

NATURE'S POWERS AND GOD'S ENERGIES

by *Flavius D. Raslau*

Abstract. This is an exploration into the synthesis of Mumford and Anjum's pandispositionalist philosophy with Deacon's emergent dynamics, which when interpreted within the theological framework of Palamas's essence–energies distinction, it all comes together into a new metaphysics that offers a more satisfactory account of the God–world relation. The argument proceeds in two stages. First, a philosophical framework for establishing a dual-aspect monistic view of the world in terms of presence/absence (or manifested/unmanifested), acknowledging unmanifested powers as a genuine mode of actuality. Second, a theological consideration for a befitting conception of God within this scheme, according to which nature's powers are equated with God's energies, though God's essence is not exhausted by them. The resulting proposition promises a non-Whiteheadian process view, a panentheistic (not pantheistic) articulation of divine presence, and an account of reality as the dramatization of God's manifestation in the world and our participation in that cosmic revealing.

Keywords: dual-aspect monism; emergence; God's energies; Palamas; panentheism; powers ontology; Rani Lill Anjum; Terrence Deacon; Stephen Mumford

INTRODUCTION

“The world is coming to be seen as interactive all the way down” (Albright et al. 2017, 3). This is the drumming theme of the volume *Interactive World, Interactive God* edited by Albright et al. The case is made convincingly; it can scarcely be denied. Several of its contributors invoked emergence as a special subtype of interaction. But, as Graves alludes in a response (forthcoming), emergence tends to be invoked without necessarily being elaborated or explained. He suggests clarifying by distinguishing between weak and strong emergence as well as identifying what justifies strong emergence. Two examples are presented here, which will serve to set the context for this essay.

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The first comes from a contributor of the aforementioned volume, Bracken, who is concerned with identifying a suitable ontology that “offers a philosophical rationale for traditional Christian belief in life after death, but which, on the other hand, is consistent with an overall metaphysics of creation and the God-world relationship” (2017, 193). Bracken’s starting point is Whiteheadian process metaphysics, though reinterpreted to better accord with genuine emergence of wholes, even of souls. Whitehead (1978) had introduced an event ontology metaphysics, which is that all fundamental units of reality consist of events in process. Bracken’s critique of Whitehead is about his “predisposition to philosophical atomism, namely, the belief that all macroscopic realities, the persons and things of this world, are nothing more than aggregates of actual entities in dynamic interrelation” (2017, 194). Bracken proposes (strong) emergence for the field of interaction within a society of actual occasions (i.e., system of interacting processes) that is distinct from the mere aggregate of actual occasions (i.e., individual processes). Emergence is invoked for the merits it brings, but its justification is less than clear. More worrisome is the perpetuation of Whitehead’s idea that God too is constituted of events, as Bracken explains: “Each of the divine persons is to be considered as a ‘personally ordered society’ of actual occasions whose structured field of activity overlaps perfectly with the fields of activity proper to the other two divine persons” (2017, 198). God, therefore, depends on the building blocks of the world just as much as we do. Bracken again echoes classic process thought: “in line with Whitehead’s notion of the divine consequent nature, what happens in the world is thereby progressively incorporated into the divine life” (201), meaning that the actual occasions that constitute things outside God contribute to God’s own evolution. While we can commend the invocation of emergence to defend the traditional view of life after death, a more radical step may be necessary by turning to a different ontology to preserve other traditional views such as divine aseity, which affirms that God depends on nothing else for God’s existence.

For a second instance of the invocation of emergence, consider Graves’ critique of Kauffman’s interpretation of quantum mechanics where Kauffman presupposes mind as a fundamental entity (Graves 2016). Kauffman’s approach, panpsychism, and dualism all interject mind as a fundamental. But Graves draws on Peirce’s notion of dispositional tendencies to suggest that those features we wish to recognize as entities can be explained in virtue of emergent phenomena within an appropriately chosen ontology. The point here is that while emergence is promising, it requires a suitable ontology.

It is the contention of this essay that a suitable ontology has not yet been articulated for the God-world relation that takes seriously a world constituted by interaction *and* is reconciled to classic Christian doctrine. The purpose of this essay is to sketch just such a proposal, the argument

for which will proceed in two stages: first, a philosophical framework for a dual-aspect view of reality; second, a theological consideration for a befitting conception of God within this scheme. Rather than the more familiar notion of dual-aspect monism in terms of physical/mental poles (e.g. Whiteheadian process and panpsychism), I suggest mirrored opposites that could be represented by presence/absence. It is still a process view, but an ontology of events is not the only one on offer.

Powers ontology as defended by philosophers Mumford and Anjum serves as the grounding for a systematic metaphysics, establishing a view of the world that recognizes the reality of both potency and its manifestation. Next, the emergent dynamics developed by neuroscientist Deacon motivates a provocative expansion of uninstantiated potencies with an explanatory account of emergence. The result is a view of reality as dual-aspect monism of presence/absence, or manifested/unmanifested. Toward a theological assessment of such a metaphysics, Palamas (explicated by Bradshaw) will provide the key formulation through the essence-energies distinction. The Palamite interpretation of powers ontology commends a powers theology. The result is a novel synthesis that promises a more satisfactory account of the God-world relation.

MUMFORD AND ANJUM'S POWERS ONTOLOGY

Of what does the world consist? Substances? States of affairs? Events? Properties? Another way to ask the question is: what should count as real? Many theories are on offer, too many to review here in any comprehensive manner. But the one that will preoccupy this essay requires elaboration. It is rooted in an ancient view—Aristotle and Aquinas—and is making a comeback in recent decades. This is an ontology of powers, according to which a thing's property is the disclosure of its power. Tied to this is that we should count as real whatever displays power, according to the criterion of ontological commitment known as the Eleatic principle as described by Plato, when a student of Parmenides from Elea voices the dictum that the mark of being is power (Plato, *Sophist* 247d-e). By way of overview, six topics need to be introduced in preparation for what will follow: causation, potencies, pandispositionalism, process, counterarguments, and emergence.

Causation

Powers ontology provides a theory of causation which takes causation to be fundamental, such that it cannot be reduced or analyzed in terms of anything more primitive. Mumford and Anjum, two leading philosophers in this field, succinctly capture what is meant by causation: "Effects are brought about by powers manifesting themselves" (2011, 7). It is an active view of causation that takes a strikingly different

approach from the Humean and anti-Humean approaches that have dominated.

Mumford and Anjum explain the legacy of Hume: “The current problem of causation, according to our diagnosis, is in part a creation of how Hume originally framed it... The philosophical problem of causation then becomes the question of the way in which two such distinct events can be connected causally and how we can know of such a connection. We are able to perceive only the two distinct events in question and never the causation as an extra element” (2011, 113). In addition, “Hume claimed that to believe in powers was to believe in necessities in nature. He was then able to argue persuasively that there was no necessity in nature. Any natural cause could be prevented or there was at least the possibility of prevention (Hume, 1739, 86–7)” (Anjum and Mumford 2018a, 148). The effect of the Humean analysis is to dismiss causation as nothing more than the regularity of purely contingent things.

The anti-Humean response has typically been to dig in one’s heels and justify the necessity between things that Hume had denied. But accepting Hume’s challenge is a mistake, says Mumford and Anjum. The real problem is not with the choice between necessity and contingency but rather with the assumption that two events are disconnected and in need of joining. The radical solution is that “causation involves just one thing: a single event or process in which one thing gradually turns into another” (Mumford and Anjum 2011, 113). Here we begin to see the role of potency and its manifestation as two modes of the same unity.

Potencies

The relata of causal relations is a unity of being that extends from potency to its manifestation. These are not two things but one thing, simply unmanifested at first and then manifested at a later point in time. A crucial consequence of such an ontology is that “powers are not ‘mere’ potentialities or ‘pure possibilities’ but as actual as any properties we assume to exist, whether they are manifested or not” (Mumford and Anjum 2011, 6). Hence, powers do not come into being only upon manifesting but exist even when unmanifested.

Another feature of powers is that they do not have their effect in isolation but rather in mutual manifestation partnership (Martin 2008). Powers interact with additive and subtractive effects, often in nonlinear ways, producing new powers and losing former powers. For example, “chlorine is a poisonous gas; sodium ignites spontaneously on water. But sodium chloride has neither of these causal powers. And it tastes salty, which none of its components do” (Anjum and Mumford 2017, 98).

Pandispositionalism

According to some advocates of powers ontology, including Mumford and Anjum, there are not both dispositional properties and categorical properties. The reasoning is quite straightforward. If we take powers to be real in virtue of causal relevance according to the Eleatic principle mentioned earlier, then this principle would undercut the justification for admitting into one's ontology anything acknowledged to be causally impotent (Mumford 2013, 13). Hence pandispositionalism, the account that only powerful properties exist.

Anjum and Mumford explain, "A pandispositionalist is not saying that everything is a power. There could be objects besides, which bear the powers, as well as events, states of affairs, processes, and so on. What makes a position pandispositionalist is the stance it takes on properties or the property-like elements of the ontology. It says that they are all powerful" (2018a, 8). However, this last statement is inconsistent with their other assertions on the subject, where they argue that other categories of things do reduce to powers. With respect to properties, properties are "clusters of causal powers" (Mumford and Anjum 2011, 3). Events are "produced by many powers working together, or against each other, with small additive, sometimes subtractive, effects" (Mumford 2009, 103). A substance is "a temporally extended process or a set of processes" (Anjum and Mumford 2018b, 72). Elsewhere, Mumford appeals to trope theory to say that since "tropes reduce not only properties but also the traditional notion of substance then particulars would be simple clusters of tropes and hence, ultimately, also large bundles of powers. We would thus have an account of properties and substances based on the powers ontology" (Mumford 2013, 14–15). Finally, "objects are just bundles of properties; and properties are just bundles of powers. If that is the case then objects would be constructed from powers and although powers tend to travel around together in bundles, we do not need an irreducible ontological category of object" (McKittrick et al. 2013, 555). So for the pandispositionalist, everything is indeed reducible to powers.

Process

An intriguing entailment of powers ontology is that it offers an alternative process metaphysics to that of Whitehead, who took events to be fundamental. But in powers ontology, "when mutual manifestation partners are together, it takes time for them to have their full effect... During this time, there is a continual development of change—that is, a *process*" (Anjum and Mumford 2018b, 65). Mumford and Anjum point out that "a powers ontology should be understood as closer to a process metaphysics than usually recognized" (McKittrick et al. 2013, 555). And yet there are also differences. Since powers are extended processes in time

and since these extended processes in time may overlap with one another, this view presents a world that is “more unified, dynamic, and continuous and that change occurs in a smooth and gradual processual way” (Anjum and Mumford 2018b, 61). There is not a succession of discrete events but rather temporally extended processes.

Counterarguments

Perhaps this is a good time to pause and take stock of some criticisms of the theory. A common line of attack argues that powers are merely place-holders for the mechanisms that scientists will later discover. The force of this argument is that powers are cast into a prescientific era without much hope that there should be a one-to-one validation of dispositional ascriptions by later empirical science. But this is a misunderstanding of what is being claimed by dispositionalists. Powers satisfy functional roles and do not imply one-to-one correspondence to structure, so science is welcome to uncover structures and mechanisms that underlie those functions. But functions always remain. For example, an apple falling to the ground can be reconceptualized as the curvature of spacetime, but even spacetime has functional dispositions, such as to be warped. Mumford concludes, “Arguably our scientific explanations depend essentially on appeals to dispositions and we should not ignore the fact that certain entities, which are fundamental to modern physics, can be characterized only dispositionally” (1998, 132–33). Powers do not aspire to provide mechanisms, and so are complementary to knowledge gained through empirical science. This complementarity between powers and mechanisms is implicit in doing science: “Discovery in science is about finding the right condition to release causal powers... Science advances through the discovery of new powers of things” (Mumford and Anjum 2013, 101).

Emergence

Many take reductionism for granted, but it is only a hypothesis. This point is proven by the fact that physics has not displaced all other scientific disciplines (Mumford & Anjum 2013, 71). And why should it be preferred when emergence does seem like a real phenomenon? The earlier mention of sodium chloride is one example; life and mind are even more compelling.

Powers ontology brings a new perspective to the old question of how emergence works. Instead of following the standard fare argument that “wholes have more power than (the sum of) the parts,” dispositionalists take an alternative route of “wholes having *different* powers” (Anjum and Mumford 2017, 95–96). To understand the argument, first consider the more familiar situation of temporal priority, that causes precede their effects. On such an account, parts always precede wholes, and

the property of parts always precedes the property of wholes. It is this diachronic view of causation that ensures the priority of parts over wholes. But temporal priority is false in powers ontology. The process by which potencies manifest themselves takes time to unfold. “Cause and effect are both temporally extended,” Anjum and Mumford explain, and so these “extensions are simultaneous” (Anjum and Mumford 2017, 102). This is an advantage for an account of emergence in which both parts and wholes exist at the same time.

According to this “causal-transformative model of emergence,” the powers of suitably arranged parts are understood to bring about powers in the whole that were not present in the parts, and then powers in the whole act on the parts to bring about further changes at the lower level. Anjum and Mumford coin the term demergence: “Emergence is where there are new powers of wholes in virtue of causal interactions among their parts; demergence is where there are subsequent new powers of the parts in virtue of the causal action of the whole upon them” (2017, 101). The strict supervenience of the whole on the parts is not quite right because “what we do not have is E supervening on the pre-transformed parts that form the base-level mutual manifestation partnership” since “the parts have been transformed in the process of forming the whole” (Anjum and Mumford 2017, 101). Such an account is uniquely defensible with powers ontology because of its temporally extended simultaneity of causation.

DEACON’S EMERGENT DYNAMICS

Mumford and Anjum provide a systematic realism about potencies, even if unmanifested, which establishes a strong foundation toward furnishing the resources for a dual-aspect view of the world. But their account is underdeveloped in five specific areas: constraints, presence of absence, emergence of self, causal pluralism, and uninstantiated powers. The motivation for these amendments is sourced in the emergent dynamics developed by neuroscientist Terrence Deacon.

First, they already share important themes. Both are allied against reductionism (Deacon 2013, 204–5; Mumford and Anjum 2013, 71). They share a preference for process over substance metaphysics as the best way to defuse the critiques against emergence, and in virtue of the process view, they also agree on the abandonment of strict supervenience (Deacon 2013, 164–81; Anjum and Mumford 2017, 101). As Deacon points out, the criticism that has dogged emergence is simply this: that a new whole comes into being only when its parts come together, and so the causal influences that give rise to the whole are inescapably located in its parts. Any emergent property said to belong to the whole must also inhere in its parts, but attributing a property to both whole and parts is redundant (Kim 2005). However, whereas wholes reduce to parts on

a substance view and so parts are more fundamental, on a process (or powers) view both wholes and parts reduce to processes and so wholes and parts are no longer pitted against one another. Neither wholes nor parts have ontological priority in which to ground the causal influences. We may still speak of wholes and parts as convenient placeholders for subsets of nested processes that manifest with recognizable regularities, but wholes and parts should not be taken as reified substances.

For a final example of the agreement between them, I have chosen to highlight a truly unconventional point of view. Anjum and Mumford have argued for the dispositional modality (2018a) as a third modality between necessity and pure contingency, which they denote as a tendency. (Recall Peirce's notion of dispositional tendencies.) I suspect Deacon would be in agreement given that he cites even the second law of thermodynamics as "an astronomically likely tendency, but not an inviolate 'law'" (2013, 237). But now, on to their differences.

Constraints

To be fair, Deacon would not situate his emergent dynamics within powers ontology, but it will become clear why I think it's a good fit. Deacon critiques dispositionalism when he says, "Causal power is also a code word for what is presumed to be added to the causal architecture of the universe as a result of an emergent transition" (2013, 368). He takes what appears to be an opposite approach: "Emergent properties are not something added, but rather a reflection of something restricted" such that "the constraints rather than the properties of parts are what determine the causal power of a given phenomenon" (2013, 203–4). Now it is evident that Mumford and Anjum do acknowledge a role for constraints when they say, "The powers account thus constrains the potential" (2018, 263) in the sense that constraints upon powers come about through the interaction with other powers. But Deacon carries the thought further by showing that constraints play an even larger causal role because unrealized potential is itself constitutive of, is a proper part of, emergent dynamics. An important point of contact with powers ontology is evident because to treat as causally relevant something that is unrealized is the key affirmation of the dispositionalist who accepts unmanifested powers.

Basic in Deacon's account is the conception of work as two spontaneous processes each running down but in opposite directions, such that they achieve nonspontaneous results. He names spontaneous changes "orthograde" and nonspontaneous ones "contragrade." Thermodynamic processes are then orthograde because they are spontaneous tendencies from order to disorder. A simple reason for this axis is that there are many more ways to disorder an existing order than there are to create it, and so a random sampling should actualize disordered states more often. Entropy is

a measure of disorder, but entropy can be reframed in terms of constraints (i.e., degrees of freedom not realized). Therefore, thermodynamics is the tendency to increase entropy (disorder), which is the same as decreasing constraints or increasing degrees of freedom. In light of this view of the second law of thermodynamics, the scientific concept of work is then reformulated as “simply *the production of contragrade change*” in that “*contragrade processes arise from the interaction of non-identical orthograde processes*” (Deacon 2013, 337).

Deacon’s neo-Aristotelian instinct is further revealed in his proposed recovery of formal causation. Since it is geometry that determines what is uphill and downhill, he suggests formal causes to be “the geometric properties of this probability space” (Deacon 2013, 230–31). Therefore, he associates formal causation with orthograde and then efficient causation with contragrade, and furthermore “if all contragrade change...is the result of the interaction of orthograde processes, then in Aristotelian terms we are forced to conclude that all efficient causes ultimately depend on the juxtaposition of formal causes” (2013, 232). Deacon deploys these reformulations to explain how “work can restructure the constraints acting as boundary conditions that determine what patterns of change will be orthograde in some other linked system. This is the generation of new formal causal conditions, and because the resulting orthograde dynamics will determine the possible forms of work that can result, it sets the stage for the emergence of unprecedented organizations of efficient causality, and so forth, with the generation of yet further new constraints, and new forms of work” (2013, 368). This seems broadly consonant with Mumford and Anjum’s mutual manifestation of interacting powers.

Even so, Deacon resists a simple alliance with dispositionalists. A revealing moment comes when neo-Aristotelian Tabaczek probes Deacon’s metaphysics and asks, what is “the source of the spontaneity of these processes” (2019, 117, 131)? In search of an adequate response, Deacon and Cashman admit that such a question “leads to what is perhaps the most impenetrable metaphysical challenge of all time: explaining the nature of change” (2016b, 476). They distinguish their approach from “a positive tendency toward completion” and “intrinsic forward-tending positive account of spontaneous change” with a “negative’ process metaphysics” in terms of a “resistance to the degradation of form” (2016b, 477). The key argument in their favor is that “all work (‘striving’) entails the increase in overall entropy” (2016b, 477). Now this is certainly a brilliant observation that motivates a reconsideration of metaphysics, one that strongly resonates with the whole of this essay, especially their assertion: “we argue that the essence of existing is an intrinsic presence/absence instability” (2016b, 477). But for the dispositionalist, nothing has been said to undermine the basic fact that “increase in overall entropy” and “resistance

to the degradation of form” are themselves dispositions. Metaphysics has been complexified, but it’s no less grounded in powers.

Presence of Absence

Deacon defines constraints as the absence of potential states, and marks them out as the currency of work (2013, 198). Mumford and Anjum ask the question of whether absences have power, and they consider three options: the reification of absence into a thing; the allowance that absences can nevertheless be empowered; the denial that absences can have causal power. They favor the third option, arguing that the lack of water kills plants not because the lack itself does anything but in virtue of the countervailing forces that lead to dehydration being left unopposed (Mumford and Anjum 2011, 144–48).

Deacon directly challenges that conclusion, not necessarily as wrong but rather incomplete. While he agrees that “absences themselves don’t do work,” he adds, “yet there is no work without absence. The absent degrees of freedom are only part of the story, necessary but not sufficient. Physical work requires the release of energy in a *constrained* context... Constraints don’t do work, they enable and channel the outcome of energy release... The point is that physical work requires both a formal (constraint) and an energetic (efficacious) aspect” (Deacon and Cashman 2016a, 419–20).

Constraints are, in Deacon’s terms, “constitutive absences” in that they are functionally enmeshed within physical configurations, and their utility draws upon this enmeshment. But their function is more akin to formal causation, conferring a landscape that structures directionality for energetic processes. These absences that structure the physical world are uninstantiated by definition and yet are still essential to the causal explanation. Deacon and Cashman conclude, “Constraint is responsible for what is not there, what has been prevented from occurring. What is present, then, is what was not prevented” (2016a, 422). The startling implication is that this implies a preexisting field of latent unactualized potential that could be prevented or actualized. Deacon’s realism about absence appears to fit the description of dispositionalists’ realism about unmanifested powers.

I should point out that we have seen Deacon reformulate formal causation in two related contexts: first, as the geometric properties of a probability space that defines the spontaneity of orthograde processes; second, as the constitutive absences that enable and channel energetic releases. In both contexts, efficient causation depends on constraints, which are the juxtaposition of formal causes. And formal causes are constituted by what is unactualized. Therefore, what is absent must be every bit as real as what is present. Accordingly, Deacon sustains “absence as a mode of being” (Deacon and Cashman 2016a, 424). Such a

realization invites consideration of reality as dual-aspect: presence/absence, or manifested/unmanifested.

By way of illustration, I will reformulate class properties in terms of absences. Let us consider the property of belonging to the class of mammals. Humans, dogs, and whales share this property. But does such a property have any casual consequence? The nominalist will say no because the class of mammals is merely a mental extraction of similarities between particular mammals, and class properties are epiphenomenal because they lack efficient causation. Conversely, the realist will want to affirm that class properties are abstract objects that exist and are somehow relevant in the world. But a substance realist will make the case positively that abstract objects are ontologically real substances. The problem is that this falls prey to the same intractable problem that has haunted substance dualism, for how can abstract immaterial objects interact with concrete physical objects?

Deacon's approach toward realism is to make the case negatively, arguing for properties in terms of constraints as unactualized potentials. Humans, dogs, and whales share the same constraints (e.g., the unactualized possibility of breathing underwater—yes this is true even of whales). These constraints are causally consequential because they structure what can actualize, and they are propagated over time and into the next generation. They are what Deacon refers to as “the persistent generation of local asymmetries (i.e., constraints)” and “symmetries of asymmetries—patterns of similar differences—that we recognize as being an ordered configuration, or as an organized process, distinct from the simple symmetry of an equilibrium state” (2013, 237). Contrary to the substance dualist's difficulties, such an account fits naturally in the world as seamlessly as (to use one of Deacon's favorite analogies) “the hole at the hub of a wheel” (2013, 484). And contrary to nominalists' retrodicted mental extractions, such an account acknowledges the mind-independent reality of unactualized potential, which is physically absent yet absentially present.

Emergence of Self

Anjum and Mumford make a robust case for strong emergence: “the causal powers that have emerged then have autonomy from the parts, from their emergent base” (2017, 102). Deacon's emergent dynamics contributes by detailing how the strong emergence of a self is feasible.

The word emergence gives the impression that more is added, but in fact emergent properties involve less since constraints are degrees of freedom not realized. At first glance, this approach seems backward. Deacon explains, “This view of self-agency, defined in terms of constraints, may seem counterintuitive because of our conviction that the emergence of life and mind has increased, not decreased, our degrees of freedom (i.e., free will). Increasing levels and forms of constraint do not immediately sound

like contributors to freedom. In fact, however, they are essential. What we are concerned with here is not freedom-from, but freedom-to. What matters is not some disconnection from determinate physics, but rather the flexibility to organize physical work with respect to some conserved core dynamical constraints” (2013, 480).

He specifies three emergent tiers of dynamical depth: first order (homeodynamics), which involves thermodynamic effects of the spontaneous tendency from order to disorder; second order (morphodynamics), which consists of homeodynamic processes coupled such that they run down in opposite directions, thereby generating work that sustains an ordered structure; third order (teleodynamics), which consists of morphodynamic systems locked interdependently, such that the first morphodynamic process generates the constraints that make possible the second, and the second reciprocally generates the constraints that make possible the first. The constraints that guide the development of such a system are generated internally, thereby containing within itself the information that preserves its form.

What exactly is preserved in the making and sustaining of a self? It is not the matter but the form. To be specific, it is a set of constraints (i.e., unactualized potentials), constitutive absences that inform matter. Deacon concludes plausibly, “I may be more like the hole at the wheel’s hub than the rim of the wheel itself” (2013, 540).

Causal Pluralism

It is time to take stock of our interlocutors’ view of Aristotle’s fourfold causation. Anjum and Mumford locate the four cases in different aspects of powers, using a matchstick for an illustration (2018b, 72). Material causes are particular bearers of powers, like the matchstick, which are themselves temporally extended processes. Formal causes are the powers themselves, for example flammability. Efficient causes are described by mutual manifestation partnerships, such as the nexus of a match being struck against a rough surface. Final causes are the manifestations toward which powers tend, that is, burning of the matchstick.

Deacon also draws parallels within his own three-tiered emergence scheme: homeodynamic (efficient), morphodynamic (formal), and teleodynamic (final). Interestingly, he did not originally postulate a modern equivalent to material causes until pressed by Tabaczek, at which point he identifies spacetime as the fundamental fabric in which all objects are situated (Deacon and Cashman 2016a, 475). As previously stated, formal causes are spontaneous processes, and efficient causes are the result of the interaction of spontaneous processes. And “teleodynamics is the dynamical realization of final causality” (Deacon 2013, 275) because end-directed dynamics are in virtue of a genuine self.

On reflection, I would say that Deacon's identification of material causality with spacetime is forced and irrelevant. What about quantum mechanics? General relativity, from which spacetime is derived, is inconsistent with quantum mechanics. Why stop there? Superstrings? And if the intractable problem of a beginning to the universe continues to frustrate eternal models, as is currently the case (Perlov and Vilenkin 2017, 327–31), then we are justified in asking whether material causality is itself ultimately sourced in something beyond matter. Besides, for the dispositionalist, the fabric of spacetime is itself a bearer of powers and a cluster of powers. On this count, Mumford and Anjum settled on a generality, while Deacon attempts scientific specificity, but it remains in full accord with the generality.

Skipping down to final causality, Deacon identifies it with teleodynamics, which is keenly insightful, and yet this must be seen as only a special case of self-directedness within a more general scheme of end-directedness. Mumford and Anjum once again capture the general sense in terms of the manifestation toward which powers tend.

In formal and efficient causality, there is remarkable consonance between them. But here Deacon's constitutive absence motivates a substantive revision in Mumford and Anjum's assessment. On their account, clusters of powers coparticipate, each tending toward its own manifestation, and as a result either partnering or interfering with one another such that some powers are prevented from manifesting. A simplistic reading of this presentation leads to the idea that those powers which are prevented are thereby silenced into irrelevancy. But Deacon shows that even absent powers contribute to the work that manifesting powers can do. Absent powers are real, just unmanifested. This realization takes the powers ontology to a whole new level. On the reasonable assumption that unmanifested powers outnumber manifested powers, we can only marvel at the vastness of powers that exist in the universe.

Uninstantiated Powers

This section is meant to reinforce the previous sentence. Admittedly, I draw a conclusion that neither Mumford, Anjum nor Deacon have made themselves, but I argue it is a natural implication of their work, especially when integrated. The claim is that the number of uninstantiated powers is vast, if not limitless.

Mumford has sought to set limits on the finitude of potencies. For example, he argues that “unless we accept some notion of properties being instantiated in particulars, then it seems difficult to sustain the evident link between a thing's properties and the causal transaction into which it enters” (1998, 161). Mumford follows Armstrong's immanent realism about universals (Armstrong 1978), in which the only universals admitted into a

realism account are those that inhere in particulars, thereby rejecting uninstantiated universals (Mumford 2005, 433). But I perceive a far-reaching implication of Mumford's appellation to Armstrong's strategy. Armstrong endorses a static, tenseless theory of time. On such a view, the block universe has a front edge and a back edge, and all time points are said to exist simultaneously. Such a view is convenient for Armstrong because it allows him to avoid the difficulty of explaining how universals pop in and out of existence with the coming and going of the particulars to which they are bound. On a tenseless view of time, all of reality exists simultaneously, and so universals that are instantiated at any one time are said to exist.

But the reason immanent realism does not work the same way for Mumford is that he appears to be committed to a dynamic, tensed theory of time. This is self-evident when he identifies endurantism as more compatible with powers ontology than perdurantism (Anjum and Mumford 2018b, 71), which is the code word that betrays his preference for tensed time. Immanent realism within a tensed universe is not nearly as simple because reality is continually unfolding, and so powers yet uninstantiated in the present moment may become instantiated in a future moment. The clear implication is that powers, if they are to remain immanent, must be front-loaded and carried until such time as they become manifested. An untold number of unmanifested powers must then inhere in our universe, vying for an opportunity to become manifested. It is a small step (e.g., add quantum indeterminacy or multiverse) from this realization to the admission of virtually all possible powers. Locating powers in particulars could initially be mistaken for a modest claim, but within a tensed theory of time, it has the effect of admitting a virtually limitless proliferation of powers. This is a suggestive affirmation of the realism of all possible powers in every passing moment, even if only absentially present.

To illustrate the causal consequence of uninstantiated powers, I take up a challenge presented by Oppy, who argues that uninstantiated possibilities do not stand in causal relation to the physical world. He writes, "For suppose, instead, that John had been thinking about Santa Claus. Is there really a good sense in which Santa Claus "participates" in the event of John's thinking about Santa Claus? Nonexistent entities simply cannot be causal entities in the causal domain" (2014, 172). Oppy takes it to be patently obvious that a nonexistent entity such as Santa cannot be said to participate causally. Notice that he does not question whether the *belief* in Santa can be causally consequential but rather whether *Santa* can be causally consequential to the belief in Santa. Even so, I maintain that Santa does indeed participate causally, and therefore we should affirm that he does in fact exist, at least within an absential mode of being.

We should first recognize that one's belief in Santa depends on a neural structure, and that this neural structure was itself built up over time through dynamical processes. Dynamical processes involve the structuring

of matter through the accrual of constraints (unactualized potential). Therefore, it is more than just matter; it is matter *and form*. The belief in Santa consists of physical presence plus constitutive absences. So while it is true that Santa does not exist in the physical world, the fact remains that Santa does consist of absential presence as the set of constraints that structure the neurons in such a way as to form a belief in Santa. Therefore, Santa (set of constraints) does indeed participate “in the event of John’s thinking about Santa Claus” (matter plus the set of constraints).

The integration of Mumford and Anjum’s powers ontology with Deacon’s “negative metaphysics” results in what I propose is a dual-aspect monism of presence/absence, manifested/unmanifested. This is motivated by Deacon’s project, which is to articulate “how a form of causality dependent on specifically absent features and unrealized potentials can be compatible with our best science” (2013, 16), resulting in a sustained argument for “absence as a mode of being” (Deacon and Cashman 2016a, 424). This insight synergizes well with powers ontology which provides a philosophical system for realism about unmanifested potencies. A defense of unmanifested actualities (i.e., absential presence) as ontologically real and necessary to the causal explanation of physicality provides a plausible accounting of the world, which in turn motivates a theological determination, to which we now turn.

GOD’S ENERGIES

Where does God fit in this dual-aspect powers metaphysics? Two alternatives present themselves in the classical formulations developed within the historical Christian traditions of the West and East. It is my contention that the eastern approach is a much more attractive option. A third alternative comes from outside the Christian tradition altogether in the form of pantheism, a concern that must also be addressed before the conclusion of this essay.

The formulation of the Christian West finds its start in Aristotle and its summit in Aquinas. Tabaczek (2019) is an exemplar of a modern scholar who draws upon the philosophy of dispositionalism as well as Deacon’s emergent dynamics, and then seeks to integrate these into the theological framework of Thomism. In short, he identifies powers in dispositional philosophy as the modern equivalent of Aristotle’s hylomorphism, which involves primary matter (source of passive potentiality) *plus* substantial form (principle of actualization). He argues for a natural fit between modern and medieval because powers and their manifestations resemble Aristotle’s potency and act. Nature, therefore, consists of its observable actualizations and its underlying latent potentials, which are real even if unactualized.

The importance of Tabaczek’s neo-Aristotelianism is twofold. First, “describing beings in terms of manifestations (actualizations) of their

dispositions (potencies), powers metaphysics recognizes the role of the process approach” (2019, 242), thereby offering an account of nature that satisfies modern intuitions about dynamical interaction. Second, “dispositions are real and decisive about the nature (essence) of beings, even when not manifested” (2019, p. 242), thereby recognizing a realism that precedes manifestations. These are exactly the features I have argued are necessary for a satisfactory metaphysics of the world. The outstanding question is whether the theology that accompanies this neo-Aristotelian metaphysics of the world supplies a satisfactory metaphysics of the God-world relation. My contention is that it does not.

Bradshaw, an Orthodox patristic scholar, offers a relevant critique of the Augustinian-Thomistic approach of relating God and world. Aquinas asserts, “God is the essence of all things,” but then goes on to qualify, “not essentially, but causally” (Aquinas 1997). Bradshaw expounds on this point: “More precisely, the kind of causation involved is that of an efficient cause that shares with its effects neither species nor genus...but [quoting Aquinas from *Summa Theologiae* I.4.3] ‘only according to some sort of analogy’” (2004, 245). Bradshaw adds, “in the few places where Aquinas spells out what it means for creatures to participate in the divine *esse* he limits it to their possessing a created *similitude* of God” (2004, 252), drawing on Aquinas’ “by similitude, not by essence” from *Commentary on the Divine Names*, Chap. 5, Lect. 2, n. 660. In summary, the world’s essence is related to God’s essence by way of efficient causation, analogy, and similitude. On Aquinas’ scheme, this is indeed the only option, or else the Creator-creation distinction dissolves. But the problematic consequence of such metaphysics is that it necessarily creates distance between God and world, or as Bradshaw puts it, “not only of distance, but of autonomy,” thereby segregating reality into God and world, and arguably motivating the naturalistic turn that has unfolded in western history (2004, 265–66). The solution that did not occur to Aquinas, nor to Barlaam who represented the western approach in his quarrels with Gregory Palamas, was the alternative provided by the Greek patristic tradition that culminated in Palamas.

Palamism represents the approach taken by the Christian East toward the God-world relation (Palamas 1995; Ware 2004, 376–417). Palamas identifies the dual aspect of the participant and that into which one participates. With respect to the latter, he further distinguishes between imparticipable and participable. On this scheme, we are to understand that created things are the participants, and God is that into which we participate. God’s transcendence is the aspect of God that is imparticipable, while God’s immanence is participable. According to Palamas, transcendence and immanence are not mutually exclusive but rather interdependent. Transcendence refers to God’s essential dissimilarity to all other things, as Palamas explains, “Every created nature is far removed

from and completely foreign to the divine nature... Yet he is not nature, because he transcends every nature; he is not a being, because he transcends every being; and he is not nor does he possess a form, because he transcends every form" (1995, 382). The fact that God is unlike all others enables God to be found *in* all others in a way that cannot be true of anything else. God is immanently present precisely because He is transcendent. This awareness of God's transcendence underlies the apophatic theology found in the Christian East. But the cataphatic also has its place because God is not trapped by His own transcendence. In the words of Palamas, "God is not only beyond knowing, but also beyond unknowing" (1983, 32). "Beyond knowing" is a reference to God's transcendence and motivates apophatic theology in terms of what we do not know about God, while "beyond unknowing" is a reference to God's immanence and motivates cataphatic theology based on what God has revealed. Thus, he provides a principled way of reconciling transcendence and immanence.

Palamas's terminology for these dual aspects of God is *ousia* (translated essence or nature) and *energeiai* (translated energies, activities, operations, or actualities). Bradshaw explains, "The divine essence is God as He is in Himself, unknowable not only to man but to any created intellect; the energies are God as He manifests Himself and gives Himself to be shared by creatures" (2006, 189). God as transcendent is one in essence, yet the participants of the created order are many and varied. And so, God as immanent must be equally many and varied, being present in every aspect of creation. Palamas, therefore, locates God's immanence in the plurality of God's participable activities in the world. None are identical with God's essence, though they are self-manifestations and therefore revelatory of God's essence.

Gregory Palamas synthesizes a long line of earlier patristic thinking that links Athanasius, Basil of Caesarea, Gregory of Nyssa, Dionysius, and Maximus the Confessor. For instance, around the same time that Augustine was laying the foundations for western theology, Basil was providing the core ideas around which eastern Christianity would develop. An early seed of Palamism is found in Basil's affirmation: "The energies are various, and the essence simple, but we say that we know our God from His energies, but do not undertake to approach near to His essence. His energies come down to us, but His essence remains beyond our reach" (Basil 1982, 274).

Why did the West and East produce such different theologies? Bradshaw (2004) chronicles their historical divergence. Put succinctly, the Latin-speaking West had only sporadic exposure to the fuller development of ideas occurring in the Greek-speaking world. Though Aristotle coined *energeia*, most of the works that further developed the concept were not translated into Latin. Once Aristotle was reintroduced to the West in the Middle Ages, Aristotelianism was accepted as the metaphysics through

which Christianity was interpreted. But Aristotle was just one step in a series of burgeoning philosophies. After Plato and Aristotle, their ideas were reworked and recombined by Neoplatonists, notably Plotinus (205–270 AD), Porphyry (232–305 AD), and Iamblichus (240–325 AD). The history is complex, but attendance to this development attests to a gradual progression of ideas. We could summarize it this way: the Neoplatonists developed a concept of the first hypostasis called the One (Plato’s Good) and a second hypostasis called the Intellect (Aristotle’s Prime Mover). Bradshaw (2004) traces the trajectory of the Christian West, through Augustine and Aquinas, which located the Christian conception of God roughly as the Intellect. Instead, the Christian East affirmed the concepts intrinsic to both the One and the Intellect, but uniting both into one being within the Christian conception of God. What the Christian West did not appropriate, while the Christian East did, was the apophatic stance that the Neoplatonists recognized in the One, the reality beyond Intellect. This trajectory paved the way for locating God’s immanence in the world and our participation in God beyond rational apprehension. According to Bradshaw, “If one were to summarize the differences between the eastern and western traditions in a single word, that word would be ‘synergy.’ For the East the highest form of communion with the divine is not primarily an intellectual act, but a sharing of life and activity” (2004, 264–65). While we cannot participate in what God is, God’s essence, we can participate in what God does, God’s energies/activities. Knowing God is therefore less intellectual and more embodied and experiential. We are united with God by coparticipation, cooperation, synchronization, or synergy with God’s actions in the world. According to Palamas, “For [God] is not only living and wise and good but goodness and wisdom and life” (n.d., 55). When we participate in goodness or wisdom or life, we participate in God.

While much debate has frequented the concept of essence, *ousia* is a word that can scarcely be found in the Bible. On the other hand, *energeia* is a term that Apostle Paul deploys with regularity and with a precise meaning that is largely obscured in Latin and English. Bradshaw (2006) shows in detail that the cognates of *energeia* have both active (*energein*) and passive (*energeisthai*) verb forms, which are flattened in Latin because Latin did not have a word that could do what these Greek words do. Therefore, the distinction between active and passive forms was obscured. Yet it is the case that Paul consistently applies the active form to supernatural beings such as God, angels, and demons, while the passive form only for that which is realized or made effective within humans. The idea is that God’s energies impart in us a new capacity for activity, and we are thus energized by God. Following Bradshaw’s translations, here is an example of the active form: “For he that *imparted energy* in Peter to the apostleship of the circumcision, the same *imparted energy* in me toward the Gentiles” (Gal 2:8). Here is an example of the passive form: “Now unto him that is

able to do exceeding abundantly above all that we ask or think, according to the power that *is made effective* in us” (Eph 3:20). And here is a verse with both: “Whereunto I also labour, striving according to his *energy*, which *is being realized or made effective* in me mightily” (Col 1:29). The significance of these usages is that Christian living is to be understood as our participation in God’s energies/activities.

PANENTHEISM, NOT PANTHEISM

In the previous section, we began with a modern Thomist who accepts a powers ontology and interacts with Deacon’s emergent dynamics, and we ended with the alternative presented by the Christian East which better safeguards against an unbridgeable (and therefore unsatisfactory) God-world distance. On the other side of this conclusion is the worry that this newfound God-world intimacy might be threatened by a God-world identity. In this section, we take up the challenge posed by scholars who also work within a powers ontology yet conclude with an affirmation of pantheism.

Pfeifer (2016) presents a powers-based theory of panpsychism that motivates a pantheistic interpretation. Powers, or dispositions, entail an intrinsic directedness insofar as powers tend toward their manifestations. Such directedness is taken as evidence of intentionality in the physical world, and if intentionality is the mark of the mental, then mentality is pervasive. The suggestion is that powers imbue the universe with an intrinsic mind-like quality. Pfeifer’s version of pantheism is “tantamount to construing the universe as God’s brain. The universe is a panpsychic system of information-bearing dispositional-intentional states” (2016, 48). He invites us to “further suppose there to be some sort of overarching integrative summation of these informational states, such that the summation incorporates them all in a capital-I intentional manner” (2016, 48) that we can call the divine mind. Powers are thought to confer the basic quality of intentional states, which are then integrated into the kind of mental intentionality that is recognizable in individual persons, and by extension, the entire set of intentional states may be integrated into a universe-level intentionality, such that the world is God’s brain.

While the thesis that intentionality is built into nature is superficially attractive, Anjum and Mumford point out that it is not entirely clear why intentionality should be taken to explain dispositionality, rather than the other way around, as they prefer (2011, 186–89; 2018a, 151–53). Dispositionality should be recognized as the fundamental feature that may scale to full-fledged (mental) intentionality when suitably organized, as in brains, but there is no convincing reason to speak of generic dispositionality as mind-like intentionality, beyond a rhetorical device.

Pfeifer's additional thesis that "dispositional-intentional states of the universe are indeed organized relevantly similar to those of a human brain...which might be constitutive of self-consciousness" (2016, 49) is even more problematic and seems to me *prima facie* wrong. Deacon critiques panpsychism (2013, 73–79) by citing that mentality is clearly not the same everywhere, even if present in some minimalist sense, and this basic fact needs an explanation. The usual response is that a certain kind of integrated organization is necessary, as in brains. But on this admission, it seems that the organization provides all the explanatory power, and so Deacon concludes that a hypothetical ubiquitous proto-consciousness is a distraction from the real explanation. Now if panpsychism, whether powers-based or not, cannot do the work of explaining even human consciousness, how much less a universe-level consciousness. It seems to me patently obvious that nature as a whole does not simulate the kind of information-processing that is exemplified in brains. In the end, if panpsychism does not have the resources to produce something like a unified cosmic mind, then as pantheist Bauer admits, "it proves hard to see what the motivation for identifying nature with God would be if there was nothing of mind in the mix. For, if God has any features, it seems they must include some kind of mental or experiential features" (2019, 567).

Buckareff is another advocate of pantheism who subscribes to a powers-based panpsychism. He is similarly content to speak of the integration of the entire set of intentional states in the universe as exemplifying the divine mind, but he explicitly resists any sense of strong emergence that might imply "an addition of being" (2019, 332). His position is that a view which endorses the strong emergence of a cosmic mind is panentheism rather than pantheism. For him, the difference between panentheism and pantheism comes down to emergentist versus reductive accounts. Buckareff maintains "the ontologically simpler account that takes constitution to be identity and, thus, identify God with the universe and, hence, endorse pantheism" (2019, pp. 331–32). His reductive position is simpler than Pfeifer or Bauer's, and therefore, it is not vulnerable to the same lines of attack. The debate between reduction and emergence is too big to tackle in this essay. I will simply point back to the earlier insightful arguments put forward by Mumford, Anjum, and Deacon toward an affirmation of strong emergence.

Even so, the strong emergence of a cosmic mind is not the approach I would recommend on account of the problems cited above, not to mention the additional theological problem that it makes God dependent on the world. There is another way to look at this. I begin with an affirmation of panentheism, which as Gasser puts it, provides "a passage between the Scylla of a strict ontological divide between God and cosmos on the one hand, and the Charybdis of God and cosmos collapsing into one. Finding such a passage depends on how to spell out the 'en' in panentheism"

(2019, 44). After exploring several models for explaining in what sense God is present in the world, Gasser favors a view of immanence “in terms of divine activity: God is there, where God acts. Since God acts upon everything there is, God is present to everything there is” (2019, 60). Relevant to our discussion, God’s being is not reducible to (or dependent upon) powers, as implied by Pfeifer, Bauer, and Buckareff; powers are simply God’s activities.

This approach is deeply resonant with a Palamite theology of God as knowable in His energies/activities and of our participation in God through them. Palamas sums it up in this way: “God is also in the universe and the universe is within God, the one sustaining, the other being sustained by Him. Thus all things participate in God’s sustaining energy, but not in His essence” (1995, 393). His words ring of panentheism, and indeed the Christian East has generally leaned more confidently in that direction than their western counterparts (Ware 2004).

Contrary to the earlier approach of a powers-based pantheism, which is a bottom-up perspective beginning from a powers ontology in the world and then exploring to various degrees how their unification may constitute a cosmic mind, I suggest a Palamas-inspired approach that is top-down, beginning with a divine being characterized by the essence-energies distinction and then using powers ontology to explain the God-world relation. On a Palamite account, one should not confuse the ‘en’ in panentheism to mean spatially, in a literal sense, that the world is in God, or God in the world. Rather, God is where God acts, and therefore the world is in God and God is in the world insofar as God’s energies/activities are nature’s powers. Here, then, is the identity thesis: not between nature’s powers and God, but between nature’s powers and God’s energies.

Gasser makes the additionally helpful clarification that “classical theism and panentheism are not two rival accounts of God; rather, they underline different aspects of one and the same God who is maximally transcendent and immanent at the same time” (2019, 60). Palamas provides the passageway between Scylla and Charybdis.

CONCLUSION

This essay has been an exploration into the synthesis of Mumford and Anjum’s powers, Deacon’s work, and Palamas’s energies. The result is a novel dual-aspect powers ontology that commends a powers theology, according to which nature’s powers are God’s energies. The merits of this proposal are assessed vis-à-vis the problems it aims to solve with Whiteheadian process, pantheism, and Thomism.

As a prequel to explaining the God-world relation, we first needed to establish a suitable view of the world. Substance dualism was convenient theologically but has fallen out of favor scientifically. Reductive

materialism is difficult to reconcile with life and mind, and moreover is theologically untenable. Nonreductive physicalism seems mute on the subject of God since surely God is not sourced in physicalism. Emergentism has been proposed as a live option.

Clayton (2004a) is a well-known champion of emergentism. But Clayton, who ascribes to Whiteheadian process metaphysics, openly ponders the mystery his metaphysics leaves unexplained: "How can God be source of all things and yet at the same time *a* thing or agent that arises in the course of the history of the cosmos?" (2004b, 90) Clayton wishes to preserve the basic Christian tenant that God is the source of all things, yet on his emergentist monism God is still in process of becoming, so it is difficult to justify God as the ultimate source.

By contrast, a dual-aspect manifested/unmanifested powers ontology provides a key feature of theological significance, namely, a principled commitment to unmanifested actualities. In sharp contrast, Whiteheadian process theology presents a view of God who co-evolves with the world. This is expressed most clearly in Whitehead's symmetrical principle: "It is as true to say that God creates the World, as that the World creates God" (1978, 348). And therefore, God becomes something that God was not previously. But in a dual-aspect manifested/unmanifested powers ontology, God is everything that God is at the beginning, and only the manifestation of God's power is in process of becoming. This resolves the problem that plagues Clayton's emergentism.

While a comprehensive treatment of the proposed powers theology is not possible here, one can appreciate that it presents an alternative process perspective to that of Whitehead. Peacocke is one example among several who endorses a process approach (and also panentheism), though not that of Whitehead (Peacocke 2004). A concern with Whiteheadian theology is God's dependence on the world in that God and world co-evolve. But in powers theology, God's powers are fully present from the beginning even if unmanifested, restricting the notion of co-evolving to only the manifestation of God.

The pandispositionalist element of powers theology suggests that everything consists of clusters of powers. This offers a principled way of motivating a precise panentheism beyond a rhetorical device. If everything consists of nature's powers and these are God's energies/activities, then the distance between us and God is bridged. God is, then, not just a conclusion to be reasoned or an analogy to be approximated but rather the fullness of reality to be experienced. This account of reality is the dramatization of God's manifestation in the world and our participation in that cosmic revealing.

But is there still a God-world distinction? Absolutely. The worry of pantheism is rejected in virtue of the essence-energies distinction. God self-manifests in the plurality of God's energies/powers, though God's

essence is not exhausted by them. The essence-energies distinction maintains a balance between two assertions: (1) our communion is not with a created thing by similitude or analogy (contra Thomism) but with God directly; (2) God is always more than any experience of the divine (contra pantheism). God's energies protect against the Creator-creation distance, and God's essence secures the Creator-creation distinction. Herein lies the virtue of a Palamite powers theology of the God-world relation.

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