



Frontispiece. René Binet, Porte Monumentale for Exposition Universelle, Paris, 1900. Phototype, from *Exposition Universelle, Paris 1900. Héliotypes de E. Le Deley* (Paris, n.d.). (V&A Images, National Art Library, Victoria and Albert Museum).

## A World of Things in Emergence and Growth: René Binet's Porte Monumentale at the 1900 Paris Exposition

ROBERT PROCTOR

BY 1898, René Binet had produced his final design for the Porte Monumentale of the 1900 Exposition Universelle in Paris, a building which came to symbolise the Exposition in the media, in the profusion of ephemeral literature which surrounded it, and in the public consciousness [Frontispiece; Figure 1].<sup>1</sup> The arch was meant to be 'a type and epitome of the Exposition itself', as an American commentator put it.<sup>2</sup> The Exposition aimed to celebrate the achievements of the nineteenth century and the arrival of a new age of peace in the twentieth, under the steerage of the Third Republic. The Porte Monumentale compressed this ideological scheme into a single complex and ambivalent object. The contemporary discourse on nature provided Binet with an expressive range of symbolic forms with which to articulate such political concerns. Re-reading the Porte Monumentale through such discourse, however, produces more contradictions than certainties. While one strand of scientific enquiry maintained a rational view of life, and consequently of human society, as internally structured and constantly evolving according to understandable principles, another related strand proposed a more mystical, romantic and pseudo-religious view of nature. In Binet's architectural adoption of natural forms, each of these views seems to have a role. The Porte Monumentale suggests either an attempted synthesis, or simply a confusion, between these two ideas of nature, and hence also in the gate's expression of political intent. Meanwhile the scientific symbolism of the gate is overlaid with both conventional allegory and literary evocation, in a combination of the familiar and the exotic which attempts to vivify the well-worn political rhetoric of the Third Republic.

René Binet was an unknown architect at the time he was given the commission to design the Porte Monumentale. His principal recommendation for the job was his joint entry with Henri Deglane for the Exposition's Palais des Beaux-Arts competition, for which the two architects were placed second in 1896.<sup>3</sup> The commission for the monumental gate was a consolation prize, which came with the benefit of an office in the Palais de l'Industrie alongside the other architects involved in the Exposition. Descriptions of the Porte Monumentale have emphasised the building's inspiration in the work of the German evolutionary biologist Ernst Haeckel. Yet it seems that few contemporaries saw this reference in the building. According to one recent

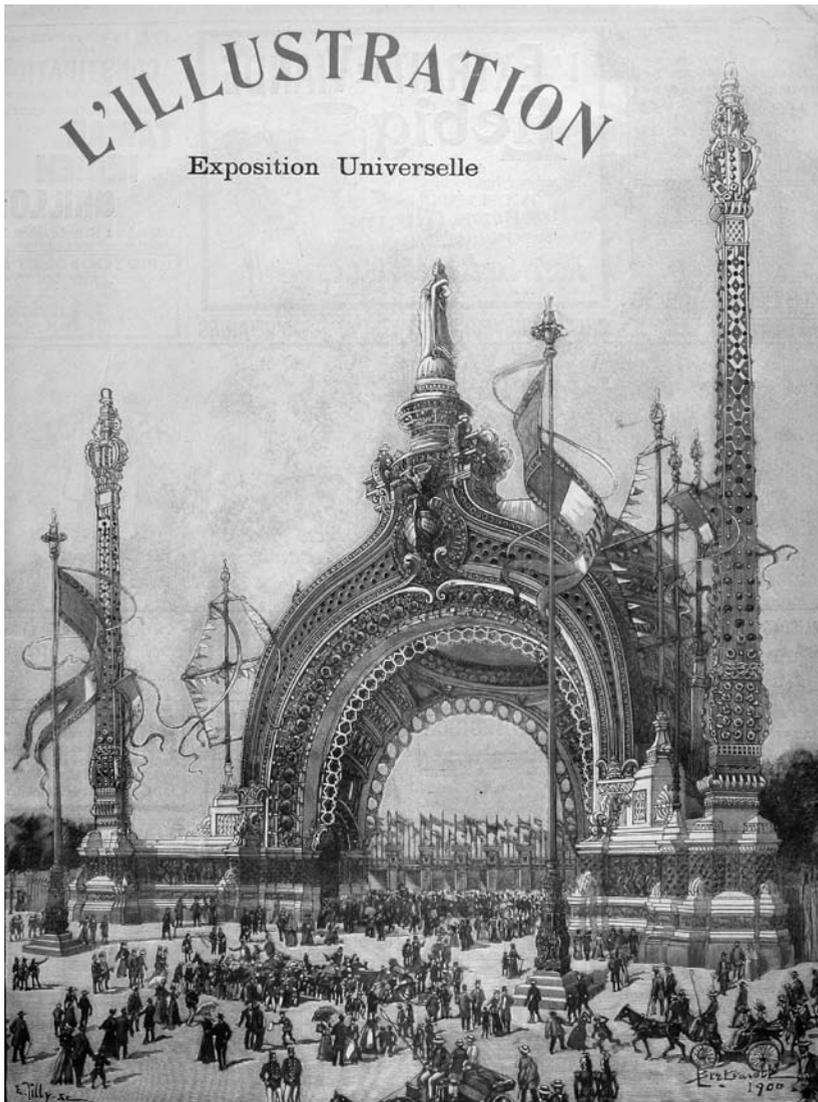


Figure 1. René Binet, Porte Monumentale for Exposition Universelle, Paris, 1900. Illustrated on cover of special edition of *L'Illustration*, 14 April 1900. (Author's collection).

historian, a writer of the time claimed to see 'the vertebrae of the dinosaur in the porch, the cells of the beehive in the dome and corals in the pinnacles', and therefore an eclectic combination of natural imagery, perhaps intended to show similarities of forms, and therefore an inherent structure of life, across the natural world.<sup>4</sup> On the other hand, architect and architectural critic Frantz Jourdain noticed nothing of such references to nature, praising instead its figurative sculpture and vivid polychromy.<sup>5</sup>

It seems that it was only with the publication of Binet's *Esquisses décoratives* in 1902-4 that the architect's inspiration was revealed. This book consisted of a series of plates of designs for decorative art and architecture, with a preface by the art critic Gustave Geffroy. Geffroy was a supporter and interpreter of Rodin and the Goncourt brothers, and may have introduced Binet to this artistic circle.<sup>6</sup> In his essay, he explained how Binet drew on the work of Haeckel for his designs. According to Geffroy, the Porte Monumentale was based on the form of a microscopic single-celled sea creature, the radiolarium, of the kind studied and illustrated by Haeckel. Geffroy cited the species *Clathrocanium reginae* as Binet's favourite, and its use as the basis of the Exposition gate 'not only [for] the charm of its luminous colouring, but [also for] the logic and elegance of its stable structure.'<sup>7</sup> Geffroy's preface is the most important source confirming Binet's wider understanding of Haeckel. He insists that Binet did not merely copy Haeckel's scientific illustrations, but also engaged artistically with Haeckel's version of evolutionary science. This claim suggests a wider, rational interpretation of Binet's gate – an interpretation which relies more on Haeckel and Geffroy than on Binet himself. Geffroy's writing sets out a systematisation, and an intellectualisation, of Binet's otherwise unexpressed ideas.

Binet's use of Haeckel's images in his design of the Porte Monumentale is confirmed by an exchange of letters between the architect and the scientist. This correspondence began before the gate was even built, in 1899, when Binet wrote to Haeckel that 'For about six years I have set about studying in the Library of the Museum of Paris the numerous volumes on the 'Challenger' voyage, and, thanks to you, I have been able to collect a great quantity of microscopic work: Radiolaria, bryozoans, hydroids, etc. ... which I have studied with the greatest care for an artistic aim: architectural, or ornamental. At present, I am building the Monumental Entrance for the Exposition of 1900 and everything, from the general composition up to the smallest details has been inspired by your studies [...]. If you wish, if you will allow me, I will send you the various details of the Gate and the forms from nature which will have inspired it, and you will see for yourself.'<sup>8</sup>

Photographs and engravings of the Porte Monumentale show that it did indeed bear a strong resemblance to the images of microscopic animals in Haeckel's work, in combination with both classical and orientalist references. The gate consisted of a central entrance arch and dome, minarets and flagpoles to either side joined at the base by a pedestal and frieze. The combination of arch and dome was unusual in form, however, consisting of three double piers at the corners of a triangular plan, rising in three arches to the dome. The origin of such a form may have been provided by some of the engravings of radiolaria of the kind that Binet mentions – particularly the group of radiolaria called nassellaria, which had domed shells in which the cell of the animal was protected, and delicate skeletal protrusions in a variety of different geometries extending around an opening [Figures 2 and 3]. Certain other species of radiolaria were long and thin, much like the diagonally-oriented minarets at the sides of the gate. Such species are illustrated in Ernst Haeckel's 'Report on the Radiolaria', a magnificent three-part work on these microscopic plankton, which formed his contribution to

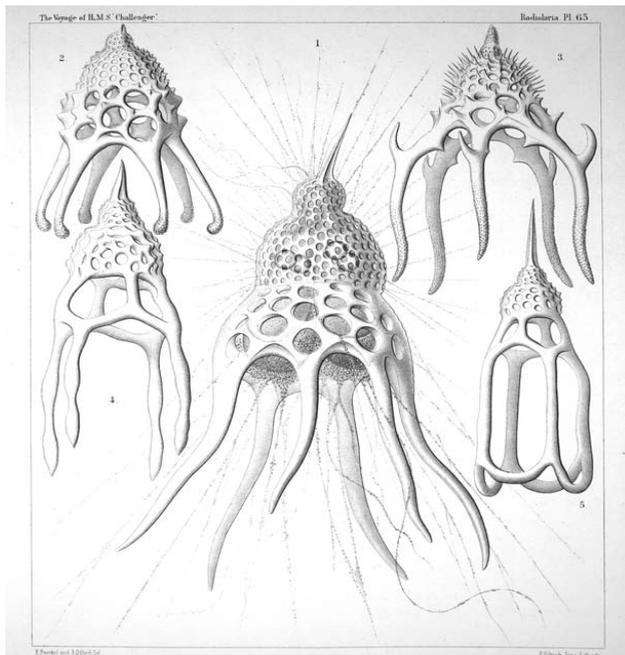


Figure 2. Ernst Haeckel, species of Nassellaria, plate from 'Report on the Radiolaria', 1887. (Reproduced by permission of the Trustees of the National Library of Scotland).

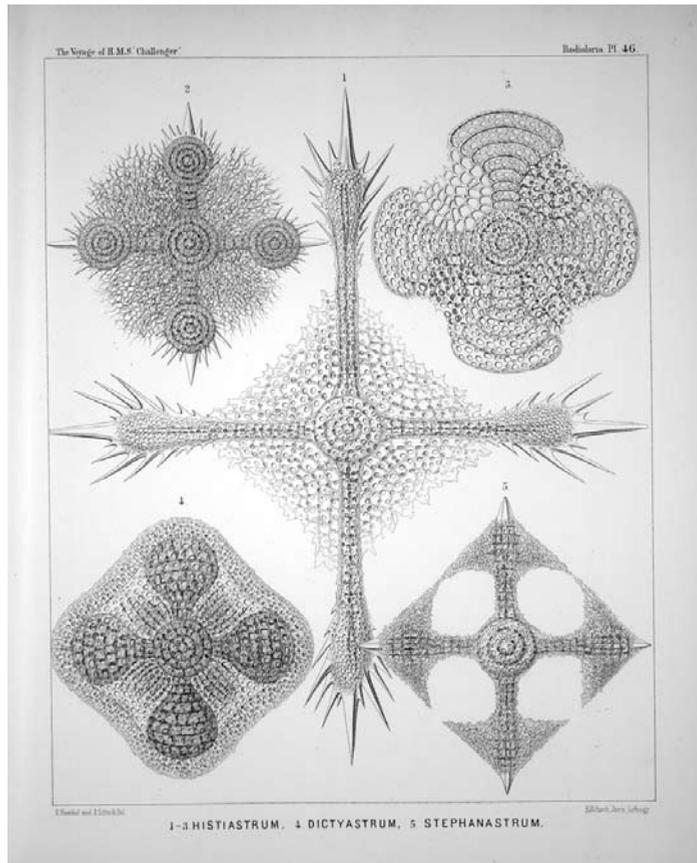


Figure 3. Ernst Haeckel, species of Porodiscida, plate from 'Report on the Radiolaria', 1887. (Reproduced by permission of the Trustees of the National Library of Scotland).

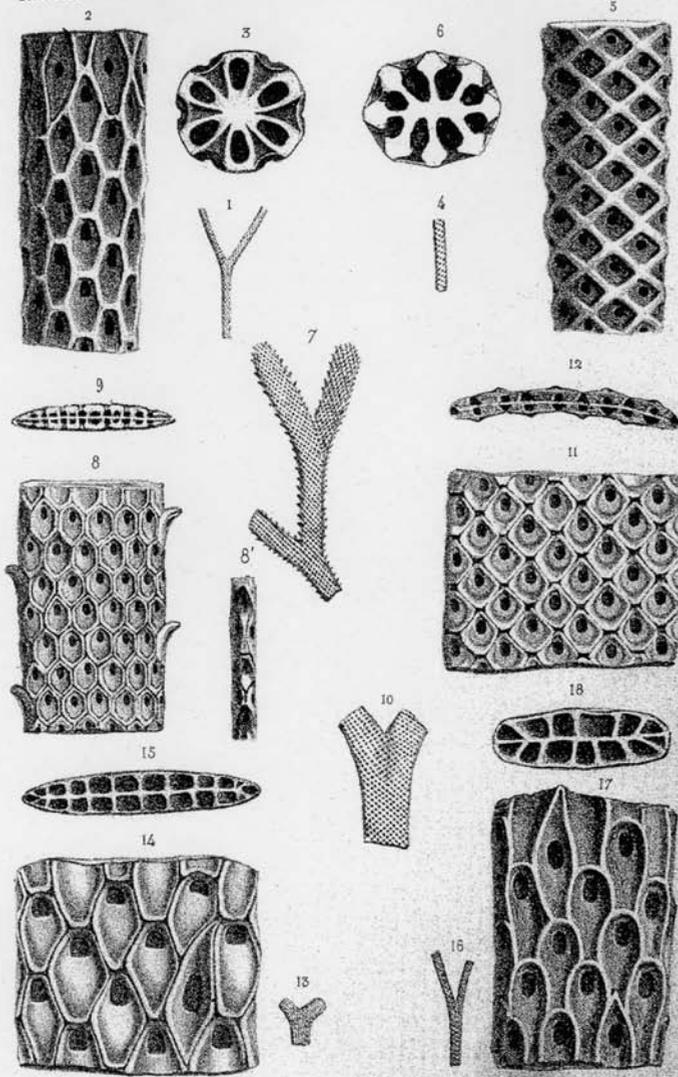
the fifty-volume report on sea-life which followed the scientific expedition around the world of H. M. S. Challenger.<sup>9</sup>

In addition to its overall forms, the ornamental surface treatments of the gate may also have owed much to Haeckel. Solid surface areas were covered by projecting cabochons of different colours, some of glass and containing electric bulbs, while around the edge of the central arch, and in the pendentives connecting the double piers to the dome, fretwork openings of complex shapes gave the structure a skeletal appearance. Both such treatments look similar to other radiolarium species, such as the porodiscida,

which had skeletons made up of complex lattices of silica. Moreover, the coloured lights in Binet's building recall Haeckel's technique of depicting the different internal parts of the radiolaria underneath the shell, especially the pink oily globules, red cells and yellow parasitic algae which inhabited the animals' exoskeletons, shown in vivid diagrammatic colours which give some of the scientist's engravings an especially striking appearance. Binet's visual study of Haeckel's plates seems therefore to have been as meticulously conducted as he asserted in his letter.

Nevertheless Binet's debt to Haeckel may have been over-emphasised, thanks to the survival of the letters and Geffroy's claims, and it is important to bear this possibility in mind when considering what the meanings of this association might be. In preparatory sketches for the Porte Monumentale preserved at the Bibliothèque nationale de France, Binet's working method can be observed. Every detail of the building's ornament was carefully designed with reference to images of nature. At times it seems that a pre-existing conventional outline form has had different motifs from natural history squeezed into it, so that the most satisfying example can be chosen for the final work. These motifs include more conventional natural forms than those found amongst Haeckel's radiolaria, including flowers and shells.<sup>10</sup> In one set of sketches, the chosen motifs are even labelled with their sources: alongside the complex drawings of ornament are pencilled the notes 'Bryozoaires, D'Orbigny Pl. 715' and 'Pl. 698'.<sup>11</sup> These notes, and Binet's references to bryozoans in his letter to Haeckel, do not refer to Haeckel's work, but to that of the naturalist Alcide d'Orbigny, whose *Paléontologie française* defined and illustrated these coral-like animals from fossil remains [Figure 4].<sup>12</sup> From Binet's later letters to Haeckel, it is clear that by the time of his design for the Porte Monumentale, he had not yet discovered Haeckel's 1862 monograph on the radiolaria; moreover Haeckel's more well-known work directed to artists, the *Kunstformen der Natur*, had not yet appeared.<sup>13</sup> Thus it is clear that Binet's studies for the Porte Monumentale ranged more widely across the museum's catalogue of illustrated nineteenth-century scientific publications on natural history.

Despite this precaution, an interpretation of the Exposition gate according to Haeckel's wider theories is very appealing. To make such an interpretation requires a knowledge of Haeckel's more popular books, some of which Binet certainly owned: a 1902 letter to Haeckel stated that he already possessed *The Riddle of the Universe* (published as *Die Welträthsel* in 1899, and available in English in 1900 and French in 1902) and *The Natural History of Creation* (first published in 1868, and frequently revised



J. Delarue, del.

J. Delarue, del.

1-3. *Eschara Acasta*, d'Orb. C. 10-12. *Eschara Acis*, d'Orb. C.  
 4-6. *E. \_\_\_\_\_ Aceste*, \_\_\_\_\_ 13-15. *E. \_\_\_\_\_ Amon*, \_\_\_\_\_  
 7-9. *E. \_\_\_\_\_ Achates*, \_\_\_\_\_ 16-18. *E. \_\_\_\_\_ Actea*, \_\_\_\_\_

Figure 4. Alcide d'Orbigny, typical Bryozoan species, *Paléontologie française*, c. 1852. (Glasgow University Library, Department of Special Collections).

and reprinted).<sup>14</sup> Both of these works explained for lay readers the science of evolution. *The Natural History* did so in a detailed, methodical way to show how all of nature up to man had evolved from single-celled organisms. *The Riddle of the Universe*, in contrast, explored the philosophical and theological consequences of the modern understanding of evolution. Haeckel's version of evolution was influenced by the earlier theories of Goethe and Lamarck.<sup>15</sup> Both of these earlier writers thought that evolution did not work solely according to chance mutations and survivals (as Darwin later thought), but rather that it was produced by an internal force of nature. Haeckel described this force as the 'uninterrupted evolution of substance', the 'infinite and eternal "machine of the universe" [which] sustains itself in eternal and uninterrupted movement'.<sup>16</sup> Man and all of nature were the products of this law of evolving substance; there was no higher, spiritual world, but only a constantly increasing complexity in matter by which every phenomenon could be explained.<sup>17</sup> Haeckel took a keen interest in the radiolaria because they appeared to be an especially vivid test case for exploring the mechanism of evolution. So many varieties were constantly being discovered that the barriers between species seemed to dissolve. At the same time, the simplicity of their common physiology (a single cell and its enclosing skeleton) made it easy to catalogue these varieties visually according to the geometrical complexity of their shells.<sup>18</sup> The organisation, description, and illustration of the radiolaria could thus create an image of evolution captured in its gradual unfolding.

This appeal to the evolutionary force of nature and its apparent visibility under the microscope was made on Binet's behalf by Geffroy. For the architect and artist, the mechanism behind the evolution of forms in nature could offer a method for creative innovation. Binet, claimed Geffroy, sought to elicit the fundamental laws of art from nature, 'the invariable principles, both absolute and infinitely varied and complex in equal measure, which determine the essential forms and their multiple derivatives.' Nature is 'forever in movement, forever in production, without a moment's pause or hesitation', giving artists 'the infallible secret of creations and transformations'. It was in the visibly evolving microscopic animals of the sea that nature revealed its transformative secrets: "There, at the point where science brings us into the presence of one of the phases in the evolution of species, where she surprises it in discovering the unity of matter she always suspected, there has this artist [...] set about gathering the lessons of forms and movements offered up by the world of things in emergence and growth."<sup>19</sup> Showing these principles in its architecture and decoration through the incorporation and further transformation of radiolarian motifs, the *Porte Monumentale* served as a polemical statement about the value of the theory of evolution to art and society.

Such a symbol of evolution could have a political significance when viewed against its context. The Exposition was primarily meant as a display of industrial achievements through the exhibition of the products of manufacturing. If the Porte Monumentale made a statement about the capacity of nature to stimulate artistic creativity, it could also imply such a relationship between nature and industrial innovation. More importantly, it could suggest that, since man himself was also produced by evolution and was part of a continually evolving world, the technical and artistic innovations of individuals in society were equally the result of the evolutionary force of nature. The Exposition not only showed products, however, it also exhibited people. Each participating nation had its own pavilion, while the French colonies were represented by reproductions of their native architecture, occupied for the period of the World's Fair by representatives of colonial subjects.<sup>20</sup> Viewed through the frame of the Porte Monumentale (where visitors purchased their tickets), humanity and its products, in the categorised and compartmented settings in which they were presented to the viewer, could appear as an image that confirmed the idea of a natural progress of mankind. The contrast between Binet's gate and the symbol of the 1889 Exposition Universelle, the Eiffel Tower, is significant. The Eiffel Tower's asymptotic lines represented the continuing path of progress, and its iron lattice the capacity of modern industry to embody it.<sup>21</sup> Binet's more subtle symbol suggested a new interpretation of progress according to the fundamental discoveries about the universe achieved during the nineteenth century. The Porte Monumentale seemed to naturalise the political order.

This abstract interpretation is enriched by the more conventional figurative symbols which Binet designed for the gate. On the pedestal which extended either side of the gate there were two friezes. The lowest, a narrow band, was a line of animals sculpted by Paul Jouve, an artist Binet claimed to have discovered working in the Museum of Natural History.<sup>22</sup> Above this, the sculptor Anatole Guillot designed a ceramic frieze representing 'Labour', showing Realist groups of recognisably French workers bringing their produce and tools to the Exposition [Figure 5]. They may have been meant to show the workers who created the Exposition, but at the same time they represented an abstract concept of work, a collaboration of society through which the French Republic was sustained and maintained.<sup>23</sup> Over the entrance arch was a projecting ship's prow, the symbol of Paris, the destination and marketplace for the labourers and their products; indeed the ship is also a symbol of commerce. At the apex of the arch stood a sculpture of a woman, also representing the City of Paris (and subsequently nicknamed

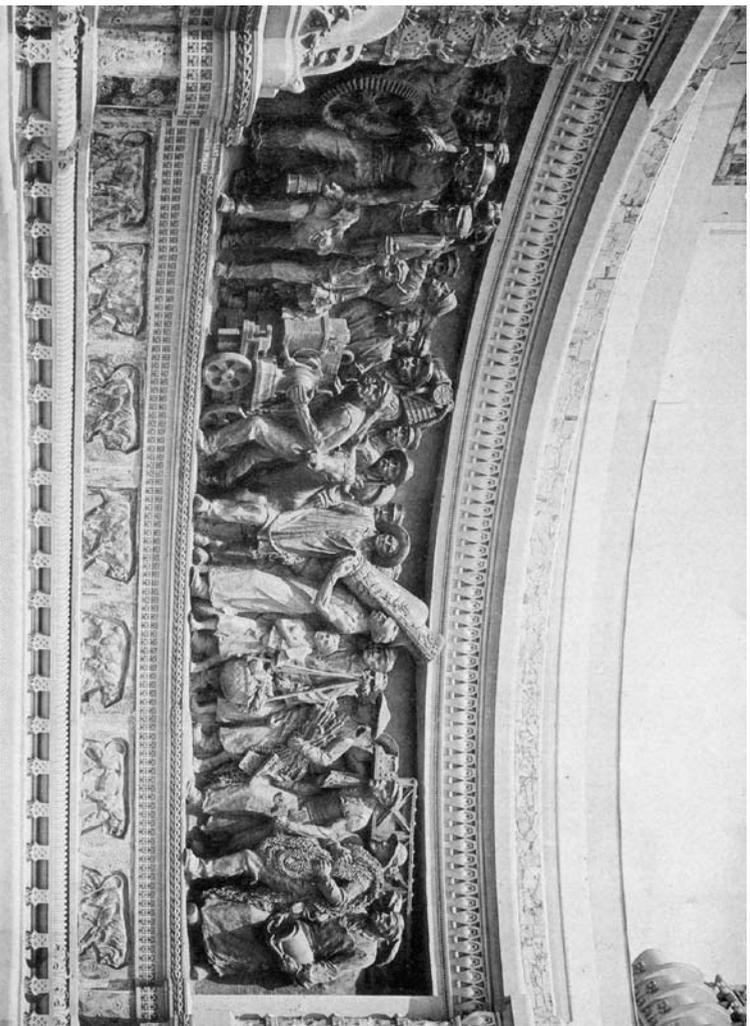


Figure 5. Anatole Guillot, 'Le Travail,' frieze in ceramic for the Porte Monumentale, Paris, 1900. From *Exposition de 1900. Architecture et Sculpture. 2e série.* (Author's collection).

'La Parisienne') [Figure 6]. Binet's sketch for this figure shows that, although the commission went to Paul Moreau-Vauthier, the architect had defined it carefully in form and treatment. The sculptor, however, claimed to have convinced Binet that she should be clothed in modern dress.<sup>24</sup> The modern woman is therefore represented as the trajectory and culmination of progress. In contrast to the male labourers at the base of the Porte Monumentale, she is a consumer of goods, the consumer who drives and dictates production, and displays its achievements. This role for women as educated and responsible consumers, and supporters of French industry, was carefully cultivated by retailers and the press to appeal to Republicanism through text and visual imagery. Women's increasing prominence and freedom in the family and the city was to be channelled into sustaining the economy, and advancing the quality of production.<sup>25</sup> Binet's Porte Monumentale therefore encompasses the complete cycle of the capitalist economy within an evolutionary framework, from the raw materials of nature, through the work of men, to the consumption of women. Just as woman regenerates humanity, so she is also finally responsible for the reproduction of the economy. Perhaps it is no surprise that the figure of the woman on the Exposition gate is standing on a smooth sphere emerging from its crown, like a single egg-cell, the symbol of regeneration.

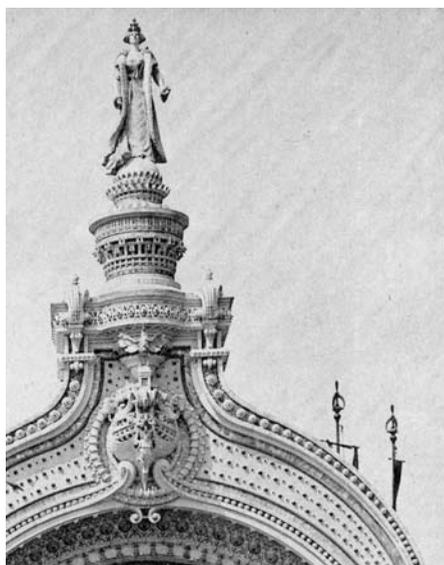


Figure 6. Paul Moreau-Vauthier, female figure for the Porte Monumentale, Paris, 1900. From *Exposition de 1900. Architecture et Sculpture. 2e série.* (Author's collection).

While this cycle is implied by the placing and symbolism of the sculpture, it is also linked to evolution through the incorporation of these images in the framing device of the radiolarium and its complex ornament, the image of nature in transformation. The connection can be made on several levels. Firstly, the idea of industrial and commercial progress is equated with a natural system. Consumption and production are transformative and regenerative; as the human race continues to evolve to a higher state, so its productions and interrelationships also become more complex and highly developed. In fact, Haeckel's writing on evolution frequently compared the developing organisation of cells in complex organisms to the similar development of political states: the human body, he wrote, is 'an extremely complex social community of innumerable microscopic organisms, a colony or a state, consisting of countless independent life-units, of different kinds of cells'; and the evolving division of labour amongst cells in animals was analogous to that in society.<sup>26</sup> Haeckel's student in Jena, Max Verworn, even compared the operation of the parts of a single cell to that of a state: 'One may compare the whole protist [i.e. single-celled animal] body to a large gathering of people, where each person corresponds to a small part of protoplasm. The decisions of the gathering are the total movements of the whole body. [...] But just as in the gathering every person is an autonomous individual with its own opinion, every small part of protoplasm possesses its autonomy' – an observation which enabled him to describe the single cell as having a 'republican constitution.'<sup>27</sup> Thus the political organisation of society could be seen to develop and work in the same way as natural organisms.

A further level of interpretation might be suggested by Charles Darwin's description of the role of females in sexual selection, a mechanism in evolution that complemented natural selection. In *The Descent of Man, and Selection in Relation to Sex*, Darwin explained that female animals were often responsible for increasing the beauty of a species through their selection of the most attractive males for reproduction. Even lower animals were possessed of a 'sense of beauty' which he compared to that of 'savages' who enjoyed any 'brilliant, glittering or curious object.'<sup>28</sup> Thus, while some aspects of natural and sexual selection tended towards the increasing suitability of an animal to its survival through the better performance of basic tasks, those aspects specifically associated with females also tended to enhance the aesthetic beauty of a species. The enhancement of the beauty of industrial products was, of course, an aspect of the economy that Republicans wished to claim as a particular strength in France. In suggesting a connection between women, labour and evolution, Binet's gate thus emphasised the supposedly natural work of women in the equally natural impulse of progress in the nation's production.

Although the Porte Monumentale was a large building which dominated the Place de la Concorde for the brief period of its existence, it may be significant that it resembled an inflated piece of jewellery almost more than it did a work of architecture. The underside of the dome and other parts were gilded; the coloured glass lit from behind resembled precious stones; the cut-out patterns of the arches seemed to derive from a metalwork technique rather than one appropriate to the steelwork and stucco of which the building was constructed. Gustave Geffroy noted how appropriate the forms of microscopic animals were to all scales of design. Of the 'thalamophores', for example, he wrote that 'Their calcareous carapace is ingeniously divided into a large number of chambers arranged in concentric circles, or in rings of spirals, and often distributed in a series of levels like the galleries of a great amphitheatre.' Of another type, he noted its structural stability: 'each arch contributes to the rigidity of the whole, in this invisible skeleton, this particle of dust which holds in equal measure the principle of an immense circular vault and that of the delicate engraved head of a gold pin.'<sup>29</sup> Indeed, Binet's *Esquisses décoratives*, in using similar motifs across the decorative arts and architecture, takes the microscopic scale of its sources and applies it to a wide range of scales of objects and buildings [Figure 7]. The confusion of scale in the Porte Monumentale contributed to its symbolic, talismanic quality. This glittering, curious object conflated the small and the large, the microscopic and the geographic, and in doing so could seem to evoke a universal principle. Like a piece of jewellery, it could capture and stimulate reverie (for the observer queuing for a ticket).

The associations within the Porte Monumentale between evolutionary biology and a political viewpoint have been shown here to be apparently logical, in an interpretation of the gate as an expression of Republican ideology. Nevertheless there is the possibility of an alternative reading which would emphasise a less rational and a more mystical view of nature and society. This view has already been hinted at, above all in Haeckel's theory of evolution as an inherent process or force in nature. For Haeckel, everything in nature, including human thought, was reducible to chemical processes and explainable by science; yet it would be easy to derive an opposite conclusion from his writing, perhaps in a deliberately creative misreading. Moreover, such a misreading would have been encouraged by more romantic ideas about nature in contemporary thought, characterised as 'vitalism' – a philosophical position which also retained a hold on scientific discourse, especially in France. This theory proposed that life, even if it did only consist of material operations and not some supernatural power, remained irreducible to physics; behind or inside living nature, there was an unknown

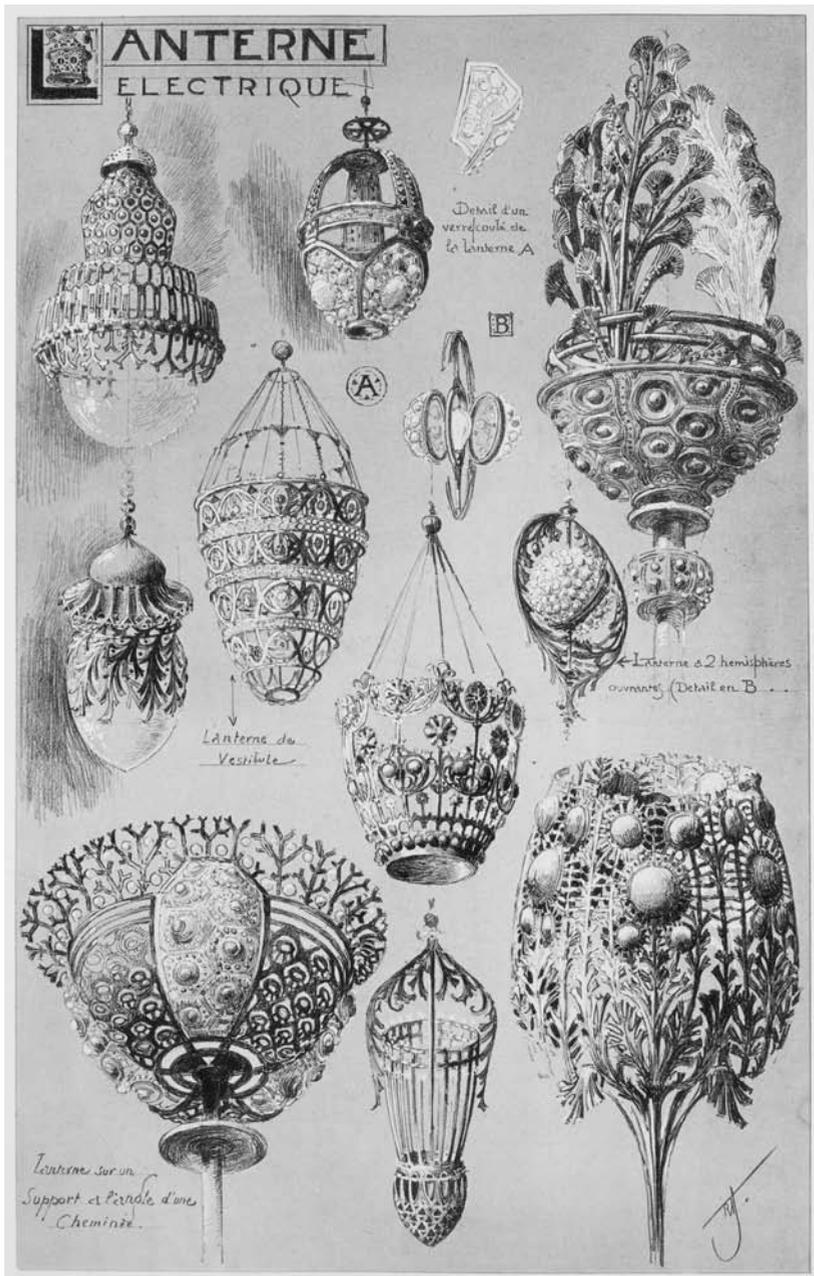


Figure 7. René Binet, plate entitled 'Lanterne électrique', from *Esquisses décoratives*, 1902-4 (V&A Images, National Art Library, Victoria and Albert Museum).

force or intelligence. Modern biology, especially the microscopic study of cells, was revealing such complexity in the simplest forms of life that a purely mechanistic conception seemed to many to be unlikely.

Haeckel's own work, even the most scientific in register, is full of statements of wonder at life. Binet may have encountered them in the written volume on the radiolaria in the 'Challenger Report', where Haeckel gives a detailed description of the plankton's physiology, linking it to his wider theories on the fundamental facts of life. In this description, Haeckel discusses the function of part of the radiolarian cell as a 'cell-soul':

The central capsule is on the one hand the general central organ of the "cell-soul" for the discharge of its sensory and motor functions (comparable to a ganglion-cell), on the other hand, the special organ of reproduction. [...] The common central vital principle, commonly called the "soul," which is considered to be the regulator of all vital functions, appears in the Radiolaria [...] in its simplest form, as the cell-soul. By the continual activity of this central "psyche" all vital functions are maintained in unbroken action, and in uniform correlation. It is also probable that by it the stimulations which the peripheral portions of the cell receive from the outer world are first transmitted into true sensation, and that, on the other hand, the volition, which alone calls forth spontaneous movements, proceeds from it. [...] The great simplicity of the functions of the cell-soul which appear in the Radiolaria, and the intimate connection of their different psychic activities, give to these unicellular Protista a special significance for the comprehension of the monistic elements of a natural psychology.<sup>30</sup>

Haeckel then refers his readers to another of his works on the cell-soul, the theory of which is 'the only psychological theory which is able to explain naturally the true nature of the life of the soul in all organisms as well as in man.'<sup>31</sup> As he explained further in *The Riddle of the Universe*, the single cell and its protoplasm contained the source of all 'psychic life', in a substance he named 'psychoplasm (the "soul-substance")'.<sup>32</sup> In higher animals, consciousness and other high levels of brain activity were caused by the greater specialisation and organisation of cells; all the functions of the human psyche could be observed in simpler form in the single cell.

It is useful to quote Haeckel at length because the language of his writing reveals a quasi-religious tone in much of the scientist's thought. *The*

*Riddle of the Universe* goes further than his scientific work in converting a biological understanding of life into a theological one. Thanks to the theory of evolution, the whole of nature – indeed of the universe (since even atoms were thought of as having ‘a universal “soul” of the simplest character’)<sup>33</sup> could be seen as interconnected through these psychic attributes of sensation and will. The universe was governed only by the fundamental ‘law of substance’, that matter and energy were continually transforming themselves. Such a knowledge could justify a religious view, including the pantheistic idea that God was identical with nature, and operated through its transformative force; and, in Haeckel’s concept of a ‘Monistic Religion’, a feeling of wonder at the beauty and vastness of nature and man’s insignificance within it.<sup>34</sup>

Thus Haeckel’s view of life as an entirely physical phenomenon also had a mystical tone. Nevertheless, he opposed his views to those vitalists who believed that life was inexplicable or supernatural. One scientist who came close to such a theory was Alfred Binet, who does not seem to have been a relation of the architect, but who was working at the Collège de France in the 1880s and 1890s when René Binet was a student at the École des Beaux-Arts. In Alfred Binet’s articles and book, *The Psychic Life of Micro-Organisms*, he ascribed much higher psychological faculties to single-celled animals than Haeckel, describing his observations of predatory cells apparently selecting and identifying their prey, anticipating their movements, and collaborating with each other to hunt it down in packs.<sup>35</sup> These cells therefore required much greater intelligence than it seemed possible to find in the purely physical material. Vitalism was later explored by Henri Bergson, whose *Creative Evolution* based most of its understanding of nature on French biology around 1900, including the work of the Lamarckian scientist Frédéric Houssay, who was also convinced of the intelligence of lower animals and the transformative unity of nature.<sup>36</sup> Such theories have been shown to be influential elsewhere in French art of the period, notably in Albert Besnard’s 1895 mural for the Chemistry faculty of the Sorbonne entitled ‘La Vie Nait de la Mort’, where, as in René Binet’s Porte Monumentale, a female figure is combined with symbols of germination to suggest the continuous evolving force of nature.<sup>37</sup> Indeed Binet, in his letters to Haeckel, is as concerned to praise him as a ‘great philosopher admired by the whole world’ as much as a naturalist, and described Paris as a city where ‘your name and your work are so well known’, suggesting an enthusiasm for his theories in artistic circles there.<sup>38</sup>

All this may seem remote from the static design of René Binet’s Porte Monumentale, but this mystical enthusiasm in the discourse of evolutionary

science suggests another, less logical, aspect to the interpretation of Binet's architecture, in evoking an attitude with which many contemporaries would have been familiar. The gate itself does suggest such an alternative or additional reading. One of the features of its design which critics noted was its use of electricity. Not only was the gate colourfully lit from inside its structure, but it was also dramatically floodlit at night with arc lamps.<sup>39</sup> For Frantz Jourdain, this was one of Binet's greatest innovations: electric light was used almost as an architectural material, an 'essential element of the whole, [...] present[ing] us with a subtle declension of violet and orange which, in the evenings, ravished the eyes of the observer.'<sup>40</sup> Inside the gate, two female figures by the sculptor Henri-Michel Jondet appeared in niches between the arches [Figure 8]. Not visible from outside, and therefore rarely illustrated, these figures have attracted little notice. They resembled Persian or oriental

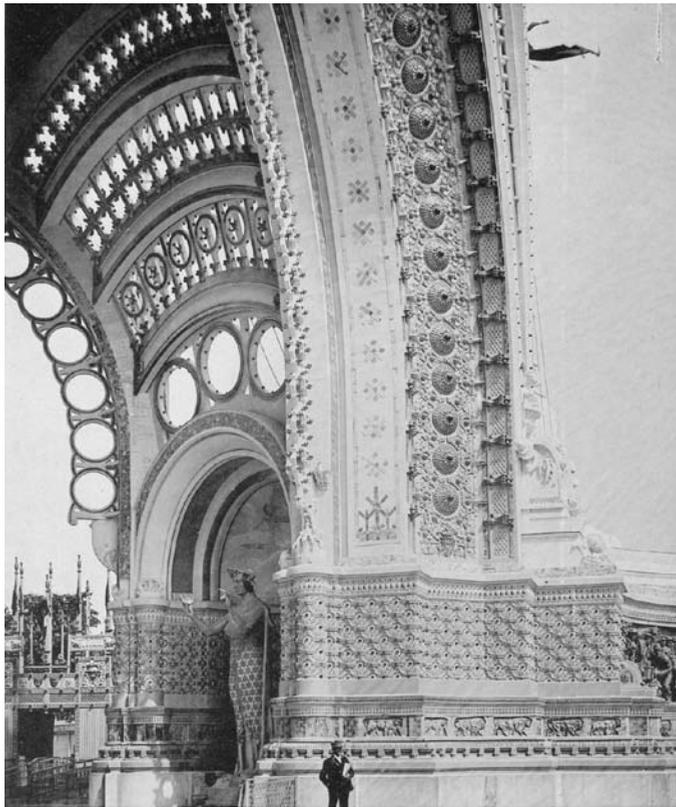


Figure 8. Henri-Michel Jondet, 'L'Électricité', for the Porte Monumentale, Paris, 1900. From *Exposition de 1900. Architecture et Sculpture. 2e série*. (Author's collection).

priestesses, partially dressed in robes decorated with bryozoan or radiolarian forms, and lifting up strange tendril-like objects in outstretched hands.<sup>41</sup> These objects could be plants, as they are rooted to the ground, and resemble electric lamps by such art nouveau designers as Louis Majorelle. In the way in which they coil over the figures' shoulders and under their arms, opening up in their hands, they are also reminiscent of the snakes which appeared in some Symbolist art as allegories of erotic seduction. Here, however, the figures seem to represent a mysterious energy, as these sculptures have been described as representing 'Electricity'. These esoteric figures might therefore link the use of electricity to a vitalist natural principle. Such an impression could be confirmed by Haeckel's descriptions of electricity. Quoting J. G. Vogt's *The Nature of Electricity and Magnetism on the Basis of a Simplified Conception of Substance*, Haeckel explained that it was the electrical charges between particles which began the process of transformation in nature, as particles were attracted towards each other, condensing to form substance and energy.<sup>42</sup> Electricity could thus be seen as the originating and continuing force of life.

The inclusion of women and snake-like motifs suggests that a further range of sources for Binet's gate may lie in the literature that fascinated contemporary Symbolist artists, perhaps above all Gustave Flaubert's *Salammbô* (1862).<sup>43</sup> In this novel set in Carthage, the snake is a sort of presiding genius, both of the city and of the novel's principal character: there is a snake in the goddess Tanit's temple which flees when the precinct is broken into, appearing to foretell the city's forthcoming calamities; and the Carthaginian princess Salammbô herself is accompanied by a snake, her familiar, which, as she undresses to prepare herself for seducing the enemy soldiers' leader, wraps itself around her in an inauspicious erotic embrace.<sup>44</sup> Moreover, the figure of 'La Parisienne' could also be compared to Salammbô, who, at her first appearance in the novel, is described descending a staircase in her palace in luxurious dress, while the prows of ships captured in her father's naval conquests decorate the staircase at her feet.<sup>45</sup> Binet's symbolic motifs evoked this distant, exotic and mythic parallel with Paris, as if electricity were its modern genius, and trade and consumption the forms of its political triumph. By recombining these figures, altering their depictions (the woman is in modern dress; the priestesses, though bare-breasted, are hieratic rather than seductive, and therefore more like deities) and placing them in a novel context, the architect interposed a distance between these symbols and their sources, forcing the viewer to reconsider their meanings.

Readers of *Salammbô* might also have remembered that the palace she

occupied, that of her father Hamilcar, contained vast stores of valuable commodities brought from distant places, listed in epic form by the author.<sup>46</sup> In Flaubert's descriptions, the objects create metonymic associations with their places of origin, just as, at the World's Fair, the products of art and industry represented participating nations. The visitor's mode of looking at the Exposition was also epic: lists of names and long ranges of objects open to view at once dazzled the observer with their plenitude and scope; the viewer became a consumer of images, exposed to an entertaining kaleidoscopic spectacle.<sup>47</sup> Binet's gate frames this experience of the Exposition, by presenting the exotic and fantastic at the moment of entry. The political lessons lie apparently naturally behind the surface of the gate's (and Exposition's) fairground entertainments.

It is tempting to compare this overlaying of symbols and techniques with another complex attraction of the event, the dancer Loïe Fuller. Her personal pavilion was designed by the architect Henri Sauvage to suggest a tent made of drapery, whose flowing folds embodied a female principle and whose opening implied to the passer-by that exciting visual experiences were available inside. Fuller's dances were entirely chaste, but explored techniques of manipulating vision and spectacle by using mirrors, moving coloured electric lights and projected images to fascinate her audiences. Like Binet, she too combined novel images of nature created by new technologies of viewing with literary allusions. One of her dances at the Exposition, *Le Firmament*, included projected photographs of the moon over her veiled body; in another, she enacted an image of Salome, another favourite device of Symbolist artists and writers (like Salammbô, dangerously erotic, and often seemingly conflated with the latter by the inclusion of a snake). Fuller's dances have similarly been linked to the Exposition's culture of a triumphant, colonising vision.<sup>48</sup> As in the Porte Monumentale, it is significant that a woman should occupy this focal point. While Fuller may have been less the consumer than the consumed, her veils nevertheless denied the observer a glimpse of her body, turning her into an abstract allegory of her context.

In other papers in this collection, the emphasis is on the private object: the bejewelled tortoise that complements the colours of a carpet in Des Esseintes' neurotic home represents the extreme of an aesthetic living environment conceived of as a projection or enshrining of individual feeling, in which objects are designed for resonance with reverie – whether a beautiful book, or a meaningful jewel. Behind such objects, in their literary and artistic manifestations, lie the political, cultural and industrial circumstances of manufacture and exchange. Binet's Porte Monumentale, however, takes

the principles of the talismanic object and transfers them to a monumental scale in a public context. In the process, some things are lost and others are changed. Nature loses its associations with myth and allusion, becoming ostensibly scientific on the one hand, and on the other indicating a unifying, progressive force in life and therefore in society. The vision of nature here is not one of protection or escape from the modern world, but of triumphant celebration of it. Conventional and literary allegory, as in other monumental civic and commercial buildings, dutifully reinforce the political messages of government and business to their subjects. Binet's vision is partly personal: just as few critics knew of any relationship to Haeckel until later, so few visitors would have understood (at least consciously) any literary allusion. Binet's 'new and imprecise language' of forms, like those of other Art Nouveau architects, may have been less publicly readable than other more classical monuments.<sup>49</sup> In translating conventional messages into an unusual, exotic and complex form, however, the Porte Monumentale served its purpose of introducing and encapsulating the extraordinary spectacle of the Exposition Universelle, in constructing a propagandistic political occasion as spectacular entertainment.

#### ENDNOTES

- 1 'La Porte Monumentale de l'Exposition', in *L'Exposition Universelle 1900. Bulletin, etc.*, (25 September – 10 October 1898), p. 3.
- 2 James P. Boyd, *The Paris Exposition of 1900: A Vivid Descriptive View and Elaborate Scenic Presentation of the Site, Plan and Exhibits* (Philadelphia: P. W. Ziegler and Co., 1900), p. 118.
- 3 'Concours pour la Construction des deux Palais aux Champs-Élysées', in *L'Exposition Universelle 1900. Bulletin des Lois, Décrets et Documents officiels relatifs à l'Exposition*, (5-20 August 1896), pp. 2-6 (p. 5); Pierre Moroges, 'Les Palais de 1900', *L'Illustration*, (25 July 1896), pp. 63-66; also see Bruno Girveau, 'René Binet: Le coup d'éclat de l'Exposition Universelle de 1900', in Lydwine Saulnier-Pernuit ed., *René Binet, 1866-1911: Un Architecte de la Belle Époque* (Sens: Musées de Sens, 2005), pp. 35-45 (p. 35). Both Binet (1866-1911) and Deglane (1855-1931) were graduates of the atelier of Jules André at the École des Beaux-Arts (Victor Laloux taking over in 1890 during Binet's period of study). Deglane was the senior architect, a Prix de Rome winner of 1881 who had worked on the Exposition of 1889. After 1900, Binet went on to design a new building for Le Printemps department store in Paris and worked for the Postes et Télégraphes refurbishing their Paris offices, amongst other work, before his death at the age of 44 (the Printemps building still in progress). See the various articles in Saulnier-Pernuit ed.; also *Dictionnaire de Biographie Française* (Paris: Letouzey et Ané, 1965), vol. X, p. 547, entry for Henri Deglane.
- 4 Deborah L. Silverman, *Art Nouveau in Fin-de-Siècle France: Politics, Psychology, and Style* (Berkeley: University of California Press, 1989), p. 291, citing an article in the *Revue illustrée de l'Exposition Universelle*.
- 5 Frantz Jourdain, 'L'Art du décor à l'Exposition universelle de 1900', *L'Architecture*, 14, (1901), pp. 10-12 (p. 11).
- 6 Silverman, pp. 256-58.
- 7 Gustave Geffroy, preface to René Binet, *Esquisses décoratives* (Paris: Librairie Centrale des Beaux-Arts, [n. d.]), pp. 6-7.
- 8 René Binet to Ernst Haeckel, 12 March 1899, in Binet correspondence, Ernst Haeckel Archive, Institut für Geschichte der Medizin und der Naturwissenschaften, Friedrich-Schiller-Universität, Jena (henceforth EHA).
- 9 *Report on the Scientific Results of the Voyage of H. M. S. Challenger During the Years 1873-1876*, 50 vols (London: HMSO, 1880-1895), vol. 18, E. Haeckel, 'Report on the Radiolaria' (1887), parts I-III; e.g. plates 61, 65.
- 10 Binet album, Cabinet des Estampes, Bibliothèque nationale de France (henceforth BNF/CE), Ha.129.Fol, e.g. sheets 40, 54.
- 11 *Ibid.*, sheet 18.
- 12 Alcide d'Orbigny, *Paléontologie française. Description zoologique et géologique de*

*tous les animaux mollusques et rayonnés fossiles de France* (Paris: 1840-1894), atlas: vol. 5; text: section 2, vol. 5; see also Robert Proctor, 'René Binet and the Esquisses Décoratives', in Robert Proctor and Olaf Breidbach, *René Binet: From Nature to Form* (Munich: Prestel, 2007), pp. 7-9.

13 Binet to Haeckel, 8 May 1902, EHA.

14 Binet to Haeckel, 8 May 1902, EHA.

15 Johann Wolfgang von Goethe (1749-1832) was influential on both German and French evolutionary theory and art through his *Die Metamorphose der Pflanzen* (Gotha: Bey Carl Wilhelm Ettinger, 1790), reprinted many times since, and translated into French as *Essai sur la métamorphose des plantes* (Geneva: J. Barbezat et Cie, 1829); the work is a description of the growth of a plant through reference to a single underlying leaf-form which is transformed into the various elements of the plant in its development. Jean-Baptiste Lamarck (1744-1829), a professor at the Musée Nationale d'Histoire Naturelle in Paris, argued for a force of nature which tended to produce higher levels of complexity in animals, in his most important works, *La Philosophie zoologique* (Paris: Dentu, 1809) and *L'Histoire naturelle des animaux sans vertèbres* (Paris: Deterville, 1815-22). See L. J. Jordanova, *Lamarck* (Oxford: Oxford University Press, 1984).

16 Ernst Haeckel, *The Riddle of the Universe*, trans. by Joseph McCabe (London: Harper & Brothers, 1900), pp. 245-46.

17 Erike Krausse, 'Haeckel: Promorphologie und "evolutionistische" ästhetische Theorie: Konzept und Wirkung', in Eve-Marie Engels (ed.), *Die Rezeption von Evolutionstheorien im 19. Jahrhundert* (Frankfurt: Suhrkamp, 1995), pp. 347-94 (p. 359).

18 This has been amply explored by Olaf Breidbach, e.g. Olaf Breidbach, 'Naturkristalle: Zur Architektur der Naturordnungen bei Ernst Haeckel', in S. Klaus et al (ed.), *Architektur weiterdenken: Werner Oeschlin zum 60. Geburtstag* (Zurich: GTA, 2004), pp. 254-75; Olaf Breidbach, *Art Forms from the Ocean: The Radiolarian Atlas of 1862* (Munich: Prestel, 2005), pp. 17-20; Olaf Breidbach, 'Nature Ornamentation and Evolutionary Morphology: On the Relationship between the Artist René Binet and the Biologist Ernst Haeckel', in Proctor and Breidbach, pp. 27-34; see also Robert J. Richards, 'The Aesthetic and Morphological Foundations of Ernst Haeckel's Evolutionary Project', in Mary Kemperink and Patrick Dassen ed., *The Many Faces of Evolution in Europe, 1860-1914* (Amsterdam: Peeters, 2005), pp. 1-16.

19 Geffroy, pp. 2, 13; see Proctor, 'René Binet and the Esquisses Décoratives', pp. 11-12.

20 Richard D. Mandell, *Paris 1900: The Great World's Fair* (Toronto: University of Toronto Press, 1967), p. 67.

21 I wish to thank Olaf Breidbach for his suggestion of making this comparison.

22 Marguerite Binet, unpublished biography of René Binet, 1945, Musées de

Sens, p. 88 (pagination from typed version of manuscript).

23 Bruno Girveau, 'René Binet: Le coup d'éclat de l'Exposition Universelle de 1900', in Saulnier-Pernuit (ed.), pp. 35-45 (pp. 37-39, 43).

24 Jeanne Bremond, 'La Statue de la Ville de Paris. Chez M. P. Moreau-Vauthier', *La Fronde*, 7 February 1900, p. 1; for Binet's sketches of the figure, see Binet album, BNF/CE, Ha.129.Fol, sheet 28.

25 Lisa Tiersten, *Marianne in the Market: Envisioning Consumer Society in Fin-de-Siècle France* (Berkeley: University of California Press, 2001).

26 Ernst Haeckel, *The Evolution of Man: A Popular Exposition of the Principal Points of Human Ontogeny and Phylogeny* (London: C. Kegan Paul, 1879), pp. 123-24; 150-53.

27 Max Verworn (1863-1921), *Psycho-physiologische Protistenstudien* (1889), quoted in Judy Johns Schloegel and Henning Schmidgen, 'General Physiology, Experimental Psychology, and Evolutionism: Unicellular Organisms as Objects of Psychophysiological Research, 1877-1918', *Isis*, 93, (2002), pp. 614-45 (pp. 629-30).

28 Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (Princeton: Princeton University Press, 1981) (originally published London, 1871), chapter 8; see also, Jimena Canales and Andrew Herscher, 'Criminal Skins: Tattoos and Modern Architecture in the Work of Adolf Loos', *Architectural History*, 48, (2005), pp. 235-56, especially notes 9-12.

29 Geffroy, pp. 4-5.

30 Haeckel, 'Report on the Radiolaria', Part I, pp. viii and cxlv.

31 *Ibid.*, p. cxlv (footnote).

32 Haeckel, *Riddle*, p. 109. For more on this theory, including further analysis of Binet's *Esquisses décoratives*, see Robert Proctor, 'Architecture from the Cell-Soul: René Binet and Ernst Haeckel', in *The Journal of Architecture*, 11 (September 2006), pp. 407-24.

33 *Ibid.*, p. 225.

34 *Ibid.*, especially ch. 18.

35 Alfred Binet, *The Psychic Life of Micro-Organisms: A Study in Experimental Psychology*, trans. by Thomas MacCormack (London: Longmans & Co., 1889); Schloegel and Schmidgen, pp. 629-34.

36 Henri Bergson, *Creative Evolution*, trans. by Arthur Mitchell (Westport, Connecticut: Greenwood Press, 1975) (originally published Paris, 1907); Frédéric Houssay, *La Forme et la vie: essai de la méthode mécanique en zoologie* (Paris: Schleicher Frères, 1900); Frédéric Houssay, *The Industries of Animals* (London: [n. pub.], 1893). For a useful summary of Houssay, see Louis Bounoure, 'La Vie et l'oeuvre de Frédéric Houssay (1860-1920)', in *Isis*, 7 (1925), pp. 433-55.

37 Silverman, pp. 226-28, 291.

- 38 Binet to Haeckel, 10 July 1903, EHA.
- 39 Girveau, p. 37; Maurice Normand, 'Coup d'oeil sur l'Exposition', in *L'Illustration*, 14 April 1900, Exposition supplement, p. 222.
- 40 Jourdain, p. 11.
- 41 Illustrated in *Exposition de 1900. Architecture et Sculpture, 2e série* (Paris: Armand Guérinet, n.d.), plate 121; mentioned by Girveau, p. 37 (source unclear).
- 42 Haeckel, *Riddle*, pp. 218-19, citing J. G. Vogt, *Das Wesen der Elektrizität und des Magnetismus auf Grund eines einheitlichen Substanzbegriffes* (Leipzig: [n. pub.], 1891).
- 43 I am grateful to Claire O'Mahony for this suggestion.
- 44 Gustave Flaubert, *Salammô*, trans. by A. J. Krailsheimer (Harmondsworth: Penguin, 1987), pp. 26, 78, 166.
- 45 *Ibid.*, pp. 17, 24-25.
- 46 *Ibid.*, pp. 123-24.
- 47 See Philippe Hamon, *Expositions: littérature et architecture au XIXe siècle* (Paris: Corti, 1989) for further comparisons.
- 48 Rhonda K. Garelick, *Electric Salome: Loie Fuller's Performance of Modernism* (Princeton: Princeton University Press, 2007), e.g. pp. 84, 90-92. This connection was also suggested to me by Claire O'Mahony.
- 49 Eric Hobsbawm, 'Mass-Producing Traditions: Europe, 1870-1914', in Eric Hobsbawm and Terence Ranger (ed.), *The Invention of Tradition* (Cambridge: Cambridge University Press, 1983), pp. 263-307 (304).

