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'Why don't historians of science care about science museums?'¹

Throughout the short history of our discipline, historians of science have to varying degrees distanced themselves from the museum. Very rarely has the science museum been used or seen as a site for 'serious' history of science by academic practitioners, and this near-universal neglect of science history in the museum has sometimes turned to outright disdain. This paper will identify the roots of this distance in the 1920s and 1930s, a period of concurrent growth and self-consciousness in academic history of science and in the science museum. It is my hope that these historical perspectives will shed some light on current relations between written historiography of science and science history in the museum and will prove a useful grounding for the broader discussions that are the subject of this meeting.

The interwar period brought science history to great success. In the academy and the museum science history held a position of unprecedented (and as yet unmatched) cultural prominence. In the academy, this took form in new courses, new teaching positions, new libraries, institutes, journals and societies devoted specifically to the history of science. In Britain, Charles Singer was installed in the Bodleian Library's new Section for the History of Science and by 1924 was teaching a graduate degree in the 'Principles, History and Method of Science' at University College, London. On the continent, Aldo Mieli's multilingual journal, the *Archivio di Storia della Scienza* (later *Archeion*) was founded in 1919, consolidating an international public for the first *Comité International de l'Histoire des Sciences* in 1927, its successor the *Académie Internationale* in 1935, and the first International Congresses of the History of Science in 1929, 1931, 1934 and 1937.² And in America, undergraduate and graduate courses in the history of science became commonplace at Harvard, Columbia, Berkeley and other major universities, while the world's first History of Science Society was founded in 1924 in association with George Sarton's newly re-launched (1919) journal, *Isis*.

The story of this institutionalisation and increasing discipline in the inter-war period is a familiar one in the small corpus that constitutes the history of the history of science.³ Yet to

¹ The following is adapted from graduate work done at the University of Oxford towards a D. Phil. thesis, which will examine cultures of science history in inter-war period.

² See Antonio Di Meo, 'Aldo Mieli: La Storia della scienza fra "programma nazionale" e "internazionalismo"', in Antonio Di Meo (ed.), *Cultura ebraica e cultura scientifica in Italia* (Roma, 1994); also Christoph J. Scriba, 'The Beginnings of the International Congresses of the History of Science', in Fritz Kraft and Christoph J. Scriba (eds.), *XVIIIth International Congress of the History of Science, 1989: Final Report* (Stuttgart, 1993), pp. 3-10; Pierre Costabel and M. D. Grmek, *L'Académie internationale d'histoire des sciences: Cinquante ans, 1927-1977* (Paris, 1977).

³ See, for instance, Arnold Thackray and Robert K. Merton, 'On Discipline Building: The Paradoxes of George Sarton', *Isis*, 63 (2973), 473-95; Arnold Thackray, 'Five Phases of Prehistory, Depicted from Diverse Sources', *Isis*, 66 (1975), 445-53; Arnold Thackray, 'The Pre-History of an Academic Discipline: The Study of the History of Science in the United States, 1891-1941', in Everett Mendelsohn (ed.), *Transformation and Tradition in the Sciences: Essays in Honor of I. Bernard Cohen* (Cambridge, 1984), pp. 395-420; Frederick Gregory, 'The Historical Investigation of Science in North America', *Zeitschrift für Allgemeine Wissenschaftstheorie*, 16 (1985), 151-66; Nathan Reingold, 'Uniformity as Hidden Diversity: History of Science in the United States,

my mind, these histories leave much to be desired. That is, accounts of disciplinary growth and consolidation inevitably fixate on developments within the academy, without taking note of cultural contexts and parallel developments in other settings, most importantly in the museum.⁴ To use a timeworn distinction, these histories offer more or less straightforward 'internalist' accounts of science history's development, at the expense of potentially more thorough and more rounded 'externalist' accounts.

Indeed, if academic history of science saw a tremendous growth and consolidation in the inter-war period, then science history in the museum experienced a revolution. During this period very nearly every major science museum in the world was either founded or underwent unprecedented expansion. The long list includes Florence's Museo di Storia della Scienza, founded in 1924; Oxford's Museum of the History of Science, installed in 1924 and officially founded in 1935; the Deutsches Museum, founded in 1903 but securing its grand lodgings only in 1925; the Science Museum, London, which like its German counterpart had been founded some years before, but only acquired sufficient lodgings in 1928; and the Museum of Science and Industry in Chicago, which in 1933 opened as the first major American science museum. To this list might be added other important developments in the history of science museums: the abortive foundation from 1922 of the National Museum of Engineering and Industry in Washington; the opening in 1926 of the now-defunct New York Museums of the Peaceful Arts; and in 1936 the launch of the 'Exhibition of Historic Scientific Apparatus', an event which marks the beginnings of history of science at Cambridge and the first step towards the foundation of that university's Whipple Museum of the History of Science.⁵

This litany and its significance have not been assimilated or explained by existing histories of the history of science.⁶ And yet the widespread neglect of inter-war science history in its

1920-1940', *British Journal for the History of Science*, 19 (1985), 243-62; Thomas S. Kuhn, 'The Histories of Science: Diverse Worlds for Diverse Audiences' *Organon*, 22 (1988), 9-16; Lewis Pyenson, 'Inventory as a Route to Understanding: Sarton, Neugebauer, and Sources', *History of Science*, 33 (1995), 253-82. See also Arnold Thackray, *Sarton, Science and History: The Sarton Centennial Issue, Isis Volume 75* (Chicago, 1984); John Brooke, *A Special Issue of the British Journal for the History of Science, Volume 30, Part 1, No. 104* (Cambridge, 1997); Margaret W. Rossiter, *Catching Up with the Vision: Essays on the Occasion of the 75th Anniversary of the Founding of the History of Science Society, A Supplement to Isis Volume 90* (Chicago, 1999).

⁴ It is for this reason that I use the term 'science history' rather than 'history of science'. Throughout, when referring to historical interest in science in its varied forms, I will use the term 'science history'. I reserve the more specific term, 'history of science' for reference to science history as an academic or university discipline.

⁵ This growing list of foundations, openings and re-openings is easily expanded to include the opening of Technisches Museum in Vienna, just slightly before our period in mid-1918; the centenary celebrations and opening of a new Technology Wing of the Franklin Institute of Philadelphia in 1924; the re-opening of the Wellcome Historical Medical Museum in 1926; and the opening of what would become the Museum Boerhaave in Leiden in 1934, among others.

⁶ In fairness it should be noted that in recent years a few authors have in fact taken up the history of science history in the museum context. However, these authors have for the most part provided institutional histories of individual museums without relating these histories to movements within the culture of science history at large. See X. Mazda, *The Changing Role of History in the Policy and Collections of the Science Museum: 1857-1973* (London, 1996); Pamela M. Henson, "'Objects of Curious Research": The History of Science and Technology at the Smithsonian' in Margaret W. Rossiter (ed.), *Catching Up with the Vision: Essays on the Occasion of the 75th Anniversary of the Founding of the History of Science Society, A Supplement to Isis Volume 90* (Chicago, 1999), pp. S249-S270; J. A. Bennett, 'Museums and the Establishment of the History of Science at Oxford and Cambridge', *British Journal for the History of Science*, 30 (1997), 29-46; Arthur Molella, 'The Research Agenda', in *Clio in Museum Garb: The National Museum of American History, the Science Museum and the History of Technology: Session Given at SHOT '96, London* (London, 1997), pp. 37-46; Arthur P. Molella, 'The Museum that Might Have Been: The Smithsonian's National Museum of Engineering and Industry', *Technology and Culture*, 32 (1991), 237-63.

other forms is not confined to recent historiographies of science. Indeed this recent neglect has its origins in the sources these histories utilise, that is, in the writings of inter-war historians of science themselves. For while this period of disciplinary consolidation produced a coterie of sophisticated propagandists for the history of science (most prominent among them Singer, Mieli and Sarton) these academic propagandists paid very little attention to the vast world of science history outside the academy and apart from the written word. For instance, prominent journals such as *Isis* and *Archeion* hardly recognise the startling expansion of science history in the museum. Scarce notice is given to the grand re-opening of the Deutsches Museum in 1925, and neither journal even mentions the openings of the Museo di Storia della Scienza in Florence in 1924, the Science Museum, London in 1928, or the Chicago Museum of Science and Industry in 1933, each of these the pre-eminent museum of science in its respective country.⁷

As in much else, the propagandic output of George Sarton can serve as a useful example, here of the more general disregard of science history in the museum. In his frequent assessments of his discipline's progress and prospects, Sarton rarely makes mention of developments in science museums or in science history's other contexts. In fact Sarton's neglect of science history's extra-academic locations seems to grow with time, as the history of science becomes more established in the universities of Europe and America. Perhaps this growing indifference can best be identified in three articles appearing successively under the same title, 'An Institute for the History of Science'.⁸

In the first of these articles appearing in 1917 and 1918, Sarton gives some emphasis to the museum as a site for science history. In these pieces Sarton calls for an independent institute for the history of science to be established in his adopted America. According to Sarton, such a purpose-built institution could provide scholars and students with 'a meeting place worthy of their respect' and a necessary resource for the growth and development of the nascent discipline: 'a clearing-house where all matters of common interest to them would be centralised, examined and eventually made known to the world.'⁹ Moreover Sarton stresses that the importance of the history of science demands that any institute founded specifically for its study be financially independent from other disciplines and foundations. However, this independence does not preclude an association with a larger learned institution. Sarton presents the university or the library as potential candidates for such an association, but suggests that the museum might present the best opportunities. He writes:

⁷ This general neglect seems to undermine Robert Bud's recent assertion of the London Science Museum's centrality in academic history of science at this time—an assertion based mostly on the fact that the Second International Congress of the History of Science met at the museum in 1931. Rather it seems from the both the more general neglect—and even that betrayed in the papers given at the conference itself—that the grand quarters of the Science Museum provided merely a convenient physical meeting place for academic historians of science, as opposed to an intellectual meeting place. Indeed, during this period, the only mention of the Science Museum in most academic journals is made to announce it as the location for this Second Congress. See Robert Bud, 'History of Science and the Science Museum' *British Journal for the History of Science*, 30 (1997); and Robert Bud, 'Research at the Science Museum' in *Clio in Museum Garb: The National Museum of American History, the Science Museum and the History of Technology: Session Given at SHOT '96, London* (London, 1997), pp. 47-53. See also International Congress of the History of Science, 'Proceedings of the Second International Congress of the History of Science, London, 1931', *Isis*, 16 (1931), 126-9.

⁸ George Sarton, 'An Institute for the History of Science and Civilization', *Science*, 45 (1917), 284-6; George Sarton, 'An Institute for the History of Science and Civilization', *Science*, 46 (1918), 399-402; George Sarton, 'An Institute for the History of Science and Civilization', *Isis*, 28 (1938), 7-17.

⁹ George Sarton, 'An Institute for the History of Science and Civilization', *Science*, 45 (1917), 285.

If the institute is to be associated with another institution, the most useful association would perhaps be one with a great museum, such as the U.S. National Museum, the American Museum of Natural History or the Harvard Museums. The objects of a museum cannot be easily moved or duplicated, whereas it is not difficult to move or photograph books or manuscripts. Moreover, the eventual creation of a museum of science such as the *Conservatoire des Arts et Metiers* or the *Deutsches Museum*, would be easier and less expensive if the institute were already connected with another museum.¹⁰

But Sarton goes further, suggesting not just that his institute would facilitate a great museum, but that the institute might itself *found* this museum. Here Sarton says that in addition to the institute's teaching, research and publishing activities, one of its main functions should be:

To begin collections of prints, instruments, and all other early material bearing on the history of pure and applied science. This activity could in course of time expand into a department of enormous importance, as is clear to anyone who has visited the Conservatoire des Arts et Metiers in Paris, the Science Museum in Kensington, or the Deutsches Museum in Munich, foundations with which we have nothing to compare in this country.¹¹

In many ways this last statement represents a call not just for a research institute devoted to the history of science, but a call for historians of science to themselves found a great American science museum as well.

Yet Sarton's attention to the museum as an important component of science history diminishes in the period following the peace treaties. In the third of his calls for 'An Institute for the History of Science and Civilization', Sarton's focus has turned completely to book research and teaching. In fact he never even mentions the science museums that have so rapidly developed in the time since he made his first calls.¹² The same is true of Sarton's 1936 introductory handbook, *The Study of the History of Science*, in which the great and increasingly robust museums that had once garnered his admiration are not even listed among the institutional resources available to students.¹³ Occasionally in this post-war period Sarton will make brief note of developments in the museum world, but never with such enthusiasm or personal and professional interestedness as he had in 1917 and 1918.¹⁴ Indeed his occasional remarks at times even betray an outright disdain for the museum; in a short piece entitled 'How to Celebrate the Memory of Great Men', Sarton rejects the museum as worthy of this purpose, describing it as 'but half alive anyhow.'¹⁵

Of course Sarton provides just one example, and Arnold Thackray and Robert Merton have argued persuasively that Sarton's influence on later historians of science has been mixed.¹⁶ On the one hand, Sarton was unsuccessful in convincing the next generation of historians of science of the validity of his own strongly held positivism. On the other hand, Thackray and Merton point out that Sarton's propagandic efforts and his practical work of discipline building were extremely successful. That is, while Sarton was never able to provide the

¹⁰ George Sarton, 'An Institute for the History of Science and Civilization', *Science*, 46 (1918), 401.

¹¹ George Sarton, 'An Institute for the History of Science and Civilization', *Science*, 45 (1917), 285.

¹² George Sarton, 'An Institute for the History of Science and Civilization', *Isis*, 28 (1938), 7-17.

¹³ George Sarton, *The Study of the History of Science* (Cambridge, MA, 1936).

¹⁴ See George Sarton, 'National Museum of Engineering, Washington, DC', *Isis*, 6 (1924), 539-42; George Sarton, 'Oxford Museum of the History of Science', *Isis*, 6 (1924), 542-3; George Sarton, 'The Harvard Museum of the History of Science', *Isis*, 6 (1924), 543; George Sarton, *The Study of the History of Science* (Cambridge, MA, 1936).

¹⁵ George Sarton, 'How to Celebrate the Memory of Great Men', *Isis* 15 (1931), 339.

¹⁶ Arnold Thackray and Robert K. Merton, 'On Discipline Building: The Paradoxes of George Sarton', *Isis*, 63 (1973), 473-95.

history of science with a 'cognitive identity', he was in fact able to supply it with its lasting 'professional identity'.¹⁷ And while it is difficult to pinpoint Sarton's influence on later relations between the history of science and the science museum, nevertheless Sarton and his contemporaries set the stage for and legitimised later neglect by providing the history of science with a professional identity which to this day values publication over exhibition, professors over curators, libraries over collections, university students over the general public, that is, the academy over the museum.

At the same time, it is clear that since the inter-war period science history in the museum has been in decline. The first signs of science history's retreat from the museum can in fact be identified at the end the inter-war period in the development of new kinds of science museum exhibitions, such as the hands-on Children's Gallery at the Science Museum, London. The second half of the twentieth century has seen the further development of non-historical science museum exhibitions, taking their lead from a new kind of science 'museum', the interactive science centre. These too have their roots at the end of the inter-war period in the establishment of the Palais de la Decouverte in Paris and gained momentum in the late 1960s with the founding of San Francisco's Exploratorium.

Sometimes financial constraints, which have forced museums to compete with science centres and other forms of entertainment such as theme parks, have been blamed for the displacement of historical displays from the science museum. Sometimes the energetic lobbying efforts of the so-called 'public understanding of science' movement to introduce technical education to the museum have been blamed. And too often the blame has been laid squarely on the shoulders of museum professionals and their supposed ignorance of history. Yet shouldn't historians of science themselves share in this blame? While the public understanding of science lobby and advocates for hands-on displays of current scientific theory have actively courted the science museum as a primary location for their programmes, in following Sarton's lead, the history of science has not identified the science museum as a disciplinary and professional location. If the history of science has neglected the science museum, should we then be surprised at its absence from museum galleries and the associated public understanding programme?

Without doubt, museums and their curators and administrators must make efforts to include history in their displays, and the public understanding of science will not be complete without it. But historians of science themselves have not made sufficient efforts. Our discipline has moved far beyond the positivistic cognitive identity that Sarton bequeathed us; it is time that we also left behind his bias against the museum. Much has been said about the lack of 'serious' history of science in the museum. Less has been said about the historic origins of this situation. My hope is that this paper has shown the situation to be both more complex and historically contingent than previously considered and that historians should share some responsibility.

¹⁷ Ibid., 473, 494-5.