

# A CROSS-DISCIPLINARY CONVERSATION ON LANDSCAPE PROCESSES: GEOMORPHOLOGICAL AND THEOLOGICAL REFLECTIONS ON THE OTHERNESS OF OUR NEIGHBOUR

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## Abstract

*Ecology, with the issue of sustainability, and climatology, with climate change, are two well-known points of departure for theological engagement, especially in the emerging field of eco-theology. Less common is a cross-disciplinary conversation with geomorphology. Geomorphology highlights problems that have arisen as a result of human interactions with landscape processes. Using an example of a problematic area of the N3 outside of Pietermaritzburg this article brings geomorphological insights into conversation with theology, extending the ideas of inter-connectedness, holism and scale perspectives to locate human thought and actions towards and within the environment as an extension of the ethic to “love your neighbour.”<sup>1</sup>*

**Key Words:** Inter-connectedness; Holism; Scale Perspectives; Cross-disciplinary; Eco-Theology

## Introduction

The growing theological discourse of eco-theology often engages with the fields of ecology and climate change. Ecology brings to the fore humanity’s link and interaction within the web of life and the importance of sustainability. It is easy to see the terrible impact of human actions on species great and small in South Africa, from the high profile poaching of rhinos to the less public threat to the blue swallow that favours unspoilt, mist-belt grasslands. Climate change is also a significant issue because it directly affects the future of many societies and general social wellbeing. Applied geomorphology is an unusual subject to bring into conversation with theology.

Geomorphology engages with a spatial construct that is smaller than portions of continents and a temporal construct of less than the entire geologic record. Processes such as sub-aerial and sub-aqueous weathering, transport and deposition are the domain of geomorphology. Applied Geomorphology is a branch of geomorphology and is particularly concerned with practical applications to the human context.

Take a beach, for example. A beach can be viewed in different ways. It is a coastal landform that can be studied by geomorphologists for purely academic reasons. But if the beach is located at a coastal tourist destination it becomes an important asset for tourists, the tourist industry, job creation and sustainable livelihood. The income generated from

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tourists' using the beach can give a financial value to the beach. Anything that destroys the beach or makes it less desirable for tourist activity could result in a loss of income from tourism. Applied (beach) geomorphologists would review (for example, the storms of 2007 that damaged key north coast beaches and properties) and guide any such use which might impact on the natural integrity of the beach. This is applied geomorphology in action. Studies inform decision making in public policy development and in environmental resource management or risk management.

The lens of applied geomorphology, like other environmental sciences brought into a theological discourse, can affirm certain lessons and help us unpack the ethic to "love your neighbour." Theological reflection on the ideas of inter-connectedness, holism and scale perspective will be pursued in this regard.

### **We who are Many**

Everything is connected. This is the first lesson that applied geomorphology teaches us: interconnectedness matters as well as time and spatial scales matter. Landscape processes interact with one another in systems that are dynamic. Economic considerations can present limits on how to respond to challenges.

Above Pietermaritzburg running in a north-westerly direction is a section of the N3 called Town Hill. The section between the Peter Brown and Hilton off-ramps of the N3 is notorious for road accidents but also for another reason, its geomorphological problems:

In a region in which problems relating to the instability of engineering cuts and fills are numerous, the instability relating to the fill embankment carrying the N3 freeway on the slopes of Town Hill north-west of Pietermaritzburg is arguably the most notorious.<sup>2</sup>

In 1957 an embankment called the Rickivy Fill was constructed across a stream valley to carry the N3. Heterogeneous fill material was placed directly on the talus material underlying the stream valley. In the following decade the fill experienced accelerated downslope movement and in the summer rains of 1970 there was as much as two metres of vertical downward movement. This prompted drastic measures to be implemented.

Additional drains were installed in 1975 and again in 1981 to improve the drainage but downslope movement still occurred. A project worth R5 million was undertaken in 2008 to build a retaining wall to prevent further slippage, redo the highway drainage system and repair damaged sections of the road surface.<sup>3</sup> The road engineers are being confronted with problems cannot be dealt with in isolation or oversimplified so that the complexities inherent in the landscape are downplayed.

Grasping the significance of inter-connectedness is not limited to a problem on the N3. In churches I have served in from Pietermaritzburg to Cape Town to Polokwane to Umhlangeni on the North Coast, the lens of individualism tends to dominate. Scripture is read and applied by individuals to individuals. Religion is a personal and a private affair. Church is experienced not primarily as tangible community but as individuals gathered in worship on a Sunday at a certain geographical location. Even our Anglican liturgy, which is corporate in nature, seems not to bend the trend of individualism, because what we say together does not translate into how we act together in the world.

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<sup>2</sup> Case History 21 in ABA Brink. *Engineering Geology of Southern Africa*. Building Publications, Silverton. Vol.4, 1985.

<sup>3</sup> Julia Denny-Dimitirou, "N3: Why all the repairs?" *The Witness*, 12 August 2008.

The confession is done together in community: "...in penitence we confess..."<sup>4</sup> The Nicene Creed is said as an expression of our shared faith.<sup>5</sup> The prayers of the church provide opportunity to pray for the needs of the world as well as individuals.<sup>6</sup> The giving and receiving of the peace involves the whole gathered church community.<sup>7</sup> Our connectedness to one another is affirmed time and again.

Our connectedness to God's creation and resources is also affirmed in the liturgy. The presentation of gifts affirms our dependence on God, that "all things come from you, and of your own do we give you."<sup>8</sup> This is unpacked further in the prayers for the bread and the wine, making the link between the produce of the earth and the work of humanity – "Through your goodness we have this bread to offer, which earth has given and human hands have made."<sup>9</sup> Something similar is said with the wine.

All four Eucharistic Prayers, which narrate the story of salvific history, begin with the truth that God created everything.<sup>10</sup> The liturgical drama climaxes in the words of consecration and moves swiftly, after the Lord's Prayer, to the breaking of the bread. These words of inter-connectedness – "We who are many, are one body for we all partake of the one bread" – ring out boldly shortly before individuals go up to receive communion.

Yet the reality of our connectedness seems not to be front and centre. Our experience of Christian community is the weaker for it. Ruth Meyers, in "One Bread, One Body," argues that the ecclesial dimension of Paul's words on the Eucharist have often been overlooked in favour of an individualistic interpretation.<sup>11</sup> Thus she says:

Those who partake of the Eucharist share not only in the body and blood of Christ, they are bound together as a community which *is* the body of Christ. This has important implications for relationships in the Christian community.<sup>12</sup>

But it does not end there. Not only is the connection within weakly affirmed but our connection without too. The connection of a personal faith with broader issues of social and economic justice tends to be weakest where individualism is strongest. The early believers understood that celebrating the Eucharist and imitating God's justice were both an extension of Jesus' identity.<sup>13</sup> The Christological and the ecclesiological themes stand together and should not be separated.<sup>14</sup> Patrick McCormick powerfully articulates this link:

In the Eucharist we are called to remember all the blessings we have received from God and all the ways in which neighbours, strangers, even enemies – indeed all other creatures – are part of this blessing. We are called to remember all the duties that bind us to others. Injustice begins with forgetting, with forgetting the faces and cries of the poor.

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<sup>4</sup> *An Anglican Prayer Book*. Church of the Province of Southern Africa. Collins Liturgical Pub. 1989:106.

<sup>5</sup> *An Anglican Prayer Book*. p.108.

<sup>6</sup> *An Anglican Prayer Book*. pp.109-115.

<sup>7</sup> *An Anglican Prayer Book*. p.115.

<sup>8</sup> *An Anglican Prayer Book*. p.116.

<sup>9</sup> *An Anglican Prayer Book*. p.116.

<sup>10</sup> *An Anglican Prayer Book*. pp.117-125.

<sup>11</sup> Ruth A Meyers. "One Bread, One Body", edited by D HOLETON. *Our Thanks and Praise: The Eucharist in Anglicanism Today*. Anglican Book Centre, Ontario. 1998:84.

<sup>12</sup> Ruth A Meyers. "One Bread, One Body." p.84.

<sup>13</sup> Patrick T McCormick. *A Banqueter's Guide to the All Night Soup Kitchen of the Kingdom of God*. Liturgical Press. 2004:x.

<sup>14</sup> William R Crockett. *Eucharist: Symbol of Transformation*. Pueblo: Liturgical Press. 1990:34.

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In the Eucharist we are called to re-member ourselves to those we have forgotten, for we cannot remember Christ and forget the poor.<sup>15</sup>

The reality in applied geomorphology that everything is inter-connected may help us to remember this truth closer to home, in the church, in our worship (and liturgy), and in our pursuit of justice in the land. Everything is connected. We are called to re-member ourselves to those we have forgotten. We are challenged to apply the ethic to “love your neighbour,” remembering how every part is connected, pronouncements have a ripple effect and every action matters on all manner of levels.

### **The Whole is Greater**

The lesson of holism – that the whole is greater than the sum of the parts – is one of the fundamentals of environmental science, applied geomorphology being no exception. Research can be undertaken in the laboratory, studying materials strength, or out in the field, investigating hillslope processes in the attempt to model them better or generate more reliable statistical baselines, or over even larger areas and time-frames. Together this knowledge makes up the whole and no one part is sufficient to describe the whole.

The evolution of environmental science has led to inter-disciplinary studies in the belief that the integration of knowledge between knowledge silos is as important as the parts studied in and of themselves within any one particular discipline. Applied geomorphology as the branch of geomorphology that is on the interactive edge with human sciences has to engage with problems on a human timescale and with the social implications. Decisions taken can exacerbate or mitigate the environmental impacts that are experienced down the line by the poor, the marginalised and the vulnerable.

The geomorphological example of the Rickivv Fill also illustrates this. The problem of the slope instability would be addressed more successfully at a holistic scale of catchment processes rather than at the scale of slope processes with a focus on the part of the problem inside the road reserve. The impact is not limited to the road reserve. Beyond the road reserve the runoff is concentrated in the forest in Town Bush Valley and has led to degradation.<sup>16</sup> The erosion of the forested hillsides has become a problem because the interconnected nature of various systems was not considered. This is impacting on human systems too. The runoff from the N3 and the greater footprint of housing development in the upper catchment has resulted in flood damage to previously unaffected properties along the Town Bush stream.

The lesson of holism extends the lesson of connectedness. Not only is everything connected, but every part is important to the whole. This is captured in environmental science in the Gaia hypothesis – everything is interconnected (organic and inorganic systems) to such an extent that the planet itself is a living entity or organism that seeks to maintain the ideal conditions for life on planet Earth. To paraphrase a Pauline idea: the soil cannot say to the rain, I do not need you. The slope cannot say to the forest, I do not need you. The rain cannot say to the sea, I do not need you. On the contrary, those parts of the whole that seem to be weaker are indispensable.

The Apostle Paul uses the images of a body (1 Corinthians 12) and a building (Ephesians 2) to convey the principles of connectedness and holism. Writing in the twenty-

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<sup>15</sup> McCormick. *A Banqueter's Guide*. p.xi.

<sup>16</sup> Prof Heinz Beckedahl (Geography). University of KwaZulu Natal. Personal communication. 2002.

first century he may have drawn on concepts from the environmental sciences. We are connected to Christ and therefore to each other.

But again, does our individualist interpretation, that Meyer points to, undermine the force of an holistic understanding? The centre and the margins have value. Christ is to be found in both and connected to both. The principle is there in the Eucharist. Cavanaugh articulates this relationship between Christ found at the centre of the Eucharist and yet also at the margins among the outcasts:

The Eucharist aims to build the Body of Christ, which is not simply centripetal: we are united not just to God, as to the center, but to one another. This is no liberal body, in which the centre seeks to maintain the independence of individuals from each other, nor a fascist body, which seeks to bind individuals to each other through the centre. Christ is indeed the Head of the Body, but the members do not relate to one another through the Head alone, for Christ himself is found not only in the centre but at the margins of the Body, radically identified with the 'least of my brothers and sisters' (Matthew 25:31-46), with whom all the members suffer and rejoice together (1 Corinthians 12:26).<sup>17</sup>

The lessons of connectedness and holism challenge us to not only pursue or value a movement of the ethic "to love your neighbour" towards the centre (and places of perceived strength) but also towards the margins of our church communities and societies (and places of perceived weakness). This is a movement away from compartmentalising personal and public expressions of "loving your neighbour" towards an integrating whole – affirming Christian connectedness and holy holism. The Christian hope is then seen not as a redirection of the focus on this life to an after-life but an invitation into living a deeper life.<sup>18</sup> The challenge is to live a more connected and integrated life of faith and love.

## **A Radical Trajectory**

A final lesson to unpack is that of scale perspectives, which is pointed to in the lesson of holism. Not only is the whole greater than the sum of the parts, but the scale at which a problem is studied affects the nature of the knowledge gained and its application. In applied geomorphology physical landscapes can be studied at almost any scale of inquiry that is appropriate to the problem at hand.

Environmental systems can be viewed from a number of vantage points, where the upper levels of hierarchical systems are characterised by broad perspective and little detail and the lower levels have great detail and narrow perspective.<sup>19</sup> The resultant challenges of scale-linkages between these vantage points are well documented.

Some examples are trying to bridge the gap from laboratory scale experiments to hillslope or catchment level management systems. Time scales also are significant such as studying short-term implications that impact on humans now as opposed to longer term studies which span very long time frames and are more academic rather than applied in nature (yet may still have ramifications for humanity).

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<sup>17</sup> William T Cavanaugh. "The City: Beyond Secular Parodies", edited by J Milbank, C Pickstock & G Ward. *Radical Orthodoxy*. Routledge. 1999:196.

<sup>18</sup> Robert Vosloo "Beyond Spirituality, Bonhoeffer and Responses to the Dejudaization of Christianity", *Journal of Theology for Southern Africa*, No.127. 2007:90.

<sup>19</sup> GPW Jewitt and AHM Görgens. "Facilitation of Interdisciplinary Collaboration in Research: Lessons from a Kruger National Park Rivers Research Programme Project." *South African Journal of Science*, Vol. 96. 2000:39-57.

Unfortunately and unwisely, the scale of inquiry that is appropriate to the “problem at hand” may be determined more by the immediate narrowness of financial logic than the broader, longer term logic of geomorphology. Furthermore, those most affected and least able to accommodate any additional expenses in many instances are the economically vulnerable, the poor, living on low-lying and marginal lands.

The lessons of connectedness and holism foreground the idea that we are connected to Christ and therefore to each other. This logically raises the questions of how we are connected and who is the Other? The first question was answered previously in that Christ is to be found in a movement towards both the centre and the margins. The lesson of scale perspective sheds light on the second question.

“Who is the Other?” is similar to the question posed in the time of Jesus about “Who is my neighbour?” How far is the ethic of “love your neighbour” to be applied? Should it simply be applied to people in the centre of my own people-group or also to those on the margins or outcasts? What about people outside my people-group, other nationalities? What about strangers or even enemies?

The radical trajectory laid down in the teachings of Jesus is a movement from the centre to the margins and beyond: love one another (John 13:34) to love your enemies. (Matthew 5:44). What if the concept of the Other can be extended to that which is non-human?

The lesson of scale perspective is that different levels of scale are all valid. In other words, many and varied viewpoints should be weighed up. It is therefore valid to apply “love your neighbour” to individuals to seek their healing and wholeness in Christ. It is just as valid an application to engage with family or community systems to do the work of reconciliation and restorative justice as an extension of God’s kingdom.

Yet again, another valid expression is at regional or national, even international levels, to be involved in advocacy, marching against the abuse of women and children, protesting against unjust practices, pursuing legal means to prevent the shipment of arms to despotic countries, or being involved in the public participation processes to shape pieces of government legislation that will affect our children and children’s children. Pursuing Millennium Goals and other noble ideals for the sake of a common humanity is the same ethic at work, just at another scale.

Loving the earth as a living complex, organism, then is the ultimate extension of the trajectory to “love your neighbour.” Wilkinson (1980) wrote in *Earthkeeping in the Nineties* that “God has created us as God created all other creatures – organisms, living within a rich but limited world – with fundamental biological needs: energy, minerals, food, air and water. The life of Earth is our life. We depend on it.”<sup>20</sup>

In the end, at a basic level, this is simply an expression of loving ourselves. The life of Earth is our life and so we depend on it. Consequently the love of Earth and a desire to conserve and preserve our planet is an expression of a love of self.

## Conclusion

Applied geomorphology is the deliberate application of geomorphological theory to problems at a human timescale. The application of applied geomorphology was demonstrated in the pertinent example of the Rickivv Fill on the N3 near Pietermaritzburg where the inter-connectedness of systems and the importance of scale considerations were

<sup>20</sup> Loren Wilkinson. *Earthkeeping in the Nineties*. Wm B Eerdmans Publishing. 1991:24.

illustrated. Some theological applications were then drawn from the principles of connectedness, holism and scale perspective on “loving your neighbour”. A cross-disciplinary conversation has taken place.

The reality in applied geomorphology that everything is inter-connected helps us to remember that in the church, in our worship (and liturgy), in our theology, and in our pursuit of justice in the land, everything is connected. Celebrating the Eucharist and imitating God’s justice are both an extension of Jesus’ identity. And social justice and environmental justice are closely and inseparably linked.

The principle of holism is built on the principle of connectedness. Not only is everything connected, but every part is important to the whole and those parts of the whole that seem to be weaker are indispensable. We are reminded that, in Christ, people at the centre and the margins of our churches and society have value. The Christian hope is not a redirection of the focus on this life to an after-life but an invitation into living a deeper life together. We are challenged to live a more connected and integrated Christ-like life of faith and love.

Finally, combined with the lessons of connectedness and holism, the lesson of scale perspectives challenges us to go beyond human systems and extend “love your neighbour” to the earth and heavens, animals and birds, trees, and rivers, and land, and soil. This locates the action of “loving your neighbour” in all spheres of life, work and governance and in all aspects of the social, economic and environmental landscapes. We acknowledge in doing this that the earth is the Lord’s and everything in it (Psalm 24:1).

In closing, the influential environmental philosopher, Aldo Leopold wrote in the first half of the last century that “Individual thinkers since the days of Ezekiel and Isaiah have asserted that the despoliation of land is not only inexpedient but wrong. Society, however, has not yet affirmed their belief.”<sup>21</sup> He also said that “It cannot be right, in the ecological sense, for a farmer to canalize his creek or pasture his steep slopes, because in so doing he passes flood trouble to his neighbours below, just as his neighbours above have passed it on to him.”<sup>22</sup>

The degradation of land is wrong not only because it is not expedient in human terms but because it does not demonstrate love of the land. Similarly, the canalising of a river is wrong both in terms of harm to the ecological life of the river and the human neighbour downstream.

Leopold called this the land ethic, something he set over and against the Golden Rule (to love your neighbour as you love yourself). He saw love of the Other simply in terms of societal relationships. But locating all actions along the same continuum resolves this dichotomy.

My argument, however, is that the land ethic and a love your neighbour ethic are one and the same. The love of your human neighbour merges with love of justice and love of the environment. We find everything is inter-connected.

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<sup>21</sup> Aldo Leopold. *Sand County Almanac with Essays on Conservation from Round River*. Ballantine Books, New York. 1966:237-243.

<sup>22</sup> Aldo Leopold. *Sand County Almanac*. 1966:237-243.