

Wellesley professor brings Nobel laureate to campus

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Contributing Writer

More than 100 Wellesley College students, faculty and staff learned the basics of neuroscience from a Nobel Prize laureate on Thursday, Oct. 4. Dr. David Hubel, winner of the 1981 Nobel Prize in physiology or medicine for his work with Torsten N. Wiesel and Roger W. Sperry concerning the visual system, gave two lectures in the science center on Oct. 4 and Oct. 11.

Knafel Assistant Professor of Natural Science Bevil R. Conway invited Hubel to present at Wellesley. A new member of the neuroscience department, whom Hubel calls a friend, Conway collaborated with Hubel at his laboratory at Harvard when he was a graduate student and worked there as a post-doctoral fellow.

"My affection for Wellesley dates from 1942 when I visited my sister," Hubel said.

President H. Kim Bottomly, who introduced the speaker before his first lecture, called the talk "perfect," saying Hubel did not give too much information for students to digest, but rather a "structure for

how to think about [the subject]." Hubel started by drawing a neuron on the "blackboard" (which was actually white, as he jokingly pointed out) and explained how one neuron carries an electrical impulse to another. Fifteen minutes into the lecture he had already taught the audience an entire semester of introduction to neuroscience, he said.

Hubel then shared a few fundamental discoveries made by his laboratory, showed videos of the experimental work that offered proof of his theories, and gave real-life examples students could relate to. For example, he said, if a newspaper looks the same when you look at it outside in the sun or inside a lit room, the absolute amount of light reflecting off it is different since the light source is not the same.

Hubel explained that the eye does not care for absolute brightness of the colors, rather for the contrast between them. Through "deprivation work," where a new-born monkey's eyes are kept shut, the Hubel lab showed that some neuron connections are present at birth in the visual cortex and that vision is not only acquired through experience. This work

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Hubel's lecture caters to students of all backgrounds

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was a breakthrough of medical importance.

Hubel's second lecture focused on the "functional anatomy of the visual cortex." Stare at one of the words on this newspaper page. Can you make sense of the words on either side? Hubel predicted those words were too blurry. The eye does not allow to see as sharply in the periphery of the visual field. This magnification is mirrored in the visual cortex, where a same-size area corresponds to a small area of the visual field if located in its center or a larger area of the field if located at its periphery. Within an area of one cubic meter, information from both eyes and all directions are taken into account and processed in a very ordered fashion.

Bottomly met Hubel, his wife and a few faculty and student members from the neuroscience department over dinner. Bottomly described Hubel as a "humble, modest, caring individual who genuinely cares about education." In fact, Hubel said he enjoys teaching undergraduates better than medical school students who do not have time to become interested in the subject. His advice was to pursue your interests. "If you thoroughly enjoy your field, there's nothing to compare it with," he said.

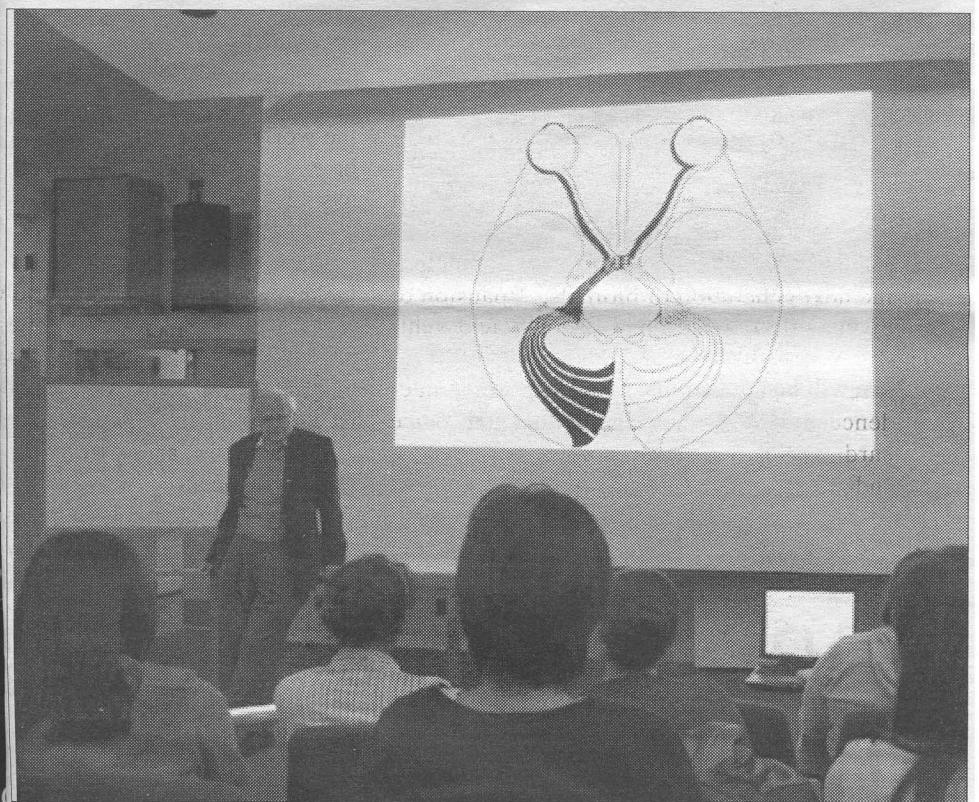
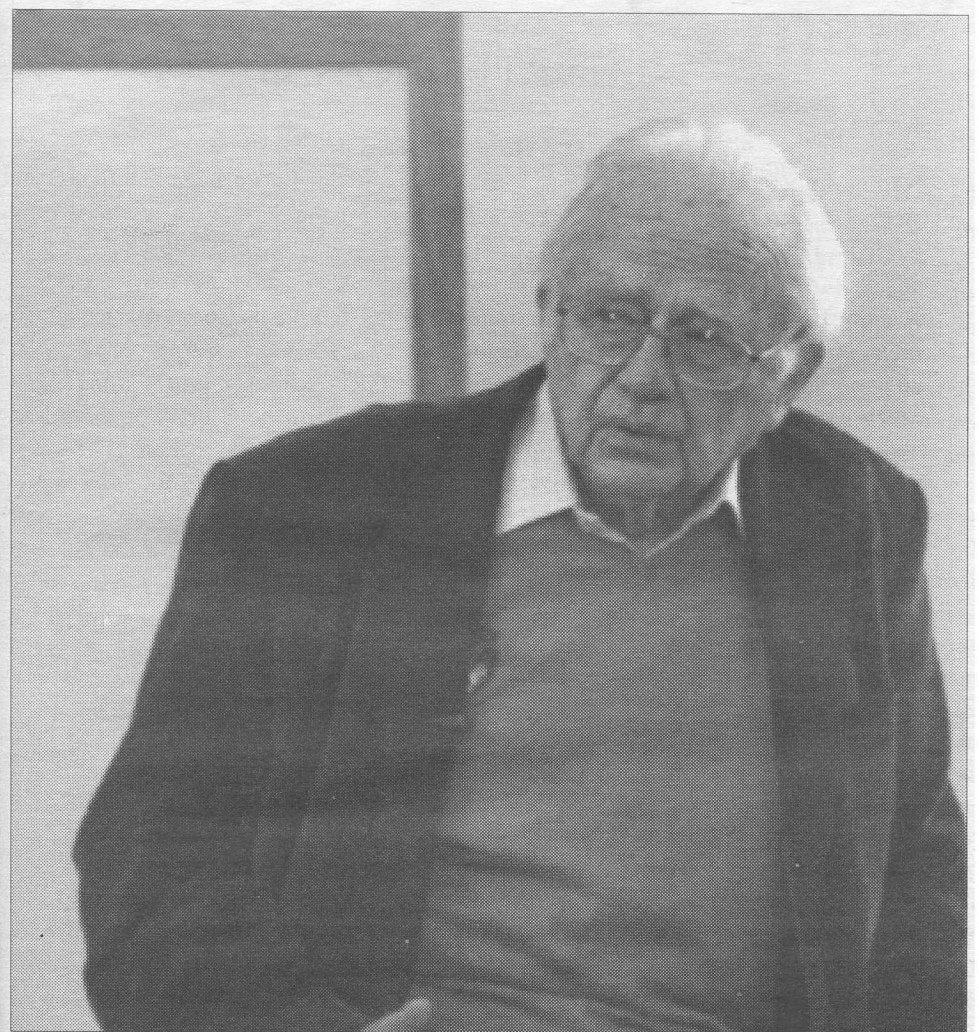
Hubel's thorough enjoyment led him to worldwide fame. "I was taking a shower at 6:30 a.m and the phone rang. It was a reporter from Washington, D.C., who said: 'Congratulations.' I had no idea of what he was talking about," said Hubel of the day he learned he won the Nobel Prize. He was

"absolutely flabbergasted" to learn he had won the prize, since there is never an obvious winner—which Hubel said is due to the hard work the committee puts into reviewing the nominees each year. "They put on the best party you've ever seen in your life. You're made to feel very important," he said. Hubel was assigned a chauffeur, driving a personal car with the letter N on it, and a cultural attaché from the embassy who made sure he was on schedule. Winning the Nobel Prize did not make it more difficult to conduct research as Hubel had feared, he said. He gets invited to give more talks and had to learn to say "no."

"I still get fan mail, one or two letters a week usually from Germany or Belgium," Hubel said.

When Conway introduced Hubel before his second lecture, he listed three impressive qualities about the Nobel laureate: "how much he was involved with everything" in the laboratory, his "sense of humor," and his "commitment to really good writing." Hubel presented the experimental work as well as the results in his lectures, proving his intimate knowledge of all aspects of lab work. His sense of humor made the audience laugh out loud and his expression was clear enough that students with no background in neuroscience were at ease. Art major Sara Kaufman '09 said she could understand the majority of Hubel's presentation.

For more information about the visual system, Dr. Hubel's textbook, "Eye, Brain, and Vision," is available on reserve at the library and online on his website. A video recording of the second lecture should also be available shortly.



Photos by Bonnie Min '10, Assistant Photography Editor