

# Contents

## PART I

<b>1</b>	<b>Introduction.....</b>	<b>3</b>
	The Rise of the Machines .....	4
	References.....	8
<b>2</b>	<b>Early Examples of Simulation in Training and Healthcare .....</b>	<b>9</b>
	Liver Simulators.....	11
	Simulation in Roman Military Training.....	12
	A Battle Simulation and Cadaver Simulators .....	12
	A Dragon Simulator.....	15
	First Recorded Use of Simulation in Health Professional Education .....	16
	Acupuncture Simulators.....	17
	The Beginning of the Modern Era of Simulation in Healthcare .....	17
	References.....	18
<b>3</b>	<b>Simulation in Medical Science .....</b>	<b>21</b>
	Simulation in Anatomy .....	21
	Anatomy and the Renaissance .....	22
	Stereography .....	25
	Anatomical Models.....	27
	Simulation in Physiology.....	45
	The Cardiovascular System .....	46
	Respiratory System Simulators.....	53
	The Gastrointestinal System .....	58
	The Loomis Laboratory .....	58
	Childbirth .....	59
	References.....	63

## PART II

<b>4 Simulation in Obstetrics, Gynecology and Midwifery.....</b>	<b>69</b>
The Foundations of Obstetric Simulators and Teaching Aids .....	69
The Development of Obstetrics .....	69
Origins of Obstetric Simulation .....	71
Obstetric Simulation in France .....	73
Background .....	73
Clinical Experience .....	74
The Beginning of Obstetric Simulation in France .....	75
The Simulator Industry in Eighteenth-Century France.....	76
Nineteenth-Century Simulators .....	78
Teaching Obstetrics Using Simulation in the Nineteenth Century .....	81
Tarnier, Budin, and Pinard .....	82
Other Mannequins.....	89
Further Developments in Obstetric Simulation .....	91
Obstetric Simulation in Britain .....	94
Background .....	94
William Smellie .....	97
William Smellie's Students and Contemporaries.....	102
Obstetric Simulation in Scotland .....	107
The Nineteenth Century .....	108
The Twentieth Century.....	111
Teaching Obstetrics in the Twentieth Century .....	113
Obstetric Simulators in Italy .....	117
The Eighteenth Century .....	118
The Nineteenth Century .....	126
Further Development of Simulation in Healthcare in Italy.....	128
Obstetric Simulators in Germany and Austria .....	129
The First Obstetric Simulators in Germany .....	129
Living Manikins .....	134
Obstetric Simulation in Vienna .....	135
A Complication of Hand Hygiene .....	142
A Perineum Simulator.....	148
Paper and "Pocket" Obstetric Simulators .....	149
Simulating Birth.....	154
A Simulation-Based Obstetric Training Course .....	156
Obstetric Simulation in the US and Canada .....	159
Obstetric Simulation in the Eighteenth Century .....	159
Obstetric Simulation in the First Half of the Nineteenth Century .....	160
Obstetric Simulation at Harvard .....	163
Demonstrative Midwifery and the People Versus Dr Horatio N Loomis .....	165
A Case Study of Simulation in Obstetrical Education: The University of Michigan .....	166

Obstetric Simulation in the Second Half of the Nineteenth Century .....	168
The Long Island Hospital College .....	169
Obstetric Simulation and Medical Education Reform in the Nineteenth Century .....	171
James Clifton Edgar and The Manikin in the Teaching of Practical Obstetrics .....	173
The Lying-In Hospital of the City of New York .....	179
Development of a Health Simulation Industry in the United States .....	180
Research Using Simulation.....	181
Obstetric Simulation in the First Half of the Twentieth Century.....	185
Obstetric Teaching and Simulation in the Twentieth Century .....	188
The Obstetric Teaching Models of Robert L Dickinson .....	191
Instructional Materials for Simulation in Obstetrical Teaching.....	192
The Return of Transparent Simulators.....	193
Obstetric Simulation in the Rest of the World .....	195
Europe .....	195
Latin America .....	196
Southern Africa.....	198
Asia .....	198
Simulation Around the Globe .....	199
Simulation in Midwifery.....	200
Johann von Hoorn .....	201
Marie-Louise Lachapelle .....	201
Angélique Marguerite Le Boursier du Coudray .....	203
Margaret Stephens.....	207
The Nineteenth Century .....	209
The Twentieth Century.....	210
Julia Oleander Graves .....	211
Simulation in Gynecology .....	217
A “flat-pack” simulator .....	217
Cadaver Simulators .....	218
Artificial Simulators.....	224
References.....	228

### PART III

<b>5 Simulators and Teaching Aids Used in Teaching Medicine.....</b>	<b>245</b>
A Pulse Simulator .....	245
Infectious Diseases.....	246
Smallpox .....	246
Syphilis, Skin Disease, and Simulation .....	248
TB and the First Auscultation Simulator .....	249
Clinical Skills Simulators .....	252
References.....	253

<b>6</b>	<b>Simulation in Surgery</b> .....	255
	General Surgery .....	255
	Origins of Surgical Simulation .....	255
	Simulation in Sixteenth Century Orthopaedics.....	256
	Simulation in Early Neurosurgery .....	258
	Simulated Patients.....	259
	Surgical Simulation on Cadavers .....	261
	Hernia Surgery Simulation.....	266
	Urology .....	268
	Cadavers and the Poor.....	268
	Lithotripsy and Cystoscopy .....	271
	Bladder Simulators with Advanced Features .....	275
	A Simulation-Based Cystoscopy Training System.....	278
	Cadavers and Preserved Bladders .....	281
	Simple Simulators.....	282
	Learning on Patients .....	285
	Simulators in the Twentieth Century .....	286
	Later Developments .....	289
	References.....	291
<b>7</b>	<b>Simulation in Oto-, Rhino-, and Laryngology</b> .....	295
	Early Laryngoscopy Simulators.....	296
	Autolaryngoscopy .....	298
	More Laryngoscopy Simulators.....	298
	Interactive Simulators .....	305
	Simulation in ORL in the Early Twentieth Century .....	311
	Otoscopy and Paracentesis.....	315
	Simulated Patients.....	317
	Direct Laryngoscopy and Bronchoscopy.....	319
	Gustav Killian .....	320
	Later Use of Simulation in Bronchoscopy.....	324
	The First Robotic Patient Simulator .....	327
	The Twenty-First Century .....	329
	References.....	329
<b>8</b>	<b>Simulation and the Eye</b> .....	333
	Oculists, Spectacle Makers and Ophthalmologists .....	333
	The Anatomy of the Eye .....	333
	Early Illustrations.....	333
	Flaps .....	334
	Eye Models .....	334
	The Whole Eye .....	341
	Functional Models: Eye Movements .....	343
	Functional Models: Formation of an Image on the Retina .....	350

Development of Vision Simulators .....	351
London Eyes .....	360
The Adams Family .....	360
More Eye Models .....	363
Optometry and Ophthalmology .....	369
Simulators for Ophthalmoscopy and Skiascopy .....	369
Frost's Artificial Eye .....	372
Schematic Eyes for Practising Retinoscopy and Ophthalmoscopy .....	372
Loring's Artificial Eyes .....	375
Landolt's Artificial Eye .....	381
Eye Simulators in Medical Education .....	381
Eye Disease Simulators .....	382
The Development of Simulators for Ophthalmic Surgery .....	383
Franz Reisinger .....	387
Albert Sachs .....	388
Johann Christian Jüngken .....	388
Anton Welz .....	388
Friedrich Jäger .....	388
Émile Andrieux .....	391
Further Development of Simulators for Eye Surgery .....	393
Home-Made Simulators .....	395
Strabismus Surgery Simulation .....	397
Later Developments in Simulation .....	397
References .....	398
<b>9 Simulation in Nursing .....</b>	<b>403</b>
Mrs Chase .....	405
Funding and Home-Made Dolls .....	411
Other Hospital Dolls .....	412
Home-Making .....	412
Later Developments .....	414
References .....	416
<b>10 Simulation and Teaching in Resuscitation</b>	
<b>and Trauma Management .....</b>	<b>417</b>
Resuscitation .....	417
The First Resuscitation Manikin .....	420
Further Developments .....	420
Simulation and Endotracheal Intubation .....	422
Cadaver Simulators in Tracheal Intubation .....	423
Time: A Key Performance Indicator for Intubation .....	424
Alternatives to Cadaver Simulators .....	425
The First Intubation Simulators .....	425
Intubation and Tracheotomy .....	427
Later Use of Simulation .....	427

Intubation in the Twenty-First Century.....	428
References.....	428
<b>11 Simulation in Dentistry and Dental Hygiene.....</b>	<b>431</b>
Early Modern Simulators in Dentistry.....	432
Using Simulation to Teach Technique.....	434
Fergus and the “First” Dental Phantom.....	437
Some Other Dental Phantoms.....	440
Dental Simulation in the United States.....	442
Dental Hygiene.....	446
The Twentieth Century and Beyond.....	448
References.....	449
<b>Index.....</b>	<b>451</b>

<http://www.springer.com/978-3-319-26575-9>

Simulation in Healthcare Education

An Extensive History

Owen, H.

2016, XVI, 456 p. 251 illus., 151 illus. in color.,

Hardcover

ISBN: 978-3-319-26575-9