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."

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.

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