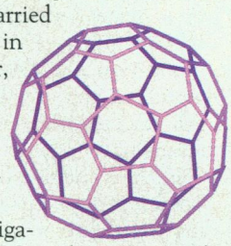
have to use it and pay royalties.

Nobody disputes the fact that Krätschmer and Huffman first produced fullerenes unknowingly in 1983 in Krätschmer's lab at the Max Planck Institute for Nuclear Physics in Heidelberg. Huffman, a physicist at the University of Arizona, was collaborating with Krätschmer in an effort to recreate interstellar dust by electrically heating graphite in an atmosphere of low-pressure helium. One of the samples of the dust they created had an unusual ultraviolet spectrum. Huffman says they thought it could be some new form of carbon but had no idea what it was. The discovery of fullerenes in 1985 by other researchers prompted Huffman, who had by then returned to Arizona, to repeat the experiments, he says. In September 1987, Huffman first applied for a patent on the process, with Krätschmer as co-inventor, but later withdrew it because the process did not reliably produce fullerene; sometimes it worked, sometimes not. The problem turned out to be with the pressure in the reaction vessel: It needed to be 100 torr, higher than expected—both arms of the team discovered this during 1988.

Fostiropoulos joined the project early in 1989. He first worked to produce larger quantities of the material and then, by comparing samples made with different isotopes, showed that it contained all-carbon molecules—work that he published with Krätschmer and Huffman (*Chem. Phys. Lett.* **170**, p. 167, 1990). He then worked on ways of separating the fullerene from the rest of the carbon soot produced and carried out experiments to prove the product really was fullerene: mass spectrometry, infrared absorption spectrometry, and electron and x-ray diffraction studies (*Int. J. Modern Phys. B* **6**, p. 3791, 1992). According to Lamb, similar experiments were carried out in Huffman's lab in Arizona. (Krätschmer, who was traveling last week, was the only member of the team who could not be contacted for this article.)



At Huffman's instigation, applications for U.S. and international patents were drawn up in the summer of 1990 by lawyers at Research Corporation Technologies (RCT), a nonprofit technology transfer company based in Tucson, acting on behalf of the University of Arizona and the Max Planck Society. If the patent is awarded, the proceeds will be split equally between the two institutions, and Huffman says he would get a small percentage of Arizona's share.

Jeff Jacob, project manager for the fullerene patents at RCT, says the company makes every effort to get inventorship right. "Based on the facts available [in 1990], we chose those inventors [Krätschmer and Huffman]," he says. The Max Planck Society carried out a similar inventorship investigation. According to Heinrich Kuhn, the society's patent lawyer, "It makes no difference if it is a professor, a scientist, or a technician...we make our investigations very thoroughly."

Harry Kroto, one of the original fullerene discoverers in 1985, says RCT got it right. Kroto argues that Huffman and Krätschmer had the key insight that led to the invention. "The real science was to think C_{60} was there," he says. "It is a research student's job to confirm or otherwise that insight. But it is hard for them when the discovery is of this magnitude."

–Daniel Clery

OSTP

Gibbons Breaks Mold on Appointments

Science adviser John Gibbons last week rounded out his top staff at the Office of Science and Technology Policy (OSTP) with two appointments that, by gender and background, signify a break with tradition. President Clinton has nominated an academic biologist, M.R.C. Greenwood, dean of graduate studies at the University of California, Davis, as associate director for science. That's a new position, having been split in the past between two people, one with responsibility for the physical sciences, the other for the life sciences. Clinton also nominated Jane Wales, a former journalist and arms-control activist who runs a program on cooperative security at the Carnegie Corporation of New York, as associate director for international affairs.

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Chief scientist. Biologist M.R.C. Greenwood.

Greenwood, 50, and Wales, 45, would be only the second and third women to hold top jobs at OSTP since it was created in 1976. (Bernadine Healy, who later became director of the National Institutes of Health, was the only other woman to have held an associate directorship.) They will join two previously announced members of Gibbons' top team: Skip Johns, 59, a policy analyst who came with Gibbons from the Office of Technology Assessment to handle technology and space issues, and atmospheric chemist Robert Watson, 45, who has moved from NASA to coordinate environmental and energy-related matters.

The selection of Greenwood, a biologist, may smooth some feathers ruffled earlier this year when Gibbons announced that he would combine the life sciences and the physical sciences into a single unit at OSTP. Life scientists feared the loss of a voice at OSTP, but Greenwood has a Ph.D. in physiology, neuroscience, and developmental biology from Rockefeller University, and her research has focused on the genetic bases for obesity.

Greenwood says that her background in biology "is a good thing" for OSTP because "many of the potentially most lucrative areas relating to commercialization relate to the life sciences." But with scientists already worried that Clinton favors technology over science, Greenwood knows that she must reach out to all segments of the community. "I'm sure that I will be spending a lot of time meeting people from the physical sciences, and I hope to have an assistant who is well-connected to that community." In fact, one of her first jobs will be to select assistant directors for the life, physical, and social and behaviorial sciences.

Wales will also have some bridges to build. A decade ago, as executive director of Physicians for Social Responsibility, Wales was on the front lines in the battle to reduce the spread of nuclear weapons while the OSTP director, ex-weapons designer George Keyworth, was the Reagan Administration's chief spokesman for Star Wars. Wales, who has a bachelor's degree in comparative literature and worked in the State Department during the Carter Administration, has a reputation as a politically savvy administrator. "Jane's strength is that she's been around Washington defense policy circles and she knows the games that people play," says Chris Paine, an analyst at the Natural Resources Defense Council.

To shore up OSTP's technical expertise in weapons-related issues, Gibbons has tapped Princeton physicist Frank von Hippel, 55, to serve as an assistant director for science and security under Wales. A professor of public and international affairs, von Hippel has spent the past decade working on nonproliferation and testing verification issues, and pioneered nongovernmental efforts to improve East-West cooperation. An advocate of a comprehensive test ban, von Hippel participated in a May meeting with Energy Secretary Hazel O'Leary and the directors of Department of Energy's weapons laboratories that led to the Administration's decision to extend a moratorium on testing.

Greenwood and Wales must be confirmed by the Senate, which is not expected to take up their nominations for another month or so. Of the four associate directors, only Johns' appointment has so far been blessed by the Senate.

–Jeffrey Mervis