

The friction that arises when a scientific society aims both to serve its members and stay commercially competitive is generating heat within the American Chemical Society. **Emma Marris** takes the society's temperature.



# Chemical reaction

**T**he American Chemical Society (ACS) is the world's largest scientific society. Composed of more than 158,000 chemists from industry and academia, and employing some 2,000 members of staff, the society's assets total \$1 billion. It publishes journals, holds meetings, provides career services, educates the public about chemistry, rubs shoulders with lawmakers, trains teachers, gives out grants and scholarships, and even sells insurance.

The society owes most of its wealth to its two 'information services' divisions — the publications arm and the Chemical Abstracts Service (CAS), a rich database of chemical information and literature. Together, in 2004, these divisions made about \$340 million — 82% of the

society's revenue — and accounted for \$300 million (74%) of its expenditure. Over the past five years, the society has seen its revenue and expenditure grow steadily (see chart, overleaf).

Although the ACS is a non-profit organization, the information-services divisions are increasingly being run like businesses. Any net revenue is naturally fed back into the society's other activities, but the business-like attitude is making some ACS members uneasy. A small but vocal group of critics fears that business priorities are supplanting the goal laid out in the society's charter: "to encourage in the broadest and most liberal manner the advancement of chemistry and all its branches". This is the heart of the matter, for the ACS, or for any society with substantial

revenues: can a non-profit organization always afford to put its members' interests first?

An ongoing dispute between the ACS and the US National Institutes of Health (NIH) reflects some of the problems. The NIH has recently unveiled a freely accessible database called PubChem, which provides information on the biological activity of small molecules. The ACS sees this as unfair competition to the fee-based CAS because it is taxpayer-funded, and the society wants the database restricted to molecules that have been screened by NIH centres. A few ACS members argue that the society is being unduly aggressive in protecting CAS and ought not to be challenging the scope of a database that could be a useful and free resource for chemists. For the record, *Nature's* sister journal *Nature Chemical Biology* links all of its articles to PubChem.

"I am growing increasingly upset with their direction," says Chris Reed, an inorganic chemist at the University of California, Riverside, and one of the more outspoken critics of the ACS. "They have a culture of a for-profit corporation."

The ACS says that it is run by its members, and that the 2,000 staff ultimately follow the will of elected officers, including the democratically elected 16-member board of directors, who sit at the top of a complex system of 'governance'. Between 13,000 and 20,000 members serve on the society's innumerable boards and committees, although many boards meet only

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Members' club: President William Carroll (right) and executive director Madeleine Jacobs (centre) describe the American Chemical Society (left) as a largely democratic organization.



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a few times a year and some have limited advisory power. Consequently, the hired staff make most of the operational decisions. "We have a very democratic organization," says William Carroll of Occidental Chemical and president of the ACS. "I think the organization, for one as big as it is, is pretty responsive." Staff and volunteers in governance believe that the ACS can run a competitive business while putting its members' interests first. "The staff here serves governance," says Madeleine Jacobs, executive director of the society and former editor-in-chief of its weekly magazine, *Chemical and Engineering News*.

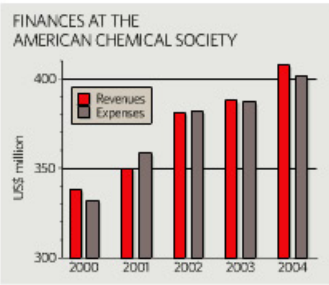
But membership dissatisfaction bubbled to the surface on 29 August at the society's national meeting in Washington DC during an open session for the CAS and publications divisions. ACS member David Spellmeyer of the IBM Almaden Research Center in San Jose, California, had distributed yellow flyers encouraging people to attend the meeting if they wanted to know more about the PubChem debate. But at the meeting, the director of CAS, Robert Massie, twice declined to discuss PubChem, each time suggesting that interested members talk privately with Brian Dougherty, senior ACS adviser on PubChem who sat at the very back of the room. When he passed over the topic for a second time, saying, "As I said, Brian is here. I suggest you talk to him directly," a substantial chunk of the meeting got up and left the room.

**Heated argument**

Outside in the corridor, Dougherty found himself surrounded by a knot of angry chemists clutching yellow flyers. Dougherty was conciliatory, but the members were obviously frustrated. "This is offensive," said one.

Dougherty and other staff had first seen the flyers that morning. They had not planned to mention PubChem at the meeting and they decided to stick to the programme, which featured updates such as the introduction of CAS for BlackBerry wireless Internet devices. "They are normally one-hour meetings," says Dougherty. "Was it appropriate for us to turn that into an open forum on PubChem?" He says he suspects that both Jacobs and Carroll would have liked to be present at any such debate. "That was the best decision at the time, and in hindsight, I think we did the right thing," he adds.

Not all ACS members are happy with that decision. Two, including Spellmeyer, resigned in protest from an advisory committee on CAS following the incident, which came just a day after the committee passed a resolution calling for more open dialogue on PubChem between the ACS and its members. One CAS committee member, who preferred not to be named, says: "The ACS had made some choices about what, where and how to communicate. We would like them to rethink those choices. We felt the membership was not well informed."



Last year's ACS president, Charles Casey of the University of Wisconsin, Madison, who serves on the board of directors, admits that the society has not communicated well on the PubChem issue. "I think there is an effort now to do better," he says. "I think this is an isolated problem, and one that will get corrected."

Dougherty says the staff has taken the CAS committee's resolution to heart. "We have our orders to improve communication. There is not an action plan, with dates attached, but it will happen," he says.

As dramatic as the scene in Washington was, the crowd in the hallway numbered fewer than a dozen chemists. An ACS survey that randomly polled some 3,500 members by e-mail in 2004 revealed only 5% who said they were not satisfied with the organization. Most approve of the ACS.

Still, as Jacobs says: "There is a small group of people who feel passionately about their issues. Those individuals have real concerns and we have been trying to address them." But policy decisions on questions such as PubChem have to be made expeditiously by the staff, she says. "You can't, for every single issue, poll 158,000 members."

**Abstract art**

According to Jacobs, CAS is the one thing, besides the society's sheer size, that makes the ACS unique. This operation sells various tools that can bring up a body of research on a chemical with a few keystrokes. "That's an anomaly of the ACS, but also our strength. No other professional society in the world has a publications arm like CAS," says Jacobs.

Based in Columbus, Ohio, CAS is 100 years old, and has become essential for chemists: search tools that mine the core database are purchased by virtually every chemistry com-

pany or research university. Massie, who has a background in management consultancy, is the first non-chemist to head the division. "Bob Massie was definitely hired to move CAS into the modern age, and he has succeeded," says Jacobs. "Its current success is most assuredly due to his leadership."

Under his management, CAS has not been shy of protecting its business interests. In 2002, it sued a company called Leadscope in Columbus, Ohio, founded by three former employees, two of whom are chemists and ACS members. The ACS said that the three were selling a software program too similar to one they had worked on for the society, where they had signed agreements giving ACS the rights to their creations. That suit is on hold, and Jacobs says that she expects it will be settled out of court.

Leadscope chief executive Loftus Lucas said in documents submitted as part of the lawsuit that the ACS timed its suit to scare off a potential financier. "They sued us in a rushed submission, one week before Leadscope was doing a last round of financing," he says. "They elected, apparently, to try to put us out of business."

The society denies this. In a statement it said: "ACS brought suit against the defendants for the reasons stated in the complaint, including breach of employment agreement and misappropriation of intellectual property belonging to CAS. These are the only reasons for the lawsuit, and any other allegations are incorrect."

**Scholarly debate**

In December 2004, the ACS also launched a suit against Internet search engine Google over trademark infringement for its use of the word 'scholar'. The ACS alleges that the new academic search engine Google Scholar is trading off the reputation built up by the society's popular database search tool, SciFinder Scholar.

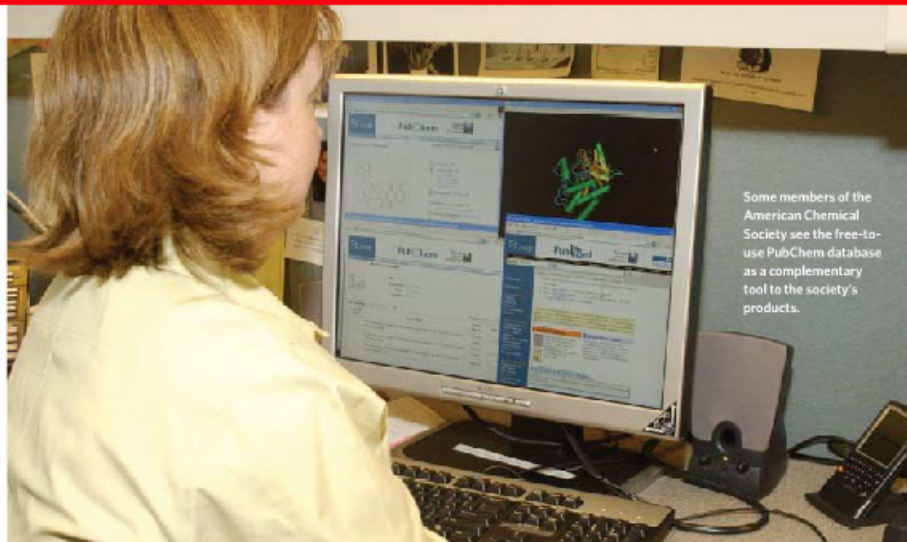
And, most controversially, CAS has disputed the scope of the NIH's free database, PubChem. But the NIH sees the two databases as complementary tools and doesn't want to restrict its operations. Negotiations continue between the parties, and visits to lawmakers have been made by both sides. "It takes something pretty dramatic for us to go out to Capitol Hill and not talk about science but about something that would affect our operation," says Dougherty. He predicts that the disagreement will be resolved within a year.

Some ACS members who are also fans of PubChem feel that their voices have been lost in this debate. Steve Heller, who lives in Silver Spring, Maryland, is part of an e-mail list-server community that is a source of lively discussion on this issue. Heller is a retired chemist and ACS member who also serves on an NIH advisory board on PubChem. "It seems as if those members of the ACS who see and know what is going on — and it is not a very large number — are very upset that the management and staff are taking a position without any consultation with the member-

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— Madeleine Jacobs



N. BARTLEY/INFORMA



Some members of the American Chemical Society see the free-to-use PubChem database as a complementary tool to the society's products.

ship or discussion with experts in the field, and doing things that are not in the interest of their members, who want this for free," he says.

"It just seems to me like such a conflict of interest with their own mission," agrees Heather Joseph, executive director of the Washington-based Scholarly Publishing and Academic Resources Coalition, an alliance of libraries that supports open access to the scientific literature. "For science to be conducted effectively, open access to data has to be part of the landscape."

**Steady state**

Massie told *Nature* he did not have time to be interviewed for this article, but he and other ACS staff and officers are on record as saying that keeping CAS thriving and in the hands of the ACS is the best thing for science. Jacobs argues that for the NIH "to duplicate what the private sector does well, does not seem to me to be a good use of taxpayer money".

Things seem calmer in the publications division, which was reorganized along more commercial lines in the 1990s. "We weren't competing," recalls Ned Heindel, a past ACS president at Lehigh University in Bethlehem, Pennsylvania. "Eventually it was decided that management of the publications should be done by true professionals."

In 1996, oversight moved from a committee of volunteers that met biannually to a Governing Board for Publishing, including four compensated publishing experts. Robert Bovenschulte, a veteran commercial publisher, was hired to run the division. "We are now positioned to respond to the market and move page allocations around," says Heindel.

The ACS has since expanded the number

of titles and done quite well in a field where everyone is feeling the pinch of shrinking library budgets, increasing costs, ballooning submissions, and the parallel rises of the Internet and open-access publications.

In response to the proponents of open access, some of whom argue that if the society's objective is to promote the field of chemistry it ought to give all its journal articles away for free, Bovenschulte replies that the ACS has to charge to keep the publications division strong and dynamic. "In addition, the society does require that both CAS and publications generate a small net contribution or surplus, and those monies support the good works that the society does," he says. "They give me targets and I have to make them." Bovenschulte adds that there have been occasions when business concerns have been trumped by members' interests, but he said he preferred not to name them for fear of reviving old squabbles.

Most critics of the ACS believe that their best shot at changing the society is to find a way to

penetrate the committees and boards that govern it — for example, by electing like-minded individuals to the board of directors, which hires executive staff. Or they could aim for the Governing Board for Publishing, which covers CAS as well as publications. In addition to its four publishing experts, the chair of the board of directors, Jacobs, Massie and Bovenschulte, the board has slots for two ACS members, as long as they have executive-level experience.

Reed hopes to gather together the disgruntled into an e-mail list, and eventually into a slate of candidates for various ACS offices to run on a reform platform. "I think it is going to require a grassroots movement," he says. "I don't see how members' complaints, letters to the editor, or e-mails to the governing board are changing anything."

Many of the critics remain deeply engaged with the society. They attend national meetings and vote in elections. And they generally like the ACS. "On the whole, the society brings a great deal of value to its members," says Spellmeyer. Heller feels the same way. "There are benefits to being a member and being part of a community," he says.

Heller and others hope that they can change the society from the inside. "If you decide you aren't happy with the current governor or mayor, you don't move out of the city or state, you wait for the next election," he says. This sentiment was echoed by Jacobs in a statement released on 26 September: "I firmly believe on PubChem and other issues, it's much more productive to work through our Society, than outside it." On that, at least, there is some agreement.

Emma Marris is a correspondent for *Nature* based in Washington DC.



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