Nature meets the human soul

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Preface

Being born and raised in an eastern-european country, my culture and understanding of the world is mostly based on orthodoxism. Even though I wouldn't describe my upbringing as being overly-religious, most of the traditions I correlate with my roots are those linked with religious holidays. Growing up I came to the personal decision that I am an atheist. However, I could still say I remained somehow spiritual. Spiritual - this notion is, most of the time, attached to religions, as it portrays a belief in a spirit. However, how can a person be spiritual and not religious at the same time? I still feel connected to the world around me, and the world is still affecting my moods. Looking for an answer, I stumbled across a definition that seemed to describe that feeling. In the 2013 article "An Eco-theology: Toward a Spirituality of Creation and Eco-Justice", N.Bock defines spirituality as the interconnection between all the elements of the world. This definition, although vague on explaining what exactly are the elements of the world, is still a validation of the value that interaction with the world around us holds for a human being. I decided that the vagueness of the definition is an opportunity to give a personal meaning to it, depending on the times it is being interpreted, and the reader's personal experiences. My interpretation is that the "elements of the world" are everything that we call nature and natural elements. What stuck with me, however, is how the link to a superior deity is described by the same word as the link to nature. This similarity in the way we define those ideas is, in my opinion, proof of a fundamental connection between both theology and ecology.

In the context of a (seemingly over) global pandemic, it has become obvious that being constantly closed in a room might not be the best move for an individual's mental health. Multiple surveys (Robb C.E., 2020; Palgi Y., 2020) have indicated that the overall state of people's mental health has decreased during the lockdown period. Other surveys have also linked an improvement in people's well-being while subjected to natural elements during the lockdown (Chaudhury P., 2020). This made me question the ways we are building houses in the modern western world. Buildings are insulated so humidity and air won't get in, then we put mechanical ventilation machines and humidifiers inside the house to compensate for the natural ventilation we'd get otherwise. We are thermo-, and noise- insulating our homes, and then creating a new climate inside them. Through insulation, we are isolating ourselves from the "elements of the world". However, as previously mentioned studies prove, human beings strive for connection with nature. This same thesis

will probably be the result of hundreds of hours of listening to playlists of rainfall, bonfire or wood noises for concentration, while at a working desk in an A+ rated studio room.
Nevertheless, in a world where working from home is becoming a norm (Vyas L., 2022; Newbold, J.W., 2022), there is no way but to wonder about how we are building our living spaces both with respect towards the world around us and towards ourselves.

Introduction

This thesis will be written in the context of the graduation studio “Heritage & Architecture: Zero waste church”. In the Netherlands, there has been a steady growth of the number of atheists in the country, running to 54.1% in 2020 (CBS survey, 2020). This has also been felt through the number of churches being decommissioned and then either abandoned, sold or demolished (De Hart, J. & Van Houwelingen, P. 2018).
This trend leaves beautiful structures that once were community hubs and meeting places, besides having a religious meaning to their previous users - empty.
The construction industry is amounting 1/3rd of the waste in Europe (Treggiden, 2020). In the Netherlands alone, from July 2021 to August 2022, 45916 buildings have been demolished (cbs.nl). This high amount of built waste could’ve been prevented by the reuse of already existing buildings.
Religious heritage buildings, at risk of demolition and/or deterioration in the Netherlands (De Hart, J. & Van Houwelingen, P. 2018), hold monumental statuses and/or a vast amount of values. The valuation coding systems currently in use, as the one by Dr. Perreira-Roders (2007), are fixating themselves on the traditional definition of heritage preservation. This implies the protection, in the present, of valuables from the past, for the benefit of the future (UNESCO Institute for Statistics, 2009). This definition is, in itself, creating a base for building circularity as a way to preserve the most from the building’s values. With such a rich built fund of churches, a main question would be, then, why not use them as resources for redesign, inclusively for the sake of our future.
Historically, both theology and ecology have been in the search of the source and meaning of existence (Bock, N., 2013), therefore having a lot more in common than obvious at the first thought. Religions have always had ideas of ecology and stewardship to nature as foundations of their doctrine (Clark, M., 2020).
In the research paper “Biophilic qualities of historical architecture: In quest of the timeless terminologies of ‘life’ in architectural expression”, Nelly Shafik Ramzy (2014) argues that traditional architectural styles are biophilic in their

shape and form, as opposed to modern and contemporary buildings. The same argument is also made by Stephen R. Kellert (2018) in “Nature by design: the practice of biophilic design”. The neo-gothic, as an architectural style, is therefore strongly linked in its form and materiality to the idea of biophilia.
The COVID-19 lockdown period has challenged the purpose of our living spaces. Functions have shifted towards the interior of our homes, but so did our social lives. This has put a breach on our mental and physical wellbeing (Vyas L, 2022; Palgi Y. et al, 2020; Robb C.E. 2020), challenging the status quo of the way we build. This situation has proven that we, as architects, need to focus more on how our designs reflect a sense of wellbeing to their inhabitants.
Multiple researches link biophilic elements with an increased perceived restorativeness (Berto R. et al, 2018; Rai S., 2019; Kalevi M. K., 2013; Martínez-Soto J et al, 2021). Others prove an existing link between psychological wellness and natural patterns (Coburn A et al, 2019; Joye Y, 2007; Shojazadeh H. R., 2014). Additionally, there have been connections made between the feeling of spirituality and exposure to natural elements (Bethelmy L.C., 2019; El Hussein A.M., El Hussein A.A., 2012; Birch R, 2013). In its studies on biophilic designs, Judith Heerwagen (2000) has found out that biophilically designed workspaces have diminished stress and absenteeism by 20% (Kellert S.R, 2018). These ideas prove that the restoration of the link between human and nature through architecture could create a proper environment for wellness restoration and improve people’s lives.
This is why, this thesis will try to argue that one of the redesign paths of religious heritage could be through the restoration of the connection towards nature. The main question it will strive to respond to will be:

How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?

Because this is a fairly broad question, and it involves complex philosophical and technical elements, the research will be divided into several fields of interest, which will ultimately be narrowed to the main question while simultaneously being applied in practice in the design part of the graduation studio.
Literature that englobes together both the ideas of ecology and religious heritage has proven to be, up until this point in time, relatively scarce (Kellert R.S., 2008). This is why this thesis will strive to find intersections between different themes. Subjects like eco-philosophy, biophilic design, the impact of the Anthropocene and eco-theology will be studied and then reflected over neo-gothic architecture. At the

same time, the notion of zero-waste will be englobed through the maximal preservation of pre-existing biophilic elements without losing the values of neo-gothic churches.
To reach this goal, several subquestions, linked with different areas of interest will be answered:

1. Why is an eco-oriented design approach important nowadays?
2. What are the main characteristics of biophilic design, and in what way is vernacular heritage intrinsically biophilic?
3. What are the links between spirituality, biophilic architecture and the feeling of wellness?
4. What is the place of biophilic design in a zero-waste redesign framework?
What are the characteristics of neo-gothic churches that are generally valuable?
5. In what ways is neo-gothic religious architecture incorporating biophilic ideas?
6. What are the biophilic elements that neo-gothic churches lack?

Research sub-questions, methodology, theoretical framework

To answer the main question, this research will strive to create a framework that could be applied to neo-gothic churches in the Netherlands in order to redesign them into buildings that hold the most possible links to our environment, while being respectful to the human need of having shelter.
Simultaneously with the theoretical work, the ideas will be exemplified through the case of the Augustinuskerk in Amsterdam Noord, which will also be the object of redesign (fig.1).

1. ***Why is an eco-oriented design approach important nowadays?***
In the age of climate change, respect towards ecology has become increasingly urgent as there is, in the urban context, a distancing between man and nature (Nadarajah, M., Yamamoto, A.T., 2007).
In the essay Who owns nature?
Phillip Descola describes nature and all its species as being intrinsically valuable, having therefore a need to be protected no matter what (Descola, P. 2018). Questions like the impact of the anthropocene, depicted as too much architecture (Bellanger, A. 2018) have become catalysts towards the reconnection between man and nature through ecology. By putting these questions on the table, the human being has become self-aware of its impact over nature and how it can circle back to its own well-being.
Currently, the demolition and repurposing of decommissioned churches around the Netherlands have also put at risk some species of the local fauna. As an example, historically, bats have found shelter in church towers, and

the destruction of those shelters puts said species of bats in danger (NL Times, 2022). Therefore the preservation of the existing churches is also a need for the preservation of the local biodiversity.
It is important, as a start, for both the theoretical framework and for the final redesign, to identify the situation in which the site-specific ecosystem is in. The Augustinuskerk in Amsterdam Noord is one of these churches. Through initial analysis work the current situation of the biodiversity ecosystem should be characterised: the site's relationship to water, to topography, to local species, soil pollution, light and wind intake and other such indicators. This should give an insight to the real situation and open up possibilities through which the redesign could be able to restore, improve and preserve its link to these natural elements.

2. What are the main characteristics of biophilic design, and in what way is vernacular architecture intrinsically biophilic?

To start, it is important to understand what biophilia is. Several written documents explain this notion.
The characteristics of biophilia will be researched based on the books "Biophilic design: The theory, Science, and practice of bringing buildings to life" by S.R. Kellert et al. (2011), "Nature by design: The practice of biophilic design" by S.R. Kellert (2018), "Biophilia" by E.O.Wilson (1984) and other thematic literature.
However, S.R. Kellert's et al. (2011) "Biophilic design" has a more detailed list about the elements that help a building become biophilic through different indicators.
Unless other sources are identified during the research period, this will be the primary one for understanding the concept of biophilic design.
Several sources indicate that architecture, as an ancient art, used to be unintentionally biophilic, losing those qualities with the development of the anthropocene (Kellert S.R., 2011; Ramzy N.S., 2019). Indeed, before the invention of electricity, for instance, people used to run their biological clock on nature's schedule, waking up and going to sleep based on the sun's rhythm. Architecture used to reflect these processes, vernacular buildings being built with local, natural materials, proof of human's use of nature (Ramzy N.F., 2015)

3. What are the physical characteristics of neo-gothic churches that are generally valuable?

Based on the value coding of dr. Pereira Roders (2007) and thematic literature that describes neo-gothic churches and their impact, a list of generally valuable attributes of neo-gothic churches will be identified.
Similarly, the values and attributes of the Augustinuskerk will be researched,

creating a foundation of all the valuable elements that should be preserved in this specific case.
What is the place of biophilic design in a zero-waste redesign framework?
As previously stated in the introduction, building reuse is, by itself, a concept that belongs with that of circularity. However, that is linked more to the idea of material waste. The idea of biophilic design, however, tackles the zero-waste of the connection between man and nature, which is also part of this thesis.

4. What are the links between spirituality, biophilic architecture and the feeling of wellness?
Multiple papers have been issued that prove the link between nature and the feeling of spirituality in human beings (Bock N., 2013; Bethelmy L. C., Corraliza J. A., 2019; El Hussein A. M., El Hussein A.A, 2012; Birch R, Sinclair B.R., 2013).
In its book “Biophilia”, E.O. Wilson (1984) describes the necessity and the inevitability of “the human bond with other species”. Vernacular architecture, as stated before, is intrinsically biophilic, and therefore encourages a relationship with the natural environment. Several studies have also argued the link between physical, psychological wellness and exposure to nature (Chaudhury P., Banerjee D., 2020; Berto R. et al, 2018; Korpela K.M, 2013; Martínez-Soto J. et al, 2021).
This is why, for the Augustinuskerk, this graduation project wants to argue that a redesign programme should challenge the status quo of daily living spaces to improve daily wellbeing. This is also emphasised by the current crisis in the Dutch market (dutchreview.com).
The design research should, at this point, focus on biophilic spatial qualities that could improve residences and communal spaces.

5. In what ways is neo-gothic religious heritage incorporating biophilic ideas?
Religious heritage, as a program both in risk of disappearance and in need of material preservation, is already built for spiritual connection. Monastic lifestyle in christianism, for instance, would relate to growing your own plants and taking care of your own resources. It is of no surprise that the first steps in the research of evolution were taken by Charles Darwin, a monk.
Since religious heritage already involves a certain link to nature, a first step would be to understand what these links are and how they are manifesting themselves into physical architectural elements of neo-gothic churches. What are the ways christian architecture is already linked to nature, and what are the general ideas behind christianity that link them to their natural roots? Through what means is religious architecture reinforcing that link?
The connection between biophilic architecture and neo-gothic churches

will be researched, first, based on thematic literature. However, because before the hypothesis of biophilic architecture was coined, architecture was not specifically made to be this way, other methods will be used to go further. Based on the previously mentioned list of attributes in biophilic architecture (S.R. Kellert et al., 2011), the Augustinuskerk will be analysed in order to identify to which biophilic elements it responds and in what way. This analysis will be made on a theoretical basis as well as proven in practice through graphical elements, as plans and sections.

6. What are the biophilic elements that neo-gothic churches lack?
Through superposition between the guidelines for biophilic design described in the book “Biophilic design: the theory, science, and practice of bringing buildings to life” by Kellert S.R, Heerwagen J.H and Mador M.L and the previously identified biophilic elements in neo-gothic architecture, the elements that lack will be identified. Thus, the general parts that could be improved in neo-gothic churches will be listed.

Relevance and end results

As a final result, this research thesis should compile information that creates a framework to be used for the future re-design of neo-gothic churches. It would create a better understanding of the ways these types of buildings were built to respect nature, and will propose an alternative to the status quo of modern construction. The final design should not only obey the modern building standards and regulations, but also improve its inhabitants’ wellbeing, connection with their environment and should approach nature with respect through the use of biophilic design concepts. With the end design making use of a maximal amount of natural elements, is should also be a self-regulating building, and thus a circular one.
The notion of zero-waste shall be englobed through the maximal preservation of pre-existing biophilic elements. In addition, since the Augustinuskerk is, as other neo-gothic churches are - a national monument, the redesign should also respect the values represented by the building itself.

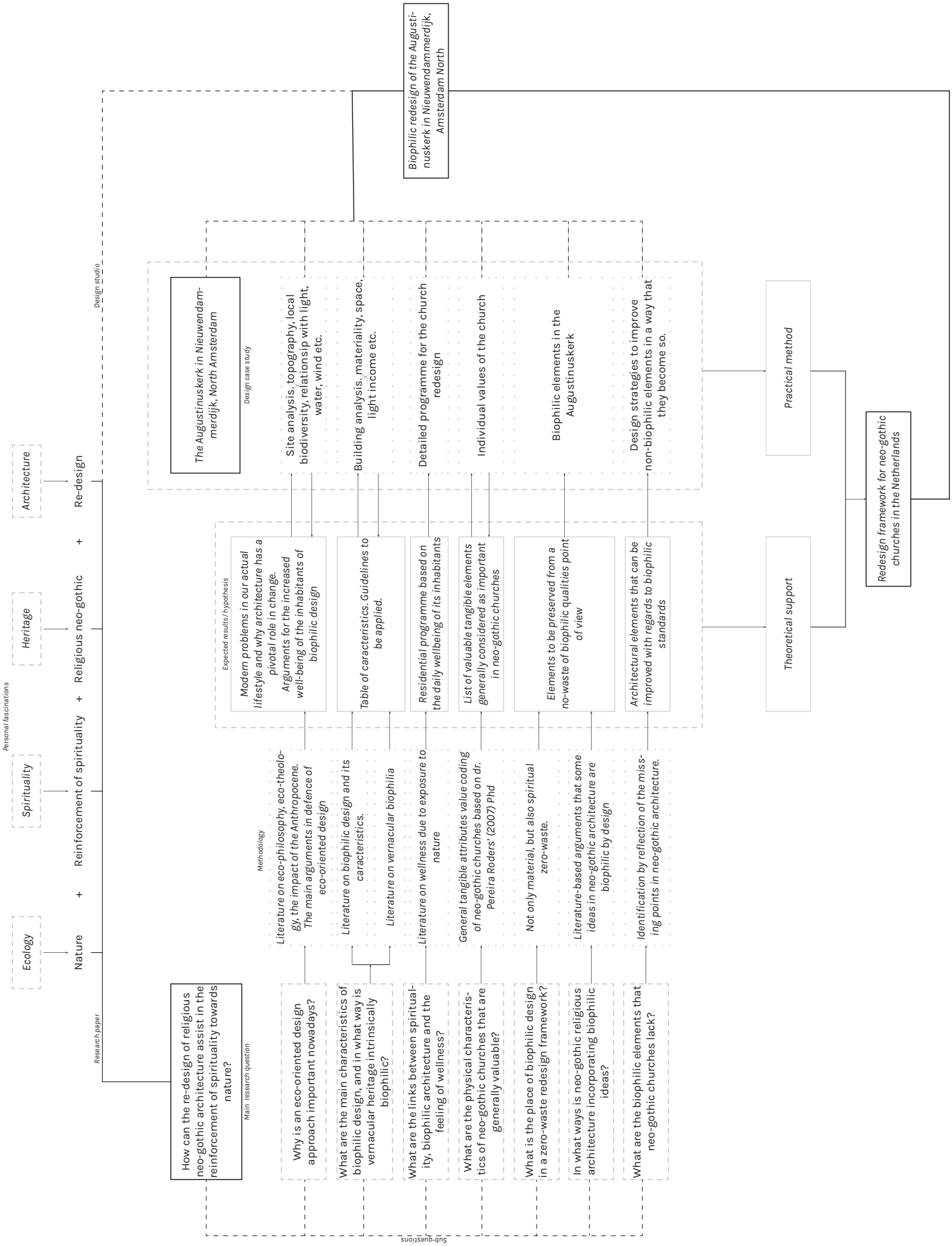

fig.1 - Graduation project scheme

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