tive blood loss, blood transfusion, and 30-day mortality in older patients after major noncardiac surgery. Ann Surg 2010; 252: 11–7

12. Shander A, Knight K, Thurer R, Adamson J, Spence R: Prevalence and outcomes of anemia in surgery: A systematic review of the literature. Am J Med 2004; 116(Suppl 7A):58–69S
13. Goodnough LT, Vizmeg K, Sobecks R, Schwarz A, Soegiarso W: Prevalence and classification of anemia in elective orthopedic surgery patients: Implications for blood conservation programs. Vox Sang 1992; 63:90–5
14. Goodnough LT, Shander A, Spivak JL, Waters JH, Friedman AJ, Carson JL, Keating EM, Maddox T, Spence R: Detection, evaluation, and management of anemia in the elective surgical patient. Anesth Analg 2005; 101:1858–61
15. Spahn DR: Anemia and patient blood management in hip and knee surgery: A systematic review of the literature. ANESTHESIOLOGY 2010; 113:482–95
16. Moskowitz DM, Klein JJ, Shander A, Cousineau KM, Goldweit RS, Bodian C, Perelman SI, Kang H, Fink DA, Rothman HC, Ergin MA: Predictors of transfusion requirements for cardiac surgical procedures at a blood conservation center. Ann Thorac Surg 2004; 77:626–34

ANESTHESIOLOGY REFLECTIONS

The Boston Anesthesia System

To design the Boston Anesthesia System (BAS, *above*), biomedical engineer Jeffrey Cooper, Ph.D., orchestrated collaborations between Harvard's Massachusetts General Hospital (MGH) and the Massachusetts Institute of Technology (MIT). MIT engineers Edwin Trautman and Jeffrey Moore composed computer code for the 8-bit Intel 8080, the "chip" that computer-powered the BAS. Modified from a Volkswagen, a solenoid-operated automatic fuel injector metered liquid volatile inhalant into the N_2O–O_2 mixture resulting from an upstream pair of 8-element digital flow controllers. Magnetically keyed, disposable, prefilled agent-specific containers (labeled "Halothane" and "Enflurane," *above center*) were engineered to prevent user error. Respecting the BAS' mission of "supporting rather than preoccupying" the anesthesiologist, MIT/Harvard solid-state physicist Ronald Newbower and MGH anesthesiologist Reynolds Maier designed an array of safety monitors. Donated to the Wood Library-Museum in 2006, the BAS was hailed by Harvard professor Richard Kitz, M.D., as "a prototype of the first fully electronic, integrated, microprocessor-controlled anesthesia workstation." (Copyright © the American Society of Anesthesiologists, Inc. This image also appears in the *Anesthesiology Reflections* online collection available at www.anesthesiology.org.)

George S. Bause, M.D., M.P.H., Honorary Curator, ASA's Wood Library-Museum of Anesthesiology, Park Ridge, Illinois, and Clinical Associate Professor, Case Western Reserve University, Cleveland, Ohio. UJYC@aol.com.