

Endangered:

Is there hope for the
Natural History Museum?



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Florence Heath

About the author

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Executive summary

1. The issue at hand

The Natural History Museum (NHM), once a solid national institution, is in dire straits. Years of mismanagement and lack of support for its scientific mission from its own management team have left us with a clunky, outdated, under-performing body in serious need of reform, and on the brink of bankruptcy. 🌀

2. The root of the problem

Like most large museums around the UK, the Natural History Museum now operates in an increasingly competitive environment, as the options for weekend and holiday excursions multiply and government grants shrink. In the last decade and a half, it has chosen a short-term solution, in a misguided effort to keep visitor numbers and income generation on target, by popularising its exhibitions in a failed attempt to increase the perceived ‘relevance’ of the museum and to swell its broad popular appeal.

At the same time, by trying to cater to less-educated members of society there has been a sharp reduction in the amount of information offered about the exhibits. This has set the museum on track to become little more than a poor-quality theme park, constrained by cramped and outdated buildings and facilities.

This approach has failed on many counts – a fact realised by other major, neighbouring museums that have recently undertaken substantial reorganisation and have modified their approach. The Natural History Museum, however, is stuck in reaction mode, caught up in a cycle of desperately trying to meet its targets, failing, yet refusing to see the error of its ways.

- Museum visitor numbers are in freefall, declining faster than the average national and local reduction in footfall – a 14% drop, compared to an average 4% in other large London museums. An even greater drop in numbers is expected for 2017 (figures from the Association of Leading Visitor Attractions are not yet available, but the NHM’s in-house figures show a dramatic fall last year).

The inability of the museum's management team to confront change has had serious repercussions, both financially and culturally. The NHM is in deep financial crisis, unable to make ends meet and yet seemingly hell-bent on spending even more money on novel – and sometimes contentious – projects that address no specific fundraising or science-strategy goal.

- In the last decade, the NHM has been running an average deficit of £6 million a year. Yet rather than try to close the gap between income and expenditure, it continues to invest in hugely expensive and unnecessary projects.
- The real deficit for 2016/17 alone was in excess of £12.8 million, although this was offset by a one-off increase of £7.3 million in government grant-in-aid to help stave off the looming disaster.

Asked about the deficit, the museum was evasive and tried to muddy the waters with accounting jargon. It quoted the value of the NHM's assets as sufficient to cover any shortfall; yet its main asset remains the Waterhouse building in South Kensington, which could under no circumstances be realised – i.e. sold – while the museum is in existence. It should therefore be discounted from any calculations (including appreciation in value). The value of the NHM's remaining assets would certainly not suffice to cover the shortfall since 2009.

- The NHM's accounts are shockingly opaque and attempt to conceal the extent of the crisis with layers of technical accounting jargon. In its accounts for 2015/16, the museum finds it acceptable to dismiss a £13 million catch-all category (more than 15% of its budget) with the statement that 'no meaningful allocation of this expenditure ... is possible'. In 2016/17, the corresponding figure increased to £14.4 million; while it is now split into a

handful of high-level categories, this does nothing to reassure the reader that the museum knows what the money has actually been spent on.

At the same time, and in parallel, the NHM is suffering a severe cultural crisis, precipitated by its financial mismanagement. It continues to pursue the line of accelerated popularisation, replacing exhibition galleries with trendy cafes, and removing displays – to the extent of sometimes leaving bare hallways, with only donation boxes in sight.

Behind the scenes, the scientific staff is being culled in a short-sighted attempt to balance the books – books that, in fact, need a complete overhaul.

- Visiting researcher scientist numbers to this once world-class scientific institution have halved in just three years, plummeting from 14,813 in 2013/14 to just 8,103 in 2016/17.
- Scientific and collections staff have been replaced by fundraising experts. The fundraising department received a £1.4 million boost to its budget in 2016/17, yet catastrophically only £154,000 more was raised than in the previous year. The cost of this latest fundraising exercise is thus an eye-watering £9 for every £1 raised.

The NHM's current *Strategy to 2020* lacks any clear sense of direction or emphasis on science. Instead, a stream of politicised waffle aims to pull the wool over readers' eyes and distract them from noticing just how close the museum is to complete bankruptcy. 🌀

3. Way forward

If it is to survive, the Natural History Museum needs a complete change of management – a clean sweep to bring in efficient and transparent operating systems, with a clear focus on its scientific mission, a science strategy based around its incredible and unique collections, a real sense of purpose and pride in the work it does, and a true focus on educating the public (rather than just entertaining it).

The experience of Kew Gardens shows just how successful this kind of turnaround can be. Our recommendations to safeguard the future of the Natural History Museum are as follows:

1. Implement open and transparent accounting and cash flows
2. Lead with science: define clear, measurable outputs within a science strategy
3. Focus fundraising on items related to the science strategy priorities and running costs
4. Champion knowledge: in research and in exhibitions, striving for knowledge to fuel discoveries
5. Value and invest in expertise: aim to recruit and retain a diverse and world-class workforce worthy of a reputable institution
6. Deliver ideas: select priorities and introduce new concepts one step at a time, avoiding flashy gestures that will destabilise the whole institution
7. Create an external science audit and peer-review group
8. Explore the world and grow the collection
9. Be honest and open about history, depoliticise exhibits and trust the public
10. Cement the museum's online presence, overhaul marketing and foster a public image based on key science-strategy tenets. 

1

Introduction

The Natural History Museum (NHM) has long been one of the UK's most popular museums, and is a well-known and highly respected institution both nationally and internationally. Schoolchildren often discover its exciting treasures during a school trip, organised to bring them into contact with science and the collections. Tourists from around the world flock to visit the Dinosaurs gallery. And at half-term, parents often head straight for the museum in South Kensington with their children for an educational day out.

Yet, like most large museums around the UK, the Natural History Museum now operates in an increasingly competitive environment, as the options for weekend and holiday excursions multiply and government grants shrink. Never before have the great museums been so dependent on their public image and on visitor numbers to safeguard their funds. Meanwhile they have to rely on boosting philanthropic contributions to maintain their collections and to keep up the associated research work.

One quick, short-term solution to this relentless need to keep visitor numbers and income generation on target has been to popularise exhibitions in museums – to tap into the political trends of the day and the modern obsession with human-related themes, in an attempt to increase the perceived 'relevance' of the museums and to swell their broad popular appeal. At the same time, in an attempt to reach less-educated members of society, there has been a sharp reduction in the amount of information offered about the exhibits. If this trend continues, the quality of a museum's offering will suffer further, and eventually the museum will be reduced to little more than a theme park – and a poor-quality one at that, constrained by cramped and outdated buildings and facilities.

In recent years, several important British museums have come to realise the danger of this approach. Thankfully, they have twigged that it is perfectly feasible to stage exhibitions that are

academically rigorous, yet also accessible and appealing to broad sections of the public. This realisation has helped both the Victoria and Albert (V&A) Museum and the British Museum to safeguard not just their continued existence, but also their historical legacy, as they focus their energy, time and effort on providing a high-quality, well-curated visitor experience that is accessible to all.

The Natural History Museum, however, lags behind. It is stuck in the mire of its outmoded ways of operating – the legacy of an obsolete system that has not yet been upgraded to match the reality of today. The NHM is stuck in reaction mode, caught up in a cycle of desperately trying to meet its targets, failing and then chasing its tail. Instead, it should be focusing its energies on exploiting its wonderful and unique resources to build a secure, stable and sustainable future for itself.

The inability of the museum's management team to confront change has had serious repercussions, both financially and culturally. The museum is in deep financial crisis, unable to make ends meet and yet seemingly hell-bent on spending even more money on novel – and sometimes contentious – projects that address no specific fundraising or science-strategy goal.

At the same time, and in parallel, the NHM is suffering a severe cultural crisis, precipitated by its financial mismanagement. It continues to pursue the line of accelerated popularisation, replacing exhibition galleries with trendy cafes, and removing displays – to the extent of sometimes leaving bare hallways with only donation boxes in sight.

Behind the scenes, the scientific staff is being culled in a short-sighted attempt to balance the books – books that, in fact, need a complete overhaul.

Ever since its creation in 1881, the Natural History Museum has been an atypical museum: part scientific research institution, part educational facility. Over the past century and more, the challenge has often been to strike a working balance between these two facets; throughout this period, clear attempts

have been made to accommodate the growth of the museum, the changing world, the development of technology, the need to keep scientifically current and the surge in interest from the general public.

The key ingredient in this difficult balancing act has always been the NHM's strong, principled leadership, which has guided the museum through war, its aftermath and repeated financial crises. In keeping the museum intact, a crucial factor has been the strong focus on maintaining its mandate as a globally recognised scientific research institute, as well as a visitor attraction. In the past, the management concentrated on ensuring that the two functions of the museum collaborated, thus securing the best possible outcome for both, without compromising on quality in the long term.

The NHM's current *Strategy to 2020* proposes no such balance, no encouragement for its scientific community and its mission – and indeed no support for the continued quality of the museum's exhibitions. Instead the manifesto consists of page after page of populist and politicised waffle, lacking any clear sense of direction or any emphasis on science. The museum's annual report and statement of accounts is no better – and the mission outlined in that document fails entirely to refer to the collections or scientific goals: the stated purpose of the museum was recently updated to 'inspire a love of our natural world and unlock answers to the big issues facing humanity and the planet'. This shows no improvement on the previous, equally twee mission statement: 'to challenge the way people think about the natural world – its past, present and future'.

The Natural History Museum, once upon a time a solid national institution, is in dire straits. Years of mismanagement and lack of support for its scientific mission by its very own management team have left us today with a clunky, outdated, underperforming body in serious need of reform and in serious danger of extinction. 🌀

2

The roots of the problem: the identity crisis in natural history

The poor relation

The struggle to balance the two different functions of the Natural History Museum – scientific research and public education – is not new: it has been a constant theme ever since the museum was founded.

Its collections and its scientific staff are key to improvements in medicine and agriculture; they play a crucial role in identifying and understanding the ecology of the planet and are vital in monitoring and managing the changing environments around the world. Meanwhile, the museum has always proved a magnet – and an invaluable resource – for those with an interest in the natural world.

But natural history has never enjoyed the same prestige as other branches of science. In large part, this has been due to deeply ingrained cultural attitudes to the natural world, which project a negative image of the science and its importance.

Natural history museums in turn generally enjoy less prestige than museums of art (or other humanistic subjects). This is in large part due to the influence of religious and political doctrines over the past 2,000 years, which have set man up as superior to, and of greater importance than, the rest of nature – an attitude that has a fundamental effect on the way humans relate to the natural world.

Civilisation and progress have traditionally been associated with urbanisation and industrialisation. Progressive, cultured town-dwellers have come to enjoy culture and the arts. Meanwhile, the natural world has been regarded as unsophisticated, often connected with pagan or magical practices and with the uncultured elements of society.

Similarly, unmanaged environments have historically been termed ‘wastelands’, ‘wildernesses’ or ‘barren land’. Because it confers few obvious benefits on civilised man, untamed nature has come to be portrayed as undesirable and something to be feared. This attitude spread to many cultures around the world in the nineteenth and twentieth centuries, and its repercussions continue to afflict many natural environments to this day.

These culturally induced attitudes to nature have also had an important influence on the formation of academic opinion regarding the study of natural history. Early perceptions of natural history as a serious or desirable science were dashed by the publication of Charles Darwin’s *Origin of Species* and by the development of biology in the late nineteenth century, which led to the subject being labelled ungodly.

Despite being shaped by the highly precise science of taxonomy, natural history is often undeservedly associated with poor methodology. But it also suffers from a poor press in the museological literature – indeed, a get-together called the ‘International Conference on the Value and Valuation of Natural Science Collections’ was held in 1995 to address the problem.



Head of an *Ichthyosaur*, discovered in 1811 by a penniless Mary Anning

During the eighteenth and nineteenth centuries, natural history and natural history collecting were often associated with the lower social classes. This contributed to the popular perception within the social elite that the study of natural history was not a cultivated or sophisticated activity, and that it was less academic (and less professional) than the new university discipline of biology.

This was largely because the pursuit of natural history simply requires an interest in nature and good observation skills; it costs nothing and can be enjoyed by any interested member of the public – even women. The inspiring story of Mary Anning, an autodidact and relentless fossil explorer responsible for a number of crucial geological discoveries, is a case in point. The NHM has always been accessible to people from all walks of life, making it fundamentally egalitarian. This did not meet with universal approval in society, particularly among the elite.

In-built bias in funding

To make matters worse, funding bodies are often made up of members of the upper echelons of society, who have already been culturally conditioned to regard the arts as more important than the sciences. As a result, they have little knowledge or interest in science or natural history, and are unlikely to be aware of the crucial research role of natural history museums.

It has therefore been very difficult for natural history museums to impress their importance on the very section of society that controls their funds, but does not truly understand them (except in terms of the number of visitors that the front-of-house exhibitions attract).

Such an attitude has resulted in a slow decline in the study of taxonomy and systematics in western universities, and it continues to influence the way funding bodies and sponsors regard natural history museums and decide what makes them worthy of support.

Poor image

A further obstacle has been the confusion – even within the profession – over the role and function of a natural history museum. This is due to the growing emphasis on the front of house and the general lack of representation and value given to the scientific work. The squabbling has only reinforced the general misconception of boffin scientists ensconced in their ivory towers, pushing for their pet projects and thus exacerbating the problem.

“... they appear to Governments and other agencies that manage them as unwieldy anachronisms, difficult and expensive to deal with, and smacking of the indulgence of youthful hobbies grown beyond reasonable bounds and seemingly without limit.”¹

The image the public has of a natural history museum is increasingly key to attracting the visitor numbers that impress funding bodies and prove the museum’s worth in their eyes. It is therefore even more important for scientists working in these institutions to exercise great care always to project a professional image that is in line with their museum’s strategy, and to avoid any damaging internal bickering or public *faux pas*.

Conflicting attitudes to public education

Natural history museums are in the unenviable position of trying to convince funding bodies that they are professional, well-organised, focused, scientific institutions, while at the same time putting on non-academic public displays that attract the biggest possible audience by being interesting, entertaining and accessible – a mighty challenge.

It will always be difficult for a natural history museum to attract those sections of society that consider the topic culturally inferior. Since such people have been conditioned to assess the importance and relevance of an issue purely in

1. P. Raven (1981), ‘Natural heritage’, in *Proceedings of the 12th General Conference and 13th General Assembly of the International Council of Museums: The world’s heritage: the museum’s responsibilities*, ICOM, Paris.



A more traditional type of display at the Tring Museum

relation to how it affects man, one of the only obvious ways of addressing the problem is to relate the exhibits to human beings or their activities.

This has prompted natural history museums to produce the kinds of popular exhibits that will draw in the visitors, dispel traditional nineteenth-century 'dead zoo' images and somehow be linked to a human-related topic that appeals to the liberal elite.

Such thinking has led to a split within the museum world. On the one hand, there is a cohort of disillusioned scientists who are resistant to change and who see any new type of approach as an attack on science and on the quality of exhibits. They hark back to the staid, nineteenth-century style of display. This group has probably suffered cuts to its projects or has witnessed a significant drop in quality during a previous period of change. Accordingly, its members instantly equate any new suggestions with failure.

On the other hand, there is a group that adopts a patronising attitude toward the general public and flies the flag of anti-elitism. This group rejects academic content as unattainable and boring; it dumbs down exhibits and output and prefers to turn museums into low-grade amusement parks, by concentrating on the entertainment value of collections. ☞

3

The Natural History Museum

At the NHM, the various tensions that exist between the different philosophies and approaches were kept in check for decades (and through times of change), and a good balance was maintained by strong leaders with a clear vision. However, in the last 20 years or so, leadership within the museum has grown so weak that it has almost vanished.

As a consequence, of the many problems that currently beset the Natural History Museum, by far the greatest is the chronic mismanagement of its finances, which have been allowed by management to run shockingly out of control. Over the past ten years in particular, the museum's performance has nosedived. This is the result of a combination of factors, including **reduced government funding**, a **failure to rein in spending**, and **falling visitor numbers**. This chapter tackles each of these elements in turn.

The museum's regular income stream has stagnated, with only a tiny increase over the past three to four years. Admittedly, this is partly a result of factors beyond the museum's control – the continued impact of the removal of museum entrance fees in 2001, major changes in government funding and the cultural challenges that confront science museums, and natural history museums in particular (see above). But the management's outdated approach to fundraising has played a significant part, as has the museum's lack of a strong identity to navigate the changing financial and cultural context.

Reduced government funding and greater need for self-sufficiency

The NHM management is proving incapable of adapting to the new funding and fundraising environment. In particular, it fails to grasp the need for greater self-sufficiency. It seems quite unable to accept that the decrease in value placed on natural history in the long term has led to a decline in support from the government. The problem must be addressed by enhancing the museum's reputation,

as well as by finding new sources of sustainable income to mitigate the decrease in grants. Yet the management team seems unable even to recognise the scale of the sea change required if the museum is to adapt and survive.

The overall message from the government is clear:

The government welcomes the charity sector's renewed commitment to responsible fundraising and to tougher, more robust self-regulation through the new fundraising regulator.

The government believes there is scope for cultural organisations to benefit further from philanthropy and private donations and to make greater use of non-grant funding, including commercial revenues.

In recent years, many cultural organisations have responded to changing economic circumstances by reviewing their structures, governance and operating models and diversifying their funding streams.²

The government has removed from the museum's Management Agreement all specific funding agreement letters and financial memoranda, replacing them with direct references to the White Paper. Set goals have been communicated to the museum in the form of spending review settlement letters. The government has also spelled out that it expects the NHM to include some contingency in its budgeting, to cope with variations in its grant allocation.

Most importantly, grant-in-aid was to be reduced by nearly £8 million between 2016/17 and 2017/18. The resultant further shortfall in funding should have triggered a surge in fundraising and cost-saving measures. Yet instead, the museum has embarked on costly dinosaur tours and major, non-urgent refits (see below).

2. Department for Culture, Media and Sport (2016), *The Culture White Paper*, London.

The government's guidelines make it perfectly clear that the new systems are here to stay, and that the Natural History Museum needs to adapt faster than its celebrated dinosaurs if it is to avoid an equally tragic fate.

Counterproductive knee-jerk reactions

Part of the problem may be the strongly academic composition of the board of trustees: many of its members are entrenched in the old system and are unable to adapt to change. But aside from those who choose to bury their heads in the sand, a number of decision makers in the museum seem to have got sucked into a spiral of panic and self-doubt. No longer able to rely on the government to hold their hands, the management has tried to plug the hole in the budget by cutting the relatively inexpensive scientific staff.

Some staffing changes are almost certainly necessary. But there first has to be a full assessment of true income and expenditure, and a clear strategy for science must be drawn up. There needs to be an open and transparent plan that identifies which posts are essential for the museum's future. A prerequisite for this is a paradigm shift toward recognition of the need for a new, modern approach to fundraising and sustainability, with clear – and realistic – targets for the years ahead.

Issues of fundraising

The museum's fundraising strategies are questionable and display a serious lack of flexibility and creative thinking. This applies both to the NHM outpost at Tring in Hertfordshire (which turns down possible lucrative and educational events for adults because it currently only runs scientific demonstrations for children) and to the core South Kensington campus (which rejects unplanned offers of digitisation funding, even though it is lagging behind on its collection digitisation targets).

In 2014, the museum received its largest-ever single donation – £5 million from the Hintze

Family Charitable Foundation. Although this helped plug the museum's growing financial black hole temporarily, it was a one-off contribution. As there was no associated change in budgeting or planning, it did not improve future cash flow or expenditure. On average, since 2010 the museum has been running an astonishing annual deficit of £6 million.

In 2016/17, a one-off increase in grant-in-aid of £7.3 million helped matters somewhat, bringing the deficit down to £5.56 million for the year (rather than the catastrophic £12.8 million it actually would have been). But there is no strategy in place for sustainable, meaningful improvement ahead.

Lack of financial clarity

Why did the board of trustees – and indeed the Department for Digital, Culture, Media and Sport (DCMS) and its predecessor with the same initials – allow this sorry state of affairs to continue for so long? Unfortunately, the DCMS was uncontactable during the preparations for this study (throughout May and June 2017), and so it is unclear whether those responsible for the NHM are even fully aware of the parlous position in which the museum finds itself.

The annual published accounts are so opaque that it is all but impossible to track cash flow in real terms and to identify what various catch-all expenditure items might represent. We submitted a Freedom of Information (FOI) request in an attempt to clarify aspects of the accounting, but this only served to highlight just how impenetrable the accounts are without specific, detailed explanations.

For instance, according to the annual report for 2015/16, under the line item 'Costs of generating voluntary income', the following explanation is to be found: 'No meaningful allocation of this expenditure across these income sources is possible.' It would appear to have been too much of an effort to account in any useful way for over £13 million. In 2016/17, an explanation for the

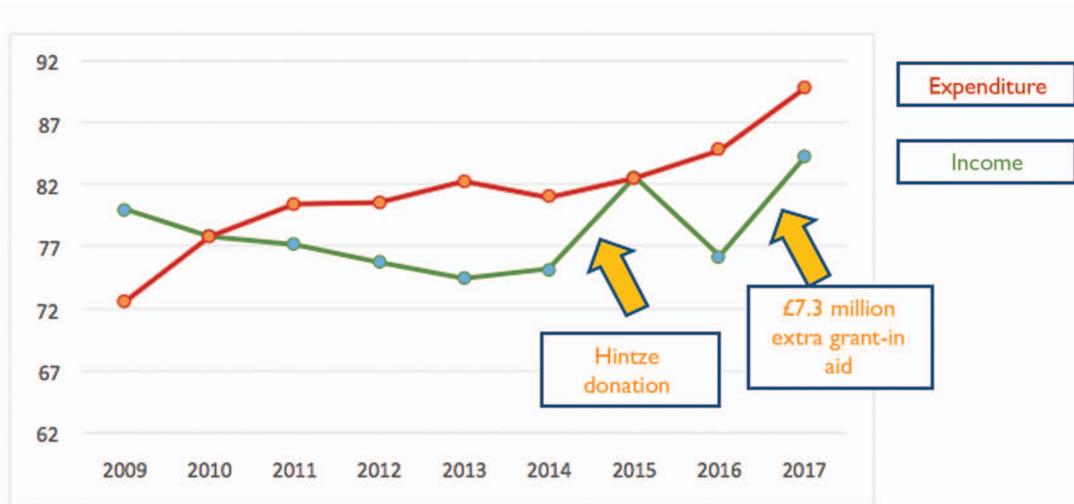


Figure 1: The Natural History Museum's income and expenditure, 2009–16, in £ million

(now) £14.4 million is grudgingly given, amalgamating widely divergent categories, such as income from trading, as well as membership. This reflects an underlying problem: if the fundraising and outreach department is unable to break down its expenditure adequately, to monitor how these different initiatives are doing, then clearly the blind are leading the blind – straight into a brick wall.

A detailed (and convoluted) explanation of the apparent £6 million average annual deficit was, however, given in response to the FOI request:

The Museum has not borrowed to fund the £8.6m net expenditure/net outgoings shown in the statement of financial activities in the statutory accounts for 2015–16. It should be noted that the net expenditure position includes a depreciation charge (i.e. non cash item) of £11.4m (see note 8 to the accounts) and hence there would be a net income position of £2.8m after this adjustment – however, technically it is funded from the reserves position which increased from £494m at 31 March 2015 to £557m at 31 March [2016] though this includes the fixed assets valued at £541m (see balance sheet) i.e. all the reserves are not free for use.

It is surprising – and worrying – that it takes an FOI request to get some clarity on a basic concept such as income and expenditure in the published accounts of a large public body like the NHM.

In order to rescue the museum's finances, it is essential to gain a complete picture of the scale and sources of its different budgets and expenditure. There can be no improvement without transparency. And yet astonishingly for the 21st century, an attitude that encourages opacity, coupled with generalised denial of the current state of affairs, is threatening to destroy a major national institution.

On close inspection of the NHM's accounts, the following points become clear:

1. Since 2001, the NHM has owned and is financially responsible for its assets, including the iconic Grade 1 listed building on Cromwell Road. Before very long, this building will require multimillion-pound repairs. Depreciation in the accounts should be saved and accumulated in a 'sinking fund' to pay for such large-scale, expensive renovation. But it is apparent from the accounts that this is not happening. Instead, the depreciation is being used to cover up the general financial mismanagement at the NHM. This poses a question: where will the money come from when (for example) the main roof needs replacing? The trustees at the NHM should

have an answer to this, otherwise the museum's current debt crisis could turn into total disaster.

2. The recent response to the FOI request explained that the deficit 'technically ... is funded from the reserves position ... of £557m at 31 March [2016] though this includes the fixed assets valued at £541m'. But this statement relies on accountancy sleight of hand: it is quite simply impossible for a substantial part of the £541 million of fixed assets to be realised as cash to pay for any large financial emergency. It would be neither politically nor practically feasible to sell off the main asset – the Cromwell Road building in South Kensington. The unpalatable fact is that the NHM has £84.7 million of expenditure, is now running an £8.6 million deficit and has at most £16 million of free assets. It must be clear to even the most financially illiterate trustee that the NHM is perilously close to bankruptcy.
3. In the period 2013–16, fundraising costs rose dramatically as a percentage of income generated. In 2016/17, the budget for fundraising was increased further, to allow experienced professional fundraisers to be taken on: it rose by a massive £1.4 million, yet the extra raised during the year was a mere £154,000. Shockingly, this extra fundraising, therefore, cost over £9 for each £1 raised! This is clearly poor value and suggests that the use of traditional fundraising techniques is not going to be helpful in eliminating the deficit in the NHM's accounts. The trustees need to examine new ways of fundraising in order to bridge this gap, and allow fundraising teams leeway to apply their expertise, rather than constrain them within the old, failing system.

Failure to rein in spending

The construction of the Darwin Centre – and particularly the £75 million overspend on Phase II in 2009 – undoubtedly had a serious negative impact on cash flow. At this point, a series of cautious, cost-saving measures should have been imple-

mented. And yet, incredibly, the NHM's expenditure has continued to rise steadily, with costly redecoration and headline-grabbing rearrangements, giving the impression of an institution that is very flush with funds.

Museum redecoration: Dippy hits the road

Until recently, visitors entering the museum from Cromwell Road were greeted by the impressive sight of 'Dippy' the *Diplodocus* in the Hintze Hall. But in summer 2017, Dippy was replaced. In his stead, the gigantic skeleton of a blue whale now hangs, beautifully displayed with coloured lighting. The space beneath the whale has been freed up for a visitor desk, and many more tables can now be accommodated at paying events.

Though it is hard to define in terms of the balance sheet, ultimately the rearrangement is likely to reduce still further both the museum's appeal as a venue for events and its visitor numbers. The New York Museum of Natural History also has a whale in its entrance hall, but nowhere else has a *Diplodocus*... A unique visitor experience has been lost.

The Hintze Hall now has a distinctly empty feel. And sadly, once again a golden opportunity to educate and inspire the public has gone begging. The displays in the entire area have been changed, but all the new exhibits – ranging from dinosaurs to algae – have been smartly tucked away in the alcoves, with nothing left on the main floor to obstruct the flow of visitors. While this might be a practical entrance concept, the Hintze Hall leads off to an equally minimalist museum. The achingly bare corridors are populated by donation boxes, and new digital displays have been mounted over old wall paintings of dinosaurs...

It is hard to imagine how the museum could have reduced the amount of information and collection items on display any further, and yet the newly refurbished sections clearly set the tone for the 'improvements' still to come. It remains unclear why the museum, at a time of financial stringency,

should have embarked on such an unnecessary and costly project, instead of addressing its urgent problems head on. Perhaps shockingly, there has never actually been a visitor survey of the NHM; however, it seems unlikely that any visitor would have complained about Dippy, who by all accounts was much loved. So where is the upside in this grand plan?

Worryingly, an FOI request for information on the fundraising plans to cover Dippy's removal and his planned nationwide tour reveals that the whole project is reliant on donations that have yet to arrive. Considering the financial risk and the sums involved, it is surprising that the project was ever approved by DCMS and the NHM board. The contingency plans to cover any funding shortfall are unclear, and no income forecast for Dippy's tour was provided. The current projected cost of the tour is just under £1.63 million, and yet only £500,000 had been raised by May 2017, just months before Dippy was due to travel to Canada for essential pre-tour refurbishment.

Declining numbers: deteriorating visitor experience

To make matters worse, the NHM has seen a drop in visitor numbers over the past couple of years. While it is hard to link this trend to anything in particular, the general public is clearly being put off by several aspects of the museum experience. Worryingly, in view of the need to meet the DCMS key performance indicators on visitor numbers, such a decline places the level of grant-in-aid at further risk.

“Just as maps are schematic representations of what is known about the physical world, so natural history collections are representations of what is known about the living world.”³

Dippy's controversial tour

A new museums and galleries tax relief, announced in the 2016 Budget, was launched in April 2017, following formal consultation on its design. It will support museums and galleries in developing new exhibitions and – importantly – in displaying their collections across the country.

This should be of great interest to the NHM, as its touring exhibitions do very badly: between 2013/14 and 2015/16, visitor numbers were down by 2 million – to just 1.8 million visits.

This trend is particularly worrying, as Dippy's nationwide eight-stop tour comes with a substantial price tag attached.

Principal costs:

Staffing costs (incl. fundraising): £373,000

Hardware and transport: £445,000

Marketing, maintenance and insurance: £538,800

Total: £1.356 million

Outrageously, of the £1.35 million budget, just £2,800 has been allocated to talks by scientists. This illustrates just how little importance the NHM management attaches to science and to the value of direct interaction with scientists. That should be the main purpose of the tour. But instead, the focus on Dippy's celebrity status is yet another stark example of how style currently prevails over substance in the museum.

The planned tour requires a significant outlay of money. It is particularly difficult to rationalise this in light of the ongoing cuts in science personnel. If the fundraising potential is available, shouldn't that energy be focused first and foremost on bolstering the position of staff and ensuring their ongoing valuable contribution to the scientific community?

3. www.researchgate.net/publication/308948655_The_Verrall_Lecture_2016_Collections_the_Last_Great_Frontiers_of_Exploration

Unfortunately, walking through the galleries in 2017, one does not get the impression that the message in this insightful quote from the 2016 Verrall Lecture has reached the upper echelons of the museum.

It is true that row upon row of stuffed animals would not be an appropriate display for a modern audience (and would not be a satisfying scientific representation of the animals or insects in question). However, the current minimalism of the galleries – clearly designed to optimise the flow of visitors, rather than highlight the exhibits – is excruciating in its lack of substance.

How can this apparently successful institution, with its queues of visitors, be missing the very essence of what those visitors are flocking to seek out?

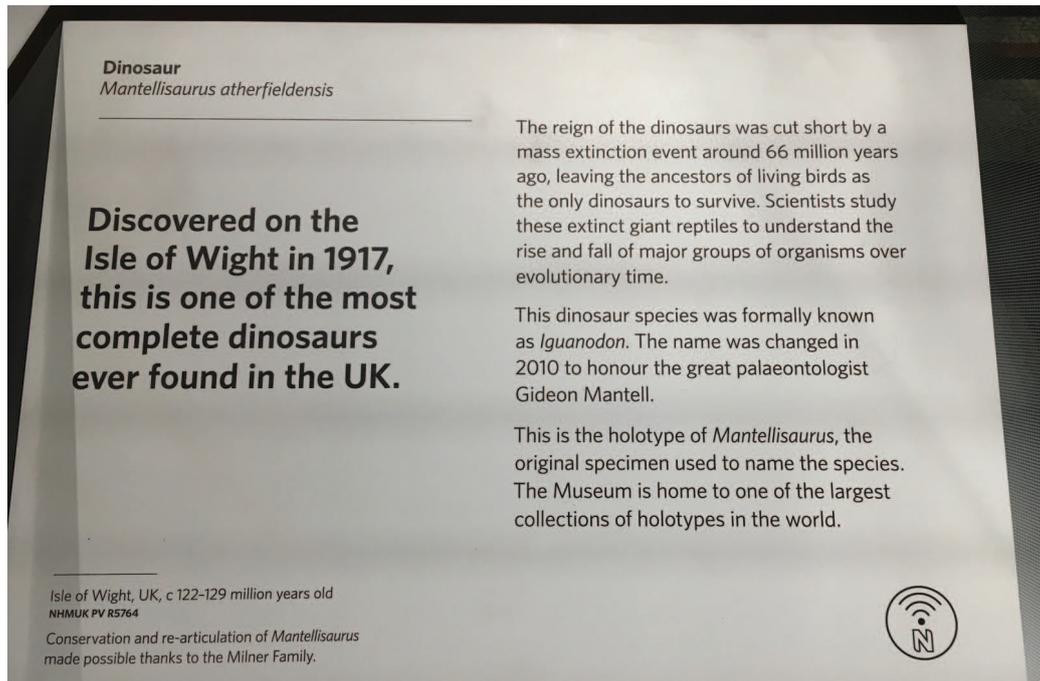
Instead of remedying the problem by offering the public more engaging and better-quality exhibits, the NHM seems gradually to be thinning out the

collections on display. Entire galleries are being replaced by new cafes, even though there are plenty of existing refreshment facilities close by.

The new exhibits resulting from the Hintze Hall upgrade could have marked the start of an improvement in the displays. Sadly, however, they merely compound the problem with their total lack of facts and their entire focus on style. In the first-floor galleries, as visitors walk around to take a better look at the hanging whale, the admittedly very beautifully displayed exhibits are shocking in terms of their lack of information. For instance, a large display about birds of the pheasant family shows a whole range of weird and wonderful avians – none of which even has a name attached, let alone any explanation about its habitat or ways of life. This sorry tale continues throughout the first-floor gallery, raising more and more questions as the visitor proceeds.



Figure 2: NHM visitor numbers, 1921–2015 (in millions)



One example of a factually incorrect interpretation board

The displays in the ground-floor alcoves are scarcely any better. Take, for instance, the photograph above, which shows an interpretation board for a dinosaur on show there. This board is flawed on so many levels:

- **Factual:** By implying that *Mantellisaurus* is no longer an *Iguanodon*, the text is factually incorrect.
- **Omission:** It fails to provide any explanation at all for why the dinosaur was assigned to a new genus (answer: because the museum's first-rate researchers discovered a subdivision of *Iguanodons*).
- **Interpretation:** The sign does not acknowledge that the theory of a sudden mass extinction event is controversial.
- **Language:** To cap it all, by claiming that *Mantellisaurus* was 'formally' (rather than 'formerly') known as an *Iguanodon*, it contains an egregious lapse of English.

Fewer events and lacklustre exhibits

One of the most disappointing developments in South Kensington has been the cancellation of

the daily science demonstrations in the Darwin Centre. These used to be very popular with budding scientists and their parents. In fact, they were the driving force behind the design of the Darwin Centre itself, where the public had an opportunity to meet the scientists and get to know the latest work going on at the museum. But the demonstrations have been pared back: first the tannoy announcements were dropped, so the public was not even aware of them; then the demonstrations themselves were dropped – on the pretext of poor attendance.

The Darwin Centre now attracts scarcely any visitors, and the large, empty space seems rather pointless. Instead, the museum prefers to embark on a crusade to 'stimulate public debate about humanity's future'⁴ – a political goal that is worlds away from the basis of science and natural history, which involves studying facts and data, and then interpreting them.

The lacklustre exhibits (together with the crowded buildings and offputtingly long queues) have led to a significant drop in visitor numbers in recent years. While the other large London

4. www.nhm.ac.uk/about-us/our-vision-strategy.html

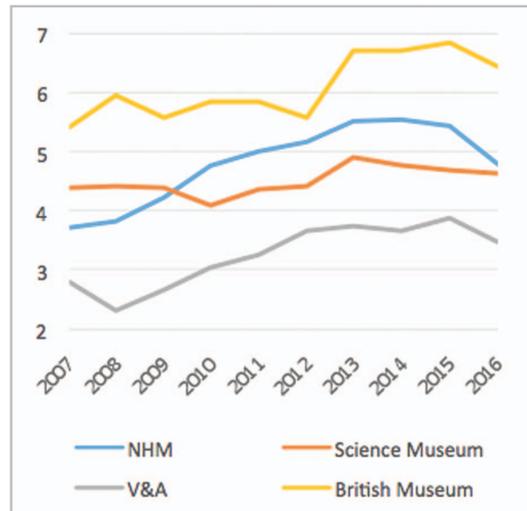


Figure 3: Comparative visitor numbers, 2007–16 (in millions)

Comparative museum visitor numbers

Visitor numbers for the four major museums shown in the figure above were taken from ALVA, the Association of Leading Visitor Attractions. The figures for the NHM differ slightly from its official figures listed over time, but this comparative analysis was carried out to track trends and highlight differences between the NHM and other major museums with similar visitor environments.

The V&A and the Science Museum both have outposts around the country, away from South Kensington (as does the NHM at Tring). Figures were analysed both with and without the additional visitors to those out-of-town attractions, in order to filter out any differences in regional effect. In fact, little difference in visitor number trends was recorded. The figures for the Museum of Science and Industry (in Manchester) were not included, as it only merged with the Science Museum in 2012.

The figures show an overall drop in visitor numbers to all museums between 2015 and 2016; the Science Museum and the NHM show a decrease since 2014, although the decline for the Science Museum campus in South Kensington is far less marked. Thanks to the museum's recent overhaul, it has somewhat bucked the trend.

The drop in visitor numbers to the NHM represents a huge change from the 184% increase in visitors recorded between 2001 and 2011.

museums experienced an average 4% downturn in visitor numbers between 2014 and 2016, the decline at the NHM was a massive 14%. Interestingly, the V&A's visitor numbers increased from 2014 to 2015, highlighting the effectiveness of its reorganisation and new, high-quality exhibits.

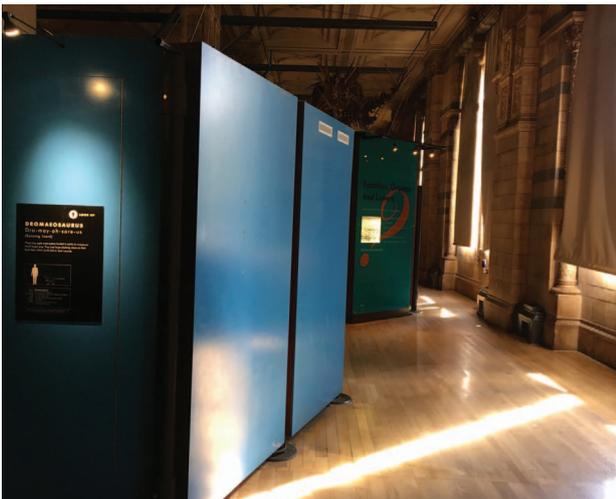
The dinosaurs left behind

The fate of the dinosaurs that were not sent on the hare-brained road trip is also far from rosy. The Dinosaurs Exhibition, traditionally one of the big draws of the museum for children and adults from around the world, is a real anti-climax. It is desperately in need of a serious upgrade, but instead is on the verge of extinction. The upper section has been closed off for no good reason; the number of dinosaurs on display has been cut; the animatronics *T. Rex* has been consigned to a separate room so as not to frighten small children; and the area contains some of the worst signage and displays in the whole museum.

Once a well-managed space, the Dinosaurs Exhibition has been reduced to a number of old-fashioned and difficult-to-read interpretation boards and backlit signs, a handful of spot-lit exhibits in awkward corners that the 'trail' omits, and a few casts of lesser-known – and thus rather unexciting – species dotted around. The experience is about as limp as passing through the IKEA office furniture section and being expected to spot an interesting desk lamp tucked away in the far corner.

The decline in the quality of the Dinosaurs Exhibition is in fact likely to be one reason for the

drop in visitor numbers, particularly in view of the incredibly long queues required to enter the display area.



An example of the poor displays in the museum's most popular exhibition

On their way out of this underwhelming experience, visitors can hardly be faulted for wanting to seek solace in the soft toy shop at the exit from the exhibition, in order to make up for the bitter disappointment of the outdated tour and the inaccessible *Dromaeosaurus* in the actual gallery.

Further refurbishment

The poor air quality in the museum – a result of overcrowding – is finally being addressed: a large air-processing unit is being installed in some of the back buildings. The unwieldy queuing system is also being modified outside the building: in a controversial move to improve visitor flow, the Wildlife Garden, with its 3,000 plant and animal species, is currently being removed. This should enhance visitors' experience on arrival, particularly at peak periods during the school holidays – albeit at the cost of an important living exhibition.

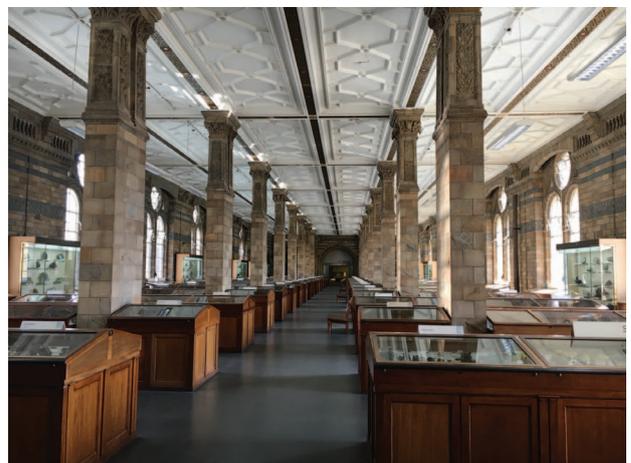
But the restricted access to the museum during these external modifications and the internal

work in the Hintze Hall was very poorly managed: the free maps that were handed out and all the temporary signage showed only the ground-floor exhibits and completely ignored the upstairs galleries, such as the minerals and gemstones exhibitions. For a long six months, this led to some desperately neglected spaces.

Marketing: antediluvian apps

The museum currently has two apps available for its visitors to download: a free app, whose lack of information on even basic topics such as dinosaurs is breath-taking; and a paid app called NHM Alive, which costs £4.99 and is seemingly to be used as a museum guide. There is no link to it from the free app to encourage people to sign up; and in any case, reviews have slated it for its impracticality and lack of content.

A well-designed, content-rich app is crucial to satisfy modern audiences and to reach the younger generations. It would be less damaging for the museum not to advertise any apps at all than to peddle such poorly designed and disappointing options. These really ought to be removed as a matter of some urgency.



The deserted upstairs Minerals Gallery during the Hintze Hall reorganisation (May 2017)

The two apps represent yet another squandered opportunity for engaging the public with interesting scientific facts, keeping them informed about the work going on at the museum and encouraging them to make their way to the less well-explored corners of the building, where beautiful and exciting treasures await them.

Marketing: gift shops

One relatively well-managed and successful aspect of the museum is its well-stocked gift shops. These are beautifully curated, using the latest retail techniques. They offer an example to the rest of the museum. However, even here there is room for improvement.

First, put simply, there are too few low-priced items available. This limits the offering for a whole market segment – particularly foreign visitors struggling with London prices and poor exchange rates. And yet foreign visitors should be a key target for the gift shops: their free entry is covered by the British taxpayer, so it is extra important to encourage them to give something back to the museum.

Secondly, from an educational point of view, the quality is disappointing – particularly of the dinosaur merchandise. It consists largely of soft toys, plastic toys and T-shirts, many of which can be found in cheap knock-off stores or in other toy shops around London. Far more could be done to provide unique, interesting, educational toys. 

4

The museum's current *Strategy to 2020*: where is it going wrong?

Rather than concentrating on stabilising its finances and income stream, in order to support its survival and its basic functions, the museum has delusions of grandeur. It is planning to build new galleries, mount new exhibitions and focus entirely on growing its visitor experience, without even acknowledging the serious impact that this will have on the scientific community and the dwindling science staff.

In its *Strategy to 2020*, published in 2015, the NHM attempts to set out its plans for the rest of the decade. Tellingly, it defines its main purpose as 'to challenge the way people think about the natural world' – a far cry from the museum's true *raison d'être*, the advancement of science, the scientific education of the public and the preservation of knowledge.

The 22-page document contains a litany of highly politicised social statements. Its list of key projects departs radically from fact-based science and the pursuit of knowledge. Moreover, it is utterly unrealistic from a funding perspective, and shows just how much in denial the directors of the organisation are about its finances.

The entire language of *Strategy to 2020* shows a complete lack of understanding of the fundamental principles of science and of the museum's legacy. The document talks, for instance, about providing a 'twenty-first-century toolkit to allow ... description ... of global diversity'. But the fact is that there already exists a whole branch of science – taxonomy – which does precisely that! Indeed, for years the museum has been running training courses to try and increase the overall number of taxonomists in the world, which has dwindled worryingly.

The museum really needs to focus on its mission of scientific education and stewardship. But it does appear that the corporatism of the 'noughties' destroyed any vision (or passion) for this mission and for the museum's place in society, now and

in the future. Instead, the NHM is being turned into a run-of-the-mill, rather poorly managed, underperforming entertainment venture. Yet converting it into a simple 'theme park' is not viable – not least because parents generally bring their children here for an educational outing.

The museum's own Earth Sciences section succeeds in combining good-quality scientific content with modern interactive displays. Instead of removing ever more facts and science from the exhibits, the museum should start drawing lessons from this well-presented section.

Science under threat

One consequence of the knee-jerk reaction to change and of the widespread poor management practices has been that museum staff endure a mediocre work environment. The museum's scientists and collections staff face constant worries about job security and feel generally undervalued. Given the total absence of clarity in the cost-saving process and any clear management direction, it is unsurprising that they feel they are being unfairly targeted.

Lack of a coherent strategy for science

The board seems to be under the (mistaken) impression that in the wake of government funding cuts, the only way to survive is to focus entirely on increased visitor numbers – even though these visitors do not pay any entrance fees and do not contribute directly to income.

In fact, the most important challenge from a financial standpoint comes from project funding and the need to move away from case-by-case studies and toward a clear, integrated set of science goals that relate to the collection and that are defined in an open and transparent way.

Some scientists have attracted good funding streams for their projects, but these often have no

clear relevance to the museum's aims: all they do is secure the presence of a particular scientist (or team) or meet the personal interests of a researcher or board member. For instance, in 2015 a project was funded by the Bill and Melinda Gates Foundation to look into intestinal parasitic worms and their transmission through soil. While this is clearly a fascinating and useful project that addresses humanitarian concerns, it is unclear how it fits with the scientific priorities of a natural history museum – rather than, say, with the priorities of University College London's Hospital for Tropical Diseases.

There are several instances in the museum of this type of 'pet project'. While they are interesting and clearly useful, they deflect resources and focus from the basic operating costs, the collection and, above all, the key scientific priorities of the museum itself. Although in theory, income may grow thanks to this type of project, in fact expenditure also increases accordingly, since the projects soak up resources independently of the museum's running costs. They divert resources away from existing staff members and keystone projects, which suffer because of the increase in overall expenditure.

A well-defined, integrated and transparent project-review process is desperately needed, in order to address the lack of clear scientific direction.

The Natural History Museum's educational role: crisis of confidence

At the NHM, the tension between those who are suspicious of any change and those anti-elitists who adopt a patronising attitude to the public has persisted for half a century. Previously, a balance was maintained. In the last two decades or so, however, leadership within the museum has become enfeebled and the institution is being riven by the conflicting views and agendas of its staff.

Sadly, it does appear that the patronising approach is winning the war of attrition. While the inflexible group becomes even more set in its ways and refuses to adapt to the changing world around

them, the anti-elitists have been given almost a free hand and are actively working to further their nihilistic goals. These self-appointed social engineers entertain the notion that a large proportion of the public is incapable of understanding science beyond some very basic fundamentals – a depressingly defeatist approach from the very people tasked with helping to educate the public about natural sciences.

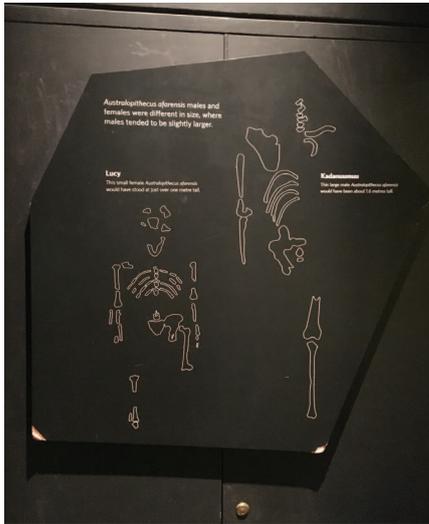
Dumbing down

All the exhibitions are now targeted at young children. In the 1970s, the tone was pitched at 15-year-olds. Now, however, the language used and the oversimplification (or outright removal) of facts is set far below that level, even though young children make up less than a quarter of visitors to the museum.

The management seems to have lost faith in the ability of the average child to learn and understand new facts and concepts. And by reducing the level to the lowest common denominator, rather than catering to the *average* level of interest and understanding, it is destroying any chance a child from a less-privileged background might have of keeping up with children who can access better education.

The exhibits now privilege style over substance: they are more about the display itself than the science behind it. When the new exhibition system was brought in 40 years ago, the content and science were pitched at a much higher level, ensuring that visitors remained interested and engaged while they were taught something valuable.

In the Children's Centre, there were always quizzes and programmes designed specifically for younger children. And elsewhere in the museum, the level of information was never off-putting to those with less education. It is quite unacceptable to write off the intellectual potential and educational capability of large swathes of society, based on ethnic or class assumptions.

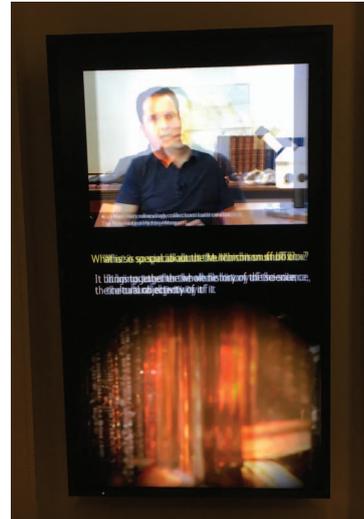


What would it cost to replace this tired sign with a proper one?

The exhibits: getting the educational balance right

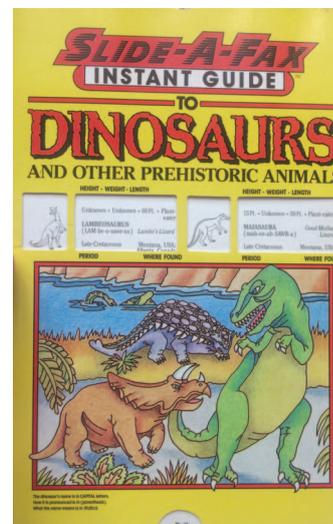
It is essential to make the exhibitions accessible, particularly in view of the pace of change in communications and technology over the past decade. Any attempt to prevent the march of time would certainly be a waste of time. And the sooner those who look back to the past face reality, the better.

A modern format would therefore involve the latest interactive technology and would almost certainly cater to today's shorter attention spans. But this need not be synonymous with a decline in content quality or a dumbing-down of the science on display. The principles of the new types of exhibitions brought in during the 1970s were founded on the basis of very close teamwork between scientists and exhibition managers, and there is absolutely no reason why this should not continue to be the case. Indeed, there are now graduates holding Science Communication degrees who know how to weave scientific fact into attractive exhibitions.



In the flagship gemstone collection on the first floor, the display screens are broken and impossible to read!

An institution of world renown is unworthy of its reputation if it does not deploy the best curation tools available, particularly as there are so many new technological options readily available to increase and improve the delivery of knowledge in its public galleries.



A fun and informative item from the 1980s



A child engaging with the beetle collection at the Natural History Museum (photo from the NHM website at www.nhm.ac.uk – accessed May 2017)

A further consequence of the current failing model is that those parents who bring their children to the Natural History Museum to be educated are currently being totally ignored. The poor scientific content and general ‘baby-fication’ of the exhibits reinforces the notion that only children can be interested in natural history, which leaves parents feeling like onlookers, rather than active participants.

A few lacklustre attempts have been made to run events of interest to adults; but a concerted effort is really required on the permanent exhibitions, supplemented by regular, stimulating discussions and events.

Once again, if support is to be gained from all potential sources of funding, it is essential to promote the ongoing research work and the NHM’s importance as a global data bank. Grassroots education is fundamental to this change of mindset. ↻

5

The museum's collections

“Museum collections are the conscience of the biological world: they tell us what we have and also, perhaps, what we have lost.”⁵

The Natural History Museum certainly has a mission to educate. But above all, it has a duty to display its current and past work and research, so that others can understand the wonderful legacy of knowledge that is held by this important institution – and the potential it offers for future discoveries. The basis for this activity is its incredible collection: around 80 million specimens gathered from around the world, covering a huge range of species, several of them now extinct.

The collection offers huge potential for research and discovery. It also gives visitors a unique opportunity to view creatures they could never otherwise hope to clap eyes on. But navigating such a huge range of specimens remains a science in itself, and choosing how to prioritise some areas of research over others requires a clear blueprint.

In recent years, pure scientific research has taken a back seat (even though not infrequently such inquiry has been a precursor to unexpected discoveries). This sets yet another challenge for the museum, as funding is increasingly becoming linked to applied research – that is, to projects with a specific *practical* need or aim.

The museum's incredible global data bank offers unparalleled potential for a balanced research portfolio. But its importance must be truly understood both by those who manage it and by those who fund it.

The collection and the museum's educational function

The arrival on television screens of some excellent wildlife documentaries in the late 1960s required a rethink of how collections were displayed. No longer was it enough to stick a specimen in a glass case to be admired: visitors had most likely already seen the animal in action on television. And today, increasingly sophisticated techniques bring stunning shots of scenery and wildlife behaviour direct to the world's living rooms via high-resolution screens.

The advent of cheap travel and package-tour safaris has also meant that more and more travellers have the chance to observe exotic animals in their natural environment. As a result, the large mammal and wildlife exhibitions have had to step out of the limelight, in favour of rare or extinct species.

The collection on display nowadays, therefore, needs to appeal to people in a different way. It needs to bring something new and captivating to an audience that has far greater access to information than ever before. It has proved very tempting for some exhibitors to politicise the messages on display, in an attempt to capture the public's attention by once again relating everything to human beings and their preoccupations.

However, this has led to many specimens being mothballed, in favour of pared-down, sometimes controversial and inevitably biased displays that further belittle the importance of the collection – and that have the potential to alienate groups of donors, too.

In the most recent example of such a move toward further flashy politicisation, in July 2017 the new Hintze Hall was unveiled, complete with its impressive blue whale skeleton hanging from the ceiling, replacing its unusual and unique dinosaur predecessor. In a highly politicised statement published in the press, Ian Owens, the director of science, claimed that '[the museum's] role is not

5. Richard Fortey, introducing the 2016 Verrall Lecture: www.researchgate.net/publication/308948655_The_Verrall_Lecture_2016_Collections_the_Last_Great_Frontiers_of_Exploration



Achingly bare galleries in the Natural History Museum

about campaigning or lecturing, but helping people engage with the issues'.⁶

The blue whale has been named 'Hope'. According to Mr Owens, the name was chosen because it is a 'positive symbol of humanity's power to shape a sustainable future'. This quite clearly confirms the intentions of the current management team to continue to use the NHM as a political mouthpiece, rather than as a serious scientific research institution. But leaving aside the tasteless politics, the board of directors really ought to have a better strategy for the future than planning the museum's future on a Hope and a prayer.

The anti-science bias

The declining prominence of collection items actually on display, together with an insistence on concentrating exclusively on how those items are relevant to human beings, means that the general public and funding bodies now fail to grasp the fundamental importance of the collection. In a world where simply collecting without any utilitarian purpose has gone out of fashion, the challenge is enormous.

6. www.standard.co.uk/goingout/attractions/natural-history-museum-unveil-dippys-replacement-a3586936.html

Twenty-first-century attitudes to science – particularly in western society – have become increasingly negative. At best, it is seen as a tedious academic subject that requires levels of diligence and discipline best left to the socially inept, to 'geeks'. The task of revitalising the public's interest in collections therefore rests squarely with those in charge of front-of-house exhibitions.

The collection and the museum's scientific function

It is necessary to understand why the public and the funding bodies have failed to grasp just how important the collection is to the very existence of the NHM. The collection itself, its storage, its usage and its growth have all come under attack for a variety of ill-informed reasons. The perception has been that caring for the collection is little more than a hobby for museum curators, and certainly should not be substantially backed by public money.

There is also a feeling in some quarters that if they are going to fund the collection, then as many items as possible should be on display. They do not realise that only very few specimens are actually suitable for display, rather than scientific study. But although a specimen cannot be exhibited, nor can it be disposed of, since each specimen

represents crucial information and forms part of a key grouping of specimens that helps us understand species biodiversity. Thus there is an extensive storage requirement.

An important problem that all collections face is the idea that building a natural history collection will come to an ‘end’, that the collection can be ‘finished’ – as if there were a finite number of samples to be collected or a finite amount of knowledge to be gathered. Understanding that natural history collections are a form of small-scale exploration – that they gather the pieces of a puzzle and provide the base materials for the study of larger systems, such as ecology or mineralogy – is key to scotching this misguided notion.

A better understanding of this would contribute to better storage planning and – most importantly – greater support for the collections and the researchers, who are currently helpless onlookers whose very presence at the museum seems under threat.

Digitisation

A natural reaction to storage and preservation issues is to suggest harnessing 21st-century technology: digitising the collection would enable the number of specimens in storage to be reduced and scientists to be moved off site. However, the very definition of digitisation varies greatly, ranging from maintaining a simple database of photographs, stored with information about the specimen’s origins (i.e. an online, searchable version of the specimen label), to three-dimensional microphotography, using computer technology to highlight known features and possibly discover previously unknown ones. The choice of technique would have a significant impact on resourcing, since the amount of time and effort required varies greatly across the various options.

A further problem is the expectation that is raised by the prospect of digitisation. While it is true that many (indeed possibly all) specimens can be digitised, the actual cost (in terms of time and equipment) of carrying out the operation

is gargantuan and dwarfs the efforts and costs required to manage and store a physical collection.

The perception of the items in the collection as ‘tools’ or ‘accessories’ generates a debate that simply does not exist in other museum and research environments: original works of art, historic documents and anthropological artefacts are photographed and reproduced, but they would never be wantonly destroyed, despite expensive – even exorbitant – maintenance costs. Even the suggestion of such an approach would be deemed risible, so why does this remain an acceptable discussion around natural history collections?



Cicindela scutellaris, the festive tiger beetle
(macrophotography by the US Geological Survey)

Exploiting and developing the collection

Scientific use of the collection is growing, thanks to the availability of very-high-resolution microscopes and imaging techniques, which can reveal differences between specimens and species that could never have been identified in the past. Researchers revisit collections and discover that the species definitions are not entirely correct; they re-order the rows of insects or animals, and in the process sometimes discover new species decades or centuries after they were first collected.

Beyond the existing specimens, scientists often revisit sites explored by their predecessors, such as Charles Darwin or Alfred Wallace. Comparing

recently collected beetles from the same islands as were visited by previous explorers has shown the presence of very different species and ratios, allowing entomologists to track changes in biodiversity – in many areas, for example, deforestation has had a significant impact on species distributions. The ability to compare results from a recent expedition with previous findings can reveal a wealth of information about ecosystems.

It should be remembered, too, that collections need to reach a critical mass to ensure a representative sample of a species: research has shown that, on average, 15 sets of collections are needed to reach a truly representative level of information.⁷



The Natural History Museum Collectors

Many private collectors have contributed to the vast collections of the Natural History Museum. Different people adopt different approaches to sourcing specimens – some gather their own, while others rely on international connections to obtain them.

Although the methods employed by early collectors were often contrary to our modern standards for ethics and sustainability, they like us, shared a desire to record, preserve and understand the natural world.



Very many prolific collectors contributed millions of specimens to the museum's collection, yet they are obliged to share a small display cabinet in a dark corner of the museum (note the disapproving comment about the means of acquisition)

7. M. Ferro and A. Flick (2015), "Collection bias" and the importance of natural history collections in species habitat modeling: a case study using *Thoracophorus costalis* Erichson (Coleoptera: Staphylinidae: Osoriinae), with a critique of GBIF.org', *The Coleopterists Bulletin*, 69(3), pp.415–425.

Sampling may have been very restricted geographically, due to local politics, safety, the weather, vegetation cover, the researchers' physical condition, the presence or absence of roads, etc. It is, therefore, important to obtain a wide range of samples, covering as broad a geographical area and as many variations in habitat as possible. The same argument holds true for the time dimension: variations observed between old and new specimens from the same island (say) may simply be related to access. Thus the old and the new collections may complement one another.

Institutionalised shame

“The [*Darwinilus sedarisi*] beetle was collected by Charles Darwin in 1832 in Argentina during the Beagle's voyage. The specimen was considered lost for many years until it was rediscovered recently in the Natural History Museum, London.”⁸

There is a stigma surrounding many of the original eighteenth-, nineteenth- and early twentieth-century explorers' collections that hampers their use both in scientific research and in exhibitions. It all stems from an overwhelming sense of guilt about imperialism and colonialism – phenomena that often encouraged and enabled exploration in the past.

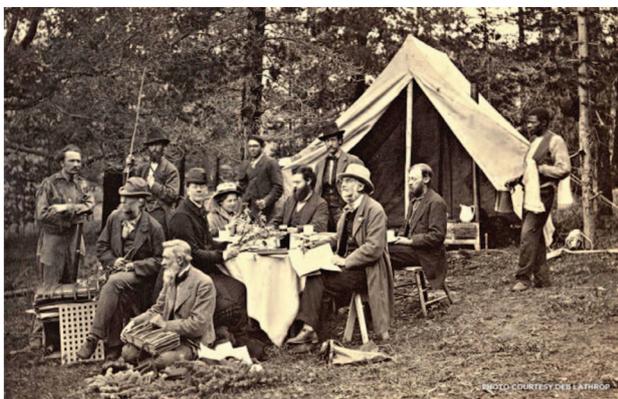
This focus on the means of acquisition, rather than on the actual scientific value of the specimens, is another symptom of the increased politicisation of museums.

8. 'Lost and found: New beetle collected by Darwin 180 years ago published on his birthday', *ScienceDaily*, 12 February 2014: www.sciencedaily.com/releases/2014/02/140212093341.htm

Those who argue this way are generally the same people who are so determined to compromise the quality of the science in the NHM exhibits. They stress the horrors of the past destruction of wildlife, while generally ignoring the exciting advances in science and medicine that resulted from this work.

Explorers in the past often used poorly remunerated locals to assist with their collecting work. The focus of attention in today's politicised climate very often becomes the feelings of aggrieved descendants, rather than the benefits conferred by these discoveries on medicine, agriculture and living conditions worldwide.

The practices and collection methods of the past have long been eschewed. In itself, this demonstrates



Botanists collecting samples, Veta Pass, Uptop, Colorado, 1878

that lessons have been learned and that progress has been made toward better ways of working, both with local communities around the world and with local nature. Modern exploration programmes include training for local scientists and very careful environmental mitigation measures, where required.

Yet rather than embrace these improvements and create opportunities for further progress, museums have allowed the strident demands of 'social activists' to clash with the enduring goals of education and betterment: scores of specimens are threatened with restricted display, in an attempt to pander to

political or religious pressure. These include long-running exhibitions on evolution.

While it is important to understand the complexities of past exploration, any attempt to adapt collections around how we feel about that history today is a mistake. Not only would it mean that the creatures who make up the specimens died in vain, but it would also distort our understanding of the past, by interpreting it through contemporary eyes.

The Natural History Museum faces many local and global challenges if it is to continue its work as a world-renowned scientific research institution and an educational venue for the general public. Outdated and ever-poorer-quality exhibitions have led to a downturn in visitor numbers. Meanwhile the museum's reluctance to protect and value its collections and the work of its scientists has led to a decrease in the number of days spent by visiting researchers: from 14,813 in 2013/14 to 14,575 in 2014/15 and 11,588 in 2015/16. Shockingly, these numbers dropped even further in 2016/17 – down to 8,103. This means that close to half of the museum's science visitors have been lost in the space of just three years, most likely because the relevant science staff have been let go by the museum. With the statement in the accounts that 'the number of enquiries to science group has dropped from 8,253 in 2016 to 6,675 in 2017', it is clear that the NHM is in the midst of a crisis of confidence.

More than anything, it seems that the museum may have reached capacity. The hard question needs to be asked: is there any reason to continue chasing growth at any price, rather than accept that there has to be a limit on visitor numbers for reasons of safety, comfort and quality, and instead focus on more efficient management of this institution? 🌱

6

Case study: Kew Gardens

By 2012, the Royal Botanic Gardens at Kew was in crisis. The institution had lost its sense of purpose and was nursing a gigantic financial black hole that showed no sign of diminishing. On the brink of bankruptcy, this important national body was rescued and turned around by a formidable team of directors, who instilled a sense of purpose and formulated a clear strategy for the future.

The situation in 2012

The Royal Botanic Gardens at Kew, a world-class repository of botanical and mycological knowledge and research, was in dire straits. After years of poor financial and technical management, this national scientific research institution had lost its way. It was working on piecemeal research projects, with no clear overall goals. Its only visibility was through its living exhibition of a garden, and visitor numbers were stagnating.

Taking stock, 2012–13

In 2012, Richard Deverell was appointed director of Kew Gardens. Deverell had been a trustee at Kew from 2003 to 2009 and, as a graduate in natural sciences, had a strong belief in Kew's ability and potential to continue to explain the importance of plants and their use to the public. He also had experience of turning around struggling institutions, having previously reorganised and refocused Children's BBC.

In 2013, Deverell brought in David Cope as head of strategy, and Professor Kathy Willis for the newly created position of director of science. Their main tasks were to untangle the institution's convoluted and disorganised finances and to set out a new strategy for science, with the aim of achieving the shared vision of an efficiently run organisation with a clear scientific mission, fit for the 21st century.

Suddenly and unexpectedly, careful planning had to be replaced with crisis management when Kew's deeply buried secret was revealed: while the team was working through the budgets and

finances for 2014/15, a £5 million black hole was uncovered. Since this accounted for approximately 10% of its overall budget, Kew Gardens found itself in need of immediate and urgent solutions to stave off bankruptcy.

The main causes for the shortfall were:

- a larger-than-expected drop in government contributions (which made up over 40% of Kew's income)
- a reduction by the Kew Foundation in its unrestricted grants, after several years of overpayment
- poor control over costs and budgeting: staff levels were not matched to income, and there had been no increase in income-generation programmes.

Confronted with this catastrophic discovery, the new management team was faced with three choices: appeal to government for increased funding; look for alternative ways to drag the organisation out of its crippling debt; or file for bankruptcy.

Testing times, 2013–15

With successive governments increasingly moving away from scientific and art grant allocations, and with a clear trend toward reduced state contributions to national institutions generally, the choice was made to increase Kew's self-sufficiency and thus boost its self-determination. The main aim of this approach is for Kew to generate the bulk of its own income in the mid- to long term, thus reducing its reliance on government handouts. This should ensure that it never again faces such extreme conditions and is never again at the mercy of political vagaries.

At this point, a number of well-meaning celebrities and the local MP became involved, determined to keep the existing (failing) funding model alive. Eventually they secured a small, one-off

grant from government to help toward the existing debts. Further emergency funds were unlocked by the Kew Foundation. Nevertheless, this approach did nothing to address the fundamental issue at hand: how to deal with the legacy of inefficiency, poor management and antiquated work practices. The management team remained committed to its programme of reform.

The toughest part of reform was undoubtedly having to make large numbers of staff redundant, in order to balance the books: about 15% of the workforce was laid off, and most staff had to reapply for jobs internally.

Though an unavoidable part of reorganisation and cost-cutting, the move was inevitably seen as an attack on science and the fundamental mission of the gardens – particularly since the emergency firefighting meant that a strategy for science had not yet been published to fit the changes into a clear framework.

Most tellingly, the former leadership team was completely replaced between 2012 and 2014, in a bid to improve the running of the institution and avoid any repetition of the catastrophic scenario.



The new science strategy clarifies Kew's *raison d'être*. It identifies nine key goals to achieve this mission, to be delivered by the six newly reorganised departments at Kew

A new lease of life, 2015–20

Once the urgent financial and organisational measures had been rolled out to ensure the survival of the institution, a comprehensive, forward-looking science strategy was released.

A steadfast focus on financial stability and careful budgeting has meant that staffing levels have risen again, almost to 2013 levels, though there is a slightly modified staff distribution across exhibitions and research. Three-to-five-year fellowships, often externally funded, have been created, as have post-doctoral opportunities to encourage fresh perspectives and to grow the global base of botanical scientists.

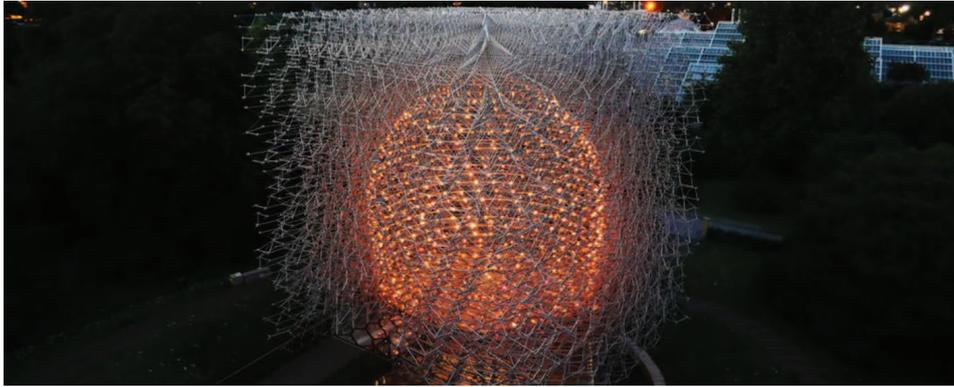
The science strategy clearly states that Kew's purpose is:

1. To document and conduct research into global plant and fungal diversity and its uses for humanity.
2. To curate and provide data-rich evidence from Kew's unrivalled collections as a global asset for scientific research.
3. To disseminate our scientific knowledge of plants and fungi, maximising its impact in science, education, conservation policy and management.⁹

The nine aims of the strategy, to be worked on over the next five years, are:

- the digitisation of the collections
- the creation of a Plants of the World Online Portal
- the creation of a Useful Plants and Fungi Portal
- producing an annual report and symposium on the state of the world's plants

9. www.kew.org/sites/default/files/Kew%20Science%20Strategy%202015-2020%20Single%20pages.pdf



The Hive has attracted a significant number of additional visitors

- maintaining the Seed Bank at Wakehurst
- running an MSc course to train up the next generation of taxonomists
- producing genome-scale DNA data for each genus of plant and fungus
- setting up app-guided walks that showcase research and facts related to plants in the gardens, and running a yearly children's Science Fair
- designating Tropical Important Plant Areas, to identify threatened species in the tropics in seven countries.

Keeping scientists with the collections lies at the heart of the new strategy. This should maximise the use that can be made of the collections and ensure optimal integration of knowledge, away from a 'silo' mentality and organisation where crucial information might not get shared. There remains the ongoing challenge of keeping a balance between using the site facilities for scientific research and allocating resources to the institution's mission of educating the public and raising funds through exhibitions. With this in mind, plans are being considered for a permanent building dedicated to public exhibitions.

The approach to exhibition management is still being tested out in these early days of the strategy: no clear preference has emerged for

using curators to put on exhibitions or for having professional exhibitors team up with Kew scientists to produce an exhibition. Both models have been run satisfactorily, and while there may be a tendency toward the latter, collaborative, model, the current approach recognises that the choice may depend on the collection, and it leaves the door open to both specialist curators and exhibition professionals.

One good example of how to integrate the collections with the visitor experience, in order to illustrate the importance and implications of biodiversity, was the Science Fair run in summer 2016. Though small, it proved to be a very popular and successful event, and there are plans for a similar, more permanent set-up in future.

The Hive, a large beehive-type structure, was erected on site as a ground-breaking new concept to link art and science. It is both a work of art, which enhances the garden's beauty, and an interesting exhibition space, where the public can learn all about bees and pollination. This extremely successful exhibition is included in the entrance fee and has attracted scores of extra visitors to the gardens.

Nevertheless, the primary objective is to keep Kew financially viable in the long run, with a stable income base to ensure that standard running costs can be met at all times. Organising features such as The Hive, while seemingly very successful at increasing visitor numbers, requires time and

resources to be spent on generating one-off funding. The key lesson from this project was that such bolt-on fundraising should be reserved for a slightly later stage of the strategy, so that attention is not deflected from the baseline fundraising effort.

Since its launch in 2015, the new science strategy has brought about a resurgence of interest in the Royal Botanic Gardens at Kew. Donations are up, as donors can clearly see where their money is being spent and in what direction the research is heading. Staff numbers are also up, and the next aim is to increase annual visitor numbers, slowly but steadily, from 1.5 million to 2 million by 2020. Such an increase would have no detrimental effect on the collections or the infrastructure, but would increase baseline income from the admission fees.

During Kew's financial review, external consultants were hired to run some financial forward modelling. This work included investigating gate prices. The results showed that the entrance fee had reached the maximum acceptable level of affordability; any higher and visitor numbers would start to decline, thus reducing the overall income from entrance fees. The way to achieve increased revenue from entrance fees is thus to boost visitor numbers by mounting exhibitions like the Science Fair or Christmas at Kew. The gardens currently only run at capacity for two or three days a year, and so there certainly remains scope for a realistic increase in visitor numbers, without spoiling the visitor experience through overcrowding.

Looking to the future, Kew's prospects are certainly looking up. The new strategy is being rolled out according to plan and is already showing results. Most importantly, it has saved the institution from ruin and has re-instilled a sense of purpose in the work being carried out and a shared sense of direction. Much remains to be done to secure stable income in the long run and to increase the interaction between scientists and the public in order to boost knowledge sharing. But Kew seems to have been able, when the going got tough and at no little cost,

to extricate itself from its fatal downward spiral and join the 21st century. In the process, it has sown the seeds for its future success. 

7

The way forward for the Natural History Museum

The Natural History Museum is in crisis at every conceivable level. Aside from its financial mismanagement, the museum has been affected by a more widespread issue: a cultural crisis that affects attitudes to science and scientific institutions across the country. Arguably, some of the blame for the museum's poor management and its short-termist responses can be laid at the door of these deep-seated cultural attitudes. What seems clear is that these issues need to be recognised and addressed before the NHM (and indeed other scientific research centres) can once again thrive. The problems need to be tackled head on by a strong, competent management team, with a clear focus on science.

In the past decade, Kew Gardens, the V&A and the Science Museum have all undergone major reorganisation. They have turned around their fortunes and have rejuvenated their missions, presenting high-quality exhibitions while stabilising their funding to ensure continued sustainability. Despite differences in scale and location, with its dual function as a scientific research centre and an educational public venue, Kew Gardens offers a good case study for the NHM.

In order to save the Natural History Museum, its director and board of trustees will similarly have to implement swingeing reform to address the multiple problems within the institution. These measures will be unpopular in the short term, but they are crucial to the NHM's chances of survival. They should restore its financial stability, as well as its status both in the scientific world and in the eyes of the general public.

To ensure that the necessary tough decisions can be made, a clear restructuring plan needs to be drawn up, with well-defined objectives. Only in this way can all departments work toward the same goal in a transparent and efficient manner. It is crucial for the museum to reinstate science as its key priority, and to reunite its research and front-of-house departments in a shared vision that honours its history and safeguards its future. Ideally, a plan for change management should be included right

from the start, in order to avoid crisis situations like those seen at Kew.

Recommendations

To this end, our ten key recommendations for improvement are as follows.

1. Open and transparent accounting and cash flows

It has been a challenge in itself to go through the museum's annual account statements. The museum's first priority must be to make its accounts significantly more transparent and accessible. Only when the public can see what is happening with its substantial taxpayer contribution will its trust be won; and only then will it be possible to rely on the continued patronage of private donors. There should be no need for FOI requests to understand the (unnecessarily complex) cash flows – the key items in the yearly accounts should be self-explanatory.

The Natural History Museum should not only adhere in theory to the best-practice guidelines set out by the Charity Commission in 2015 in its Statement of Recommended Practice (SORP), but should genuinely take on board the spirit of those guidelines. Each line item in the published accounts should be plainly labelled, and sources of income and expenditure should be broken down into clearly identifiable categories. Kew's annual statement of accounts provides an excellent template for the level of clarity required: it eliminates any doubt about wasteful or unconstrained spending, and highlights areas in need of greater fundraising support.

It is crucial for the NHM to increase the proportion of its private income versus grant-in-aid – not only to meet its DCMS requirements, but also to ensure its financial independence. A key part of that will be to instil fresh confidence in its financial practices (having signally failed to do so in recent years).

Clearly defined, specific goals for expenditure and the allocation of funds need to be set out, in order to promote clarity in the institution's workings.

2. Lead with science: define clear, measurable outputs within a science strategy

In order to regain focus, the museum desperately needs to get back to first principles. This has been a key element in Kew's turnaround, and it should be central to the NHM's redevelopment strategy. A clear strategy for science – superseding the backward-looking document produced by the NHM in 2015 – needs to define specific aims and goals on which all research and exhibition projects converge. A limited number of research areas should be defined, particularly in the early days of reform, in order to focus staff and fundraising efforts toward a common goal and away from the extra, standalone projects that soak up staff resources without contributing to the museum's revenue. Members of staff need to work much more closely together.

With a clear strategy for science set out, it will be much easier to allocate income and expenditure to the key targets defined in the strategy. Donors will be able to see exactly where their money has gone; there will be a reduction in waste; and it will be easier to create more sustainable cash flows and budgeting in areas that are currently difficult to understand – such as building maintenance costs.

3. Focused fundraising

In order to achieve stable baseline funding, it is important for the museum to have a realistic fundraising strategy, with attainable goals. The fundraising department needs to become a positive force in the museum – a valued enabler, which works toward facilitating more science research projects, while ensuring that all projects contribute something to the museum's running costs.

This requires close teamwork between the fundraising team and the science heads of department, who should present their approved projects to the fundraising team that has the task of raising the required funds. At no point should scientists be

required to become fundraisers, who operate a very different skillset to a research scientist.

Conversely, fundraising teams should never influence or pass judgement on approved science projects – funding allocation priorities remain a matter for the management team, and scientists should not feel the need to downplay the costs of a project when planning for it, or to justify the need for science spending to fundraisers.

Some scientific staff probably will manage to obtain funding for specialist projects in their field, through professional networks and conferences. These can be a welcome bonus project for any department. But approval needs to be granted by the management team consistently and transparently, and sponsors should routinely be referred to the fundraising team so that suitable agreements can be made, including a required contribution to the museum's running costs. A percentage of funding should be decided up front by the management team, to be allocated to these ad hoc projects throughout the year.

It may be easier to attract short-term funding for highly visible one-off projects targeted at visitors and the public, but these cannot be allowed to divert the focus of attention away from making the institution sustainable enough to retain its core staff and maintain its buildings and collections. All front-of-house project funding should also include a contribution to the museum's core costs. Close teamwork between the fundraising and marketing departments is important, as they work jointly to improve the museum's image and encourage patrons to become involved.

High-quality, temporary paying exhibitions (such as those put on by the British Museum or the V&A) should be mounted in a large, dedicated 'temporary exhibition' gallery. Once a staple of the NHM experience, temporary exhibitions have gradually disappeared from the museum's offerings, dwindling to a small room tucked away behind a shop.

But well-curated themed exhibitions that showcase different aspects of the collection and ongoing research (possibly in parallel with a V&A themed exhibition) would attract repeat visitors. A new temporary paying exhibition about whales has now opened, coinciding with the arrival of the new whale skeleton. Though it is not currently very well advertised, nevertheless it is to be hoped that this space for temporary paying exhibitions will remain active in future. It could generate an excellent income stream from a range of visitors.

A new-style 'Friends of the NHM' scheme should be launched. This would include an option just to sponsor an item or collection, without necessarily linking sponsorship to physical benefits, such as free access to special exhibitions (as is offered by the current 'Membership' package). This would unlock the regular fundraising potential, as one-off visitors – even from abroad – could maintain their links with the museum after their trip.

Audio guides should be made available to visitors at the entrance (for, say, £5), to generate a steady and substantial income. The guides would need to be multilingual, so as to engage with the international audience (and bring some much-needed financial contribution from non-taxpaying overseas visitors). The guides would have the further benefit of encouraging an even distribution of footfall around the galleries, by providing set tour options. They would offer detailed explanations about key exhibits in each room. While visitors' attention is focused on the display, the guides could also inform them in an engaging way about ongoing research work at the museum. This would further enhance the museum's image.

The transition to a transparent, well-organised, sustainable institution will require funding to cover the costs of reorganisation and to level out the significant losses of the past few years. Once a clear restructuring strategy is set out, donors who may be prepared to fund such a transition can be approached.

4. Champion knowledge: in research and in exhibitions, striving for knowledge to fuel discoveries

The annual number of peer-reviewed publications fell by more than a hundred between 2013/14 and 2015/16, to 831. This trend needs to be reversed. Peer recognition in the scientific world is often related to publications – a research scientist's primary means of sharing his or her progress with the global scientific community. To restore the museum's prestige, as well as to bolster information sharing, publication numbers need to be maintained, at the very least.

Museum scientists should receive much more recognition internally for their contributions to the museum's mission. They need to be able to focus on their research, rather than be distracted by fundraising, worries about poor work practices and the constant fear of losing their job. Ideally, the museum should aim to employ more scientists, not fewer, in order to deliver world-class research results. It should start to work proactively to obtain new research projects that are focused on its collection and based on the recommendations (and indeed the vision) of its scientists, rather than reactively, snatching at any passing project in a desperate (and failing) bid to cover the costs of ongoing collection maintenance.

The Natural History Museum also needs to develop more joint research and knowledge-sharing programmes with other institutions around the country whose missions or expertise may overlap with its own. In London, for instance, the NHM and Kew Gardens share certain botanical interests, yet none of the research is integrated. Nor are the collections or projects linked so as to minimise duplication; instead they remain in institutionalised silos. Closer links to other museums and collections around the country should be a key component of new workflows, in order to maximise knowledge sharing and growth. This is already one of the key performance indicators required by the DCMS; but

regardless of the inevitable political fluctuations, this should become an integral part of the museum's scientific strategy.

5. Value and invest in expertise: aim to recruit and retain a diverse and world-class workforce worthy of a reputable institution

Current internal tensions within the museum have created an undesirable working culture. This cannot be allowed to continue. In order to attract the best research and exhibition talent – not just nationally, but globally – a modern environment that recognises merit is essential to ensure a creatively diverse, supportive and stimulating working environment. Not only should the board of trustees reflect such diversity in its own composition, but more importantly it should have the skills and expertise to enable a healthy, modern professional environment within the museum.

Staff performance and retention should be seen as a key ingredient in the success of the Natural History Museum. Boosting the number of visiting researchers is a must. This will increase the sharing of knowledge and ensure access to the world's leading experts in their field.

If it is to stand any chance of achieving the ambitious goals that will need to be set, the fundraising team will have to attract – and more importantly retain – highly experienced staff. It is imperative that this expertise should be correctly allocated where it is needed; it should also be fostered, rather than micromanaged through outdated methods. Continuous input should be encouraged from the team at the fundraising coalface, so that there is a better understanding of which types of projects and concepts have the potential to generate funds and which stimulate no philanthropic appetite.

6. Delivering ideas: select priorities and introduce new concepts one step at a time

It is relatively easy to think up a raft of new and exciting projects that could be organised around

the collection, along with major step changes in its ways of operating. Nevertheless, to preserve the institution's stability, each development needs to slot into a well-planned change-management framework. There must be clearly defined priorities for the concepts and projects that are to be implemented first – even if that means shelving an exciting new idea if it arises at the wrong time. The stability of the museum must at all costs come first. This applies particularly to the transition period, when the museum will be struggling to get back onto a firm financial footing; but the same approach should be favoured at all times, so that the museum's stability is never again compromised.

7. Create an external science audit and peer-review group

The benefits of peer review are widely acknowledged across the scientific world, in both the academic and the commercial communities. Thus far, aside from technical presentations to the sponsors of its projects, the NHM has only relied on formal peer-reviewed publications as a means of presenting its research.

However, an external audit team of the type encountered in industry would be an excellent addition to the NHM's workflow. This would ensure that science projects remain aligned with the museum's strategy. It would discourage the pursuit of unrelated 'pet projects' and would allow input from the entire research team. As well as keeping all projects relevant to the museum, it could assess all research with fresh eyes – and without the 'publishability' bias encountered in the drive to submit papers for publication.

8. Explore and grow the collection

Keeping scientists with the collection must lie at the heart of the new strategy. This will maximise the usefulness of the collections and ensure the optimal integration of knowledge, avoiding a 'silo' mentality and fiefdoms, where crucial information

may not get shared. There remains, however, an ongoing challenge to strike a balance between using the site facilities for scientific research and to house the growing collection, and allocating resources to the institution's mission of educating the public and raising funds through exhibitions and commercial activities.

Particularly for active research projects in need of fresh information, the plans for the collection need to include exploration and the acquisition of new specimens through expeditions (while such options are still available). Existing collection purchase should continue in the case of topics that fall within the science strategy, but funding priority ought to be given to a defined number of expeditions each year, in order to gather useful new specimens while this remains possible.

9. Be honest and open about history, depoliticise exhibits and trust the public

The past may not always have been very savoury, but we cannot change history. It needs to be accepted, warts and all, so that the reams of knowledge gained at the time can be shared and maximised, no matter what the means of acquisition.

Nor can reality be distorted to fit with the latest fads or fashions in faith-based or political interests, particularly with regard to the science of evolution. And as for the fruitless task of trying to appease various emotional responses or of trying to reconcile facts with the preferred narratives of certain groups – that should not even be attempted.

The museum needs to take a step back from the politicised statements in its publications, strategy and exhibitions, and refocus its attention and messages on plain science and facts, in order to avoid manipulating the data, corrupting the science and alienating certain groups and donors.

Visitors of all ages and walks of life have the capacity to understand a broad range of scientific facts and concepts, if the effort is made to explain it to them properly. Exhibitors (with support from

in-house scientists) need to have the confidence to produce high-quality interpretations and displays for their exhibits. In order to broaden the appeal beyond young children, and thereby to engage adult visitors, they need to provide various different levels of information for each display. This approach would also fit with the current DCMS requirement to ensure that the museum retains its broad appeal.

10. Online presence, marketing and public image

The Natural History Museum website recorded 3 million fewer hits in 2015/16 than in the previous year. This was most likely due to a combination of lower public engagement and a generalised shift to social networks for information gathering, particularly among the younger audience.

The Natural History Museum should change its performance indicators from just website visits to include social media engagement – a far more representative indication of user engagement than website hits. The museum's social media accounts seem to be growing well, with Twitter followers up to over 2.9 million in just a few years and Instagram up to 120,000 in just two years.

The existing museum apps really need to be removed as a matter of some urgency. Time and effort should be expended on developing a good audio guide that could then be 'coded up' for a high-quality new app. A successful app would be another way of reaching a broader audience, since museum updates (and possible fundraising drives) would be easy to send out.

The museum has a significant amount of work to do on its public image, if it is to rectify the damage of the last few decades, address a number of the cultural issues it faces and promote natural sciences in general and itself in particular.

This marketing work needs to be managed in close conjunction with the science research departments, in order to ensure that the public image fits the ongoing strategy, contains solid scientific facts

and promotes the latest research projects (while avoiding slip-ups, such as Dave the earthworm's poorly handled story from November 2016).¹⁰ With such fast and easy access to social media and global networks, reputational clangers are incredibly easy to commit. And so careful management of such situations needs to be in place, alongside better control over work-related communications.

The marketing team would also need to work very closely with the fundraising teams, communicating with patrons and potential donors in order to ensure a seamless and consistent flow of information, and thus maintain the museum's stable and professional image. 

10. www.bbc.com/news/uk-england-37861928

Conclusion

The Natural History Museum has faced many challenges in its lifetime, but none quite so fundamentally defining as its latest ongoing struggles. Never before has so much doubt been cast on the museum's sense of purpose and financial stability; never before has so little value been placed on its scientists and collections; and never before has there been so much pressure on the museum to be efficient and increasingly self-sufficient.

In-depth auditing and reorganisation of the museum's mismanaged finances is urgently required. Moreover, there needs to be a serious culture change within the museum: from functioning as a workplace with procedures and attitudes worthy of a caricature 1960s civil service department, it needs to transform itself into a modern, inclusive and efficient place of work, where staff retention is no longer an issue. The museum must be able to recruit top people in their fields and allow them to carry out their work with support from their managers, rather than be stifled by destructive micromanagement, inefficient decision making and unprofessional behaviour.

The pursuit of knowledge and science should be the unifying priority for the museum's management. All decisions should be taken openly and transparently, and all should have that goal in sight. Most importantly, the museum's basic functions should be secured before it launches any new exhibitions or projects that divert funding away from the core business.

Reform has already taken place at Kew Gardens, the V&A and the Science Museum to bring these institutions into the 21st century and return them to the black, without compromising their purpose or integrity. In order to be in with a chance of making it through for the next generation, the Natural History Museum urgently needs to extract its head from the sand and embark on a similar voyage of renewal. 



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