Biedermann Lab for Orthopaedic Research

Michael W. Hast, Ph.D.

The University of Pennsylvania Department of Orthopaedic Surgery is pleased to announce the opening of the Biedermann Lab for Orthopaedic Research. This lab has been made possible through a generous donation from the Biedermann family to celebrate the 100th anniversary of their involvement in orthopaedic medicine. Now in its fourth generation, since Max Biedermann first began his work in prosthetics in 1916 (Figure 1), the Biedermann family continues to work and dedicate their lives to orthopaedic research and development. Throughout the years, the Biedermann family has always maintained a strong belief that research is the basis for the development of meaningful novel and innovative treatment concepts. Based on this tenet, a partnership has been established with the University of Pennsylvania to develop a world class biomechanics laboratory.

The goal of the Biedermann Lab is to provide a venue to test novel treatment concepts, existing and new technologies, and unproven theories to get quantifiable and unbiased results that will improve the standard of care and the quality of life for patients. The lab will be located on the 10th floor of Penn Medicine University City, making it easily accessible to surgeons and residents at Penn. The lab will also open its doors to clinicians and researchers throughout the rest of the world, making it a one-of-a-kind environment for collaborative research and innovative exploration in the field of orthopaedics. To this end, the facility will have the capabilities to perform research that includes, but is not limited to: mechanical and biomechanical testing, cadaveric specimens, animal studies, finite element analysis, and dynamic computational modeling.

Scheduled to open in June of 2015, the lab will consist of over 3200 square feet of office and laboratory space (Figure 2). It will be equipped with the tools needed to perform cutting edge research, including: five dissection tables, two universal testing machines, a mobile C-arm, a 3-D motion capture system, a 3-D printer, and an on-site machine shop. Michael Hast, who earned his Ph.D. from the Pennsylvania State University in Mechanical Engineering with a focus on Biomechanical Computational Modeling, has been named the Director of the lab and will oversee day to day operations. Samir Mehta, MD will act as the primary clinical delegate for the Department of Orthopaedic Surgery and will work in conjunction with Surena Namdari, MD (former University of Pennsylvania Orthopaedic resident and current faculty member at Thomas Jefferson University) as the clinical members of the research advisory board.

The Biedermann Lab for Orthopaedic Research has been designed with long-term research goals in mind. Specifically, the lab space has been built so that it can accommodate a growing staff and provide biomechanical testing services to a large spectrum of research interests simultaneously. Initially, the current group will focus on projects that seek to improve clinical outcomes of orthopaedic procedures complicated by osteoporosis. As the size and capabilities of the lab grow in the future, it will be able to facilitate testing for an increasing number of research collaborations.

If you are interested in learning more about the Biedermann Lab, please feel free to contact Michael Hast by emailing him at hast@upenn.edu.

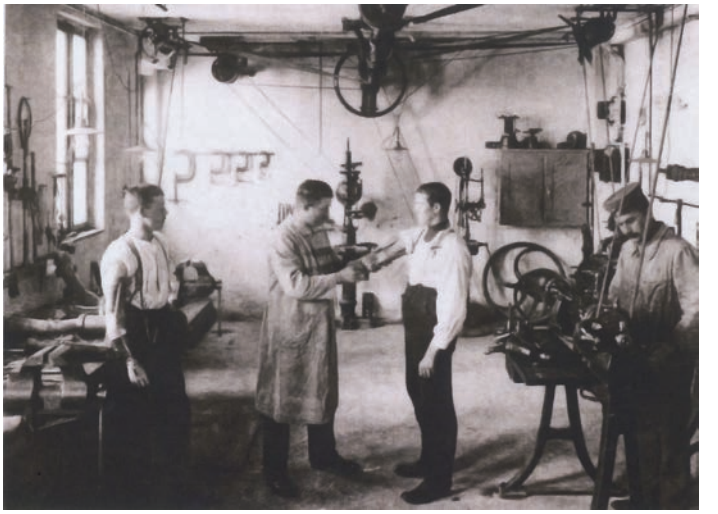

Figure 1. Max Biedermann (center) helped design and implement the Sauerbruch prosthetic arm. He can be seen here, in his orthopaedic workshop in 1916, fitting a patient with the prosthesis.

Figure 2. The Biedermann Lab for Orthopaedic Research will have rooms dedicated to dissection and implant placement, along with a main lab testing space to perform biomechanical research. The lab will be located on the 10th floor of Penn Medicine University City, and will be equipped with five dissection tables, large-scale and small-scale universal testing machines, a mobile C-arm, a 3-D motion capture system, a 3-D printer, and an on-site machine shop.