

Faith in a Seed and a Squirrel: Book Review and Excerpt

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Faith in a Seed: The Dispersion of Seeds and Other Late Natural History Writings. Henry David Thoreau, edited by Bradley P. Dean. Island Press/Shearwater Books, 1993. 283 pages with line drawings by Abigail Rorer. Hardcover. \$25

For most Americans, especially those who were assigned *Walden* in college, Thoreau sticks in the mind as a homespun philosopher-hermit who willingly went to jail for his beliefs. But students who dig a little deeper find another Thoreau, a naturalist tramping the fields and forests of Concord, recording minute observations, and trying to tie them together in a unified natural philosophy.

Until now, this other Thoreau was visible only in his journal—some three thousand pages of it—which, while fascinating to browse, cannot be considered a finished literary work. In the later part of his life Thoreau undertook to organize his natural history observations into a coherent work of science. He died before the task was complete, leaving behind two unpublished manuscripts, “The Dispersion of Seeds,” published in its entirety in this volume (154 pages), and “Wild Fruit,” only a small part of which is published here (27 pages).

The main body of “Dispersion” consists of a description of the various mechanisms by which seeds of common New England trees are dispersed—wind, water, and animals—along with a painstaking discussion of his theories on the relationship between seed dispersal and

forest succession. For those who have read the essay entitled “The Succession of Forest Trees,” published in 1860, much of the information on forest succession will not be new. That essay can be viewed as a preamble to “Dispersion,” which covers the same ideas but with many more details to support the theories. Indeed, it is precisely these details that form the heart of “Dispersion,” just as they form the heart of all natural history studies.

Had “Dispersion” been published at the time Thoreau wrote it, the book would most certainly be considered a seminal volume, significant for its groundbreaking treatment of interrelationships between plants and animals—a field that has recently become fashionable under the name *coevolution*. Because “Dispersion” did not appear in print until 1993, one hundred and thirty-one years after it was written, the book is primarily valuable for the light it sheds on Thoreau’s mind and for its descriptions of New England natural history.

For this reviewer the most interesting parts of the book are those that deal with Thoreau’s concept of forest succession, incomplete and somewhat skewed though it is. The core of this idea, as he saw it, is that forests are in a continual state of flux and the dominant species of today will be replaced by others tomorrow. A key ingredient in Thoreau’s theory is that birds and small rodents play a crucial role in this process by “planting” the seeds of the replacement generation. Indeed, the idea

expressed most frequently in "Dispersion" is that squirrels are the ones who are responsible for making the New England forests look the way they do. To a certain extent, possibly in reaction to the creationist view of nature then prevailing, Thoreau portrays the homely gray squirrel as the driving force behind forest succession, exaggerating its role and going so far as to attribute to the creature a small

measure of consciousness about its forest-planting activities.

In the following passages Thoreau's customary brilliant attention to detail is accompanied by a less customary use of scientific method. Note, too, that he proposes that the earth itself is a living organism, presaging James Lovelock's "Gaia" hypothesis by at least a hundred and ten years.



Yes, these dense and stretching oak forests, whose withered leaves now redden and rustle on the hills for many a New England mile, were all planted by the labor of animals. For after some weeks of close scrutiny I cannot avoid the conclusion that our modern oak woods sooner or later spring up from an acorn, not where it has fallen from the tree, for that is the exception, but

where it has been dropped or placed by an animal.

Consider what a vast work these forest planters are doing! So far as our noblest hardwood forests are concerned, the animals, especially squirrels and jays, are our greatest and almost only benefactors. It is to them that we owe this gift. It is not in vain that a squirrel lives in almost every forest tree or hollow log or wall or heap of stones.

Thus, one would say that our oak forests, vast and indispensable as they are, were produced by a kind of accident, that is, by the failure of animals to reap the fruits of their labors. Yet who shall say that they have not a dim knowledge of the value of their labors?—that the squirrel when it plants an acorn, and the jay when it lets one slip from under its foot, has not sometimes a transient thought for its posterity, which at least consoles it for its loss?

But what is the character of our gratitude to these squirrels—to say nothing of the others—these planters of forests, these exported dukes of Athol of many generations, which have found out how high the oak will grow on many a mountain, how low in many a valley, and how far and wide on all our plains? Are they on our pension list? Have

we in any way recognized their services? We regard them as vermin. The farmer knows only that they get his seed corn occasionally in the fields adjacent to his woodlot, and perchance encourages his boys to shoot them every May, furnishing powder and shot for this purpose, while perhaps they are planting the nobler oak-corn (acorn) in its place—while up-country they have squirrel hunts on a large scale every fall and kill many thousands in a few hours, and all the neighborhood rejoices. We should be more civilized as well as humane if we recognized once in a year by some symbolical ceremony the part which the squirrel plays in the economy of Nature.

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Red-oak seedling.

On entering the wood I began at once to look about carefully for oak seedlings or anything else of the kind, and directly, in a part of it almost exclusively oak, I was surprised to see a cluster of little chestnuts six inches high and close together. Working my hand underneath, I easily lifted them up with all their roots—four chestnut trees two years old, which had partially died down the first year, yet were quite flourishing, with the four great chestnuts from which they sprang still attached, but not the burr; and also four small acorns which had sent up puny little trees of the same age beneath the chestnuts, but it is remarkable that these were either dead or dying. These eight nuts all lay within a diameter of two inches, about an inch and a half beneath the present leafy surface, in a very loose soil of but half-decayed leaves. I have no doubt that they were buried there two falls ago by a squirrel, or possibly a mouse.

It is very rare that you distinguish a seedling chestnut in this neighborhood, and I do not *remember* that I had ever met with any of *this age* before, though it is very likely that I have. I had come forth on purpose to look for them, but did not expect to find them so soon. Such is the difference between looking for a thing and waiting for it to attract your attention. In the last case you are not interested at all about it, and probably will never see it.



*Burr of the
American chestnut
(Castanea dentata).*

Nevertheless, I was surprised at the sight of these chestnuts, for these are not to my knowledge, and I am thoroughly acquainted with that wood, any seed-bearing chestnut trees within about half a mile of that spot, and I should almost as soon have expected to find chestnuts in the artificial pine grove in my yard.

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As I proceeded onward over hill and dale through the mixed pine and oak woods toward Lincoln, with my eyes more widely open than ever, now *looking for* chestnuts and not waiting for them to call to me, I found many chestnut seedlings two or three years old, and some older and even ten feet high, scattered here and there but more numerous as I approached the chestnut woods. I should say that on an average there was one every half-dozen rods, made more distinct by their yellow leaves on the brown ground, which was the more surprising to me because I had not attended to the spread of the chestnut before, and every one of these came from a chestnut placed there by a quadruped or bird, which had brought it from further east, where alone it grew.

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Exploring one of the old limestone quarries in the north part of Concord in November, I noticed in the side of an upright sliver of rock, where the limestone had formerly been blasted off, the bottom of the nearly perpendicular hole which had been drilled for that purpose, two or three inches deep and about two and a half feet from the ground, and in this I found two fresh chestnuts, a dozen or more pea-

vine (*Amphicarpaea*) seeds, as many apparently of winterberry seeds, and several fresh barberry seeds, all bare seeds or without the pericarp, mixed with a little earth and rubbish.

What placed them there—squirrel, mouse, jay, or crow? At first I thought that a quadruped could hardly have reached this hole in the perpendicular side of a rock, but probably some rude kinds could easily; and it was a very snug place for such a deposit. I brought them all home in order to ascertain what the seeds were, and how they came there. Examining the chestnuts carefully in the evening, and wondering if so small a bird as a chickadee could transport one, I observed near the larger end of one some very fine scratches, which it seemed to me might have been made by the teeth of a very small animal while carrying it—certainly not by the bill of a bird, since they had pricked sharply into the shell, sucking it up one way. I then looked to see where the teeth of the other jaw had scratched it, but could discover no marks and was therefore still somewhat in doubt about it.

But an hour afterward I examined these scratches with a microscope, and then I saw plainly that they had been made by some fine and sharp cutting instrument like a pin, which was a little concave and had plowed under the surface of the shell a little, toward the larger end of the nut, raising it up. And, looking further, I now discovered on



Skeleton of a deer mouse (Mus leucopus).

the same end at least two corresponding marks made by the lower incisors, plowing toward the first and about a quarter of an inch distant. These were scarcely obvious to the naked eye, but quite plain through the glass. I now

had no doubt that they were made by the incisors of a mouse, and comparing them with the incisors of the common wild or deer mouse (*Mus leucopus*, whose skeleton I chanced to have), I found that one or two of the marks were exactly the middle of its two incisors combined, or about a twentieth of an inch, and that the others, though finer, might have been made by them; and the natural gape of the jaws corresponded. On one side at least it had taken fresh hold once or twice. I have but little doubt that these seeds were placed there by a deer mouse, our most common wood mouse.

The other chestnut, which had no marks on it, I suppose was carried by the stem end, which was now gone from both. There was no chestnut tree within twenty rods.

These seeds thus placed in this recess will help to account for chestnut trees, barberry bushes, and so on growing in chinks and clefts, where we do not see how the seeds could have fallen. There was earth enough even in this little hole to keep some very small plant alive.

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The consequence of all this activity of the animals and of the element in transporting seeds is that almost every part of the earth's surface is filled with seeds or vivacious roots of seedlings of various kinds, and in some cases probably seeds are dug up from far below the surface which still retain their vitality. The very earth itself is a granary and a seminary, so that to some minds its surface is regarded as the cuticle of one great living creature.

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