It has been said that behind every successful man there stands a woman.

Carol Mussette Woike, BFA'62, is such a woman. She can often be found standing behind Dr. Robert M. Zollinger in the operating room, carefully sketching details of an intricate surgery.

Carol is a medical illustrator — the first and so far, only, Ohio State fine arts graduate to receive a certificate of internship in medical illustration.

She is illustrating the second volume of Dr. Zollinger's *Atlas of Surgical Operations*. The first volume is now in its third edition and is recognized as one of the finest ever written.

"I stand on a short stool right back in front of Dr. Zollinger in the operating room and draw quick sketches of operations," Carol said, "and then draw larger ink illustrations from the sketches."

"Dr. Zollinger never slows down an operation just for me," she laughed, "so if I miss something, I have to wait for an identical operation or obtain the missing information from an autopsy."

Carol, 25, is from Wilmington, O. Her husband, Mervin, is a student in international studies and will graduate in December. Deadline for finishing the atlas is the end of December, and Carol's job at University Hospital will be over.

"We'd like to go to New York City and I'd like to be a free-lance artist in medical illustration. I would really paint, you know. I guess all artists have a desire to paint, but I just paint for fun, although I have sold some things."

Carol said she minored in medical illustration in the School of Fine Arts, explaining that only one or two persons a year graduate from the school with medical illustration minors.

"In July, 1962, I started my medical illustration internship with Dr. Zollinger. After a year and a half, I finished and received the certificate. Since December, 1964, I have been working exclusively with Dr. Zollinger on the atlas."

Why medical illustration?

"I had a desire to specialize," Carol said, "and the most difficult and exacting thing in fine arts is surgical illustration. The most interesting thing about the job is the challenge of trying to communicate what I see in the operating room so well that someone else can understand it without being mistaken."

"The theoretically perfect drawing is one that a doctor can look at and understand perfectly without any explanatory text beside it."

"The least interesting thing is filling the page with ink — drawing and redrawing to correct errors."

Carol explained that all her sketches are done first in pencil, then inked in with a tiny brush. She said she can do a complete plate — from operating table to finished ink — in three days, but the average is about four days.

Carol believes drawings of surgical operations are better than photographs: "I can make things more clear in a drawing. I can leave out the excess fat and blood which really isn't necessary to the illustration and I can emphasize other things that might 'get lost' in a photograph."

She said there are only five plates still unfinished for the second volume of the atlas, which details more complex operations than the first.

"There are a lot of tedious corrections remaining," she sighed, "but of course, the drawings have to be perfect."

She hasn't been in the operating room recently because time is short.

"I don't go very often now unless there's a rare operation Dr. Zollinger wants sketches of," she said.

"Nurses are not uncommon in an operating room. But a fine arts grad?"

"I never did have a weak stomach," Carol chuckled. "The patient is de-personalized — I never see his face. There is never one of those big breathless scenes you see on television because Dr. Zollinger never makes a mistake. Besides that, I'm so busy during an operation I never think about it."

"Right now, I just can't imagine getting queasy about it."

A sample of Carol's work shows the exposure of the superior mesenteric vein. Carol explained the vein is the abdomen beneath the stomach and drains the colon and small intestine.
Budget woes could affect Allied Med

By Beth Rausch
Lantern staff writer

The Biomedical Communications and Medical Illustration departments in the School of Allied Medical Professions might be eliminated because of university budget cuts.

A recommendation to discontinue these programs was given to the College of Medicine during the summer by Steven Wilson, director of the School of Allied Medical Professions. One secretarial position and 2.5 faculty positions would be eliminated if the departments are cut. The two programs share the same faculty members, so when one is affected they both are.

Wilson said the school can no longer afford the programs because of recent budget cuts. The school would save $100,000 by eliminating the programs.

The Biomedical Communications program has 16 OSU seniors and 16 juniors, the Medical Illustration program has three seniors and six juniors. These students will be unaffected by the recommendation, Wilson said.

These are the last two classes that will be able to get degrees in these fields, if the recommendation is accepted. Currently nothing has been decided concerning the recommendation, but when the College of Medicine is finished reviewing the recommendation, it will be given to Academic Affairs, and then to the University Senate, Wilson said. The entire process could take a year before a final decision is reached, Wilson said.

"Students interested in Biomedical Communications could possibly meet their needs by majoring in another field at the university, such as journalism or communications," Wilson said.

Wilson admits taking this route would not give students a medical perspective on communications, but he says students with a journalism or communications degree could still work in a hospital environment.

"Recommending to discontinue the Medical Illustration program was a tough decision," Wilson said. This program is very unique, and the kind of courses needed are not offered elsewhere at Ohio State that compare to the current Medical Illustration program, he said.

David Stein, director of the Biomedical Communications and Medical Illustrations programs, said these two programs are an important part of the School of Allied Medical Professions.

In the past students showing an interest in either field were not discouraged because the school did not see this coming, Wilson said. According to Stein, Students showing an interest in this field are now being told about the recommendation to discontinue these programs, and that the staff of the programs are preparing for the worst.

The office workers in Biomedical Communications would not comment. The students enrolled in the two programs will be briefed about the recommendation next week.
Students react to program cut

By Beth Rausch
Lantern staff writer

Biomedical communications students had mixed feelings Wednesday at a meeting when they were brought up to date on the recommendation to discontinue the biomedical communications and medical illustration programs in the School of Allied Medical Professions.

The recommendation was given to the College of Medicine by Dr. Stephen Wilson, director of the School of Allied Medical Professions, as a result of recent budget cuts.

Wilson, who was responsible for organizing the meeting, stressed that his office is always open to students if they have any questions or concerns regarding this recommendation.

Wilson has already said the juniors and seniors currently in both programs will be unaffected by the recommendation. But the students are still concerned.

Kim Vrable, a senior biomedical communications major, asked “Why us?” instead of another program in the School of Allied Medical Professions. Wilson believes the two programs were chosen because biomedical communications lost a faculty member and the school could not afford to hire another, the program stuck out.

The students agreed that more faculty members were needed in the program. “Last year we did not get what we needed out of classes” Vrable said. She said she learned most of what she needed to know on her own, outside of class.

Wilson said the program has suffered because of the budget cuts, but he stressed that his decision had nothing to do with the students because they have always been successful.

Wilson also added that he did not think the discontinuance of the program would affect the students in the job market. Just because their field is no longer offered does not mean their degrees will be less important to prospective employers, he said.

Amy Stengren, a senior majoring in biomedical communications, said it is embarrassing to tell people that your major has been discontinued.

Stephen Moon, who has a masters in in medical illustration and is now an instructor in the School of Allied Medical Professions, agreed that students in these programs have suffered over the years because of the budget cuts.

It all started in November of 1978 when Dr. Robert Atwell, M.D., former director of the School of Allied Medical Professions, publishing professional material for hospitals, doctors and researchers. They are not affiliated with the university and are not meant to be instructors. It is unfortunate that these people are being used by the program directors, Moon said.

Moon is sorry that the medical illustration program is affected by this recommendation. He said that since the two programs are connected, the fiasco in the biomedical communications program is pulling medical illustration down with it.

“We are affected with a disease that’s terminal, it’s called Biomedical Communications,” Moon said.

The decision to discontinue these programs had nothing to do with a lack of student interest. Moon has 60 applications from students wanting to get into the medical illustration program. Usually Moon is busy interviewing these students to fill the six spots they take each year. This year letters were sent to these students explaining the situation. The juniors and seniors now will be the last to graduate with degrees in these fields if the recommendation goes through.

Moon wishes College of Medicine directors would realize the value of the Medical Illustration program. It has been in existence at Ohio State for 45 years and is respected around the country, Moon said.

The OSU Medical Illustration is the only program of its kind in the state of Ohio. There are only five colleges across the country that offer this program. Unlike Biomedical Communications students, who can get similar degrees in different fields, medical illustration students have a unique field and their needs cannot be met anywhere else on campus.

For students in Ohio it will be quite expensive now to get a degree in Medical Illustration because in addition to the increased price of tuition, they will also be charged an out-of-state fee.

Students in the Biomedical Communications program knew that their program was struggling and half expected something like this to happen, Zeleny said.
The Marriage of Science and Art

By Elizabeth Shear

The poet William Blake put his finger on the best description of medical illustration—though unintentional—over 150 years ago when he pointed at the “minutely organized particulars” necessary for the successful marriage of science and art. Nowhere are particulars organized so minutely as they are in medical illustration—a field so specialized that Ohio State stands as one of six accredited schools in the country to offer a degree program in the discipline. And out of a student body exceeding 5,000, no more than six students are permitted to enroll in the allied medical professions medical illustration program each year.

Begun as a baccalaureate degree program in 1948 and accredited by the Association of Medical Illustrators in 1973, medical illustration is one of two academic strands in the division of biomedical communications—sharing administrative resources with its sister program, medical communications. Dr. John Burke serves as director of the biomedical communications division, while James Kreutzfeld coordinates the medical illustration program. Unlike the generalist program in medical communications, which trains students to enter such fields as medical education, media management, or public information, the illustrator segment is a specialist tutorial program concentrating on personalized hands-on teaching experience. Not only must students possess an inborn artistic talent to be accepted into the program, but they must be able to successfully absorb a rigorous scientific curriculum which includes two years of anatomy—gross, general, human, histology, and embryology.

What do medical illustrators actually do? They are those rare beings who look at a surgical operation or parts of animal or human anatomy and recreate them in such perfect detail that their illustrations often appear to be photographs.

Don’t the tremendous technical advances in photography preclude the demand for hand-drawn illustrations? “Never,” says Mitzi Prosser, instructor in medical illustration and in-house supervisor of artwork.

“If you’re trying to teach from a 35mm slide, it’s very difficult to see between the blood and sponges and instruments. If you are going to teach me how to do that operation, then clean it up first! And how can you do that but by drawing a picture of it! We depend on photography—to draw from it—but to teach, a doctor needs a picture, a drawing, most of the time. Photography is actually medical illustration’s best friend.”

The artist as thinker

The bespectacled young man in the obscurely exotic tee-shirt sat hunched over a plastic box of water colors and painstakingly mixed his paints, over and over, until he had achieved that subtle shade of pinkish gray that they tell us is the color of our brains.

Again and again he flicked the few threads of camel hair along the lines of cerebral demarcation, a bit darker here, a little lighter there, much repeated until the folds and shadows were as he wished them, exact and sharp, delicately beautiful in their scientific precision. Before him sat a pencil sketch of the exposed human brain, propped at

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right angles against a mirror. He would transfer the mirror image to his water color because, he said, historically medical illustrations are "lit" from the upper-left corner. He worked quickly and easily, talking as he painted.

"Medical illustration is a thinking process more than just an artistic process—thinking about how you are going to proceed with your project, how you'll do it. You avoid a heck of a lot of mistakes that way, a heck of a lot of headaches that will undoubtedly crop up if you don't think about everything first. It's very easy to get so into what you're doing that you overlook certain aspects of your work. And that's where the problems come in."

Do you like what you do? "I love it! It's the best thing I've ever done—a really exciting profession. You get to work with excited medical people, be in surgery, be an actual part of the medical team, the instructional, educational team. We have become partners with people who are educators, and we get to deal with medical science as well as educational science."

What will you do with this major in medical illustration? "Specialize in some element of publishing, from textbooks to pharmacological advertising to medical artwork for teaching purposes. But I'd like to specialize my medical artwork in surgical and pathological illustration."
The artist as physician

Across the brightly lit studio another student sat at his drawing table staring fixedly at a textbook on surgery. Periodically he flipped through his "notes", pencil sketches of various organs, instruments, and hands. He was engaged in recreating—on paper—a kidney transplant operation. Now in the donor stage of the surgery, under his hand appeared a body strapped on its side to a table—graphic, realistic, and foreboding in its clinical coldness.

"All I need is a physics course and organic chemistry," he said, without lifting his head from over his sketchbook, "and I'll qualify to take the MCAT for med school. That's what I really want to do—and this is great preparation for it. We have to do one surgery a month, you know.

"But you have to understand what they're doing, not just be able to draw what you see. We have to know the vocabulary and anatomy and procedures."

Under the pressures of the operating room is it hard working with physicians on a student-teacher basis? He shook his head emphatically. "They're great. Of course, they're incredibly busy, but they understand what you have to know and they really help you out, go over stuff with you until you get it right. They want you to get it right since a lot of them teach, and you can't teach medicine or anything related to it without using medical illustration."
"What is the best part of working with students? I think being able to share with them the kinds of things I've learned, so they can get it quicker, everyday things, little hints, what I've learned and don't even think about—what I took for granted that everybody knew. Things you don't get out of a book but you learn over the years—and 16 years is a long time to be pushing a pencil.

"Working with students, you learn how they're all different and that's what I say to the other faculty. Sometimes we forget that because there are six students (in a class) they come out six different ways and at six different levels. Not all the same kinds of artists—they're different artists—but they're good artists. Some are further along in their skills or better at doing different things. Some can pick up quicker than others.

Some can't. We have to remember that there are six individual persons out there and we can't just say 'Read chapter 10' and expect everybody to get the same thing out of it."

How do you select each class of six? "We have 35 to 40 applications each year. They apply to us at the end of their sophomore year and we look at their portfolios—usually at spring break. While everybody is down in Florida, we're up here locked in a room with their portfolios full of charcoal dust.

"We look at them, discuss them. About 10 people are involved—and not just from this department—we rely on a senior student, an alumnus, a photographer, someone from vet med, someone from design, so that we have a more rounded outlook; and we don't always take six students just because we have six chairs to fill. We're looking for the artistic student who is good in the sciences because the science curriculum is very, very difficult. Every doodler that comes along does not make a medical illustrator."

How has the field of medical illustration changed in the 16 years since you started your career? "Students have very little contact, the first year, with what we call 'the real world' and I think that is bad. In the senior year they get that contact, but it is so important—because you have to be able to talk and communicate with the people you are working for. An artist has to share his concerns with what he is doing, whether it is a chart or a graph or a surgical illustration. Artists have to say to themselves, 'This may be the way you do the operation, this is the way you reached under and took the pancreas, but artistically I think we could show it better if we move the hand over there.

Now, does that do something to the surgery, would you never do that kind of thing?' So you see, it's important that the student know how to talk to the physician, because nobody ever sits in a cave without talking to anybody."

At a university as large as Ohio State, students are often fearful of becoming lost in the crowd, a number among numbers. That the medical illustration program—with its 12 hand-picked, personally tutored students—thrives at all is more evidence that individuality is alive and well at Ohio State.
Medical illustration students study anatomy as well as art

By Margaret Bednarski
Lantern staff writer

Because of the diversity of the field, medical illustration students take a wide-range of courses, said Stephen G. Moon, coordinator of the program.

Their courses include biology, pathology, physiology, communications and several art and anatomy classes.

“Our field is so diverse, which means our students must be trained not only in artistic drawing, but in other subjects like anatomy and communications.”

“Technology is exploding and we need to be ready to adapt to those changes,” he said. “We need to be able to communicate with other professionals.”

“Six students a year are chosen from over 175 people who apply to the medical illustration program at OSU,” he said.

Some areas open to medical illustrators are: working in research centers and hospitals drawing general anatomical illustrations; universities, which are a primary source of employment; and freelance, which allows the student to be their own boss, Moon said.

The field is very visual, he said. “Our students need to know TV production in case they become involved in TV documentaries, or need to present their work on tape or slides.”

Tim Jobs, a junior from Cincinnati, said, “We have to know the anatomy of the body so well that you can turn an organ over in your mind and know what it looks like.”

Medical illustration doesn’t require a license like other allied medical professions.

“We are the only bachelor’s program in the country,” Moon said.

However, he said, “We would like to have a master’s program. It depends if OSU is willing to give the resources and enough upgraded people with graduate level status to teach the master’s students.”

“Our students put in a lot of time,” he said. “They’re under a tremendous amount of pressure. Deadlines are constant, and there is always someone to replace you if you can’t make it. The student’s work is always being critiqued which can be very hard to take.”

Jeff Fries, a junior from St. Albans, W.Va. said, “When I first was criticized, I got really upset and was ready to fight. Now I like when people criticize my work.”