIMR. And although he has outlined a vision for the planned lab, many details remain unclear, including how many NIMR scientists

will make the move to London (*Science*, 11 December 2009, p. 1468).

Although Nurse, 61, was an obvious candidate to become the facility's first director, he originally told some people that he wasn't interested. He says he changed his mind when he learned about 6 months ago that the Royal Society planned to nominate him as president. The 5-year presidency is unpaid and only half-time; the UKCMRI directorship, a 5-year planning position, will also be half-time. "I did need another position" besides heading the society, he explains, and the two jobs make for "a complete package." He becomes Royal Society president on 1 December and joins UKCMRI on 1 January.

The twin appointments are the capstone to a career full of unlikely twists. Nurse was born into a working-class family; his father



**Mixing bowl.** The planned UKCMRI lab in London will blend scientists from several organizations.

**Q: Can you describe your vision for UKCMRI?**

**P.N.:** One reason size is important is to take a multidisciplinary approach. Because it's large, it doesn't actually have to have a particular focus. If you set up an institute with 100 to 150 people working on stem cells or RNAi, the problem is, it often goes stale.

I've thought a lot about how to have an institute that will move with the times. About two-thirds of the 120 research groups will be at the junior end, in their 30s to early 40s. When they're developed, we will export them, help them find positions elsewhere. This is completely different from the usual philosophy in the U.S. where institutions try to hang on to people. It's a very supportive role for the whole national endeavor.

The second thing is that it won't be divided into academic departments and divisions. It's self-assembled from below.

Individuals can belong to several interest groups and if their interests change, they can withdraw from one or join another.

**Q: Can you clarify your recent comment about funding scientific elites?**

**P.N.:** I think I was misunderstood. Some people thought I was going to kill all research funding for everybody except for 100 people, which is obviously stupid. All I was saying is that for the very best, we might want to think of supporting them in a nonbureaucratic way which gives them the maximum time for their creativity.

I was very much impressed by the way Howard Hughes [Medical Institute] does funding—I'm a Howard Hughes trustee—and I thought that would be a very interesting way of doing things not simply in biomedicine but in physical sciences, chemistry, maths. [Selected researchers] would be reviewed every 5, 6, 7 years, and if they're

still highly productive, they get another 7-year tranche.

Most of these individuals are already getting research council funding and so on, and it's just a question of repackaging it in a different sort of way. It would be a couple of percent of the total funding of research. It could be administered by the Royal Society. This has got to be discussed. This is just me floating an idea.

**Q: What are your thoughts about the possible U.K. science budget cuts?**

**P.N.:** Two things. We have to tell the government that by cutting research today, they are in danger of burning the seed corn of the future. Because it's out of science that we will get the engine of wealth creation and improving health and improving the quality of life and our environment.

The second thing is that if they are going to reduce spending, they must always think

was a mechanic, his mother cleaned houses in northwest London. There were “hardly any books at home,” he says, yet he became fascinated with science by the age of 8, when he watched the Sputnik 2 spacecraft flying above London. After secondary school, he was initially rejected from universities because of the language requirement—he flunked a French exam several times. Luckily, a professor negotiated an exception.

After graduate school in biochemistry, he switched to yeast genetics and cell biology. Later at the London labs of the Imperial Cancer Research Fund (ICRF), a U.K. charity, and at the University of Oxford, his group discovered an enzyme that controls yeast cell division, known as a cyclin-dependent kinase, and showed that humans share the same gene for this enzyme. Because cancer involves uncontrolled cell division, the finding had implications for understanding human cancer. The work garnered Nurse the 2001 Nobel Prize in physiology or medicine with Tim Hunt and Leland Hartwell.

Although he’s never stopped doing research, Nurse became head of ICRF in 1996 and oversaw a sensitive merger with another cancer charity to create today’s Cancer Research UK. In 2003, after the merger, he relocated across the Atlantic to become president of Rockefeller. There “he really changed the atmosphere in a number of ways,” says Princeton University molecular biolo-

gist David Botstein, a member of the Rockefeller board: Nurse made decision-making more transparent and inclusive of junior faculty members. He also recruited new faculty based primarily on their qualifications and not because they worked in a particular discipline, an uncommon approach, Botstein says.

Already a highly visible public figure in Britain, where he is a regular guest on the BBC (*The Sun* once called him “the David Beckham of science”), Nurse has also worked to explain science to a broad U.S. audience as a guest and co-host on *The Charlie Rose Show*.



**Anarchist.** Paul Nurse wants to break down barriers separating biomedical researchers. ▶

about continuing to support the quality work. I wouldn’t recommend them trying to second-guess the areas because usually committees don’t do that well. What I would emphasize is supporting the highest quality people.

**Q: What do you think of the push for more translational medicine research?**

**P.N.:** When I was in the U.K., we used to think that everybody in the U.S. knew how to do translation. Now when I’ve come to the U.S., I find that everybody is worried themselves about how they do translation. I’m beginning to think that this is something nobody has really got on top of properly.

This is worth really looking at freshly, how to do things. This new institute will look at that. I’m going to start by focus-

ing on the different cultures of the people involved. Because we have basic scientists, we have clinicians, we have the pharmaceutical industry. I’m by no means certain that we’ve worked hard enough on the sociology of that, to get that to work well.

**Q: Why did you decide to share your birth story with the public?**

**P.N.:** For my [birth] mother, actually. She had had to keep this secret for half a century because of the shame of it. And I felt by talking about it in public, it somehow in part compensates for that. It may sound a

Four years ago, his life took another unexpected turn. In the course of applying for a U.S. green card, which required obtaining the long form of his U.K. birth certificate, Nurse came to realize that the people he thought were his parents were his grandparents and that his much older “sister” had given birth to him out of wedlock at age 19. None of the three is alive, and Nurse does not know who his father was. He has willingly shared the poignant story with the public.

Nurse’s current home, the leafy, gated campus of Rockefeller, feels like a serene oasis next to the chaos of Manhattan’s streets. But Nurse proudly suggests that “anarchy” exists under the surface. He likes the university’s lack of traditional academic departments, which he believes impede collaborations. He plans to bring this strategy to UKCMRI. “We’re mixed up. And that’s a little bit of what I’m trying to achieve in the other place,” Nurse says.

On a steamy summer afternoon last week, the same day his UKCMRI appointment was announced, the white-haired scientist, dressed casually in a white shirt and gray slacks, spoke with *Science* about his past, his recent suggestion to bolster U.K. funding for 100 to 150 top researchers, and his busy future. His remarks have been edited for clarity.

—JOCELYN KAISER

bit strange psychologically, but I’m saying, “No, this is OK, I’m talking about it publicly because it wasn’t such a big shame.”

There’s something ironical about being a really good geneticist and having my own genetics completely secret for so long. The irony almost appeals to me.

**Q: What will you do with your lab?**

**P.N.:** I will keep it for the next year or two then later will establish a lab in London. To keep a lab going is what keeps me sane and close to graduate students and postdocs. I never seem to do anything quite properly anymore because I’m juggling so much. But I sort of keep afloat. I wouldn’t want to just run something without having my own scholarly activity. I sometimes think the people who just want to run things are not always the right people to run them.