ments have virtually eliminated the need for additional APS-sized and -priced machines. Indeed, "it's unlikely another one will be built in the near future, if ever," says SSRL's Hodgson. But Hodgson and other synchrotron experts are quick to add that the new technology in no way makes the behemoth machines obsolete. Even with the new technology, the smaller sources cannot produce beams as bright or as tightly focused as those of their big siblings. Winick and others predict that most of the growth in crystallography will take place at the smaller machines, freeing up beamtime on the big synchrotrons for experiments that take full advantage of their capabilities, such as making x-ray movies of proteins in motion. "The bread-and-butter stuff can be done without having to go to the very large machines," says Bordas.

It will take several years before many of the upgrades and new facilities are completed. But if the new generation of magnet technology lives up to its billing, other smaller, cheaper synchrotrons will likely follow. For biologists, that will provide a welcome relief from today's crowds. **–ROBERT F. SERVICE**

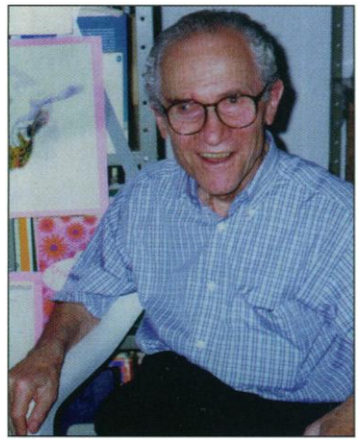
CHEMISTRY

Brazil Lobbies for First Nobel

Brazilian scientists hope to convince Swedish colleagues that one of their patriarchs of biodiversity, Otto Richard Gottlieb, deserves a Nobel Prize

RIO DE JANEIRO—Brazil's science community has begun an unusually visible campaign to promote the Nobel Prize candidacy of Otto Richard Gottlieb, a revered figure in that country, for his contributions to the study of biodiversity and plant chemistry. But the effort is a long shot. In addition to the difficulty of touting someone from the developing world working in a relatively obscure field, Gottlieb's advocates are up against the secretive world of the Nobel selection process.

The Royal Swedish Academy of Sciences, which awards the chemistry prize, does not accept unsolicited nominations and does not discuss who is under consideration. But for 3 years running, its chemistry committee, as part of its normal outreach efforts, has invited the Brazilian Chemistry Association to submit the names of worthy candidates. The association has used the opportunity to promote the 79-year-old Gottlieb, born in Czechoslovakia of a Brazilian mother, who moved to Brazil on the eve of World War II.



Prize fighter. Brazil makes a push for chemist Otto Gottlieb.

Gottlieb's candidacy has attracted extensive media attention here, thanks to the efforts of Peter Rudolf Seidl, a chemist at the Federal University of Rio de Janeiro. Earlier this year, Seidl began making the rounds of government offices and scientific societies to build support for Gottlieb's candidacy, which by then had been endorsed by the Brazilian Chemistry Society. With public pressure building, last month the Brazilian Academy of Sciences took the unusual step of throwing its weight behind the effort, although academy officials are still debating how best to communicate that support to their Swedish counterparts, which award Nobel Prizes in physics, economics, and literature, too.

Trained in Brazil, Gottlieb spent decades in the Amazonian rainforests, helping to create a taxonomy system that classifies plants not by their physical characteristics but by the chemicals they produce. Colleagues say he made important contributions to the field of natural products at a time when Brazil was virgin territory to most of the world's chemists. "He played a big role in developing what is now called biodiversity," says Norman Lewis, director of the Institute of Biological Chemistry at Washington State University in Pullman and regional editor for *Phytochemistry*, which is planning a special issue next year in Gottlieb's honor. "He recognized that plants are factories that produce a variety of chemical compounds, depending on their environments."

Before Gottlieb began his work, Seidl says, studying biodiversity was like trying to repair a Swiss watch without understanding how its sophisticated mechanism works: "He provided the theoretical base, quantifying and bringing coherence to the study of this area." Chemistry Nobelist Roald Hoffmann of Cornell University agrees that Gottlieb has made major contributions to several fields. "He is the premier Brazilian organic chemist and one of the world's outstanding phytochemists and biogeochemists as well," says Hoffmann. "His work deserves the highest honors of our profession, including the Nobel Prize."

Gottlieb retired from the University of São Paulo in 1990. But he has transformed the living room of his modest apartment in the Copacabana neighborhood here into a minilaboratory that serves as home base for a dozen researchers, graduate students, librarians, and a secretary working on one project or another. Despite the recent outpouring of media attention to the academy's efforts, Gottlieb maintains a deep humility about his status in the scientific community. "I think there are people who are more clever and capable than I am," he says. "I am a product of this nation, and by this nation I have been more than adequately compensated."

The uphill campaign to capture Brazil's first Nobel Prize has the strong backing of the country's scientific establishment, members of which are speaking out on his behalf. "The nomination of Professor Gottlieb for the Nobel Prize would do his work justice and would be a great distinction for Brazil," says José Israel Vargas, special assistant to the Brazilian president. A former minister for science and technology, Vargas is currently president of the Third World Academy of Sciences (TWAS), which awarded Gottlieb its chemistry prize in 1991. "TWAS supports the nomination of Dr. Gottlieb for the Nobel Prize. And so do I," says its executive director, Mohamed H. A. Hassan.

Gottlieb is also well known for building the country's scientific infrastructure, having seeded the faculties of many of Brazil's leading universities and research institutes with more than 100 of his students. "If there was a popular vote in Brazil for the Nobel, he'd be near the top of the list," says Lewis, who adds that Gottlieb is still going strong thanks to an "insatiable curiosity."

It is not clear that any of this advocacy will make any difference, however. "I am sorry to inform you that most of your questions cannot be answered due to our secrecy rules," says Lennart Eberson, chair of the chemistry committee and a professor at the University of Lund in Sweden, in response to an e-mail query from *Science*. "The only thing I can say is that we every year ask a large number of individuals to nominate candidates for the Nobel Prize. Many nominations are received, and each candidate is evaluated." **–CASSIO LEITE VIEIRA**

Cassio Vieira is a free-lance writer in Rio de Janeiro.

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