


Article

Buddhist Environmentalism as Seen through Religious Change

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Abstract: This article considers the disagreement between scholars of Buddhism around whether the tradition is or is not amenable to environmental concerns. It identifies the gap between the two sides as arising from a problem in how historical-critical methods divorce moral concepts from materiality in the study of religious history. This paper considers *paticca-samuppada* as a central moral concept in Buddhist tradition, one that has indeed changed via translation over the course of Buddhist history. This is the moral concept that leads directly into current environmentalist discourse, in its translation as *interdependence*. The paper first considers the translation of *paticca-samuppada* in historical tradition as well as in the hands of environmentalist authors. It then considers why *paticca-samuppada* as *interdependence* is a context-appropriate contribution, in settings of industrial political economy heavily directed by an abstract, mathematical concept of *capital* in connection with the moral concept of unlimited *growth*. The paper concludes by suggesting that contemporary Buddhist environmentalism be understood as a case of religious change. It concludes that the Buddhist eco-critical position is untenable, in light of processes of change in religious traditions, and suggests that the study of religious history should better account for how it is that religious change occurs.

Keywords: Buddhism; environmentalism; theories and methods in the study of religion; religious change; systems change; conceptual change



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1. Introduction

In recent decades, scholars and citizens alike have sought adequate responses to the environmental catastrophe unfolding, it seems daily, before our eyes. The emerging arena of ‘religion and ecology’ arises out of this set of concerns, as does a subset of this arena, ‘Buddhism and ecology’. Yet scholars of Buddhism have a hard time agreeing on whether Buddhist traditions can or cannot support a robust environmentalism: there is a gap or fissure between two sides. This paper aims to make a contribution to this conversation by considering how the two camps, roughly characterized as Buddhist eco-apologists and eco-critics, might come to agreement.

The paper is organized as follows. Section 2 sets up the disagreement between the Buddhist eco-apologists and eco-critics. I identify the gap between the two sides as a problem arising from historical methods in the study of religion, whereby scholars taking a historical-critical approach ignore value concepts in favor of materiality and, indeed, divorce value concepts from material factors. Section 3 considers *paticca-samuppada* as a central value-concept in Buddhist tradition that leads directly into the current environmentalist discourse. I consider the life of this concept, giving a brief genealogy of its uptake across contexts to demonstrate the thickness of this concept in Buddhist tradition. I further demonstrate how the concept has evolved in the hands of various interpreters within historical Buddhist tradition, importantly as *emptiness* in the hands of Nagarjuna and his intellectual descendants. I consider how 20th century environmentalist discourse has taken up the concept of *paticca-samuppada* in its translation as *interdependence*. Section 4 considers how the value-concept of *interdependence* is a reasonable and context-appropriate conceptual alternative to the value-concept of unlimited growth, which develops in the English 17th century in conversation with theology and discourse on political economy.

The paper concludes in Section 5 with reflections on how the study of Buddhist history should better account for how religious ideas and practices change and evolve. This involves an approach to human relations with material realities that takes into account the values-concepts implicitly imbedded in such relations, and which acknowledges historical changes in material conditions as linked to shifts in values-concepts. On such an account, the difference between past and present manifestations of a religion is not an aberration; it is rather built into the structure of religious traditions. Further, on such an account, the Buddhist eco-critical position can be seen as untenable.

2. The Disagreement (Gap, Fissure) between Buddhist Eco-Apologists and Eco-Critics

Partially adopting the taxonomy of Donald Swearer (2006), I shall speak of the literature around Buddhism and environmentalism as divided into roughly two camps: the eco-apologists and the eco-critics. There is a large body of discourse on the subject, aptly summarized in a lengthy bibliography of printed works compiled by Duncan Ryuken Williams and Christopher Ives and available at the Yale Forum of Religion and Ecology. What follows is a necessarily selective discussion, in which I draw out what can still be characterized as a disagreement or gap between two discernable camps.

Many scholars and practitioners of Buddhism have in recent decades written in support of Buddhist environmentalism. An early effort began in the 1990s. Allan Hunt Badiner's (1990) *Dharma Gaia* is an early edited compilation that brings together contributions on the subject of Buddhist environmentalism. The Yale-based Religion and Ecology series contributed a volume on Buddhism and Ecology (Tucker and Williams 1997). Stephanie Kaza and Kenneth Kraft's *Dharma Rain* connects ecological devastation with consumerist habits and suggests ways in which Buddhist practices can counter these habits (Kaza 2000; Kaza and Kraft 2000). Rita Gross (1997) addressed questions of population and consumption and has written in support of habits of voluntary simplicity as inflected by Chogyam Trungpa's teaching. A number of scholars have written about the conjunction of Buddhism and the environment primarily in the mode of critique of extant structures of political economy (Cobb 2002; Loy 1997, 2018; Payne 2010). Susan Darlington (2012) has given an account of a novel Buddhist environmental practice, the ordination of trees in Thailand. Some of the contemporary world's most famous Buddhists are on the record as supporting the Buddhism and environmentalism conjunction, for instance the H.H. 14th Dalai Lama and Thich Nhat Hanh (Dalai Lama and Alt 2020; Hanh 2021). In Taiwan, the lay Buddhist movement Tzu-Chi headed by the bhikkhuni Cheng Yen connects Buddhist doctrine to the practice of recycling (Dung 2021).

Broadly speaking, what the eco-apologists wish their readers to understand is that there is something worrisome about the environmental state of the world as we currently find it. Their various writings all attempt to respond in some way to how human societies relate to a more-than-human world. Their diagnoses are various but revolve around the pathologies of an industrial political economy under conditions of late capitalism, a set of problems that motivate an exploratory turn toward other (in this case Buddhist) ideas and practices. In their rightful concerns with the inherited problems of the present, however, Buddhist eco-apologists are in many instances happy to ignore, side-line, or otherwise leave unmentioned those aspects of Buddhist history and tradition that do not serve their purposes. This is the target that draws the ire of our most vehement eco-critics.

The most serious critique of the Buddhist environmentalist conjunction occurs in a historical voice. (There is also a philosophical mode of critique in an ahistorical philological tenor that unfortunately I will not have the space to address here.) The critical-historical worry of the Buddhism–environmentalism conjunction can be characterized as follows: Buddhist communities of the past never thought about ecology or nature in the way environmentalists of the present do. Indeed, historical Buddhists also exploited natural resources. Therefore, it is wrong to claim that Buddhism as a historical tradition is environmentally friendly. Implicit in this historical criticism is a doubt about the usefulness of Buddhist ideas and practices for our present and future environmental circumstances.

This voice of historical-critical skepticism suggests that it is misguided, a case of misplaced hope, to turn to Buddhist traditions in the face of contemporary problems. After all, the long history of the tradition reveals just how environmentally exploitative Buddhists have been all along. Why should we think that applications of traditional ideas and practices in the present day will result in anything different?

The gift of explicitness in critique has been given to us by Johann Elverskog's (2020) recent monograph *The Buddha's Footprint*. In this contribution, Elverskog documents how historical Buddhists cared deeply about prosperity and indeed also exploited natural resources. Elverskog marshals archeological evidence to point to how centers of trade along the Silk Road projected economic power—for instance, Mes Aynak in contemporary Afghanistan, where there were and continue to be abundant copper reserves for mining (of interest today to Chinese mining operations). Elverskog also cites the archaeological evidence on irrigation networks and hydraulic projects, suggesting that when historical Buddhists sponsored such public works projects, they were as much trying to cultivate patronage networks as they were trying to alleviate suffering. In giving these examples, Elverskog situates historical Buddhist ideas and practices within their political and economic contexts, particularly contexts of exchange and encounter, trade, and empire along the Silk Routes.

By itself, situating Buddhist ideas and practices in historical context is very important, and is a valuable response to various instances of selective historical reading by eco-apologists. But I should like to point out and challenge the mode of skepticism and suspicion that is characteristic both of Elverskog's monograph and the historical-critical voice more broadly. Here a pattern can be discerned. Elverskog's work is of a piece with the work of other historically inclined scholars of Buddhism. These authors share in common an approach that operates in the mode of myth-busting, of correcting romantic notions about who Buddhists are (Sharf 1993, 1995; Lopez 1995, 1998, 2006). This approach operates one-directionally via a hermeneutics of suspicion, suggesting that at the bottom of historical events and movements—and of thought and knowledge and language and social structure—is raw, brute, unadulterated power. The myth-busting move among Buddhist Studies scholars is to show how historical monks and nuns are not lofty ideal beings; rather, they also participate in oppressive systems and project economic, political, and institutional power. The skeptical historical voice can take a number of directions. In Robert Sharf's case, there are hints of statistical empiricism: Sharf (1995, pp. 243–46) prefers to emphasize what *most* monks do, calling attention to what the 'vast majority of Asian practitioners' are up to. In the case of Mark Blum (2009), the myth-busting procedure works to show how American eco-Buddhists are not really Buddhists, but rather genealogically Emersonian Protestants.

What the historical eco-critics get right is that Buddhist historical traditions are complex, and that historical Buddhists were fallible humans who inhabited fallible societies. These eco-critical scholars helpfully show us how it is historically inaccurate to present the Buddhist tradition as straightforwardly environmental, as our eco-apologists might find convenient to do. But I should like to point out where the historical myth-busting procedure incorporates an intellectual mistake—as an issue involved in the theories and methods deployed in the study of religion. The *intellectual* error involved in a power-based assessment of historical contexts is that such an assessment divorces material conditions and realities from values concepts (or, in a term I shall use synonymously in this paper, moral concepts). Part of the work involved in describing historical contexts accurately, including the political economies operative in past settings, involves drawing out the moral concepts that are implicit in the norms, practices, and institutions of that historical society. A hermeneutics of suspicion that reduces all matters of political economy (including, to begin with, matters of governance, production, consumption, and trade) to matters of brute force or power would be seriously misunderstanding historical as well as contemporary political economy. Historical *and* contemporary political economy involves all manner of moral concepts: some more explicitly obvious, some more implicit and in need of a genealogical procedure to unearth them.

In what follows, I shall consider a moral concept that is central to Buddhist traditions: that of *paticca-samuppada*. I shall conduct a genealogical exercise to unearth the life of this concept across a range of contexts. This will matter to us in this paper, for *paticca-samuppada* in translated form is the key moral concept inherited and projected by 20th century Buddhist environmentalists in environmental discourse.

3. A Genealogy of the Moral Concept *paticca-samuppada*

I am now obliged to say more about this Buddhist concept *paticca-samuppada*, translated into the English-speaking world as *dependent co-arising* or *interdependence*.

There are many things to say about the doctrine, much more than can be covered in these limited paragraphs. The idea is spoken of as the conceptual content of the Buddha's enlightenment; thus, comprehensively accounting for the commentary around the doctrine could engage the entirety of the Buddhist corpus. The selective genealogical thread I lay out here is that the concept has descriptive reference to ideas or theories about causality, normatively aimed at the end of suffering. What is of interest to us here is that the concept of *paticca-samuppada* as a theory of causality is a very thick concept; it is central to Buddhist traditions. What is also interesting is that the concept has itself undergone change or evolution within historical Buddhist tradition. The concept has changed alongside changes in the descriptive, natural-philosophical terms in which causation is understood (and to get a sense of the changes possible in natural-philosophical understanding, we can recall that King Milinda asks the monk Nagasena: is water alive? (trans. Horner 1969, p. 71)). The concept has also changed depending on who is included within the normative purview of consideration for suffering as mattering (suffering for whom? This is open to interpretation, especially if we consider, as this paper does, the vast web of non-human sufferable life).

A brief genealogy of the concept can be traced out as follows. The 1st century BCE Pali Suttas speak of *nidanas* or the 12 links of dependent arising, which involve a combination of both mental and material factors (trans. Walshe 1995). These 12 links include, in the traditional formulation: birth, becoming, clinging, craving, feeling, contact, name and form, consciousness, and aging and death. The fact that the cycle of *nidanas* includes both mental (consciousness, etc.) and material factors (contact, form, etc.) is a basis for suggesting that the concept of *paticca-samuppada* as a whole can be understood in more contemporary vocabulary as allied with various forms of mind/body supervenience or mind/body non-duality, or otherwise as a phenomenology that refuses a strict subject/object distinction. Later, in Nagarjuna's 2nd century AD writings in India, *paticca-samuppada* is translated as 'emptiness' with the two tiers of conventional and ultimate truth (trans. Garfield 1995); this innovation is taken forward in the vast stream of *prajna-paramita* literature. By the time Buddhaghosa formulates his great practice manual, the *Path of Purification*, in 5th century (Sri) Lanka, he articulates the concept as central to the cultivation of *panna/prajna*, as wisdom or understanding—alongside concentration practices and practices of virtue (trans. Nanamoli 2010).

Continuing onward, Tibetan uptake of *paticca-samuppada* involves picturing the concept pictorially in the *bhavacakra* or Wheel of Life. This formulation is an innovation, in that its various pictures (of various cosmological realms, for instance—the animal realm, the hungry ghosts) do not feature in non-pictorial formulations of the concept: in a cycle of conceptual *nidanas*, it is not obvious that one would picture a hell realm. In East Asian *prajna-paramita* literature as well as in Buddho-Daoist syntheses, *paticca-samuppada* as emptiness is taken as mereological non-duality: the logic that A is not-A, and that is what makes it A (trans. Conze 2001; Ziporyn 2016; Hanh 2021). This can be understood in terms of parts and wholes: that parts are windows into wholes, where the whole enables conditions of possibility for specific parts to arise—so there is an entire system of cause and effect within wholes (both mental and material) that make for or enable the emergence of specific parts. This mereological non-duality can also be understood as involving metabolic or organismic relations, with organismic dependencies playing out over time (a kidney depending on a heart)—rather than involving linear cause-and-effect relations, on the

model of the movement of billiard balls. More recently, Hanh has translated and popularized the concept of *paticca-samuppada* as “interbeing”, as a neologism or new formulation of the same doctrine. I hazard that this new formulation is a skillful innovation for the sake of a receiving audience: that the syllabic rhythms of “interbeing” are more familiar and accessible to contemporary Anglophonic ears, as compared to the rhythms of the Pali *paticca-samuppada*.

We now arrive at the translation of *paticca-samuppada* as “interdependence” in the hands of 20th century Western environmentalists. But before we get to the act of translation, we should consider that “interdependence” as a word or concept has its own natural-historical development in the English language. Prior to explicit links to Buddhist ideas, the concept of “interdependence” was already kicking around 20th century environmental circles—along with a family of related concepts like *dependence*, *mutuality*, and *inter-connectedness*. In what follows, I will trace out a few particularly famous environmental texts that influentially use and disseminate the concept of interdependence. I will italicize these concepts for ease of reference (for all cases in the next few paragraphs, emphasis is mine).

Rachel Carson (1907–1964) speaks of interdependence in her 1962 environmental classic *Silent Spring*, which sounds the alarm on DDT and pesticides in ecological systems. *Silent Spring*, without any explicit recourse to Buddhist materials, uses the language of interdependence in relation to soil systems. As Carson writes: “The soil exists in a state of constant change, taking part in cycles that have no beginning and no end. New materials are constantly being contributed as rocks disintegrate, as organic matter decays . . . In all these changes living organisms are active agents” (Carson 2002, pp. 53–54). Following upon this thought, she adds: “soil and living things in and upon it exist in a relation of *interdependence* and *mutual benefit*” (p. 78). *Silent Spring* speaks over and over again of various forms of *dependence* of parts upon each other within a metabolic whole. To give a few selected examples: in relation to insects, “man is more *dependent* on these wild pollinators than he usually realizes” (p. 73); “many herbs, shrubs, and trees of forests and range *depend* on native insects for their reproduction” (p. 73); pollinators in turn *depend* on “goldenrod, mustard, and dandelions” (p. 73). Some dependencies have to do with shelter: in coastal ecologies fish and shrimp *depend* on “protected inshore areas” (p. 149); beavers *depend* on willows for building material (p. 68). Dependencies also involve food: birds are *dependent* on earthworms (110); salmon *depend* on “larger aquatic insects” (p. 132); wasps and flies *depend* parasitically on the small eggs and larvae of other insects (p. 251); people *depend* on “basic foodstuffs” for life (p. 63). Ecology in Carson’s hands amounts to “interrelationships” and “interdependence” (p. 189).

Tracing the lineage of influence, Rachel Carson is following on Aldo Leopold (1887–1948), another classic environmentalist famous for his 1949 volume, *The Sand County Almanac*. Anticipating Carson’s later comments, Leopold (2020) writes that “good tobacco crops *depend*, for some unknown reason, on the preconditioning of the soil by wild ragweed” (p. 184). Like Carson, Leopold speaks of food in terms of dependencies: of people’s “*dependency* on the soil-plant-animal-man food chain” (p. 168), and of “lines of *dependency* for food and other services” (p. 202); these are conceived of as a pyramidal “tangle of chains” constituting a structure, the metabolic functioning of which “*depends* on the cooperation and competition of its diverse parts” (p. 203). Again with reference to organismic metabolism, Leopold speaks of “*interdependence* between the complex structure of the land and its smooth functioning as an energy unit” (pp. 203–4). Such relations are also spoken of as *mutuality*: as Leopold writes: “man and beast, plant and soil lived on and with each other in *mutual toleration*, to the *mutual benefit* of all” (p. 93). Leopold’s vision of an organismic whole sheds a positive light on even the *prima facie* less savory aspects of natural processes, such as disease (hence, the possible accusation of a sinister and dark holism)—as he points out, many “kinds of wildlife *depend* on tree diseases”, including woodpeckers that extract “fat grubs from the diseased heartwood” and owls and ducks that find shelter within tree hollows that result from such diseased wood (p. 72). Importantly for our purposes

in tracking conceptual uptake of the term “interdependence”, Leopold’s famous “land ethic” is spoken of in terms of “ecological evolution” and as the “tendency of *interdependent* individuals or groups to evolve modes of cooperation” (pp. 190–91). Leopold writes, “All ethics so far evolved rest upon a single premise: that the individual is a member of a community of *interdependent* parts” (p. 192). Human politics and economics fall under this ethical umbrella and are spoken of in terms of “cooperative mechanisms” and ecological “symbiosis” (pp. 190–91). The Aldo Leopold Foundation’s website, seeking to pass on his legacy, summarizes Leopold’s “land ethic” as an ethic that “expands the definition of community to include not only humans, but all of the other parts of the Earth, as well: soils, water, plants, and animals”; these community members are spoken of as connected, in that a land ethic “is a moral code of conduct that grows out of these *interconnected* caring relationships”. In its most basic formulation, a land ethic “recognizes and celebrates the *interdependence* between humanity and the natural world” (p. 214).

Coming after Carson and Leopold and in tandem with technological and computational systems, the 1970s brings work on systems looking at the relations, via “feedback loops”, between parts of a whole. There are many directions taken by systems thinkers; the most influential systems tract in the environmental direction is the famous, infamous (because neo-Malthusian) *Limits to Growth* (Meadows et al. 1972), developed by the team led by Donella Meadows (1941–2001) with the guidance of systems scientist Jay Wright Forrester. (It is also in part infamous because the text is directly related to China’s one-child reproductive policy: it was carried via a mode of literalist and consequentialist interpretation into Politburo discourse by a certain Song Jian (Greenhalgh 2003, p. 170)). The message of this book was developed and is carried forward by the Club of Rome, which describes itself as having the purpose of fostering “understanding of the varied but *interdependent* components—economic, political, natural, and social—that make up the global system in which we all live” (Meadows et al. 1972, p. 9). The authors of *Limits to Growth* apply the tools of systems thinking on the planetary scale, considering the “*interdependence* of the various components of the world system” (p. 189). In relation to social systems, this group of thinkers rightly considers “population, food production, and pollution, *not as independent* entities, but as dynamically *interacting* elements” (p. 22). Their systems model considers “industrialization, rapid population growth, widespread malnutrition, depletion of nonrenewable resources, and a deteriorating environment” as *interconnected* and *interrelated* trends (p. 21). Production of material goods (economic output) is “*dependent* on labor, raw materials, and other inputs” (p. 39). Humans inevitably *depend* on land and water because of foodways, possibly reduced by technological means (p. 54), but not gotten rid of altogether. Crossing over from the natural sciences into political economy, the tract considers that industrial nations *depend* on “a network of international agreements with the producing countries” (p. 67). The tract even makes an effort at building out the operations of industrial *capital* in its systems framework (thus drawing the territorial ire of credentialed economists), tracing out *interconnections* between population and capital (p. 97).

These three tracts represent an influential genealogy, a tip of the iceberg, of environmentalist discourse, starting in the post-war era and going through the 1970s. Each of these texts has spawned streams of interpretation, which is part of the point in considering them. Now I shall trace out how authors begin to explicitly link the Buddhist idea of *paticca-samuppada* to the idea of *interdependence* and its cognates, concepts that pre-date the act of translation. In tracing out *this* genealogy, I will rely again on influential texts, on the thought that these are representative tracts that give some indication of when and how concepts are widely used and disseminated. In what follows, I will consider E.F. Schumacher’s *Small is Beautiful*, Joanna Macy’s work on Buddhism and systems theory, and Arne Naess’ work on deep ecology. These authors self-identify as explicitly *Buddhist* environmentalists.

In 1973, E.F. Schumacher (1911–1977) publishes *Small is Beautiful*. Schumacher had been influenced by his travels to Burma in 1955 as an economic adviser for Britain. His observations on this trip led him to say that Burma had no need of Western economics, as it had a “Buddhist economics” from which Western nations could in fact learn. (It is a separate

subject to consider how his “Buddhist” economics draws primarily from Gandhi; the salient point for this article is that he labels and popularizes his synthetic take on economics as in some sense Buddhist, based on notions of right livelihood). *Small is Beautiful* echoes (and cites) the *Limits to Growth* (which was after all published just a year earlier) saying that the wealth of the rich “depends on making inordinately large demands on limited world resources” (Schumacher 2010, p. 33). Schumacher criticizes the mainstream economics of his time insofar as it “ignore[s] man’s dependence on the natural world” (p. 46). Schumacher elaborates upon such dependencies as again metabolic, speaking of the energy systems within which people live and work. As Schumacher writes: “[M]an is not a producer but only a converter, and for every job of conversion he needs primary products... his power to convert depends on primary energy”—by which he means fuel, whether fossil fuels or renewable forms (p. 52). Quoting Bertrand de Jouvenel, Schumacher criticizes mainstream economists for not realizing that “human life is a dependent part of an ecosystem of many different forms of life” (p. 63), including dependencies on water and trees. Schumacher is critical about views suggesting that the human dependency on plants be broken (as was posited by proposals for synthetic, chemical food) (p. 111). We can again hear how he thinks in terms of metabolic or organismic relations when, for instance, he notes that “just as a sound mind depends on a sound body, so the health of the cities depends on the health of the rural areas” (p. 215); this is elaborated in terms of foodways and energy flows from a food base, which Schumacher calls the “precondition of all economic life” (p. 215). The point about agriculture as metabolic dependency is put another way when Schumacher writes that “agricultural operations” involves “the whole relationship between man and nature, the whole life-style of a society, the health, happiness, and harmony of man, as well as the beauty of his habitat” (p. 118). Schumacher is also thinking systemically about international political economy, and voices concern about industrial nations that depend on many producing nations, as in the importation of oil from OPEC (p. 139); at points he advocates for some form of autarkic localism that emphasizes a Gandhian model of self-reliance and independence. In discussing his views on education, Schumacher elaborates a Buddhist phenomenology by another name, pointing out the connection between mindedness and experience: “the way in which we experience and interpret the world obviously depends very much indeed on the kind of ideas that fill our minds” (p. 88). It is worth noticing that the term *interdependence* does not once show up in this tract; even though its sense is rendered multiple times by these many usages of the term *dependence* as discussed above. I think this fact indicates something about the availability of the term *interdependence* for use in the prevailing lexicon, more on which in a moment.

Joanna Macy (b. 1929) is the next explicitly Buddhist environmentalist I wish to discuss. Macy explicitly connects Buddhist thought and practice to systems theory, as influenced by systems thinker Ervin Laszlo. Macy had well-traveled years with the U.S. State Department in the 1960s, enabling encounter with the newly-exiled Buddhist Tibetans in India (who left Lhasa in 1959). Her doctoral work culminates in *Mutual Causality in Buddhism and General Systems Theory: The Dharma of Natural Systems*, published in 1991. In this work, Macy tacks back and forth between presentations in canonical texts of the doctrine of *paticca-samuppada*, translated as dependent co-arising or interdependence (and also as mutual causality and reciprocal causality), and the field of general systems theory, in which “mutual causality” is described in terms of process and feedback loops. Macy is embarking on innovative work here when she connects the idea of *paticca-samuppada* to systems theory. What emerges is the “Dharma of Natural Systems”, which “examines the causal processes at work in a dynamically interdependent world” (Macy 1991, p. 1). For our purposes in this article, we can see the term “interdependence” over and over again, many dozens of times, in Macy’s presentation. Macy speaks of *paticca-samuppada* as, straightforwardly, interdependence—presenting *paticca-samuppada* as “a vision of interdependence” that presents “reality as a dynamic interaction of mutually conditioning events” (p. 18). She speaks of the interdependence of the links of the *nidanas* (p. 39), of persons and communities (p. 186), of doer and deed (p. 177), and of mental and material factors (p. 203). Though

this volume was published over a decade after her doctoral work, an earlier article laid out the main idea in 1979. “Dependent Co-arising: The Distinctiveness of Buddhist Ethics” (Macy 1979) speaks of *paticca-samuppada* as radical relativity, in which “reality appears as an *interdependent* process wherein change and choice, doer and deed, person and community are mutually causative” (p. 38). Her article “Systems Philosophy as a Hermeneutic for Buddhist Teachings” (Macy 1976) makes reference to *interdependence* twice—once in reference to cybernetics models (p. 25), and once to describe mind’s relation to matter (consciousness’ relation to a “psychophysical entity”) (p. 24). We might pause to notice how the increased prevalence of the term *interdependence* in Macy’s later publication gives us insight into how concepts have trajectories of usage even in one author’s thinking or body of work. But more to our point, Macy is a founding figure who translates *paticca-samuppada* as *interdependence*. As an explicitly Buddhist environmentalist, she appears in the aforementioned collection *Dharma Gaia* in 1990 and *Dharma Rain* in 2000.

Finally, to round out a trio of explicitly “Buddhist environmentalists” who translate *paticca-samuppada* as *interdependence*, we can consider the Deep Ecologists, clustered around the person of Arne Naess (1912–2009). Like the others mentioned in this section, Naess needs no introduction, having made his name with his “eight points” of Deep Ecology in 1974 (Naess 2010) and having spawned his own torrent of downstream interpretation. We can notice where the concept of “interdependence” shows up in his work by considering his statement work on the subject of ecology: *Ecology, Community, and Lifestyle* (Naess 1989). In this volume, Naess urges us to “strive for greater familiarity with an understanding closer to that of Heraclitus: everything flows. We must abandon fixed, solid points, retaining the relatively straightforward, persistent relations of *interdependence*” (p. 50). The concept of *interdependence* works to describe Naess’ famous *gestalts*—again, in resonance with *paticca-samuppada* in its East Asian valence as mereological, metabolic, organismic dependencies: dependencies of parts with wholes. We hear Naess proceeding with Diamond-Sutra style reasoning when he announces that “Gestalts bind the I and the not-I together in a whole. Joy becomes, not *my* joy, but *something joyful* of which the I and something else are *interdependent*, non-isolatable fragments” (pp. 60–61). That Naess read Buddhist sources is evidenced from references casually sprinkled throughout his writings (Naess 1995), but he is also in community with the members of the discourse genealogy laid out above. Naess in the voice of social theorist describes social norms phenomenologically, as “dependent upon our beliefs regarding the *interdependency* relations within the biosphere” (p. 74)—we come again to etiology, to theories of causation inclusive of mental ideation. To give an instance of Naess’ thinking on social norms proceeding along organismic lines, we might consider the controversial subject of the division of labor in society—a subject upon which Naess acknowledges a positive, egalitarian version of Gandhi’s pro-caste stance, in which “[t]he useful occupation of each family would be interrelated with and *interdependent* with families specializing in other kinds of services in the total community” (p. 203). (Again, as with Aldo Leopold, we enter into politically sensitive territory in considering social relations organismically—there may be accusations of a dark holism).

The point of going in such detail into the specific works of these six canonical environmentalist authors is to trace out how *paticca-samuppada* gets translated as *interdependence* in its Anglophonic reception. The goal of this demonstration is to show the natural-historical trajectory of a concept—*paticca-samuppada*—both before and after its translation as *interdependence*. A philosophically banal observation to make here is that the rise in usage of a concept, or a family of concepts, involves conversational settings in which those concepts are newly found useful. We might wonder, then, about a Google Ngram search showing that there is a significantly exponential curve in the usage of the word *interdependence* from the mid-1840s. The compounded annual growth rate of the term “interdependence” from 1840 to its peak in 1978 is 3.7% per year (taken as a calculation from Ngram’s percentages of textual prevalence); this contrasts with the compounded annual growth rate of the term from 1800–1839, during which the growth rate was 0.7% per year. There is specifically a large jump in usage between 1844–1845—a 23% increase in usage, compared to an average

of a 2% increase per year for the five-year period prior. From the 1840s, the trend line rises exponentially until a small plateau during World War II, followed by a sharp continuation of the exponential curve starting in the early 1950s. The steep exponential rise in the term's usage peaks in 1978, followed by a declining plateau in usage.

What should we make of this suggestive data from Google Ngram viewer, which has as its source the total collection of books in the Google database? On the one hand, it is difficult to say; and that difficulty has to do with the difficulty in empirically tracking detailed instances of conceptual uptake and transmission. For comprehensively empirical data at a widespread social level, we would need access not only to official discourse (for example, published texts), and not only to cultural products (films, novels), but also to much more informal conversational records (what goes on in a classroom, in a church, in a household?) This kind of access is rightly suspect for reasons of privacy. Tracking the dissemination in usage of concepts can in this respect be aptly seen through a viral-contagion metaphor, whereby the way a new concept circulates and gets taken up into a community resembles something like viral dispersal and mutation. One is vulnerable to a pre-existing concept when one finds oneself in contexts requiring it; and sometimes one might use a concept in a way that changes the concept, which then becomes available in that new way for someone else.

But on the other hand, the meta-data available from Google's panopticon-level surveillance is crystal clear: there is a *major* rise in usage of the term *interdependence* starting in the 1840s and peaking in the late 1970s. This trendline of usage tracks directly with the various dates of publication of the post-war environmental authors we have considered in this section. From Aldo Leopold to Rachel Carson to Donella Meadows to Joanna Macy and the Deep Ecologists—American-based environmentalists are talking amongst themselves, listening in to each other, and using the term *interdependence*. That the community is tightly knit can be superficially seen in how they cite each other: Macy cites Schumacher, they both cite Meadows—and so on. (E.F. Schumacher, I should notice, was UK-based—following up on an earlier observation, perhaps the precise term *interdependence* did not make it to him from across the pond?) Much more recently, Thich Nhat Hanh has spoken of Deep Ecology as a prime example of *paticca-samuppada* in its translation as “interbeing” or “interdependence” (Hanh 2021, p. 22), thus carrying on this valence of translation.

Before moving on, I should like to make one more comment on the Ngram trendline of “interdependence”, in particular the jump between 1844 and 1845. I should like wonder: does this jump in usage track with the translation of the *Lotus Sutra* into English, published in 1844 in the Emersonian-Transcendentalist journal *The Dial*, from Eugene Burnouf's French translation? Could the late 19th century Theosophists have popularized this term further? Then, in the post-war era, what textual evidence can we track down in New Age and Beat poet texts related to the usage of “interdependence”? These questions await closer textual examination. But in light of these reflections, I hesitate to say that 20th century environmentalists—even those who do not explicitly link environmental issues to Buddhist doctrines like *paticca-samuppada*—were operating completely ‘independently’ or in a purely consilient fashion from Buddhist ideas. I think there is some credit to be given to a prior conceptual translation or uptake of Buddhist doctrine—on the level of inheritance of a linguistic-conceptual repertoire.

4. Why *Paticca-Samuppada* as Interdependence Is Context-Appropriate

This section will comment on why the translation of *paticca-samuppada* as *interdependence* is context-appropriate. To tell this story, I will say something about how this moral concept fills a “gap”, or contributes something not currently emphasized in the cluster of moral concepts involved in 20th century industrial political economy. Or perhaps I should say, this concept offers an alternate orientation when introduced into the existing cluster of industrial-economy moral concepts.

In order to remark on this subject, there is need to give an account of how we ended up in our current environmentalist predicament (IPCC 2022; Rockström et al. 2009; Carson

2002; Gore 2007; McKibben 1998; Shiva 2016; Maathai 2003). What follows will be an attempt to give some characterization of this, which needs to proceed carefully, for the sake of accuracy in description of the salient concepts and practices. We must backtrack historically and genealogically to do this. In what follows, I will describe a series of conceptual-practical innovations in Western political economy, tracing back to 17th century England. I want to follow this story for the specific purpose of seeing how it comes to be conceptually reasonable for contemporary environmentalists to be so interested in the Buddhist idea of *paticca-samuppada* in its translation as interdependence. And so, while the story may seem to be a digression in a project about Buddhist environmentalism, what we will come to see is that it is actually very central.

One way to tell this story—a way that has the virtue of being materially quite clear and concrete—is to track the rise of an institution that is central to the political economies of the industrial present day: that of *money* and of *capital*. There is much to say on the subject of money; I will just make a start by noticing that money is a historically variable institution, imbedded within and interfacing with other social practices and institutions. I also take money semiotically; because of its role in creating equivalencies (because of its fungibility), there are huge varieties of objects and things that can be described in terms of units of currency, and hence in terms of each other (Wennerlind 2001). Contemporarily, things that can be rendered equivalent include: labor, land, apples, widgets. There are, however, limits with regard to what is allowed description in terms of money. In our contemporary age, certain domains remain controversial (though not impossible) areas for translation into monetary terms: uses of the body, as in the selling of organs and sex; visas and citizenships; spouses and children (Sandel 2012). Tracing out the contours of such limits shows us where money as a semiotic locus interfaces with other social institutions, with which it historically develops in relation: for example institutions of property-holding; institutions of citizenship; institutions of family. Indeed, we need not go back too far in time to see contexts in which *labor* and *land* were *not* describable in terms of money (one could not *sell* land or labor). Rather, money interfaced with social institutions such as a land-holding aristocracy, which claimed entitlements to land and bodies for labor as a function of social standing.

The story of money's transformation into the abstract, de-materialized form of its present day starts in the English 17th century, when paper money (credit currency) based on social trust came to be. Importantly, this was when—in conversation with theology and natural philosophy—the concepts of perpetual *growth*, *improvement*, and *progress* came to be connected to money supply. To tell this story more fully, we are indebted to the work of economic historian Carl Wennerlind. At the beginning of the 17th century in England, money as a semiotic object, as a social institution, was related to metal—*species*, or gold or silver coin (Wennerlind 2011). At this time, metal (gold or silver) used in coinage—a quite tangible material object—was thought to be valuable in and of itself and was connected to the concept of 'intrinsic value'. There was a recurrent problem in the usage of metal coinage, however, which was scarcity in money supply. This scarcity was a big incentive for colonial adventures in the Americas, as well as the alchemical quest for a philosopher's stone that could turn other metals into gold (Wennerlind 2011, pp. 27, 48). This scarcity also went along with a conception of the social and natural order in which the object and concept of money was understood in a neo-Aristotelian way as a mediation device for exchange, whereby *balance* between different parts of society was the goal (Wennerlind 2011, p. 20). Here, parenthetically, we can notice the reference to organism; "balance" between *parts* of society takes society organismically, as a kind of metabolic whole.

At a time of great social disarray during the 17th century, the going conception of the social and natural order came to be seen newly in terms of the concepts of *growth*, *improvement*, and *progress*, rather than *balance* (this is later satirized in, for example, *Candide*). Argued by a bevy of social reformers and inspired by developments in natural philosophy and theology, this new conception took humans as able to endlessly *improve* upon the natural-material world. Everything under the sun could be improved upon, as a matter of benefit to the whole (as

in human potentiality and the wealth of nations), in a way quite decoupled from physical limits (Wennerlind 2011, p. 57). And through this conception, it became interesting to *grow* money supply, tracking the dynamic and perpetual *growth* of the social-natural order. The technical conceptual-material innovations involved in growing money supply took place in many stages and are interesting examples to follow to see the interactions involved in the evolving coherence of means and ends in a total whole. An early 17th century development was that paper came to be issued as symbolic credit in connection to metals, as a representation of specie. Later, in a progressive push to grow money supply, paper came also to be connected symbolically to *land* through *land banks*—for land also was connected to the concept of intrinsic value (Wennerlind 2011, pp. 73–74). But these are more detailed observations. What is interesting for our purposes in this article is the way that material objects and realities (as in gold and silver metal, or pieces of paper, or parcels of land) are related to values concepts. It is far from obvious what the meaning of gold or land is in a non-historical way; and what one can do with such things depends very much on the values concepts they are practically connected to. This is the theoretical point of interest to us—and why we have gone into such detail on the historical development of money currency.

For our present-day purposes, what we can see is that when a theological and natural-philosophical conception of an aspirational society is seen through the governing values-concept of unlimited *growth*, the practical, material institution of money evolves to match *that* conception. There are many technical steps involved in the transformation of money from 17th century specie into its present mathematical, unlimited form; this is a history Margaret Schabas has chronicled as taking place especially over the course of the 19th century (Schabas 1990, 2005). Schabas (2005) speaks of this process of money’s mathematization as the “denaturalization of the economic order” (p. 16)—it is also a process of an economic order being increasingly governed by the values-concept of unlimited progress and growth.

It is at this juncture that I would like to suggest that the translation of *paticca-samuppada* as interdependence is particularly context-appropriate, and indeed can come to interact in a salutary way with the institution of the money mechanism. The main thing to say here is that through the concept of *paticca-samuppada* taken as a kind of metabolic holism, we can come to see that the currently mathematical institution of money is doing its work within a societal organism. It matters that the institution of money is abstract and mathematical, unbounded (as numbers are) at its upper end. When organizations—such as public-market corporate organizations, let’s say, many of which are directed by the metric of shareholder value as measured in units of currency—are motivated first and foremost by this unbounded number, we have on our hands a runaway entity—one could use an organismic metaphor and say: a *cancer*. The value of a concept like *paticca-samuppada* in this context is that it asks us to pay attention to both mental and material factors in the *organismic* projects of individual and societal flourishing. It may be that such a concept can curtail or redirect the runaway role that the money mechanism plays in a number of industrialized societies. What *paticca-samuppada* taken as a kind of organic holism helps us to see is that well-being (one could say, flourishing, or in Buddhist parlance, the end of suffering) must be taken as real, material, and in some sense absolute. Well-being seen in this way might involve clean air, food, water, dwelling, education, etc.—its enjoyment on the demand side, its creation or caretaking or maintenance on the supply side. Well-being on this view comes apart from a numerical entity serving as a proxy for those ends.

Another way to make my point about *paticca-samuppada* in relation to money is that it is in light of the *mathematizing* of the institution of money—and in the context of contemporary societies directed by such an unlimited concept, one related to infinite growth—that Buddhist concepts of mentality-materiality imbedded within *paticca-samuppada* become especially attractive. This is because Buddhist notions of the material and mental in combination are useful in pushing back against abstraction, renewing attention on the *material processes* of political economy. What I should like to point out here is that our various environmentalists’ projects speak of *interdependence* as a theory of causality in which parts

are involved with other parts within a whole, as within an organism or metabolic entity—an entity in which, as both Schumacher and Meadows have observed, the institution of mathematical money plays a significant role. To use Schabas' vernacular, we might describe our various environmentalists' projects as involving a *re-naturalizing of the economic order*—of putting political economy back into relation with natural philosophy. The need for such a project arises only in context—because of the *denaturalization of the economic order* in the first place, via the mechanisms involved in mathematizing money.

It may be worth pointing out that this way of seeing the money mechanism—through the lens of *paticca-samuppada* taken as a kind of organic holism—has affinities with 17th century neo-Aristotelian views before the advent of unlimited and untethered growth. The point might be made, in light of this observation, that Buddhist traditions do not lay exclusive claim to ideas like *paticca-samuppada*, taken as a kind of organic holism. However, it may occur that some traditions keep certain ideas or doctrines more central over the course of genealogical transmission, while other traditions forget or marginalize those ideas. Buddhist traditions have kept the doctrine of *paticca-samuppada*, now translated as *interdependence* and taken as a kind of mereology, very central indeed. This is an important and signature contribution in the context of capital-directed, industrial traditions of political economy that have taken unlimited growth as central.

5. Concluding Remarks: Toward an Account of Religious Change

I should like to end this article by saying that contemporary Buddhist environmentalism should be taken as a case of religious change, of evolution in a religious tradition. Taken in this way, Buddhist environmentalism can lay claim to being *Buddhist* by virtue of how it projects central doctrinal concepts like *paticca-samuppada*. The point of saying this is also to point out that changes within a religious tradition take place inevitably in the historical transmission of ideas and practices. Differences between past and present manifestations of a tradition are, therefore, not an aberration. Nor, on this view, is there a “golden nugget” or an unchanging core of a tradition—we might note that this is also a Buddhist “theological” observation.

An elaboration of the mechanism of religious change will have to await future publication. A preview of such an account will be to say that religious change hinges on how concepts—moral concepts, value concepts—are differently connected to material objects and practices. The central categories of analysis will be: the materia of the surrounding world; the concepts available for use via forms of inherited language; and the institutions, norms, practices, and conventions of a given time, in relation to which people use concepts (deploy language). Conceptual change occurs when there are re-legislations or re-descriptions of what materia, actions, practices, norms, and conventions belong under, or are relevant to, what concept or idea.

It is to be acknowledged that a comprehensive account of religious change will look admittedly messy, and will include aspects of what can also be categorized as changes in technology and changes in political economy. That religious change involves concepts and practices also spoken of or categorized as matters of political economy or technology is no problem—we make different categories for different reasons, and some can be used in multiple connections. A more detailed account of religious change, for which I can only now issue a promissory note, can help us more precisely track changes in a religious tradition alongside changes in political economy, technology, etc. For our purposes today, it is sufficient to say that Buddhist environmentalism ought to be taken as a case of religious change, working through the conceptual-linguistic transmission of *paticca-samuppada* as interdependence. On such an account, the historical eco-critical worry can be seen to be untenable. The additional point of this article for the historical-critical voice is to say that using a solely power-based theoretical lens will get historical description wrong. There always have been, and there always will be, moral concepts imbedded in our practices and material realities. The political economies of the past, like the political economies of the present, are in a thoroughgoing way *moral*.

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