

Dry Store Room No.1

The Secret Life of the Natural History Museum

Richard Fortey

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Extract

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Behind the galleries



This book is my own store room, a personal archive, designed to explain what goes on behind the polished doors in the Natural History Museum. All our lives are collections curated through memory. We pick up recollections and facts and store them, often half forgotten, or tucked away on shelves buried deep in the psyche. Not everything is as blameless as we might like. But the sum total of that deep archive is what makes us who we are. I cannot escape the fact that working for a whole lifetime within the extravagant building in South Kensington has moulded much of my character. By the same token, I also know the place rather better than any outsider. I am in a position to write a natural history of the Natural History Museum, to elucidate its human fauna and explain its ethology. There are histories that deal with the decisions of the mighty, and there are histories that are concerned with the ways of ordinary people. An admirable history of the Natural History Museum as an institution, by William T. Stearn, was published in 1981. What Stearn largely left out was an account of the achievements, hopes and frustrations, virtues and failings of the scientists who occupied the ‘shop floor’ – the social history, if you like. My own *Dry Store Room No. 1* will curate some of the stories of the people who go to make up a unique place. I believe profoundly in the importance of museums; I would go as far as to say that you

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can judge a society by the quality of its museums. But they do not exist as collections alone. In the long term, the lustre of a museum does not depend only on the artefacts or objects it contains – the people who work out of sight are what keeps a museum alive by contributing research to make the collections active, or by applying learning and scholarship to reveal more than was known before about the stored objects. I want to bring those invisible people into the sunlight. From a thousand possible stories I will pick up one or two, just those that happen to have made it into my own collection. Although I describe my particular institution I dare say it could be a proxy for any other great museum. Perhaps my investigations will even cast a little light on to the museum that makes up our own biography, our character, ourselves.

At first glance the Natural History Museum looks like some kind of cathedral, dominated by towers topped by short spires; these lie at the centre of the building and at its eastern and western corners. Ranks of round-topped Romanesque windows lie on ‘aisles’ connecting the towers which confirm the first impression of a sacred building. Even on a dull day the outside of the Museum shows a pleasing shade of buff, a mass of terracotta tiles, the warmth of which contrasts with the pale stucco of the terraces that line much of the other side of the Cromwell Road. Courses of blue tiles break up the solidity of the façade. The entrance to the Museum is a great rounded repeated arch, flanked by columns, and the front doors are reached by walking up a series of broad steps. Arriving at the Natural History Museum is rather like entering one of the magnificent cathedrals of Europe, like those at Reims, Chartres or Strasbourg. The visitor almost expects to hear the trilling of an organ, or the sudden pause of a choir in rehearsal. Instead, there is the cacophony of young voices. And where the Gothic cathedral will have a panoply of saints on the tympanum above the door, or maybe carvings of the Flight from Egypt, here instead are motifs of natural history – foliage with sheep, a wolf, a muscled kangaroo.

The main hall still retains the feel of the nave of a great Gothic cathedral, because it is so high and generously vaulted. But now the differences are obvious. High above, where the cathedral might display flying buttresses, there are great arches of steel, not modestly

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concealed, but rather flaunted for all they are worth. This is a display of the Victorian delight in technology, a celebration of what new engineering techniques could perform in the nineteenth century. Elsewhere in the Natural History Museum, a steel frame is concealed beneath a covering of terracotta tiles that completely smother the surface of the outside and most of the inside of the building; these paint the dominant pale-brown colour. Only in the hall are the bones exposed. This could have created a stark effect, but is softened by painted ceiling panels; no angels spreadeagled above, but instead wonderful stylized paintings of plants. It does not take a botanist to recognize some of them: here is a Scots pine (*Pinus sylvestris*),* there is a lemon tree (*Citrus limonum*), but how many Europeans would recognize the cacao plant (*Theobroma cacao*)? Many visitors, and most children, don't even notice these charming ceiling paintings. Their attention is captured by other bones: the enormous *Diplodocus* dinosaur that occupies the centre of the ground floor, heading in osteological splendour towards the door. Its tiny head bears a mouthful of splayed teeth in a grinning welcome.

The *Diplodocus* has been there a long time. It is actually a cast of an original in Pittsburgh, which was assembled in the Museum during 1905. The great philanthropist Andrew Carnegie presented the specimen to King Edward VII who then handed it over to the Museum in person at a grand public occasion. *Diplodocus* was proudly in place when I first came to the Natural History Museum as a little boy in the 1950s, and it was still there when I retired in 2006. I am always glad to see it; not that I regard a constructed replica of an ancient fossil as an old friend, it is just consoling to pass the time of day with something that changes little in a mutable world.

But *Diplodocus* has changed, albeit rather subtly. When I was a youngster, the enormously long *Diplodocus* tail hung down at the rear end and almost trailed along the floor, its great number of extended vertebrae supported by a series of little props. This arrangement was not popular with the warders, as unscrupulous visitors would

* I will give the scientific names of all the plants and animals mentioned in this book, because such taxonomy is central to the work of the Natural History Museum.

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Diplodocus carnegii, the giant plant-eating dinosaur, with its tail uplifted.
The *Diplodocus* skeleton was moved to its present position in the main hall
from the former reptile gallery in 1979.

occasionally steal the last vertebra from the end of the tail. There was even a box of 'spares' to make good the work of thieves so that the full backbone was restored by the time the doors opened the following day. Visitors today will see a rather different *Diplodocus*: the tail is elevated like an extended whip held well above the ground, supported on a brass crutch which has been somewhat cruelly compared with those often to be found in the paintings of Salvador Dalí; now the massive beast has an altogether more vigorous stance. The skeleton was remodelled after research indicated that the tail had a function as a counterbalance to the extraordinarily long neck at the opposite end of the body. Far from being a laggard, *Diplodocus* was an active animal, despite the smallness of its brain. Nowadays, all the huge sauropod dinosaurs in films such as *Jurassic Park* show the tail in this active position. Many exhibits in a natural history museum are not permanent in the way that sculptures or portraits are in an art gallery. Bones can be rehung in a more literal way than paintings.

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Now animatronic dinosaurs flash their teeth and groan, and carry us back effectively to the Cretaceous period, a hundred million years ago. Small children shelter nervously behind the legs of their parents. 'Don't worry,' say the parents, 'they aren't real.' The kids do not always look convinced. The bones that caused such a sensation in Andrew Carnegie's time a century ago, and that still command attention in the main hall, are now sometimes considered a little too tame. There is, to my mind, still something eloquent about the *Diplodocus* specimen: not merely its size, but that it is the assembled evidence for part of a vanished world. All those glamorous animations and movie adventures rely ultimately on the bones. A museum is a place where the visitor can come to examine evidence, as well as to be diverted. Before the exhibitions started to tell stories, that was one of the main functions of a museum, and the evidence was laid out in ranks. There are still galleries in the Natural History Museum displaying minerals, the objects themselves – unadorned but for labels – a kind of museum of a museum, preserved in aspic from the days of such systematic rather than thematic exhibits. Few people now find their way to these galleries.

The public galleries take up much less than half of the space of the Natural History Museum. Tucked away, mostly out of view, there is a warren of corridors, obsolete galleries, offices, libraries and above all, collections. This is the natural habitat of the curator. It is where I have spent a large part of my life – indeed, the Natural History Museum provides a way of life as distinctive as that of a monastery. Most people in the world at large know very little about this unique habitat. This is the world I shall reveal.

I had been a natural historian for as long as I could remember and I had always wanted to work in a museum. When there was a 'career day' at my school in west London I was foolish enough to ask the careers master, 'How do you get into a museum?' The other boys chortled and guffawed and cried out, 'Through the front door!' But I soon learned that it would not be that easy. Getting 'into a museum' as a researcher or curator is a rather arduous business. A first degree must be taken in an appropriate subject, geology in my case, and this in turn followed by a PhD in a speciality close to the area of research

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in the museum. When I applied for my job in 1970 this was enough, but today the demands are even greater. A researcher must have a 'track record', which is a euphemism for lots of published scientific papers – that is, articles on research printed in prestigious scientific journals. He or she must also be described in glowing terms by any number of referees; and, most difficult of all, there must be the prospect of raising funds from the rather small number of public bodies that pay out for research. It is a tall order. Even so, the most important qualification remains what it always was: a fascination and love for natural history. There is no other job quite like it.

The interview for my job was conducted in the Board Room. It was 1970. To reach the rather stern room on the first floor of the Natural History Museum I had passed through several sets of impressive mahogany doors. A large and very polished table was in the middle of the room, the kind of table that is always associated with admonishment. On one wall there was and still is a splendid portrait of the first Director of the Museum, the famous anatomist Sir Richard Owen, by Holman Hunt. He was an old man when he sat for the portrait, and is dressed in a brilliant scarlet robe, beautifully painted to show the glint of satin, indicative of some very superior doctorate. His glittering eyes survey the room, intent on not tolerating fools gladly. Each candidate was interviewed by the Keeper of Palaeontology – who was the head of the appropriate department – and his Deputy Keeper, together with the Museum Secretary, Mr Coleman. The Secretary was a rather grand personage at that time, who more or less ran the museum from the administrative side. There was also a sleepy-looking gentleman from the Civil Service Commission, who was there for some arcane purpose connected with the fact that the successful candidate would be paid out of the public purse. I was dressed in my best, and indeed only, suit and very nervous.

I was applying to be the 'trilobite man' for the Museum. The previous occupant of the post was Bill Dean, who had gone off to join the Geological Survey of Canada. He left behind a formidable reputation. Trilobites are one of the largest and most varied groups of extinct animals, and being paid to study them is one of the greatest privileges in palaeontology. I had not yet completed my PhD thesis,

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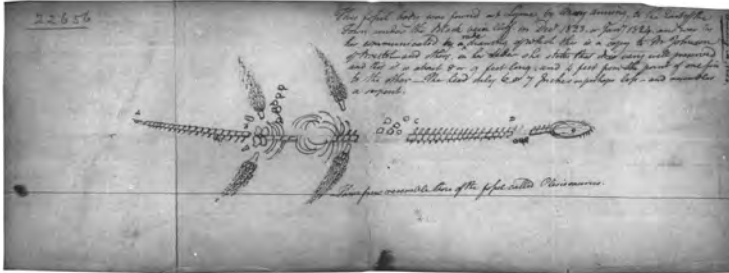
and was young and inexperienced. My fellow candidates were ahead of me by a few months or years. We would all get to know one another well over the course of our professional lives, but for the moment conversation was restricted to twitchy pleasantries. We sat on uncomfortable chairs in a kind of corridor and awaited our turn in the Board Room. Eventually, I had to go in to face the piercing eyes of Sir Richard. The questioning began. Fortunately, I had made some interesting discoveries in the Arctic island of Spitsbergen where I had been carrying out my PhD research at Cambridge University, so once I got going I had a lot to talk about, and my general air of nervousness began to subside. I had discovered all kinds of new trilobites in the Ordovician* age rocks there, and studying these animals seemed a matter of pressing excitement. Youthful enthusiasm can occasionally count for more than mature wisdom. The man from the Civil Service Commission stirred himself once and asked if I played any sport. The answer was no, except for tiddlywinks. He then sank back into apparent torpor. The Keeper smiled at me benignly. Hands were shaken, and it was all over. Did I imagine something less severe in Sir Richard Owen's expression as I left the Board Room?

Several weeks later I was offered the job. In view of my youth I was taken on as a Junior Research Fellow, which meant, I think, that if I did not work out I could be politely escorted out of the cathedral. But important to me was that I was entitled to go behind the mahogany doors into the secret world of the collections, and to receive a modest salary for doing so. I was being paid to do work that I would have done for nothing. I had a season ticket to a world of wonders.

To trace my journey behind the scenes, follow me along one of the few galleries remaining from the old days of the Museum, one flanked by a high wall lined with cases bearing the fossils of ancient marine reptiles: ichthyosaurs and plesiosaurs. They look as if they are swimming along this wall, one above the other, making a kind of Jurassic dolphin pod (although of course they are not biologically related to those similar-looking living mammals). They comprise a

* 475 million years ago.

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Pen-and-ink drawing of a Jurassic plesiosaur
made by pioneer fossil collector Mary Anning in 1824.

famous collection, including some specimens that are the basis of a fossil species name. One of the ichthyosaurs probably died in the process of giving birth to live young, although few visitors notice the label explaining this curious and fascinating fact. Several of the skeletons were dug out by the pioneer fossil collector Mary Anning, who was one of very few women scientists in the first half of the nineteenth century; on summer afternoons an actress may play the part of Miss Anning on the gallery, much to the bemusement of Japanese visitors who think she must be selling something. At the end of the gallery stands the skeleton of a giant sloth from South America, geologically very much younger than the ichthyosaurs. This fine specimen is routinely mistaken for a dinosaur by the more desultory Museum visitors, but it is a mammal, albeit of a special and monstrous kind. Behind the sloth there is a door. And behind the door lies the Department of Palaeontology, home of the really old fossils.

The door opens with a special key. When I first joined the Museum, the keys were issued every day from a key pound staffed by a warder. Every department had a coloured disc attached to the key, a different colour for Botany, Palaeontology, the Office, or whatever. Each member of staff had an individual number. So when I arrived at the key pound in the morning I had to cry out '47 Grey!' and within a few seconds I would be handed my keys by a uniformed warder. When a member of staff became well known to the warder, the arrival of the right keys might anticipate the hollering. The keys

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were massive, old-fashioned steel affairs such as you might expect to be carried by a 'screw' in a prison, or by a miser to open an antique oak chest, and they turned in the locks with a satisfying clunk. There was a specialist locksmith hidden away somewhere in the bowels of the Museum, whose job it was to oil the locks, and keep the keys turning. I soon learned that had I attempted to get into the room where the precious gems were stored I would have discovered that my keys would not fit into that particular lock. There were hierarchies of trust. Presumably only the Director had keys that worked in every lock. We were instructed to keep the keys on our person at all times. Graven into the metalwork were the words '20 shillings reward if found', a measure of the antiquity of the keys, since even in the early 1970s a quid was not much of a reward. From time to time the Secretary would tour the Museum to see which naughty boys and girls had left their keys upon their desks while they went off for a cup of tea, and a ticking-off from above by means of a pompous memorandum would follow. An even worse crime was unwittingly to walk out of the Museum bearing the precious keys. At the end of the working day, the warder could spot a miscreant by an unfilled space in the ranks of keys. Forgetful members of staff were commanded to come back late at night from Brighton or East Grinstead to restore their keys to the hook. A dressing-down would follow from the head of department the following day. The locks were changed in the 1980s to modern Yale varieties, but the new keys were still tailored to different security needs, so I still cannot get to steal the diamonds. By one of those weird volte-faces that only bureaucratic institutions can manage, it is now against the rules to *fail* to take the keys home with you.

Let us go through the doors to the collections. They are housed in a long gallery, across which run banks of cabinets, each some ten yards or so long. There are fifty-seven such banks on the ground floor of the Palaeontology Department, every cabinet neatly sealed by a sliding door designed to keep out the dust. Most of the doors are locked as they are supposed to be. But there is one that has obviously not been sealed away. Carefully slide open the door, and there lies revealed a series of a dozen or so mahogany drawers inside each

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cabinet. There are labels attached to the middle of the drawers, any one of which might be deeper than the typical cutlery drawer at home. A curator has written a scientific name of an animal in a neat hand on the label, together with some locality information. Pull open the drawer and peer inside: it slides easily on metal runners. There are white cardboard trays on which rest a number of what are evidently bones of various kinds. Even without specialist knowledge it is possible to recognize teeth of several varieties, alongside fragments of limb bones. One of the teeth is a massive affair, a kind of ribbed washboard on a massive bony base – this is completely characteristic of the elephant family, a monument of masticatory might. These teeth allow elephants to crush tough vegetation of many kinds. All the bones and teeth are more or less stained a yellowish colour. And all of them are fossils, retrieved from the ground by searching strata, digging or scraping in quarries or cliffs; they have acquired the stain of time from their long interment of several hundred thousand years, possibly as a result of the action of iron-rich fluids. Every fragment, no matter how unspectacular it is, tells a story about past time, each one is a talisman for unlocking history. The specimens in this drawer are all fossil mammals, distant cousins of the sloth that guards the entrance to the department.

The collections in this particular part of the Museum and in this particular aisle are devoted to vertebrates from the geologically recent period known as the Pleistocene, a time slice that includes the last ice ages. Inside the tray on which each fossil rests there is a neatly written label which tells us that this particular collection was derived from the cliffs at Easton Bavents, near Southwold in the county of Suffolk, a place where the sea is eroding some of the youngest rocks in Britain, though they are still over a million years old. Sharp-eyed local collectors had spotted these organic remains as winter storms excavated them from the soft sandy cliffs. Had they not been collected and housed in a museum, a few seasons of weathering on those harsh shores would have reduced the bones to meaningless rubble. So the Museum provides a way of cheating decay, of sequestering information from the degradations of time. Doubtless, each specimen provoked a thrill of recognition in its discoverer, the satisfaction of a

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search rewarded. This single drawer preserves the record of days of endeavour and an archive of pleasure in discovery, or secret gloating over finding the best specimens of the season. Each bone could tell a story of the relative roles of luck and perseverance in science. Fossil fragments have an eloquence that belies their yellowish uniformity. Perhaps the observer will feel a twinge of disappointment at the incompleteness of the specimens, having seen reconstructions in books and films of whole animals striding about the landscape. These remains are just scraps, bits and pieces, odds and ends. The truth is that much fossil material is like this. The skill of the scientist often lies in being able to identify small pieces of a whole animal: from tooth to elephant. Every morsel of the past is useful.

The writing on the labels does not betray any drama of discovery. Old labels like these are written in the hand of the curator at the time the specimen is identified. They are small slips, about the size of one of those special postage stamps issued by countries like San Marino. The writing has to be very neat. Old labels are frequently found written in the copperplate script preferred by the Victorians. Newer ones favour small, neat script. Everything is written in Indian ink so that time will not allow the messages to fade. After all, the 1753 Act of Parliament that set up the British Museum specified that the collections 'shall remain and be preserved in the Museum for public use for all posterity'. These labels were meant to last. An old label is a message from a curator whom one might never have met, but a little personal message on paper nonetheless. There was a time when the hiring of curators was accompanied by a writing test; nobody with overly large writing would be employed, nor any scribblers, nor any who employed extravagant curlicues. Graphologists would have had a very dull time with those who came through the interviews. More recently, the computer has replaced the skilled human being, as so often, so that neat little labels can be spewed out of a laser printer at the touch of a button. In future, labels will always be impersonal (and if there is a mistake, probably nobody will know who made it). At the top of the label accompanying the large tooth is the Latin, or scientific, name of the animal concerned: *Mammuthus primigenius* – an ancient mammoth. Any visiting scientist will

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recognize that name. The rock formation from which it was recovered (Easton Bavents Formation) is given next. The age of the specimen within the Pleistocene period follows. Beneath this again is the locality, specified quite precisely. Nowadays a locality might well be given by a GPS position, but British specimens could be fairly precisely located by reference to the national grid, and I have seldom had a problem relocating a locality if this information was given. Then there is the name of the collector of the specimen, who also happened to donate it to the Museum 'for all posterity'. Many labels will include more information, especially if the specimen to hand has been mentioned or figured in a scientific paper. This is how the importance of the material is conveyed to the outside world: not everybody can come to root around in the drawers of the Museum to see the specimens themselves. Specimens are made known to experts around the world primarily through catalogues and technical publications. So the label might also bear something like: 'Figured by Ann T. Quarian in *Transactions of the Society for Ancient Things* Volume 1, Plate 1 figure 2'.

That is just one specimen taken at random from a single drawer in a rank of drawers in just one cupboard from one row of cabinets. Some drawers may contain a hundred specimens or more – the next one down includes tiny vole teeth, for example. There may be a dozen or more drawers in a single rank; and there are some ten ranks of drawers in a row. On this floor there are fifty-seven rows or lines of cabinets; except where very large specimens are accommodated, almost every drawer carries a full burden of specimens. In this department alone there are three floors of fossil collections of comparable or greater size. That adds up to a very large complement of drawers, and a vast number of specimens. It does not require a calculation to show that only a tiny fraction of the material held by the Museum is on display to the public: the galleries show the merest sample from a colossal collection. In the secret world behind the scenes there is no shortage of specimens; indeed, one of the main problems is how to accommodate the sheer bulk of new material. Much of it is fragmentary, like the Easton Bavents bones. Its value is scientific and it would not fetch much on the open market. A few specimens are precious and valuable in their own right. 'Million dollar fossils' might include

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Countless specimens: rows of cabinets and drawers for storing the insect collection.
In 2007 this storage was being replaced and renewed.

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the famous original of the Jurassic bird *Archaeopteryx* or the exquisitely preserved fossils of Cretaceous fishes from Brazil. But that is not why we have museums with collections of natural history specimens. A few scraps of bone can tell us what the climate was like three hundred thousand years ago: that is a value that cannot be reckoned in euros or dollars.

My first office was not in the present palaeontology wing, which was officially opened in 1977 – by which time I was already an old hand. I originally had an office in the old building, tucked away in the basement beside the main entrance. On busy days I could hear the chattering of children as they swarmed up the steps. It was a hugely tall room, and not like an office at all, lit from a large window that looked out on to the lawn in front of the Museum. The collections – my part of the collections – were stored within the room in old storage cabinets. The office was so tall that it had an extra gallery halfway up, reached by a steel staircase. If I wanted to examine some part of the collections I would have to clunk up the stairs, carrying my hand lens, like an antiquarian gaoler, and open drawers in this upper storey. There were railings all around it to ensure that I did not fall off. The cabinets were beautifully crafted. Each drawer had an independently suspended glass top to keep out the dust. The mortise and tenon joints that formed the corners of the drawers would have struck dumb any carpenter. Labels on the front of each drawer recorded the scientific names of the fossils within. They were cupboards made for eternity. From my first day in that office I felt like an expert – the man from the BM.

I should explain that the Natural History Museum was then known in the scientific trade as the BM, the British Museum. The official title of the museum at the time of my employment was in fact the British Museum (Natural History). The South Kensington museum had split off from the original BM at Bloomsbury when the natural history collections had become so large as to require separate accommodation. The divorce from the mother institution was slow and legalistic. Formal separation from Bloomsbury did not happen until an Act of Parliament of 16 August 1965. The old BM title nonetheless had a magisterial presence that could not be instantly

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erased. My colleagues would call me up to make a date to 'come to the BM' as if that were the only way in which it could be referred to. At conferences, I would still describe myself as belonging to the British Museum – after all, there were other natural history museums all over the place but only one BM, which housed collections made by Sir Joseph Banks and Charles Darwin. However, since the public at large referred to it as the Natural History Museum, in 1990 that finally became its official title. Farewell to the BM, with the finality of the end of the gold sovereign or the landau carriage. Even so, some of my more senior colleagues still sneakily find themselves talking about 'finding time to call in at the BM . . .'.

So there I was in my official premises, surrounded by the collections upon which I was to work and to which I was supposed to add. My contract had specified only that I 'should undertake work upon the fossil Arthropoda', which left me free to roam through hundreds of millions of years. It might as well have said: 'Amuse yourself – for money.' But I did have a boss to whom I was accountable. As I have mentioned, the head of department in a British national museum is called the Keeper. This may call up an image of a man in braces mucking out a gorilla cage, or it may have connotations of somebody jangling keys and going around inspecting security locks. It is, however, rather a grand title, one that entitles the bearer to an entry in *Who's Who*. My boss, the Keeper of Palaeontology, was H. W. Ball – Harold William. Above a certain level in the hierarchy one was allowed to call him 'Bill'; otherwise, it was always 'Dr Ball'. He had the room directly above me, a place of leather-topped desks and filing cabinets. He was guarded by the kind of devoted secretary who exists mostly in the pages of spy novels, like the prim Miss Money Penny in the James Bond thrillers. She was called Miss Belcher. She was an unmarried lady who lived with and cared for her mother; in the Palaeontology Department she was omniscient. Some years later, I discovered that her Christian name was Phoebe, but I would have no more dreamed of addressing her by that name than I would of addressing the Queen as 'Lizzie'. She occupied an anteroom through which one had to pass to access the presence of the Keeper; and she always called him that, just as she always called me 'Dr Fortey' until she retired.