

# The Intersection of Arts and Sciences

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Felcom's Career Development Seminar, "The Intersection of Arts and Sciences," offered an opportunity for NIH Fellows to learn how to blend an interest in the arts with a scientific background from experts who have utilized their scientific skills to produce, render, explain and restore art.

The first speaker was Mr. Wyatt Channell, who is a Senior Producer at Science Channel (part of Discovery Communications). Mr. Channell, who has a B.A. in English from the University of Maryland-College Park, began by noting that colleagues with Ph.D.s are scarce in the television industry, where being a compelling storyteller and communicating ideas in the most engaging way possible are the most valued qualities. Mr. Channell says that although he may not understand all the science, he understands enough to determine how to present scientific ideas to a general audience. To ensure factual accuracy, Discovery relies on the outside companies with which they work and contract to produce and ensure accuracy of the content, using vetted experts. Overall, Mr. Channell views his work not as artistry, but rather, the development of a commercial product to be consumed. The artistic component, he said, exists in presenting science and creating a story that is engaging and entertaining as well as informative. It came as a surprise to many in the audience that television networks like Discovery do not create their scientific programs in-house. Instead, they coordinate with outside companies that employ graphic artists and illustrators to generate the content for the shows that ultimately air on television. With respect to entering the television industry, Mr. Channel discussed the requirement for persistence, including extensive networking, determination, and years of experience to learn the field. Upon entering the television industry, one will start at the bottom, and possessing a Ph.D. will not alter that starting position. When making hiring decisions, industry experience is most esteemed, and so moving from scientific research to television would be a dramatic career change.

The panel continued with Dr. Bülent Atalay, professor emeritus of physics at the University of Mary Washington and adjunct professor at the University of Virginia. Dr. Atalay's father was a military attaché, and relocated their family from Turkey to London, England when Dr. Atalay was a child. While in London, at the age of 8, Dr. Atalay was fascinated by Leonardo da Vinci, who believed that the eyes are the windows of the soul. Dr. Atalay had determined that there was no soul in the paintings, some of which dated back to the 17<sup>th</sup> century, that decorated the house his family was renting. He then proceeded to "open all those windows" by using a bottle opener to create holes in the eyes of all the paintings within the house. This event marked the beginning of a lifelong fascination with Leonardo da Vinci, who was both a scientist and an artist. Dr. Atalay went on to discuss da Vinci's work and his own interest in the Fibonacci sequence, the Golden Ratio and da Vinci's early prototypes. Dr. Atalay, who expressed an enduring interest in both mathematics and visual

art, went on to a successful career as a physics professor, yet never lost interest in the arts. In the midst of his academic career, Dr. Atalay continued to hone his skills as an artist and author, and was able to publish two books of lithographs, as well as a best-selling book about da Vinci entitled "Math and the Mona Lisa."

The focus then shifted toward medical illustration with Mr. Jeremy Swan, of the Bio-Visualization Team at NICHD, here at the NIH. His work includes projects that use video game technology for displaying diffusion tensor MRI data, as well as the use of animation as visual stimuli in animal research. Mr. Swan's educational background was geared toward this type of scientifically driven art, which includes an interdisciplinary B.A. in Art and Biology from the University of Maryland-Baltimore County. This unique educational background allowed Mr. Swan to gain experience in providing support to scientists through art. Mr. Swan's dynamic presentation focused on developing skills through practice, and not allowing the difference in one's taste level and abilities to inhibit future growth as an artist. His presentation showed his own talent as an artist while he emphasized the importance of training, practice and procuring resources. He encouraged enthusiasts to show their artwork in public and to seek feedback, and he mentioned how developing the required skills and being persistent at their craft will set them apart. Mr. Swan's advice for how to gain additional skills and pursue art independently included taking local courses at Glen Echo Park, participating in the NIH Camera Club, and using internet tutorials to gain new skills and follow artists. Additionally, Mr. Swan mentioned The Guild of Natural Science Illustrators (GNSI) as a source of information to learn about new courses, and noted that the Center for Information Technology (CIT) at NIH offers training that is relevant to medical illustration.

Moving on to the science of art conservation, the next speaker was Dr. Paula DePriest, Deputy Director of Smithsonian's Museum Conservation Institute (MCI). Dr. DePriest's work serves to protect cultural artifacts from bio-deterioration, with a special focus on artifacts from Mongolia. She was trained as a scientist, and received her PhD from Duke University, specializing in the molecular evolution of lichens. Dr. DePriest shared her experience in transitioning from her research in molecular systematics to the conservation of ancient artwork. Her graduate research work on lichen took her to Mongolia, where she began researching reindeer herding culture and was introduced to the work of cultural preservation. Imaging and documentation of cultural heritage then became a passion for Dr. DePriest, one that she continues to pursue as the Deputy Director of MCI. To gain experience in conservation, Dr. DePriest suggested internships at museums, which will allow aspiring conservationists the opportunity to understand the responsibilities in the museum world. The conservation and restoration field requires people with varied interests and knowledge. Experts in cutting-edge detection technologies like mass spectrometry, 3-dimensional tomography or spectroscopy are needed, but the scientific skills alone are not enough- they must also be aware of the cultural and historic value of the artifacts that they handle. For those interested in pursuing employment at MCI, Dr. DePriest advised that the USAJobs website is the sole resource for job postings.

The panel then shifted back to medical illustration with Mr. Donny Bliss, medical illustrator and research associate at the National Library of Medicine and adjunct professor at Johns

Hopkins University's Medical and Biological Illustration program. He creates artwork and animations to communicate science, and his work has received awards from the Association of Medical Illustrators. Mr. Bliss talked about his interest in drawing that began in childhood. While enrolled in an undergraduate pre-medical program at Southwest Missouri State University, he learned about medical illustration and decided to pursue an M.A. in Medical and Biological Illustration from Johns Hopkins. Mr. Bliss described the typical career path of a medical illustrator, noting that most medical illustrators go through formal graduate training, although there are currently only 3 or 4 graduate programs remaining. Usually beginning with a biology or art undergraduate degree, the students in medical illustration graduate programs undergo rigorous training. Medical illustration students compete with medical students for grades in courses like anatomy and pathology, but then remain in the cadaver lab to draw the dissections after the medical students have left. To learn about opportunities in medical illustration, both Mr. Bliss and Mr. Swan suggested groups like The Association of Medical Illustrators (AMI), the Special Interest Group on GRAPHics and Interactive Techniques (SIGGRAPH) and The Institute of Electrical and Electronics Engineers (IEEE). These groups have websites that not only contain job postings but also offer training and networking opportunities.

In sum, careers at the intersection of science and the arts have substantial growth potential, yet require people with technical knowledge and artistic passion. The work is challenging, but patience, perseverance and creative thinking can help to achieve a position in any of these intriguing fields.