

Martin Raff has been at the cutting edge of research for his entire scientific career. As a novice he published a seminal immunology paper in *Nature* and has capped off this, his retirement year, with a leading cell-cycle paper in *Science*. Yet this consistently successful scientist, who is perhaps best known for advancing the field of apoptosis, reveals himself to be more concerned with other people's research careers.

## Martin Raff

The biomedical research community, particularly the field of immunology, should appreciate the Vietnam War. Why? Because it drove Martin Raff from North America to Europe where, within two years of his arrival at the National Institute of Medical Research (NIMR) in Mill Hill, London, he had identified a marker (the  $\theta$  isoantigen) to distinguish T lymphocytes for the first time (*Nature*, 224, 378; 1969).

"I was doing clinical neurology in Boston," remembers Raff, "I was an immigrant from Canada to the United States at the time of the war and they changed the immigrant draft law so that if I had stayed I would have [had to fight]. So I zipped back across the border and came back as a visitor, which meant that I had to leave at the end of my training. If that had not happened I would almost certainly have been a clinical neurologist in the US today. So the Vietnam war had one good outcome from my perspective."

Without formal PhD training, Raff had expected to work in the NIMR lab of Av Mitchison for two years before pursuing a career in academic medicine. But one evening, Mitchison told him that he had been offered the Chair of Zoology at University College London (UCL), and asked Raff to move with the group. "That was the first time the thought of giving up medicine and staying in science ever crossed my mind. It was the smartest thing I ever did."

Raff has worked at UCL since that time and is now a fellow of The Royal Society. We talked in his small, sparse office with the door flung wide open, offering unhindered access for his students and post-docs whose labs are just yards away across the narrow corridor. How has he remained so in touch with students despite his lofty scientific achievements? He credits his scientific mentor, Mitchison—he's only had one—with teaching him both how to do science and how to behave, and recounts an anecdote to illustrate the man's altru-

ism. In preparation for Raff's arrival at NIMR, Mitchison had devised a project and developed an antibody for the incoming resident. He duly handed the reagents and protocol over to Raff and then politely refused to add his name to the 1969 *Nature* paper when the project paid off. "The result was that I became an internationally recognized immunologist overnight," says Raff.



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Raff says he should have known better at the time and insisted on Mitchison's inclusion. But he adds that watching your "scientific children thrive is better than having your name on any paper."

Raff's protégés include Jeremy Brockes (UCL), Ben Barres (Stanford University), Sally Temple (Albany Medical College), Steve Burden (New York University), Laura Lillien (University of Pittsburgh) and Justine Fallon (Brown University).

His sense of responsibility to those training in his lab comes across in many ways. For example, referring to 'The Pledge' (a threat by leading scientists to boycott journals who do not make their scientific content available for free after six months), Raff says, "I think it's the wrong pledge! It's immoral to sign it, and I haven't, because what you're doing is saying to your students and post-docs that they can't publish in *Nature*, *Science* and *Cell*—which has a huge impact on their careers—because of your principles. That's not on." He continues, "A much better pledge would have been to say you will continue to referee for these journals, but you'll now charge them the real cost of refereeing—your time. You could then charge for example, an hour. The advantage of this is that you're taking a moral stand and you're continuing to referee, but you won't be punishing your students or post-docs for your ideals."

Raff is chairman of the United Kingdom Life Science Committee (UKLSC) and has campaigned to raise PhD stipends. "Only a few years ago the stipend was around £5,000 (US \$7,200) and this has risen to £12,500. I'd like to think UKLSC was a catalyst in this."

However, he still believes that post-doc salaries in London aren't sufficient to support a family and feels the poor pay for scientists reflects the "long tradition of disdain for science and technology" in England. "When I first came to this country 30 years or so ago, I couldn't believe that the captains of industry, the decision makers in government and civil service, weren't trained in science and technology," he says.

His UCL institute was the first to introduce a four-year PhD program because he feels, "British students are children when they get their PhD. They're 4–6 years younger than any other country, and the way they choose a project and a mentor is crazy. In your final year at university, just before your exams, on the basis of a one afternoon interview you choose. It's ludicrous." Instead, his program provides an initial year in which a student rotates through different labs before choosing a PhD project. Since the introduction of this new system, the Wellcome Trust has supported around 40 such programs around the country. "I think Britain does one thing better than anyone else," adds Raff, "and that is to give young scientists independence, early. So if you do your PhD and post-doc, then you can set up your own lab by 28 years old. That's terrific."

This month, UCL will host a special symposium in his honor as he retires from laboratory science. He plans to devote retirement time to at least two serious issues that interest him: euthanasia, because he believes that society is barbaric in the way it treats end-of-life issues by removing the right-to-die from individuals, and to increasing research on schizophrenia given the severity and incidence of the disease.

How does he feel about stopping work? "I can't tell you how much I'm looking forward to it. I've been planning it for years. It's made the last five years just wonderful, knowing that I'm going to retire. There's nothing odd here, people do retire at 65. The Americans have lost their way by giving up on retirement," he answers.

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