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# An Inquiry into the Pedagogical Implications of Dewey's Ecological Thinking

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By Simon Jorgenson

Recent educational scholarship provides evidence that John Dewey remains relevant to central issues in teaching and learning (Biesta, 2007; Boyles, 2012; Rodgers, 2002). If, as Doll (2002) suggests, Dewey continues to haunt curriculum studies with an unfinished project, we might use Dewey's vision to meet all of today's educational challenges. As such, new questions emerge linking Dewey's philosophy with today's ecological and environmental approaches to education. What can Dewey teach us about education and the environment? How does he theorize the role of nature in educational experiences? What implications do these ideas have for today's classroom practice?

In this paper, I work to answer these questions, adding to a growing body of literature on Dewey's ecological thought (Boyles, 2012; Browne, 2007; Colwell, 1985; Morgan, 1996; Watras, 2011). My primary purpose is to (re)examine Dewey in the context of contemporary conceptions of ecology and environmental education. With this in mind, I will focus primarily on what Dewey has to say about the natural world, beginning with his general philosophy and moving through several of his educational works.

Now is a good time to address these questions. The fields of science education and environmental education are converging in exciting ways around issues of sustainability (Wals, Brody, Dillon, & Stevenson, 2014), and an increasing number of teachers are looking to incorporate outdoor experiences and environmental projects into their pedagogy. For these teachers—and potentially many others—Dewey offers a theoretical foundation and practical suggestions, and those who inquire into Dewey's thinking will find much in common with today's experiential and place-based approaches (Kraft & Kielsmeier, 1995; Smith & Sobel, 2010; Weston, 2004).

## Dewey's Ecological Perspective

Ecology is both a biological science and a political movement—a “politics born of a science” (Dobson, 1991, p. 18). As a biological science, ecology studies the interactions of organisms with their physical environments. As a political movement, ecology leverages the findings of ecological science toward social change. Interestingly, the power and flexibility of key ecological concepts such as the ecosystem has led to a curious phenomenon: ecological discourses that make little mention of the natural world (Bronfenbrenner, 1979; Goodlad, 1987; Lee, 2010). Although these discourses have helped foreground the influence of social context on human development and learning, they have also backgrounded the role of natural environments in these same processes. I hear philosopher of education Madhu Prakash's (1995) call to bring ecology and education “down

to earth” (p. 325) as an attempt to reintegrate social and natural ecologies in educational settings. This seems to be the shared project of diverse streams in contemporary environmental education (Gruenewald, 2003; Kahn, 2010; Martusewicz, Edmundson, & Lupinacci, 2011). It also happens to be work that Dewey undertook nearly a century ago. In Dewey’s synthetic vision, inner and outer ecologies, human and material nature, the moral and the physical, are always already linked.

A number of scholars have been struck by Dewey’s ecological thought, including Colwell (1985), who lamented that scholars have largely ignored Dewey’s ideas about nature and education, preferring to focus “almost exclusively on social experience” (p. 255). More recently, in a critical analysis of the literature on Dewey, ecology, and education, Boyles (2012) identified Dewey’s perspective as “transactional realism” (p. 153)—the idea that experience emerges from ongoing exchanges between human organisms and their environment. This simple idea has had profound implications for the design of classrooms and experiences, as noted by educators working within a Deweyan framework (Cuffaro, 1995; Vascellaro, 2011).

Dewey’s ecological perspective is similar to the grassroots perspectives offered by Prakash (1995), who argues that modern ecological science has become disconnected from concrete problems, the natural world, and local initiatives. Dewey’s ecological perspective supports Prakash’s (1995) efforts to make ecology a “people’s science” (p. 325) once again. Dewey’s theory of experience and nature can help educate a new generation of ecological thinkers—students who feel deeply, are committed to particular places and communities, and resist the abstractions of modern life.

## **Dewey’s Naturalistic Theory of Experience**

Several years ago, I happened upon Dewey’s *Experience and Nature* in a used bookstore. Until then, I had been familiar only with Dewey’s educational works and was surprised to learn how deeply Dewey incorporated nature into his theory of experience, a theory which undergirds and illuminates his writings on education. I have since learned that these same ideas are central to Dewey’s (1934) aesthetic theory.

In the first chapter of *Experience and Nature*, Dewey outlined his philosophic method, which he described as an attempt to “frame a theory of experience in naturalistic terms” (p. 1a). Dewey grounded his method in an expansive understanding of nature, and he would have us test our theories, conclusions, and reflections against the empirical events and concrete objects of our experience. For Dewey, this process of testing, which he believed science had refined, led back and even into nature. He argued, quite radically, that “[t]he very existence of science is evidence that experience is such an occurrence that it penetrates into nature and expands without limit through it” (p. 1). Dewey set all aspects of human experience—scientific, aesthetic, moral, religious—in this naturalistic context.

What sort of world does our experience point to? Dewey’s answer is both historical and anthropological. He takes the cultural practices and technologies of various social groups as

evidence that human existence is remarkably precarious. If this were not the case, he argued, things like magic, myth, religious ceremonies, and idealist philosophies would not be so common across cultures. Dewey (1958) takes the ubiquity of these things as evidence that

*[t]he world is a scene of risk; it is uncertain, unstable, uncannily unstable. Its dangers are irregular, inconstant, not to be counted upon as to their times and seasons. Although persistent, they are sporadic, episodic. (p. 41)*

Dewey believed that these facts were confirmed for each of us by our experience of the world. This was, for him, the nature of existence. He believed that even the most abstract of human behaviors were adaptations to empirical conditions—akin to building a fire. For example, he writes that

*[t]hinking is no different in kind from the use of natural materials and energies, say fire and tools, to refine, re-order, and shape other natural materials, say ore. In both cases, there are matters which as they stand are unsatisfactory and there are also adequate agencies for dealing with them and connecting them. At no point or place is there any jump outside empirical, natural objects and their relations. (Dewey, 1958, p. 67)*

Dewey thought the same about human affect. Fear, he writes, “whether an instinct or an acquisition, is a function of the environment. Man fears because he exists in a fearful, an awful world. The world is precarious and perilous” (Dewey, 1958, p. 41). Although Dewey recognized that this sounded “pessimistic” (p. 45), he insisted that our experience proved the world to be just exactly so. This, I would argue, is still the case.

Similarly, Dewey (1934) infused Art as Experience with strong ecological statements. For example, his description of humans as “living creatures” leads to the following statement regarding “experience in its elemental form” (p. 12):

*The first great consideration is that life goes on in an environment; not merely in it but because of it, through interaction with it. No creature lives merely under its skin; its subcutaneous organs are means of connection with what lies beyond its bodily frame, and to which, in order to live, it must adjust itself, by accommodation and defense but also by conquest. (Dewey, 1934, p. 12)*

From one perspective, writing about human beings in this way is an understandable move for those, like Dewey, who had learned (from Darwin) to interpret human behavior in terms of organisms and environments. Using these ecological terms does not necessarily mean that Dewey cared more for the natural environment than he did for human purposes, as Bowers (1995, 2001)

has noted in critiquing Dewey's ecological credentials. Considering this, what should we make of Dewey's ecological perspective? How is this perspective useful today?

One of Dewey's most important contributions has to do with the idea of risk. Like Dewey, today's scientists and citizens believe that we live in precarious times. What is climate change, after all, but an increasing (and increasingly random) distribution of risk? If the ecological crisis is real, we must create new beliefs and practices, or revive old ones, before it is too late. This imperative extends to education and schooling, although there is no consensus as to how to proceed. Within education, for example, intersecting ideologies reveal a variety of possible responses, including socially critical pedagogies, pedagogies that conserve traditional environmental values, and pedagogies that focus on technological solutions (Fien, 2004). To make matters even more complex, a variety of "myths" of nature suggest that nature can be anything from ephemeral to forgiving depending on what social group a person belongs to (Schwarz & Thompson, 2004).

In their discussion about the myths of nature, Schwarz and Thompson (2004) recognize that the world retains the power to choose among social constructions of nature. They write:

*Though this approach is saying that knowledge is socially constructed, it is not saying that the world can be any way we want it to be. It is not saying that we can know nothing; only that we cannot know everything and that within that uncertain and inchoate region, it is our institutions—our social involvements—that lead us to grant credibility to one possible state of affairs rather than another. (Schwarz & Thompson, 2004, p. 8)*

Dewey can help teachers sort through this conceptual and ideological confusion, I think.

He would appreciate the authors' recognition of the sociality and contingency of knowledge, but he would insist upon returning the insights of social groups back to the "evidence...of empirical things" (Dewey, 1958, p. 42)—the world as experienced by individual persons, including students.

As such, Dewey offers a way of thinking that recognizes the social construction of environmental knowledge while maintaining the empirical grounds for assessing environmental risk. If, as Dewey (1958) suggests, the "world is a scene of risk" (p. 41) this knowledge will become social as an increasing number of individuals reflect on their experiences of things like chemical pollution, climate events, or resource scarcity. This is where we currently stand, I believe, socially and environmentally speaking. According to Beck (2004),

*The latency phase of risk threats is coming to an end. The invisible hazards are becoming visible. Damage to and destruction of nature no longer occurs outside our experience in the sphere of chemical, physical or biological chains*

*of effects; instead, they strike more and more clearly our eyes, ears and noses. (p. 13)*

The “risk society” that Beck describes above calls for collective action, although he is quite pessimistic about humans’ ability to combat the risks he describes.

By contrast, Dewey frames this process as an educational one, a process by which human beings are progressively learning to adjust and to address the environmental risks they experience. This is a hopeful and empowering position for teachers troubled by environmental decline, a position that supports environmental projects having an experiential focus.

## **Further Afield & Out of Doors**

The section above serves as an introduction to Dewey’s general philosophy. Dewey’s ideas about experience, nature, and the environment provide a context for (re)examining his educational works, where he has much to say about nature and the school curriculum. As a progressive educator, Dewey traced his lineage to Rousseau, although he revised Rousseau’s ideas about nature and education considerably in *Democracy and Education*. In Dewey’s estimation, Rousseau put too much trust in nature and natural development. About Rousseau, Dewey (1916/1966) writes, “He thinks that this [natural] development can go on irrespective of the uses to which they are put” (p. 113). Dewey believed that nature, understood here as native potential, was unable to provide aims or ends for education in and of itself. He writes that “natural, or native, powers furnish the initiating and limiting forces in all education; they do not furnish its ends or aims” (Dewey, 1916/1966, p. 114). Social and physical environments were integral to the educative process, argued Dewey, because they helped organize the development of children’s “original powers” (p. 114). For Dewey, these original powers included a deep engagement with the natural world. In contemporary terms, we would call this power “ecophilia” or “children’s biological tendency to bond with the natural world” (Sobel, 1996, p. 6). Today, providing experiences that promote ecophilia is a primary objective of place-based education, particularly in the elementary grades.

Although Dewey believed that nature was an unsuitable source of the aims for education, he did think natural development important because it called attention to the needs of the human organisms in educational settings, including the needs for health, mobility, and the freedom to express natural temperaments, preferences, and tendencies. He writes:

*The aim of natural development says to parents and teachers: Make health an aim; normal development cannot be had without regard to the vigor of the body—an obvious enough fact and yet one whose due recognition in practice would almost automatically revolutionize many of our educational practices. (Dewey, 1916/1966, p. 115)*

Here again, Dewey is closely aligned with contemporary thinking. New pedagogies in environmental education, for example, focus on the body, corporeality, and embodied experience (Payne & Wattchow, 2009).

Most ecologists are materialists, with a concern for how things look and feel. Dewey was no exception. He translated Rousseau’s “aim of following nature” to mean the “regard for the actual part played by the use of the bodily organs in explorations, in handling of materials, in plays and games” (Dewey, 1916/1966, p. 115). For Dewey (1958), the objects of primary experience were “things had before they are things cognized” (p. 21). As such, materials were an important part of Dewey’s educational philosophy, and this brings us to the role of the natural world in that philosophy.

Dewey had much to say about the role of the natural world in education. As in his general philosophy, Dewey took the integration of experience and nature for granted. For example, in *The School and Society*, Dewey writes, “What is wanted...is not to fix up a connection of child mind and nature, but to give free and effective play to the connection already operating” (p. 142). He argued that children had an “original open and free attitude of the mind for nature” and that this attitude could be “destroyed” by the “meaningless details” of the traditional science curriculum, which relied on facts about nature rather than natural experiences (p. 141). Dewey was also critical of nature study advocates, many of whom treated nature as a context for literary studies or sentimentalism (Kohlstedt, 2010). Although Dewey saw value in these approaches as “reinforcements” and “idealizations,” he was clear that he preferred the “straightforward road from mind...to object” (p. 142).

In addition, Dewey (1900/1990) suggested that the study of “physical facts and forces” (p. 141) should address the association of these things—facts, forces, energies, processes—with social and environmental histories. In *The School and Society*, he argued for a natural history or field ecology curriculum in which students engaged in the “observation of seeds and their growth, of plants, woods, stones, animals” ( p. 141). He insisted that the powers of observation students developed through this curriculum—and the facts that they learned—become humanized and socialized (p. 142).

*Absolutely no separation is made between the “social” side of the work, its concern with people’s activities and their mutual dependencies, and the “science,” regard for physical facts and forces—because the conscious distinction between man and nature is the result of later reflection and abstraction, and to force it upon this child here is not only to fail to engage his whole mental energy, but to confuse and distract him. (p. 141)*

For Dewey, “[t]he environment is always that in which life is situated and through which it is circumstanced; and to isolate it, to make it with little children an object of observation and remark by itself, is to treat human nature inconsiderately” (p. 141).

In Dewey’s general philosophy, nature was the testing ground for all theories and hypotheses, the place where our experiments in thinking and action were confirmed or denied. This idea took several different forms in his writings about curriculum. For example, Dewey (1900/1990), would have students engaged in a number of “occupations” such as cooking, sewing, and weaving, through which they experienced the “actual world of hard conditions” (p. 38), a world to which they would have to accommodate their desires and impulses. As children grew and matured, these experiences would provide a foundation for their study of geography and history, subjects which addressed how different groups of people had wrested security and enrichment from earthly environments. For Dewey, geography

*presents the earth as the enduring home of the occupations of man. The world without its relationship to human activity is less than a world. Human industry and achievement, apart from their roots in the earth, are not even a sentiment, hardly a name. (p. 19)*

As such, a student’s elementary experience of nature through occupations and observation provided a road leading out to a wider world of meaning (Dewey, 1916/1966, p. 218).

Although Dewey was a progressive thinker and educator, his rationale for incorporating occupations into the Laboratory School at the University of Chicago demonstrate his conservative, even nostalgic, side. In *The School and Society*, Dewey noted that the center of industry in America had moved from the household to the factory quite rapidly, in “one, two, or at most three generations” (p. 10). Concerned with what had been lost, Dewey tried to conserve the educative benefits of household and farm activities through occupations in school. According to Dewey (1900/1990), these occupations involved “the close and intimate acquaintance got with nature at first hand, with real things and materials” (p. 11) as well as building “discipline” and “character” (p. 10). Although Dewey recognized that industrialism had brought many material advantages, he framed these as “consolations” (p. 12) for what had been lost. In the middle of these sweeping social changes, Dewey designed a school and curriculum in which the “actual world of hard conditions” still played a leading role. Dewey’s attempt to conserve rural ways of life remains a central concern within green movements in culture and politics (Dobson, 2007; Marx, 1964/2000).

## Conclusion

Today, human societies face a number of complex environmental challenges, including climate change and resource scarcity. In the United States, policymakers and their advisors frame these problems as keys to economic security, and environmental content appears in new educational

standards (Bybee, 2011; Friedman, 2008). The trend is clear—environmental and sustainability content is coming to a classroom near you, often through the discourse of STEM education (Bybee, 2010).

Given this situation, what would Dewey have to say? First, Dewey’s written work indicates his unique sensitivity to natural materials, events, and processes. It is clear that these things held great existential and educational value for him. For this reason, I believe that Dewey would encourage today’s teachers to take students into the field more often, for work and for play, but not in a sentimental way. If, as Dewey suggested, experience and nature are inseparable, then children deserve to venture outside and experience the difficulties of “making a living” from the earth. As live creatures, this is their birthright and a critical part of their geographic and historical education. I can imagine Dewey arguing along these lines.

I also believe that Dewey would speak about science education as it relates to contemporary environmental issues. Like many in the ecology movement today, Dewey would have abhorred the idea that ecological knowledge is the privilege of a specially trained corps of scientists or engineers. He would equally have abhorred the idea of science without nature or science without social purpose. For Dewey, science—similar to thinking or building a fire—was simply the name for a particular kind of human experience, one of many problem-solving enterprises, a social practice grounded in the natural world. For these reasons, I believe that Dewey would urge today’s teachers to incorporate more “citizen science” (Bonney, et al., 2014) into their classroom practice, designing projects where students go outside of the school building, using portable technologies to create and exchange environmental knowledge with professional scientists, local policymakers, and concerned citizens. Through such projects, the school and society connect in ways that Dewey could never have imagined.

For teachers not interested in outdoor or environmental education, Dewey still expects a high level of environmental intelligence. For example, Dewey (1916/1966) writes:

*the only way in which adults consciously control the kind of education which the immature get is by controlling the environment in which they act, and hence think and feel. We never educate directly, but indirectly by means of the environment. Whether we permit chance environments to do the work, or whether we design environments for the purpose makes a great difference.*  
(pp. 18–19)

As such, all teachers might be considered environmental educators in the sense that each is involved in environmental design. In classrooms, microcosms of Dewey’s contingent world, chance environments can have mis-educative effects. For this reason, the design of classroom environments is an important pedagogical act. Dewey urges us to incorporate natural materials and experiences into this process.

In closing, I was struck in my research by the following quote from Mitchell's (1934) *Young Geographers*, in which she is describing the need for teachers to inquire into their own geographies:

*It becomes the task of a teacher who would base her program with young children on an exploration of the environment to explore the environment herself. She must know how her community keeps house—how it gets its water, its coal, its electric power, its food, and who are the workers that make the community function. She must know where the pipes in her room lead to, where the coal is kept in the school, where the meters are read and by whom, she must know the geographic features which characterize her particular environment and strive constantly to see how they have conditioned the work of which she is a part and how they have been changed by that work. (p. 25)*

This task is still before us, although even more difficult to accomplish now that the forces and processes at work are so removed from our primary experience. Where does the water and heat in our schools come from? What energy and whose labor is involved in these processes? Uncovering these facts involves a level of ecological intelligence rarely addressed in teacher education programs, not to mention traditional schools. Dewey's ghost invites us to dig into these processes, and to build more sustainable forms of culture and society from what we learn.

## References

- Beck, U. (2004). Risk society: Towards a new modernity. In W. Scott & N. Gough (Eds.), *Key issues in sustainable development and learning: A critical review* (pp. 10–16). London, UK: RoutledgeFalmer.
- Biesta, G. (2007). Why “what works” won't work: Evidence-based practice and the democratic deficit in educational research. *Educational Theory*, 57, 1–22.
- Bonney, R., Shirk, J. L., Phillips, T. B., Wiggins, A., Ballard, H. L., Miller-Rushing, A. J., & Parrish, J.K. (2014). Next steps for citizen science. *Science*, 343, 1436–1437.
- Bowers, C. A. (1995). Toward an ecological perspective. In W. Kohli (Ed.), *Critical conversations in philosophy of education* (pp. 310–323). London, UK: Routledge.
- Bowers, C. A. (2001). *Educating for ecojustice and community*. Athens, GA: University of Georgia Press.
- Boyles, D. (2012). Dewey, ecology, and education: Historical and contemporary debates over Dewey's naturalism and (transactional) realism. *Educational Theory*, 62, 143–161.

- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Browne, N. W. (2007). *The world in which we occur: John Dewey, pragmatist ecology, and American ecological writing in the twentieth century*. Tuscaloosa, AL: University of Alabama Press.
- Bybee, R. W. (2010). Advancing STEM education: A 2020 vision. *Technology and Engineering Teacher*, 70, 30–35.
- Bybee, R. W. (2011). Scientific and engineering practices in K-12 classrooms: Understanding A framework for K-12 science education. *Science Teacher*, 78, 34–40.
- Colwell, T. (1985). The ecological perspective in John Dewey's philosophy of education. *Educational Theory*, 35, 255–266.
- Cuffaro, H. K. (1995). *Experimenting with the world: John Dewey and the early childhood classroom*. New York, NY: Teachers College Press.
- Dewey, J. (1934). *Art as experience*. New York, NY: Perigee.
- Dewey, J. (1958). *Experience and nature*. New York, NY: Dover.
- Dewey, J. (1966). *Democracy and education*. New York, NY: Free Press. (Original work published 1916)
- Dewey, J. (1990). *The school and society/The child and the curriculum*. Chicago, IL: University of Chicago Press. (Original work published 1900)
- Dobson, A. (2007). *Green political thought (4th ed.)*. London, UK: Routledge.
- Dobson, A. (Ed.). (1991). *The green reader*. San Francisco, CA: Mercury House.
- Doll, W. E., Jr. (2002). Ghosts and the curriculum. In W. E. Doll, Jr. & N. Gough (Eds.), *Curriculum visions* (pp. 23–70). New York NY: Peter Lang.
- Fien, J. (2004). Education for the environment: Critical curriculum theorizing and environmental education. In W. Scott & S. Gough (Eds.), *Key issues in sustainable development and learning* (pp. 93–100). London, UK: RoutledgeFalmer.
- Friedman, T. L. (2008). *Hot, flat, and crowded*. New York, NY: Farrar, Straus, and Giroux.
- Goodlad, J. (Ed.). (1987). *The ecology of school renewal: Eighty-sixth yearbook of the National Society for the Study of Education*. Chicago, IL: National Society for the Study of Education.

- Gruenewald, D. A. (2003). The best of both worlds: A critical pedagogy of place. *Educational Researcher*, 32, 3–12.
- Kahn, R. (2010). *Critical pedagogy, ecoliteracy, and planetary crisis*. New York, NY: Peter Lang.
- Kohlstedt, S. (2010). *Teaching children science: Hands-on nature study in North America, 1890–1930*. Chicago, IL: University of Chicago Press.
- Kraft, R. J., & Kielsmeier, J. (Eds.). (1995). *Experiential learning in schools and classrooms*. Boulder, CO: Association for Experiential Education.
- Lee, C. D. (2010). Soaring above the clouds, delving the ocean's depths: Understanding the ecologies of human learning and the challenge for educational science. *Educational Researcher*, 39, 643–655.
- Martusewicz, R. A., Edmundson, J., & Lupinacci, J. (2011). *EcoJustice education: Toward diverse, democratic, and sustainable communities*. New York, NY: Routledge.
- Marx, L. (2000). *The machine in the garden: Technology and the pastoral ideal in America*. Oxford, UK: Oxford University Press. (Original work published 1964)
- Mitchell, L. S. (1934). *Young geographers*. New York, NY: Bank Street College of Education.
- Morgan, P. (1996). Reconceiving the foundations of education: An ecological model. *Philosophy of Education*, 1, 294–302.
- Payne, P. G., & Wattachow, B. (2009). Phenomenological deconstruction, slow pedagogy, and the corporeal turn in wild environmental/outdoor education. *Canadian Journal of Environmental Education*, 14, 15–32.
- Prakash, M. (1995). Whose ecological perspective? Bringing ecology down to earth. In W. Kohli (Ed.), *Critical conversations in philosophy of education* (pp. 324–339). London, UK: Routledge.
- Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record*, 104, 842–866.
- Schwarz, M., & Thompson, M. (2004). Divided we stand: Redefining politics, technology, and social choice. In W. Scott & S. Gough (Eds.), *Key issues in sustainable development and learning: A critical review* (pp. 4–10). London, UK: RoutledgeFalmer.
- Smith, G. A., & Sobel, D. (2010). *Place- and community-based education in schools*. New York, NY: Routledge.

Sobel, D. (1996). *Beyond ecophobia: Reclaiming the heart in nature education*. Great Barrington, MA: Orion Society.

Vascellaro, S. (2011). *Out of the classroom and into the world: Learning from field trips, educating from experience, and unlocking the potential of our students and teachers*. New York, NY: New Press.

Wals, A. E. J., Brody, M., Dillon, J., & Stevenson, R. B. (2014). Convergence between science and environmental education. *Science*, 344, 583–584.

Watras, J. (2011). Should children learn to solve problems?. *Philosophical Studies in Education*, 42, 36–43.

Weston, A. (2004). What if teaching went wild? *Canadian Journal of Environmental Education*, 9, 31–46.

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