

GEO-WATCH: THE VISION OF A GEO-LOGIC LANDSCAPE MUSEUM CONCEIVED AND DESIGNED FOR THE SWISS WATCH-VALLEY

Kouzoupi Aspasia (Aspasio)

Dipl. Architect-eng, MAS ETH Landscape Architect

University of Thessaly, Department of Architecture

chasnel@hol.gr a.space.ia@gmail.com

Abstract

The presented project has been initially the subject of my particular design research for the Masters of Advanced Studies in Landscape Architecture (Professor Christophe Girot, ILA: Institut for Landscape Architecture) during the academic year 2005-2006 in ETH-Zurich.

The project consists of an open-air museum and research center for the Jurassic paleo-ecosystems, as they are revealed by surface excavations on the site's geologic substrata. The site's geology is very rich in fossils dating from the Jurassic era, named after the Jurassic arc (Jura Mountains, the site belonging to), as a majority of its geological strata that reach the surface were composed then.

GEO-WATCH proposes the introduction of a linear set of surface excavations-digs, creating a chronological scale that valorizes the in-situ structural composition of the geological strata, as a metaphor to a time-counting scale that brings the visitor of the museum-research center face to face with the Jurassic environmental history, traveling through his perception and senses from the present to the distant past.

In a second phase, this research was submitted as a part of my proposal (consulted specialist Stavros Mentos, urban planner) for the international competition for the urban development of the mountains of canton Neuchatel, Switzerland, and won the 7th prize. GEO-WATCH was specially mentioned by the Jury in their official report with compliments: "Geo-Watch, a landscape museum of the natural history of the Jurassic Era ... the way the site's geologic qualities and characteristics have been valorized, in an institutional level, constitutes a magnificent project"

Keywords: Geo-Watch, geologic excavations-fossil findings, landscape museum

Stream: [A], studying the earth system

Topic: [A8] Environmental history

abstract code: *A08ID19*

GEO-WATCH was the title invented for my diploma thesis during a discussion with Professor Christophe Girot, in the framework of the Masters of Advanced Studies in

landscape Architecture, organized by the Institute of Landscape Architecture (ILA) and the Network City and Landscape (NSL) of the ETH, in Zurich. This title was chosen as a compact and meaningful description of a quite complicated research approach.



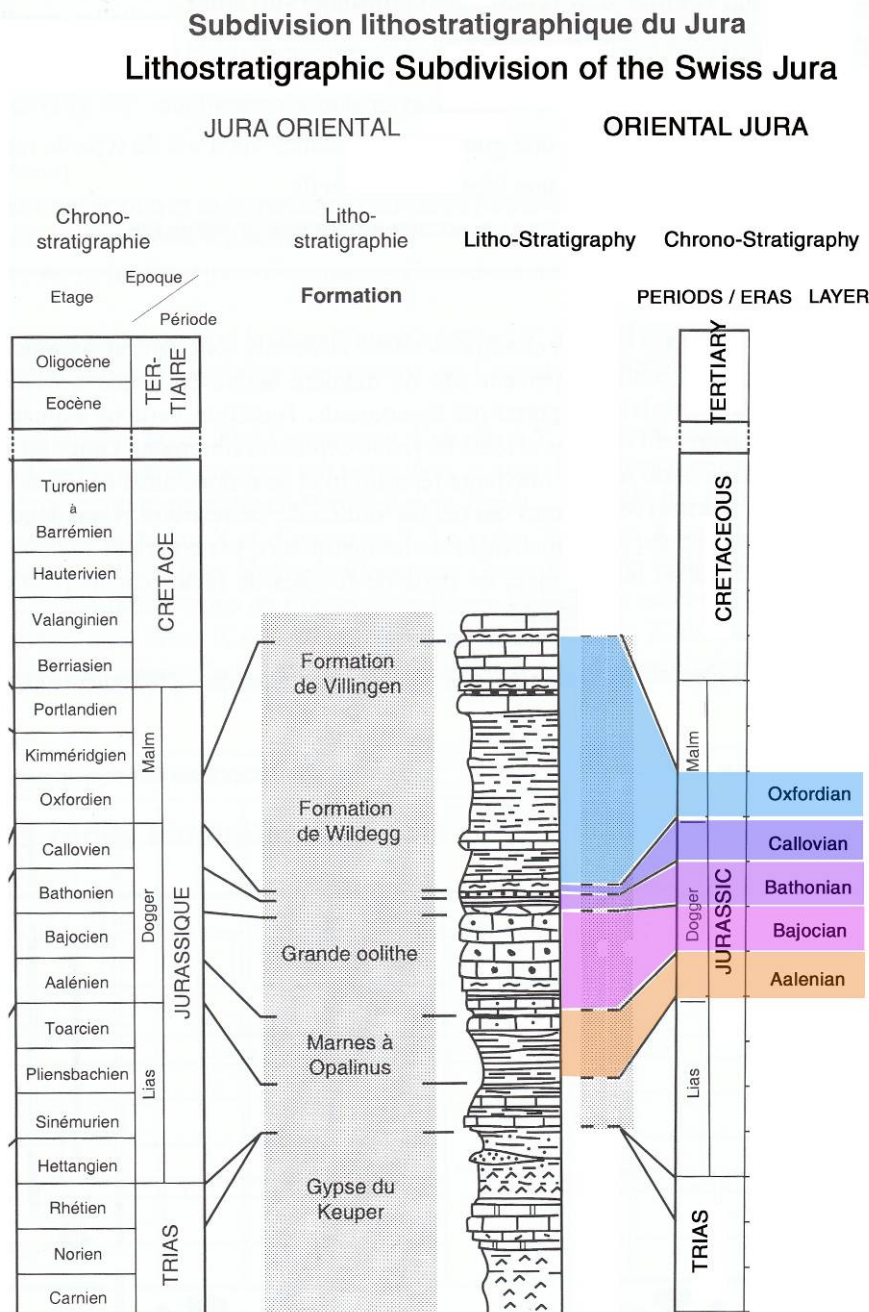
Image [1]: “GEO-WATCH+GEO-LOGIC: plan, section and timeline”, from Aspasia Kouzoupi diploma thesis, MAS.LA 05 06 ETH Zurich¹

The area GEO-WATCH was conceived for is part of the so called “Watch Valley”, on the heights of Canton Neuchatel, in Switzerland. The appellation “Watch Valley” stands for the tradition of high precision and quality of watch-making that has been practiced during the past centuries and still flourishes in the area. Most sophisticated Swiss watch manufactures have their basis along this well known Watch Valley. This area’s characteristic has attracted Unesco, as a significant segment of the global cultural heritage.

The Watch Valley as a geomorphologic entity and could be described as a series of linearly linked, elongated, soft-sloped valleys, running likewise a wave’s fold across the Jurassic arc of mountains, very close to the borders between France and Switzerland. Nowadays a valley of green fields and forests having an average altitude of about 1000 meters above sea level, this area was, during the Jurassic period (208 to 144 Million Years Before Present [MYBP]), a marine environment, part of the Tethys Ocean. The accumulation of sediments and sands under the sea water mass during these times, being gradually transformed into rock, confined and sheltered intact or segmented, shapes of corpses of organisms and communities of organisms that lived into these seas of the deep-past.

The magnitude of the geological changes produced an extreme natural change in the site’s geographic properties. This change is registered in a way I found of special poetic and scientific interest, as the majority of the fossils hiding under the almost endless green grass of the actual area’s landscape surface belong to marine organisms. The juxtaposition “sea shells under the green grass” is a literal description of what is realistic for that area, from where sea view is nowadays unreachable.

The folding of the Jurassic terrain during the Miocene period (13-5 MYBP) shaped the area to the form it has at present times, and the succeeding erosion (karstic chemical erosion) accelerated during the glaciations of the Pliocene (5 to 1.6 MYBP) brought the geologic substrata dating from the Jurassic times almost to the surface. Forming almost parallel zones, the geological strata are ordered in a chronological coherence of characteristic punctuality, covering a great part of the Jurassic era: starting from the ends of upper (younger) Jurassic period (MALM: 159 to 144 MYBP), moving gradually towards the past to Mid-Jurassic and Early-Jurassic period (DOGGER and LIAS, 205 to 160 MYBP).



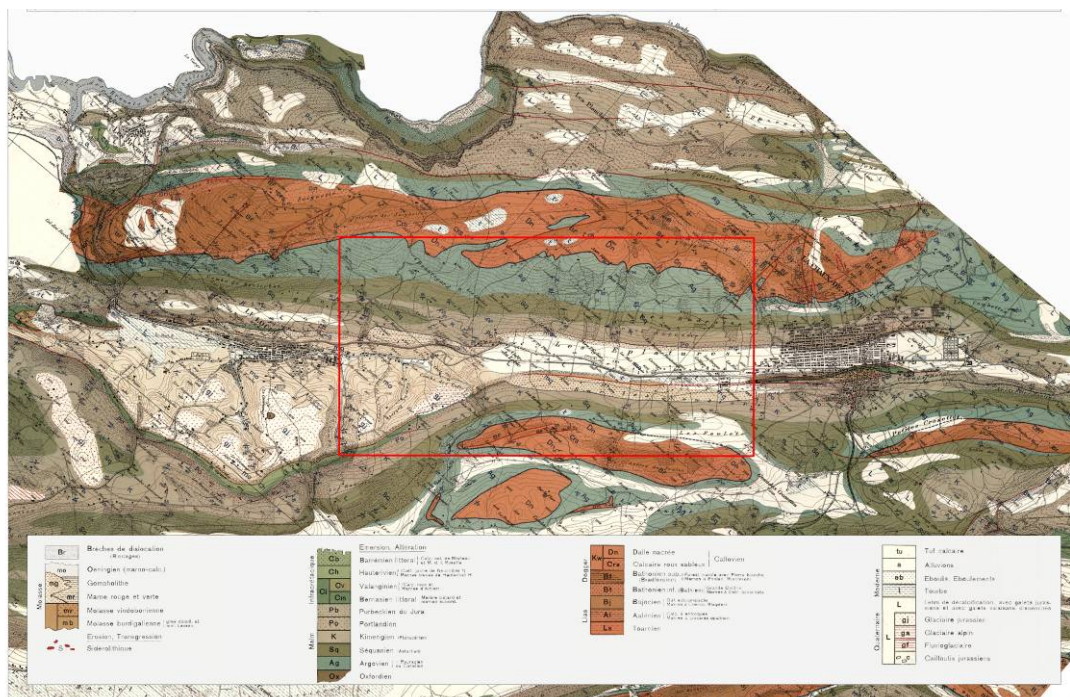
Image[2]: “Lithostratigraphic and Chronostratigraphic entities of the Oriental Swiss Jura”²
In the Swiss Jura, the geology strata dating from the Jurassic times form almost parallel zones which, most often, are ordered in layers with characteristic chronological coherence.

As the ground has a minimum of thickness due to karst phenomena, the extremely rich in Jurassic fossils sedimentary rocks are often being naturally revealed in the landscape, forming crests and along gullies, and thus were accessible to expeditions of geologists-researchers since the mid 19th century. Many of these researchers were classifying their observations and findings with extreme persistence, naming some of the fossilized species they had found. Furthermore, they studied proposed and exposed in various publications of that time, time-counting methods and time-dividing theories for the Jurassic era, based on the coherence of the fossils found on the different layers of the exposed rocks, due to their sedimentary nature.

The tradition of time-counting and time-dividing processes, was ,thus, gradually understood during my research, as having a profound bonding not only with the manufacture but also the research tradition of the wider area, thus being an essential part of the cultural and scientific landscape of this place.

Being interested in one more juxtaposition springing from my study on the area, the juxtaposition between running time –the time of watch-makers- and fossilized or fossil time – the time registered on the site’s geology and continuously red by the specialists with augmenting accuracy, I started conceiving a structure based on the concept of a time scale that could link these two types of time.

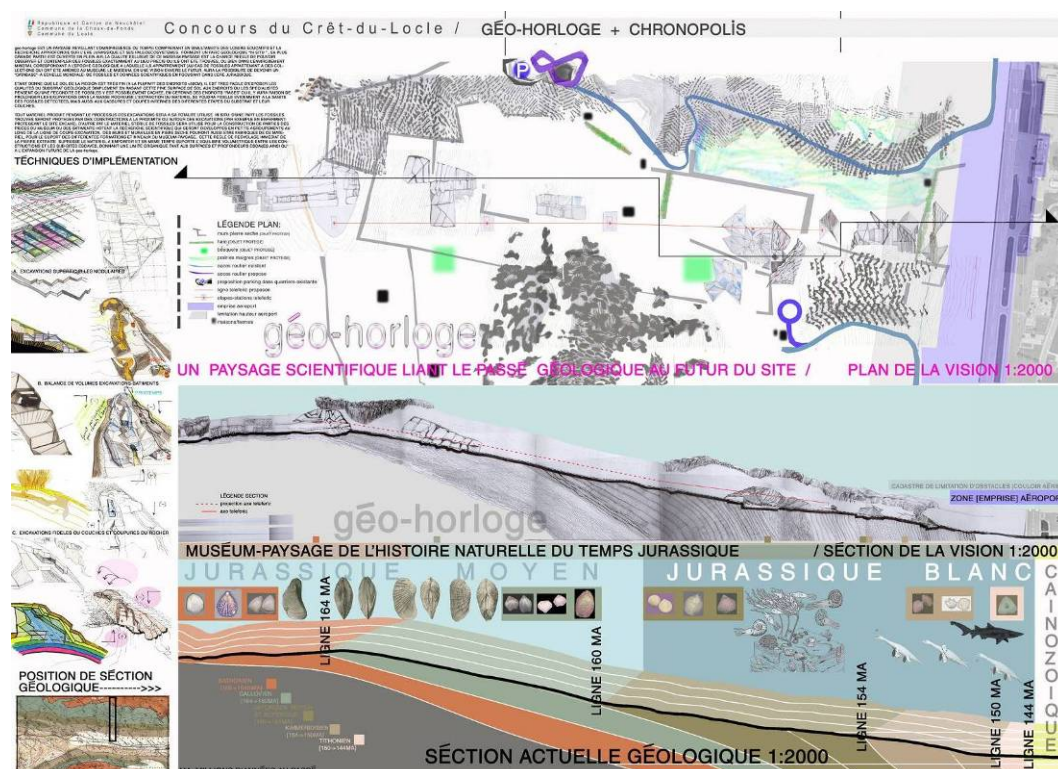
GEO-WATCH proposes the introduction of a linear set of soil surface excavations- and rock superficial digs, taking advantage of the fact that the area’s soil is extremely thin (of maximum thickness 50 cm), creating a chronological scale that valorizes the already naturally existent in the site structure of the geological strata, as a direct metaphor to a simple-linear time-counting structure. GEO-WATCH brings in real-time and within real-space the visitor of this landscape-museum and research center face to face with fossilized organisms and findings dating from the Jurassic era, traveling his perception directly from the present to the distant past. As an un-folded palimpsest, GEO-WATCH brings into the light of today traces and marks of an unreachably different past, in order to reveal an existing hidden time-counting structure.



Image[3]: Geological Plan of the Area called “Le Cret du Locle”, situated between the cities of La Chaud-de-Fonds and Le Locle, on the Swiss Jurassic Mountains, Canton Neuchatel.³

As a landscape architecture project, GEO-WATCH has been designed in scale 1:1000, as a time escalator that descends towards the depths of the past along a path that climbs ascending towards the top of the hill. The data collected for the designing of this “time escalator” was in its core geological information on the level of geologic time and on the level of geologic materials. Envisioning GEO-WATCH, every part of the excavated time-scale is dedicated to the era-period its rock was created. On one hand all findings (fossils, traces, etc) revealed during the excavations are meant to be exposed in situ. On the other hand, protected by small museum/research buildings, in the sense of micro-environments made from the rock of each distinguished period, precious findings belonging to the specific period of the Jurassic era from the area as well as from all over the globe are exposed in parallelism and correlation with evidence and data concerning the paleoecosystem of the wider area and the whole globe’s environmental condition. The findings are conceived to be placed in direct correlation with the environment in which they belonged to, in order to provoke the visitor-researcher to visualize in their rock-and-fossil context these chronologically remote periods (164 to 144 Million Years ago). Furthermore, to relate the findings with the conditions and environment of each paleoecosystem, understand in their magnitude the dramatic changes that form the surface of our planet, the palimpsest of different forms of life in relation with the geomorphology of each time period, the palimpsest of time tracing the surface and mass of planet Earth.

These concepts were presented in the proposal I submitted to the International Competition organized by Canton Neuchâtel, regarding the proposition of ideas to be considered for the further urban development of the Neuchâtel-Mountains (part of the Jura mountain complex). My proposal was suggesting among others the creation of a Landscape Museum of Natural History for the Jurassic Era: “GEO-HORLOGE”, an elaborated form of “GEO-WATCH”.



Image[3]: “GEO-HORLOGE” (2007)³

With the special advise of Mr. Stavros Mentos (Urban Planner –eng), I re-designed my initial concept in detail, consenting to the existing urban zoning (cadastre) and special law restrictions applying to the area. This entry to the competition won the 7th prize, and “GEO-HORLOGE” was complimented by the Jury.⁴

References

¹ Image[1]

Kouzoupi Aspasia (2006) Geo-Watch/Geo-Logic
Paysages Urbains MAS.LA 05-06, Professor Christophe Girot,
Director of Studies: Jacqueline Parish
Joerg Stollmann, Suzanne Hoffer.
Institut for Landscape Architecture ILA/ Network City and Landscape NSL/ ETH Zurich

² Image[2]

Based on the image : « *Unites lithostratigraphiques et chronostratigraphiques du Jura en Suisse orientale et occidentale* »,
in : Decrouez D., Furrer H., Mueller-Mertz E., Weissert H., Wildi W. : (1999) , “La geologie & le temps“, Commission Geologique Suisse, Museum d’Histoire Naturelle de la Ville de Geneve.
Image text translation and colorings by Aspasia Kouzoupi (2008).

³Image[3]: Geological Map of the area “Le Cret du Locle”, situated on the Heights of Canton Neuchatel, Switzerland. This map is among the Data provided by the Urban Network of Neuchatel (Reseau urbain Neuchatelois).
<http://www.lerun.ch/>

⁴ Image[4]: one of the three plates submitted for the project “GEO-HORLOGE + CHRONOPOLIS”, 7th Prize, International Competition for the Urban Development of the Mountains of Canton Neuchatel, Switzerland.
<http://www.lerun.ch/general.asp/2-0-9500-8103-907-1-1/>

⁵ <http://www.lerun.ch/general.asp/2-0-9570-8103-908-1-0/>
Jury report (2007) President: Kurt Aellen
“Geo-Watch, a landscape museum of the natural history of the Jurassic Era ... the way the site’s geologic qualities and characteristics have been valorized, in an institutional level, constitutes a magnificent project”

Bibliography

Colbert, E.H.; (1962) : the weights of dinosaurs. American Museum Novitates, no.2076:1-16

Cowen, R.; (1990): History of Life. Davis, University of California, Blackwell Science

Dupraz Ch.; (1999) Paleontologie, pelecologie et evolution des facies recifaux de l’Oxfordien Moyen-Superieur (Jura Suisse et Francais), Doctoral thesis presented at the Faculty of Sciences, University of Fribourg.

Fastovsky, D.E.; (2002) Revealing the whole Picture: Reconstructing an Ecosystem. - Dinosaurs The Science Behind The Stories, published by: American Geological Institute

Gerber, J-C.; (1997): Flore et Faune au Coeur du Jura, Moutier: club d’ornithologie du Moutier, editions du Pic Noir.

Gibert, J.(1986): Ecologie d'un Systeme Karstique Jurassien, Hydrogeologie, Derive Animale, Transits de Matieres, Dynamique de la Population de Niphargus (Crustace Amphipode), Moulis-Saint-Girons ,Memoires de Biospeleologie, Tome XIII (40)

Leinfelder, R.R.; Krauter, M.;Latenser, R.; Nose, M.; Schmid, D.U.; Schweigert, G.; Werner, W.; Keupp, H.; Brugger, H.;Herrmann, R.; Rehfeld-Kiefer, U.; Schroeder, J.H.; Reinhold, C.; Koch, R.; Zeiss, A.;Scheizer, V.; Christmann, H.; Menges, G.; Luterbacher, H.; ,(1994): The Origin of Jurassic Reefs: Current Research Developments and Result.-Facies,31, 1-56.

Palfy, J.; Smith, P.L.; Mortensen J.K.; (1998): A revised Numeric Time Scale for the Jurassic, Geo research Forum Vol.6 (2000) pp.181-182, Switzerland
Advances in Jurassic research 2000, 5th international symposium on the Jurassic System, August 12-25, 1998

Pictet, F.G.; Gaudin, C; de la Harpe, Ph.; (1855-1857), Memoire sur les Animaux Vertebres trouves dand le Terrain Siderolithique du Canton de Vaud et Appartenant A LA Faune Eocene. Geneva,

Roniewicz, E. (1976) Les scleractiniaires du Jurassique superieur de la Dobrogea centrale Roumanie-Paleontologia Polonica, 34, 17(23)-121.

Thulborn, T.,(1990), Dinosaur Tracks., London: Chapman and Hall.

Thulborn, R.A.; Hamley, T.L; (1982) The reptilian relationships of Archaeopteryx. Australian Journal of Zoology, 30:611-34

Dr.Tulii-Bolle, M-P.; (2003): Le Jura est Ne dans l'Eau.- Points d'Eau, La Chaux de Fonds, Affaires culturelles et institutions culturelles de la ville.

Blant, D.; Dr. Jeannin, P-Y; (2003): Des eaux a tous les niveaux.- Points d'Eau, La Chaux de Fonds, Affaires culturelles et institutions culturelles de la ville.

Ziegler, P.A., (1988): Evolution of the Artic-North Atlantic and the Western Tethys.- Am.Assoc.Petrol.Geol.Mem., 43, 1-198.