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Further information

- *The Ambassadors* was held at the National Gallery from 5 November 1997-1 February 1998; see Foister, S., R. Ashok and M. Wyld (1997), *Making & Meaning: Holbein's Ambassadors*, National Gallery Publications. Special educational materials were developed and made available to coincide with the exhibition.
- Bennett, Jim. 'Beyond Understanding: Curatorship and Access in Science Museums' in Svante Lindqvist, ed., *Museums of Modern Science*, Nobel Symposium 112 (Canton, MA, 2000), 55-60, see p. 57.
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Evolution & public display: an historical perspective

Dr Joe Cain, Senior lecturer in history & philosophy of biology, University College London & President of The Society for the History of Natural History

Ernst Mayr celebrated his 100th birthday in July, still going strong. His long career began as a collections specialist (Cain 2002). His big break came in 1929 when he arrived in New York to start a contract with the American Museum of Natural History (AMNH), sorting newly acquired materials from the South Seas. Mayr quickly proved himself. By the end of WW2 he was blossoming into one of the most influential biologists in the twentieth century. Most people forget Mayr's roots in the curatorial community (Bock 1994). Likewise, almost no one remembers his role in exhibit design at the AMNH. The most important example was his work completing the 1948 exhibit "The Biology of Birds" (Lanyon 1963; Mayr 1948). The full story is one for another place. Suffice it to say Mayr cared passionately about the science of ornithology. He used this opportunity to outline an intellectual programme, steering his colleagues towards a future in which the study of general biological processes became a noble goal.

Mayr's work on "The Biology of Birds" is fascinating for another reason, and this other dimension is the focus of the present essay. The content of Mayr's exhibit contrasts sharply with most of the previous exhibits at the AMNH. It also was part of a general trend among natural history exhibits over the twentieth century. That trend continues today, influencing the criteria we use for judging an exhibit's success. It's easy to appreciate why this trend took place. But I think we've gone too far. This trend pushes us away from moral obligations we have both as experts and as citizens.

Mayr and exhibits at the American Museum

Historians love to discuss exhibits at the AMNH, especially those fabulous habitat groups from the start of the twentieth century. It's easy to tie the AMNH's early exhibits programme to a series of cultural and political agendas driven by the museum's trustees (Rainger 1991). These men were philanthropists and social reformers also behind the creation of public parks, compulsory education, planned recreation, public libraries, and so on. Their educational programmes trained working class kids for specific roles in Edwardian culture and for life in the modern, science-based industrial city. Exhibits at the AMNH were part of this training. Some delivered messages directly, such as hygiene and nutrition. Others were more subtle, reinforcing messages about manifest destiny, family structure, race, social hierarchy, citizenship, and so on. It's easy to take this kind of analysis too far, but the point of considerable historical work is clear: the public galleries did more than innocently present natural history.

On one hand, "The Biology of Birds" fits nicely into this long tradition. One feature was a synoptic display, presenting bird diversity at the family or sub-family level and introducing basic anatomical themes. This fit into an educational programme and nicely complemented displays elsewhere in the building. Symbolic objects also had a place. There was a hornbill pair and their nest (complete with the original tree in which it was embedded) tied to a strong message about parental responsibility. Likewise, a set of panels considered relations between "birds and man," celebrating the value of birds as food and illustrating birds as cultural symbols. However, these parts of the exhibit are easily separated from those created by Mayr. Where he controlled the design, science took a front seat. He developed diagrammatic panels to illustrate basic biological concepts: migration, geographic variation, evolution, ecology, plumage, courtship displays, the physics of flight, etc. These are striking for their complete absence of practical and moral messages. Mayr's

intent was to teach principles illustrated by ornithological examples. He did this for two reasons. Mayr's emphasis on science in "The Biology of Birds" connected him to shifts in ornithology away from the specimens themselves. He was part of a group who complained the field had lost the forest for the trees: obsessed with anatomical detail and litigious with nomenclature to the detriment of fundamental problems (e.g., Hickey 1943; VanTyne and Berger 1959). "We must impress on general biologists," Mayr wrote a colleague in 1948, "that taxonomic work is not merely a clerk's job but real, genuine biology..." Mayr took full advantage of opportunities offered by the "The Biology of Birds" project to demonstrate an alternative vision, leading by example. In essence, his diagrammatic panels were arguments for the relevance of collections for top biological problems of the day. Extracting information from collections, he demonstrated, was easy. Mayr expressed the same advocacy in the early pages of *Systematics and the Origin of Species* (Cain 2002; Mayr 1942).

Mayr's focus on science also was a kind of active exclusion. It's a commentary on the range of questions he thought appropriate for a scientist's or a curator's professional interest. Stick to the facts, he argued, contrasting his contributions with the moralising and manipulation elsewhere on display in the museum. His silence speaks volumes and was typical of his life-long approach to such matters. Mayr consistently steered clear of the kind of political activism undertaken by close friends and colleagues (such as Theodosius Dobzhansky and Robert Cushman Murphy). It also is consistent with endless anecdotes told about Mayr and by Mayr himself. He's noticeably apolitical, avoiding public campaigning for (or against) the big ideas of his time: eugenics, national socialism, war, Lysenko, anti-communism, segregation, the arms race, Vietnam, and so on. Mayr certainly has views. He simply prefers to keep them in the private sphere. I don't mean to single out Mayr. In fact, he fits nicely into a wider frame. Historians have noted shifting boundaries for evolutionary biology as the twentieth century continued (Ruse 1996). List which topics count as legitimate topics for discussion and a pattern emerges. At the start of the century, "evolution" included pattern, process, and mechanism to be sure. It also included cosmic evolution, progress, the great chain of being, spiritual evolution and the origins of soul, racial hierarchy, eugenics, and so on. It's in Mayr's generation, the 1930s and 40s, that the latter themes are jettisoned from professional discourse. They don't disappear entirely; instead, they simply shift to pub talk and popular lectures – not the stuff of peer-reviewed journals, monographs, and exhibitions.

Mayr's emphasis on the science and his exclusion of other things matches a pattern observed in innumerable natural history museums over the past fifty years (e.g., British Museum 1964; De Beer 1958). Indeed, the underlying principles of factual emphasis and objectivity have become bedrock ideas in the training of museum apprentices. Cultural, political, and personal bias is aggressively excluded, and a multi-layered vetting processes enforces this standard. Overarching theories sometimes give a basic architecture to exhibits, but preferably objects are left to speak for themselves.

losing the plot?

For some topics in the realm of natural history, we've taken this exclusion too far. Evolution is the most obvious example. Facts and low-level interpretations create an insulating barrier that nicely shields us from conflict. Objects do the speaking for us, and we stay comfortably away from trouble. The problem is that this excludes us from relevance. On this practice, we're guided by Darwin's example. When writing the *Origin of Species* Darwin purposely steered clear of questions about human origins. He knew this question would dominate public interest regarding evolution. He knew it also was the crucial question for scientists. But he deliberately chose to exclude himself, suggest only "Light will be thrown on the origin of man and his history." (Darwin 1859: 488) He left others to sort that one out.

Many policy questions today can benefit from the advice of evolutionary biologists. Some of the most obvious centre on narrow technical points. Jones (Jones) provides many examples. For instance, in the American beef industry breeding practices are such that one bull sires 10,000 offspring and 10,000 bulls sire none. Do we appreciate the consequences for genomic and organismic diversity? Other issues are easy to find: overuse of antibiotics, intensive and monoculture farming, gene insertions across species, introduced species, and so on. I don't understand why collection experts so often position themselves to be excluded from such discussions. These narrow issues have potential to completely reshape the diversity of life on Earth. How can we simply sit by?

At the other end of the spectrum, think of the endless challenges of creationists, reinvented today as "intelligent designers." They're not going to disappear. They have genuine questions about nature (at least the honest ones do). We do no one favours leaving this subject to mere opinion or, worse, leaving it to incompetents and exploiters. Real expertise is needed here now more than ever. Fundamentalist Christianity.

Fundamentalist Islam. Fundamentalist politicians. Well organised, smart, and determined. Experts have a moral responsibility to lead, to lend their expertise. Remember, expertise involves more than content. The palaeontologist, George Gaylord Simpson, once said that a good scientist should be able to be “scientific” about almost anything. No one knows better how to ask questions and to do so in ways that succumb to rigorous, empirical analysis. No one knows better how to resolve disputes through tests, to unravel, to expose bias, to measure confidence, to build flexible rules that will last three hundred years and a dozen changes in convention. Museums can do a fabulous job imparting the methods and values of science. Stressing methods won’t save us from honest creationists and intelligent designers. But the incompetents and exploiters won’t stand a chance.

conclusion

The boundaries defining professional domains are fluid. In ecology and environmentalism, for instance, boundaries have shifted quite a lot since the 1960s. It wasn’t always perfectly acceptable for ecologists to assert a role in public policy. It’s hard to imagine policy today without ecologists at its centre. Compare this with the shifting roles of systematists in public policy regarding biodiversity. This shifting is a process of ebb and flow.

In the case of evolution, we’ve shifted too far in the direction of exclusion — too far away from important, controversial subjects — too far away from the questions others are answering without us. That’s a waste of expertise. It’s an abdication of responsibility.

It’s time we shift back those boundaries. If you take anything away from this paper, take away that suggestion. Think about how you define the boundaries of your own expertise and how those boundaries might exclude you from the most important discussions of our time.

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Victorian Natural History Galleries in the 21st Century - Keeping a Victorian Gallery Alive Nigel Monaghan, Keeper of Natural History, National Museum of Ireland

Abstract

The Natural History Museum in Dublin is a Victorian cabinet style museum. It is close to original condition and is seen by many as a national treasure, a ‘museum of a museum’. This also brings challenges in preserving its 19th century ambience while addressing significant challenges in the museum environment.

Historical Background

In 1856 the Royal Dublin Society (RDS) erected a museum building adjacent to their 18th century mansion,