ABOUT CONDITIONS

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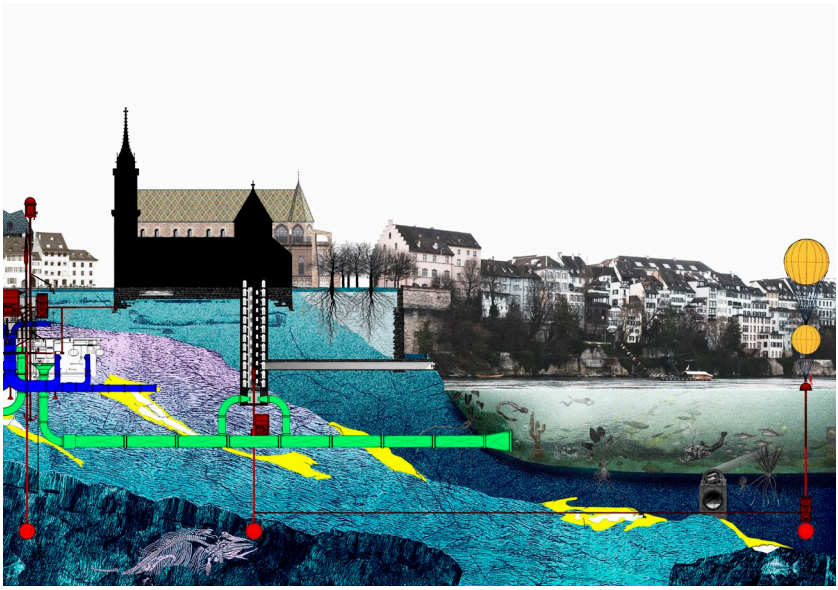
The seemingly arbitrary traces of nature growing in-between two buildings, the transient density of a fog, the unstable logic of the course of the Mississippi river, the controlled humidity in a botanical greenhouse.

Can architecture focus on what is ephemeral and generate similar conditions?



Truwant + Rodet +, Naturgemälde, Lasting Long, Coming Soon, CH-Basel, 2019

Like most of today's monuments, the Münster Cathedral in Basel appears mostly as an idealized collective memory depicted without its context, like a landmark in a snowball. But the real history of the 1000 years old cathedral is linked to its geomorphological condtion. Historically the Rhine used to flow straight between todays Grenzach-Wyhlen and Weil am Rhine.

But during the last glacial period the enormous rubbles and gravel deposits of the Feldberg glacier were transported down the Wiese forming a wide delta and forcing a bend in the riverbed of the Rhine. Carved out by the river and the accumulated sediments, the Münster plateau naturally arose on the southern bank. Its specific morphology became a major asset for the Celts and the Romans who sought to settle along the course of this important navigable waterway. It offered a strategical vantage point 40m above the water level, ideal to erect in first instance an oppidum for control and defensive purposes, and later on a cathedral as a demonstration of religious power.

The proposed image is an imagined cross section through its bigger context, revealing exciting geographical, geological and cultural clues informing us about all its ecosystems, historical layers and even potential futures.

The cathedral is a small element in a web of interrelations and stories. Without the river bend of the Rhine, there would be no settlement, no defense, no power, no Münster, no pontifical council, no university, no research, no chemistry, no ...

Since the Industrial Revolution western civilizations have tried to control the environment with the objective of turning it into productive resources. Architecture is at the core of this transformation. And as a result, our landscapes have turned into a continuous carpet of settlements, networks of roads, commercial sheds, polluted soils, displaced fauna, disrupted flora, predicting a future of natural disasters and social distress.

Today, in the midst of this ecological crisis this shift cannot be denied anymore. And though we begin to see the consequences of centuries of abuse, the approach to architecture isn't changing and remains self-centered. This act of domination will persist as long as we keep on referring to architecture as "buildings" and relegating landscape, public space, service spaces, interstitial spaces, infrastructure, etc. to the background.

The classical practice of architecture is inadequate to tackle our contemporary condition: that of an ultra-complex urban, political, social, ecological structure where the boundaries between disciplines are no longer clearly pronounced. A condition that requires a non-discriminatory, non-segregationally, non-compartmental attitude. A mindset where one accepts dissolution, vagueness, informality, hybridity, fauna, and flora. An approach that accepts that everything is part of the same environment.

GÉOGRAPHIE DES PL

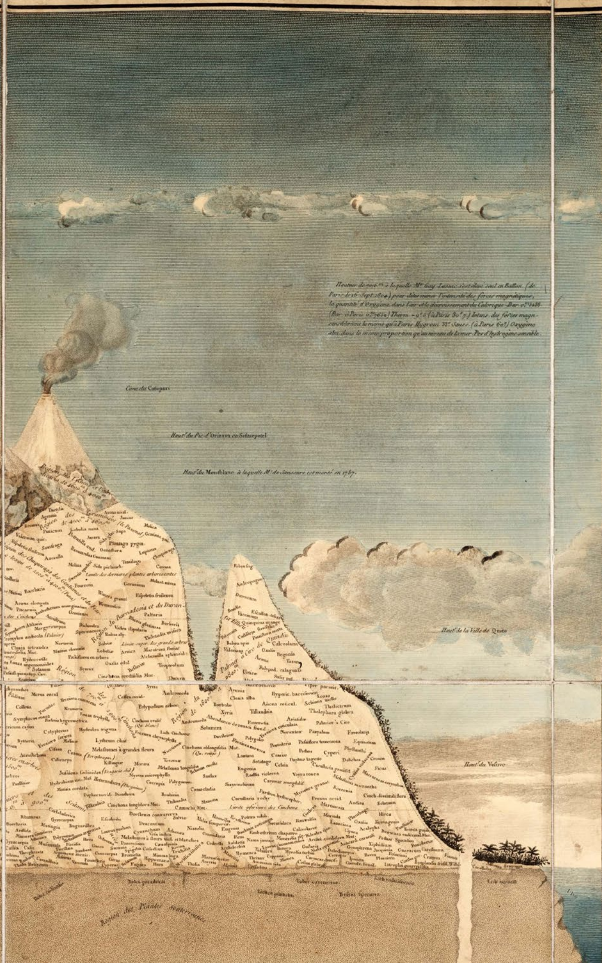
Tableau physique de

Dressé d'après des Observations & des Mesures pr

jusqu'au 10e. de latitude austr

ALEXANDRE DE HUMBO

Esquissé et éclairé par M. de Humboldt, dessiné par Schönberger et Tu



ÉCHELLE en MÈTRES.	TEMPÉRATURE de l'Air à diverses hauteurs, exprimée en maximum et minimum du Thermomètre centigrade.	COMPOSITION CHIMIQUE de l'Air atmosphérique.	HAUTEUR de la limite inférieure de la Neige perpétuelle sous différentes latitudes.	ÉCHELLE des Animaux selon la hauteur du sol qu'ils habitent.	DEGRÉS de l'eau bouillante à différentes hauteurs. Thermomètre centigrade.	VUES Géologiques	INTENSITÉ de la Lumière dans l'air à diverses hauteurs en prenant pour unité son intensité dans le Vuide	ÉCHELLE en TOISES.
					Eau bouillante à 77°,0 (61°,6 R) Bar. 0m,320.	La nature des Roches paraît en général indépendante des différences de latitude et de hauteur. Mais en ne considérant qu'une petite partie du Globe, on découvre que dans chaque région l'ordre de superposition des roches, l'inclinaison et la direction de leurs couches ont été déterminés par un système de forces particulier. On reconnaît qu'il existe de certaines lois locales selon lesquelles s'élèvent les différentes formations au dessus du niveau de la mer. Les Régions équatoriales présentent à la fois les cimes les plus élevées et les plaines les plus étendues du Globe depuis 0° à 1° 45' et nulle part ailleurs sur la terre, les montagnes excèdent la hauteur de 5850m. Leur abaissement vers les pôles n'est cependant pas très considérable; car sous les 19° les 45° et les 60° de latitude bor. on a trouvé des Cimes de 4700m et même de 5500m d'élévation. Les Plaines équatoriales au contraire, celles contenues entre la pente orientale des Andes et les côtes du Brésil, sur 700 lieues de long, n'ont pas 70m à 200m de hauteur au-dessus du niveau de l'Océan. Toutes les formations que l'on a découvertes sur le reste du Globe, se trouvent réunies sous l'Equateur. Leur ancienneté relative, qui se manifeste dans l'ordre de leur superposition, y paraît en général la même que dans les Zones tempérées. Les granites, qui servent de base au Gneis, au Syenite, au Schiste micacé et au Schiste primitif, les formations secondaires, deux de grès, deux de Gypse et trois de Roches calcaires, offrent des exemples frappants de l'identité de structure qui règne dans les parties les plus éloignées du Globe. La formation problématique des Basaltes, des Amygdaloïdes, des Roches amphiboliques et des Porphyres à base d'obsidienne et de Pierre perlée (Perlstein) se trouve éparse sur la haute crête des Andes, comme elle l'est sur celle des hautes chaînes de l'Europe. Parmi les phénomènes géologiques qui sont particuliers aux Régions équatoriales du nouveau Continent, on doit citer sur tout l'épaisseur des couches et la grande hauteur à laquelle on découvre les formations postérieures au Granite. En Europe le Granite n'est pas couvert par d'autres Roches depuis 3300m à 4700m. Aux Andes on ne le voit pas au dessus de 3500m. Les Cimes les plus élevées du Globe sont d'un Porphyre dans lequel l'Amphibole abonde, qui est dépourvu de Quarz et que quelques Minéralogistes regardent comme produit, d'autres comme altéré par le feu volcanique. Des formations de Grès se trouvent à Huancavelica à 4500m. Le Charbon de terre se [illegible] à 4400m de hauteur. Les plaines de Bogota à 2708m et 2900m sont couvertes de Grès, de Pierre calcaires secondaires, de Gypse et de Sel gemme. Des Coquilles pétrifiées se trouvent aux Andes au-dessus de 4200m (en Europe on ne les a pas vu au-dessus de 3500m.) Le Sol du Royaume de Quito contient à 2500m de hauteur d'énormes ossemens d'Eléphants dont l'espèce paraît détruite. Les Grès de Cuenca ont 1560m d'épaisseur; une formation de Quarz à l'Ouest de Caxamarca en a 2900m. La Cordillère des Andes présente plus de 50 Volcans enflammés dont quelques uns sont éloignés de la mer de 37 à 40 lieues marines et dont les plus élevés et les plus renforcés par les flancs ne vomissent pas de laves coulantes, mais des Pierres ponces des Obsidiennes, des Porphyres et des Basaltes scorifiés, et sur tout de l'Eau et cette terre carburée, dans laquelle est souvent enveloppé un poisson (le Pimelodus Cyclopum)	0,9164	3500t
6500				Pas d'Etres organisés fixés au Sol.				
6000	Régions trop peu fréquentées pour en connaître la Température moyenne, qui cependant y paraît être au dessous de zéro. A 5403m le Thermomètre monte quelquefois à 1°,8.		L'air retiré de l'eau de Neige contient 0,287 d'Oxigène.	Le Condor des Andes, quelques mouches et Sphinx voltigeant dans les airs, peut-être élevés en ces Régions, par les courans ascendans	Eau bouillante à 81°,0 (64°,8 R) Bar. 0m 367.		0,9047	3000
5500		La quantité d'oxygène atmosphérique paraît la même dans les hautes régions et dans les plaines. Mais la proximité des Volcans peut quelquefois, sur les hautes Cimes des Andes, modifier la composition de l'air.						
5000	de -7°,5 à 18°,7 Température moyenne 3,7 (3° R.) Il tombe de la neige jusqu'à 4100m		Neige perpét. sous l'Equateur et de 3° lat. bor. à 3° lat. australe 4800m (2464t) Pas de variations de 80m. Neige perpétuelle sous les 20° latit. bor. à 4600m (2361t) mais elle y descend en hiver à 3800m	Des Vigognes des Guanaco, des Alpaca en bandes nombreuses. Quelques Ours. Condor. Faucons Caprimulgue. Plus de poissons dans les lacs.	Eau bouillante à 84°,7 (67°,7R) Bar. 0m 418.		0,8922	2500
4000	de 0° à 20° Température moyenne 9° (7°,2 R.) Abondance de grêle, même quelquefois de nuit.			Des Lama devenus sauvages à la pente occidentale du Chimborazo. Le petit Ours à front blanc. Grands Cerfs. Le petit Lion. Quelques Colibri. Plus de pulex penetrans	Eau bouillante à 88° (70°,5R) Bar. 0m 474.		0,8787	2000
3500		La quantité d'hydrogène contenue dans l'air atmosphérique est moindre de deux millièmes. On ne trouve pas plus d'hydrogène à 7000m d'élévation qu'au niveau de la mer.	Neige perpétuelle sous les 35° de latitude à 3500m (1800t) de hauteur.					
3000	de 1°,2 à 23°,7 Température moyenne 18°,7 (15° R.) Grêle très abondante. Brume fréquente et peu élevée.		Neige perpétuelle sous les 40° de lat. à 3100m (1600t) de hauteur.	Viverra mapurito. Felis tigrina. Grands Cerfs. Palamedea bispinosa. Abondance de Canards et de Plongeurs. Beaucoup de poux. (Ped. Hum.)	Eau bouillante à 91°,3 (73°,0 R) Bar. 0m 536.		0,8640.	1500
2500			Neige perpétuelle sous les 45° de latitude bor. à 2500m (1282t) Aux Pyrenées à 244[illegible] En Suisse à 2700m sur les Cones isolés; à 2530m si la cime des Montagnes dépasse 3100m. Phénomène peu constant dans les Zones variables.					
2000	de 12°,5 à 30° Température moyenne 21°,2 (17° R.) Grêle assez rare. Ciel souvent brumeux.			Petits Cerfs (Cervus mexic.) Tapir. Sus Tayassu. Felis pardalis. Quelques Singes Alouates. Troupial (Oriolus) Coluber coccin. Pas de Boa, pas de Crocodile, beaucoup de Chiques (Pul. penet.)	Eau bouillante à 94°,3 (75°,4 R) Bar. 0m 605.		0,8478.	1000
1500		L'air atmosphérique contient 0,210 d'oxygène, 0,787 d'Azote et environ 0,003 d'Acide carbonique. Le maximum de ses variations ne paraît pas excéder un millième d'oxygène.						
1000	de 18°,5 à 38°,4 Température moyenne 25,3 (20°,2 R.) Pas de Grêle. Le Sable souvent à 52°.		Sous l'Equateur on voit tomber de la neige à 4100m (2100t) de hauteur. Au Mexique sous le 19° de latitude elle tombe jusqu'à 1800m de hauteur.	Singes Sapajou et Alouates. Jaguar (Felis onça) Tigre noir. Lion (Felis concolor) Cavia capibara. Paresseux. Fourmiller. Cervus mexic. Armadille. Aptenodytes. Crax. Ampelis. Boa. Crocodile. Lamentin. Elater noctil. Mosquito (Oestr. Human)	Eau bouillante à 97°,1 (77°,7) Bar. 0m 679.		0,8309	500
500								
0			Neige perpétuelle sous les 75° de latitude bor.		Eau bouillante à 100° (80 R) Bar. 0m 762.		0,8123.	0
500	L'eau de mer à la surface près de l'Equateur hors des courans a 28° mais à la profondeur de 400m la mer est à 7°,6. La Temp. de l'intérieur du Globe paraît sous l'Equat. de 22°,3.			Dans l'intérieur du Globe de nouvelles espèces de Dermestes qui rongent les plantes souterraines.				500

ANTES ÉQUINOXIALES.

s Andes et Pays voisins

ses Sur les Lieux depuis le 10.e degré de latitude boréale

ale en 1799, 1800, 1801, 1802 et 1803.

PAR

LDT ET AIMÉ BONPLAND.

sin à Paris en 1805, gravé par Bouquet, la Lettre par Baublé, imprimé par Langlois.

Complex systems & Naturgemälde

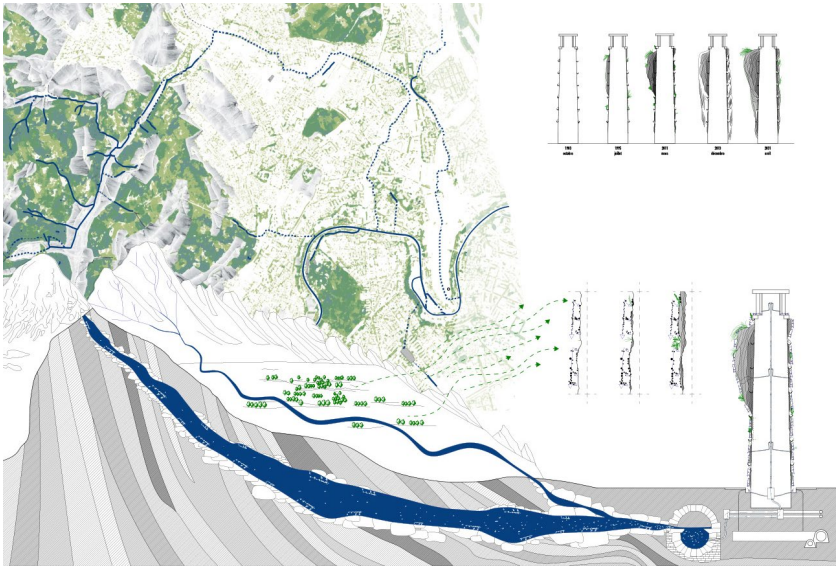
The contemporary understanding of the interrelationships between society, nature and politics found its origin in the work of the Prussian scientist and visionary thinker Alexander von Humboldt. He is seen as one of the last Homo Universalis, who was living in the 19th century, during the heydays of the industrialization, at a moment where ironically all disciplines were encouraged to become hyper-specialized.

But Von Humboldt had an interest for the whole world around him and this unsatisfiable curiosity drove him on extreme excursions to the mountain ranges of Europe, Latin America, Russia and the United States of America. During these travels, he started to organize plants according to their altitude and climate. He concluded that the flora from different locations but similar height where comparable. This finding helped him to understand that everything was linked and that there is a "unity in variety"[1]. But his recognition of the whole world as one complex eco-system went much further than understanding its botanical interconnections. His interest in economic, political and social conditions made him see the effect of human behavior on the environment. He connected for example, very early-on, the negative influence of colonialism and slavery on ecosystems and predicted the devastating consequences of deforestation on future generations.

Alexander von Humboldt understood the world as a web of connections and he was at the origin of the definition of ecology as "the study of the interrelationships of organisms with their environment and each other"[2]

The extensive reports of his travels made him one of the most influential people of his time. And probably as important as his findings were the numerous illustrations of ecosystems in his renowned publications. In 1802, during his five year-long exploration of the Andes which was crucial in the shaping of his perception of the world, Alexander von Humboldt started to draw his first Naturgemälde, trying to translate a "micro cosmos on one page"[3]. The 54 cm by 84 cm drawing Ein Naturgemälde der Anden that is based on the Chimborazo sketches shows a cross-section of the volcano, linking altitude with flora, temperature, gravity, humidity.

Later on, Von Humboldt developed together with a set of artists his paintings of nature in which infographics were used for the first time to show these interrelationships and made his theories understandable for a much bigger audience. The Naturgemälde became a crucial tool in the understanding of ephemeral conditions, invisible correlations, and transcontinental connections.

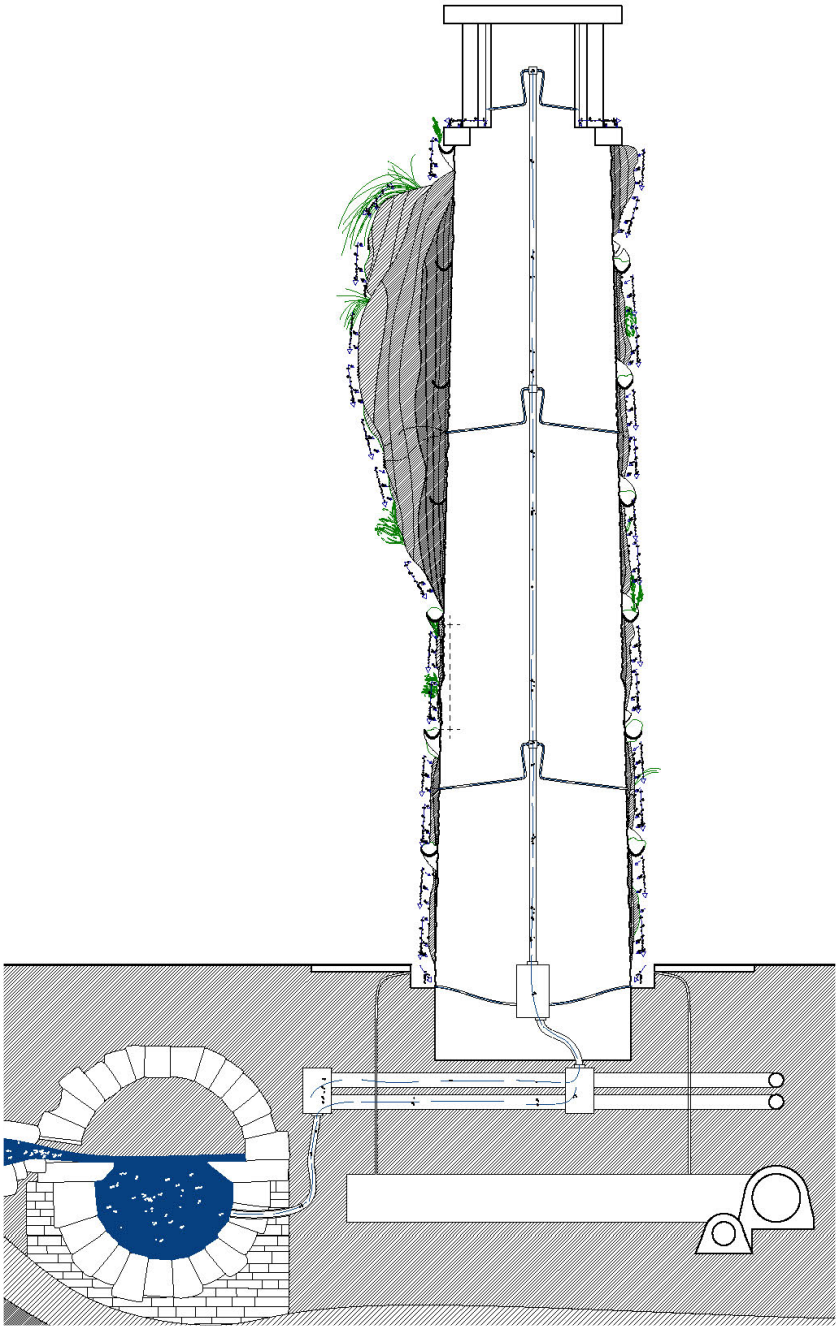


Juliette Villechange, Maya Mouttapa, Theophane Lefebvre Delean, Analysis of the fountain of Meret Oppenheim, Ensav, FR-Versailles, Studio Truwant + Rodet +, Spring Semester 20

In 1983, a modernistic looking concrete fountain was erected on Waisenhausplatz in Bern. But in that year, the column-like sculpture by Meret Oppenheim didn't reach it's final form yet. The artist had just put the perfect conditions in place so the calcareous water from the Bernese mountains could leave a tuff deposit on the structure. This new rocky landscape becomes the perfect base for a vertical wild garden of mosses and wild grasses whose seeds are carried along by the wind.

The simple structure put in place by Meret Oppenheim, reveales a whole existing ecological system. It creates a dynamic sculpture that is never finished and that connects the city to its surrounding landscape.

During the spring semester of 2020, our studio at the Ensav was focussing on the topic of Uncertain Conditions. The students analysed projects that dealt with concepts like Liquid space, Time as material, Climate, Habitat. and Nature & Technology. The drawings of Alexander von Humboldt served as a starting point to represent the ephemeral and to illustrate the processes used by for example Meret Oppenheim.



Proposals for uncertain conditions

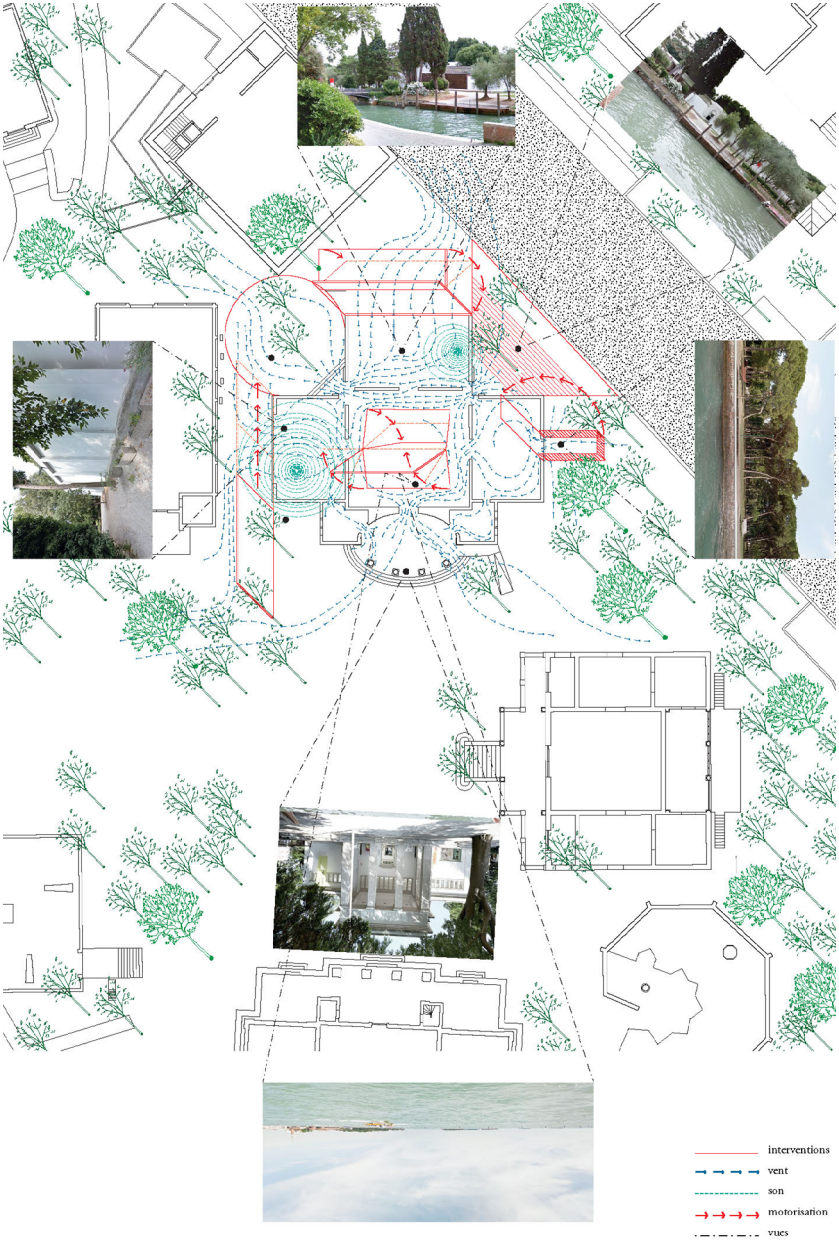
Rather than viewing architecture as an authoritarian discipline that produces fixed and hermetic objects, we, Truwant + Rodet +, would like to think of our field of study in the light of Humbold's work as part of a bigger complex system. In our work and practice, we define architecture as a more fluid and transversal discipline, lifting the separations between landscape, structure, art, science, territory, technology, biology, botanism.

Architecture as a generator of potentials and conditions could be regarded as a living organism or what one could call an adaptive system similar to a colony of ants, the stock exchange, users of a library or even the development of a construction site. All involve a dynamic network of entities and actors whose behavior and retroaction cannot be predicted. Architecture could have a pulse, a rhythm, could grow, or dissolve following unpredictable parameters. Architecture could be made interdependent with the context, temperature, humidity, light, fauna and flora.

This ambition is translated in many of the projects of Truwant + Rodet + by means of programmatic, spatial, technological and material manipulation with the aim of blurring limits between the built mass and its surroundings, allowing for spatial fluidity between inside and outside. Our search for a "Liquid Space" becomes an investigation on thresholds as a space of potential, that can be stretched, pierced or dissolved, to generate new conditions for acoustic, thermal, visual, political and social exchanges.

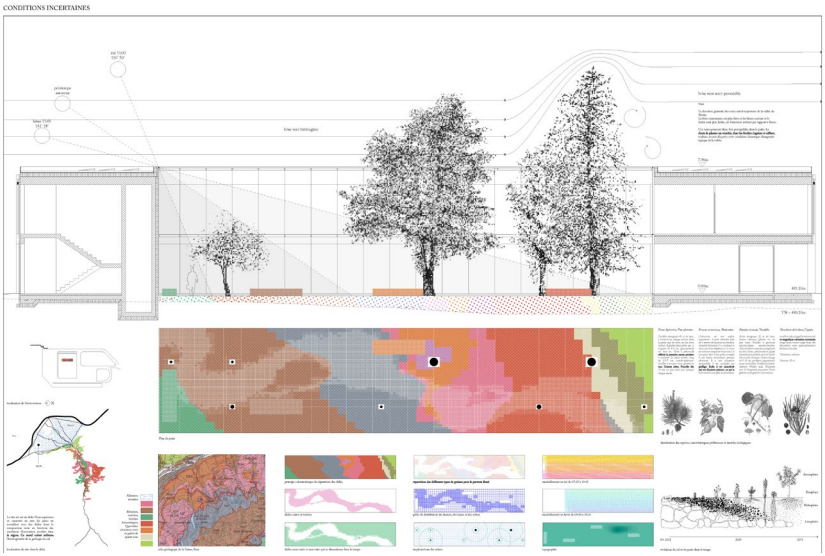
The threshold not as a limit in classical conception, but as a transitional space that articulates interior/exterior, landscape/building, urban/rural, natural/artificial.

Following the concepts of von Humboldts researches, the question arises if architecture, like nature, can be conducive to evolution and transformation over time? Time can become a design tool within the practice. Planning the rules and conditions for a project, becomes a bigger priority then searching for a final form.



Truwant + Rodet + Bruther + Carlotta Daro + Laurent Stalder +, proposal for the French Pavilion, IT-Venice, 2017

The project for the Venice Biennaile 2018 proposes an update of the French Pavilion through a transformation that involves 3 types of long-term interventions: the integration of the outside spaces in the spatial organisation of the pavilion, the articulation of the thresholds through a series of openings, the transformation of the pavilion from a static and hierarchical architecture into a dynamic and interactive device provided with technical equipment adapted to the current requirements of its programming. The project aims not only at transforming the pavilion to match the contemporary needs of the Biennale, but also at showing the spatial, constructive and atmospheric, and thus aesthetic, potential of the architecture.

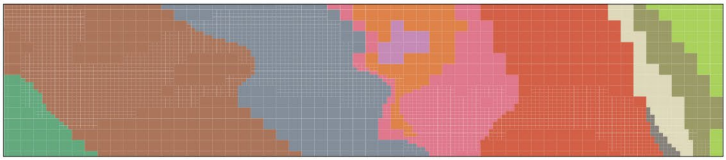


Truwant + Rodet + Oxara +, proposal for a transformative courtyard, CH-SION, 2020

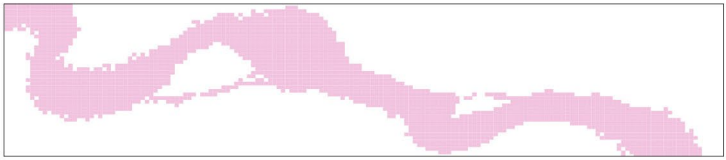
A hidden courtyard in a new public building is cut off from its direct surroundings and presented in the competition brief as an empty piece of land. But when located in its bigger context, the courtyard becomes part of the Delta of the Bramois river.

Truwant + Rodet + proposes to use the different types of soil along the river as raw material for a set of cement-free concrete tiles, a method developed by Oxara. The different treatments of the tiles will determine the longevity of the concrete, foreseeing a possible decay of parts of the courtyards. With the dissolving of certain tiles, seeds will come to the surface, creating a transformative garden, that will create a very specific piece of nature, grown out of its context. The project sets in place a set of conditions that in time will shape the appearance and evolution of the courtyard.

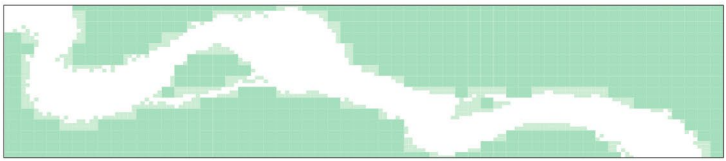
To project is represented in one panel that combines, like Alexander von Humboldts Naturgemälde, infographics with sections and plans, representing simultaneously the existing conditions like climat, wind,... and the projected conditions that script a possible future.



principe colorimétrique de répartition des dalles



dalles cuites et traitées

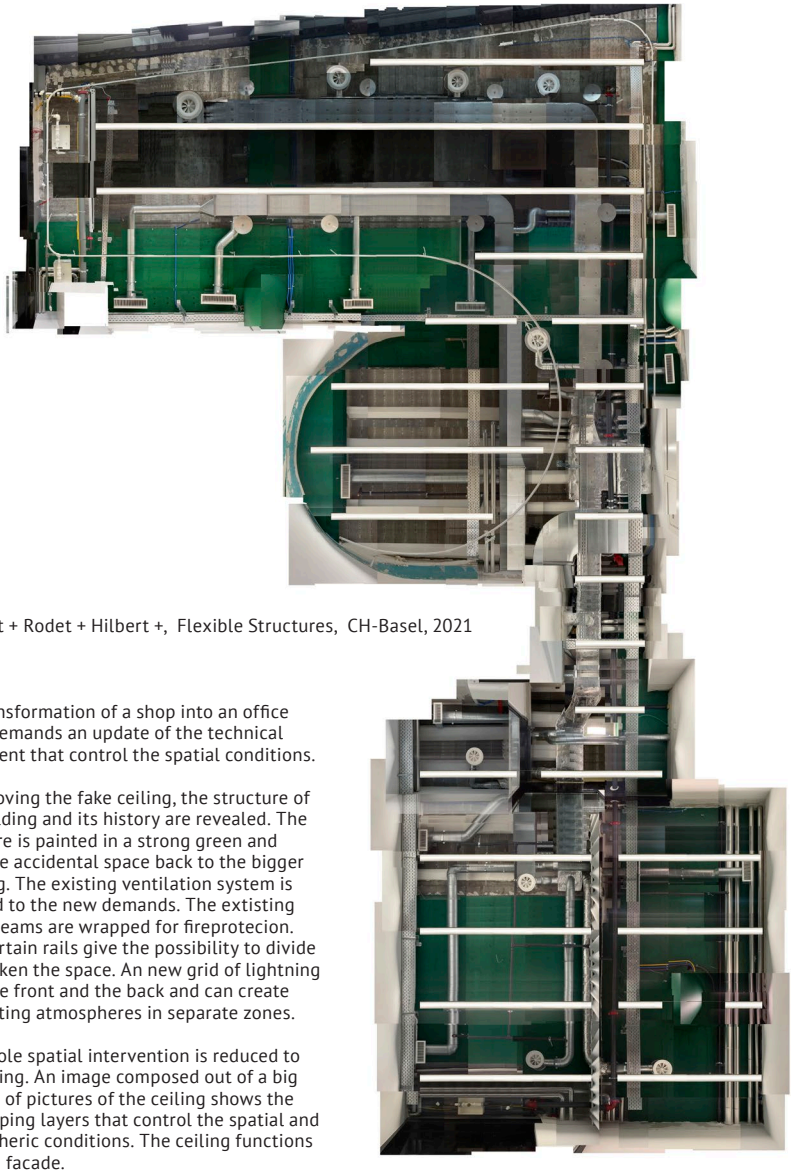


dalles semi-cuite et non cuite qui se dissoudrons dans le temps

ensoleillement en été de 07:15 à 19:15

ensoleillement en hiver de 09:30 à 15:30

topographie



Truwant + Rodet + Hilbert +, Flexible Structures, CH-Basel, 2021

The transformation of a shop into an office space demands an update of the technical equipment that control the spatial conditions.

By removing the fake ceiling, the structure of the building and its history are revealed. The structure is painted in a strong green and links the accidental space back to the bigger building. The existing ventilation system is adapted to the new demands. The extisting metal beams are wrapped for fireprotecion. New curtain rails give the possibility to divide and darken the space. An new grid of lightning links the front and the back and can create contrasting atmospheres in separate zones.

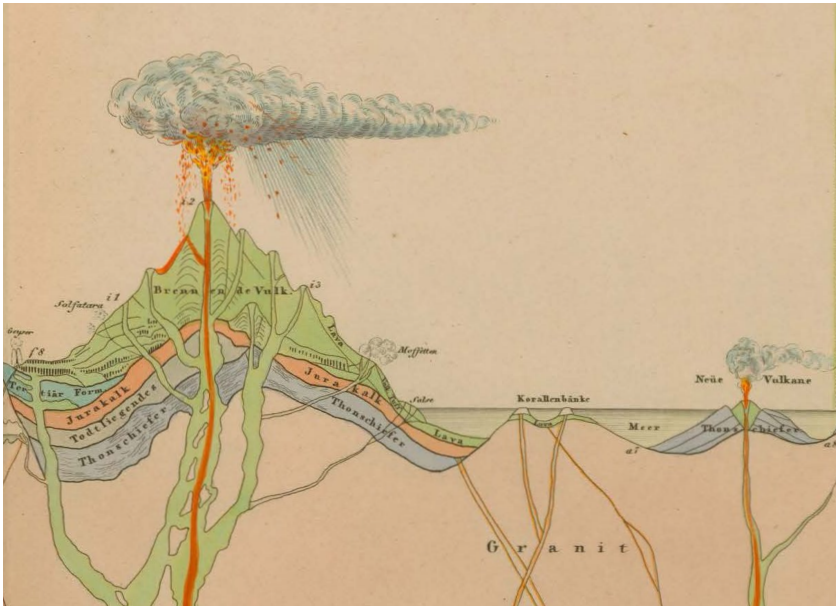
The whole spatial intervention is reduced to the ceiling. An image composed out of a big amount of pictures of the ceiling shows the overlapping layers that control the spatial and atmospheric conditions. The ceiling functions as a 5th facade.

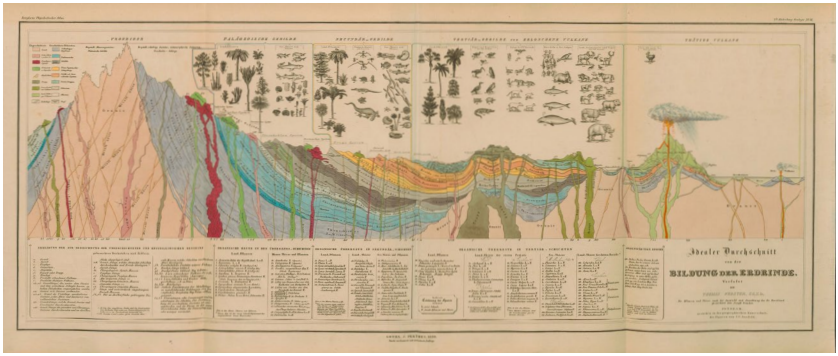
Truwant + Rodet + Hilbert +, Strange Encounters, CH-Basel, 2020

The brief for the transformation of a one-family house, can be summarized to 3 topics: the renewal of the heating system, a new staircase that resolves the connection with an first renovation that happened in the 80's and a structural element that makes it possible to organize an open floor plan.

The 3 new elements are combined in one central element that becomes the center of the house, a strange hybrid between heating, circulation and structure. The new element ties together the previous renovations of the house, forming a new whole.

A collaged image combines the planned future of the project (a render), a ruin of the past (the building site), together with an axonometry of the new intervention and proposes that the new renovation is another intermediate state of a house that keeps on transforming with every new owner.





Berghaus, Heinrich Karl Wilhelm: Dr. Heinrich Berghaus' physikalischer Atlas : eine, unter der fördernden Anregung Alexander's von Humboldt verfasste, Sammlung von 93 Karten, auf denen die hauptsächlichsten Erscheinungen der anorganischen [...]. Gotha : Verlag von Justus Perthes, 1852. ETH-Bibliothek Zürich, Rar KA 52, https://doi.org/10.3931/e-rara-68876 / Public Domain Mark

Modes of representation

What is the role of the drawing in this shift of perception? In order to instigate new proposals, it is necessary to challenge our communication means to translate movement, time, blurriness & climatic conditions. It was through the use of his Naturgemälde as a research tool that von Humboldt managed to develop and communicate his understanding of the world as complex ecological system.

Colours and arrows translate temperature and wind speed, but the beauty of Humbolds pictorial proposals is the capacity to encapsulate all of it in one image. Within our practice, we are exploring how we can visualize these ephemeral qualities through the combination and overlapping of different media. Uncertainty, vagueness and lack of control provide design opportunities. A project image can combine renders with pictures of the building site and a technical drawing. A collage can become a representation of an imagined past and a possible future. Or a plan can be similtaneously an axonometrie that shows only phenomenological qualities while abandoning every representation of form.

And like learning from von Humboldt and his Naturgemälde, architecture could look at contemporary scientific research to find new tools in an ever-growing challenge of revealing and depicting complexity. Seeing the new composite images from NASA, that combine x-ray and infrared data, offering an incredible spectacle of explosions gas emissions and radiation, yet invisible to humans, helps us to visualize and to understand the complex systems in which we live.

The Pillars of Creation in the Eagle Nebula taken by the Hubble telescope in 1995, NASA, Jeff Hester, and Paul Scowen (Arizona State University)

In 2014 Nasa revisted one of their most popular images, the Pillars of Creation, representing "three giant columns of cold gas bathed in the scorching ultraviolet light from a cluster of young, massive stars in a small region of the Eagle Nebula, or M16."

Although the image has a photorealistic quality, it actually combines different views (near-infrared as well as visible light) into one image. "The blue colors in the image represent oxygen, red is sulfur, and green represents both nitrogen and hydrogen."[5] Introducing a natural phenomena to a wider audience.

1. p88 .Wulf, Wulf, Andrea. The Invention of Nature: Alexander Von Humboldt's New World Andrea Wulf. New York, New York: Vintage Books, 2016.

2. Smith, Robert Leo & Pimm Stuart L. . Ecology, Encyclopædia Britannica, Encyclopædia Britannica, inc., February 07, 2019, https://www.britannica.com/science/ecology, Accessed September 02, 2020

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