Evolution of Zoo Design

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Zoo Design Conference
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I would like to start this conference with a hypothesis about the development of zoo design and the role of zoo designers.

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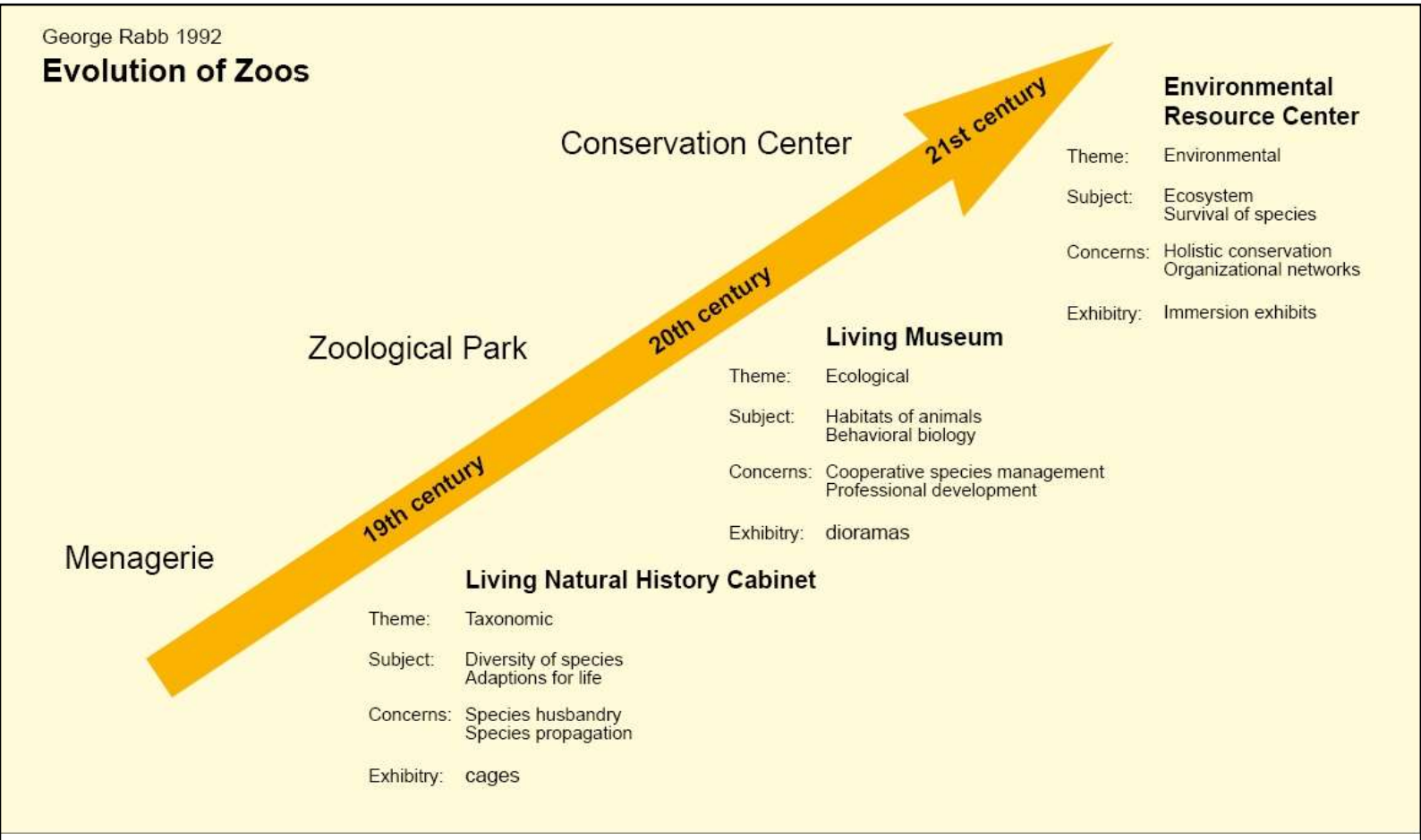

My first education in zoo design was at Brookfield Zoo, Chicago, where I was allowed to do research for my thesis "Evaluating Zoo Design - The Importance of Visitor Studies" in 1991. Dr. George Rabb, the director of Brookfield Zoo at that time developed a scheme to visualize a desirable evolution of zoos from menageries with cages in the 19th century to zoological parks with dioramas in the 20th century to conservation centers with immersion exhibits in the 21st century.

The characteristics of evolution are a continuous development without direction and an irreversible process with an unknown result.

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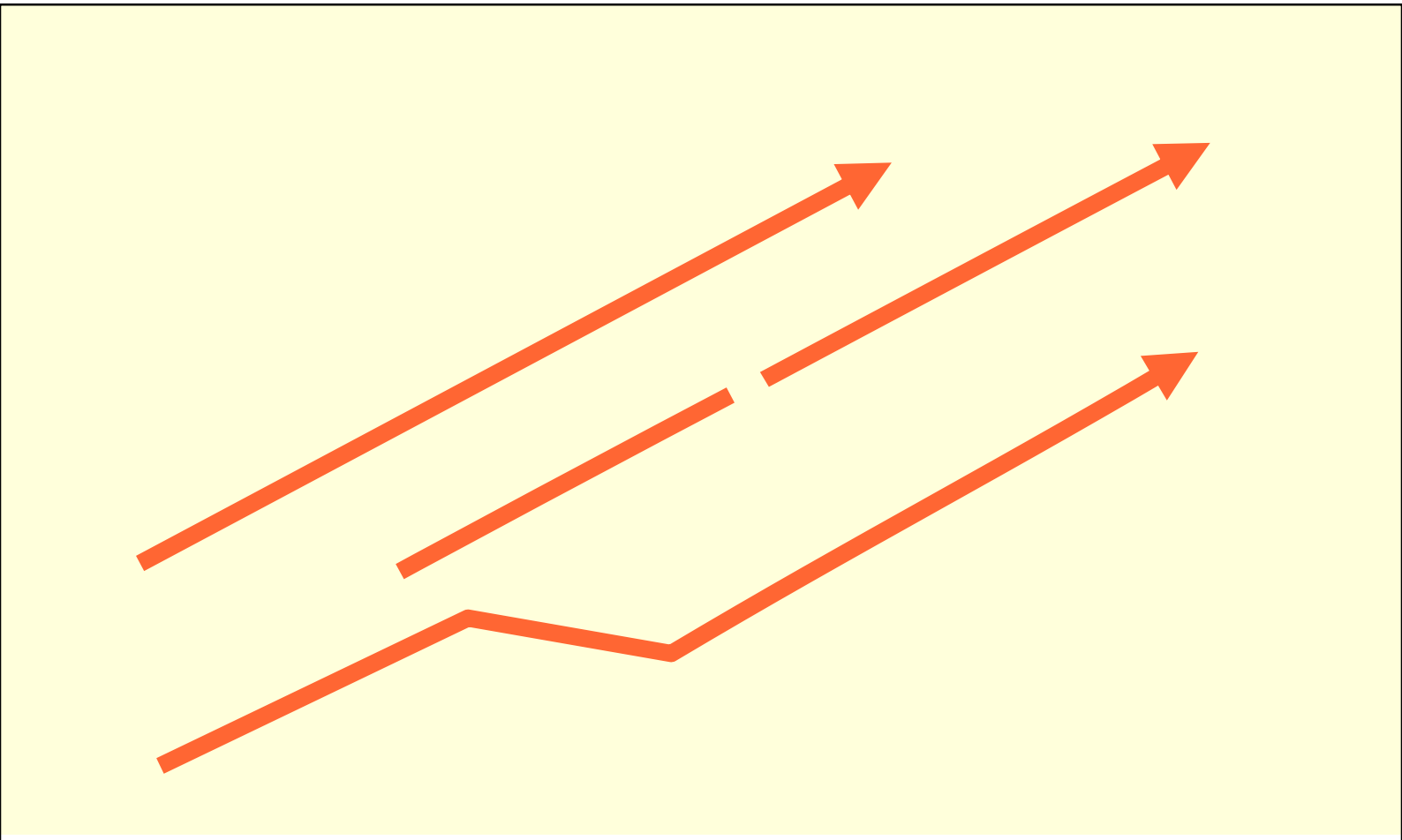

succession: repetitive, directional, reversible, results not new

When looking at animal facilities on a global scale, we can see a diversity of parallel developments and disruptions. Old zoos may have cages, dioramas and immersion exhibits next to each other. New menageries and safari parks with cages are popping up where no zoo was before. New breeding or rescue centres may prefer cages for cost and security reasons. There are also old native animal parks with landscape immersion exhibits that nobody ever called immersive.

The ecological concept of succession refers to more or less predictable changes of an ecological community. The characteristics of succession are that the process starts in a new habitat or is initiated by a disruption and develops complexity until it becomes stable in a stable enviroment. The process is reversible and the results are not new.

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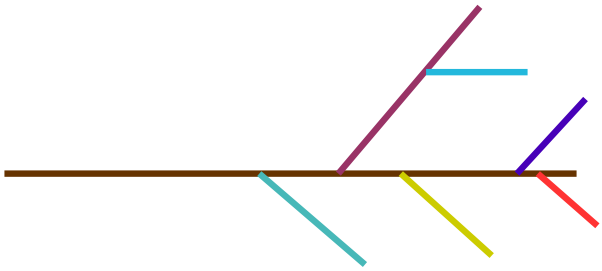
Evolution = by innovation → not predictable



Succession = by replication → somewhat predictable

Why bother about a distinction between evolution and succession in zoo design?

When analyzing a zoo with its political and economical environment, its animals, its staff, its facilities and its resources, we may be able to predict its potential development, opportunities and risks. Does the environment allow evolution or just the next stage of succession?

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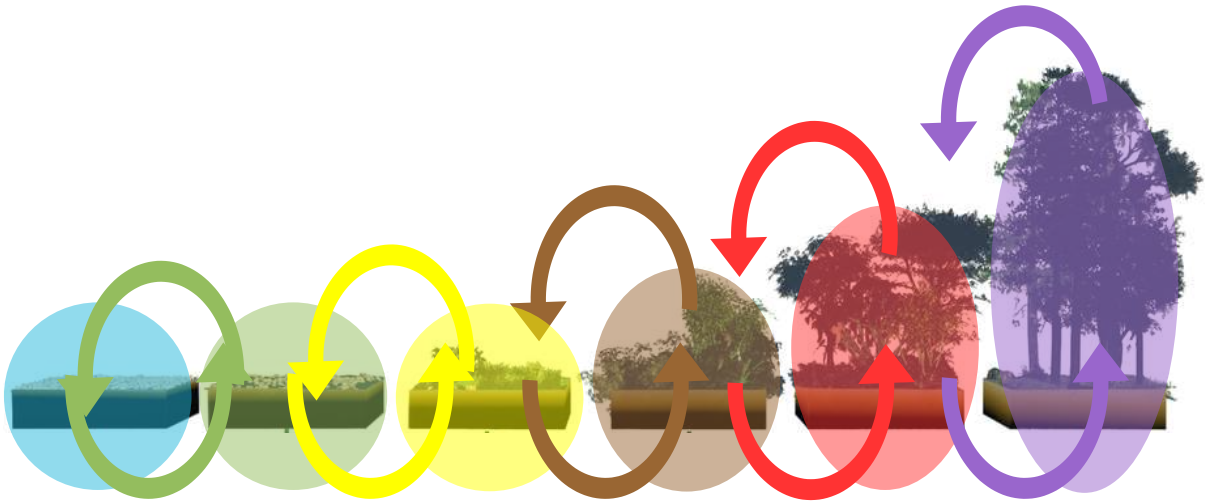
Each stage solves a problem of the previous stage.



Each stage creates a new problem for the next stage.

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I suggest that there are stages of succession in zoo design that should be followed. Each stage creates a new problem for the next stage and each stage solves a problem of the previous stage. Children can learn the stages of zoo design succession with Zootycoon - a video game that was first released in 2001.

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Stage 1: Imagine the beginning of a new zoo. Someone without specific knowledge decides to put wild animals on display. The exhibit may look like this: Basic animal keeping in farm style. Animals are kept alive, but nobody is really happy.

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Stage 2: Our zoo manager learns about animal needs and behaviours and furnishes the exhibit with built-in and changeable enrichment - a hill, a sand wallow, a roof for shade, a pile of branches. The animals breed and the next problem arises.

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Stage 3: The exhibit gets a yard for separating and shifting animals and an additional enclosure with all the furnishing and enrichment that can be found in the first enclosure. Now a problem arises in another area.

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Stage 4: Another zoo was created nearby and competes for visitors. Our zoo manager therefore adds features for the visitors - signs, benches, bins and shelters.

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Stage 5: Add decoration and plants and you will have a common leisure attraction. It is relatively easy to design zoos as leisure attractions - apart from the fact that there is no formal training for it - but it is much harder to design for animal wellbeing and high art to design for a conservation education impact on visitors.

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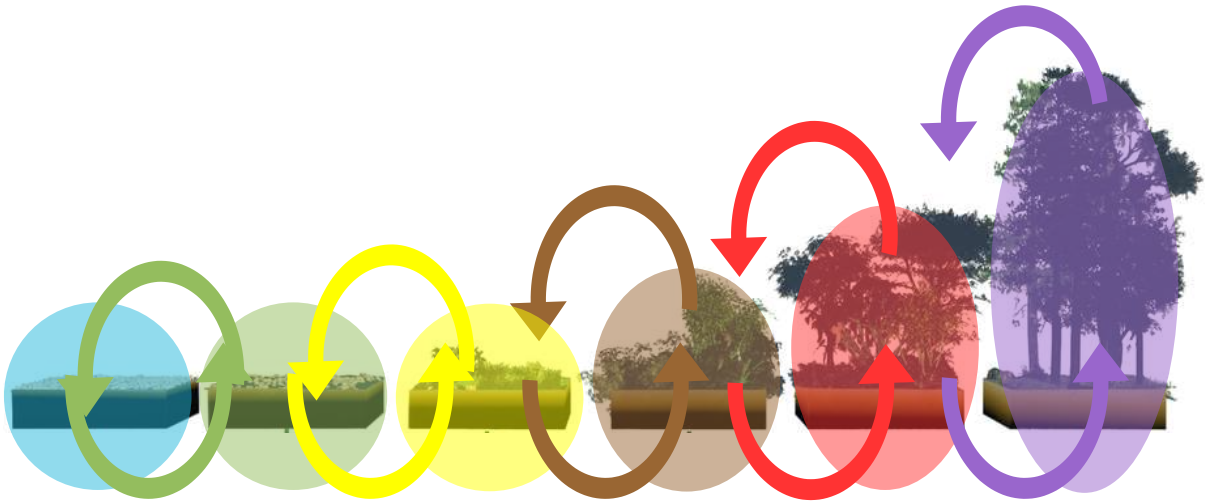
Succession of zoo design



This is a succession of animal exhibit design that repeatedly happens around the world. Nowadays, internet access is speeding up the process.

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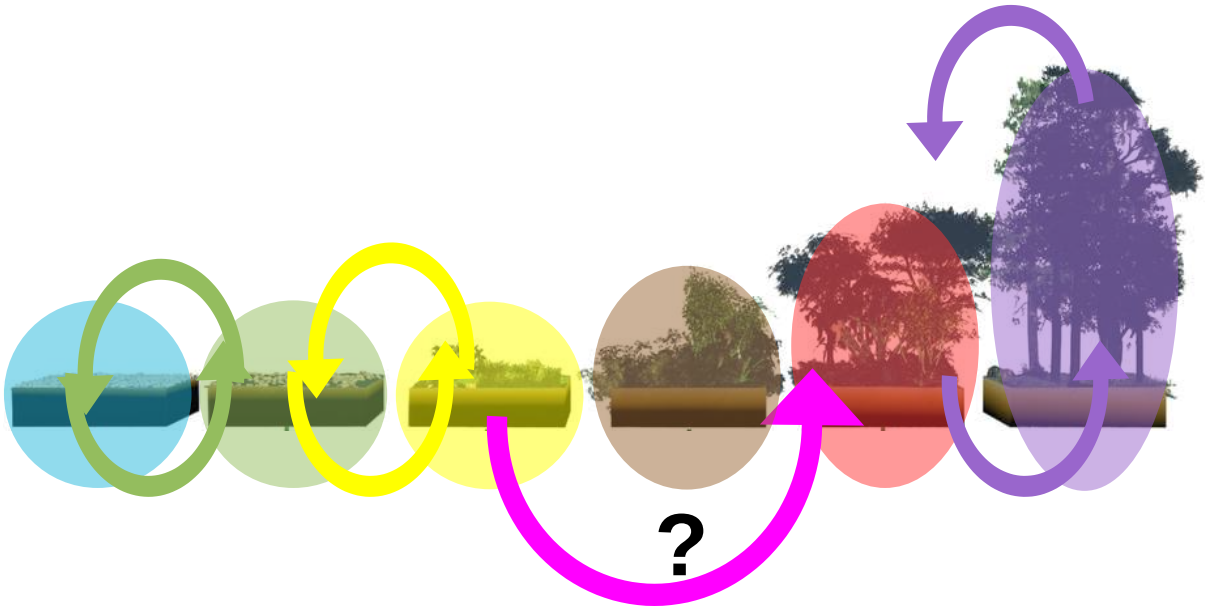
What happens if we skip a stage?



What happes when a stage of succession is skipped in the design project? I will give an example.

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A zoo manager suggests to replace a monkey cage by an island.
Keepers are afraid that the monkeys will escape.

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The zoo manager shows examples of monkey islands in other zoos that don't have escapes. The island gets built. A year later, the monkeys escape because nobody cut back the trees. The organization was not ready for a monkey island because nobody felt responsible for the plants on the island. The succession of zoo design requires to establish zoo horticulture before relying on naturalistic barriers. This stage of succession should not be skipped.

An experienced zoo designer would have noticed a lack of horticulture in animal exhibits, pointed to the need of tree maintenance on a monkey island and started a discussion about zoo horticulture before designing such an island.

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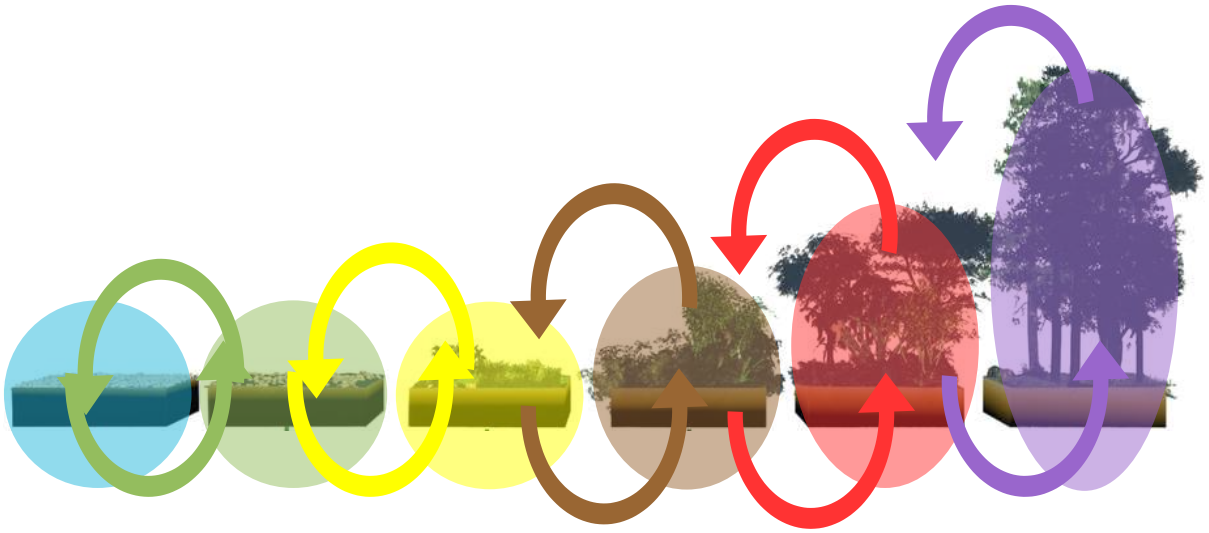
If we don't respect the stages of succession in zoo design, projects may fail.



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A monkey island replacing a cage may evolve an institution, but it is not zoo design evolution because it is not new. Monkey islands are reinvented again and again, continuing the succession of zoo design.

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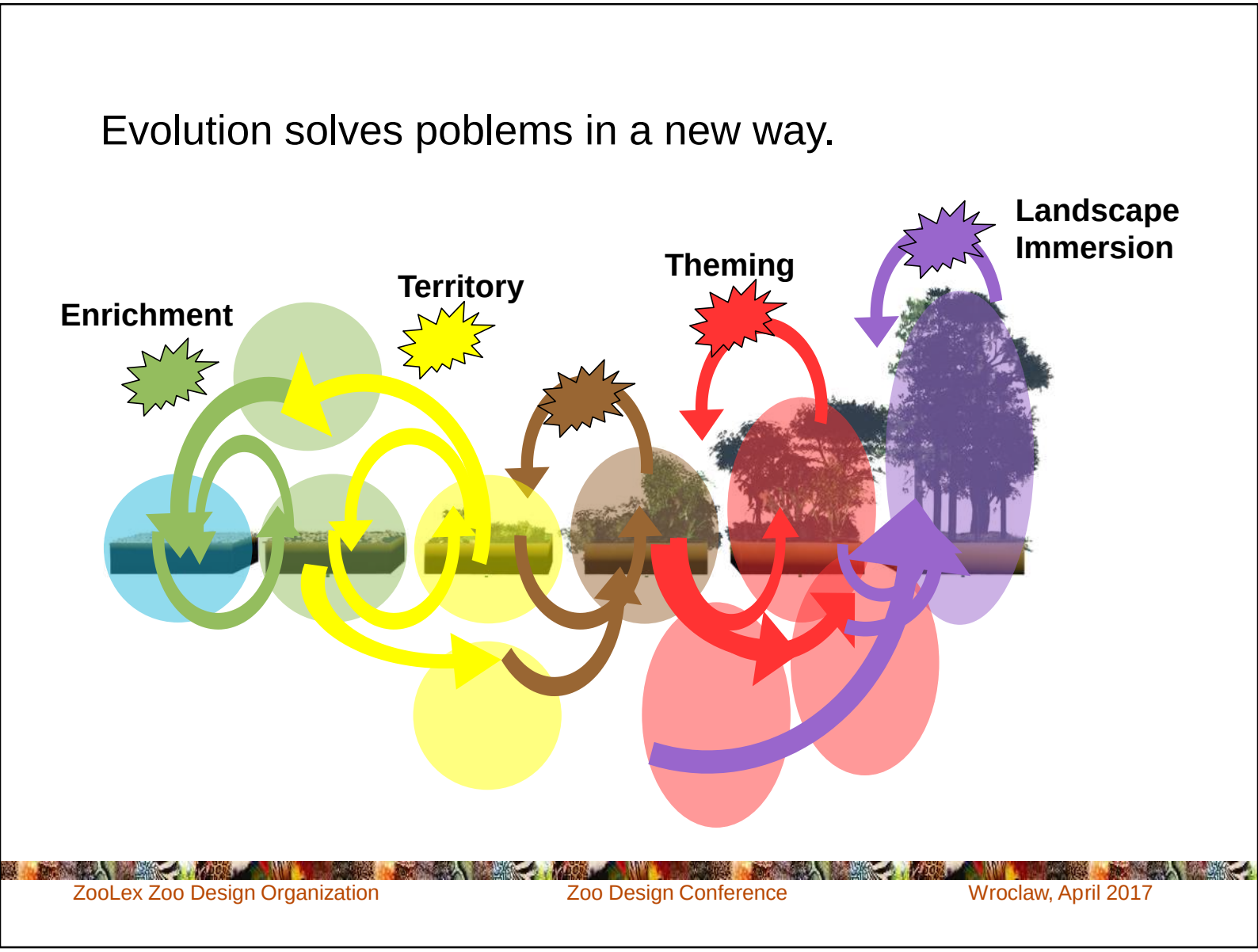

Evolution, however, creates something new - a new solution to a common problem. Succession and evolution are not linear, but multidimensional processes. I chose 4 examples of innovations that have evolved zoo design and are influencing its succession: Enrichment, Territory, Theming and Landscape Immersion.

Theming

Barless enclosures, dioramas and themed exhibitions are associated with the name of Carl Hagenbeck who sold the concept well at the beginning of the 20th century.

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His dioramas and vistas became quite sophisticated and well-known.

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In the succession of zoo design the innovation can fall back to simple background decoration.

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or develop the next stage of succession with perfect illusion.

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Landscape Immersion

This concept was developed in a convergent evolution during the 1970s.

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Jones and Jones developed the concept for Woodland Park Zoo and Kurt Brägger for Basel Zoo. While Kurt Brägger only worked for Basel Zoo, Jones and Jones applied the concept in several zoo around the world and promoted it with the term "landscape immersion". Together with zoo horticulture, landscape immersion changes the face of zoo exhibits dramatically.

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By definition, zoo architecture is invisible in landscape immersion exhibits. However, zoos also immerse their visitors into cultural themes. It would be interesting to see an evaluation of the impacts of landscape immersion in comparison to cultural immersion on visitor perceptions and conservation education.

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Territory

In zoos, this term is associated with the name of Heini Hediger and his publications in the 1950s.

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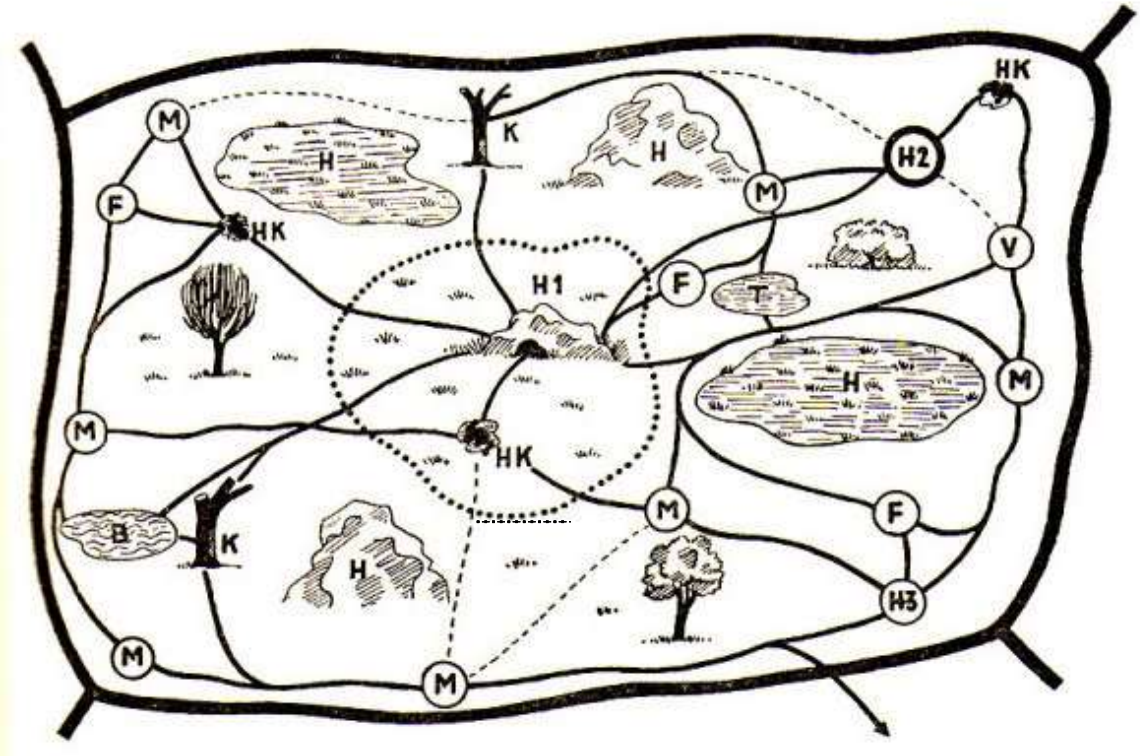

H1, H2, H3: Homes
H: Natural barriers
HK: Excrement places
K: Comfort places
B: Bathing place

F: Feeding place
V: Stocking place
T: Drinking place
M: Marking place

Border of territory
Main crossing
Additional crossing
Core zone

HEDIGER Heini (1950) Wild Animals in Captivity. Butterworth. London.

The innovation of the concept of territory was that animal enclosure design should reflect the animal's natural territory with corridors connecting home bases and other places that are of importance for the animal.

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The concept of animal territory and passages was recently developped by CLR into the zoo360° project for Philadelphia Zoo.

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Enrichment

Although many advances on the topic have happened since the beginning of this century, the subject can be traced far back to the last century.

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Gustave
Loisel
1912


HISTOIRE

DES

MÉNAGERIES

DE L'ANTIQUITÉ A NOS JOURS

PAR

GUSTAVE LOISEL

Docteur ès sciences, Docteur en médecine,
Directeur de laboratoire à l'École des Hautes-Études.

III

Époque contemporaine

(XIXe ET XXe SIÈCLES)

Ouvrage illustré de 22 planches hors texte.

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1912

Tous droits de traduction et de reproduction réservés pour tous pays.

The French biologist Gustave Loisel published extensive research on zoo design and enrichment back in 1912. Heini Hediger published recommendations on how to enrich animal enclosures and the lives of zoo animals in the 1950s.

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Obviously, the succession of zoo design rediscovers findings on enrichment again and again, for example that hard surfaces are essential for goats and their relatives.

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When discussing the theme of this conference, we thought that we would like to speed up the process. This conference therefore focusses on built-in enrichment. Our hope is to spread its evolutionary ideas so that they will become common practice in the succession of zoo design and that built-in enrichment will more often find its way into animal exhibit design.

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