

Simulation en santé
et innovations pédagogiques

Il était une fois

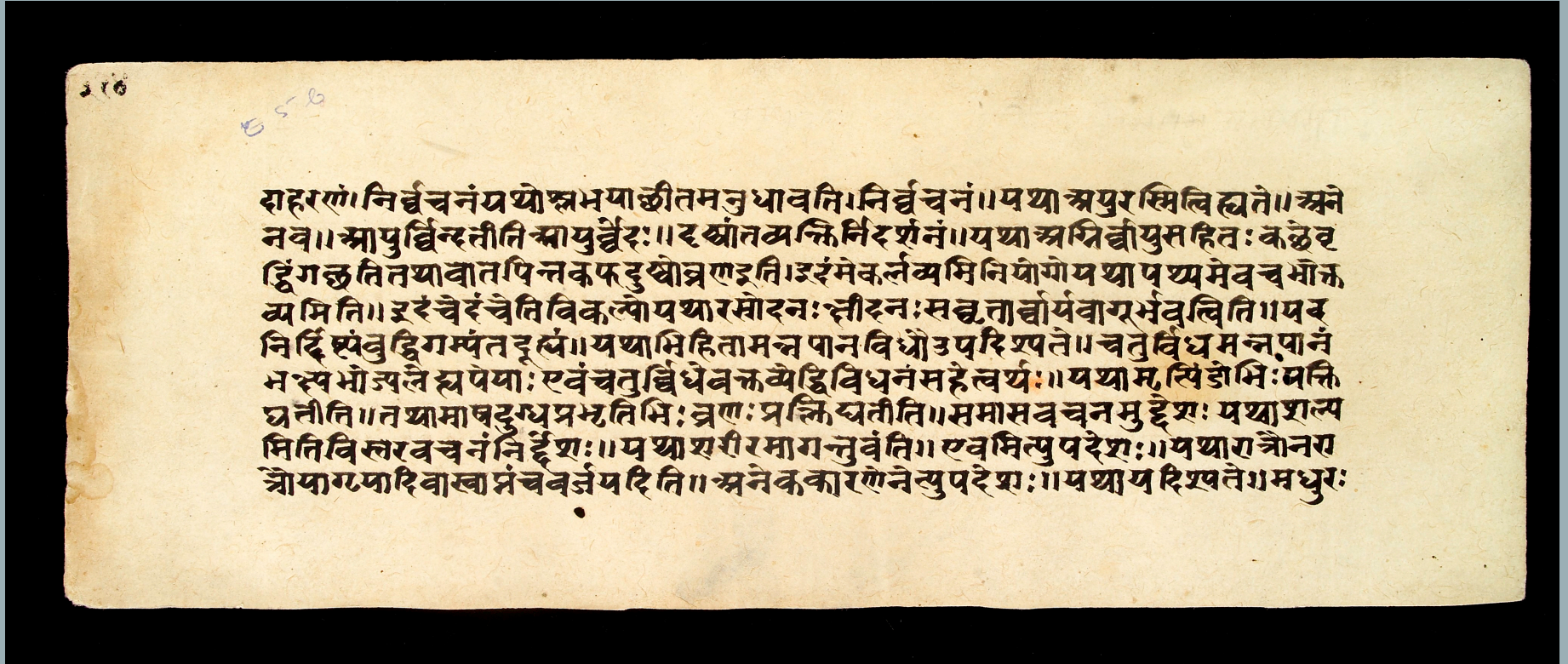
M. Mouhaoui

Venus of Willendorf



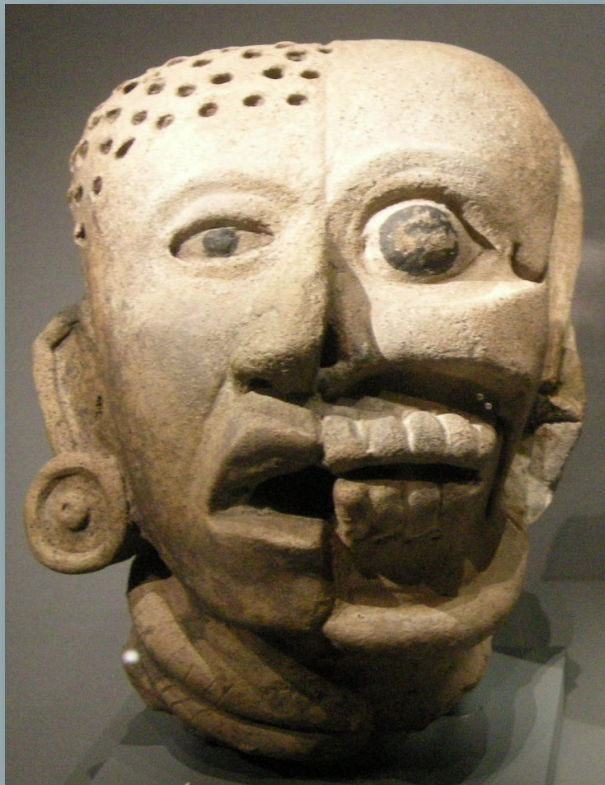
Petite statuette en calcaire, découverte en 1908 à Willendorf, petit village en Autriche. Elle remonterait à 24 000 - 22 000 ans avant JC.

Sushruta Samhita



La Sushruta Samhita, remontant à 500 ans avant JC, est un traité de médecine et de chirurgie qui constitue l'un des deux textes fondateurs de l'Ayurveda.

Head of Maya



Tête de Maya, qui remonte au début de l'ère classique, environ 300 - 600 ans après JC. Cette tête est à moitié vivante et à moitié post-mortem.

Bronze statue for acupuncture



En 1027, Wang Wei-Yi, médecin de la dynastie chinoise, mit en place deux statues en bronze, pour l'apprentissage des points de ponction pour l'acupuncture.

Anatomia del Cigoli



L'Anatomia del Cigoli est une représentation en cire des différentes couches musculaires, et produite par Ludovico Cardi vers 1598.

| 8^{ème} siècle



Angélique Marguerite
Le Boursier De Coudray

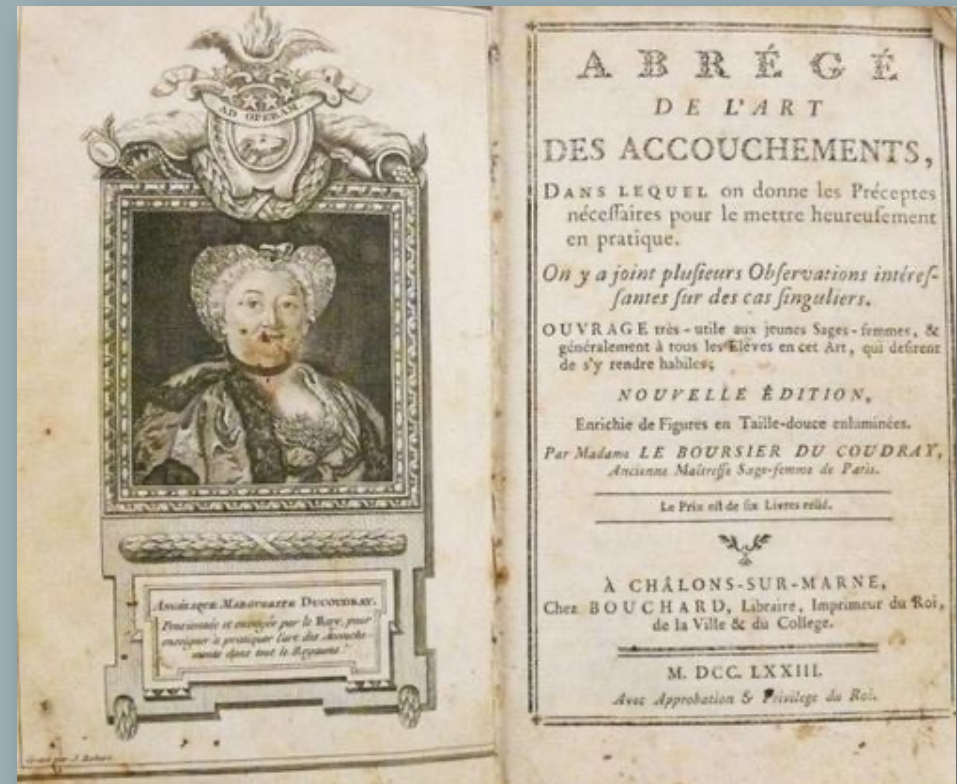


La machine, 1759

| 8^{ème} siècle



Angélique Marguerite
Le Boursier De Coudray



Pionnière de la la simulation moderne

| 8^{ème} siècle



Angélique Marguerite
Le Boursier De Coudray

Madame du Coudray had detractors, for example, the Parisian surgeon Jean la Bas, who in 1776 wrote publicly of the mannequin,

...as no more than a fable, a phantom, a simulacrum, a shadow of reality, capable of giving false ideas to beginners who, once their heads are thus filled, will not be able to avoid practicing bad work on live subjects...^{54(pp233,234)}

18^{ème} siècle



En 1771, Felice Fontana commença ses ateliers de fabrication de modèles humains anatomiques à partir de la cire.

| 9^{ème} siècle

Dark age

20^{ème} siècle

Rediscovery

Rediscovery

Simulation procédurale

The Link trainer



Connu aussi sous le nom de "Blue box", créé par Edwin Albert Link en 1929, pour l'entraînement des pilotes, notamment à la 2^{ème} guerre mondiale.

Mrs. Chase



Mannequin grandeur nature, pour l'entraînement
des étudiantes infirmières, vers 1950

L'inconnue de la seine



Resusci Anne



P. Safar



A. Laerdal



Laerdal avec Resuci Anne, 1960

Harvey

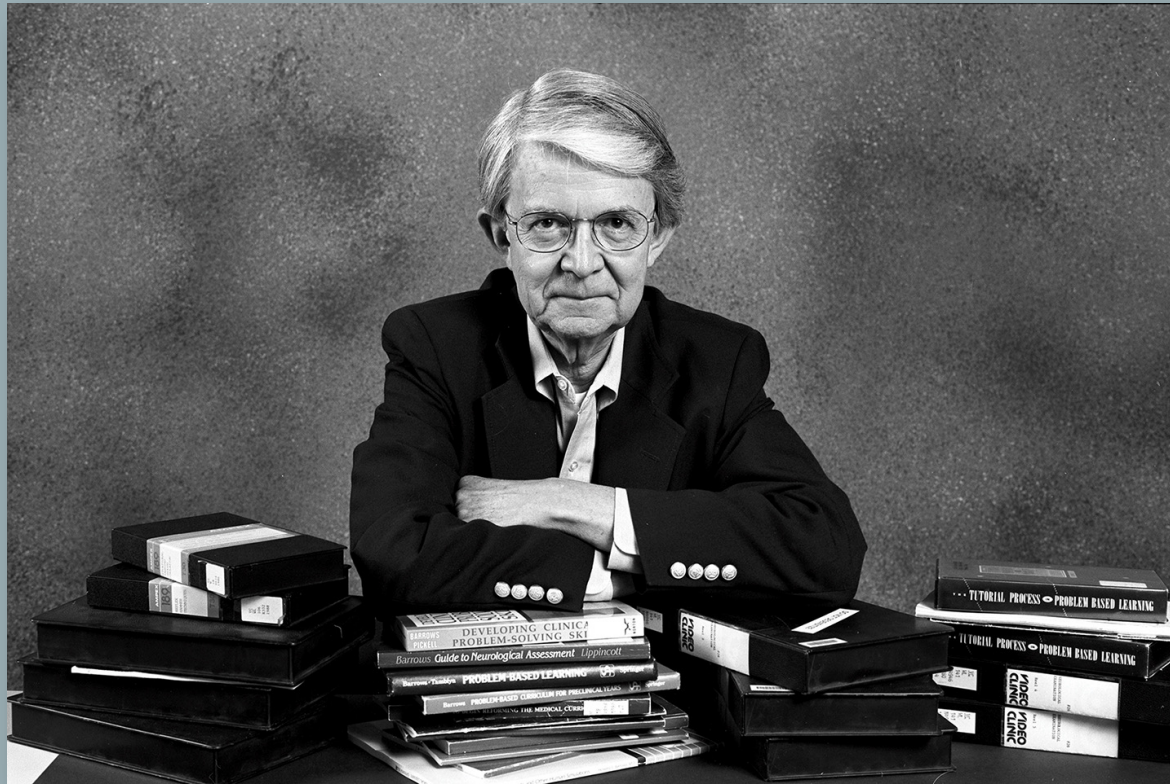


Dr. Michael Gordon, avec la toute première version du simulateur de l'auscultation cardiopulmonaire, au nom de Harvey.

Rediscovery

Patient standardisé

Patient standardisé



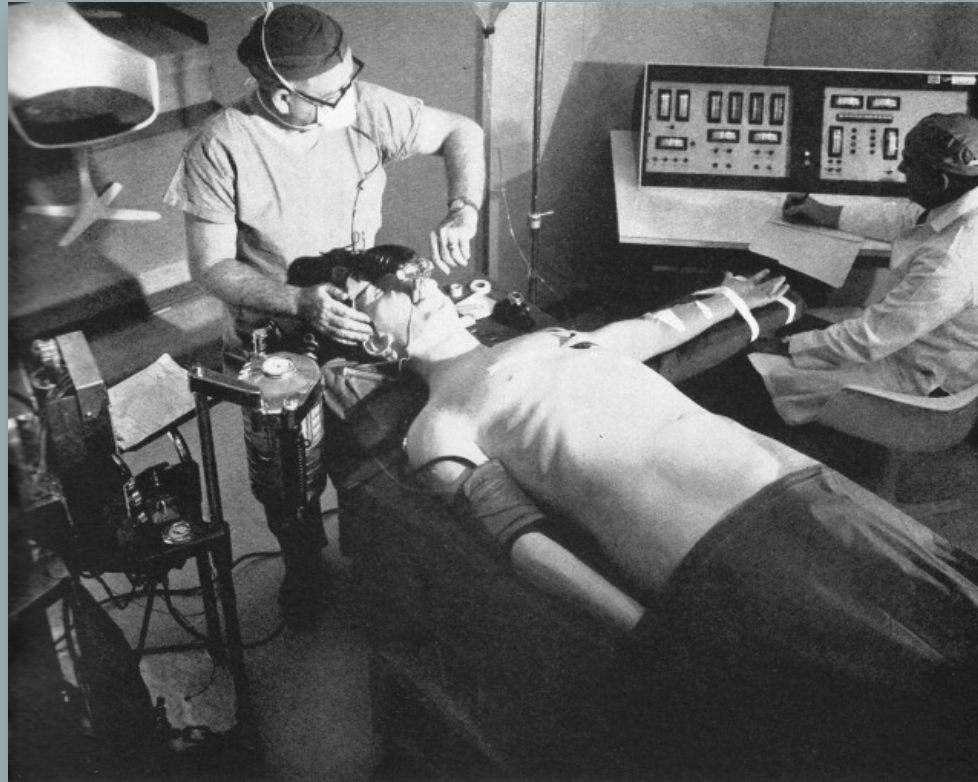
Howard S. Barrows, dès 1963

Rediscovery

**Crisis resource management
et simulation immersive**

Sim One, 1967

Samuel
Denson



Stephen
Abrahamson

Sim One, 1967

MEDICINE | Sim does almost everything—except say 'ouch'



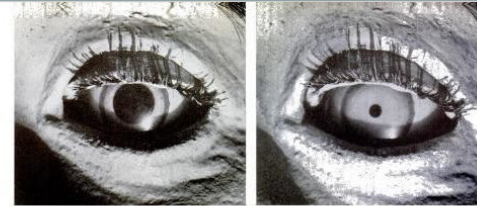
Deathproof Patient for Student Doctors

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Among the trickiest tasks an anesthesiologist faces is getting a patient ready for surgery. The job may involve administering oxygen, injecting drugs, perhaps even inserting a stiff tube into the patient's windpipe, all the while keeping an eye on his pulse and respiration.

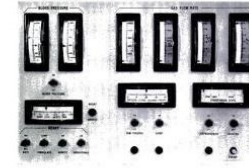
To speed the process of teaching apprentice anesthesiologists this difficult procedure, Professors Stephen Abrahamson and J. S. Denison of the University of Southern California Medical School, working with Avco-General Corp., have devised a marvelous mechanical man. Dubbed Sim One, it simulates a real patient in almost every respect except the ability to sit up on the operating table and say "ouch!" Controlled by computer, the plastic-skinned dummy has a heartbeat, breathes, tries to cough the air tube up out of its windpipe and even vomits. Sim is already serving students from Los Angeles County Hospital as a deathproof patient. Although still only a prototype and not in production, when Sims are available in quantity they may serve to reduce the time needed to train an anesthesiologist from eight years to six.

With a blood-pressure cuff on Sim's right arm and an electrocardiogram lead taped over his heart, a student doctor prepares to inject anesthetic into the dummy's left arm. Below, another resident doctor looks to check the dilation of Sim's pupils after inserting a tube in its windpipe.

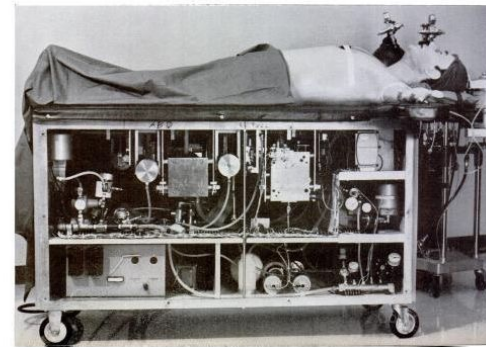


The dummy's amazingly lifelike eyes not only open and close realistically but the pupils also dilate (above left) and contract (above right). To the anesthesiologist, eye dilation is a danger signal, indicating that the patient must be given either more oxygen or less drug. Using the control panel (right), the instructor can monitor both the student's actions and Sim's reactions. The side view below shows what makes the device work—a cluster of electronic gear jammed under the operating table. The boxlike housings immediately below Sim contain the control

centers for the abdomen and lungs. To duplicate actual conditions often encountered in an operating room, the instructor can try to confuse the student with problems such as coughing or spasm. He can also suspend the proceedings at any moment if he wants to discuss a point. Whereas with a live patient a difficult procedure need—and can—be done only once, Sim makes it possible for the student to practice a process dozens of times. The inventors are already looking ahead: future Sims will bleed, perspire, salivate and turn blue when short of oxygen.



It can get sick on command 30 times a day



CASE, 1987



Simulation in-situ, simulateur CASE "Comprehensive anesthesia simulation environment" par David Gaba

Facteurs de développement



Sécurité du patient

Formation interprofessionnelle

Nouvelles approches pédagogiques