Abstract

On June 6, 1822, inside the American Fur Company’s store on Mackinac Island, explorer for the fur trading enterprise in the Great Lakes region, a French Canadian voyageur named Alexis St. Martin (1783-1853) was accidentally shot in the stomach. Dr. William Beaumont (1785-1853), Post-Surgeon at Fort Mackinac (1820-1821), attended to St. Martin’s injuries for the next 3 years, but his stomach wound never closed resulting in a permanent gastric fistula. Recognizing a rare opportunity to study digestion, the doctor began tying small bits of food to string and lowering them through the fistula into St. Martin’s stomach, recording how long it took to digest the food. Beaumont conducted 286 experiments, intermittently over 8 years at Fort Mackinac, MI (1822); Fort Niagara, NY (1825); Fort Crawford, WI (1843-1847); and Washington D.C. (1843-1847). In 1833 he published his discoveries in “Experiments and observations on the gastric juice and the physiology of digestion”. Beaumont’s pioneering studies established the field of digestive physiology, highlighting HCl as the important element in gastric juice along with 50 other conclusions from his experiments (2.5 min video will be shown; supported by USD Mol. Pharma & Physiol.).

Purpose

To retell the story of America’s 1st Physiologist, Dr. William Beaumont, and honor the memory of his contributions to medicine in the field of gastric physiology on the 175th anniversary of the American Physiological Society, which is being celebrated at the Experimental Biology 2012 meeting, San Diego, California (April 21-25, 2012).

Resources Used

3. “Dr. Wm. Beaumont and Alexis St. Martin” by Rebecca Davis, 2010
4. “A Most Unusual Wound” by Rebecca Davis, 2010
5. “Beaumont, Wm. (1822) ‘Experiments and observations on the gastric juice and the physiology of digestion’”
6. "Mackinac Island: The History and the Land" by John D. Flynn
7. "Dr. Wm. Beaumont and Alexis St. Martin” by Rebecca Davis, 2010
8. "A Most Unusual Wound” by Rebecca Davis, 2010
9. "Mackinac Island: The History and the Land" by John D. Flynn
10. "Dr. Wm. Beaumont and Alexis St. Martin” by Rebecca Davis, 2010
11. "A Most Unusual Wound” by Rebecca Davis, 2010

In 1825, three years after St. Martin’s accidental shooting, Dr. Beaumont began studying the physiology of digestion through Alexis’ gastric fistula, lowering bits of food tied to string into the stomach and measuring how long it took to be digested.

Dr. Wm. Beaumont, the U.S. Army physician at Fort Mackinac, was summoned to the store to treat St. Martin’s wounds. Over the next 3 years, Beaumont continues nursing St. Martin back to health and eventually takes him in with his family. The opening to Alexis’ stomach never closes up however, forming a permanent gastric fistula.

The Hawley estate, located in Bethesda, MD, near the NIH, where the original beaver hat purchased by the APS and sold to the Federation in 1954. Christened the “Beaumont House,” in honor of Dr. Wm. Beaumont, it served as the first permanent headquarters for FASEB.