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Berlin has grown out of its clothes

Speech at the opening of the WMC on the 7th October 2014

Athesinus Consort Berlin
Felix Mendelssohn-Bartholdy (1807-1849): Der frohe Wandersmann

Ladies and Gentlemen,
we are gathered together for this congress in a significant geographical location within the fabric of the city of Berlin. I would like to describe it in some detail and present it to you in its historical context.

This neighbourhood lies just *outside* the historical city, an area west of the Oranienburger Gate and is bounded by the Invalidenstraße to the west, by the Luisenstraße to the south and by the Friedrichstraße on its eastern side.

I also want to touch on the material and cultural processes that have been played out here – in industrial production and scientific research – that were also typical of other large towns in Europe and the United States in the 19th century.

To take two examples: firstly, the iron works and foundries with their massive exploitation of energy and manpower in the pursuit of capital that resulted in the science of Taylorism; and, secondly, the investigation of the human and the animal body in the pursuit of theoretical and practical knowledge – in the field of pathology - that resulted in improved techniques of treatment.

Berlin is unusual because of the curious bundling together of these two quite different processes within its urban texture.

However, most of these once dominant urban features have in the meantime been changed in some way, have vanished entirely or are now almost completely forgotten.

Particularly strange - and perhaps unique - is the aggregation of scientific institutions and heavy industry that began at the end of the 18th century. That is, the mixture of brain-power and muscle-power; the sciences, and the art of engineering; and the accumulation of capital – both real and symbolic.

Let me quote from a newspaper article from 1889 about the inauguration of the Zoological Museum, now Museum für Naturkunde: the Natural History Museum – the very place where you will come together for tonight's opening.

In the north-west of Berlin, between the Unter den Linden and the Invalidenstraße a number of fine buildings have appeared, all of them dedicated to the development and expansion of both the practical Arts and the purely theoretical Sciences: The Physical and Physiological Institute; the Academy of Mines; the High School for Agriculture - all of them have put their roots down here. Likewise, various other Institutes - for chemistry, for technology, botany, and pharmacology; and - rather earlier - the School of Veterinary Medicine. This Scientific Quarter has now been graced with yet another new scientific state institute: the Zoological Museum

This impressive building stands on what used to be the site of the former Royal Prussian Iron Foundry: behind the Platz am Neuen Tor on the Invalidenstraße and between the High School for Agriculture and the Academy of Mines.

Just two years later, in 1891, the Langenbeck Haus was built on a site in the nearby Ziegelstraße on the banks of the River Spree. It had been conceived two decades earlier, in 1871, one year after the foundation of the Reich and was modelled on the *Royal College of Surgeons* in England. (In a similar way and at about the same time, the shaping of the City of Greater Berlin was modelled on the administration of Greater London.) By 1915 this building had became too small for the rapidly expanding German Medical Association. Furthermore, new standards of hygiene had been introduced, so its successor, the Langenbeck-Virchow-Haus – where we are right now – was set up at Luisenstraße, number 58, adjacent to the Natural History Museum and the older School of Veterinary Medicine. The *cultural* significance of this building can be measured by the attribute "the heavenly twins" that was accorded the doctors after whom it was named, Dr. Langenbeck and Dr. Virchow, so putting them on a par with Schiller and Goethe.

The Natural History Museum and the later Langenbeck-Virchow-Haus mark a paradigm shift in the architectural and cultural history of this part of north-west Berlin.

Athesinus Consort Berlin
Ralph Vaughan Williams (1872-1948): Bushes and briars

What seems today to be an area devoted almost exclusively to the sciences, was once far more heterogeneous. In the middle of the 19th century Berliners referred to the space now occupied by the Natural History Museum as the *Feuerland – the Land of Fire*: namely the gigantic factories of the Royal Prussian Iron Foundry and August Borsig's Machine Factory. Here again, there was an English prototype - this time her *dark satanic mills.* Like Virchow and Langenbeck, the industrialist August Borsig was much admired: *"the manifestation of the new age; a pattern and example for our youngest generation."*

This site was chosen and rapidly developed simply because of its position outside the confining city walls and customs barrier. Here there was sufficient empty space for building. This expansion was accelerated by the construction of an enormous complex of railway networks that culminated in a hydra's head of main stations that surrounded Berlin and pointed in all directions. The *Land of Fire* was served by the north-western and northern terminals Hamburger Station and Stettiner Station. It was certainly not by chance that both of these two railways led to seaports!

Borsig's factories were a techno-industrial self-fulfilling prophesy. Their main products were locomotives, rails and rolling stock. These products were fed into the railway network, so attracting sufficient farm workers to fill the factories of the big city, a closed loop that changed the traditional relationship between town and country for ever. (Today - and in a similar fashion - each new kilometre of roadway attracts sufficient traffic to fill it.)

Carl Eduard Biermann's splendid industrial panorama of 1847 gives a good impression of the resulting fumes and vapours that wafted eastwards and down-wind towards the royal capital and seat of power.

The historian Gerd Heinemann provides a graphic picture of the *Land of Fire* based on contemporary accounts. Coming from the Friedrichstrasse and arriving at the Oranienburger Gate he saw "*towering pointed chimneys - a broad vista of obelisks erected by the pharaohs of industry."*

In this area *"between the North Canal and the Invaliden-Park lies Berlin's* Land of Fire. *A second Birmingham; a kingdom founded by Borsig and expanded by his competitors. Everywhere the reek of soot and iron; the throb of machinery and the steam-hammers. The demonic power of steam has chosen this part of the city to be the scene of its restless and tumultuous activity."*

The first iron foundry was set up in this area in 1804, that is, just ten years after the opening of the School of Veterinary Medicine. Within the next 50 years most of the heavy industry was concentrated in the *Oranienburger Vorstadt* - as the area was then known. (In this context it should be mentioned that, until the middle of the 20th century, Berlin was always Germany's largest industrial town.) "Feuerland – the Land of Fire" is therefore not just a euphemism, the air really was burning. Adolph Menzel painted it.

An unsigned article in an 1848 Leipziger *Illustrirten Zeitung* provides a romantic vision of the *Feuerland* – by turns anatomical, clumsily lyrical, and pseudo-religious. Needless to say, there was no mention of the appalling working conditions.

Berlin has outgrown its clothes. Its powerful soot-smeared workman's hand stretches out from the narrow sleeve of the Oranienburger Gate. In its deep grooves are the sidings of the Stettiner and Hamburg stations; every finger and every part of every finger is a machine shop or an iron foundry. Borsig's factory complex is the thumb. In an area of 1.200 000 square feet [about 372,000 square metres] stand a row of one- and two-storey buildings, all of massive construction, while another space, about three times the size, is reserved for stacks of raw material and other factory facilities. Overhead, a pall of smoke issues from three lofty chimneys - the victory flag of the Steam Age.

Combining beauty with utility, the owner has ordered a model of a charging lion from the well-known animal sculptor, Herr Wolff, and has had it cast in iron by his own foundry. Gushing from its jaws, a broad jet of hot water discharges into a stone pond.

With hesitant amazement and cautious wonder we stand in the midst of spaces that bear witness to the immensity of human endeavour. And if we should fear the power of steam and fire with their threat of violent destruction, so we are strengthened by our consciousness of the yet greater power of the playful - but confident - human spirit.

From the foot-wide mouth of three smelting ovens, a flow of white-hot iron emerges in a blinding stream. Everywhere on the foundry floor, smoke belches from the filling forms. From the soot-blackened beams, iron chains hang from colossal winches, waiting to lift the many hundredweights of castings from their moulds.

Drugged by the droning beat of the great steam engines, mesmerised by the mindless scream, clank and rattle of many thousand wheels, we come to a stop at the threshold of the great turntable. If mankind ever assumed the right to worship itself, here it might be forgiven. If there is anyone who does not understand what is meant by "an organism", here, despite the machinery, he would be enlightened. Every worker, every wheel, every axle fulfils its purpose. Each, it seems, for itself - alone.

We have never been able to hear the grass growing. But now we have heard how locomotives grow and come into being – no less wonderful! With every beat of the hammer, so our heart beats stronger with the feeling: "See what Mankind can do!" As the steam swells with power inside the boiler, so our breast swells with this thought: we are called to be part of Mankind and, God willing, each Man can create a World from within himself."

In the last half of the 19th century a process began, that, in Berlin was known as *Randwanderung der Industrie* - "industry's flight to the outskirts". *Feuerland* vanished from the urban topography as industry shifted even further outwards towards the edge of town and – thanks to Borsig, Siemens and other captains of industry - the city was now so rich that it could afford to build temples for the Pharaohs of science.

Before *Feuerland* was built there existed an unusual complex within the town walls; an academic precinct. It still exists and, if one has the time, is well worth seeing: I refer to the *Thier-Arznei-Schule,* the School of Veterinary Medicine by Carl Gotthard Langhans from 1794, a building whose style and proportions were inspired by Palladio's *Rotonda.* The complex included the *Zootomie* - a veterinary anatomical theatre - *warm and cold baths for horses* and an Apothecary's House. It was sited in the grounds of the Reußschen Gardens, a former baroque park that was to be radically transformed in the course of this development. Langhans had visited several English landscaped parks and also the Wörlitzer Park which is laid out in the English style. He followed these originals in the park that surrounds his

Rotonda. It stood on a low, grassy hillock and was bordered by the River Panke, a tributary of the Spree. It was set about with bowling greens and lawns on which were planted clumps of Pyramid-Poplars as a vertical element - the northern answer to the cypresses of an Italian garden. Wandering sandy paths underlined the idyllic character of the ensemble. Langhans is perhaps best known for a later work, his classical Brandenburg Gate. However, it is characteristic of his stylistic mastery that, in this earlier work, he did not hesitate to replace Palladio's rigid parterres with informal pathways and plantings as we know them from the romantic parklands of England and the young United States at the end of the 18th century.

Of this idealised *locus amoenus* of the Sciences nothing now remains except the main building of the School of Veterinary Medicine. The other buildings have vanished and the grounds have changed beyond all recognition.

It was a special achievement of the architect Langhans that, apart from his graceful forming of the river and park, he also understood sufficient hydraulics to regulate the waters of the Panke and maintain the correct levels in the warm and cold baths for the treatment of the horses by means of a watering pond.

Athesinus Consort Berlin
Felix Mendelssohn-Bartholdy (1807-1849): Arkadien

In the context of this congress about muscle diseases it may be fitting to report about an incident in the field of veterinary pathology that occurred in Potsdam in 1838 and found its gruesome end in the School of Veterinary Medicine.

To give you fair warning of what follows, I shall first quote from a letter written in 1720 by the Scottish astronomer James Douglas to the collector and doctor of medicine, Sir Hans Sloane.

> *„I have seen the Dead Elephant whose enormous bulk quite frightens me from meddling with its dissection. I am extremely oblig'd to you for your generous offer but I must desire to be excused from accepting it. "*

The following paper by Dr. Lichtenstein, the director of the Zoological Museum, was written much later - in 1838. It is a strange mixture of vulgar curiosity and scientific interest; of the crude methods of the travelling showman and the ostensibly higher aspirations of the

zoologist. In any case it is a fine documentation of the limits of ambulant pathology.

The elephant recently killed in Potsdam was brought from India to England about eight years ago where it grew unusually quickly and was so well trained that it could be shown in the most splendid theatrical productions without the slightest risk. About five years ago Herr Tourniaire, the famous owner of a menagerie acquired it and showed it in France, Holland and Germany. At the beginning of last year it happened to be in Göttingen and, as it was now about 12 or 14 years old, it began to display the dangerous symptoms of must*, that often overtake young male elephants and end in the never-to-be-forgotten scenes in Venice, Geneva and London of elephants being slaughtered with musket fire or even with cannon balls. At this point Herr Hutter, who was in charge of the animal, suggested taking it to Berlin and have it killed there but the owner declined this offer. However, the elephant was still not showing any really worrying symptoms so it was paraded around a number of places until about four weeks ago when it was brought to Potsdam where it became so unruly that not even its keeper was able to approach it. An attempt to ride it almost cost him his life. The elephant caught him with his trunk and flung him against the wall of the stall, jabbed him in the back with its tusks and threw him under its feet. Its miserable victim would certainly have met with a sudden and frightful end had it not been for Herr Hutter's courage and presence of mind in finding a way to distract the raging beast. Risking his own life, he managed to drag the seriously wounded keeper from under its enormous feet. Luckily, the keeper received excellent treatment from Herr Regimental Doctor Branco and made an almost complete recovery.*

All the well-known signs, including a strong discharge from the temples peculiar to elephants, indicated that the danger would probably get worse rather than better and could never be entirely banished from the future life of the animal, so Herr Hutter decided on its death by poison. At this point, he thought that when the keeper had recovered sufficiently, with his help he would be able to bring it alive in a suitably-equipped wagon to Berlin where negotiations were already under way for its sale and arrangements were being made for its safe accommodation. However at the beginning of last week the raging outbursts became more frequent. Its foreleg was secured by a stout chain to the centre of a light stall but it was still able to reach the walls and so it was feared that the stall was in imminent danger of collapse.

On the sixth of the month the poisoning was carried out in the manner accurately reported by a witness in the Haude and Spenerschen Newspaper. *Ten ounces of very carefully prepared*

prussic acid were sweetened with half a pint of rum and a quarter of a pound of sugar and poured into the bucket normally used for its drinking water. After it had sucked up first a small portion with its trunk, and then a larger one, and swallowed it, it suddenly collapsed. It stood up again a few minutes later but obviously with an increasing weakness that soon caused it to sink down again. After several attempts to rise and then sinking down again it remained lying down, gave several gasping sounds and then finally, one-and-a-quarter hours after it had taken the poison, ceased breathing without any signs of convulsions. Unfortunately it had tipped up the bucket with its trunk as it fell and spilt what was left of the poison. According to a rough estimate a good half of the mixture remained so that the elephant had swallowed only about four ounces of the prepared poison. According to Herr Desiniß this was the equivalent of about three-eighths of an ounce of concentrated prussic acid.

The elephant was never precisely measured in the last days of its life but the distance from the middle of its back to the ground was thought to be about ten feet - more, rather than less - which is quite a respectable size for Asiatic elephants. For reasons that must be obvious, its weight was never measured directly. However, the difficulties of transport provided ample opportunities for rough estimates based on experience; these generally agreed on a weight of about 60 hundredweight. … 3000 kg

It was precisely these difficulties that delayed the transport to Berlin until the night of the 8th to the 9th of the month where upon the separation of the parts and their preliminary preparation took place on an open space in front of the Anatomy Theatre of the School of Veterinary Medicine. The dissolution, although often accelerated by prussic acid, was only moderately advanced and made itself noticeable mainly through the rapid development of gas in the stomach and entrails. As a result the body of the animal had blown up to a monstrous size. When the skin of the stomach was punctured the gas was released in a powerful explosion. A first quick inspection revealed no traces of the poison and it was thought that it had been totally re-absorbed during the death-struggle and had been chemically transformed. The blood had scarcely coagulated but a microscopic examination carried out by Herr Prof. Ehrenberg did not show any anomalies. The assistants, recruited from among the medical students of the university and the pupils of the School of Veterinary Medicine who helped in accelerating the dismemberment of the carcass, set to in a spirit of busy conviviality. They

were dismayed neither by inadvertently cutting their fingers with their scalpels in their haste, nor by the emissions of the trapped gasses.

The present operations consist of the complete preparation of the muscle system for display purposes, coupled with an examination of the main organs and nerves. The skin underwent a preliminary treatment before its montage as an exhibit. All the softer organs were secured to prevent deterioration to aid future studies that will include all the systems of the body. These will include a complete investigation of the anatomy of the brain, the injection of the blood-filled organs with liquid wax and the examination of the nerve and muscle system of the trunk. These areas have, until now, only been treated in the most superficial manner and they promise the most important scientific results.

The sad necessity of having to take the life of such a rare and noble creature, and one that by reason of its stature stands out from all the examples of those seen here before, will at least have one successful result. The insights gained into the nature of one of the most remarkable forms of animal life, as seen from the elevated standpoint of present-day physiology, will represent important progress."

Of this unfortunate animal, only a part of one foot remains. Next to it is an unusual loose-leaf collection with anatomical drawings of tissue. The increasingly vague contours of the drawings and sketches stand in an absolute relationship to the process of decay – perfectly recorded here.

I hope that this short *tour d'horizon*, about a historical area of Berlin, will have given you some impression of the interaction and intermixture of science and industry and of the episodes of theoretical curiosity and triumphs of practical engineering that have taken place here.