Original Paper

Complementary Ecologies of Being: Quakerism and Buddhism as Exemplars of a Planetist Analogical Imagination

Emily R. D. Bonner[1], Darci K. Schmidgall[1] & Thomas J. Burns[1*]

[1] Department of Sociology, University of Oklahoma, Norman, OK, USA

[*] Thomas J. Burns, E-mail: tburns@ou.edu

Abstract

In the face of burgeoning environmental crises in the Anthropocene Age, this paper explores ecological perspectives within Buddhism and Quakerism. These two religious traditions reflect a planetist ethic by emphasizing environmental stewardship in both their canonical writings and their religious structures and practices. Conceptually, this paper contrasts these traditions to the "economism" ethic developed by John Cobb. Through tenets that include simplicity, reverence for nature, and honoring the interconnectedness of life, Buddhism and Quakerism promote environmentally conscious behavior. Across these religious traditions, that compassion and healing can be a path forward in the face of ego-based environmental consumption. In exploring these two religious traditions that have more developed ecological threads, this paper considers sustainable environmental ethics in the Anthropocene Age.

Keywords

anthropocene, economism, planetism, Buddhism, Quakerism

1. Introduction

As the planet moves headlong into the Anthropocene Age, humankind confronts a set of fundamental choices revolving around a vital question: Will we relate to the natural environment in sustainable or unsustainable ways? How we address that question will profoundly affect the quality of life moving forward, not only for humankind but for the planet more generally. Without exaggeration, it may come to life-or-death consequences for significant numbers of people and creatures. Indeed, there are reliable data pointing to significant and rising numbers of deaths and occurrences of "diseases of civilization" (Colborn et al., 1997; for in-depth discussion, see Burns & Caniglia, 2017).

The theologian and ethicist John Cobb (1991, 1971/1995) articulates a fundamental choice facing humankind in the current Age of the Anthropocene, which he characterizes as economism vs. planetism.

(For parallel arguments from the environmental sociology literature centered around antinomies between a "Human Exemptionalism Paradigm" and a "New Environmental Paradigm" see Dunlap and Catton, 1994, 2002). Cobb notes that the logics of economism on the one hand and planetism on the other, could not be more different. Economism relies on constant economic "growth" fueled by deeper and more extensive incursions into the environment. Planetism centers an ethic around facilitating the health and well-being of the earth and its citizens, human and non-human, living in a state of sustainable equilibrium and ecological balance.

These are not just alternatives on a multiple-choice exam, or even something up for idling debate before retiring to the "real world" of acquisitiveness. Rather, as individuals and as a collective species, these are the most crucial questions we face in the Anthropocene Age.

As has been noted by a wide array of scholars, religions historically have been vessels—and primary ones at that—which inform and transmit large and enduring cultural values (Crossley, 2007; Weber, 1904-5). To be sure, these change over time, even as they continue to inform larger aspects of human action. Religion has been noted to influence ways in which people and societies interact with the natural world (Burns, Boyd, & Hekmatpour, 2021; Wersal, 1995; White, 1967).

There is considerable variation in the values religions bring to bear on behaviors and attitudes, conscious and perhaps at times unconscious, in relation to the environment. As Grim and Tucker (2014) point out, religious posture toward the environment has been uneven at best, with many of the world's religions either largely ignoring the environment or placing so many priorities ahead of it that environmental concerns get lost.

Lynn White (1967) and others have pointed to some profound problems in the way ecological responsibility is portrayed in the Abrahamic traditions, particularly in the way many of the strains of Christianity have embodied environmental responsibility as those strains have evolved through the ages. In Christianity and other large and complex world religions, there are broad arrays of thought, belief, and precedent, permitting practitioners to draw on diverse components from which to ground entire distinct belief systems. Various aspects of those faiths have thus been instrumental in justifying a huge array of behaviors and attitudes toward the environment, from the most reverent and caring, to the most profligate (Burns, Boyd, & Hekmatpour, 2021). A similar expansive expression of ecological responsibility has been noted in Islam (Hekmatpour, Burns, & Boyd, 2017), and in world religions more generally (Burns, 2014).

Previous research has noted that significant aspects of the Buddhist worldview stand in concert with a planetistic approach (Daniels, 2005; Schnaiberg & Gould, 1994). Previous research also makes clear that there is a fundamental mismatch between an economic framework, particularly the Neo-Classical economic model that largely serves as a default way of seeing the world in capitalist societies, and a sustainable ecological set of practices (Schumacher, 1973/1999).

To frame this paper, we look for exemplars of religious traditions that historically have held, and continue to promulgate, positive orientations to the environment and a sense of ecological good-citizenship and

responsibility. While there certainly could be a number of exemplars, the two on which we focus in this paper have, over time, clearly and consistently shown themselves to be deeply respectful to and nurturing of the natural world. We look closely at Buddhism and then Quakerism, one of the Christian traditions that has a history of environmental engagement and stewardship.

These two exemplars have a strong tradition of what the eco-ethicist John Cobb characterizes as a "planetist" (in juxtaposition to an "economist") ethic. We attempt to engage these two traditions because, in the broad array of the world's religions, they at least lean toward environmental stewardship, and arguably extend farther in significant ways toward environmental healing. We find some common threads between them and note some differences as well, regarding their approaches to the natural environment.

2. An Overarching Buddhist Ethic, with Connections to Quakerism

While there is an emergence of interest in the overlap of ecology and religion, it is important to acknowledge that the secular and the religious cannot now be thought of as mutually exclusive categories (Grim & Tucker, 2014). Specifically, there is evidence of an enduring and significant degree of institutional co-optation of religion, with some segments of traditional religions having been deeply influenced by politics (Smith, 2015).

Yet a Buddhist ethic has a reverence for life, as does Quakerism. In the Buddhist worldview suffering comes from clinging particularly to unsustainable practices (such as dependence upon fossil fuels), and from an acquisitive lifestyle more generally. In the Buddhist ethic, it is important to become less acquisitive and relatively detached from material gain and possessions.

David Loy (2018) emphasizes the importance of fundamental thought as it pertains to the core principles of the "Ecodharma" of Buddhism. Loy coined this term, Ecodharma, that combines the teachings of Buddhism and other Dharmic spiritual traditions (most notably, Hinduism and Jainism) with an ecological focus for the Anthropocene. The problem, as Loy points out, is long term and deep, and calls for action as well as philosophy. Following ideas originally articulated by the Buddha himself some two and a half millennia ago, Loy reminds us that human action depends first on focused thought. Loy delineates core principles of the Ecodharma of Buddhism as including the following: renunciation, contemplation, voluntary simplicity, being open to suffering as a vehicle to understanding, compassion, and healing.

Loy (2018, p. 19 ff.) establishes his manifesto of the Ecodharma, and in the Buddhist tradition of radical honesty, says: "Let's be clear: climate change is the greatest challenge that humanity has ever faced... [and is] better described as a climate emergency."

The case can be made that full time "Ecological Monks" in Buddhism make a crucial difference for the earth's environmental health (Darlington, 1998; Harris, 1991). In Thailand for example, which historically has suffered some of the heaviest deforestation in Asia, ecologist monks have made significant strides in bringing attention to ecological problems such as deforestation.

In many ways though, it should be noted that religion in Thailand, as elsewhere, is a moving target. Some scholars have argued that religion has become less relevant over time in this region (Darlington, 1998). This is especially the case with Buddhism, given the longstanding interplay between Buddhism and broader Thai culture historically.

It is, however, significant that these ecological monks in Thailand tend to come from the more traditional Theravada Buddhist practice. Although further research is needed to speak on this definitively, in some preliminary work, we have seen indications of what different approaches to planetism among Mahayana, Vajrayana and Theravada traditions within Buddhism may be.

3. Notes on Structure

There are significant parallels between Buddhism and Quakerism, so much so that some regard Quakerism as a sector of Christianity that is the most like Buddhism. In both traditions, the connection with natural ecology and the cultivation of quiescence and interiority are notable, as is the related emphasis on peace at all levels of emergence, from the most local to the most global.

At the outset though, we acknowledge some significant differences that make these traditions quite distinct unto themselves. We note that the number of people in the world considering themselves Buddhist outnumber those considering themselves Quaker by several orders of magnitude. While estimates vary, of course, a medium range estimate would put the number of Buddhists in the world at about 500 million, making Buddhism the fourth largest religion in the world after Christianity, Islam, and Hinduism, respectively (Burns, 2012).

There are five or six times as many Christians in the world as Buddhists, and Quakerism is typically thought of as a denomination within the Christian tradition. Medium range estimates put the number of Quakers in the world at about 400,000 (Friends General Conference). It should be noted that birth rates are relatively low in both Quakerism and Buddhism, in comparison to Christianity more generally, and particularly in relation to Islam.

As is true more generally of the relationship between size and social structure, we would expect Buddhism to be a good deal more diverse, with many significant niches in Buddhism. This complexity of structure is not found as apparently in the Quaker tradition, which does not have full-time monks or nuns or, for that matter, a professional clergy class at all.

4. Salient Divisions within Buddhism

Generally speaking, Theravada Buddhism is the most traditional, and it is in this tradition that many full-time monks live and practice. The Mahayana tradition is more varied, and while there are monks in this tradition to be sure, there is much more of a presence of non-professional practice. In this respect, the Mahayana tradition comes closer to Quakerism, in which "leadership is everyone's vocation" (Stanton-Henry, 2023).

Many of the offshoots of various strains of Buddhism come from the Mahayana tradition, including, for example, Zen (and its respective divisions into Soto and Rinzai), Nichiren (and its eventual offshoots, including for example the Soka Gakkai Movement—for discussion, see Ikeda (2001, 2021)).

Vajrayana, or the uniquely Tibetan brand of Buddhism, sprang originally from the Mahayana tradition, but has developed for so long in its own unique path that many or most now consider it a third way, with significant distinctions from both Mahayana and Theravada traditions.

Mahayana Buddhism has made the most inroads into the West, and in fact around the world more generally (Loy, 2002). Much of this expansiveness and diversity in the Mahayana tradition in particular has manifested over time in calls to action, environmental awareness, and engagement (Jones, 2003). Meanwhile, there is a rising ecological consciousness in many parts of the world, and many strains of Buddhism are particularly well-suited to embrace this and in fact to take a leadership role in ecological responsibility in many cases (Uhl, 2004).

Particularly in the Mahayana tradition, there is an increasing tendency to regard Buddhism as a philosophy, at least as much as a religion, per se. Another view in this regard is that Buddhism in general, and Zen in particular, can be embraced as to achieve detachment, interiority, bliss, and compassion for all of life, human and non-human (Watts, 1995).

The word Mahayana means "big raft", and this is somewhat telling about the Mahayana tradition. In contrast, the Theravada tradition is also known as Hinayana, or "small raft". This in no way implies one is more valid relative to the other, but the Mahayana tradition may be more inclined to focus on larger, macro-level issues, such as global environmental change and global warming. In contrast, the Hinayana tradition may be more inclined to be mindful of micro-level, local issues.

In the Buddhist value system, the interconnectedness of the inner world and the outer world is vitally important. We see this value in Quakerism as well. Both have a quietistic, meditative component central to the practice and value system of each. This connection is, in fact, an important emergent property in each of the traditions we consider. Here we see an interesting parallel to systems theory in which everything in the world is interconnected in intricate and complex ways. The earth is more than the sum of its parts. This focus on inner- as well as *inter*connectedness is in fact an important and even central characteristic of both wisdom traditions.

We note here that this interconnectedness can be found in other aspects of Christianity; there is sometimes a split, even within the quietistic camp, around the value of direct connection to the environment. This is what Thomas Merton (1958/1999, 1961/1999) and others who are internally critical of Christianity, characterize as Franciscan spirituality, following the ecological embeddedness and connection to social justice of St Francis of Assisi (for detail, see Burns et al., 2021; White, 1967).

This also bears further and deeper study. At the outset though, we should note this split is a bit concerning for environmentally oriented practitioners. There is now an alternative take on quietism, which is rooted more in opting out of social engagement with the broader society. This is grounded in conservative Christianity and has been celebrated recently under the moniker of the "Benedict Option" (Dreher, 2017).

This is not something we want to dwell on in this paper but do make note of what may be important intrareligious differences, even within the ranks of quietist approaches.

In the broader ethic, there is a balance between unity and diversity, between inner focus and interconnectedness, and between the individual and society. In fact, complexity in social systems is often found in connection with such a balance.

The importance of the emergent community (or "Sangha" in Buddhist terms) cannot be overstated here. Many of these values, while certainly held by individuals, have a strong communal component. This community is also vital in Quakerism. Yet it is community rooted in connectedness to the natural ecology. Consider here, for example, the Quaker tradition of building only with local materials that have been gathered with a spirit of non-violence to the surroundings. A significant connection between Buddhism and Nature, and also between Quakerism and Nature, is the power of silence itself (Sarah, 2017; Watts, 1995).

From a Buddhist perspective, ecological problems stem from the same source as age-old human problems: Greed, Ill-Will, and Ego. These are what the Buddha had identified as "the three poisons". Quiescence, interiority, and meditation, particularly in natural settings, serve as powerful antidotes to these poisons, and take on particular urgency in the strident noisiness so characteristic of the Third Millennium.

5. Quakerism and Ecology

Buddhism has a tradition of "environmental monks" or a full-time religious class, some of whom have a specific charism of environmental protection or activism, but Quakers do not have professional clergy and certainly do not have anything like a class of monks. While both Buddhism and Quakerism in many ways tend to be less structured than many of the larger world religions, we find it significant that Quakerism is even less structured than Buddhism. This does not, of course, imply Quakers are any less engaged in the environment, although there is less of a tendency for doing that as a full-time missional focus, as is the case with the environmental monks of Buddhism.

George Fox, the Father of Quakerism, rejected the spiritual authority of the church as the primary way in which individuals connect with the divine. His reflection that churches had become a home for ritual and the reinforcing of the hierarchy of spiritual authority undergirded the goal of Quakerism as a space to facilitate spiritual communion between individuals and Spirit. Quakerism removes power from the few in the priestly class and instead encourages the power—and responsibility—of the individual as well as the collective. It follows, then, that this perspective converges with one that encourages personal responsibility for the spaces and places we live and for the planet. The Quaker default is not to defer to those in power and authority but rather to develop and maintain a moral and ethical code of sustainability independent of the worldly political authority.

The lack of hierarchy in the Quaker religious experience, even in the space of worship, is a constant reminder to those who practice Quakerism that their own value is only as great as their value for others. The light in each one is the light in all.

George Fox crafted a theology emphasizing individual responsibility in fostering holistic personal development and a comprehensive understanding of creation. According to this perspective, integrity extends beyond isolated aspects of an individual's existence; Quakers are tasked with seamlessly integrating the appreciation for self, community, and creation. Achieving integrity in the Quaker tradition involves recognizing and actively navigating the tension inherent in maintaining a harmonious and equitable balance among these values. Gwyn (2014) notes that "George [Fox]'s integrity of speech and action...placed him in faithful relation to the earth. He felt a covenantal relationship with the creatures and therefore was bound to consume moderately and work with the creatures responsibly." (p. xvi). Thomas Merton (1958/1999, 1961/1999), a contemplative monk, interfaith theologian, and social activist, stated that "We are in the world and part of it and we are destroying everything because we are destroying ourselves, spiritually, morally, and in every way. It is all part of the same sickness; it all hangs together." George Fox referenced Romans 8:19-25 in his writings, in which Paul testifies that "...the creation waits with eager longing for the revealing of the children of God; for the creation was subjected to futility, not of its own will but by the will of the one who subjected it, in hope that the creation itself will be set free from its bondage to decay and obtain the freedom of the glory of the children of God. We know that the whole creation has been groaning in labor pains until now; and not only the creation, but we ourselves, who have the first fruits of the Spirit, groan inwardly while we wait for adoption, the redemption of our bodies." (Gwyn, 2014, p. xxi)

Quakers understand this passage of scripture to be a challenge to expand our understanding of personal integrity and responsibility to live within and be a vital part of creation. In this, Fox strove to experience the tension of creation within his own body, to incorporate the longing for wholeness in an expansive way, including self and the natural world.

Although Quakerism does not have a professional clergy such as "environmental monks", dedicated to ecological responsibility, it nonetheless embodies some key features supporting responsible sustainability. For example, the Sixth World Conference of Friends, a worldwide gathering of Quakers in the Rift Valley in Kenya in 2012, came to consensus on the Quaker perspective on ecological responsibility, after which "The Kabarak Call for Peace and Ecojustice" was written. This formal document states: "We are called to be patterns and examples in a 21st century campaign for peace and ecojustice, as difficult and decisive as the 18th and 19th century drive to abolish slavery...We dedicate ourselves to let the living waters flow through us—where we live, regionally, and in wider world fellowship. We dedicate ourselves to building the peace that passeth all understanding, to the repair of the world, opening our lives to the Light to guide us in each small step…" (Sixth World Conference of Friends, 2012).

This leads to the consideration that as self-indulgence and self-aggrandizement are cultivated to the detriment of sustainable ecological responsibility, society continues on a path to ecological disaster. There is a distinction—another path to choose—that points towards those who believe that their faith espouses the values of community and sustainability. Planetism reflects this form of power and of sacrifice for the common good, and is a vital factor that creates the social milieu in which we see

substantial environmental consciousness and responsible action. Corporate ecological responsibility grows out of individual hearts that are willing to admit the self is less important than the whole, and that fulfillment comes out of relationship with others, grounded in the world around us. These relationships are emphases of the Quaker faith.

"If peace was the dominant theme of Quaker testimony in the twentieth century, the interaction between personal simplicity and work for a sustainable human society on earth will focus much of our imagination and energies in this century. It has to. Anything less will amount to nihilism and massive destruction—a path we have traveled disastrously far already." Without the personal practice of simplicity, concern for sustainability becomes doctrinaire, 'words without life,' as early Friends would say. Conversely, without the global vision of a sustainable future, the personal practice of simplicity can easily become more a matter of style than substance." (Gwyn, 2014, p. 129).

6. Conclusion

In sum, if the world is to move forward toward an ecological consciousness, with a particular emphasis on sustainability, religious experience will likely play a key role in this emergence. Buddhism and Quakerism, while distinct, do share certain key components. The emphasis on living within means and in concert with the environment, combined with the core values of quietude, interiority, and harmony with the natural ecology, continue to age well into the Third Millennium.

As the world looks to heal the mismatches between planetism and economism and moves toward sustainable and regenerative culture and ecology, it is important to look at exemplars of ethics that are equal to this task (Burns et al., 2020). By looking back on the older traditions of Buddhism and Quakerism, we may garner a glimpse forward as well, into some of the dimensions of an emergent ethic of ecological healing and planetistic sustainability.

References

Burns, T. J. (2014). Reconsidering scripture in late industrial society: Religious traditions and the natural environment. In B. S. Caniglia, T. J. Burns, R. Gurney, & E. L. Bond (Eds.), *Rise of Environmental Consciousness: Voices in Pursuit of a Sustainable Planet* (pp. 43-60). San Diego: Cognella.

Burns, T. J. (Ed.). (2012). *Canonical Texts: Selections from Religious Wisdom Traditions*. San Diego: Cognella.

Burns, T. J., & Caniglia, B. S. (2017). *Environmental Sociology: The Ecology of Late Modernity, 2e*. Norman, OK and Breckenridge, CO: Mercury Academic.

Burns, T. J., Boyd, T. W., & Hekmatpour, P. (2021). Elective affinities in the anthropocene: Christianity and the natural environment reconsidered. *Social Science, Humanities and Sustainability Research*, *2*(4), 82-95. https://doi.org/10.22158/sshsr.v2n4p82

Burns, T. J., Boyd, T. W., & Leslie, C. M. (2020). Regenerative development and environmental ethics: Healing the mismatch between culture and the environment in the third millennium. In B. S.

Caniglia, B. Frank, J. Knott, K. Sagendorf, & E. Wilkerson (Eds.), *Regenerative Urban Development, Climate Change and the Common Good* (pp. 115-135). New York: Routledge.

Cobb, J. B., Jr. (1971/1995). *Is It Too Late? The Theology of Ecology*. Denton, TX: Environmental Ethics Books.

Cobb, J. B., Jr. (1991). Economism or planetism: The coming choice. *Earth Ethics*, *3*(1), 1-3.

Colborn, T., Dumanoski, D., & Myers, J. P. (1997). *Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival?— A Scientific Detective Story*. New York: Plume/Penguin.

Crossley, J. P., Jr. (2007). The 'elective affinities' between liberal theology and liberal politics. *Journal of the Society of Christian Ethics*, *27*(2), 209-226. https://doi.org/10.5840/jsce200727210

Daniels, P. L. (2005). Economic systems and the Buddhist worldview. *Journal of Socio-Economics*, *34*(2), 245-268. https://doi.org/10.1016/j.socec.2004.09.010

Darlington, S. M. (1998). The ordination of a tree: The Buddhist ecology movement in Thailand. *Ethnology*, *37*(1), 1-15. https://doi.org/10.2307/3773845

Dreher, R. (2017). *The Benedict Option: A Strategy for Christians in a Post-Christian Nation*. New York: Sentinel.

Dunlap, R., & Catton, W. R., Jr. (1994). Struggling with human exemptionalism: The rise, decline and revitalization of environmental sociology. *American Sociologist*, *25*, 5-30. https://doi.org/10.1007/BF02691936

Dunlap, R., & Catton, W. R., Jr. (2002). Which functions of the environment do we study? A comparison of environmental and natural resource sociology. *Society and Natural Resources*, *14*, 239-249. https://doi.org/10.1080/089419202753445070

Grim, J., & Tucker, M. E. (2014). *Ecology and Religion*. Washington, DC: Island Press.

Gwyn, D. (2014). *A Sustainable Life: Quaker Faith and Practice in the Renewal of a Creation*. Quaker Press of Friends General Conference.

Harris, I. (1991). How environmentalist is Buddhism? *Religion*, *21*, 101-114. https://doi.org/10.1016/0048-721X(91)90058-X

Hekmatpour, P., Burns, T. J., & Boyd, T. W. (2017). Is Islam pro-or antienvironmental? Interpretations and implications. *Journal of Asian Research*, *1*(1), 92-110. https://doi.org/10.22158/jar.v1n1p92

Home. (n.d.). Friends General Conference. Retrieved December 7, 2023, from https://www.fgcquaker.org/

Ikeda, D. (2001). *For the Sake of Peace: A Buddhist Perspective for the 21st Century*. Chicago: Middleway.

Ikeda, D. (2021). *A Religion of Human Revolution*. Chicago: Middleway.

Jones, K. (2003). *The New Social Face of Buddhism*. Boston: Wisdom.

Khisty, C. J. (2009). The marriage of Buddhism and deep ecology. *Quest*, *97*(2), 64-69.

Loy, D. R. (2002). *A Buddhist History of the West*. Albany: SUNY Press. https://doi.org/10.1353/book4505

133

Loy, D. R. (2003). *The Great Awakening: Buddhist Social Theory*. Somerville, MA: Wisdom Publications.

Loy, D. R. (2018). *Ecodharma: Buddhist Teachings for the Ecological Crisis*. Somerville, MA: Wisdom Publications.

Merton, T. (1958/1999). *Thoughts in Solitude*. New York: Farrar, Straus & Giroux.

Merton, T. (1961/1999). *Mystics and Zen Masters*. New York: Farrar, Straus & Giroux.

Sarah, R. C. (2017). *The Power of Silence: Against the Dictatorship of Noise*. San Francisco: Ignatius Press.

Schnaiberg, A., & Gould, K. (1994). *Environment and Society: The Enduring Conflict*. New York: St. Martin's.

Schumacher, E. F. (1973/1999). *Small Is Beautiful: Economics as if People Mattered*. Point Roberts, WA: Hartley and Marks.

Sixth World Conference Friends. (2012). *Kabarak Call For Peace and Ecojustice*. Retrieved from https://quakersandclimatechange.com/2016/08/30/kabarak-call-to-peace-and-ecojustice

Smith, M. A. (2015). *Secular Faith: How Culture Has Trumped Religion in American Politics*. Chicago: University of Chicago Press. https://doi.org/10.7208/chicago/9780226275376.001.0001

Stanton-Henry, A. (2023). Three Common Fallacies of Quaker Leadership. *Friends Journal*. Retrieved December 11, 2023, from https://www.friendsjournal.org/three-common-fallacies-of-quaker-leadership/

Uhl, C. (2004). *Developing Ecological Consciousness: Paths to a Sustainable World*. Lanham, MD: Rowman & Littlefield.

Watts, A. (1995). *Buddhism: The Religion of No-Religion*. Boston: Tuttle.

Weber, M. (1904-5/1958). *The Protestant Ethic and the Spirit of Capitalism*. New York: Scribner.

Wersal, L. (1995). Islam and environmental ethics: Tradition responds to contemporary challenges. *Zygon, 30*(3), 451-459. https://doi.org/10.1111/j.1467-9744.1995.tb00083.x

134