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"Whatever happened to the Genomatron?" Documenting a 21st century science

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ABSTRACT

With notable exceptions, specialist museums have generally failed to collect an adequate record of the material culture of post-war science and technology. Some reasons for this failure are identified, and some suggestions for remedying this situation are made with the help of a specific example: genomic science and medicine. Genomics is a quintessentially 21st-century science: data-rich, digital, and technique- and technology-driven. As such, it presents particular challenges and opportunities to museums wishing to improve their performance in collecting recent and contemporary science and technology. The paper explores different dimensions of this challenge through the attempt to establish a Museum Genomics Initiative, an international group of museum professionals who are committed to collaborating around the documentation of genomic science and medicine.

1. The problem

Collecting museums frequently experience the task of acquiring recent and contemporary material as a problem. Galleries may already be crowded with historic artifacts, collections storage facilities may be full to overflowing, and staff may have their hands full with other tasks. But beyond such purely practical considerations, there also loom larger, less tangible issues. Older artifacts are the stock in trade of collectors, connoisseurs, and curators (not to speak of professional historians), but newer ones are at risk of being seen as the special prerogative of no one in particular. Where not actively dismissed as commonplace or merely ephemeral, contemporary artifacts are often presumed to present intractable curatorial difficulties—of identification, of prioritization, of interpretation, of preservation and conservation, and ultimately, therefore, of acquisition.

In professional discussion about this problem, there is widespread recognition of several particular challenges that face museums wishing to collect recent and contemporary scientific and technological materials. Among these are: the challenge of *scale*—the sheer quantity of candidate material is enormous, reflecting the exponential growth of science and technology through most of the 20th century; the challenge of *size*—relevant artifacts range from the unmanageably small (e.g., nanotechnologies) to the unmanageably large (e.g., civil nuclear power plants); and finally, the challenge of *selection*—in many areas of recent research, it is far from obvious what is or ought to be of principal curatorial interest, the curator facing the same dilemma as the contemporary historian, namely lack of historical distance from which to make sound judgments.

These challenges are non-trivial, but efforts to collect recent and contemporary material also confront subtler and deeper issues. For example, attempts to get serious about the contemporary world can present a challenge to the museum's very idea of itself. In his introduction to a collection of essays entitled *Collecting the New: Museums and Contemporary Art*, Director of the Program in Museum Studies at New York University Bruce Altshuler cites Gertrude Stein's remark to the effect that something could either be modern or it could be a museum, but it could not be both. As Altshuler observes, "since the eighteenth century the traditional view of the art museum has been that it is an institution intended to preserve and display works that have withstood the test of time".[1]

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[1] Altshuler (2007, p. 2).

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Nevertheless, as the rest of Altshuler's essay collection makes abundantly clear, art museums today have largely succeeded in breaking free from this traditional view. Over the past generation there has been an explosion of interest in contemporary art in museums. Today, *Wikipedia* lists no less than 36 museums of contemporary art in the United States alone, of which well over half actually incorporate the phrase "contemporary art" in their names.[2]

Nothing remotely comparable to this transformation in curatorial practice in the world of art museums has taken place in museums specializing in science and technology. Most of the early-entrant museums of science and technology in the late-18th and 19th centuries began with missions that firmly embraced the latest and (it was generally assumed) greatest developments in their chosen fields; but with the passage of time, many found themselves more and more preoccupied with their legacies of (increasingly venerable) artifacts; and, by the same token, they became less and less actively engaged with current developments.[3] To this trend must be added the fact that relatively few new museums of science and technology were created in the 20th century, at least in Europe and North America. Instead, following the opening in 1969 of *The Exploratorium* in San Francisco and *The Ontario Science Center* in Toronto, there was a headlong rush to create new "science centers," places that spurned the collection of original artifacts—whether historical or contemporary—in favor of experience-rich, but object-free, interactive or "hands-on" exhibits.[4] Indeed, in the course of the 20th century some older museums of science and technology consciously abandoned their collecting responsibilities, in order to devote themselves more wholeheartedly to interactive display.[5]

The gradual transformation of older museums of science and technology into history museums, coupled with the rapid rise of the global interactive science center movement, has left little room for serious collecting activity in the area of recent and contemporary science and technology. To be sure, there are significant exceptions to this rule. For example, military research in general, and aerospace science and engineering in particular, have tended to fare relatively well, thanks both to the charismatic status of many of the relevant artifacts (what child doesn't want to see—and, preferably, climb into—battleships, submarines, aircraft, and rockets?) and to the zeal with which key agencies—for example, the European Space Agency (ESA) in Europe, and the National Aeronautic and Space Agency (NASA) in the United States—have gone about securing the heritage of their own work in the public domain.[6] Also, information science and technology has been the subject of several serious collecting initiatives, partly because of the computer industry's considerable interest in its own history and partly, too, because of the work of some extremely dedicated enthusiasts.[7]

More generally, however, the picture is far less rosy. Considered in its entirety, and over the whole of the post-war period, scientific research and technological innovation have failed to attract the kind of museological attention that would be required to ensure an adequate record of their material cultures. This is true, for example, of whole disciplines and sub-disciplines that have helped to shape modern industrial society—of much of post-war physics and chemistry, for example, as well as of great areas of mechanical, electrical and chemical engineering; and it is true also of vast swaths of the modern biological and bio-medical sciences. Again, I must emphasize that there are important exceptions to this general rule. Venerable national institutions such as the Science Museum in London, England, the Deutsches Museum in Munich, Germany, and the National Museum of American History in Washington DC, USA have all made important acquisitions of recent and contemporary material over the past fifty years; and—even more remarkably—one or two new collecting institutions have actually been created.[8]

However, important individual efforts such as these should not be allowed to disguise the larger problem of the collective failure of science and technology museums worldwide to keep pace in their roles as collecting institutions with recent and contemporary developments in their fields of interest. I know of no serious attempt to quantify the extent of this collective failure globally, but the fact remains that awareness of it weighs on the professional community of museum specialists like some sort of collective guilty conscience.

2. Assessing the problem

It is perfectly possible to rationalize the significant differences that have arisen between art museums and science museums in their attitudes towards contemporary collecting. To begin with, there is the fundamental question of the purpose for which artifacts are created. In the visual arts, objects—paintings, sculptures, multi-media installations, and the like—are created in order to be experienced; in an important sense, they are what the endeavor of art is fundamentally about. In the sciences, however, this is not the case. A radio telescope, a particle accelerator, and a functional magnetic resonance imaging (fMRI) device are all in their different ways visually impressive machines; but in no case is it true to say that they are built the way they are principally for visual impact or effect. Rather, they are built the way they are in order to do what researchers need them to do—for example, to collect data in ways that will contribute to the advancement of scientific understanding. While it is perfectly reasonable to argue that the visual arts are fundamentally about works of art, it is little short of ludicrous to contend that radio astronomy is fundamentally about radio telescopes, or that particle physics is fundamentally about particle accelerators.

This elementary point has immense consequences for the work of museums. Crucially, the visual arts community as a whole may be safely assumed to be interested in—more likely, single-mindedly preoccupied with—art works themselves. Because these works are literally the point of the enterprise, they are highly valued. This

[2] http://en.wikipedia.org/wiki/List_of_contemporary_art_museums (Accessed 6 July 2012).

[3] A good example here is the Musée des Arts et Métiers in Paris. Founded in 1794 as a secular celebration of the power of French science, technology and industry in the heady days of the First Republic, the Musée continued to collect vigorously through the 19th century, but largely ceased to keep up with continuing developments after 1900. Following major renewal in the 1990s, however, the Musée today is actively attempting to re-engage with its original mission. See: Musée des Arts et Métiers (2012).

[4] Durant (1992). The science center world has grown sufficiently large that there are now membership-based network organizations serving the professional needs of the science center community in each major region of the world. The two largest are: the Association of Science and Technology Centers (ASTC), which serves science centers worldwide but is based in Washington DC, USA; and the European Network of Science Centers and Museums (ECSITE), which is based in Brussels, Belgium.

[5] Two examples are the Museum of Science, Boston and the Chicago Museum of Science and Industry—fine institutions both, but not ones that have been notable for actively building collections of scientific and technological artifacts over the post-war period.

[6] The most obvious example of space agency patronage of museums is NASA's close relationship with the National Air and Space Museum in Washington DC in the USA.

[7] Notable in the United States is the Computer History Museum in Palo Alto, California, which showcases the rise of "Silicon Valley" industries to great effect. To this may be added the impressive work of several European museums, including the Heinz Nixdorf Museum in Paderborn, Germany, and the recently establish National Museum of Computing, located at Bletchley Park in Milton Keynes, England.

[8] In addition to the Computer History Museum in Palo Alto, California, a notable example is the Museum of the Chemical Heritage Foundation in Philadelphia, Pennsylvania, which was founded in 1982.