SCIENTIFIC SOCIETIES

Blowing the Dust Off the French Academy

France's premier scientific society risks becoming a relic of the past. Reformers want to expand the membership rapidly, but the proposal may split its ranks

PARIS—On a recent Monday afternoon, several dozen members of the French Academy of Sciences assembled for the academy's weekly gathering in the Great Meeting Hall of the Institute of France, a palatial 17th century building overlooking the river Seine. The academicians, most well into retirement age, sat on stuffed chairs beneath an ornate chandelier and surrounded by oak-paneled walls laden with marble busts, stone statues, and faded portraits depicting long-departed giants of French culture. Four experts had been invited to address the academy on the subject of the "impact of climatic changes on the evolution of biodiversity." But as the lights were dimmed for the slide projector, the struggle to stay awake proved to be a losing battle for some academicians. After an hour or so, with the discussion over, the public was excluded so that the academy's Secret Committee could discuss internal matters such as the election of new members and the awarding of scientific prizes.

Relic? If reformers get their way, the Great Meeting Hall would soon be overcrowded.

France's premier scientific society has been conducting its business in this genteel manner for as long as anybody can remember. But many French scientists don't see the charm of this rarefied, old-world atmosphere. They argue that the academy—which was founded in 1666 during the reign of Louis XIV—has for too long been an elite club, a relic of science past rather than a living body of science present and future. "The Academy of Sciences is the dustiest place in the world," says one French researcher, a nonmember who prefers to remain anonymous. The academy has the potential to be far from dust-laden, however—especially as it counts virtually all of France's Nobel laureates as well as other highly accomplished figures of French science among its ranks—and if the current leadership gets its way, it could be in for some spring cleaning.

In January, a reform-minded academician, chemist Guy Ourisson, took office as president of the academy. Ourisson has made clear his desire to remove most vestiges of days past, when, as he put it in his inaugural speech, "the academy was a sort of club for retired Parisian scientists, happy to be able to come together once a week to talk about science for 2 hours after lunch and a little nap." Ourisson's reform plans have received substantial support from academy members, including France's research minister, geochemist Claude Allègre, who has been prodding the academy from behind the scenes to expand its membership and become more representative of the nation's diverse scientific community. Nevertheless, there are important pockets of resistance to reform, and Ourisson and his allies may still face an uphill battle on some of the more far-reaching changes they are proposing.

The most fundamental reform, which is still being discussed only informally, would be to end what some have called the academy's "two-caste" structure. The academy is divided into 145 full-fledged members (academicians)—nearly two-thirds of whom are retired—and roughly 200 "correspondents," a second tier of members-in-waiting. Correspondents must usually wait for the death of an academician to free a slot before they can be elected to full status. Other initiatives include the creation of a new academy of technology—which would raise the stature of researchers working in industry and other applied fields—as well as a concerted effort to improve the academy's series of scientific journals, the *Comptes Rendus de l'Académie des Sciences*.

The reformers say that these measures are critical if the academy is to regain its influence in French society, which has diminished greatly in past decades. For example, the government only occasionally calls upon the academy for advice: The French academy produced only five reports on scientific questions in 1998, while its American counterpart, the National Academy of Sciences (NAS), published 189 reports last year. To help boost the academy's relevance, Allègre has asked it to report every 2 years on the state of French research and technology, but the academy's ability to focus scientific firepower on specific questions remains limited.

So far, the proposed reforms have met with a mixed reaction. The creation of an academy of technology has received broad support from the members, but there is an undercurrent of resistance among some academicians to proposals that would lead to more fundamental changes in the Academy of Sciences—notably, turning correspondents into full voting members. "I have asked the opponents to speak up and be explicit [about their objections]," Ourisson told *Science*. "So far none have done it, which I regret." Nevertheless, in *Science*'s discussions with numerous academy members, as well as in a survey of academicians on this issue (see sidebar), some members expressed clear reservations about broadening their ranks, ranging from outright opposition to a belief that correspondents should be transformed into full members only on a case-by-case basis.

For the reformers, a dramatic increase in the academy's membership is essential if the body is to truly represent French science. Correspondent Gérard Toulouse, a physicist at the Ecole Normale Supérieure (ENS) in Paris who has written articles sharply critical of the academy in the French press, deplores "the idea that the fewer members there are, the more their quality is elevated." And member Yves Meyer, a mathematician at the ENS in Cachan outside Paris, says that "the danger of the current situation is that so many members of the academy are retired ... and reflect a science that has ceased to be active." Toulouse, Meyer, and other critics compare their own academy unfavorably with its American and British counterparts, the NAS and the Royal Society, which have continually expanded their numbers of active members to keep up with the growth and diversity of their scientific communities.

The rate of growth of the French Academy has been, at best, glacial. In the mid-1960s, the academy counted about 80 academicians, an increase of roughly 20 members during the previous 150 years. Then a

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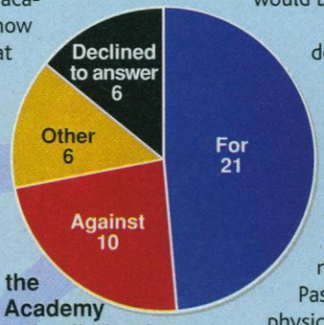
Academy Reform: Members Have Their Say

PARIS—In 1973, the Nobel Prize–winning French physicist Alfred Kastler published a scientific paper entitled "Evolution of the average age of members of the Academy of Sciences since the founding of the Academy." The report, which appeared in the academy's *Comptes Rendus (Proceedings)*, plotted the average age of election into the academy, as well as the average age of death, of all academicians since the organization's founding in 1666. Kastler, now deceased, found that beginning around 1840, the average age at election began to rise precipitously, while the average longevity rose much more slowly. If the trend continued at the same pace, the paper concluded, by the year 2100 the average academy member would be elected only after his or her death and the organization would eventually cease to have any living members.

Although Kastler's tongue was firmly in his cheek, serious concerns about the graying of the academy have led its president, chemist Guy Ourisson, and others to propose expanding the number of members. As a first step, the reformers have suggested eliminating the distinction between the 145 full-fledged members and the academy's 205 "correspondents," a second tier of nonvoting members-in-waiting (see main text). To get an idea how controversial these proposals are likely to be, *Science* conducted a confidential survey—by e-mail, fax, and letter—of all 145 academicians, asking for their position on these issues.

Out of 43 members who responded to the survey, about half clearly favored ending the distinction between correspondents and members, although in optional supplementary remarks some thought it should be done gradually rather than all at once (see chart). A slightly higher proportion favored increasing the total number of members, although the respondents differed considerably on how large the organization should be: The ideal size ranged from a proposed 20% increase in the current 145 members to a total number as high as 1000. A few academicians objected to the survey itself, arguing that these issues had not yet been debated within the academy and that airing them publicly would be divisive.



Should the French Academy abandon the distinction between "Academicians" and "Correspondents"?

Although the survey promised confidentiality, a small number of respondents exercised an option to make their opinions publicly known. Biologist Jean Rosa, who was favorable to both propositions, commented that "these modifications seem to me indispensable to include new knowledge in the academy, which is appearing at a rhythm that did not exist at the time of Pasteur or the Curies." And Nobel-winning physicist Pierre-Gilles de Gennes said that the distinction between members and correspondents is "obsolete." De Gennes also commented that some areas of science are underrepresented in the academy: "Researchers working on more novel areas have difficulty being accepted."

None of the academicians who clearly opposed the reform measures agreed to be quoted. Nevertheless, it seems likely that Ourisson and other reformers within the academy will encounter some opposition as they push forward with their plans to rejuvenate the aging organization. "I am sure there will be resistance," Ourisson says. "It will probably not be an abrupt change, but a gradual one."

–M.B.

series of reforms led to a slow increase in the membership to its present number of nearly 150. But in the view of many reformers, this number is still woefully inadequate. "If one compares the size of our academy with that of the NAS [nearly 1800 active members], and the respective population of the two countries, we should have between 400 and 500 members," says academician Moshe Yaniv, a molecular biologist at the Pasteur Institute. And academician Jean Rosa, a retired biologist, says he supports increasing the membership to "a number equivalent to that of the Royal Society," which currently counts 1150 Fellows in its ranks.

Reformer. President Guy Ourisson favors expansion.

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Although some members and correspondents believe that eliminating the difference between these two classes should be the first step toward expanding the ranks—a measure that would immediately boost the membership to about 350—this view is not shared by everyone. "There are some correspondents who deserve to be members, but there are others who are perhaps too young or who are not known outside their own specialty," says molecular biologist Marianne Grunberg-Manago, a past president of the academy and the only woman ever to hold this post (and one of only five female academicians and 10 female correspondents currently on the academy's rolls). "I think we should open up the academy a little bit, but it must remain very selective." And physicist Hubert Curien, the academy's vice president and a former French research minister, says that while he supports an expansion in the academy's ranks, it should not be done "too rapidly and too massively."

Toulouse, however, argues that the two-tiered structure compromises the independence and integrity of the academy when it has to grapple with controversial scientific or ethical questions. The academy's "greatest merit," he says, should be to "permit people to express themselves without fear." The two-tier system, Toulouse says, "encourages conformism and servility. … The correspondents have an excuse to say, 'I cannot speak up because I am waiting to be a member,' and then when they get there they are too old and don't have anything to say."

Yet both supporters and opponents of reform agree that a significant expansion of the academy will cause a major upheaval in its clublike atmosphere, which has changed very little in the 333 years since its founding. One victim of the changes, for example, would be the cozy Monday afternoon meetings, which Ourisson says would have to be eliminated, in large part because active scientists—particularly those from outside Paris—cannot regularly attend. Meyer admits he would miss these gatherings, which have the "ambiance of an 18th century salon. … If we bring together 1000 people, we will not have this quality of discussion." But in the end, it seems likely that the majority of members will opt for change rather than risk allowing their academy to fall into irrelevance. Says Toulouse: "It is better to have a larger and more prestigious academy than one that remains small and contemptible."

–MICHAEL BALTER