

The Curious, the Marvelous and the Particular

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3rd year of graphic design

Gerrit Rietveld Academie, 2013

“Illustrations greatly assist the understanding, for they place more clearly before the eyes what the text no matter how explicitly describes.”¹

On the Fabric of the Human Body is one of the most important illustrated treatises on human anatomy written by Andreas Vesalius in 1543. Justifying here the presence of illustrations in scientific publications, Vesalius defines the intrinsic role that visual representations based on observations played with the attempt of understanding the natural world. Going through a chronological history of the visual depictions of plants — such as *Plants and Gardens portrayed* compiled by Elizabeth S. Eustis from the New York Botanical Garden in 2002 — allow us to emphasize on the importance of the technical advances that offered possibilities for botanists and artists to progressively develop realistic illustrations when trying to capture the shapes of nature.

In *The Renaissance Print, 1470–1550* researchers Peter Parshall and David Landau mention the importance of the development of the visual language as a way to support and enhance observations of the real world when they write:

“accurate visual representation was more than just a technical accomplishment. It was a highly specialized form of observation, making illustrations was a way of checking facts.”²

Their formulation seems to minimize the importance of technical achievements in order to emphasize on the growing desire to provide accuracy within the observation itself between the fifteenth and seventeenth century.

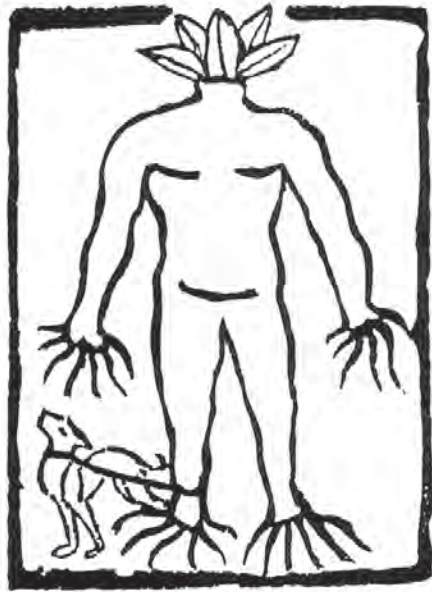
In her essay *Art, Science and Visual Culture in early Modern Europe* professor Pamela H. Smith explores the different ways in which art and science were related in early modern Europe. As explained in Vesalius words, illustrations were greatly assisting and helping the understanding of nature. Scientists and artists had to work in close collaboration in order to provide the appropriate depiction of the observed specimens, sometimes scientist and artist merging into one unique person. A dialectic dialogue between scientific accuracy and artistic impulse has

progressively built up within visual representations of plants. Introducing this dialogue Pamela H. Smith writes:

“The desire expressed in the illustrated herbals, as articulated in Vesalius’s and Agricola’s works, to couple (artisanal) visual and (humanist) verbal accuracy with the communicative potential of images is often accompanied by what appears to be a new emphasis on first-person observation and autoptic proof, especially in an age when news out of the newfound world was arriving thick and fast. Images became an important way of recording, collecting, cataloguing, and witnessing the curious, the marvelous, and the particular.”³

In quest of understanding the role of plants in medicine first, then defining nature study as a field of inquiry in itself during the Renaissance, botanists and artists tried for a long time to depict plants in a realistic manner in order to improve knowledge of the natural world. I would like to investigate on how this quest of accuracy developed itself with an underlying wish to fantasize on reality and how trying to portray plants has in fact been a way to generate “the curious, the marvelous, and the particular”.

NOMEN HERBAE MANDRAGORA



Woodblock print, 'Nomen Herbae Mandragora', big roman caps on top. Black thick and irregular line drawing, rectangular frame with an aperture on the top, surrounding a seemingly human looking body, five leaves organised symmetrically pop up of the neck, replacing the head of the character. Seven long and thin extensions at the extremity of right hand six for the other hand and feet. Creature, seemingly belonging to canidae, attached to the right leg of the character and appears on the left bottom corner of the frame, rising it's head up.

fig 1.

The *Herbarium Apuleii Platonici* is considered as one of the first printed books including depictions of plants by means of illustrations and texts. Printed in 1481 by Johann Philipp Lignamine thanks to the woodblock printing technique, the herbal is composed of descriptions of 131 plants associated with texts explaining their possible medical usages. It represents one of the first printed *Materia Medicae*, based on a manuscript supposedly first realized by the philosopher Apuleis Lucius during his lifetime (between 125 and 180 CA). As most of the early printed books, the *Herbarium Apuleii Platonici* is the reproduction of an ancient text that has been manually copied many times before being mechanically printed for the first time. I would like to introduce one of the illustrations, presenting the mandragora in a simple and naive line style drawing in the fig. 1. One of the legends about the mandragora tells that

when the mandrake root is dug up it starts to scream and so doing kills anybody who would hear it. Tying a dog to the malefic root is a way for digging it up safely by getting the dog killed instead of his master. The narrative layer implemented to the illustrations of the *Herbarium Apuleii* appears to be the main communicative goal of these representations of plants. Plants are only described for their spiritual, magical and medicinal values.



Woodblock print, plant being enclosed in a frame of irregular thickness. Nine leaves of similar look from the ones in the illustration of the mandragora are tied together and organised symmetrically as a handmade bunch. A node made with another leaf keeps the bunch's structure. On top, symmetrically distributed on each side, four long shaped flowers or pistils. Their more complex structure is represented thanks to a raster or grid pattern. On top center, above the main leaves and between the pistils, the black silhouette of a creature with eight legs, two claws and a long tail, most likely a scorpio. In the bottom, surrounding the bunch, a white snake. Framed illustration is followed by a block of latin text aligned to the left and making use of lower and upper cases.

fig. 2

When looking at other illustrations such as the one in fig. 2, we could say that the plants tend to be represented as pictograms with a recurrent symmetrical and artificially constructed structure. In that way the plants represented appear to us as caricatures of a deformed reality. This schematic visual language illustrates the importance that the narrative layer implemented to the actual observations of natural specimens but it also attributes them a certain immediacy in their reading. In fact being realized in order to transmit 'scientific' knowledge on the specimens, the illustrations already had an important role to play in order to make identification possible.

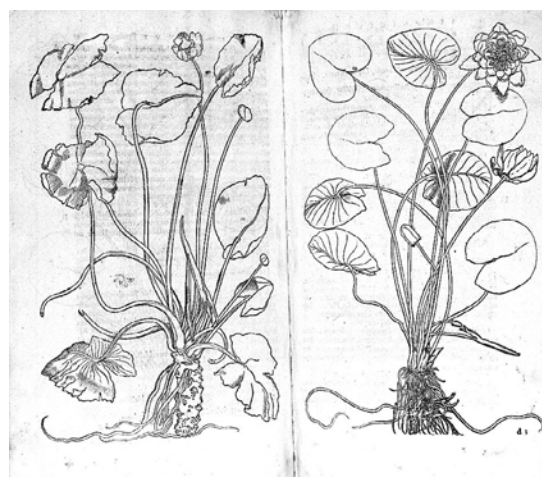


Open spread of a manuscript book, inside margin is smaller than the top one which is smaller than the outside ones again smaller than bottom ones. Combination of hand writing, black ink for main text, red ink for some parts of it. Colour representation of four species of plants, two on each page. Colours used are mostly green, red and blue to differentiate the morphological parts of the species. The plants are drawn following a symmetrical and systematic organisation, roots in the bottom expand to the main stem onto which several branches are attached and ornamented with leaves in a very ordered and artificially constructed manner. Drawings presumably realized first as they define the space occupied by the main text and annotations.

fig. 3

Earlier versions of the *Herbarium Apuleii Platonici* we show that the technique of the woodblocks printing used in order to reproduce the illustrations in the copy of Lignamine (fig. 1 and 2) implied a simplification and a certain loss in the accuracy of the drawings themselves but also a lot of changes in the relation between text and image. The early manuscript from the 11th century (fig. 3), displays illustra-

tions of plants running through the pages, defining the space of the spreads, and influencing on the layout itself. The colored illustrations in the manuscript — though using the same simplified visual language — appear to us as more diverse and less entailed and deformed by the usage of a mechanical process like the woodblock printing. It is important to mention that before the advent of printing techniques, these *Materia Medicae* were reproduced manually for preservation and that the many layers of reproduction caused numerous mistakes. Illustrations, as texts, were reproduced following earlier versions and not based on the observations of real specimens. The curious chimeras generated in those early herbals were the fruit of the man who was trying to understand the natural life of plants and their possible usage in medicine at the time, but not only. The belief that the ancient texts were providing the truth combined with the impossibility to technically reproduce accurately the observations led to a tension between a scientific approach and the visual language accompanying it.



Open spread, two woodcuts representing two specimens of Waterlilys, one on each page thanks to thin black lines. Both plants occupy most of the space offered. Complex structure of the primary roots in the bottom, condensed as a stack, secondary roots expanding on the sides. Main stems following curves, each of them differently, at their end leaves either left blank or detailed with blades and shades. Bud, closed and open flowers.

fig. 4

Around 1530, Hans Weiditz illustrated Otto Brunfels' *Portraits of living plants*, realizing what we can consider as the first realistic botanical woodcuts. Described thanks to line drawings, the species and the waterlily (fig. 4) give a new dimension to botanic

illustrations. The fictional, symmetrical, simple and immediate representation of the past is replaced by an organic and vivid sketch capturing the specimen's essence and giving a pretty accurate representation of the plant. A specific visual language is assigned to each of the different morphological parts. Stems can bend due to the weight of each leaf. Different plans appear and depth is created by Weiditz who also introduces a subtle use of shades.



Open spread with one specimen of *Absinthium* represented thanks to thin black line drawing on the left page. Justified text accompanying the illustration on the right page, notes inserted in the outer margin on the right. Big drop cap with the letter 'A', title: 'de absinthio' referring to the name of the specie, different parts in the text defining the several properties of the specimen described. The drawing presents a main root expanding to the stem, cut at its end and from which five leafy main branches developed. The plant is mainly described with detailed outlines, some shades are suggested and the drawing seems to unnaturally define a rectangular general outer shape that relates to the shape of the block of text on the page next to it.

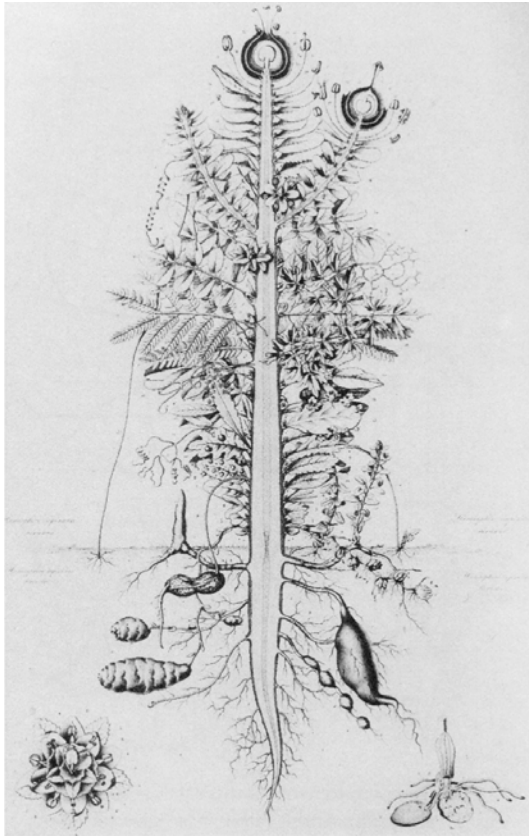
fig. 5

Professor Brian W. Ogilvie discusses the advent of Natural History as an autonomous discipline in his book *The science of Describing: Natural history in Renaissance Europe*. He writes that “unlike their medieval predecessors, Renaissance naturalists condemned the inaccurate or inadequate descriptions of the natural world that had been bequeathed from antiquity.”⁴ The use of the ancient *Dioscorides* and *Materia Medicae* as a basis to work on nevertheless remained for quite some time as the convention during the fifteenth and sixteenth century. We could for example mention Leonhart Fuchs who was himself

a follower of the ancient traditions. His work being strongly concerned with description of the natural life was still realized in order to discover, describe and transmit knowledge on the medicinal properties and other functions of plants. Leonhart Fuchs, considered as one of the main figures and founding fathers of botany, wrote his major treatise *On the history of Plants* in 1542. In the preface he informs the reader on the concerns and purposes of such illustrations. He writes:

“As far as concerns the pictures themselves, each of which is positively delineated according to the features and likeness of the living plants, we have taken peculiar care that they should be most perfect, and, moreover, we have devoted the greatest diligence to secure that every plant should be depicted with its own roots, stalks, leaves, flowers, seeds and fruits.”⁵

A bit further he then declares that he has “not allowed the craftsmen so to indulge their whims as to cause the drawings not to correspond accurately to the truth”⁶. First describing his attempt to propose empirical and truthful depictions of each of the specimens presented in his volume, Fuchs by introducing the negation and using the word craftsmen takes away all connotations that could be attributed to the use of the word artist. Implied in Fuchs words, the craftsman is perceived as an executant who reproduces the observations in a neutral way when the artist might derive from the original scientific purpose and let interpretation and fantasy interfere with the accurate reproduction of reality that was expected. The first realistic portrait of a plant drawn by Hans Weiditz as well as the work of Leonhart Fuchs can be seen as the symbols of an important change in direction for the study of natural life during the Renaissance. Then followed an enormous quantity of realistic botanical illustrations being more and more detailed and accurate thanks to both the advent of new reproduction techniques and the growing attempt to describe, categorize, create records and try to order species for the sake of understanding the new autonomous discipline that was Natural History. Starting with the curious chimeras of the *Materia Medicae*, the Renaissance expanded the wish to provide faithful descriptions of plants for scientific purpose. Explorations and discoveries of new worlds could it be at a macroscopic geographical scale or the microscopic biological one will keep on fascinating scientists and artists trying to work together in order to understand the natural life.



Black and white engraving, the specie is drawn from a frontal point of view, still planted. The root expands to a thick external main stem, on the side developed many extensions: we can distinguish about eight kinds of secondary roots with specific formal characteristics each time. From the main stem and distributed on each side of the plant start many leaves of distinguishable shapes and seemingly belonging to different classes of plants. A vertical progression seems to be notifiable with the leave that is the closest from the root having the most simple structure and the ones on top appearing more complex. The representation is both diagrammatic and formally detailed.

fig. 6

Johann Wolfgang von Goethe published *The Metamorphosis of Plants* for the first time in 1790, an independent piece of written texts, originally intended without any illustrations. One hundred and twenty three remarks on the morphology and growth of plants are presented by him, the first one being:

“Anyone who has paid even a little attention to plant growth will readily see that certain external parts of the plant undergo frequent change and take on the shape of the adjacent parts—some-

times fully, sometimes more, and sometimes less.”⁷

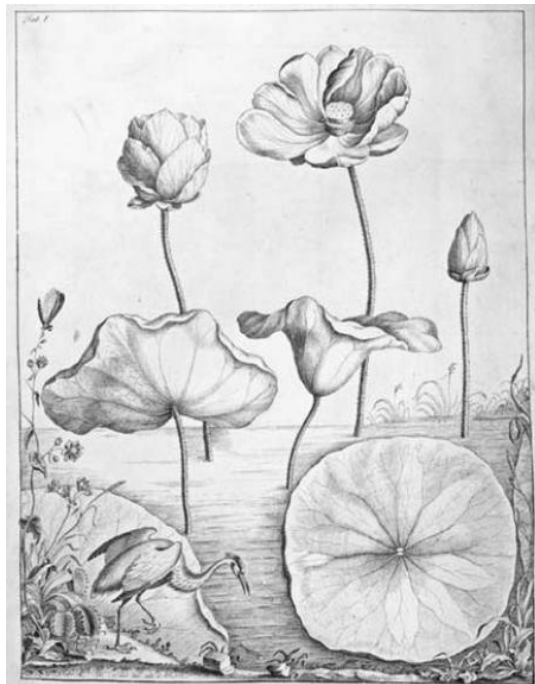
The book ends with the following statement:

“Thus I have tried to be as clear and thorough as I could in presenting a view I find rather convincing. Nonetheless, the evidence may still seem insufficient, objections may still arise, and my explanations may sometimes not seem pertinent. I will be all the more careful to note any suggestions in the future, and will discuss this material in a more precise and detailed way so that my point of view becomes clearer; perhaps then it will be more deserving of applause than at present.”⁸

The last declaration testifies his scientific concerns in trying to be as accurate as possible in his descriptions. Within his first remark, Goethe introduces the concepts of homology and transformation that he develops further in his texts by describing how most of the leaves share a common unique structure before transforming and differentiating from one another. His research on homology and transformation were already implying the possible existence of what he later described as the Urpflanze in the *Italian Journey*. The Urpflanze would supposedly have been an entity that would contain the characteristics of all different kinds of plants and could explain the creation of all of them. The primitive plant appears as a diagrammatic and fictional projection of Goethe’s attempt to understand the genesis of plant growth and structural diversity. Following the empirical and the accurate through scientific observations, the artist proposed a fantasized understanding of his theories with the idea of the hypothetical Urpflanze. He describes the primitive plant as the strangest and most beautiful of his discoveries, being the entity that will allow the understanding of morphological homologies. He writes to the philosopher Johann Gottfried Herder during his stay in Italy:

“The archetypal plant will be the most magnificent creation in the world, for which nature itself will envy me. With this model and the key to it, one can then go on inventing plants forever that must follow lawfully; that means: which, even if they don’t exist, still could exist, and are not the shadows and illusions of painters or poets but rather have an inner truth and necessity.”⁹

In fact, by projecting himself within the marvelous and fantasized primitive plant, Goethe was proposing a model that would formulate his thoughts on homology in his poetic language. The Urpflanze is the illustration of the inner dialectic conversation between the artist and the scientist he was. This dialogue generated by the expansion of the accurate proposed an alternative way to consider the role of empirical observations and their interpretation.



Black and white lithography of a natural scenery. On the first plan in the left bottom corner, a big heron looking in the water and surrounded by different grasses that run around the frame of the picture. On the first plan in the right bottom corner top view of the American Lotus, flat and of a much bigger scale than the bird. In the background the water defines the space from which five flowers pop up, one still being completely closed three of them being partially opened at different stages and the top one being blossomed.

fig. 7

William Bartram is considered as the first native American naturalist who depicted natural life thanks to both scientific observations and personal experience. Bartram's drawings provided accurate depiction of isolated plant species that he was discovering and cataloguing, but he also started to represent them in close relation with the environment they were belonging to. Bartram tried to record the diversity of natural life through a subjective experience of the wild. The drawing presenting the American Lotus (fig. 6), reflects on his wish to create a bridge between his scientific approach and the layer of personal interpretation provided by the experience of the artist. Representing the plant in all its form of progression, seen from different points of view and merging the different layers that compose the picture allowed him to contextualize the act of the description in one unified imaginary naturalistic scene. The accuracy of his observations and of the details offered by his illustrations is confronted with the fictive narrative implied in the representation.

The drawing attempts to represent one whole scene and gives the illusion of reality, but in fact by merging different spatial representations into one singular picture Bartram is proposing an irrational vision of what he might have been seeing at the time. The tension between the different approaches of William Bartram generated a hybrid version of naturalistic illustrations in which the artistic impulse of the observer seems to have taken over the pure descriptive value of the drawing.



Color lithography of a full blossomed specimen of Nepenthes, a carnivorous plant. The stems create curly patterns surrounding the flesh-like texture of the flowers. From buds to fully blossomed to almost withered, the flowers are represented at different stages of their lives in a seemingly symmetrical and vivid composition.

fig. 8

A hundred years after William Bartram's attempt to discover and depict natural life, Ernst Haeckel published his major work in 1904 under the name of *Kunstformen der Natur*, originally consisting of 100 lithographic prints. Studying medicine and anatomy first, Ernst quickly decided to attend botany lectures in parallel. Graduating in medicine, another wish progressively took over his career as a physician with the study of zoology and the discovery of the invertebrate species, the radiolarian, during a trip to the Italian island Capri. There he started to explore the depths of the ocean, as well as painting many landscapes. This created the inner tension between

the artist and the scientist that followed him the rest of his life. The title of his publication articulates this tension by placing art and nature on the same level. Art is to be found in nature, or nature is at the genesis of art forms. This formulation seems to define Haeckel's role as the observer, the scientist, and the reporter when nature is seen as the artist. Nevertheless when confronted to Haeckel's drawings it seems hard to believe they are based on scientific and faithful observations. Each of the 100 plates appear both so similar and different at the same time. The structural architecture of the organisms and compositions in the page, despite the profusion of details, bring us back in time due to the systematic use of symmetry. We seem to be far away already from the accurate and faithful representations of the illustrators of the Renaissance and projected in a science fictionnal and subjective landscape. Each of the specimens represented seems to relate formally to the one next to it creating a feeling of unity but also attributing a very ornamental function to each of the plates. The drawings in *Kunstformen Der Natur* express Haeckel's fascination of and devotion to the study of nature. Haeckel himself described his fascination for the world he was investigating, mostly referring to his main discovery, the Radiolarius, a single cell organism discovered in the depth of the ocean.

"It's hard to believe that these creatures are single cells, some are like grids, broken nets or stems, others like tiny balls, helmets or bells when others appear to us like tender houses, windmills, fantastic towers."¹⁰

These words reflect on how much the artistic impulse of Haeckel seemed to have taken over his wish to be perfectly accurate and neutral as a scientist. His drawings are projections of real observations but they are as much projections of the inner interpretation of the artist's vision of reality. *Kunstformen der Natur* was a way for him to unit these two projections in a single work, to get rid of the conflict between his mind and his heart, between precision and passion. He by doing so "began to see not only the outer forms but also the inner content, the nature and the history of things"¹¹. He's been trying to see nature as a "single unfolded work of art" by trying to understand the sequences allowing the Radiolarius, single cells organisms, to be present in such a multitude of forms. Following Goethe's attempt to present nature in its diversity and trying to find unity in it at the same time, Ernst Haeckel created hybrid specimens that reflected on his subjective way to create the marvelous and the poetic in order to try to decode the genesis and the evolutionary systems of nature.

The Pencil of Nature

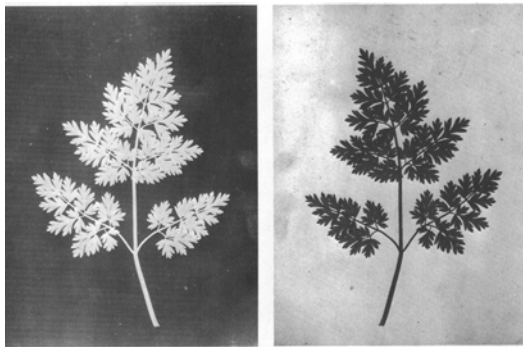


Color Nature print on neutral white background, three ferns depicted, one of each leaflet is attributed a specific color; from left to right braun, bright and dark green. Roots are followed by rhizomes, then expanded by the main axis on which leaflets and subleaflets are developed. Axis and rhizome share the same braun color. Outer parts of the subleaflets are darker than the inner ones which gives a certain transparency to the plant.

fig. 9

Around 1850, Alois Auer was the first botanist to introduce Nature prints in the discipline of Natural History. He literally took the specimens he wanted to depict and used them as tools to print with. The physicality of the plant was used as a stamp and allowed a record of natural shapes in a new manner. As expressed in *Plants and gardens portrayed*, Alois Auer implied that "‘future...designers will become superfluous,’ he ‘produced ecstasy’ in manufacturers and naturalists and predicted ‘a new era in the publication of artistic-scientific objects.’"¹² Alois Auer by thinking in terms of technical means of reproduction was still trying to tie together the artistic visual language and the wish to keep on enriching scientific knowledge. By such a gesture the representation offered to the viewer seemed to communicate as much on the forms of the specimen represented as on the process of reproduction itself. The positive imprint abstracted the models by creating a dialogue between the subject and its own reproduction.

Induced by the technique associated to the reproduction, abstraction is generated through a wish to provide a truthful depiction of plants, trying to suppress a level of interpretation when using the plant itself as the pencil creating the illustration.



Two black and white calotypes of the same specimen, before and after inversion processes. Only one part of the plant is here represented in a monochromatic silhouette picture.

fig. 10



Black and white photograph on neutral gray background. Very detailed close up of a blossoming bud.

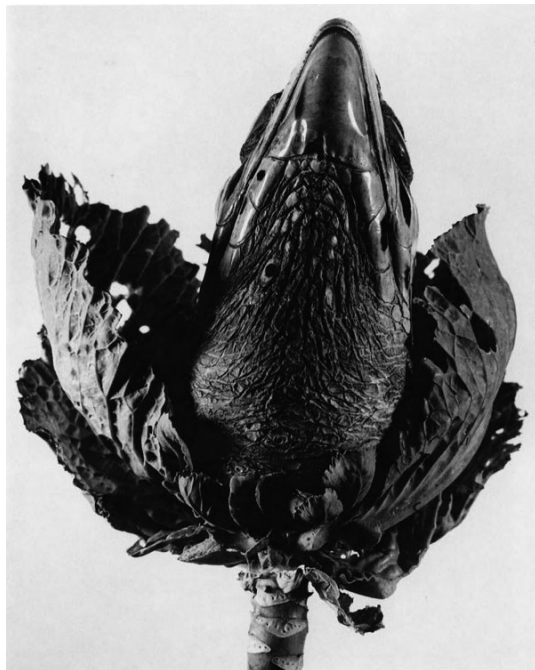
fig. 11

Following a similar process slightly earlier, Henry Fox Talbot achieved his main publication *The Pencil Of Nature* between 1844 and 1847. Producing the first calotype around 1841, a negative-process of reproduction allowing the reproduction of multiple copies from a single negative, Talbot used photographic development in order to create what has been so called his “photogenic drawings”. Talbot’s pictures represent the first depictions of plants realized thanks to the photographic medium. In the introduction of *The Pencil Of Nature*, Talbot needed to implement the idea that his pictures were directly “impressed by Nature’s hand” on photo-sensitive paper, “without any aid whatever from the artist’s pencil”. The name photogenic drawings was nevertheless revealing this important transitional state of the visual representation of nature implied by the advent of photography. Still in his introduction, Henry Fox Talbot describes his pictures as the early experiments of a promising technique that still needed to be mastered. He announces their potential to be brought “much near to perfection (...) completeness of detail and correctness of perspective”.¹³

Henry Fox Talbot’s words and beliefs in the photographic medium appear quite relevant and visionary a hundred years later when Karl Blossfeldt started his collection of photographs of plants. Blossfeldt wanted to bring the natural world to the eye in a completely new form. Concerned with the importance of cataloguing biodiversity but mostly in finding art forms in nature, we could easily build a parallel between his pictures and the drawings presented in Ernst Haeckel’s *Kunstformen Der Nature*. Karl Blossfeldt collected and took over 6000 pictures of plants during a period of slightly more than 30 years. The pictures are for most of them close ups of stems, leaves, buds, and other morphological parts of plants photographed with a homemade camera. Fascinated by the local biodiversity, photography was a way for him to record it and “restore” a lost relationship with nature by showing its amazing structure. Teacher at the United State School for Fine and Applied Art, Blossfeldt’s naturalistic pictures were providing models for his drawing students. Starting to systematically collect plants and picture them on neutral backgrounds, Karl Blossfeldt’s attempt was to create a repertory of shapes thanks to the observation of the natural world. This repertory was a way for him to demonstrate that the most beautiful structures and constructions were already present in nature. Following long hours of observation with a wish to sublime the beauty and aesthetics of plants, Blossfeldt captured very ornamental yet monumental portraits of the vegetal life. The level of abstraction implied by

the extreme staging of his shots offered a very subjective and particular way to look at nature despite the use of the “objective” camera. In this sense Haeckel’s words come back as an echo and some of Blossfeldt’s pictures appear to us as projections of architectural shapes, monuments, towers and other constructions; some others translate the movement of growth and seem to portray dancing characters following a very decorative choreography. Despite being photographs, the plants of Blossfeldt “never fall into the sober representation of a mere object”. They seem to rather try to mimic nature than depict it and by doing so generate a subjective, dramatized and particular repertory of forms in such publications as *Wundergarten der Natur*¹⁴.

Mimesis of the marvelous to generate the particular



Black and white photograph on neutral gray background. Very detailed close up of a slowly withering flower, its outer petals marked with holes.

fig. 12

In 1984, the spanish conceptual artist Joan Fontcuberta creates with *Herbarium* a series of seemingly naturalist pictures of plants making a clear reference to Karl Blossfeldt’s pictures by using the same visual language. Black and white close ups of what appears to be depiction of strangely crooked, mistreated, monstrous plants. He plays with the codes in use in such naturalist and scientific imagery by attributing a latin name to each of the specimens photographed. The pictures are as well accompanied by a text that contextualizes the experiment and gives it some more important scientific credit. The trick is only

revealed when the viewer takes a closer look at the portraits and realizes that in fact they are assembled thanks to different non vegetal elements, going from a synthetic sponge to razor blades or a chicken head (as in the case of fig.12). Creating this work, Fontcuberta seems to question the concepts of truth and accuracy in photography. The abject “plants” or chimeras arise the irrelevance of considering photography as a medium of truth. Drawing a literal parallel with Blossfeldt’s work seems to offer a subversive and critical way to look at the ornament and the decorative in the german photographer’s work. The work of Fontcuberta seems to rely on a humoristic layer that allows him to take a distance and create a gap between the mimesis of a scientific process and his critical approach on the photographic medium.



Open spread, watercolour drawings representing thirteen species distributed in two rows, seven plants on the left page and six on the right one. Illegible writings on the top of each page and under each of the plants. Most of the specimens contain roots and rhizomatic structures sending out main shots and stems onto which leaves of varied shapes and patterns are attached. Most of the samples present exaggerated curves and balance. Some of them resemble non organic entities like ladders, turning wheels, ear rings or other dreamcatchers.

fig. 13

In 1981, three years before Fontcuberta’s *Herbarium*, the italian artist Luigi Serafini published his famous *Codex Seraphinianus*, a 360 pages encyclopedia describing an imaginary world invented by the artist. The book is divided in several chapters that provide the complete picture of a utopian world, including descriptions of the architecture, technologies, sciences, traditions of the inhabitants, politics, language in use (the whole codex is written in an enigmatic and illegible made up writing system that many linguists tried to decode with no success). Depicting all

the aspects necessary for building up a fictive civilization, Serafini starts his Codex with a first chapter entirely dedicated to the description of the Flora of his world. The process of mimesis is at the basis of the artist's work and is already implied in the archaic form of the Codex. The spreads presenting the plants species very much refer to any of the ancient *Materia Medicae* and we rapidly try to read them by attributing irrational functions to the specimens depicted. As Frederico Zeri describes it, in Serafini's Codex:

“human characteristics dissolve into these animals, these animals into plants, these plants into machines, and son on to infinity”¹⁵.

Luigi Serafini draws a world based on interconnections, the plants are not seen as independent and autonomous entities but each of them seems to be connected with a more global vision of an environment in which all the species seem to have a specific effect on each other. They issue for most of them from a surrealist cross-fertilization between different classes and by crossing and merging those classes, the artist creates disorder in the apparent order of his colorful imaginary civilization. In *Plants as Persons: A philosophical botany*, Matthew Hall makes the differentiation between humans and plants by saying that each of them have different needs and belong to different classes, but he tries to create an analogy between classes when he states that “there is no radical ontological schism between plants, animals, or humans”¹⁶. To imagine and invent a flora in order to propose a fictional vision of the world is necessary in order to acquire credibility. The relationships between man and his environment define the essence of the particular society depicted. Both the function of the plant as an autonomous organism and its behavior in its environment are what will define the flora invented. Serafini in his Codex mimicked both the ancient medicinal herbals and the world explorers or artists from the Renaissance that were bringing back pictures of the new discovered world. By the invention of fictive codes, he rather than trying to build a bridge between science and art, mimicked an obsolete scientific language in order to offer his own satiric vision of contemporary societal concerns thanks to the use of the absurd and the irrational.



Still of a hand drawn desertic landscape with sand dunes at sunset time. From far away, people in line crossing the dunes and fourteen samples of plants of enormous scale compared to the walkers. They have very tall axes with at their top extremities five to six thin extensions. It seems like the plants can bend and almost reach/whip the floor.

fig. 14

In 1973, french animator René Laloux in collaboration with illustrator Roland Topor realized the science fictional animated film *The Fantastic Planet*. Human beings (the Oms) live on a planet governed by blue skinned and gigantic humanoid aliens (the Draags). The Oms are considered by the Draags as the parasites of the planet and most of them are domesticated by the alien superior race when others live free in a hostile natural environment. Being either treated as pets or living as prosecuted rebels, the Oms have to first understand their condition and then fight for both access to knowledge and freedom. Imagining this fictional scenario and projecting us in future, Laloux and Topor created a fictive landscape composed of numerous unknown species of plants. Even though depicting a visionary speculation thanks to a science fictional scenario, the *Fantastic Planet* seems to be inscribed in its contemporary context of the 70's by following the emerging ecological concerns that placed man as a non desirable entity in his own environment. Like Serafini's chimeras, the plants are generated thanks to class mixing and become living creatures that threaten man during his quest of freedom and access to spiritual knowledge. Sharp as knives, enclosed as prisons, tight as whips, the flora of the *Fantastic Planet* is both passive in its role as a background setting and yet very active in its violent interactions with the narrative. Paradoxically, when a part of the flora appears hostile to humans, another part of it allows the act of dwelling. Plants can be seen as obstacles but can also as shelters in the movie. The organic constructed structures hosting the Draags in the *Fantastic Planet* suggest a harmonious cohabitation between the aliens and nature. Different tribes

of Oms live in natural environment, some of them in caves, some others inside gigantic tree trunks. The symbolic of plants in the *Fantastic Planet* is very rich: plants at the genesis of life are formally associated to human sexual organs, they are sensitive, and interactive. By telling the story of a surreal and science fictionnal quest to access spiritual enlightenment, Laloux and Topor face humanity to a zero stage in which it has to understand the complexity of its environment in order to survive. It might be relevant to notice that the word ‘ecology’ has been coined by no one else than Ernst Haeckel himself.



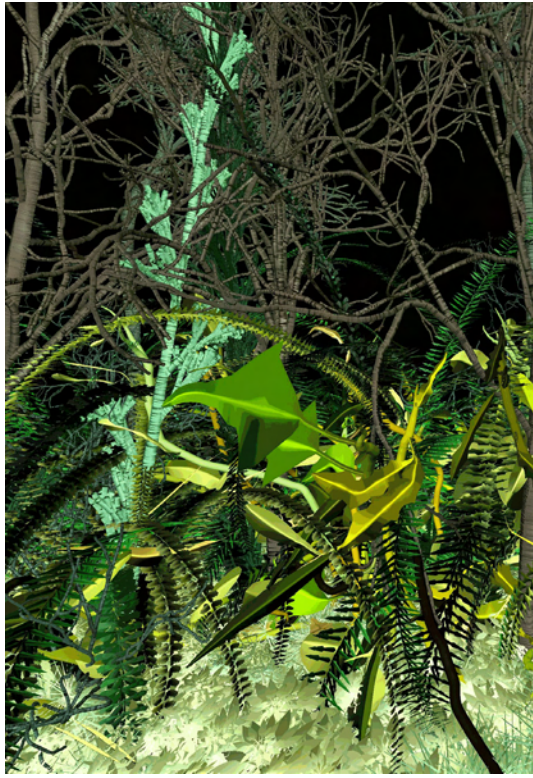
Still of a luxuriant 3D rendered jungle. Tree branches with different kinds of lichens, several big purple leaves at different stages of progression, some are fully opened and others are partially closed, creating a network of tubes that seem to allow circulation of water.

fig .15

To generate a credible vision of Pandora, the fictive moon on which James Cameron’s *Avatar* took place in 2009, designers and other digital artists had to work on imagining a complex system that tried to define a fantasized natural environment in different atmospheric conditions than the ones on Earth. To do so, they worked in close collaboration with Jodie Holt, botanist at the University of California. She describes what her role was within the team in an interview given to *scienceline.org*. The first concern was to depict a plant life that wouldn’t be “too boring” to the audience. She based the morphological properties and the different behaviors of the invented species on features that were already present on Earth, simply by exaggerating them. Based on expanded empirical knowledge of plants on Earth, the flora created in *Avatar* wants to appear both similar and different to the reality. Extreme

sensitive reactivity, moving plants, lighting trees of wishes and so on, the specimens mimic some of the marvelous properties of nature and generate a particular imaginary digital herbal. *Pandorapedia.com* functions as an encyclopedia of the life developed on Pandora. The flora is there classified following the common nomenclature used on Earth, plants are attributed latin names, descriptions of their morphological and behavioral properties. In *Avatar* as in the *Fantastic Planet* plants are as much part of the background setting as characters interacting with the narrative. With an underlying educational, moralist discourse, plants become spectacular entities organized in a relational fragile network. Not only are we now keeping record of natural life on earth, but we start to build records of fictionnal non existing species as a reflection on our capacity to react on contemporary concerns like preservation. Put in the words of the italian writer Pier Luigi Capucci:

“The artificial springs from the transformation of the natural, and the natural bases on the artificial the possibility of acting more effectively. The artificial is one evolutionary development of the natural, yet it also bears witness to – and retains a memory of – the vitality of such evolution.”¹⁷



Still of a 3D rendered arrangement of several digital plant representations. Ferns, grasses, bushes and other branches appear very pixelated in a chaotic composition.

fig. 16

Fifteen years before the blockbuster *Avatar*, the artists Christa Sommerer and Laurent Mignonneau created the installation *Interactive Plants*. The art piece consists of 5 real plants being displayed in front of a big screen. Each of the plant is connected to sensitive captors and play the role of an interface by sensitively reacting to the spectator's movements. When one starts touching one of the specimens, the digital representation of the plant on the screen will start to react by means of growth, scale, movement. Christa Sommerer has a background as a botanist, she tries as an artist to keep on investigating plant's life and behavior. By proposing this interactive experience they try to visualize scientific knowledge but expand it by bringing it out of control thanks to digitalization and use of programs and other softwares specifically developed for the piece. The visual mimesis of the digital entities creates a playful dialogue between a seemingly accurate scientific investigation and particular generation of digital wildness. Sommerer explains about their work:

“the relationship with technology is close, very strong; technology and nature explore each other. Technology allows to construct a sort of other nature, an Artificial Nature that, I believe, renders better visible real nature.”¹⁸

Today, almost twenty years after the creation of *Interactive Plants* questions of preservation are concerning not only the plants that are part of the installation (as they have to be replaced quite regularly) but the obsolescence of the computer technology which is no longer existing today and might be a cause for the disappearing of the artwork itself.

Notes

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