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Histories, exhibitions, collections: Reflections on the language of medical curatorship at the Science Museum after Health Matters

The role of the curator in science museums is changing. As in previous decades of change, curators may resist, “go with the flow” or engage with the opportunities for change. Three interrelated questions encapsulate the current area of engagement: What styles of history should science museums employ in their accounts of the past? What styles of display should be adopted for the subjects we represent? What should we collect? By taking all three questions together it is possible to re-forge notions of curatorship in preparation for the decades to come. In this way we may preserve the best of what science museums have been as a foundation for what they may best become.

If, in the language of science museum curatorship, collections are the vocabulary, and history the grammar, then exhibition is the speech. Other curatorial cultures, such as those of the art museums, may have different “languages” because museum “languages,” much like their literal counterparts, are historically determined. This essay is about the effect on our “speech” and “vocabulary” of adopting new “grammars.” Or, to put it another way, we may change the exhibitions we create and the collections we hold if we recognise the range of historiographical possibilities open to us, and if we historicise our sense of exhibition. My argument here is not the assertion of a radical new possibility for curatorship, but the description of a process under way. I suggest that history, exhibition and collecting have, over the life of the Science Museum, London, always been intimately intertwined, but that, until recently, historiography has ranked low amongst curators’ concerns. Here I shall look at issues surrounding the historiography of curatorial practice, before turning to historical aspects of exhibitions and collections. These sections form the basis for a discussion of approaches and methods applied in two recent medical exhibitions at the Science Museum, *Health Matters* and *Stories from the Germ Labs*. The arguments are mainly derived from experience of the Science Museum but they may also apply in a general sense to other similar institutions.

History in Science Museums: The Grammar of Curatorship

Specific historiographical views are necessarily contained in all museum work. This is not to say that previous generations of curators have always consciously espoused particular historiographies of science and technology, but rather that attitudes to the past are necessarily expressed in the

curatorial activities of exhibition and collecting. Many of these previous implicit historiographies were defined by exclusion, for example in the distinction drawn, since the Science Museum's first origins, between "historical" objects and "contemporary" ones, as recently explored by Xerxes Mazda.¹ In this view, the collections have always been, in large proportion, of obsolescent or superseded technologies. There is an important distinction, however, to be drawn between viewing objects as simply old, and seeing them as parts of potential historical narratives, and Mazda elucidates how the Museum, under different directors, took a more or less positive view of the historical accounts potentially present in the collections.²

We await a detailed study of the impact of past generations of curators on collections and exhibitions, but we may assume that they believed their worlds to have been transformed, in the classic industrial period, by technology and science. The evidence of the galleries and collections is that many of them continued to believe implicitly, and in an uncomplicated way, in the progress of science and technology.³ Others outside museums, however, were voicing variants on the classical progressivist view in the inter-war period, and the products of curators may be contrasted with these. There is no outward sign, for example, of the inter-war radicalism associated with the "red professors," Bernal, Levy, Haldane and Hogben, being taken up and expressed in curatorial activities, even though the Science Museum hosted the 1931 conference which introduced the world to the Soviet delegation's Marxist interpretation of technological change.⁴ Inter-war curators may also largely be distinguished from those activists troubled by the menace of modernisation, such as the smoke- and noise-abaters. Despite the fact that the Museum hosted two exhibitions originated by the voluntary health associations campaigning on these issues, and despite a curatorial presence on the organising committee of each, scarcely any history was visible within the exhibitions, which were mainly devoted to technical means of diagnosing and solving the problems. And, despite the fact that each boasted more than a hundred exhibits, no object already in the Museum's collections was used, and no new objects were subsequently acquired as a result of the exhibitions.⁵

Since the Second World War, the professional study of the history of science has changed beyond recognition. Globally, the histories of science, medicine and technology, with their various philosophical and policy siblings, have become established as mature, critical disciplines. To characterise them in brief invites caricature and omission,⁶ but there has been a clear trend away from idealist, internalist accounts of sequences of scientific discoveries, which are the intellectual analogues of older styles of exhibition. Newer, more nuanced approaches have come to look at science as part of social life. First came the rejection of whiggism, defined as a tendency to write history as progress towards the present, rather than, as is now preferred, seeking to come to an understanding of how events were

understood by contemporaries in the past. This rejection was followed by an analytical period concerned with scientific method and the nature of scientific change, exemplified by Thomas Kuhn's *The Structure of Scientific Revolutions*. In the 1970s, the social history of science, especially of its institutions, began to be widely discussed. At the same time, the implications of Foucault's radical synchronous view of history and his power-centred conception of knowledge began to make an impact, more in the history of medicine perhaps, than in the histories of science and technology.⁷ The sociological analyses of science, particularly the "Edinburgh School" of social constructionism and the ethnomethodological wing, which has been expressed especially in studies of laboratory life, have provided the tools by which history of science has been able to pursue the social through to the construction of scientific facts themselves.⁸ For science museum curators this potentially amounts to the invention of a series of new "grammars" with which they can "speak" in their core activities.

It would be naive, however, to suppose that changing curatorial practice is solely a matter of rational choice. Curators in science museums have experienced novel pressures in the last past decade, and the historiographies they espouse are changing in response to these, not simply because alternative historiographies exist, or because increasing numbers of curators are trained in historical disciplines. Some of these changes are associated with the changing priorities of institutions, which have produced redefinitions of curatorial responsibilities. The level of activity on the Royal Society's Public Understanding of Science initiative, for example, has reshaped the distinction between responsibilities to contemporary science and to its history, now read as a distinction between public understanding of science (think of the close analogue "health promotion") and contextual social history of science.

Another cultural pressure comes from the ubiquity of popular visual media, especially television, and the new interactive computer media. The various conventions of representing science and history on television and in the cinema may well affect the expectations of visitors to museums. Where our publics have both a visual literacy and knowledge drawn from these media, expectations of museums, and therefore of the curatorial role, are bound also to change.⁹ Here again, a proper sense of the varieties of historical explanation may incline us to engage actively with some of the potential impacts of popular visual literacy. It is arguable that some broadcast genres are intellectual analogues of historiographical approaches: "fly on the wall" documentary may sit quite happily with ethnomethodology, for example, or "biopic" may be seen as a variant of biography no more distorting than many recent published examples. The question for curators relates to whether these modes should be translated into displays, and if not, what impact may be anticipated in public responses to our work? If it is right to produce more socially embedded

accounts of our subjects than our predecessors did, then surely it is appropriate to reflect on the influence of visual media on our visitors' expectations. CD-ROM and World Wide Web media present us with similar challenges to make available our collections to new and larger audiences, but once again the interesting and unanswered questions relate to what types of account are appropriate, and what genres of interpretation should be used. Surely the means to gain fluency in this new form of "speech" is in the application of the historical "grammars" we already know and those we are willing to learn. The role of curators here, as in exhibitions, will increasingly be to set a wide diversity of examples of the power of artefacts to fertilise the understanding of the past and the present.

This confluence of broadening historiographical possibilities and larger social change is analogous with Cannadine's argument in his now classic essay "The Present and the Past in the English Industrial Revolution," which showed how generations of economic historians have interpreted the Industrial Revolution according to the economic conditions of their own day. He suggested that it may be inescapable that, as historians, we do this.¹⁰ In a post-modern twist on this interpretation, it can be argued not only that this has happened, but that it behoves historians actively to reinterpret the past according to opportunities provided by modern conditions.¹¹ The lessons for science museum curators are clear: each generation of curator has a duty to adopt changed historiographical approaches as they make displays and collections; we can work only on the basis of what seems right and culturally significant to us in our own period. Equally, we cannot hide behind the modes of historical enquiry appropriate to foregoing generations.

These considerations also apply to the question of how curators should concern themselves with contemporary science in the collections and exhibitions they curate. It is important that both scientific change and novel technologies are seen as the products of historical processes, and that the potential range of historical accounts is considered in the collection and display of such items. This approach could be described as a "history of the present," as contrasted with the major alternative approach, public understanding of science, which often seems content to explain abstract scientific principles without reference to their constituting context. Nevertheless, as argued above, such exhibitions do tacitly convey particular historiographies, for example that science is to be understood as pure and unaffected by the context of its production.

Exhibition: The Speech of Curatorship

If it is widely acknowledged that the work of the historical community has a great deal to offer science museums, it is not often so readily considered that museum exhibitions are a fruitful context for undertaking and publishing historical research. Whereas historical work in science museums may be expressed in a variety of media – catalogues, television, lectures,

tours, for example – it has been in exhibitions that curatorial historical exposition has been at its most visible to the public, and I shall concentrate on its expression through that medium. Until fairly recently, items from Science Museum collections have most often been used to tell essentially whiggish stories of technical evolution and scientific progress. The hand- and machine-tools displays for example, dating from the 1930s, seemed to be able to trace every then-modern tool back to a flint, and the *Children's Gallery* effortlessly traced the history of lighting from the flaming brand to the electric lamp.¹² A more sophisticated example of the older exhibition style based on historical scholarship is visible in the Science Museum's chemistry galleries opened in the mid 1970s. In this display, an established history of chemistry is presented. Where the exhibits are no longer extant or are elsewhere, then replicas – for example of Stephen Hales' pneumatic apparatus – have been substituted.¹³ Here, the wish to present *the* history of chemistry must have been the dominant concern, and artefacts, even key artefacts, are present as illustrations to quite substantial amounts of text. This is a model of display in which visitors are expected to read the exhibits much as they would read an illustrated book. In a museum which prides itself on its diversity, it is valuable to be able to compare exhibitions from different eras, but recent work in the history of science suggests alternative accounts and new emphases in the stories we tell about the history of chemistry. This bore fruit in the *Petroleum, Plastics* and *Industrial Chemistry* galleries which opted to present more socially embedded accounts.

Curators' exhibition practices are being changed by acquaintance with the historiographies of science, technology and medicine. Equally, an understanding of the historical processes responsible for the modes of display found in science museums should bear fruit in changed forms of historical science exhibitions. This is important so that we may ensure that "the public space for science" – Alan Morton's phrase – has a sophisticated historical dimension.¹⁴ Ghislaine Lawrence has described the several styles which have been actively appropriated over a century by curators and latterly by museum designers. These include, from the 1920s, pictorialism, consciously drawing on the new trade of shop-window display and, from the 1930s, organisation of gallery spaces into single narratives with chapters, focused to transmit propositional knowledge to educational groups and adults alike, measured from the late 1950s by particular types of survey methodology.¹⁵ The culmination of these trends, she asserts, is an impersonal style in which connotations of "authority, neutrality and value free facts – in short, of information – and also of palatability" dominate. As she comments, "For the curator ... who wants to convey the social reality of practice and the socially made nature of theory – who wants to show that these areas are contested, interest related, subject to conventionalised representation in the media ... this exhibition style is hopelessly, utterly inappropriate."¹⁶ This engagement with the values conveyed by museum exhibition style found fruit in *Health Matters* in ways I describe below.

Modern historical concerns, for their own sakes and applied reflexively to the curator's business of exhibition, potentially have a very liberating effect on new displays, but, whilst exhibition provides unique opportunities as a medium for the exposition of rich historical stories, curators are not immune from the interests of the other individuals and organisations involved. The argument of this paper relates rather to those aspects of the process which are within the curator's power to influence – that is, their creative representational decisions, so often the domain of unnecessary self-censorship.¹⁷ Practical demands of exhibition space and suppositions about the behaviour of visitors may also affect what types of historical account may be employed. As this may be *terra incognita* for some readers, a limited comparison may help: the substrate of exhibition may be said to be three-dimensional space, where in literary productions it is two-dimensional space and in film it is time. Unlike cinema films or television programmes (but like video recordings and Web pages), museum exhibitions permit different sequences, speeds and levels of detail in viewing. Equally, they differ in being unable to command the narrative drive constructed by the directors and editors of conventional cinema narratives.¹⁸ In common with films, books and video recordings, museum exhibitions have the potential to permit analytical and critical consumption, although in practice they seem rarely to be used in this way. This, no doubt, is a product of their different social and cultural location, in which traditions of exegesis and commentary have become attached to the published and written word and, to a lesser extent, to the moving image, as parts of scholarly activity – modes which currently have no commonly found equivalents for exhibitions, especially those concerned with “scientific” subjects.¹⁹

Collections: The Vocabulary of Curatorship

As with exhibitions, understanding that traditions of collecting are historically made may help us come to a better conception of how a sense of historiography may focus collections. When all that the museum owned was displayed, then we could say that collection and exhibition were the same thing. Since then, with the proliferation of off-site storage, collections have come to be considered as different in kind from exhibitions. But we do continue to define reserve collections in relation to exhibition – the “great undisplayed,” if you like – but the arguments for reserve collections are linked to trends in display in a negative sense, too: the justification for reserve collections would diminish enormously, perhaps to vanishing point, if we were to remove museum objects from their central role in display and make them mere adjuncts to interactive exhibits. That is why vigorous arguments, not just about the importance of historical approaches to exhibition, but also about their potential breadth, impinge on our notions of collections.

As curators and designers alter their notions of exhibition design and narrative, reserve collections may tend to become stagnant backwaters, conforming to archaic notions, to last decade's collecting policy. Previous generations of curators did not always openly espouse a sophisticated historical approach in collecting policies, but, once again, a particular style of historical account – concerned with technical improvement, perhaps – may be implicit in the collections they amassed. There is a great temptation either to follow slavishly another generation's collecting practices, or else to make too much sense of what our forebears have left us – wishing to fill gaps in perceived sequences, or desiring to extend imagined series. As time passes, curators may gain the impression that the reserve collection represents some absolute set which, obeying some natural order, is able to sit separate from exhibition as a superordinate, pure entity.

At its most extreme, this may be seen in the typological collections of technical museums which seem to imply, for example, that if we have every type of X-ray tube, both gas and Coolidge, stationary anode and rotating, air-, water- or gas-cooled, diagnostic as well as therapeutic, then we shall be able to tell the history of X-rays.²⁰ Well actually, no. For *Health Matters*, in addition to an X-ray machine, we needed a fire extinguisher, a doctor's coat, stethoscope and textbook, some trade literature in an old suitcase, and a bowl of mashed potato. The reason for this is that history of medicine and history of technology, as they have incorporated more social history over the past 40 years, have made it both necessary and possible to create a much more nuanced account of technical change. Here was a standard ward X-ray set making the argument that radiology was the only widespread electrical medical technology in the inter-war period, abetted by the fire extinguisher, a signifier for the messy social history of X-ray practice, in which nitrate films caused several major fires in X-ray departments. The doctor's effects signify the argument between medical believers in the clinical art and champions of the new machine diagnosis. The trade literature in a suitcase represents the machine as a commodity bought by hospitals and sold by companies. The mashed potato, which acted as a vehicle for early contrast media for radiographs of the gut is an indicator of the patient's experience.

The argument suggested by this example is that changing modes of historical understanding are altering what we consider to be significant. As we must collect what we view as significant, we shall renew our collections by the addition of new categories of object in response to the intense engagement with representational issues which arises when producing exhibitions. This way of thinking about acquisition can lead to uncomfortable conclusions, especially over the differential inventory status of objects;²¹ for example, by definition we cannot have real mashed potato from the pre-war period, and the value traditionally placed on authenticity forbids us from assigning to the replica the status of an inventoried object. This is not a trivial point as we seek to represent from the past aspects of

material culture not considered important by our predecessors. A partial solution lies in redirecting our discomfort to reflect on how else we might represent these aspects of the history of X-rays: are there remnants of the literature used to inform patients about contrast media, for example, or what do patients' diaries record of the experience? By reflecting on these types of issues, we may actively feed back into our collecting policies new perceptions generated by the intensive historical work of exhibition production, so that we may acquire categories of object which can be collected only slowly over time.

We can, however, go beyond these practical day-to-day concerns to retune our understanding of what a collection is. There are distinct benefits to be accrued from returning to seeing collections as forms of representation similar to exhibitions. We may imagine the worlds that the collection as it stands potentially represents, and consider the impact on that representation of adding new categories of object. We have been moving away from exhibitions as displays of existent collections, partially because the collections we curate have been unable to supply the objects that we need to tell particular types of stories in displays – the absence of a good collection of twentieth-century vaccines acted as a brake on the historical account in *Health Matters*, for example. The circumstances of the headlong rush of gallery creation are far from ideal for extending the breadth of collections, but there is a need to apply the exhibition style of thought to the improvement of collections in periods of “normal curatorship”, to adopt a Kuhnian metaphor. This is not to suggest that we are able to anticipate what may be needed for displays in the future. Rather, it suggests that applying our knowledge of what has proved useful in the present may be used as a model for the types of items we should lay up as resources for the future.

The Wellcome Collections provide a telling lesson of how different the assumptions underlying collecting have been in the past. They were accumulated mainly in fulfilment of an evidential purpose, obsolescent even at the time, to provide the basis for a materialist anthropologico-historical account of human development.²² Within this project, not only did Henry Wellcome collect categories of objects outside conventional notions of medicine and healing, but he was content with copies and replicas. Only very late in the day, with the “French Collection”, did he collect according to the biographical mode – acquiring the effects of scientists and doctors – one of the governing preoccupations of modernistic curatorship.²³ Here again, the categories were broad: Curie certainly, but also dozens of now generally forgotten minor physicians and chemists.²⁴ This contrasts with the range of collecting styles now extant in medical, scientific and technological collections: anthropological, biographical, serial/technical, social-historical (as in Trevelyan – collecting the remains of previous social life), “mythological” (in the sense that an artefact can be collected with the intention of using it in display as the crux of a

dichotomy²⁵); social constructivist (on the basis that reality is made in social relations) and, quite possibly, others. But, just because items were collected for different reasons than we might now choose, it does not follow that the resulting collections are irrelevant to our current purposes. We daily put new complexions on the potential meanings of the collections. To give just one example, the 10,000 non-Western artefacts held in the Wellcome collections at this museum may now, reflexively, be seen as evidence of the endeavour to come to terms with non-Western peoples in an age of empire. This raises the possibility of collecting more material associated with the practice of anthropology, a science outside the established interests of the Science Museum. As a result of considerations of this nature, a small start has been made in improving our holdings of anthropometrical instruments.

Health Matters

Health Matters, the Science Museum's gallery devoted to twentieth-century medicine, offered both an opportunity to apply some of the critical notions developed in preceding years, and a site for their further development. This section of the paper gives a description of the gallery and highlights examples of how the styles of thought described above affected choices during the production of the gallery. As I proceed, I shall discuss the ways in which it can be seen as an expression of recent historiographical debates, and the light it sheds on the opportunities and difficulties thrown up by our approach. Briefly, of the categories discussed above, medical collecting inspired by the social-historical principles of modern history of science had been developing for a decade before the gallery received approval for production to begin, in late 1991. On the other hand, in terms of display, the Museum had been through a period of directing its resources away from temporary exhibitions, but a great deal of theoretical and historical work on exhibitions had been undertaken, both in internal discussions about new medical galleries planned but not executed, and in the published work of senior project curator, Ghislaine Lawrence.²⁶ *Health Matters* was the culmination of this work; it was envisaged as a departure from typological exhibitions (such as the Museum's *Optics* display), as eschewing narratives of technical development (present in the former *Land Transport* galleries) and as having an approach different from the didacticism championed by the exhibit development team of the Natural History Museum (and expressed in the Science Museum's *Food for Thought* gallery). It was designed to engage with and represent the social realities of clinical medicine, public health and medical science, and to follow the spirit of recent debates by favouring narratives other than those of technical development. It therefore gave priority to the representation of themes often absent from medical displays: the nature of scientific work, the patient's experience of medicine, and medicine as reported and understood through the lens of popular media, for example. By means of appropriately

vivid and involving media of communication it was intended to convey to the visitor a rich and compelling story of the recent history of medicine as it has been experienced in the past half century.

Opened in June 1994, the gallery was the product of a two-and-a-half year, full-time project, which itself followed more than five years of part-time proposal writing and sponsorship chasing. It was always a curatorial project, but in its implementation a multidisciplinary team of about 20 – curators, researchers, designers, audio-visual producers, project managers and building contractors – was employed.²⁷ Corporately, the Museum had decided to produce a gallery on modern medicine for two reasons: historical coverage and display style. First, we wanted to complement the two Wellcome galleries of the history of medicine, *The Science and Art of Medicine* (1981) which uses about 3,000 museum objects and text panels to convey a substantial history and anthropology of medicine in objects “from Plato to NATO,” and *Glimpses of Medical History* (1980) which uses the display technologies of the diorama and the room set to introduce the subject. Within their long historical coverage, neither of these galleries is able to discuss modern medicine in great depth. In addition, the former gallery is very much in the “history of ideas” tradition; its conventional object density, text length and subdued lighting convey a sense of sobriety, almost of awe, in the presence of the long history of medicine.

Historiographical focus and exhibition style are not independent variables, however. Because museum visitors carry with them knowledge and expectations of the appearance of science exhibitions, it is appropriate for exhibitions presenting facets of subjects not normally represented in this medium to do so by means of different display techniques. *Health Matters* engages with established notions of medical and scientific museum display on a broad front. It was an unspoken ethos of the project that no display convention would be used without question. This is illustrated in this paragraph from the design brief:

It might be helpful to make some general points here about what we do *not* want: The style should avoid being didactic, neutral, or of a type often associated with health education or human biology.²⁸ The gallery will not be heavily reliant on objects in cases and we would hope to avoid spaces highly divided by vertical screens/panels. We hope that text will not automatically be placed in blocks on panels; it might be elsewhere – on objects, even? Technical information of the “how it works type” will not normally be incorporated in the display, but will be made available on leaflets in the gallery. Static and moving images should be large and atmospheric with minimal use of small monitors. If it were an art display, it might be closer to an “installation” than to a “hanging.”

In conclusion, we suggested some of the words which we would be happy to see associated with this gallery, and the socio-historical account of modern medicine it would display:

documentary; ambience; impressions; ethnography; personal experience; humour; spectacle; surprise; juxtapositions; questions.²⁹

This demonstrates at the least a determination to see the problem of display and that of style of historical account as intimately entwined. Nevertheless, to make such a statement is to underplay the heuristic of producing the gallery, the adventure which clarified many of these issues.

Section One of *Health Matters – The rise of medicine* – concentrates on the machines and medicines which now characterise the clinical encounter between the individual patient and the medical doctor, the individual representative of modern medicine. One of the crossovers between historiography and display technique was in the choice of stories, some of which focused on aspects of recent medicine which were expected to be surprising to the visitor: you may see here, for example, the connection between the Mexican yam and contraceptives, or sausages and kidney machines. This is not mere flippancy, but a means of representing the highly contingent and socially embedded nature of the development of modern medicine. One post-war cardiac surgery technique, for example, borrowed process-engineering techniques from ice-cream manufacture.³⁰ Juxtaposition became one of our main techniques here – of familiar with unfamiliar, or of things which would not immediately seem to belong in the same category. By these means, for those who wished to engage with a further level of detail, multiple historical narratives could be “spun off” the core exhibits of the gallery. An example is the display of an iron lung with the wheel from a 1935 Morris Eight car as a means of providing a “hook” for a story about what types of organisations produced medical machines in the inter-war period, and more distantly, about the absence at that time of any highly developed medical technology industry (with the exception of manufacturers of X-ray and electro-medical equipment).

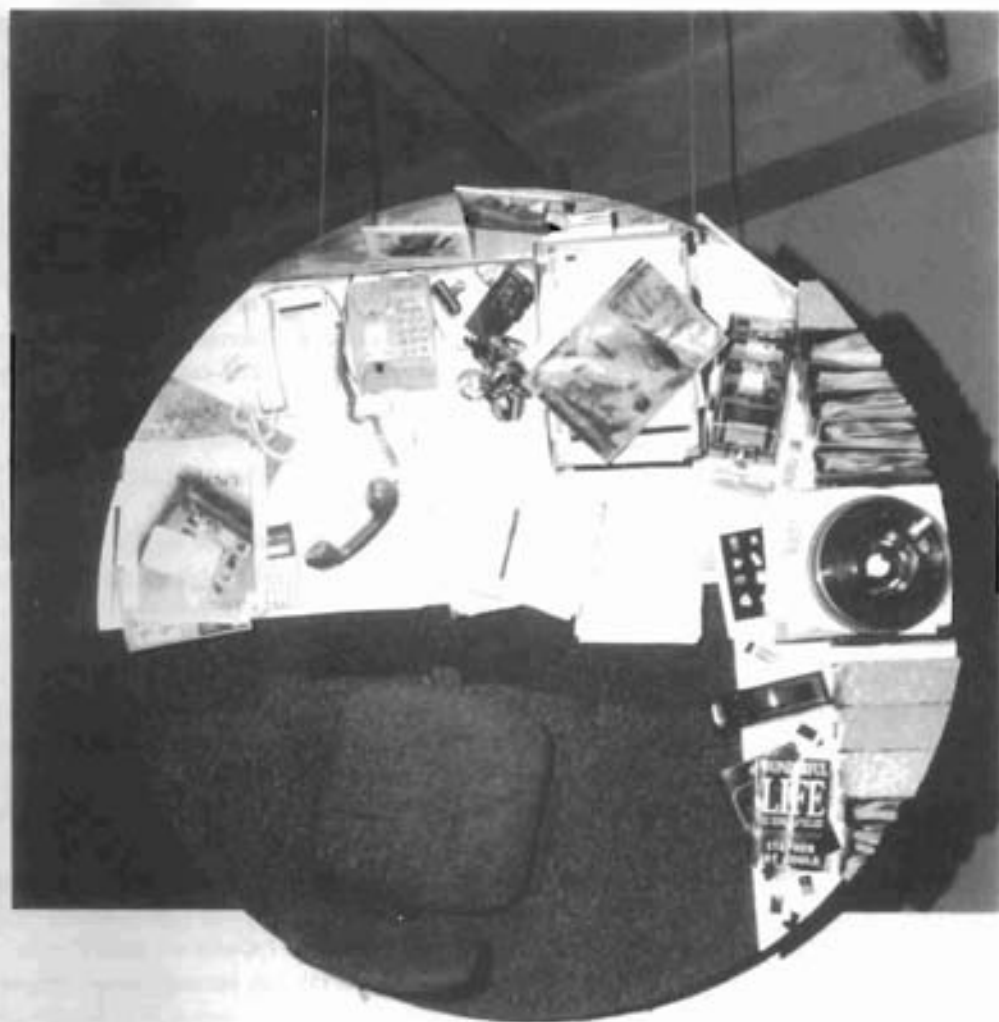
Another crossover of this type arose in the way in which the archive films in this section were selected. Historical awareness of the mode of address of different genres of film, and a critical response to the ways in which film is often used naively in museum displays, led to a close engagement with the potential of the material viewed during research.³¹ Just as the objects shown were to be authentic, so the visitors were to see authentic contemporary film footage, not the highly reconfigured “wallpaper” of much current television documentary. This was felt to be important because the re-editing of archive material is liable to obliterate its “mode of address,” which conveys much of the meaning understood by audiences.³² But here, two remote aspects of the gallery’s approach collided. The strategy of the gallery was, by enlarging the communicative media to include the non-verbal aspects of architecture and design, to reduce reliance on the printed, displayed word; accordingly, display panels were limited to 60 words, rather than the more usual 100 words or more. Similarly, and for practical reasons, sequences of film were limited to 90 seconds per object.³³ Of all the hundred or more films of a dozen types viewed for the gallery, one genre in particular lent itself to display in gallery circumstances, namely Newsreel. This genre, marked by its characteristics of constant

commentary, light orchestral music and upbeat accounts of virtually all subjects, had originally been designed primarily to be shown to people who did not wish to see it – the audiences for feature films, to whom it was shown as part of larger programmes.³⁴ For *Health Matters*, it fulfilled a requirement to illustrate reportage, and to display the conventions under which medical technology has been represented, with all the rich verbal and non-verbal cargo the medium conveys. Both the fact that it was originally designed to appeal to the general public, and the consequential rapid editing, made it more satisfactory when cut still further, for gallery purposes, than slower-paced, less facetious genres – documentary, for example. Even in this already highly compressed material, we were obliged to make significant cuts: the 1964 Pathé story, “Artificial kidney saves wife’s life,” was cut to one-third of its original length. For our purposes here, the significance of this process is the manner in which it affected the range of historical accounts presented in the gallery. Where documentaries might have told socially attuned stories of social conditions, features might have told heroic stories of individuals’ triumph over suffering, and technical films aimed at doctors might have shown doctors how to undertake particular procedures.³⁵ Newsreel coverage of medical technology tended to be focused on clever scientists, technical marvels, plucky patients and, occasionally, eccentric inventors. Where such material is favoured for practical reasons, as has happened in some cases in *Health Matters*, it may often not be read by visitors as an ironic, historically contingent style, but as a reinforcement of received views of scientific and technical change.³⁶

Section Two – *The rise of health* – is concerned with the ways in which the study of the health of populations – rather than individuals – has transformed our ideas of health in half a century. Here, the impact of historiographical concerns may be seen more in the types of subjects chosen for treatment and the emphasis given to them than in any popularisation of existing work. Compared with the amount published on the histories of clinical and laboratory medicine, twentieth-century, and especially post-war, public health lacks a substantial mature historical literature, although this is beginning to be rectified. This may explain why the selection of historical exhibits owes more than we realised at the time to David Armstrong’s Foucauldian account of social medicine.³⁷ But the concerns of these displays – with the history of public health as the history of surveillance, with the historically contingent nature of the idea of positive health, with the relationships between scientific and lay groups, and with epidemiology as a type of work – are all typical of mainstream modern history of medicine and science. As in the remainder of the gallery, *The rise of health* uses examples to convey dominant themes of twentieth-century medicine. There are three historical displays – on Arnold Gesell’s

work establishing norms of child development, on the Peckham Health Centre as site of surveillance of health, and on the establishment of a link between smoking and lung cancer – and a separate cone-shaped area containing artist-designed interactive exhibits on the nature and content of contemporary epidemiology. More than in other gallery sections, the degree of abstraction of the subject matter forced us to develop new means of representing important historical themes where, had we relied on the collection as it stood, we should have been unable to mount a display at all. For example, the display on the epidemiology of smoking uses the juxtaposition of a seductive 1950s cigarette advertisement and the brute technology of epidemiological work: the punched-card sorter and the calculating machine.³⁸ This is a concrete example of how the creative representational work of exhibition production may help to redirect collecting policies: the technology of epidemiology continues to be a collecting concern.

Section Three – *Science in medicine* – portrays the way in which we now turn to science for the answers to medical problems, in a way that took the best part of a century to establish: our understanding of disease processes is now founded in molecular genetics, in DNA.³⁹ *Health Matters* invites the visitor to reflect on this fact, but it also draws on the work of Latour and Woolgar to encourage reflection on the nature of medical laboratory work.⁴⁰ An introductory space juxtaposes Crick and Watson's 1953 molecular model of DNA with molecular motifs in 1950s society – such as designs from the Festival of Britain – and modern uses of DNA iconography. One conceptual thread then introduces the idea of the use of cells and micro-organisms as tools of medical laboratory work, both in exhibits, and in a wall-filling mural by Borin van Loon, whose work may be familiar to readers from the *Beginner's Guide* series of books. Another thread picks up the promise to take an ethnographic view of our subjects by representing laboratory work, in a group of exhibits which includes: four artists' exact replications of scientists' desks, produced by Matthew Dalziel and Louise Scullion (see Figure 1); large reproductions of laboratory daybooks; machines used to visualise molecules; and a spoof radio interview by Tony Hawks deconstructing the language of scientific publication. Linking this section to the end is "the street," part hyperreal representation of a street, part referential reportage photomontage, designed to be a reminder of the "real world" in which people have diseases, and in which medical research is undertaken. The gallery is completed by a sound–slide–object programme which looks at AIDS, cancer and heart disease, using a variety of lay and medical viewpoints. Where older style exhibits might have concentrated on technical details of aetiology or mode of infection, this approach is "in the round" of social reality, implying that what each of these diseases may be is dependent on the viewpoint adopted. This display acts as a composite summary of the viewpoints of the gallery's three sections.



Chester Beatty Laboratories,
Institute of Cancer Research,
London, 4.30 pm
15th November 1993

Figure 1. Laboratory sculpture by Dalziel and Scullion from Section Three of the Health Matters gallery. Science in medicine.

Stories from the Germ Labs

Health Matters was built with a final room which has become the location for a series of temporary exhibitions on subjects related to the themes of the main display, starting with an exhibition of specially commissioned photographs by Clive Boursnell. There have followed *Bedpan Art* which, picking up the use of artists' work in the larger display, showed artworks produced by students using manufacturers' reject disposable bedpans; *50 Years of Penicillin*, which was the expression in exhibition form of some of Robert Bud's recent work on the historical iconography of penicillin;⁴¹ and *Thicker than Water*, which, drawing on Kim Pelis' historical research project, looked at the ambiguous nature of blood in an exhibition to mark the 50th anniversary of the National Blood Transfusion Service. The largest of these "updates," situated in a new temporary exhibition area in the Lower Wellcome Gallery, is *Stories from the Germ Labs*, which marks 50 years of the Public Health Laboratory Service (PHLS).⁴² Here was a subject which was congruent with our long-term aim to improve the representation of modern public health activity in exhibitions and collections, which was also potentially of great public interest: a state-financed organisation, scarcely known by name to the majority of the population, which touches the life of every individual, not only through responses to epidemics, but also through direct intervention in the lives of millions, for example in the childhood immunisation programmes which the PHLS administers. The exhibition takes a cool and gently humorous look at our cohabitation with infectious organisms over the past half century, a period which stretches from the pre-antibiotic era to what some may consider the post-antibiotic age.

Of all historical genres, specific institutional history is perhaps the least suited to a public exhibition. So, when we were approached by the PHLS, it was clear that, if it were to be a successful public display, important decisions had to be made about its style and about the organisation of material within it. Here, an explicitly historiographical choice was being made. The first decision was to structure the exhibition material using a journalistic metaphor of stories, as the polar opposite of a chronological account of institutional development. Each "story" was required to have a degree of cultural resonance or humour to catch the attention of the visitor. The aim was to present multiple narratives, each different in kind, and each touching on an aspect of the history of the PHLS, from its Second World War foundation as the *Emergency* PHLS to some recent threatened or real epidemics. Contained in this multiplicity of narratives is a metaphor for the diversity of possible historical accounts of the subject.⁴³

In addition to the name given to the exhibition, several techniques were used to convey the idea of narratives. Display panels in *Stories from the Germ Labs* adopt the iconography of a tabloid newspaper, using a red masthead version of the title, and typically flippant headlines. Taking the opposite approach to text length from that in *Health Matters*, and

intending to capitalise on the metaphor of the journalistic story, these newspaper “stories” sometimes exceed 300 words. Here the implication is not that the visitor might be expected to read everything in the exhibition, but rather that they are expected to skip through and just read what takes their fancy. The atmosphere of narrative is heightened by the four film clips, three of which use music which implies narrative: *Sugar Lump Vaccine*, on the 1961 Hull polio vaccination campaign, has the light orchestral score of a newsreel; *Surprise Attack*, advocating smallpox vaccination, has a Rachmaninov-style tone; and *Another Case of Poisoning*, on food poisoning, has a spiky atonal score. This density of the panels is also found in the displays themselves which, as in *Health Matters*, use small objects to signify larger stories – toy trains and planes signifying social change, transport of people and of diseases, for example.

In addition to the eight “stories” given their own displays, there are several themes which recur throughout the exhibition. One is hygiene, the making of boundaries between the clean and the unclean, and of hand washing; the culture, as Mary Douglas would say, of “matter out of place.”⁴⁴ Accordingly, surrealism, the art form most closely associated with juxtaposition for effect, and therefore of “matter out of place” seemed the ideal display style. As a result, it is not bacteria or viruses that are shown in the “Porton” microbiological manipulation cabinet, but examples of popular books, novels and videotapes about “killer bugs” (see Figure 2). In the display on MRSA (Methicillin Resistant Staphylococcus Aureus, currently a substantial cause of hospital infections), a pair of disembodied hands reaches out of a model hospital to wash itself in a passing basin. Here, we feel, is a sense of “appropriate” display style which is different in conception from the “neutrality” of many science displays.⁴⁵ It also raises the question of the wider range of responses which a science exhibition might hope to provoke, beyond studiousness or cheerful assimilation of facts. The signifier group used to introduce the topic of PHLS checks for polio contamination in sea water includes, amongst sand and saucy postcards, something which might be a piece of human excrement, wearing sunglasses, in a seaside bucket. Here is a dense connotative display which alludes to well-established traditions of specifically British humour, relocating science where it belongs in a dense web of lived social experience, rather than abstracting a pure scientific conclusion, an organism count. Before a word is read, it signifies the import of one small part of the work of the PHLS, namely their studies of the microbiological safety of bathing waters. It may also, for some visitors, provoke a guffaw. Humour, beyond a very limited range, has not been much used in science displays,⁴⁶ and one must conclude that it has been deemed inappropriate for a “serious” subject; or it may be that its anarchic tendencies not to appeal to all museum visitors equally makes it unsuitable as if, because they fit the same socio-economic categories, visitors might be considered to have identical experience of life. Have we, in an attempt not to offend those who may not “get” every joke,

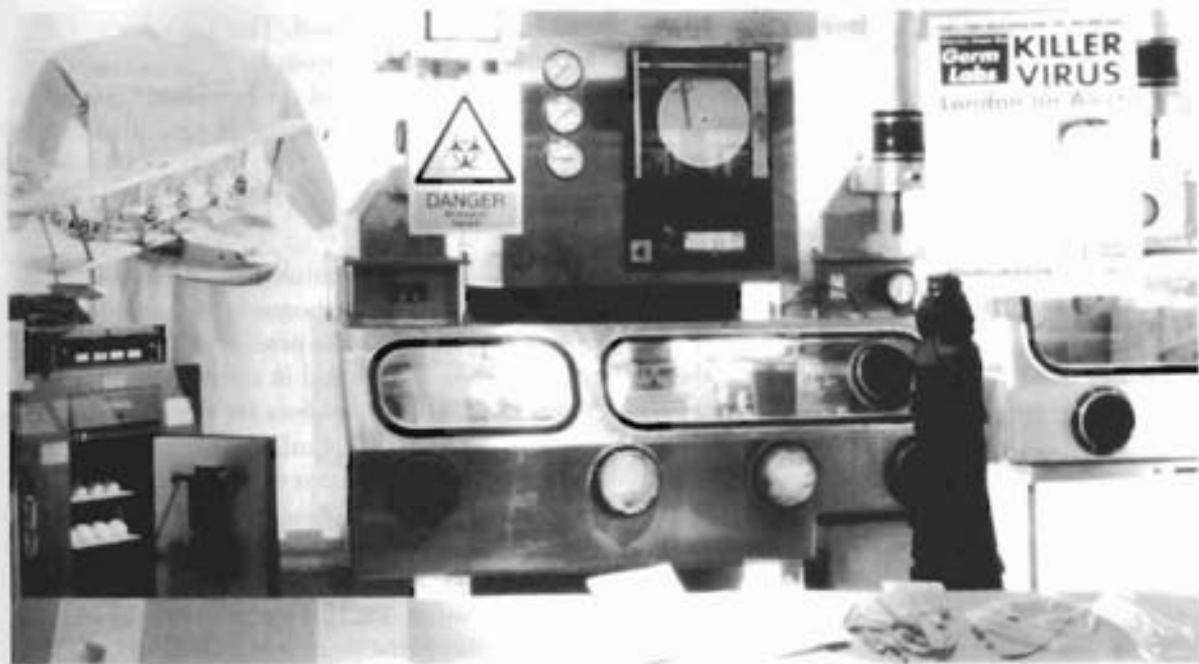


Figure 2. "Killer Virus: London on Alert." One of the Stories from the Germ Labs.

deprived ourselves of a powerful tool in museum display? It must be the case that the ways in which the lay public expect to "read" science displays are deeply ingrained because of the conventions of science-popularising discourse in other media. This is not a reason to refrain from breaking out from those conventions; indeed, such breaking out may be necessary if the real scientific literacy of the population is to improve.

The exhibition's other main underlying theme is the world view of infectious-disease epidemiologists. Like historians who have taken the Darwinian turn, these scientists are concerned with social change large and small, not for its own sake, but because of the opportunities it provides for differential bacterial growth and viral spread. This is evident, for example, in a story under the heading "An Outbreak of Semolina Poisoning." This retells the story of the PHLS's investigation of an episode of food poisoning spread by bacterial growth in chocolate semolina pudding which had been centrally produced and distributed to Devon schools in 1947.⁴⁷ The display incorporates a speech by G. S. Wilson, Director of the PHLS, on how the growth of mass catering was providing new opportunities for the spread of bacterial diseases.⁴⁸ As in the third section of *Health Matters*, it was felt that one important task of an exhibition of contemporary history is to convey some general characteristics, almost in an anthropological sense, of working scientists, doing what a Kuhnian would describe as "normal science." The associations of the bacteriological investigation of school dinners, mingling slight disgust with gentle humour, make an ideal "hook" for this theme, which is picked up in the portfolio of photographs

commissioned from photojournalist David Modell. This follows a potentially infected food sample in its journey from factory to PHLS headquarters. These photographs are now part of the permanent collection, and represent a collecting initiative in representing the process of science within public health.

Conclusion

Historiography, collecting and exhibition are mutually dependant activities. If a sociologist's or a historian's concern with "laboratory life" means that we can think about how we seek to represent the practice of science, then we must take the opportunity both in display and in collecting. So, for example, the opportunity was taken with *Stories from the Germ Labs* to collect and show a "Porton" cabinet for sterile manipulation of dangerous micro-organisms. If public exhibition requires that we investigate medical technology (say) from a new standpoint – the "biography" of a kidney machine and its owner, or the commercial policies of first-generation medical technology manufacturers – then we should introduce some of these concerns into the historical mainstream.⁴⁹ If the practicalities of historical display require us to display items we do not hold in our collections, then we must, reflexively, modify our collecting policies so that there is a smaller chance of future displays being dominated by obsolescent collecting practices. Alternatively, the historical contingencies of past collecting may themselves have something to say about the relative social location of museums and medicine which would be worth discussing both in displays and in scholarly work; the breadth of the original Wellcome collections might be a good example here. Collections, historiography and exhibition together make up curatorship as vocabulary, grammar and speech are constitutive of language. Each element may alter another and each must be permitted to change under another's influence.

Notes

1. X. Mazda, "The Changing Role of History in the Policy and Collections of the Science Museum, 1857–1973," Unpublished ms., *Science Museum Papers in the History of Technology* no. 3 (London, 1996). For a deconstruction of notions of contemporaneity, see S. Schaffer, "Temporary Contemporary: Some Puzzles of Science in Action," in *Here and Now: Contemporary Science and Technology in Museums and Science Centres*, ed. G. Farnelo and J. Carding (London, 1997), pp. 31–39.
2. This is not intended to deny that some of the Museum's founding collections were acquired because they were considered to be of historical importance. Bennet Woodcroft's Patent Office Collection contained items such as Stephenson's *Rocket*, already a feature of Smilesian narratives of technological change. See the introduction to N. Cossons, A. Nahum, and P. Turvey, eds, *Making of the Modern World: Milestones of Science and Technology* (London, 1992).
3. A nuanced account of the origins of Science Museum representations of physics is given in: A. Morton, "The Electron Made Public: Pure Science at the British Empire Exhibition, 1924–25", *Artefacts* 2 (forthcoming).
4. See G. Werskey, ed., *Science at the Cross Roads: Papers Presented to the International Congress of the History of Science and Technology, held in London from June 29th to July 3rd, 1931, by Delegates of the U.S.S.R.*, 2nd ed. (London, 1971); G. Werskey, *The Visible College*, 2nd ed. (London, 1988).

5. These conclusions are drawn on the evidence of the catalogues: Anti-Noise League, *Noise Abatement Exhibition* (London, 1935); National Smoke Abatement Society, *Smoke Abatement Exhibition Handbook and Guide* (Manchester, 1936) and Science Museum nominal files 5134 (Noise abatement) and 5397A (Smoke abatement). For the context of the 1930s smoke debate see T. M. Boon, "The Smoke Menace: Cinema, Sponsorship, and the Social Relations of Science in 1937," in *Science and Nature (British Society for the History of Science Monograph 8)*, ed. M. Shottland (Oxford, 1993), pp. 57–88.
6. For a more detailed view, see the first section of R. Olby, G. Cantor, J. Christie, and M. Hodge, eds., *Companion to the History of Modern Science* (London, 1990). J. Christie, "The Development of the Historiography of Science," pp. 5–22, gives a sophisticated account of the longer historiography of science.
7. See C. Jones and R. Porter, eds., *Reassessing Foucault: Power, Medicine and the Body* (London, 1994).
8. In general see T. Pinch, "The Sociology of the Scientific Community," in R. Olby et al., eds. (n. 6 above), pp. 87–99. For a specific example, see B. Latour, *Science in Action* (Milton Keynes, 1987).
9. A case study of the implications of differences between television and museum as media is to be found in G. Lawrence, "Object Lessons in the Museum Medium", *New Research in Museum Studies: Objects of Knowledge* 1 (1990): 103–24.
10. D. Cannadine, "The Present and the Past in the English Industrial Revolution," *Past and Present* 103 (1984): 131–72.
11. This twist was suggested to me by Prof. Ulrich Wengenroth.
12. Each maquette was, confusingly, illuminated by an electrical light bulb.
13. Either those made for this exhibition, or for previous displays based on similar assumptions. This display may still be seen on the second floor of the Museum.
14. Morton gives examples of the Special Loan Exhibition of 1876 and the British Empire Exhibition of 1924. A. Morton, "Curatorial Challenges: Contexts, Controversies and Things," in G. Farmelo and J. Carding, eds. (n. 3 above), pp. 147–54, but similar arguments also apply instructively to, say, the 1951 Festival of Britain, for which, see S. Forgan, "Festivals of Science and the Two Cultures: Science, Design and Display in the Festival of Britain 1951," *British Journal for the History of Science*, 31 (1998): 217–40.
15. On evaluation, see G. Lawrence, "Rats, Street Gangs and Culture: Evaluation in Museums," in *Museum Languages: Objects and Texts*, ed. G. Kavanagh (Leicester, 1991), pp. 11–32.
16. G. Lawrence, "Museums and the Spectacular," in *Museums and Late Twentieth Century Culture: Transcripts taken from a Series of Lectures given at the University of Manchester, October–December 1994* (Manchester, 1994), pp. 69–82, 75.
17. Self censorship by the Food Gallery project team was one of the themes noted by Sharon Macdonald; S. MacDonal and R. Silverstone, "Science on Display: The Representation of Scientific Controversy in Museums," *Public Understanding of Science* 1 (1992): 69–87.
18. This is so even when a cinematic model seems to be at work, for example in the *Wooden Walls* exhibition at Chatham Historic Dockyard, which employs a series of electrical, electronic and mechanical techniques to tell the story of one apprentice's experience in the ship-building yard during the construction of one particular warship. Also, there are influential traditions of experimental film-making which seek to disrupt the traditional techniques of cinematic narrative; see, for example, the work of Chris Marker, and of the French *Nouvelle Vague*.
19. Although there has recently been a great increase in analytical museological publication (see for example the *New Research in Museum Studies* series), this has yet to make much of a dent in newspaper and magazine responses to museum displays, where science exhibitions in particular suffer from falling between the responsibilities of art, design, science and health journalists.
20. There may, of course, be other uses which would justify such acquisitions; my argument is about what else we should collect.
21. There is a continuing ontological debate about what categories of object should be considered appropriate to become inventoried museum objects. Here, at some stages in our history, we have operated a type of "apartheid": "significant" objects may gain the status of being on the Museum's official inventory, with the legal status that goes with it. This is the theory of inventory status as membership of "the Elect". How much more fruitful might it be

- to give the same status to all objects which can support narratives of change within science. This is a model in which we collect more in anticipation of building new understandings in future, or in anticipation of later weeding and disposal.
22. G. Skinner, "Sir Henry Wellcome's Museum for the Science of History," *Medical History* 30 (1986): 383–418.
 23. L. Ward, "The Cult of Relics: Pasteur Material at the Science Museum," *Medical History* 38 (1994): 52–72.
 24. *French Material*, typescript catalogue in archives of Wellcome Institute, copy held at Science Museum.
 25. R. Bud, "Science, Meaning and Myth in the Museum", *Public Understanding of Science* 4 (1995): 1–16.
 26. See notes 9, 15, 16 and 22.
 27. Led by Ghislaine Lawrence, with the assistance of the current author, designed by Jasper Jacob, with audio-visual production by Triangle Two. The principal sponsor was SmithKline Beecham, and patrons were Action Research, British Diabetic Association, British Heart Foundation, Medical Research Council, The Multiple Sclerosis Society and the Wellcome Trust.
 28. It was argued that to adopt the design style of health education would be to assume the identity of a subject which, within the historical approach of the gallery, should be a subject for analysis.
 29. One member of the design team later confessed that this was one of the most difficult briefs they had ever received.
 30. Ghislaine Lawrence, "Design Solutions for Medical Technology: Charles Drew's Profound Hypothermia Apparatus for Cardiac Surgery," this volume, pp. 63–77.
 31. This is too complex a subject to cover in this paper but, to take one example, commercial films or videotapes designed to sell commodities are often used in museum displays without reflection on the impression conveyed to the visitor.
 32. This arose from the current author's historical work on health films; see for example: T. Boon, "Citizenship, Public Health and Mode of Address: The Public Health Campaigns of the Ministry of Health, 1939–45," unpublished paper given to "The Right to Health in Modern Society" conference, Oxford, July 11–12, 1997. See also reference quoted in note 5 above.
 33. Of the eight projectors running as four pairs in Section One, two at a time show 90 seconds of full motion video followed by four-and-a-half minutes of repeated sequences of silent stills. Thus any visitor has to wait six minutes for any one sequence to "come round" again. (This was the compromise reached to reduce problems of "crosstalk" between displays).
 34. See, for an example of historical literature on this genre, T. Aldgate, "The Newsreels, Public Order and the Projection of Britain," in *Impacts and Influences: Essays on Media Power in the Twentieth Century*, ed. J. Curran, A. Smith, and P. Wingate (London, 1987), pp. 145–56.
 35. As the Allen & Hanburys financed *Profound Hypothermia* film did for hypothermic heart surgery.
 36. Visitors' comment books from *Health Matters* revealed that visitors' positivist assumptions about science and technology led them to read the gallery as a confirmation of pre-existing views. This should be of no surprise to historians, but it does beg questions of just how challenging displays would have to become before they impinged directly on visitors' expectations.
 37. D. Armstrong, *Political Anatomy of the Body* (Cambridge, 1983).
 38. Here, the execution falls short of the conception, both in the size of the poster reproduction, and in the omission of a neon sign, intended to bring in a whole raft of extra connotations, for which see Lawrence (n. 16 above), p. 76.
 39. For a good introduction for this transformation, see A. Cunningham and P. Williams, eds., *The Laboratory Revolution in Medicine* (Cambridge, 1992).
 40. Latour, B., *Science in Action: How to Follow Scientists and Engineers through Society* (Milton Keynes, 1987); B. Latour and S. Woolgar, *Laboratory Life: The Social Construction of Scientific Facts*, (London, 1979).
 41. R. Bud, "Penicillin and the New Elizabethans", *British Journal for the History of Science* (forthcoming, 1998).

42. The exhibition was produced in collaboration with the PHLS, via their head of Press and PR (but with editorial control in the Museum's hands) and sponsored by NatWest Corporate Banking Services. It was curated by the current author, designed by Peter Davison of the Museum's Design Office, with research by Sarah Angliss.
43. Narratives were selected from the organisation's official history [R. Williams, *Microbiology for the Public Health: The Evolution of the Public Health Laboratory Service, 1939–1980* (London, 1985)] and from suggestions made by PHLS staff.
44. M. Douglas, *Purity and Danger* (London, 1966).
45. Both Lawrence (n. 16 above), p. 78, and Schaffer (n. 1 above), p. 38, also comment on juxtaposition and surrealism.
46. Lawrence (n. 16 above), p. 78.
47. The scientific report is: B. Moore, "A Food-poisoning Outbreak Apparently Caused by α -Haemolytic Streptococci," *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service* (June 1948): 136–44.
48. G. Wilson, "Chairman's Summing-Up, Symposium on Food Microbiology and Public Health," *Journal of Applied Bacteriology* 18 (1955): 629.
49. As the Museum began to do with the proceedings of the *Health Matters* conference held a year before opening: G. Lawrence, ed., *Technologies of Modern Medicine* (London, 1994).