

## **Practice- The Aromas of Trees – Two aromatic invitations to pay attention**

(adapted from *Emergence Magazine*)

“Aroma is the primary language of trees. They talk with molecules, conspiring with one another, beckoning fungi, scolding insects, and whispering to microbes. Aroma is also our primal tongue, a direct link to memory and emotion, an inheritance from the communicative networks that sustained the first animal cells. The receptors in our nasal passages are ready to listen. We have over one hundred different olfactory receptors, able to discern at least ten thousand odors. The English language is too meager to categorize this multiplicity, but our bodies know how to respond. Noses, though, need the help of conscious intention to put them in the right place....

Every tree offers us a wordless sensory experience, a connection that unites human bodies and consciousness to plants’ inner worlds. This encounter is reward enough. The particular aroma of a tree also contains stories, past and present. Our human aesthetic experience is a doorway to the trees’ inner worlds.

As you smell trees, try both a deep in-drawing of breath through the nostrils, then short, sharp sniffs. This changes the rate at which aromatic molecules hit your sensory cells: a slow caress or a vigorous rush. The combination opens aromatic layers of experience.”

-David Haskell

### **Invitation One- The trees at home**

Treat your nose to an inventory of the trees in your home. Lift up a cup of black tea to your nose. Dig your thumb into an orange peel. Unscrew the cinnamon jar. Crack open a book and smell the blend of ink and fibre, a sensation rooted in wood of hidden provenance. Coffee. Dates and olives. Pencil shavings. Almond milk. Furniture wood, its odour gagged by varnish. Honey, laden with aromatic memories of tree nectar and pollen. Gin. Maple syrup. Inhale and remember that we live in the forest, even when this truth is hidden from the eye. How many different trees are in your home?

### **Invitation Two – The trees in your neighbourhood**

Seek out the aromatic expressions of trees around your home. Let your hands help. Roll leaves and needles between fingertips. What is the character and disposition of each species? Spiky or lush? Reminiscent of grass, or seaweed, or spice? Rest your hands on bark, feel its texture, then draw your face close. Gently rub. What aromas linger in the crevices of the tree’s surface? Does the tree proclaim its inner drama to the world or does it hold its personality close, revealing odour only through pruning cuts or insect holes? Which trees arrive on the prevailing wind? Turn to the wind and find yourself amidst the trees’ breath.

## Practice – Listening to the Language of Birds – Two invitations

(adapted from *Emergence Magazine*)

“The practice of listening to other species is the original “augmented reality.” In opening our minds to the language of species, we experience connection and meaning that far transcend anything offered by electronic simulacra. Why so deep? Because attending to the tongues of other species is our inheritance, bequeathed by a lineage of ancestors extending back hundreds of millions of years. Every one of these grandmothers and grandfathers lived in attentive relationship with the sounds of other species, the diverse conversation of the living Earth. Our ancestors were ecological polylinguists. To listen was to learn about food, danger, opportunity, and the subtle nuances of ecological time and space, the mastery of which allows all creatures to thrive. To listen was to live and to find meaning. Disconnection and inattention invited death. And thus, natural selection placed the capacity to hear and understand beyond-human languages at the core of our human nature. So when we walk outside today and open our ears to the sounds of a sparrow, we reclaim what is ours by birth. We connect to meanings that emerge from the deep time of our membership in life’s community. Today, in a world beset by ecological crises, our survival depends on our attentiveness to the speech of other species. Without their voices to guide us, we act in ignorance. This is an improvident path for so powerful a species. Hearing bird language, then, is a pleasure that can guide us to right action.”

-David Haskell

### **Invitation One- Sonic Diversity**

Revel in the acoustic diversity of bird sounds around your home. Make an inventory of the textures, cadences, pitches, and rhythms that you hear in the voices of birds. Let go of the need to “identify” species. Use your ears in the way a wine taster uses her nose and mouth. Open your senses to the sounds, linger in them, compare them, and enjoy their many layers.

### **Invitation Two – Names**

As in human friendship, names help us connect and remember, especially in the early days of our acquaintance. Give names to the five most common bird voices you hear around your home. Then name five more. Make up your own taxonomy of voices, invite an experienced bird listener along with you or use the Merlin app to find out the names. Not only does naming connect us to the birds, but the process also draws people together: “That sound is the song sparrow.” “Thank you, I hear it now.”

## Practice: Lectio Tierra

(adapted from *The Gift of Wonder* by Christine Aroney-Sine)

“Our daily experience of life, God and God’s world are meant to inspire us with awe and wonder. Our failure to notice the miracles around us is a failure of the spirit as well as the senses.” – Christine Aroney-Sine

Similar to the practice of *lectio divina*, *lectio tierra*, is a practice that helps us attune our spirit and senses to the movement and wonder of God through creation.

As you wander through the forest, work in your garden, breathe the fragrance of lavender, these are all moments in which you can open yourself to the awe and wonder of God’s world.

### Step 1: “Read Creation”

Like *lectio divina*, *lectio tierra* begins with reading. Head into creation with the deliberate intention of “reading” where God is present and what God is saying. What might God use to catch my eye and draw me closer? Anything that catches your attention provides fuel for reflection. Stop, look, and listen, not forcing revelation but waiting in the silence for God to nudge you in a direction. What story do you discern? How might it speak to you of God?

### Step 2: Meditate

Interact with what has captured your attention. Use your senses to discover its story. Are you reminded of any scripture passages as you observe?

### Step 3: Pray

Reflect on how this moment of observation relates to your own story. Thank God for this moment and for God’s creation. Ask God for insight. Pray to God for peace and guidance. Let this moment of connection draw you into praise.

### Step 4: Contemplation

Pause. Observe that you are not alone. Breathe in and absorb the insights that God has given you through this encounter. Receive the love, healing, and grace offered from God. Feel at one with God’s world and with others who help you move towards God’s wholeness.

## **Practice: create a nature mandala or work of ephemeral art**

*This is a good one for children and for the whole family to do together.*

Human creativity is one of the ways we connect to the Creator. We invite you to spend some time creating a nature mandala or work of ephemeral art. Taking only what you find outside at a location of your choice, craft a circular mandala or other small piece of art – with the understanding that this will be ephemeral and over time will blow/wash/drift away.

We encourage you to work with what is found and see how you can shape these into a creative work of beauty.

Enter into a time of prayer as you do so – offering to God the work of your hands, the creativity and the fun playfulness, and giving thanks to God for the goodness and beauty of Creation all around.

Example:



## Practice: write a psalm for your place

The psalms build a bridge between our lives, the life of God, and in the life of God's world. They give us a language and discourse of praise that orients our life back to the God who creates, redeems, and sustains. How might your engagement with your watershed and place change as you begin to regard it through this language of praise? Feel free to do this in written form or include other forms of visual media as you are inspired (paint, sketch, photographs, etc.)

1. Begin by reading Psalm 104 aloud. Note the movement in the text from general praise of God as Creator to celebration of the particular details of Creation, as experienced by this writer in the Ancient Near East. What jumps out to you here? How is God engaged in the world? What or who is included in this litany of thanks/praise? Are there any surprises? What role do human beings play?
2. Consider your own place and watershed. As you reflect on your ecological home, what gives you delight? How might you celebrate and give thanks to God for these things? Consider both how creatures exist on their own and how they provide for our human needs. Incorporate these into your psalm.
3. The psalm ends in what can seem a surprising turn, calling for sinners to be wiped from the earth. Consider this not as a hasty judgment on 'bad people,' but rather a kind of holy longing that all which brings Creation to ruin would be done away with. What would this sort of 'holy longing' look like in your place? What does ecological justice mean for your place? Incorporate these cries into your psalm.

(text of psalm 104 on the next page)

## Psalm 104 (NRSV)

<sup>1</sup> Praise the LORD, O my soul. O LORD my God, you are very great; you are clothed with splendor and majesty.<sup>2</sup> He wraps himself in light as with a garment; he stretches out the heavens like a tent <sup>3</sup> and lays the beams of his upper chambers on their waters. He makes the clouds his chariot and rides on the wings of the wind. <sup>4</sup> He makes winds his messengers, flames of fire his servants. <sup>5</sup> He set the earth on its foundations; it can never be moved. <sup>6</sup> You covered it with the deep as with a garment; the waters stood above the mountains. <sup>7</sup> But at your rebuke the waters fled, at the sound of your thunder they took to flight; <sup>8</sup> they flowed over the mountains, they went down into the valleys, to the place you assigned for them. <sup>9</sup> You set a boundary they cannot cross; never again will they cover the earth.

<sup>10</sup> He makes springs pour water into the ravines; it flows between the mountains. <sup>11</sup> They give water to all the beasts of the field; the wild donkeys quench their thirst. <sup>12</sup> The birds of the air nest by the waters; they sing among the branches. <sup>13</sup> He waters the mountains from his upper chambers; the earth is satisfied by the fruit of his work. <sup>14</sup> He makes grass grow for the cattle, and plants for man to cultivate - bringing forth food from the earth: <sup>15</sup> wine that gladdens the heart of man, oil to make his face shine, and bread that sustains his heart. <sup>16</sup> The trees of the LORD are well watered, the cedars of Lebanon that he planted. <sup>17</sup> There the birds make their nests; the stork has its home in the pine trees. <sup>18</sup> The high mountains belong to the wild goats; the crags are a refuge for the coney. <sup>19</sup> The moon marks off the seasons, and the sun knows when to go down. <sup>20</sup> You bring darkness, it becomes night, and all the beasts of the forest prowl. <sup>21</sup> The lions roar for their prey and seek their food from God. <sup>22</sup> The sun rises, and they steal away; they return and lie down in their dens. <sup>23</sup> Then man goes out to his work, to his labor until evening.

<sup>24</sup> How many are your works, O LORD! In wisdom you made them all; the earth is full of your creatures. <sup>25</sup> There is the sea, vast and spacious, teeming with creatures beyond number— living things both large and small. <sup>26</sup> There the ships go to and fro, and the leviathan, which you formed to frolic there.

<sup>27</sup> These all look to you to give them their food at the proper time. <sup>28</sup> When you give it to them, they gather it up; when you open your hand, they are satisfied with good things. <sup>29</sup> When you hide your face, they are terrified; when you take away their breath, they die and return to the dust. <sup>30</sup> When you send your Spirit, they are created, and you renew the face of the earth.

<sup>31</sup> May the glory of the LORD endure forever; may the LORD rejoice in his works- <sup>32</sup> he who looks at the earth, and it trembles, who touches the mountains, and they smoke. <sup>33</sup> I will sing to the LORD all my life; I will sing praise to my God as long as I live. <sup>34</sup> May my meditation be pleasing to him, as I rejoice in the LORD.

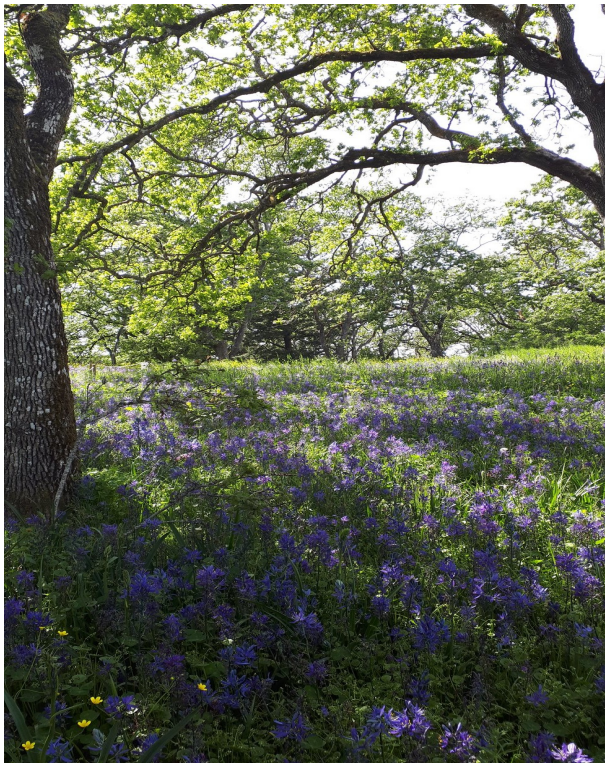
<sup>35</sup> But may sinners vanish from the earth and the wicked be no more. Praise the LORD, O my soul. Praise the LORD.

## Practice: sit spot/ Annie Dillard and the Intricacy of Creation

You are invited to skim the attached selection from Annie Dillard's classic text, *Pilgrim at Tinker Creek*. And then to spend some time (20 min-1 hour) in a favorite place (a sit spot, preferably one that you can easily return to again soon!) and let yourself enter into the frame of mind and habit of focused attention that Dillard so masterfully demonstrates.

1. Describe the 'intricacy' you observe there – you may want to do so in writing or in a series of sketches or photographs. Or just silently offer these observations to God.
  
2. To inform your reflections, consider some of the following:
  - a. What did you observe, see, learn about this place at this time?
  - b. What questions did this raise for you?
  - c. What was familiar and expected, what was new and strange?
  - d. How might this practice of observation inform your care for creation?
  - e. How might this practice of observation inform your faith in Creator?
  - f. What hinders this kind of careful attention in your daily life?

(Pictured: one of my favourite sit spots.)



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# Pilgrim at Tinker Creek

Annie Dillard



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CHAPTER 8

## Intricacy

I

A ROSY, COMPLEX LIGHT fills my kitchen at the end of these lengthening June days. From an explosion on a nearby star eight minutes ago, the light zips through space, particle-wave, strikes the planet, angles on the continent, and filters through a mesh of land dust: clay bits, sod bits, tiny wind-borne insects, bacteria, shreds of wing and leg, gravel dust, grits of carbon, and dried cells of grass, bark, and leaves. Reddened, the light inclines into this valley over the green western mountains; it sifts between pine needles on northern slopes, and through all the mountain black-jack oak and haw, whose leaves are unclenching, one by one, and making an intricate, toothed and lobed haze. The light crosses the valley, threads through the screen on my open kitchen window, and gilds the painted wall. A plank of brightness bends from the wall and extends over the goldfish bowl on the table where I sit.

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The goldfish's side catches the light and bats it my way; I've an eye-ful of fish-scale and star.

This Ellery cost me twenty-five cents. He is a deep red-orange, darker than most goldfish. He steers short distances mainly with his slender red lateral fins; they seem to provide impetus for going backward, up, or down. It took me a few days to discover his ventral fins; they are completely transparent and all but invisible—dream fins. He also has a short anal fin, and a tail that is deeply notched and perfectly transparent at the two tapered tips. He can extend his mouth, so that it looks like a length of pipe; he can shift the angle of his eyes in his head so he can look before and behind himself, instead of simply out to his side. His belly, what there is of it, is white ventrally, and a patch of this white extends up his sides—the variegated Ellery. When he opens his gill slits he shows a thin crescent of silver where the flap overlapped—as though all his brightness were sunburn.

For this creature, as I said, I paid twenty-five cents. I had never bought an animal before. It was very simple; I went to a store in Roanoke called "Wet Pets"; I handed the man a quarter, and he handed me a knotted plastic bag bouncing with water in which a green plant floated and the goldfish swam. This fish, two bits' worth, has a coiled gut, a spine radiating fine bones, and a brain. Just before I sprinkle his food flakes into his bowl, I rap three times on the bowl's edge; now he is conditioned, and swims to the surface when I rap. And, he has a heart.

Once, years ago, I saw red blood cells whip, one by one, through the capillaries in a goldfish's transparent tail. The goldfish was etherized. Its head lay in a wad of wet cotton wool; its tail lay on a tray under a dissecting microscope, one of those wonderful light-gathering microscopes with two eyepieces like a stereoscope in which the world's fragments—even the skin on my finger—look brilliant with myriads of colored lights, and as deep as any alpine

landscape. The red blood cells in the goldfish's tail streamed and coursed through narrow channels invisible save for glistening threads of thickness in the general translucency. They never wavered or slowed or ceased flowing, like the creek itself; they streamed redly around, up, and on, one by one, more, and more, without end. (The energy of that pulse reminds me of something about the human body: if you sit absolutely perfectly balanced on the end of your spine, with your legs either crossed tailor-fashion or drawn up together, and your arms forward on your legs, then even if you hold your breath, your body will rock with the energy of your heartbeat, forward and back, effortlessly, for as long as you want to remain balanced.) Those red blood cells are coursing in Ellery's tail now, too, in just that way, and through his mouth and eyes as well, and through mine. I've never forgotten the sight of those cells; I think of it when I see the fish in his bowl; I think of it lying in bed at night, imagining that if I concentrate enough I might be able to feel in my fingers' capillaries the small knockings and flow of those circular dots, like a string of beads drawn through my hand.

Something else is happening in the goldfish bowl. There on the kitchen table, nourished by the simple plank of complex light, the plankton is blooming. The water yellows and clouds; a transparent slime coats the leaves of the water plant, elodea; a blue-green film of single-celled algae clings to the glass. And I have to clean the doggone bowl. I'll spare you the details: it's the plant I'm interested in. While Ellery swims in the stoppered sink, I rinse the algae down the drain of another sink, wash the gravel, and rub the elodea's many ferny leaves under running water until they feel clean.

The elodea is not considered much of a plant. Aquarists use it because it's available and it gives off oxygen completely submersed; laboratories use it because its leaves are only two cells thick. It's

plentiful, easy to grow, and cheap—like the goldfish. And, like the goldfish, its cells have unwittingly performed for me on a microscope's stage.

I was in a laboratory, using a very expensive microscope. I peered through the deep twin eyepieces and saw again that color-charged, glistening world. A thin, oblong leaf of elodea, a quarter of an inch long, lay on a glass slide sopping wet and floodlighted brilliantly from below. In the circle of light formed by the two eyepieces trained at the translucent leaf, I saw a clean mosaic of almost colorless cells. The cells were large—eight or nine of them, magnified four hundred and fifty times, packed the circle—so that I could easily see what I had come to see: the streaming of chloroplasts.

Chloroplasts bear chlorophyll; they give the green world its color, and they carry out the business of photosynthesis. Around the inside perimeter of each gigantic cell trailed a continuous loop of these bright green dots. They spun like paramecia; they pulsed, pressed, and thronged. A change of focus suddenly revealed the eddying currents of the river of transparent cytoplasm, a sort of "ether" to the chloroplasts, or "space-time," in which they have their tiny being. Back to the green dots: they shone, they swarmed in ever-shifting files around and around the edge of the cell; they wandered, they charged, they milled, raced, and ran at the edge of apparent nothingness, the empty-looking inner cell; they flowed and trooped greenly, up against the vegetative wall.

All the green in the planted world consists of these whole, rounded chloroplasts wending their ways in water. If you analyze a molecule of chlorophyll itself, what you get is one hundred thirty-six atoms of hydrogen, carbon, oxygen, and nitrogen arranged in an exact and complex relationship around a central ring. At the ring's center is a single atom of magnesium. Now: If you remove the atom of magnesium and in its exact place put an atom of iron,

you get a molecule of hemoglobin. The iron atom combines with all the other atoms to make red blood, the streaming red dots in the goldfish's tail.

It is, then, a small world there in the goldfish bowl, and a very large one. Say the nucleus of any atom in the bowl were the size of a cherry pit: its nearest electron would revolve around it one hundred seventy-five yards away. A whirling air in his swim bladder balances the goldfish's weight in the water; his scales overlap, his feathery gills pump and filter; his eyes work, his heart beats, his liver absorbs, his muscles contract in a wave of extending ripples. The daphnias he eats have eyes and jointed legs. The algae the daphnias eat have green cells stacked like checkers or winding in narrow ribbons like spiral staircases up long columns of emptiness. And so on diminishingly down. We have not yet found the dot so small it is uncreated, as it were, like a metal blank, or merely roughed in—and we never shall. We go down landscape after mobile, sculpture after collage, down to molecular structures like a mob dance in Breughel, down to atoms airy and balanced as a canvas by Klee, down to atomic particles, the heart of the matter, as spirited and wild as any El Greco saints. And it all works. "Nature," said Thoreau in his journal, "is mythical and mystical always, and spends her whole genius on the least work." The creator, I would add, churns out the intricate texture of least works that is the world with a spendthrift genius and an extravagance of care. This is the point.

I am sitting here looking at a goldfish bowl and busting my brain. *Ich kann nicht anders*. I am sitting here, you are sitting there. Say even that you are sitting across this kitchen table from me right now. Our eyes meet; a consciousness snaps back and forth. What we know, at least for starters, is: here we—so incon-

trovertibly—are. This is our life, these are our lighted seasons, and then we die. (You die, you die; first you go wet, and then you go dry.) In the meantime, in between time, we can see. The scales are fallen from our eyes, the cataracts are cut away, and we can work at making sense of the color-patches we see in an effort to discover *where* we so incontrovertibly are. It's common sense: when you move in, you try to learn the neighborhood.

I am as passionately interested in where I am as is a lone sailor sans sextant in a ketch on the open ocean. What else is he supposed to be thinking about? Fortunately, like the sailor, I have at the moment a situation which allows me to devote considerable hunks of time to seeing what I can see, and trying to piece it together. I've learned the names of some color-patches, but not the meanings. I've read books. I've gathered statistics feverishly: The average temperature of our planet is 57° Fahrenheit. Of the 29% of all land that is above water, over a third is given to grazing. The average size of all living animals, including man, is almost that of a housefly. The earth is mostly granite, which in turn is mostly oxygen. The most numerous of animals big enough to see are the copepods, the mites, and the springtails; of plants, the algae, the sedge. In these Appalachians we have found a coal bed with 120 seams, meaning 120 forests that just happened to fall into water, heaped like corpses in drawers. And so on. These statistics, and all the various facts about subatomic particles, quanta, neutrinos, and so forth, constitute in effect the infrared and ultraviolet light at either end of the spectrum. They are too big and too small to see, to understand; they are more or less invisible to me though present, and peripheral to me in a real sense because I do not understand even what I can easily see. I would like to see it all, to understand it, but I must start somewhere, so I try to deal with the giant water bug in Tinker Creek and the flight of three hundred redwings from an Osage orange, with the goldfish

owl and the snakeskin, and let those who dare worry about the birthrate and population explosion among solar systems.

So I think about the valley. And it occurs to me more and more that everything I have seen is wholly gratuitous. The giant water bug's predations, the frog's croak, the tree with the lights in it are not in any real sense necessary *per se* to the world or to its creator. Nor am I. The creation in the first place, being itself, is the only necessity, for which I would die, and I shall. The point about that being, as I know it here and see it, is that, as I think about it, it accumulates in my mind as an extravagance of minutiae. The sheer fringe and network of detail assumes primary importance. That there are so many details seems to be the most important and visible fact about the creation. If you can't see the forest for the trees, then look at the trees; when you've looked at enough trees, you've seen a forest, you've got it. If the world is gratuitous, then the fringe of a goldfish's fin is a million times more so. The first question—the one crucial one—of the creation of the universe and the existence of something as a sign and an affront to nothing, is a blank one. I can't think about it. So it is to the fringe of that question that I affix my attention, the fringe of the fish's fin, the intricacy of the world's spotted and speckled detail.

The old Kabbalistic phrase is "the Mystery of the Splintering of the Vessels." The words refer to the shrinking or imprisonment of essences within the various husk-covered forms of emanation or time. The Vessels splintered and solar systems spun; ciliated rotifers whirled in still water, and newts with gills laid tracks in the silt-bottomed creek. Not only did the Vessels splinter: they splintered exceeding fine. Intricacy, then, is the subject, the intricacy of the created world.

You are God. You want to make a forest, something to hold the soil, lock up solar energy, and give off oxygen. Wouldn't it be

simpler just to rough in a slab of chemicals, a green acre of goo?

You are a man, a retired railroad worker who makes replicas as a hobby. You decide to make a replica of one tree, the longleaf pine your great-grandfather planted—just a replica—it doesn't have to work. How are you going to do it? How long do you think you might live, how good is your glue? For one thing, you are going to have to dig a hole and stick your replica trunk in the ground halfway to China if you want the thing to stand up. Because you will have to work fairly big; if your replica is too small, you'll be unable to handle the slender, three-sided needles, affix them in clusters of three in fascicles, and attach those laden fascicles to flexible twigs. The twigs themselves must be covered by "many silvery-white, fringed, long-spreading scales." Are your pine cones' scales "thin, flat, rounded at the apex, the exposed portions (closed cone) reddish brown, often wrinkled, armed on the back with a small, reflexed prickle, which curves toward the base of the scale"? When you loose the lashed copper wire trussing the replica limbs to the trunk, the whole tree collapses like an umbrella.

You are a starling. I've seen you fly through a longleaf pine without missing a beat.

You are a sculptor. You climb a great ladder; you pour grease all over a growing longleaf pine. Next, you build a hollow cylinder like a cofferdam around the entire pine, and grease its inside walls. You climb your ladder and spend the next week pouring wet plaster into the cofferdam, over and inside the pine. You wait; the plaster hardens. Now open the walls of the dam, split the plaster, saw down the tree, remove it, discard, and your intricate sculpture is ready: this is the shape of part of the air.

You are a chloroplast moving in water heaved one hundred feet above ground. Hydrogen, carbon, oxygen, nitrogen in a ring around magnesium. . . . You are evolution; you have only begun to make trees. You are God—are you tired? finished?

Intricacy means that there is a fluted fringe to the something that exists over against nothing, a fringe that rises and spreads, burgeoning in detail. Mentally reverse positive and negative space, as in the plaster cast of the pine, and imagine emptiness as a sort of person, a boundless person consisting of an elastic, unformed clay. (For the moment forget that the air in our atmosphere is "something," and count it as "nothing," the sculptor's negative space.) The clay man completely surrounds the holes in him, which are galaxies and solar systems. The holes in him part, expand, shrink, veer, circle, spin. He gives like water, he spreads and fills unseeing. Here is a ragged hole, our earth, a hole that makes torn and frayed edges in his side, mountains and pines. And here is the shape of one swift, raveling edge, a feather-hole on a flying goose's hollow wing extended over the planet. Five hundred barbs of emptiness prick into clay from either side of a central, flexible shaft. On each barb are two fringes of five hundred barbules apiece, making a million barbules on each feather, fluted and hooked in a matrix of clasped hollowness. Through the fabric of this form the clay man shuttles unerringly, and through the other feather-holes, and the goose, the pine forest, the planet, and so on.

In other words, even on the perfectly ordinary and clearly visible level, creation carries on with an intricacy unfathomable and apparently uncalled for. The lone ping into being of the first hydrogen atom *ex nihilo* was so unthinkable, violently radical, that surely it ought to have been enough, more than enough. But look what happens. You open the door and all heaven and hell break loose.

Evolution, of course, is the vehicle of intricacy. The stability of simple forms is the sturdy base from which more complex stable forms might arise, forming in turn more complex forms, and so on. The stratified nature of this stability, like a house built on rock on rock on rock, performs, in Jacob Branowski's terms, as the "ratchet" that prevents the whole shebang from "slipping back." Bring a feather into the house, and a piano; put a sculpture on the roof, sure, and fly banners from the lintels—the house will hold.

There are, for instance, two hundred twenty-eight separate and distinct muscles in the head of an ordinary caterpillar. Again, of an ostracod, a common fresh-water crustacean of the sort I crunch on by the thousands every time I set foot in Tinker Creek, I read, "There is one eye situated at the fore-end of the animal. The food canal lies just below the hinge, and around the mouth are the feathery feeding appendages which collect the food. . . . Behind them is a foot which is clawed and this is partly used for removing unwanted particles from the feeding appendages." Or again, there are, as I have said, six million leaves on a big elm. All right . . . but they are toothed, and the teeth themselves are toothed. How many notches and barbs is that to a world? In and out go the intricate leaf edges, and "don't nobody know why." All the theories botanists have devised to explain the functions of various leaf-shapes tumble under an avalanche of inconsistencies. They simply don't know, can't imagine.

I have often noticed that these things, which obsess me, neither bother nor impress other people even slightly. I am horribly apt to approach some innocent at a gathering and, like the ancient mariner, fix him with a wild, glitt'ring eye and say, "Do you know that in the head of the caterpillar of the ordinary goat moth there are two hundred twenty-eight separate muscles?" The poor wretch flees. I am not making chatter; I mean to change his life. I seem

to possess an organ that others lack, a sort of trivia machine.

When I was young I thought that all human beings had an organ inside each lower eyelid which caught things that got in the eye. I don't know where I imagined I'd learned this piece of anatomy. Things got in my eye, and then they went away, so I supposed that they had fallen into my eye-pouch. This eye-pouch was a slender, thin-walled purse, equipped with frail digestive powers that enabled it eventually to absorb eyelashes, strands of fabric, bits of grit, and anything else that might stray into the eye. Well, the existence of this eye-pouch, it turned out, was all in my mind, and, it turns out, it is apparently there still, a brain-pouch, catching and absorbing small bits that fall deeply into my open eye.

All I can remember from a required zoology course years ago, for instance, is a lasting impression that there is an item in the universe called a Henle's loop. Its terrestrial abode is in the human kidney. I just refreshed my memory on the subject. The Henle's loop is an attenuated oxbow or U-turn made by an incredibly tiny tube in the nephron of the kidney. The nephron in turn is a filtering structure which produces urine and reabsorbs nutrients. This business is so important that one fifth of all the heart's pumped blood goes to the kidneys.

There is no way to describe a nephron; you might hazard into a fairly good approximation of its structure if you threw about fifteen yards of string on the floor. If half the string fell into a very narrow loop, that would be the Henle's loop. Two other bits of string that rumbled up and tangled would be the "proximal convoluted tubule" and the "distal convoluted tubule," shaped just so. But the heart of the matter would be a very snarled clump of strings, "an almost spherical tuft of parallel capillaries," which is the glomerulus, or Malpighian body. This is the filter to end all filters, supplied with afferent and efferent arterioles and protected by a double-walled capsule. Compared to the glomerulus, the

Henle's loop is rather unimportant. By going from here to there in such a roundabout way, the Henle's loop packs a great deal of filtering tubule into a very narrow space. But the delicate oxbow of tissue, looping down so far, and then up, is really a peripheral extravagance, which is why I remembered it, and a beautiful one, like a meander in a creek.

Now the point of all this is that there are a million nephrons in each human kidney. I've got two million glomeruli, two million Henle's loops, and I made them all myself, without the least effort. They're undoubtedly my finest work. What an elaboration, what an extravagance! The proximal segment of the tubule, for instance, "is composed of irregular cuboidal cells with characteristic brushlike striations (brush border) at the internal, or luminal, border." Here are my own fringed necessities, a veritable forest of pines.

Van Gogh, you remember, called the world a study that didn't come off. Whether it "came off" is a difficult question. The chloroplasts do stream in the leaf as if propelled by a mighty, invisible breath; but on the other hand, a certain sorrow arises, welling up in Shadow Creek, and from those lonely banks it appears that all our intricate fringes, however beautiful, are really the striations of a universal and undeserved flaying. But, Van Gogh: a *study* it is not. This is the truth of the pervading intricacy of the world's detail: the creation is not a study, a roughed-in sketch; it is supremely, meticulously created, created abundantly, extravagantly, and in fine.

Along with intricacy, there is another aspect of the creation that has impressed me in the course of my wanderings. Look again at the horsehair worm, a yard long and thin as a thread, whipping through the duck pond, or tangled with others of its kind in a

slithering Gordian knot. Look at an overwintering ball of buzzing bees, or a turtle under ice breathing through its pumping cloaca. Look at the fruit of the Osage orange tree, big as a grapefruit, green, convoluted as any human brain. Or look at a rotifer's translucent gut: something orange and powerful is surging up and down like a piston, and something small and round is spinning in place like a flywheel. Look, in short, at practically anything—the coot's feet, the mantis's face, a banana, the human ear—and see that not only did the creator create everything, but that he is apt to create *anything*. He'll stop at nothing.

There is no one standing over evolution with a blue pencil to say, "Now that one, there, is absolutely ridiculous, and I won't have it." If the creature makes it, it gets a "stet." Is our taste so much better than the creator's? Utility to the creature is evolution's only aesthetic consideration. Form follows function in the created world, so far as I know, and the creature that functions, however bizarre, survives to perpetuate its form. Of the intricacy of form, I know some answers and not others: I know why the barbules on a feather hook together, and why the Henle's loop loops, but not why the elm tree's leaves zigzag, or why butterfly scales and pollen are shaped just so. But of the *variety* of form itself, of the multiplicity of forms, I know nothing. Except that, apparently, anything goes. This holds for forms of behavior as well as design—the mantis munching her mate, the frog wintering in mud, the spider wrapping a hummingbird, the pine processionary straddling a thread. Welcome aboard. A generous spirit signs on this motley crew.

Take, for instance, the African Hercules beetle, which is so big, according to Edwin Way Teale, "it drones over the countryside at evening with a sound like an approaching airplane." Or, better, take to heart Teale's description of South American honey ants. These ants have abdomens that can stretch to enormous

proportions. "Certain members of the colony act as storage vessels for the honeydew gathered by the workers. They never leave the nest. With abdomens so swollen they cannot walk, they cling to the roof of their underground chamber, regurgitating food to the workers when it is needed." I read these things, and those ants are as present to me as if they hung from my kitchen ceiling, or down the vaults of my skull, pulsing live jars, engorged vats, teats, with an eyed animal at the head thinking—what?

Blake said, "He who does not prefer Form to Colour is a Coward!" I often wish the creator had been more of a coward, giving us many fewer forms and many more colors. Here is an interesting form, one closer to home. This is the larva, or nymph, of an ordinary dragonfly. The wingless nymphs are an inch long and fat as earthworms. They stalk everywhere on the floors of valley ponds and creeks, sucking water into their gilled rectums. But it is their faces I'm interested in. According to Howard Ensign Evans, a dragonfly larva's "lower lip is enormously lengthened, and has a double hinge joint so that it can be pulled back beneath the body when not in use; the outer part is expanded and provided with stout hooks, and in resting position forms a 'mask' that covers much of the face of the larva. The lip is capable of being thrust forward suddenly, and the terminal hooks are capable of grasping prey well in front of the larva and pulling it back to the sharp, jagged mandibles. Dragonfly larvae prey on many kinds of small insects occurring in the water, and the larger ones are well able to handle small fish."

The world is full of creatures that for some reason seem stranger to us than others, and libraries are full of books describing them—hagfish, platypuses, lizardlike pangolins four feet long with bright green, lapped scales like umbrella-tree leaves on a bush hut roof, butterflies emerging from anthills, spiderlings wafting through the air clutching tiny silken balloons, horseshoe crabs . . . the creator

creates. Does he stoop, does he speak, does he save, succor, prevail? Maybe. But he creates; he creates everything and anything.

Of all known forms of life, only about ten percent are still living today. All other forms—fantastic plants, ordinary plants, living animals with unimaginably various wings, tails, teeth, brains—are utterly and forever gone. That is a great many forms that have been created. Multiplying ten times the number of living forms today yields a profusion that is quite beyond what I consider thinkable. Why so many forms? Why not just that one hydrogen atom? The creator goes off on one wild, specific tangent after another, or millions simultaneously, with an exuberance that would seem to be unwarranted, and with an abandoned energy sprung from an unfathomable font. What is going on here? The point of the dragonfly's terrible lip, the giant water bug, birdsong, or the beautiful dazzle and flash of sunlighted minnows, is not that it all fits together like clockwork—for it doesn't, particularly, not even inside the goldfish bowl—but that it all flows so freely wild, like the creek, that it all surges in such a free, fringed tangle. Freedom is the world's water and weather, the world's nourishment freely given, its soil and sap: and the creator loves pizzazz.

## II

What I aim to do is not so much learn the names of the shreds of creation that flourish in this valley, but to keep myself open to their meanings, which is to try to impress myself at all times with the fullest possible force of their very reality. I want to have things as multiply and intricately as possible present and visible in my mind. Then I might be able to sit on the hill by the burnt books where the starlings fly over, and see not only the starlings, the grass field, the quarried rock, the viney woods, Hollins Pond, and

the mountains beyond, but also, and simultaneously, feathers' bars, springtails in the soil, crystal in rock, chloroplasts streaming, rotifers pulsing, and the shape of the air in the pines. And, if I try to keep my eye on quantum physics, if I try to keep up with astronomy and cosmology, and really believe it all, I might ultimately be able to make out the landscape of the universe. Why not?

Landscape consists in the multiple, overlapping intricacies and forms that exist in a given space at a moment in time. Landscape is the texture of intricacy, and texture is my present subject. Intricacies of detail and varieties of form build up into textures. A bird's feather is an intricacy; the bird is a form; the bird in space in relation to air, forest, continent, and so on, is a thread in a texture. The moon has its texture, too, its pitted and carved landscapes in even its flattest seas. The planets are more than smooth spheres; the galaxy itself is a flock of texture, binding and bound. But here on earth texture interests us supremely. Wherever there is life, there is twist and mess: the frizz of an arctic lichen, the tangle of brush along a bank, the dogleg of a dog's leg, the way a line has got to curve, split, or knob. The planet is characterized by its very jaggedness, its random heaps of mountains, its frayed fringes of shore.

Think of a globe, a revolving globe on a stand. Think of a contour globe, whose mountain ranges cast shadows, whose continents rise in bas-relief above the oceans. But then: think of how it *really* is. These heights aren't just suggested; they're there. Pliny, who knew the world was round, figured that when it was all surveyed the earth would be seen to resemble in shape, not a sphere, but a pineapple, pricked by irregularities. When I think of walking across a continent I think of all the neighborhood hills, the tiny grades up which children drag their sleds. It is all so sculptured, three-dimensional, casting a shadow. What if you had an enormous globe in relief that was so huge it showed roads and houses—a

geological survey globe, a quarter of a mile to an inch—of the whole world, and the ocean floor! Looking at it, you would know what had to be left out: the free-standing sculptural arrangement of furniture in rooms, the jumble of broken rocks in a creek bed, tools in a box, labyrinthine ocean liners, the shape of snapdragons, walrus. Where is the one thing you care about on earth, the molding of one face? The relief globe couldn't begin to show trees, between whose overlapping boughs birds raise broods, or the furrows in bark, where whole creatures, creatures easily visible, live out their lives and call it world enough.

What do I make of all this texture? What does it mean about the kind of world in which I have been set down? The texture of the world, its filigree and scrollwork, means that there is the possibility for beauty here, a beauty inexhaustible in its complexity, which opens to my knock, which answers in me a call I do not remember calling, and which trains me to the wild and extravagant nature of the spirit I seek.