

# Manifesting Medicine

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science  
museum

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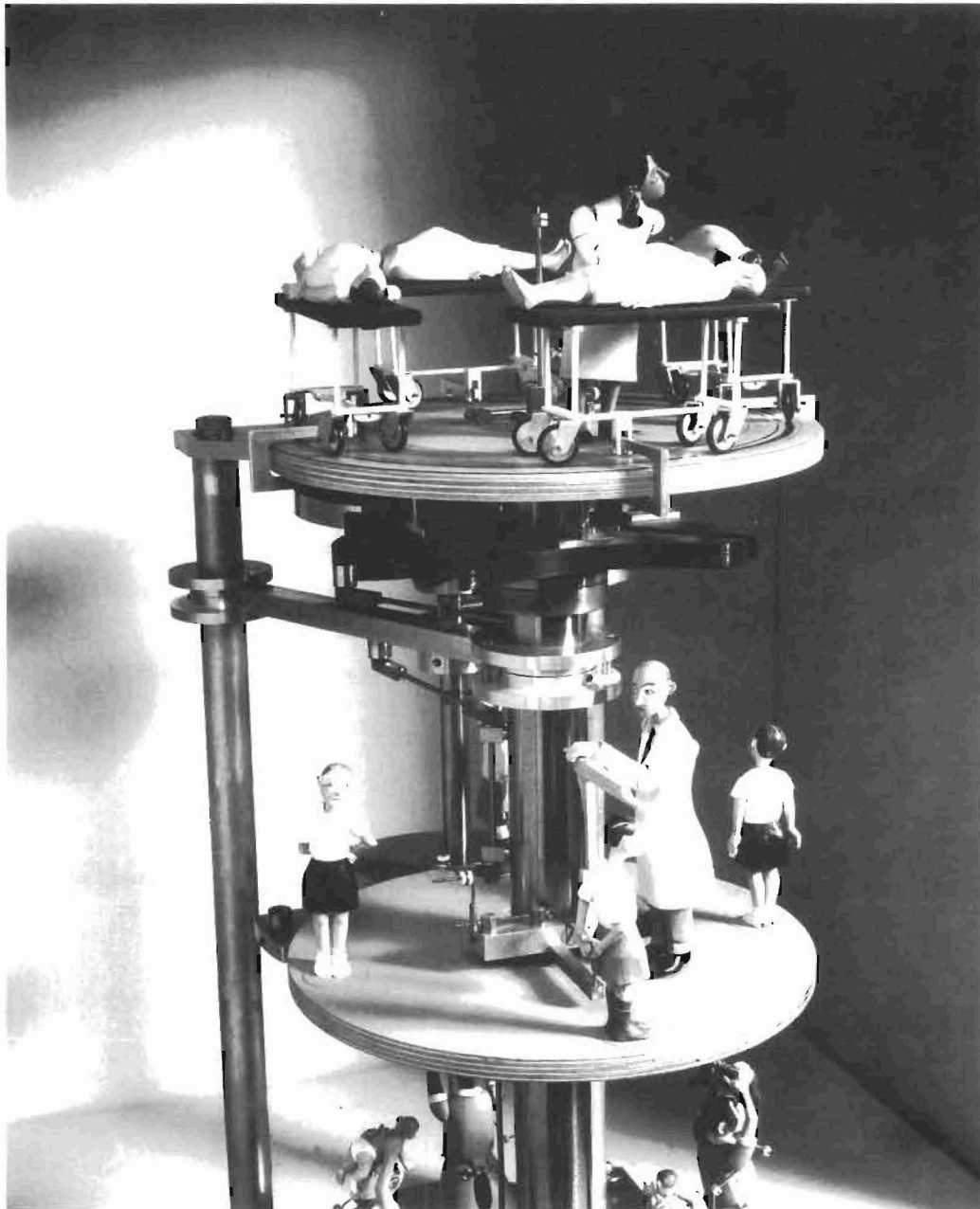
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Front cover: The Transparent Woman, German Hygiene Museum

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*Automaton by Paul Spooner, in carved and painted wood, 1994. The automaton on display in the Science Museum is designed to show that, in the 20th century, medicine has become concerned with the health of whole groups as well as sick individuals. On each level the patients rotate past the medical staff who "automatically" examine them. Science Museum inv. no. 1994-160.*

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## Series Preface

In the long history of the efforts made by science museums to promote the importance of their collections, the past decade has been among the most exciting. Whereas the competition from non-object based science centres has become ever stronger, interest in using objects to communicate insight into the history of our technological and scientific heritage has gained new strength. For millions of visitors, artefacts provide a uniquely attractive and direct link to the past.

Museums also have a research mission. They are a vital force in the community of scholars, especially in the history of technology, and here, too, they have come to be better appreciated. Many outside their walls have come to share the belief that artefacts have played a role which is both inadequately understood and indispensable for a better understanding of historical and cultural change.

Initially, perhaps, it was the insight into technical detail provided by close inspection of the real thing that was generally of greatest scholarly importance. More recently, however, studies of experiments and technology have widened the view to the complex role of artefacts within their larger geographical, economic, social and political setting. Rather than being treated in isolation, technological objects and instruments are coming to be used as material expressions of human culture that shape, mediate and reflect the interactions amongst science, technology and society. Latter-day onlookers are therefore helped to see not just machines, but also imaginative worlds of the past.

Building on rapidly maturing scholarly interest, three of the world's great repositories of material heritage (the Deutsches Museum in Munich, the National Museum of American History in Washington and the Science Museum in London) are cooperating to support this new series of publications. Volumes will explore innovative approaches to the object-oriented historiography of science and technology. The series will seek to go beyond a strict technical description of artefacts on the one hand, and an overly broad social history on the other.

Collections reflect local, regional and national traditions and express their cultures and history. This character confers certain constraints, but also advantages. Museums are sensitive to, and reflect, the specific local meanings of objects, but they have the asset, too, of curators whose detailed knowledge of the collections is couched within a wider historical perspective.

Building on these dual strengths, the series is intended to initiate an international discussion which both emphasizes local material cultures, and

also draws upon recent research in the overall history of science and technology. The authors will therefore include curators, but the series will attract into the discussion other scholars from a much wider orbit. Many people have, of course, been concerned with the problems examined in this series; but all too often this has been in individual or institutional isolation. These volumes will engage an international community that is large enough to develop research programmes and debates that will have enduring momentum and excitement.

Situated at the interface between museum, university and independent research institution, the series will address professional historians of science and technology, curators, those in charge of the day-to-day administration of museums and those who, so often passionately, simply enjoy visiting. As museums do in general, the series aims to build a bridge between historical research and the use and application of historical knowledge in education and the public understanding of science and technology.

Each volume will focus on a specific field of technology and science in its wider historical context. The first, and larger, part of each volume will present the honed products of presentation and debate at joint conferences. The second part will consist of exhibit reviews, critical expeditions into the respective museum's landscape, bibliographical overviews on recent literature, and the like.

The collaboration between three national institutions has been made possible by their directors. We thank Neil Cossons, Director of the Science Museum, Spencer Crew, Director of the National Museum of American History of the Smithsonian Institution, and Wolf Peter Fehlhammer, Director of the Deutsches Museum. Their personal enthusiasm for this project has made it possible.

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## Introduction

The revolution in the treatment of disease and injury that has taken place over the past two centuries is an urgent reality to patients and doctors alike; but, whereas change in medical theory and practice has made cure more likely and, in many cases, has reduced suffering, medicine embraces more than just techniques of treatment. Health and disease influence the lives and culture of everyone – including the robust citizen, as well as the sick and the medical profession – and frame the way we think of ourselves and run our daily lives.

Whereas, with its beauty and its distinctive features, the body is part of a person's identity, as a biological machine it is also a source of worry to its owner; daily life is replete with opportunities for medically defined "error" as we negotiate the issues of smoking, eating fatty food, exercise, polluting the air or taking pills at the right time. Professional lives, across the whole spectrum of modern economies, are now burdened with responsibilities for the "health and safety" of colleagues, newspaper readers puzzle over surrogate motherhood; cities encompass great hospitals and medical research centres that are held in some of the same awe as were cathedrals in former times. Meanwhile, the politics and economics of paying for medicine shape the debate over the future of the welfare state.

Such a multitude of connections are now being made by historians, museum curators and other commentators, that artefacts of medicine, also, are no longer to be seen merely in terms of their functional properties. Dissecting out the broader meaning can, nonetheless, present a considerable challenge of just the kind to which this series is directed. In this volume, five authors write about sets of artefacts, the origins of which range from the early nineteenth century to the late twentieth, and are today each to be found in museums: early blood transfusion apparatus, a plastic human replica, the Geiger counter, open-heart surgery equipment and packaging for the Pill.

The authors of each essay have been concerned about the broad significance of an artefact at the time of its innovation. Case by case, the use of the objects focuses attention not only on their medical purpose, but also on the meanings they held for all those who confronted them. As latter-day onlookers, we are therefore helped to see, not just machines, but also products of the imagination. The authors have also striven to show that those who today encounter the artefacts of this book, in its pages and

even perhaps “in the flesh,” will be confronting big subjects: blood, life, danger and conception.

For all the diversity of the topics, there are strong parallels between the accounts presented. It is striking that each artefact was the iconic focus of a story linking apparent opposites. Kim Pelis shows how blood transfusion apparatus developed by the London physician, James Blundell, in the 1820s was not just a technical device, it was seen by its “romantic” pioneer as mediating between life and death. This contemporary of Mary Shelley, the author of *Frankenstein*, and of Polidori, who wrote the first vampire romance, linked the “vital” qualities of blood to the apparently technical process of transfusion through a vision of the process of transfusion as bringing to life the virtually dead. “What is the meaning of my blood and my body?” is an ancient question that has continued to be reiterated – at never greater frequency than in the twentieth century. Strong feelings abide about blood transfusion. Scientific descriptions sit uncomfortably beside rich personal and, indeed, gory symbolism. Between the two has been the complex process of giving and getting blood.

The objectives of the proponents of the transparent man in the 1920s were the very opposite from those of the vitalists of a century earlier. For the successful businessman, Karl August Lindner, an advocate of organisation and education, the transparent models of human parts demonstrated, Klaus Vogel argues, how the human being exemplified an engineering system. Devised within the context of a new museum, The German Hygiene Museum in Dresden, the model known as the “Transparent Man” became an institutional, and indeed national symbol. Rather than the bloody process of dissecting a real human, transparent synthetic plastic enabled millions of visitors to the German Hygiene Museum and many other exhibitions to encounter the beautiful engineering of the “ideal” man and woman. Vogel demonstrates that this was both a successful technical product and a powerful ideological device, which has survived through four regimes since its birth in Weimar, Germany.

The Transparent Man was designed for the mass public; Ghislaine Lawrence has explored the meaning of a new technology for professional medical staff and the consequent shaping of a device. She examines the process of heart surgery under profound hypothermia devised between 1959 and 1961 by Charles Drew, a London surgeon. This technique converted the operating theatre into an engineering workshop: the heart rendered virtually bloodless and the equipment meeting precise design specifications, even if it proved too large to fit, in its entirety, into the operating theatre. Lawrence shows how even detailed design decisions made by Drew in concert with the designers and the process control engineers, APV – such as the selection of pneumatic rather than electronic controls – had their origins in process engineering practice. Thus this technology fitted a cultural space for the medical practitioners that was quite analogous

to the space intended for the Transparent Man that was made from synthetic plastic.

The range of emotionally intense oppositions in medicine is, of course, not limited to the tension between gory body and engineering system. Johannes Abele's study of the Geiger counter shows how this device was used to separate safe environments from dangerous ones, in the workplace and in the aftermath of nuclear events. From the very time of the discovery of radioactivity, its accompanying threat was not susceptible to traditional concepts of safety. Even in its early days, the Geiger counter, invented in 1928 for purposes of scientific measurement, was also used for public display, and even before the Second World War, Geiger counters were used in hospitals to guarantee safety in the use of radium. After the war, the Geiger counter came to be portrayed as the key defence against new dangers posed by the nuclear power plant and the nuclear holocaust.

Finally, the packaging of the contraceptive pill is explored by Patricia Gossel. She finds its meaning in the space between the order and predictability of the laboratory allied to the discipline of the clinical trial on the one hand and, on the other, the disorder and unpredictability of daily life. Whereas historians have paid great attention to the Pill, they have, hitherto ignored both the packaging and its meaning. The focus on the development of compliance packaging therefore highlights the challenge of moving from abstract physiology to the daily lives of millions.

Our culture depends on the contrast between opposites, yet life is rarely so generous as to allow us to keep them entirely separate. Hospitals are places both of safety and of danger, the states of life and death can seem hardly separable. The authors here have located their subjects at such sensitive interfaces as between life and death, life and organisation, life and engineering, safety and danger, order and disorder. Each artefact has helped those encountering it to cope with the apparent confusion of categories, embodying or encapsulating stories that have been deeply reassuring. Blood, in the early nineteenth century, was seen to be a vital fluid that could actually bring to life one who was already dead, and the transfuser was designed to be an appropriate means by which this natural fluid should be handled. In the middle years of this century, in which the nature of man has been the subject of the most intense debate and has been caught up in ideologies that have wracked the western world, the Transparent Man and the technology of profound hypothermia seemed to reassure that living and engineering systems could be compared, however different they may appear. The Geiger counter and the Pill pack, by contrast, were means of distinguishing between the distinct states of safety and danger. While the accounts are rigorously historical, such issues are, of course, enduring.

Encounters with such devices today can often be powerful and moving experiences that engage the viewer's concerns not only with the culture of the past, but also with the dilemmas of the present. Medical museums

exhibiting their collections have this twofold quality of historicity and relevance. Research on the material culture of medicine has, in general, been based in museums; the way in which these institutions represent artefacts and material culture defines our culture's attitudes.

Two review papers in this volume reflect on museums at various levels of generality, linking their objectives, exhibits and collections. A very specific approach was taken to the reviews, for there are many possible aspects of visitor care and interaction that go beyond the boundaries of this book. Instead of looking at every possible aspect, these review articles focus upon the problem of telling a meaningful history through objects and exhibits.

In his study of the Science Museum, Tim Boon, one of the curators responsible for *Health Matters*, which opened at the Science Museum in 1994, reports on that gallery and on a series of more recent temporary exhibitions. He reflects on the place of *Health Matters* in the development of the Museum's presentation of history, and describes the exhibit section by section.

Ken Arnold reviews the world's medical museums, linking the institutions' histories, their collections and their exhibits. He advocates treating the museums themselves as historic artefacts. They can thus be treated in the same way as other authors have dealt with individual instruments. He reports upon more than 50 institutions, surveying the landscape of the medical museum world, and reflecting on the kinds of medical history it portrays. He asks for more temporary exhibitions with thematic cross-disciplinary approaches that bring together science, technology and art and thereby widen the horizon of history.

With the other authors of this volume, Arnold believes that these institutions should strive not just to make the objects within them audible, but even to make them sing!