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Paul B. Rothman, M.D.
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September 20, 2013

Dear Dr. Rothman:

It is a pleasure to recommend Norman Barker, MA, MS, RBP for promotion to Professor of Pathology with a secondary appointment in Art as Applied to Medicine, with full-time salary in Pathology.

Abstract

Norman Barker has been a full-time Associate Professor in the Division of Informatics, Department of Pathology since April 1, 2004 and currently serves as Director of Pathology Photography and Graphic Arts. He holds a dual appointment in the Department of Art as Applied to Medicine where he teaches photography and digital imaging. Mr. Barker is internationally recognized as a biomedical photographer and graphic designer. Using techniques of macro- and microphotography Mr. Barker's work has brought to life the artistic beauty of the scientific image and enhanced the use and value of scientific imagery as an educational tool. He has contributed scientific images to more than twenty educational atlases and major textbooks that have been used to teach generations of medical students and residents and, most recently, was a member of the team that produced a new award-winning iPad application to teach residents and medical students about the pathology of the pancreas.

Mr. Barker is a leader in bridging art and science, fostering an appreciation for the inherent beauty and artistry of the scientific image as well as for the information a quality image can convey. Nowhere is this more evident than in his most-recent book, *Hidden Beauty*, co-authored with Dr. Christine Iacobuzio-Donahue, which explores the aesthetics of modern medical science. Mr. Barker's accomplishments are internationally recognized, and his work has been featured in numerous journals and exhibited in renowned institutions within the U.S. and around the world. He has received numerous awards, including the Louis Schmidt Award in 2008, the highest honor given by the national BioCommunications Association for outstanding contributions to the progress of communications in the life sciences.

As I will outline in the pages that follow, Mr. Barker has reached a pinnacle of professional achievement and national and international recognition in the field of biomedical photography that equals or exceeds the standards we have set for promotion of the clinical or basic research medical faculty, which is among the reasons for recommending his promotion now.

Introduction

Mr. Barker joined the full-time faculty at Hopkins in 1990 as an Instructor in the Department of Pathology & in the Department of Art as Applied to Medicine. He was promoted to Assistant Professor in 1995 and to Associate Professor in 2004. He obtained his undergraduate degree from the Maryland Institute College of Art in 1981 and after graduation was accepted into the pathology-training program in biomedical photography here at Johns Hopkins. Under the mentorship of Raymond Lund, he achieved certification as a Registered Biological Photographer (RBP). While refining his craft in scientific photography in the Pathology Department, he earned a M.S. Degree in Continuing Education from the School of Continuing Studies at Johns Hopkins. Mr. Barker was subsequently appointed Assistant Director of Pathology Photography & Graphics in 1985 and also led the two-year training program in biomedical photography. In 2000, he was appointed director of Pathology Photography & Graphics after a competitive national search process. In 2005, he was awarded a M.A. in Publications Design from the University of Baltimore. As director, Mr. Barker fundamentally changed the direction of this important function within Johns Hopkins Medicine; he led the transition from silver-based photo-technology processes to a completely digital workflow.

Mr. Barker, like many of his colleagues at Hopkins, is a true renaissance man and has significant accomplishments outside of his chosen discipline. He has made important contributions to the fields of archaeology and paleontology through his books and exhibits. He spent two seasons (2008-09) in the field with Dr. Betsy Bryan from the Johns Hopkins University Department of Near Eastern Studies, photographing pottery finds in Luxor Egypt, and has published his photography techniques for archeologists in the *Journal of Field Archeology*. His paper published in the *Journal of Biological Photography*, entitled *Photographing the Osprey in the Chesapeake Bay Region*, 1992; 60: 60 (2): 63-70, demonstrated novel techniques for using radio-controlled transmitters to capture images of the nesting behavior of the osprey. This paper won the prestigious "Best Paper of the Year" award from the journal.

Scholarship

Overview: Although Mr. Barker is not a M.D. or Ph.D. whose academic responsibilities include patient care, his work in scientific photography has certainly had a major impact in the field of medicine. As noted in Mr. Barker's *curriculum vitae*, he is currently an author or co-author on six books. He co-authored *Ancient Microworlds* with Dr. Giraud Foster, and developed a traveling exhibit containing sixty-five large-format images from the book. Like most of Mr. Barker's work, this book bridges the worlds of art and science, using techniques of macro- and micro-photography to showcase the stunning beauty of fossils while also highlighting each specimen's unique morphology and taphonomy. In its ten-year run, over one million people viewed the exhibit in museums throughout the U.S., Europe and Asia. A testament to its impact, images from the exhibition are now in the permanent collections of more than 35 major museums across the world, including the Smithsonian, the American Museum of Natural History, the Nelson-Atkins Museum, the George Eastman House and the Science Museum in London.

Mr. Barker's latest book, *Hidden Beauty: Exploring the Aesthetics of Medical Science* (April 2013) Shiffer Books evidence themes similar to those of the previous book, in terms of bridging the worlds of art and science. Co-authored with Dr. Christine Iacobuzio-Donahue, Professor of

Pathology and Oncology, this book is an exposition of the aesthetics of human disease. The book targets a lay audience with expertly selected images, which, absent any other context, are extraordinarily beautiful. It is only when one studies the accompanying text describing the underlying pathology that one appreciates this beauty as sublime, induced as it is by natural forces that can behave with devastating power and consequences. Mr. Barker not only served as first author on the book but also designed it, an effort that earned him the 2013 BioCommunications Association, Medical Education Award for Graphics Media & Book Design. The book has received international attention, with the BBC producing a four-minute segment of the project that aired in Europe and Latin America. Given its appeal to a variety of audiences, a traveling exhibit from the work, first seen at Johns Hopkins in May, is being planned with the first stop being the Mutter Museum in Philadelphia.

While working on *Hidden Beauty*, Mr. Barker was also actively involved as a co-producer with Dr. Ralph Hruban in the making of *Halsted*, a film documenting the life and the enormous personal sacrifices and professional contributions of Dr. William Stewart Halsted to the field of surgery. With a \$60,000 grant from the Blum-Kovler Foundation, the co-producers created an award-winning documentary that has been shown on more than 60 Public Broadcasting Stations around the country. The film was recognized with awards from both the Health and Science Communications Assoc. (HESCA) and the BioCommunications Assoc. (BCA).

As it is evident from even a cursory review of his *curriculum vitae*, Mr. Barker's work has been well published in both scientific journals as well as in periodicals targeting a lay audience, including publications such as *Scientific American*, *Natural History* and *Nature's Best Magazine*. His career has spanned a period in history when the tools of the photographic trade have evolved markedly, and he was quick to see the value in adopting the new digital technology. In 1998, he published an important study in the American Journal of Surgical Pathology entitled, *Digital Imaging of Black-and-White Photomicrographs: Impact of File Size*, 1998:22(11):1411-6, in which Norman Barker demonstrated the importance of correct file size for macro- and high-power digital imaging under the microscope.

Mr. Barker is not only a well-published scholar, but also a well juried, internationally respected scientific photographer, having been asked to enter his work in several highly competitive international exhibitions. Most recently, his work was featured in a show at the Royal Photographic Society in Bath, England the images for which were published in a catalog known as *International Images for Science 2011*. Among the images that Mr. Barker entered into this competition, was an image showing laboratory culture plates. It was selected to be shown in a unique open-air exhibition that was held in St. Andrews Square in Edinburgh, Scotland. The image was also used on the poster and all promotional material for the Edinburgh International Science Festival 2012. The exhibit also appeared at the Palace of Westminster and the Royal Albert Hall. Another three of Mr. Barker's images will be displayed at the launch of "100 of the Best Scientific Images for 2013," which opened in September at the British Science Festival in Newcastle, England.

Teaching Scholarship: From 1985-2005 Mr. Barker was head of the two-year training program in Biomedical Photography within the Department of Pathology. He was also responsible for mentoring eight photographers through the national Registered Biological Photographer training program sponsored by the Biological Photographic Association. These individuals have gone on to run media, photography and graphics departments themselves and include Richard DeWitt, now at the Memorial Sloan-Kettering Cancer Center, Mark Teske, now at the University of Maryland, Ben Ehrman, now at Sinai Hospital, Richard Yeinger, now at the Maryland State

Police, Photography Section, and James Van Rensselear, now at the Johns Hopkins University Homewood Campus. He has also mentored more than 50 advanced photography students from area colleges and universities who have participated in his department's internship program over the last 25 years.

Mr. Barker also currently teaches graduate students in the Department of Art as Applied to Medicine here at Johns Hopkins Medical School. His course on scientific photography techniques is highly regarded, with students giving him consistently high marks for the quality of his teaching and for his enthusiasm for his subject matter. The Director of Art as Applied to Medicine, Gary Lees, is especially appreciative of the portfolio-quality work that students have produced in Mr. Barker's class. In the Pathology Department, Mr. Barker works with residents, graduate students, and postdoctoral fellows teaching the value of high-quality images in talks and presentations. His willingness to teach and his passion for capturing beauty and artistry in scientific images are characteristics that are highly valued by his colleagues both in the Department of Pathology and in the Department of Art as Applied to Medicine as well as in the entire Johns Hopkins Medical Institution.

Mr. Barker educational impact extends internationally. He shares his knowledge and his talent generously, speaking about scientific photography to audiences locally, nationally and internationally. In 1999, he spoke at the 2nd World Congress on Biomedical Communication in Amsterdam on new digital technology in biomedical photography. In March 2003, he organized and spoke at a very successful regional meeting of the Mid-Atlantic BioCommunicators that was held at the University of Maryland. He has taught workshops on photomicrography for the Biological Photographic Association and has lectured at colleges and universities locally. In September of this year, he will travel to Leicester, England, where he has been invited to speak to the International Institute of Medical Illustrators on *Exploring the Aesthetics of Medical Science*.

Organizational and Administrative Activities

Mr. Barker has been a successful administrator here in the department of Pathology. He served as Assistant Director of Pathology Photography for 15 years, and, for the last 13 years, has served as director of Pathology Photography that, reflecting the changes Mr. Barker introduced, is now known as Pathology Photography, Digital Imaging and Computer Graphics. This division services various publication, teaching and public relations media needs in the medical school, hospital and university. Few professions have had the basic, every-day, tools of their trade change so dramatically in the advent of the digital age as photography. Under Mr. Barker's direction, his team successfully led the change from silver-based technology to a total digital workflow, investing in new digital imaging technology to stay current with the publishing industry. Producing as they do so much of the material that speaks to the work being done at Johns Hopkins, Mr. Barker and his staff play an essential role in ensuring the continued quality of the institution's public image.

Over the past 30 years, Mr. Barker has been very actively involved with the BioCommunications Association (BCA), the leading professional organization for scientific photography nationally. He has given many lectures at national and international meetings. As a chapter chair for the BCA for 10 years, he was responsible for organizing several local and regional meetings. He has also served as a member of the Board of Governors and as an oral examiner for the Registered Biological Photographer (RBP) program. Mr. Barker sits on the management board for the Journal of BioCommunications where he serves as an editor and has worked to promote open access for the organization's journal. He has published three papers in the BioCommunications

Journal, the most recent of which was entitled, *The Johns Hopkins Atlas of Pancreatic Pathology: Developing an Interactive Atlas and Teaching Algorithm for the Apple iPad*, Vol. 38, No. 1, 2012, detailing a new iPad application (“app”) designed to teach residents and medical students about pancreas pathology. The application was developed by Dr. Ralph Hruban and a team of photographers, illustrators and programmers, which included Mr. Barker. With more than 1,450 full-color images and 26 illustrations, the application covers more than 115 distinct diagnostic entities. Mr. Barker’s role was to shoot all the photomicrographs and prepare all the gross files for the tablet. Given its novelty as a means of sharing the expertise of a world-renowned pathologist and exceptional visual communicators with healthcare providers worldwide, the app was awarded the Dr. Frank Netter Award for Special Contributions to Medical Education from the Vesalius Trust in 2012. In the period of a year, the app has been downloaded more than 20,000 times from the Apple iTunes store. The team is currently working on a new app for the iPad and iPhone that will be available in October of this year. The Johns Hopkins iCareBook for Pancreatic Cancer is a revolutionary educational tool. With videos, animations, photographs, and illustrations, and a host of other helpful information, this app aims to make patients and their families more knowledgeable about the disease and better able to navigate the health care system.

National/International Recognition

Mr. Barker was recognized in 2008 with the Louis Schmidt Award, the highest award given by the BioCommunications Association. Named for the founder and the second president of the Association, this honor has been bestowed annually since 1948 by a selection committee consisting of nine of the most-recent Schmidt laureates. It is given in recognition of promotion of understanding and cooperation within the field of biocommunications, maintenance of an ethical approach to professional relationships, and a willingness to freely share information and technique, all hallmarks of a lifetime of professional achievement. Mr. Barker was also made a fellow of the Biological Photographers Association (FBPA) in 1994, an honor recognizing distinguished craftsmanship, professional achievements and meritorious contributions toward the advancement of visual communications media in the life sciences and medicine.

The images from Mr. Barker’s books have been in traveling exhibits and on display in the National Museum (Nardoni) Prague, in the Czech Republic, the Museum fur Naturkunde, in Chemnitz, Germany, the Palace of Westminster, House of Commons, Upper Waiting Hall, Jubilee Room and The Royal Albert Hall, in England, as well as the University Complutense of Madrid and the Museum of Birbal Sahini Institute of Paleobotany, Lucknow India. In the United States, his work has been exhibited in more than 30 major museums, including, the Smithsonian Institution (National Museum of Natural History) Washington D.C., the American Museum of Natural History, New York, and George Eastman House, International Museum of Photography in Rochester, New York. His works have also been selected by curators and are in the permanent collections of 40 major museums around the country.

As it is evident from his *curriculum vitae*, Mr. Barker’s photographs, design work and writing have been recognized with many awards over the years. Mr. Barker’s microscopy has won numerous awards from the Nikon International Small World Contest, and these images have graced the pages of their beautiful calendars for more than 12 years. A poster that he designed for his book *Seaweeds: Wonders of the Ocean Realm* was given an award of excellence in poster design and was also awarded “Best of Show” in the international BioImages Salon in Portland Oregon in 2005. Mr. Barker has clearly achieved international recognition for his work.

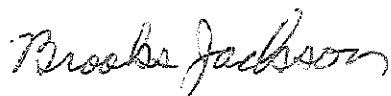
Anticipated future progress

Mr. Barker will certainly continue to be an international leader in biomedical photography, bridging art and science, and fostering an appreciation for the inherent beauty and artistry of the scientific image as well as for the information a quality image can convey. He will continue to lead Pathology Photography Digital Imaging and Computer Graphics, and his team will play a key role in providing media services not only for the department of Pathology but for the Medical School, Hospital and the entire Johns Hopkins Medical Institutions. Everything from professional portraits to designing a poster session that will be presented at an international medical meeting representing the image of excellence from Johns Hopkins is key to the work that Mr. Barker does. The services that he and his department provide are critical in meeting the mission of Johns Hopkins Medicine. His teaching and collaboration with the department of Art as Applied to Medicine will most certainly continue. He is also in the progress of finishing another book entitled *Patent Medicine: Selling the Cure*, co-authored with Dr. Michael Torbenson that is expected out later this fall. From his past track record, there is no doubt that he will continue with his academic productivity and leadership within his division.

Summary Statement

I believe it's very clear that Mr. Barker is one of the outstanding leaders in the field of biomedical photography. As I mentioned at the outset, the case for Mr. Barker's promotion does not fit the mold for considering the promotion of a physician faculty member. Nonetheless, he is clearly recognized nationally and internationally as a leader in the field of biomedical photography. His impact equals or exceeds the standards we have set for the promotion of medical faculty. For all of these reasons, I recommend his promotion to Professor of Pathology and Art as Applied to Medicine with the highest enthusiasm.

Sincerely,



J. Brooks Jackson, M.D., M.B.A.
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Johns Hopkins Medical Institutions