NATURE|Vol 465|17 June 2010

EXTRA CREDIT

In Britain, organizations award 'chartered status', which claims to validate a scientist's professional credentials. But what are such designations really worth? **Nadya Anscombe** reports.

IMAGES.COM/CORBIS

Diana Garnham is on a mission. As chief executive of the Science Council in the United Kingdom, an organization that represents professional bodies across science, she wants to restore public trust in scientists. This is a big job in Britain, where that trust has been shaken by everything from questions about links between autism and vaccines to confusion about connections between mobile phones and brain cancer. Even the reality of climate change is increasingly challenged by a suspicious public, according to a February survey by the market-research company Ipsos MORI, headquartered in London.

Garnham's solution is to certify scientists with a designation that signifies a high level of scientific professionalism and competence. That designation — the title 'CSci' for 'chartered scientist' — is one of several chartered status designations in Britain. Garnham says that CSci, created in 2003, can help restore credibility to the varied category of accreditation schemes, which many scientists dismiss at present as representing little in the way of actual credentials.

Chartered status is one example of labelling certain researchers as expert practitioners or masters of a particular skill set. The intention is to make clear which scientists are experts and in what field, so that the public and, potentially, employers know whom to trust. The institutions awarding Britain's chartered statuses say that they provide a valuable service. But, although perhaps well-intentioned, such schemes, whether in Britain or elsewhere, can have drawbacks. In the case of chartered status, some scientists suggest it has a reliability problem — that standards often lack rigour, and that competencies are not routinely verified. Accreditation schemes in other regions, notably British Columbia in Canada, face similar challenges.

Charting a course

Several professional bodies can award chartered status in Britain, including the Royal Society of Chemistry (RSC), which awards CChem; the Institution of Engineering and Technology (IET), which awards CEng; and the Society of Biology, which awards CBiol — all headquartered in London. But because some organizations package society membership with chartered status, without further screening, some scientists view the designation with scepticism. Of the six scientists interviewed for this story, all had doubts about chartered status and questioned the schemes' credibility.

One UK-based entrepreneur, who prefers to remain anonymous for fear of upsetting potential investors, has the designations CChem, CSci and CEng, and admits that the letters after his name are an ego boost. "Having chartered status does not make me a better chemist or engineer," he says. "But it did help open some doors for me, because many senior people in industry and academia think that being chartered means something." He says he received the CEng status after applying to be a fellow of the London-based Institute of Materials, Minerals and Mining. "I didn't even apply for CEng status, but I was given it anyway," he says. Since being awarded CChem and CEng status, he has not had to provide evidence of continued career progression. As long as he keeps paying the renewal fee, he gets to keep the status.

Others don't see the value of any of these classifications. "When I was doing my PhD, I saw a colleague receive chartered chemist status without much effort," says Alex Stovell, a product-development scientist in the consumer health-care division of the pharmaceutical company GlaxoSmithKline in Weybridge, Surrey. "I thought, 'If it is that easy to obtain, with limited industrial experience, what is the point?'" Stovell concedes, however, that if the status demonstrated a knowledge of current methods and techniques, it might be worthwhile.

But societies such as the RSC say they do exactly that, suggesting that these designations are far from perfunctory. To earn the CChem status, for example, a chemist must be an RSC member, have at least a master's degree in chemistry, and meet 12 professional attributes, including an understanding of health, safety and environmental issues and regulations. An assessment panel determines the candidate's eligibility, says Charlotte Beard, a professional standards specialist at the RSC. "The designation means this person can demonstrate that they are working at the

highest standing possible in the practice of chemical science," she says.

Garnham is looking to the CSci designation to appease the naysayers. First introduced in 2003 but only recently gaining recognition, CSci differs from other schemes in that participants must renew annually by providing proof of continuing career development in the form of training, familiarity with the literature and attendance at scientific conferences. It would also apply to newer professions not yet covered by a royal charter such as biochemists or geneticists. As with other chartered-status programmes, the CSci status can be revoked in the event of unprofessional behaviour such as committing fraud, making false or misleading claims, bullying, stealing or breaching confidentiality. Garnham says that by introducing the CSci scheme, the Science Council wanted to distinguish between those who are clever and knowledgeable about a topic and call themselves scientists and those who not only consider themselves scientists, but also abide by a set of agreed-upon professional standards and competencies.

Even so, in December 2009, Britain's Institute of Physics pulled out of the CSci scheme owing to "a complete lack of interest" from its members, although it has kept the 'chartered physicist' (CPhys) designation, according to John Brindley, director of membership and business at the institute in London. "The introduction of annual revalidation was a factor," says Brindley. When the CSci scheme began in 2003, some 1,300 CPhys title holders took up the offer of becoming designated CSci. Today, only about 475 remain. The potential upside, however, is that only those scientists dedicated to renewing their status will retain chartered status. So, almost paradoxically, a lack of interest from many could actually raise the credibility of the relative few who choose to work to keep the CSci title, Garnham argues.

"Biologists need to be regulated the same way as foresters, engineers, medical doctors and dentists."
— Joyce Boon

Accreditation elsewhere

Although the rest of Europe does not generally subscribe to a chartered-status scheme, two pan-European titles are similar to Britain's chartered title: 'European professional biologist' (EurProBiol), awarded by the London-based European Countries Biologists Association; and 'European engineer' (EurIng), awarded by the Brussels-based European Federation of National Engineering Associations. They have the same typical minimum requirements as UK chartered status — a master's degree and three years' professional experience — and have been designed, in part, to aid the mobility of biologists and engineers between European countries.

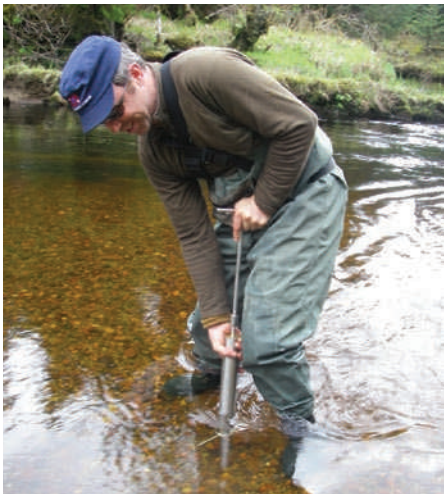
In British Columbia, Canada, the government created the College of Applied Biology in 2003 to administer a 'registered professional biologist' (RPBio) certification. Members must have a bachelor's degree in biological sciences, have at least three years' related work experience, and show authorship of one to three peer-reviewed articles.

Similar to chartered status in Britain, the college ensures the competence of members through compulsory rules for professional development, auditing members to ensure that they are regularly undertaking activities such as giving lectures and seminars, publishing papers, reviewing work of other professionals or obtaining other postgraduate qualifications. The college can invoke disciplinary procedures, as with UK chartered status, by removing a member's RPBio title or issuing fines for members who have broken professional conduct rules. "If you want to maintain credibility and stand up to public scrutiny, then you have to be prepared to sign up for the rules of an organization such as the College of Applied Biology," says Linda Michaluk, executive director of the college.

Members say that the designation is becoming increasingly important in most applied-biology professions. Jordan Beblow, a biologist with the environmental consulting company Cambria Gordon in Terrace, British Columbia, says that, without the title, he wouldn't have been able to apply for his position. "I have rarely, if ever, seen any positions advertised that don't state that you have to at least be in the process of getting it," says Beblow. The designation's established standards for professional skills and its code of ethics have helped it gain credibility, he says.

"Earning the designation provides an easy checklist that the scientist has met at least minimum standards for the profession," says Farida Bishay, an environmental scientist with Metro Vancouver, a regional water, sewer and park services utility headquartered in Burnaby, British Columbia. Although Bishay says that she didn't need the title to land her current position, she found it essential in her previous role as a consultant.

For now, the RPBio accreditation is less crucial for academics, says Joyce Boon, chair of the college's credentials committee and a biologist at the University of British Columbia at Okanagan. But Boon deems it to be vital for conferring credibility and establishing benchmarked standards. "Biologists need to be regulated the same way as foresters, engineers, medical doctors and dentists," she says, adding that the college also routinely receives international applications for membership.



L. MICKELSON

The RPBio title was a prerequisite for biologist Jordan Beblow's current job at Cambria Gordon.

International attention could increase if a new agreement, now in preliminary discussions, is adopted. The college, says Michaluk, is considering creating a reciprocal agreement with the UK Society of Biology and the European Countries Biologists Association. Such an agreement would mean that RPBio-certified Canadian biologists would be recognized as chartered in Europe, and that CBiol-status biologists from Britain and EurProBiol biologists from Europe would be recognized in Canada as registered professionals.

Meanwhile, chartered status remains potentially useful for career advancement in some scientific communities. According to a recent survey of RSC members, says Beard, those with the CChem designation earn on average £4,000 more per year than those without it. In the case of CEng, some employers, including the UK armed forces, require the designation, says David Logan, operations manager for registration and standards at the IET. And the Society of Biology is seeing more members apply for CBiol status, says Jon Kudlick, director of membership, marketing and communications at the society. (The society is still considering endorsing the CSci status.) "It is something more employers want," says Kudlick of CBiol, "especially if it gives their staff recognition for the professional development that they undertake." ■

D. BOON

Nadya Anscombe is a freelance writer based in Bristol, UK.
Additional reporting from Karen Kaplan, assistant editor of Naturejobs.

Correction
The Q&A with Rafael Jaramillo (*Nature* **465,** 513; 2010) wrongly stated that he earned his PhD in theoretical condensed-matter physics. He is an experimentalist not a theoretician.