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Notebook M

Gillian Savigny

A Thesis

in

The Department

of

English

Presented in Partial Fulfilment of the Requirements
for the Degree of Master of Arts in English at
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Abstract

Notebook M

Gillian Savigny

The poems in this collection explore the similarities and differences between the ways a scientist and a poet approach language. To better demonstrate the ways scientists use words and control meaning, I have adopted the persona of a scientist in many poems. Sometimes this persona is specifically Charles Darwin, while in other cases it is simply someone with a scientific sensibility. Along the way, a third voice, more closely resembling a poet's, appears to assert language's imaginative potential.

The first section, consists of poems I have created out of a chapter from Darwin's *Voyage of the Beagle*, which deal with ideas of natural and artificial selection. The next section, "Notebook M," explores the different relationships poetry and science have to metaphor, and the significant role metaphor plays in the theory of evolution in particular. "Zoobank" does the same for nomenclature, taxonomy, and anatomy, while the final section, "Old and Useless Notes," consists of poems I wrote before all the others. In a sense, these poems allowed me to write the later ones.

The move from section to section is occasionally jarring because of slight differences in theme and more significant differences in style. These shifts are meant to reflect the form of a notebook. Darwin used his notebooks as a space for experiment, speculation, and practice, and I have attempted to approach this thesis in the same way. I hope the end result possesses, in some small way, the same spirit of daring possibility that so inspired me in the original.

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All that has ever been done is ridden with errors, faulty perspectives, ignorance, signs of bad taste, shortcomings and oversights. What ever can't be done in a single burst suffers from the unevenness of our spirit. – Fernando Pessoa, *The Book of Disquiet*

I have attempted to write the following account of myself, as if I were a dead man in another world looking back at my own life. – Charles Darwin, *Autobiography*

We know less than ever where to cut—either at birth or death. And this also means that we never know, and never have known, how to *cut up* a subject. – Jacques Derrida, “Eating Well, or the Calculation of the Subject.”

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INTRODUCTION

When Charles Darwin (1809-1882) returned to England after sailing around the world for five years, he began developing, in a series of notebooks, what would become his theory of evolution. From 1836 to the early 1840s, as he established himself as an accomplished young naturalist first in Cambridge, then in London, his notebooks recorded a wide range of questions, speculations, conversations, readings and experiments—the tracks of a relentlessly inquisitive mind intent on demonstrating that the transmutation hypothesis could be used to answer some of the most perplexing questions in biology.

Through the Red Notebook, Notebooks, A, B, C, D, E, and the Tom Apart Notebook, Darwin explored his hypothesis and built the foundation for *On the Origin of Species* (1859), but during the writing of Notebook C something happened. More and more Darwin began to explore ideas about human behaviour and the metaphysical and epistemological implications of his developing theory. And so on July 15th, 1838 Darwin opened two new notebooks: one he labeled 'D' in which he would continue his transmutationist speculations, and another he labeled 'M' in which he would explore "Metaphysics on Morals & Speculations on Expression".

The following poems explore what 'M' means—metaphysics? morality? memory? man? monkeys? metaphor?—and the separate space the ideas that fall under it are afforded. Notebook M and those that follow in its path—Notebook N and Old and Useless Notes—display a remarkable creativity within Darwin's scientific consciousness. I have tried to re-imagine what that creativity might accomplish when put to work as well as when given the space to play.

Darwin

left the garden of England
with hardly a hair on his chin.
With God in his heart, the earth in his head, and the sea
in his stomach, he drowned in nausea
from Plymouth to Bahia. He weathered
the rough seas cloistered in his cabin,
praying for land
praying to land.

Off the coast of Patagonia, the ship sailed into a storm
of butterflies so thick the sky was lost behind them
and Darwin fixed their sea wings to a thought in his mind.
Today: butterflies at sea. Last week: beetles.
In the sea off Cape Corrientes he hadn't been looking
for insects but found them in the thousands,
and spiders descending with silk parachutes
from some mysterious source. But since all he ever thought
at sea was land, land, land, he reasoned:
they must come from a land mass,
but there was none for miles
and miles were too far for spider steps,
and steps were no good on water unless you were God,
and Darwin,
with all that land pounding in his head,
could only think: *spiders, island,*
and maybe the wind.

PATAGONIA

Rio Plata – Flocks of butterflies – Beetles alive in the sea –
Aeronaut spiders – Pelagic animals – Phosphorescence
of sea – Port Desire – Spanish settlements – Zoology –
Guanaco – Excursion to head of harbour – Indian grave – Port
St Julian – Geology of Patagonia, successive terraces, transport
of pebbles – Fossil gigantic llama – Types of organization
constant – Change in zoology of America – Causes of
extinction

DECEMBER 6th, 1833 – The *Beagle* sailed from the Rio Plata, never again to enter its muddy stream. Our course was directed to Port Desire, on the coast of Patagonia. Before proceeding any further, **I will here put together a few** observations made at sea.

Several times when the ship has been some miles off the mouth of the Plata, and at other times when off the shores of Northern Patagonia, we have been surrounded by insects. One evening, when we were about ten miles from the Bay of San Blas, vast numbers of **butterflies**, in bands or **flocks of** countless myriads, extended as far as the eye could range. Even by the aid of a glass it was not possible to see a space free of butterflies. The seamen cried out 'it was **snowing** butterflies', and such **in fact** was the appearance. **More** species **than** one were present, but the main part **belonged** to a kind very similar to, but not identical with, the common English *Colias edusa*.^{*} Some moths and hymenoptera accompanied the butterflies; and a fine Calosoma flew on board. **Other** instances are **known** of this beetle **having been caught far out at sea**; and **this is the more remarkable**, as the greater **number** of the Carabidæ seldom or **never** take **wing**. The day had been fine and **calm**, and **the** one previous to it equally so, with light and **variable** **airs**. Hence we cannot suppose that the insects were blown off the land, but **we must conclude** that they voluntarily took flight. The great bands of the *Colias* seem at first to afford an instance like those on record of the migrations of *Vanessa cardui*;[†] but the presence of other insects makes the case distinct, and not so easily intelligible. Before sunset, a strong breeze sprung up from the north, and this must have been **the cause of tens of thousands** of the butterflies and other insects **having perished**.

^{*} I am indebted to Mr Waterhouse for naming these and other insects.

[†] Lyell's Geology, vol. iii, p. 63.

On another occasion, when 17 miles off Cape Corrientes, I had a net overboard to catch pelagic animals. Upon drawing it up, to my surprise I found a considerable number of beetles in it, and although in the open sea, they did not appear much injured by the salt water. I lost some of the specimens, but those which I preserved, belonged to the genera, colymbetes, hydroporus, hydrobius (two species), notaphus, cynucus, adimonia, and scarabæus. At first, I thought that these insects had been blown from the shore; but upon reflecting that out of the eight species, four were aquatic, and two others partly so in their habits, it appeared to me most probable that they were floated into the sea, by a small stream which drains a lake near Cape Corrientes. On any supposition, it is an interesting circumstance to find insects, quite alive, swimming in the open ocean, 17 miles from the nearest point of land. There are several accounts of insects having been blown off the Patagonian shore. Captain Cook observed it, as did more lately Captain Kind in the *Adventure*. The cause probably is due to the want of shelter, both of trees and hills, so that an insect on the wing with an off-shore breeze, would be very apt to be blown out to sea. The most remarkable instance I ever knew of an insect being caught far from the land, was that of a large grasshopper (*Acrydium*), which flew on board, when the *Beagle* was to windward of the Cape de Verd Islands, and when the nearest point of land, not directly opposed to the trade-wind, was Cape Blanco on the coast of Africa, 370 miles distant.†

† The flies which frequently accompany a ship for some days on its passage from harbour to harbour, wandering from the vessel, are soon lost, and all disappear.

On several occasions, when the vessel has been within the mouth of the Plata, the rigging has been coated with the web of the Gossamer Spider. One day (November 1st, 1832) I paid particular attention to the phenomenon. The weather had been fine and clear, and in the morning the air was full of patches of the flocculent web, as on an autumnal day in England. The ship was sixty miles distant from the land, in the direction of a steady though light breeze. Vast numbers of a small spider, about one tenth of an inch in length, and of a dusky red colour were attached to the webs. There must have been, I should suppose, some thousands on the ship. The little spider when first coming in contact with the rigging, was always seated on a single thread, and not on the flocculent mass. This latter seems merely to be produced by the entanglement of the single threads. The spiders were all of one species, but of both sexes, together with young ones. These latter were distinguished by their smaller size, and more dusky colour. I will not give the description of this spider, but merely state that it does not appear to me to be included in any of Latreille's genera. The little aeronaut as soon as it arrived on board, was very active, running about; sometimes employing itself in making a small and very irregular mesh in the corners between the ropes. It could run with facility on the surface of water. When disturbed it lifted up its front legs, in the attitude of attention. On its first arrival it appeared very thirsty, and with exerted maxillæ drank eagerly of the fluid; this same circumstance has been observed by Strack: may it not be in consequence of the little insect having passed through a dry and rarefied atmosphere? Its stock of web seemed inexhaustible. While watching some that were suspended by a single thread, I several times observed that the slightest breath of air bore them away out of sight, in a horizontal line. On another occasion (25th) under similar circumstances, I repeatedly observed the same kind of small spider, either when placed, or having crawled, on some little eminence, elevate its abdomen, send forth a thread, and then sail away in a lateral course, but with a rapidity which was quite unaccountable. I thought I could perceive that the spider before performing the above preparatory steps, connected its legs together with the most delicate threads, but I am not sure, whether this observation is correct.

One day, at St Fe, I had a better opportunity of observing some similar facts. A spider which was **about three-tenths of an inch in length, and which in its general appearance resembled** a Citigrade (therefore quite different from the gossamer), while standing on **the summit of a post**, darted forth four or five threads from its spinners. These glittering in the sunshine, might be compared to **rays of light; they were not**, however, straight, but in undulations like a film of silk blown by the wind. They were more than a yard in length, and diverged in an ascending direction from the orifices. The spider then suddenly **let go** its hold, and was quickly borne out of sight. The day was hot and apparently quite calm; yet under such circumstances **the atmosphere can never be so tranquil**, as not to affect a vane so delicate as the thread of a spider's web. **If** during a warm day we look either at the shadow of any object cast on a bank, or over a level plain at a distant landmark, **the** effect of an ascending current of heated **air** will almost always be evident. And **this** probably would be **sufficient to carry with it so light an object as the little spider on its thread**. The circumstance of spiders of the same species but of different sexes and ages, being found on several occasions at the distance of many leagues from the land, attached in vast numbers to the lines, **proves** that they are the manufacturers of the mesh, and that the habit of sailing through the air, is probably as characteristic of some tribe, as that of diving is of the Argyroneta. **We may** then reject Latreille's supposition, that the goassamer owes its origin to the webs of the young of several genera, as Epeira or Thomisa: although, as we have seen that the young of other spiders do **possess the power of performing aerial voyages.***

* I was not at the time aware of M. Virey's very curious observations, (Bulletin des Sciences Natur., tom. xix, p. 130) which seem to prove that small spiders, in an atmosphere perfectly tranquil, and without the aid of any web, have the power of darting through the air. **M. Virey, believes that by means of a rapid vibration of their feet, they walk the air.** Although in his case, the conclusion seems almost inevitable, yet in the one I have described, we must suppose that the several threads which were sent forth, served as sails from the atmospheric currents to act on. After reading M. Virey's account, it appears to me far from improbable, that the little aeronaut actually did unite, as was suspected, his feet together by some fine lines, thus forming artificial wings. I regret I did not determine this point with accuracy; for it would be a curious fact, that a spider should thus be able to take flight by the aid of temporary wings.

During our different passages south of the Plata, I often towed astern a net made of bunting, and thus caught many curious animals. The structure of the Beroe (a kind of jelly fish) is most extraordinary, with its rows of vibratory ciliae, and complicated though irregular system of circulation. Of crustacean, there were many strange and undescribed genera. One, which in some respects is allied to the Notopods (or those crabs which have **their** posterior legs placed almost on their backs, for the purpose of adhering to the under side of ledges), is very remarkable from the structure of its hind pair of legs. The penultimate joint, instead of being terminated by a simple claw, ends in three bristle-like appendages of dissimilar lengths, the longest equaling that of the entire leg. These **claws are very thin**, and are serrated with teeth of an excessive fineness, which are directed towards the base. The curved extremities are flattened, **and** on this part five most minute cups are placed, which **seem** to act in the same manner as the suckers on the arms of the cuttle-fish. As the animal lives in the open sea, and probably wants a place of rest, I suppose this beautiful structure is **adapted to take hold** of the globular bodies of the Medusae, and other floating marine animals.

In deep water, far from the land, **the number of living creatures is extremely small**: south of the latitude 35°, I never succeeded in catching any thing besides some beroe, and a few species of minute crustacean belonging to the Entomostraca. In shoaler water, at the distance of a few miles from the coast, very many kinds of crustacean and some other animals were numerous, but only during the night. Between latitudes 56° and 57° south of Cape Horn the net was put astern several times; it never, however, brought up any thing besides a few of two extremely minute species of Entomostraca. Yet whales and seal, petrels and albatross, are exceedingly abundant throughout this part of the ocean. It has always been **a source of mystery** to me, on what the latter, which live far from the shore, can subsist. I presume the albatross, like the condor, is able to fast long; and that one good feast on the carcass of a putrid whale lasts for **a long siege of hunger**. It does not lessen the difficulty to say, they feed on fish; for on what can the fish feed? It often occurred to me, when observing how the waters of the central and intertropical parts of the Atlantic,* swarmed with Pteropoda, Crustacea, and Radiata, and with their devourers the flying-fish, and again with *their* devourers the bonitos and albacores, that the lowest of these pelagic animals perhaps possess the power of decomposing carbonic acid gas, like the members of the vegetable kingdom.

* From my experience, which has been but little, I should say that **the Atlantic was far more prolific than the Pacific**, at least, than in that immense open area, between the west coast of America and the extreme eastern isles of Polynesia.

While sailing in these latitudes on one very dark night, the sea presented a wonderful and most beautiful spectacle. There was a fresh breeze, and every part of the surface, which during the day is seen as foam, now glowed with a pale light. The vessel drove before her bows two billows of liquid phosphorus, and in her wake she was followed by a milky train. As far as the eye reaches, the crest of every wave was bright, and the sky above the horizon, from the reflected glare of these livid flames, was not so utterly obscure, as over the rest of the heavens.

As we proceed further southward, the sea is seldom phosphorescent; and off Cape Horn, I do not recollect more than once having seen it so, and then it was far from being brilliant. This circumstance probably has a close connexion with the scarcity of organic beings in that part of the ocean. After the elaborate paper† by Ehrenberg, on the phosphorescence of the sea, it is almost superfluous on my part to make any observations on the subject. I may however add, that **the same torn and irregular particles** of gelatinous matter, described by Ehrenberg, seem in the southern as well as in the northern hemisphere, to be the common cause of this phenomenon. The particles were **so minute as easily to pass through fine gauze; yet many were distinctly visible by the naked eye.** The water when placed in a tumbler and agitated gave out sparks, but a small portion in a watch-glass, scarcely ever was luminous. Ehrenberg states, that **these particles** all retain a certain degree of irritability. My observations, some of which were made directly after taking up the water, would give a different result. I may also mention, that having used the net during one night I allowed it to become partially dry, and having occasion twelve hours afterwards, to employ it again, I found the whole surface sparkled as brightly as when first taken out of the water. It does not appear probable in this case, that the particles could **have remained so long alive.** I remark also in **my notes**, that having kept a Medusa of the genus *Dianæ*, till it was dead, the water in which it was placed became luminous. When the waves **scintillate with bright green sparks**, I believe it is generally owing to minute crustacean. But there can be no **doubt** that very many other pelagic animals, when alive, are phosphorescent.

† An abstract is given in No. IV of the Magazine of Zoology and Botany.

On two occasions I have observed the sea luminous at considerable depths beneath the surface. Near the mouth of the Plata some circular and oval patches, from 2 to 4 yards in diameter, and with defined outlines, shone with a steady, but pale light; while the surrounding water only gave out a few sparks. The appearance resembled the reflection of the moon, or some luminous body; for the edges were sinuous from the undulation of the surface. The ship, which drew thirteen feet water, passed over, without disturbing, these patches. Therefore we must suppose that some animals were congregated together at a greater depth than the bottom of the vessel.

Near Fernando Noronha **the sea gave out light** in flashes. The appearance was very similar to that which might be expected from a large fish **moving rapidly through** a luminous fluid. To this cause the sailors attributed it; at the time, however, I entertained some **doubts**, on account of the frequency and rapidity of the flashes. With respect to any general observations, I have already stated that the display is very much more common in **warm** than **in cold countries**. I have sometimes **imagined** that a disturbed electrical condition of the atmosphere was most favourable to its production. Certainly I think the sea is most luminous after **a few days** of more **calm weather** than ordinary, during which time it has swarmed with various animals. Observing that the water charged with gelatinous particles is in an impure state, and that the luminous appearance in all common cases is produced by the agitation of the fluid in contact with the atmosphere, I have always been inclined to consider that the phosphorescence was the result of the decomposition of the organic particles, **by which process** (one is tempted almost to call it a kind of respiration) the ocean becomes purified.

DECEMBER 23RD —

We arrived at Port Desire, situated in lat. 47°, on the coast of Patagonia. The creek runs for about twenty miles inland, with an irregular width. The *Beagle* anchored a few miles within the entrance in front of the ruins of an old Spanish settlement.

The same evening I went on shore. The first landing in any new country is very interesting, and especially when, as in this case, the whole aspect bears the stamp of a marked and individual character. At the height of between 200 and 300 feet, above some masses of porphyry, a wide plain extends, which is truly characteristic of Patagonia. The surface is quite level, and is composed of well-rounded shingle mixed with a whitish earth. Here and there scattered tufts of brown wiry grass are supported, and still more rarely some low thorny bushes. The weather is dry and pleasant, for the fine blue sky is but seldom obscured. When standing in the middle of one of these desert plains, the view on one side is generally bounded by the escarpment of another plain, rather higher, but equally level and desolate; and on the other side it becomes indistinct from the trembling mirage which seems to rise from the heated surface.

The plains are traversed by many broad, flat-bottomed valleys, and in these the bushes grow rather more abundantly. The present drainage of the country is quite insufficient to excavate such large channels. In some of the valleys ancient stunted trees, growing in the very centre of the dry watercourse, seem as if placed to prove how long a time had elapsed, since any flood had passed that way. We evidence, from shells lying on the surface, that the plains of gravel have been elevated within a recent epoch above the level of the sea; and we must look to that period for excavation of the valleys by the slowly retiring waters. From the dryness of the climate, a man may walk for days together over these plains without finding a single drop of water. Even at the base of the porphyry hills, there are only a few small wells containing but little water, and that rather saline and half putrid.

In such a country **the fate of the Spanish settlement** was soon decided; the dryness of the climate during the greater part of the year, and the occasional hostile attacks of **the wandering Indians** compelled the colonists to desert their half finished buildings. The style, however, in which they were commenced, **showed the strong and liberal hand of Spain in the old time.** The end of **all the attempts to colonize** this side of America south of 41°, **have been miserable.** At **Port Famine,** the name expresses the **lingering and extreme sufferings of** several hundred wretched **people,** of whom one alone survived to relate their misfortunes. At St. Joseph's bay, on the coast of Patagonia, a small settlement was made but during one Sunday the Indians made an attack and massacred the whole party, excepting two men, **who were led captive many years** among the wandering tribes. At the Rio Negro I conversed with one of these men, now in extreme old age.

The zoology of Patagonia is as limited as its Flora.* On the arid plains a few black beetles (Heteromera) might be seen slowly crawling about, and occasionally a lizard darting from side to side. Of birds we have three carrion hawks, and in the valleys a few finches and insect feeders. The *Ibis melanops* (a species said to be found in central Africa) is not uncommon on the most desert parts. **In the stomachs of** these birds I found grasshoppers, cicadae, small lizards, and even **scorpions.**† At one time of the year they go in flocks, at another in pairs; their cry is very loud and singular, and resembles the neighing of the guanaco.

I will here give an account of **this latter animal,** which is very common, and **is the characteristic quadruped of the plains of Patagonia.** The Guanaco, which **by some naturalists is considered as the same animal** with the Llama, **but in its wild state,** is the South American representative of the camel in the East. In size it may be compared to an ass, mounted on taller legs, and with a long neck. The guanaco abounds over the whole of the temperate parts of South America, from the wooded islands of Tierra del Fuego, through Patagonia, the hilly parts of La Plata, Chile, even to the Cordillera of Peru. Although preferring an elevated site, it yields in this respect to its near relative the Vicuna. On the plains of Southern Patagonia, we saw them in greater numbers than in any other part. Generally they go in small herds, from half a dozen to thirty together; but on the banks of the St. Cruz we saw one herd which must have contained at least 500. On the northern shores of the Strait of **Magellan** they are also very numerous.

* I found here a species of cactus, described by Professor Henslow under the name of *Opuntia darwinii* (Magazine of Zoology and Botany, vol. I, p. 466), which was remarkable by the irritability manifested by the stamens, when I inserted in the flower either a piece of stick, or the end of my finger. The segments of the perianth also closed on the pistil, but more slowly than the stamens.

† These insects were not uncommon beneath stones. **I found one cannibal scorpion quietly devouring another.**

Generally the guanacos are wild and extremely wary. Mr Stokes told me, that he one day saw through a glass a herd of **these beasts**, which evidently had been frightened, running away at full speed, although their distance was so great that they **could not be distinguished** by the naked eye. The sportsman frequently receives the first intimation of their presence, by hearing, **from a long distance**, the peculiar shrill neighing note of alarm. If he then looks attentively, he will perhaps **see** the herd standing in **a line** on the side of some distant hill. On **approaching** them, a few more squeals are given, and then off they set at an apparently slow, but really quick canter, **along some narrow beaten track to a neighbouring hill**. If, however, by chance he should abruptly meet **a single animal**, or several **together**, they will generally stand motionless, and intently gaze at him: then perhaps move on **a few yards**, turn round, and look again. **What** is the cause of this difference in their shyness? Do they mistake a man in the **distance** for their chief enemy the puma? Or **does curiosity overcome** their timidity? That they are curious is certain: for if **a person lies on the ground, and plays** strange antics, such as throwing up his feet in the air, they will almost always approach by degrees to reconnoiter him. It was an artifice that was repeatedly practiced by our sportsmen with success, and it had moreover the advantage of allowing several shots to be fired, which were all taken as parts of the performance. On the mountains of Tierra del Fuego, and in other places, I have more than once seen a **guanaco**, on being approached, not only neigh and squeal, but prance and leap about in **the most ridiculous** manner, apparently in defiance as a challenge. These **animals are very easily domesticated**, and I have seen some thus kept near the houses, although at large on their native plains. They are **in this state** very bold, and **readily attack a man**, by striking him from behind with both knees. It is asserted, that **the motive** for these attacks is **jealousy** on account of their females. The wild guanacos, however, have no idea of **defence**: even a single dog will secure one **of these** large animals, till the huntsman can come up. In many of their habits they are like sheep in a flock. Thus when they see men approaching in several directions on horseback, they soon become **bewildered** and know not which way to run. This greatly facilitates the Indian method of hunting, for they are thus easily driven to a central point, and are encompassed.

The **guanacos readily take to the water**: several times at Port Valdes they were seen swimming from island to island. **Byron**, in his voyage, **says he saw them drinking salt water**. Some of our officers likewise saw a herd apparently drinking the briny fluid from a salina near Cape Blanco. **I imagine in several parts of the country**, if they do not drink salt water, **they drink none at all**. In the middle of the day, they frequently roll in **the dust**, in saucer-shaped hollows. The males fight together; two one day passed quite close to me, squealing and trying to bite each other; and several were shot with **their** hides deeply scored. Herds sometimes appear to set out on **exploring-parties**; at Bahia Blanca, **where**, within 30 miles of the coast, these animals are extremely unfrequent, I one day saw the tracks of thirty or forty, which had come in a direct line to a muddy salt-water creek. They then must have perceived that **they were approaching the sea**, for they had wheeled with the regularity of cavalry, and had **returned back** in as straight a line as they had advanced. The guanacos have one singular habit, which is to me quite inexplicable; namely, that on successive days they drop their dung in the same defined heap. I saw one of these heaps which was eight feet in diameter, and necessarily was composed of a large quantity. Frezier remarks on this habit as common to the guanaco as well as the llama;* he says it is very useful **to** Indians, who use the dung for fuel, and are thus **saved the trouble of collecting it**.

* D'Orbigny says (vol. ii, p. 69) that all the species of the genus have this habit.

The guanacos appear to have favourite spots for dying in. On the banks of the St Cruz, **the ground was actually white with bones**, in certain circumscribed spaces, which were generally bushy and all near the river. On one such spot I counted between ten and twenty heads. I particularly examined the bones; they did not appear, as some scattered ones which I had seen, gnawed or broken, as if dragged together by **beasts of prey**. The animals in most cases, must **have crawled**, before dying, beneath and **amongst the bushes**. Mr Bynoe informs me that during **the last voyage**, he observed the same circumstance on the banks of the Rio Gallegos. **I do not** at all understand the reason of this, but I may observe, that the wounded guanacos at the St Cruz, invariably **walked towards the river**. At St Jago in the Cape de Verd islands I remember having seen in a **retired** ravine a corner **under a cliff**, where numerous goats' bones were collected: we at the **time** exclaimed, that it **was the burial-ground** of all **the** goats in the island. I mention these trifling circumstances, because in certain cases they might explain the occurrence of a number of uninjured bones in a cave, or buried under alluvial accumulations; and likewise the cause, why certain mammalian are more commonly embedded than others in sedimentary deposits. Any **great flood** of the St Cruz, would wash down many bones of the guanaco, but probably not a single one of the puma, ostrich, or fox. I may also observe, that almost every kind of waterfowl when wounded takes to the shore to **die**; so that the remains of birds, from this cause **alone** and independently of other **reasons**, would but rarely be preserved in a fossil state.

One day the yawl was sent **under the command** of Mr. Chaffers with three days' provisions to survey the upper part of the harbour. In the morning we searched for some watering-places mentioned in **an old Spanish chart**. We found one creek, at the head of which there was a trickling rill (the first we had seen) of brackish water. Here the tide compelled us to wait several hours; and in the interval **I walked some miles into the interior**. The plain as usual consisted of gravel, mingled with soil resembling chalk in appearance, but very different from it in nature. From the **softness** of these materials it **was worn** into many gulleys. There was not a tree, and, excepting the guanaco, which stood on the hill-top a watchful sentinel over its herd, scarcely an animal or a bird. All was stillness and desolation. Yet in passing over these scenes, without one bright object near, an ill-defined but strong sense of pleasure is vividly excited. **One asked** how many ages the plain had thus lasted, and **how** many more it was doomed thus to continue.

"None can reply—all seems eternal now.
The wilderness has a mysterious tongue,
Which teaches awful doubt."

In the evening we sailed a few miles further up, and then pitched the tents for the night. By the middle of the next day the yawl was aground, and from the shoalness of the water could not proceed any higher. The water being found partly fresh, Mr. Chaffers took the dingey and went up two or three miles further, where she also grounded, but in a fresh-water river. The water was muddy, and though the stream was most insignificant in size, it would be difficult to account for its origin, except from the melting snow on the Cordillera. At the spot where we bivouacked, we were surrounded by bold cliffs and steep pinnacles of porphyry. I do not think I ever saw a spot which appeared more secluded from the rest of the world, than this rocky crevice in the wide plain.

The second day after our return to the anchorage, a party of officers and myself went to ransack an old Indian grave, which I had found on the summit of a neighbouring hill. Two immense stones, each probably weighing at least a couple of tons, had been placed in front of a ledge of rock about six feet high. At the bottom of the grave on the hard rock there was a layer of earth about a foot deep, which must have been brought up from the plain below. Above it a pavement of flat stones was placed, on which others were piled, so as to fill up the space between the ledge and the two great blocks. To complete the grave, the Indians had contrived to detach from the ledge a huge fragment, and to throw it over the pile so as to rest on the two blocks. We undermined the grave on both sides, but could not find any relics, or even bones. The latter probably had decayed long since (in which case the grave must have been of extreme antiquity), for I found in another place some smaller heaps beneath which a very few crumbling fragments could yet be distinguished as having belonged to a man. Falconer states, that where an Indian dies he is buried, but that subsequently his bones are carefully taken up and carried, let the distance be ever so great, to be deposited near the sea-coast. This custom, I think, may be accounted for by recollecting, that before the introduction of horses, these Indians must have led nearly the same life as the Fuegians now do, and therefore generally have resided in the neighbourhood of the sea. The common prejudice of lying where one's ancestors have lain, would make the now roaming Indians bring the less perishable part of their dead to their ancient burial-ground on the coast.

JANUARY 9th, 1834. – Before it was dark the *Beagle* anchored in the fine spacious harbour of Port St. Julian, situated about 110 miles to the south of Port Desire. **We remained** here eight days. The country is **nearly** similar to that of Port Desire, but, perhaps **rather** more sterile. One day a party accompanied **Captain** FitzRoy on a long walk round the head of the harbour. We were eleven hours **without tasting** any **water**, and some of the party were quite exhausted. From the summit of a hill (since well-named Thirsty Hill) a fine lake was spied, and two of the party proceeded with concerted signals to show whether **it was** fresh water. What was our **disappointment to find** a snow-white expanse of salt, crystallized in **great** cubes! We attributed our extreme thirst to the dryness of the atmosphere; but whatever the cause might be, we were exceedingly glad late in the evening to get back to the **boats**. Although we could **nowhere** find, during our whole visit, a single drop of fresh water, yet some must exist; for by an odd chance I found on the surface of the salt water, near the head of the bay, a *Colymbetes* not quite dead, which in all probability had lived in some not far distant pool. Three other insects – a *Cincindela*, like *hybrida*, a *Cymindis*, and a *Harpalus*, which all live on muddy flats occasionally **overflowed** by the **sea**, and one other found dead on the plain – complete the list of the coleoptera. A good-sized fly (*Tabanus*) was extremely numerous, and tormented us by its painful bite. The common horsefly, which is so troublesome in the shady lanes of England, belongs to this same genus. We here have the puzzle that so frequently occurs in the case of mosquitoes; on the blood of what animals do these insects commonly feed? The guanaco is nearly the **only** warm-blooded quadruped, and it is found in quite inconsiderable numbers compared with the **multitude of flies**.

At first I could only understand the grand covering of gravel, by the supposition of some epoch of extreme violence, and the successive lines of cliff, by as many great elevations, the precise action of which I could not however follow out. Guided by the *Principles of Geology*, and having under my view the vast changes going on in this continent, which as the present day seems the great workshop of nature, I came to another, and I hope more satisfactory conclusion. The importance of any view which may explain the agency by which such vast beds of shingle have been transported over the surface of the successive plains, cannot be doubted. Whatever the cause may have been, it has determined the condition of this desert country, with respect to its form, nature, and capabilities of supporting life.

There are proofs, that the whole coast has been elevated to a considerable height within the recent period; and on the shores of the Pacific, where successive terraces likewise occur, we know that these changes have latterly been very gradual. There is indeed reason for believing, that the uplifting of the ground during the earthquakes in Chile, although only to the height of 2 or 3 feet, has been a disturbance which may be considered as a great one, in comparison to the series of lesser and scarcely sensible movements which are likewise in progress. Let us then imagine the consequence of the shoaling bed of an ocean, elevated at a perfectly equable rate, so that the same number of feet should be converted into dry land in each succeeding century. Every part of the surface would then have been exposed for an equal length of time to the action of the beach-line, and the whole in consequence equally modified. The shoaling bed of an ocean would thus be changed into a sloping land, with no marked line on it. If, however, there should occur a long period of repose in the elevations, and **the currents of the sea** should tend to **wear away the land** (as happens **along this whole coast**), then there would be formed a line of cliff. Accordingly as the repose was long, so would be the quantity of land consumed, and the consequent height of such cliffs. Let the elevations recommence, and **another sloping bank** (of shingle, or sand, or mud, according to the nature of the successive beach-lines) must be formed, which again **will be broken by as many lines of cliff**, as there shall be periods of rest in the action of the subterranean forces. Now **this is the structure of the plains of Patagonia**; and such gradual changes harmonize well with the undisturbed strata, extending over so many hundred miles.

I must here **observe**, that I am far from supposing that the entire coast of this part of the continent has ever been lifted up, to the height of even a foot, at any one moment of time; but, drawing our analogies from the shores of the Pacific, that the whole may have been insensibly rising, with every now **and** then a paroxysmal or accelerated movement in certain spots. With **respect** to the alternation of the periods of such continued rise and those of quiescence, we may grant that they are probable, because such alternation agrees with what we see in the action, not only of a **single volcano**, but likewise of the disturbances affecting whole regions of the earth. At the present day, to the north of the parallel 44°, the **subterranean forces** are constantly manifesting **their power over a space** of more than 1,000 miles. **But** to the southward of that line, as far as Cape Horn, an earthquake is seldom or never experienced, and there is not a single point of eruption; yet in former ages, **as we shall hereafter show, deluges of lava** flowed from that very part. It is in conformity with our hypothesis that this southern region of repose, is at present **suffering from the inroads of the ocean**, as attested by the long line of cliff **on the Patagonian coast**. Such **we believe** to have been the causes of this **singular** configuration of the land. Nevertheless, we confess that it at first appears startling, that the most marked intervals between **the** heights of the successive plains should, instead of some great and sudden **action** of the subterranean forces, only indicate a longer period of **repose**.

In explaining the widely spread bed of gravel, we must **first** suppose a great mass of shingle to be collected by the action of innumerable torrents, and the swell of an open ocean, at the submarine basis of the Andes, prior to the elevation of the plains of Patagonia. If such a mass should **then** be **lifted up**, and left exposed during one of the periods of subterranean repose; a certain breadth, for instance a mile, would be washed down, and spread out over the bottom of the invading waters. (That the sea near the coast can carry out **pebbles**, we may feel sure from the circumstance of their gradual decrease in size, according to the distance from the coast-line.)

If this part of the sea should now be elevated, we should have a bed of gravel, but it would be of less thickness than in the first mass, both because it is spread over a larger area, and because it has been much reduced by attrition. This process being repeated, we might carry beds of gravel, always decreasing in thickness (as happens in Patagonia) to a considerable distance from the line of parent rock.* For instance, on the banks of the St Cruz at the distance of 100 miles above the mouth of the river, the bed of gravel is 212 feet thick, whereas, near the coast, it seldom exceeds 25 or 30 feet; the thickness being thus reduced to nearly one-eighth.

I have already stated that the gravel is separated from the fossiliferous strata by some white beds of friable substance, singularly resembling chalk, but which cannot be compared, as far as I am aware, with any formation in Europe. With respect to its origin, I may observe that the well-rounded pebbles all consist of various felspathic porphyries; and that, from their prolonged attrition, during the successive re-modellings of the whole mass, much sediment must have been produced. I have already remarked that the white earthy matter more closely resembles decomposed feldspar, than any other substance. If such is its origin it would always, from its lightness, be carried further to seaward than the pebbles. But as the land was elevated, the beds would be brought nearer the coast-line, and so become covered by the fresh masses of gravel which were traveling outwards. When these white beds were themselves elevated, they would hold a position intermediate between the gravel and the common foundation, or the fossiliferous strata. To explain my meaning more clearly, let us suppose the bottom of the present sea covered to a certain distance from the coast-line, with pebbles gradually decreasing in size, and beyond it by the white sediment. Let the land rise, so that the beach-line, by the fall of the water, may be carried outwards; then likewise the gravel, by the same agency as before, will be transported so much further from the coast, and will cover the white sediment, and these beds again will invade the more distant parts of the bottom of the sea. By this outward progress, the order of superposition must always be gravel, white sediment, and the fossiliferous strata.

* It is needless to point out to the geologist, that this view, if correct, will account, without the necessity of any sudden rush of water, for the general covering of mixed shingle, so common in many parts of Europe, and likewise for the occurrence of widely extended strata of conglomerate; for the superficial beds might, during a period of subsidence, be covered by fresh deposits.

Such is **the history of the changes** by which the present condition of Patagonia has, I believe, been determined. These changes all result from the assumption of a steady but very gradual elevation, extending over a wide area, and interrupted at long intervals by periods of repose. But we **must now return to** Port St Julian. On the south side of the harbour, a cliff of about 90 feet in height intersects a plain constituted of the formations above described; and its surface is strewn over with recent **marine shells**. The gravel, however, differently from that in every other locality, is covered by a very irregular and thin bed of reddish loam, **containing** a few small calcareous concretions. The matter somewhat resembles that of the Pampas, and probably owes its **origin** either to a small stream having formerly entered the sea at that spot, or to a mud-bank similar to those now existing at the head of the harbour. In one spot this earthy matter filled up a hollow, or gully, worn quite through the gravel, and in this mass a group of large bones was embedded. The animal to which they belonged, must have lived, as in the case at Bahia Blanca, at a period long subsequent to the existence of the shells now inhabiting the coast. We may feel sure of this, because the formation of the lower terrace or plain, must necessarily have been posterior to those above it, and on the surface of the two higher ones, sea-shells of recent **species** are **scattered**. From the small physical change, which the last 100 feet elevation of **the continent** could have produced, the climate, as well as the general condition of Patagonia, probably was nearly the same, at the time when the animal was embedded, as it now is. This conclusion is moreover supported by the identity of the shells belonging to **the two ages**. Then immediately occurred the difficult, how could any large quadruped have subsisted on these wretched deserts in lat. 49° 15'? **I had no idea** at the time **to what kind of animal these remains belonged**. The puzzle, however, was soon solved when Mr Owen examined them; for he considers that they formed part of an animal allied to the guanaco or llama, but fully as large as the true camel. As all the existing members of the family of Camelidæ are inhabitants of the most sterile countries, so may we suppose was this extinct kind. The structure of the cervical vertebrae, the transverse processes not being perforated for the vertebral artery, indicates its affinity: some other parts, however, of its structure, probably are anomalous.

The most important result of this discovery, is the confirmation of the law that existing animals have a close relation in form with extinct species. As the guanaco is the characteristic quadruped of Patagonia, and the vicuna of the snow-clad summits of the Cordillera, so **in bygone days**, this **gigantic species** of the same family **must have been conspicuous on the southern plains**. We see this same relation of type between the existing and fossil *Ctenomys*, between the capybara (but less plainly, as shown by Mr Owen) and the gigantic *Toxodon*; and lastly, between the living and extinct *Edentata*. **At the present day**, in South America, **there exist** probably nineteen species of this order, distributed into several genera; while throughout the rest of the world there are but five. If, then, there is a relation between the living and the dead, we should expect that the *Edentata* would be numerous in the fossil state. I need **only** reply by enumerating the megatherium, and the three or four other great species, discovered at Bahia Blanca; the remains of some of which are also abundant over the whole immense territory of La Plata. I have already pointed out the singular relation between the armadillos and **their** great prototypes, even in a point apparently of so **little** importance as their external covering.

The order of rodents at the present day, is most conspicuous in South America, on account of the vast number* and size of the species, and the multitude of individuals; according to the same law, we should expect to find their **representatives** in a fossil state. Mr Owen has shown how far **the** *Toxodon* is thus related; and it is moreover not improbable that another large animal has likewise a similar affinity.

The **teeth** of the rodent nearly equaling in size those of the *Capybara*, which were discovered near Bahia Blanca, must also be remembered.

* In my collection Mr Waterhouse distinguishes twenty seven species of **mice**; to these must be added about thirteen more, known from the works of Azara, and other naturalists; so that we have forty species, which have actually been described as coming from between the Tropic and Cape Horn.

The law of the succession of types, although subject to some remarkable exceptions, must possess the highest interest to every philosophical naturalist, and was first clearly observed in regard to Australia, where fossil remains of a large and extinct species of Kangaroo and other marsupial animals were discovered buried in a cave. In America the most marked change among the mammalian has been the loss of several species of Mastodon, of an elephant and of the horse. These Pachydermata appear formerly to have had a range over the world, like that which deer and antelopes now hold. If Buffon had known of these gigantic armadillos, llamas, great rodents, and lost pachydermata, he would have said with a greater semblance of truth, that the creative force in America has lost its vigour, rather than it had never possessed such powers.

It is impossible to reflect without deepest astonishment on the changed state of **this continent**. Formerly it **must have swarmed with great monsters**, like the southern parts of Africa, but **now we find only** the tapir, guanaco, armadillo, and capybara; mere pigmies, compared with the antecedent races. The greater number, if not all, of these extinct quadrupeds lived at a very recent period; and many of them were contemporaries of the existing **mollusks**. Since their loss, no very great physical changes can have taken place in the nature of the country. **What then has exterminated so many living creatures?** In the Pampas, the great sepulcher of such remains, **there are no signs of violence, but on the contrary, of the most quiet and scarcely sensible changes**. At Bahia Blanca I endeavoured to show the probability that the **ancient Edentata**, like the present species, lived in a **dry and sterile country, such as now is found in that neighbourhood**. With respect to the camel-like llama of **Patagonia**, the same grounds which, before knowing more than the size of the remains, perplexed me, by not allowing any great change of climate, now that we can guess the habits of the animal, are strangely confirmed. **What shall we say of the death of the fossil horse?** Did those plains fail in pasture, which afterwards were overrun by stock introduced with the Spanish colonist? In some countries, we may believe, that a number of species subsequently introduced, by consuming the food of the antecedent races, may have caused their extermination; but we can scarcely credit that the armadillo has devoured the food of **the immense Megatherium**, the capybara of the **Toxodon**, or the guanaco of the camel-like kind. But granting that all such changes have been small, yet we are so profoundly ignorant concerning the physiological relations, on which the life, and even health (as shown by epidemics) of any existing species depends, that we argue with still less safety about either **the life or death of any extinct kind**.

One is tempted to believe in such simple relations, as variation of climate and food, or introduction of enemies, or the increased numbers of other species, as the cause of the succession of races. But it may be asked whether it is probable that any such cause should have been in action during the same epoch over the whole northern hemisphere, so as to destroy the *Elephas primigenius*, on the shores of Spain, on the plains of Siberia, and in Northern America; **and** in a like manner, the *Bos urus*, over a range of scarcely less extent? Did such changes put a period to the life of *Mastodon angustidens*, and of the fossil horse, both in Europe and on the Eastern slope of the Cordillera in Southern America? If they did, they must have been changes common to the whole world; such as gradual refrigeration, whether from modifications of physical geography, or from central cooling. But on this assumption, we have to struggle with the difficulty that these supposed changes, although scarcely sufficient to affect molluscous animals either in Europe or South America, yet destroyed many quadrupeds in regions now characterized by *frigid*, *temperate*, and *warm** climates! These cases of extinction forcibly recall the idea (I do not wish to draw any close analogy) of certain fruit-trees, which, it has been asserted, though grafted on young stems, planted in varied situation, and fertilized by the richest manures, yet at one period, have all withered away and perished. A fixed and determined length of life has in such cases been given to thousands and thousands of buds (or individual germs), although produced in long succession. Among the greater number of animals, **each individual appears nearly independent of its kind; yet all of one kind may be bound together by common laws**, as well as a certain number of individual buds in the tree, or polypi in the Zoophyte.

* The *Elephas primigenius* is thus circumstanced, having been found in Yorkshire (associated with recent shells: Lyell, vol. i, chap. vi), in Siberia, and in the warm regions of lat. 31°, in North America. The remains of the Mastodon occur in Paraguay (and I believe in Brazil, in lat. 12°), as well as in the temperate plains south of the Plata.

I will add one other remark. We see that whole series of animals, which have been created with peculiar kinds of organization, are confined to certain areas; and we can hardly suppose these structures are only adaptations to peculiarities of climate or country; for otherwise, animals belonging to a distinct type, and introduced by man, would not succeed so admirably, even to the extermination of the aborigines. On such grounds it does not seem a necessary conclusion, that the extinction of species, more than their creation, should exclusively depend on the nature (altered by physical changes) of their country. All that at present can be said with certainty, is that, as with the individual, so with the species, the hour of life has run its course, and is spent.

NOTEBOOK M

Theatre of Memory, an Inventory

The curiosities described below were recovered from the body of the author. Each is listed under the organ in which it was found.

- Skull:** glow-in-the-dark stars; a shark-tooth necklace comprised of twenty pieces, each piece being engraved with a letter so that the string reads *Cacharodon carcharias*—a reminder of the great love affair between man and fish.
- Brain:** a colossal dragon tree, 60-feet tall and growing so that if the branches were unfurled they would circle the earth all the way back to the beginning of history.
- Eyes:** various coins of Greek and Roman origin; a tongue extracted from a dog in mid-pant and preserved in a jug of its own saliva.
- Trachea:** a cactus spine that once got caught in the neck of a finch, changing its voice and the song of its descendants. Note: you can still hear the ancient injury in the spring.
- Thyroid:** a key to Poenari castle, which lies in ruin on a cliff in Romania; mosquitoes and other vampires
- Larynx:** a wax seal imprinted with three shells; a dactyl, a trochee and other metric reptiles; a name that crawled out of the water in Lancashire to make its home among animals.
- Lungs:** the remains of a giant—an *Ichthyosaurus*—tangled among the branches of the bronchial tree. Note: this is where your grandfather is buried.
- Heart:** a piece of the great Map of the Empire resting in a nest of tumbleweed.
- Liver:** a vase, a penguin's egg, a letter dated February 1839, wild lilies and other mild aphrodisiacs
- Stomach:** a mammoth tooth and the ear of the ocean
- Pancreas:** an instruction book for turning objects into memories written on the skin of a Portuguese man-of-war with the ink of an octopus so chosen because it outlasts the blood of an elephant due to its higher quantity of legs.
- Intestines:** the brain of a Tasmanian Tiger and an *Equus quagga quagga*.

Appendix:	various religious objects: dark nails, incense, gold, bones, bacteria.
Kidneys:	pyrite, feldspar, barnacles, rocks dug up in a field.
Veins:	mahogany; blue spruce sap.
Pelvis:	a cradle; a botanical encyclopedia, which has been watered so the pictures of the woolly fern and Drosera grew.
Adrenal glands:	a wooden weapon, missing its head.
Bladder:	a windmill; a trap door.
Spleen:	a reservoir of blood; a second heart; various spare parts; three litres of melancholy and a sense of humour.
Mammary glands:	phosphorescence used in the manufacture of perfume; two stillborn infants swimming in circles like a pair of goldfish.
Vas deferens:	unfinished sculptures attributed to Michelangelo straining to escape their marble.
Hands:	antlers; three spiders.
Rib Cage:	clock gears and an antique cabinet you judge to be too decadent.

Before there were categories
like you and me, we discovered the world
with our mouths, which were too weak
to form words.

Thinking over the scenes which I first recollect...they are all things, which are brought to mind, by the memory of the scenes, (indeed my American recollections are a collection of pictures)...one is tempted to think all memory consists in a set of sketches. some real – some fancied.

CHARLES DARWIN,
Notebook M, page 29.

Earliest Memories: Three Studies of Fruit

Have I painted these scenes?
Or merely collected them?
I will try to display them
in pure colours, simplest
form.

i.

First: the orange of an orange¹

in the drawing room, Caroline
is cutting the fruit for me
and I am sitting on her lap
when a cow rushes past the window
startling me so I startle the knife
and it bites² my thumb
between the knuckles.

I do not remember the cut itself
but the pain must have acted like a
flash—citrus spark sting—
illuminating the moment
for my memory to capture.³

ii.

The outline of a house
and a small shop.

The house I am staying in
while on vacation with my family
and the shop contains a shopkeeper

¹ My father kept nine orange trees in the hothouse at Shrewsbury—a collection that rivaled the Orangery at Kew.

² I use the verb 'to bite' here not in a metaphorical sense. A knife may be thought of literally as an evolution of our teeth that has taken place through the mind. A knife is a tooth we carry in our hands. In this way, the injury I sustained as a child may be compared to the accidental biting of one's own cheek. I still carry the scar.

³ In January 1839, a brief notice appears in the journal of the Académie des sciences introducing the daguerreotype process. To encourage the French government to offer the process as a free gift to the world, Dominique François Jean Arago reminds officials of the fleet of artists Napoleon took to Egypt to record discoveries made during his campaign. The daguerreotype, he claims, would make the same undertaking less expensive and improve its accuracy and speed.

who offers me a fig⁴ in exchange
for a kiss from the maidservant
a good trade to a four-year-old
and better yet when I find the fig
is not one but two, fresh fragrant
ripe purple, both of them.

Later, I am locked in a room,
an attic, for being naughty
and I try to break the windows
in a vain attempt to escape,
but at the window I get caught
in the view:
the sea.

We stayed there for weeks, my family
always in the background
where I can't make them out.

iii.

A cottage, shaded
with plum trees,

inhabited by a hermit—an old man
with white hair and a beard
that seems to stretch to the floor—
who gives us plums.

I do not know whether the taste
of the plums, their rich indigo⁵,
or an indistinct fear of the old man
produced the greatest effect
on my mind.⁶

To get to the cottage, we crossed
a broad ford in a carriage.
The white foaming water

⁴ The ape and the fig have carved their initials into our genes. We can trace all of our arts, of which memory is the first, back to the fragrance of dates—the fruit-eater and the invisible flower.

⁵ Green is the primary colour from which all others descend. I am told that ancient Roman texts contain instructions for making purple dye from damascene skins. The ruins of their camps are littered with pits. For my own part, eating the sign of Caesar out of hand is a sour experience.

⁶ Memory uses light and sensation to make its pictures, then pours the solution down the drain.

made a deep impression.
I had heard stories
of people drowning.

Earliest Memories: Vanitas

At the age of six, I was crowned the Prince of Oranges
as well as Sheriff and Champion of the Mount.

I ruled over all the fruit in the hothouse and many
of the apples in the orchard, especially the sweet ones.

Demonstrations of my speed attracted audiences
from as far away as Shrewsbury School and it was

not uncommon for those in attendance to remark
that they had never before seen a boy run as fast as I did.

At the time, my eye was so sharp the rarest of birds—
pheasants, herons, dot-eared coquettes—

frequently revealed themselves to me as I took
solitary strolls along the Severn. Once,

a wild peacock even followed me home,
only to be chased away by Spark (my pet dog)

before anyone had a chance to observe the miracle.
I dabbled in botany, quickly mastering the most complicated

names of plants, both foreign and domestic. My talent
for gardening emerged the first day I put spade to soil.

Within a month I could command the flowers
to change their colours—the crocuses and primroses

being particularly obedient. These feats were, of course,
lies, but recounting them to others gave me pleasure.

The inventions are still so vivid in my mind I could almost
fancy they were real, but I remember

I stammered when I spoke, couldn't say the words
'white wine' without stumbling into a fit of sneezing.

I was afraid of being attacked by dogs in Barker Street,
read adventure tales under the dining room table, didn't

have the courage to fight. The goal is to remember
that life is emptiness—that we should hold our hearts up to God.

But my mind gets so full I forget.

Peter, the bricklayer, commended me for my boldness,
the first time I climbed the mountain ash on the lawn.
It was a low tree, but at that time the world was flat.

Earliest Memories: E Conchis Omnia

Collect coins, francs and those of roman ancestry; collect seals, any you can peel off a letter or trace, ask for donations from family and friends. Collect pebbles and minerals and learn all their names, first and last. Fill your pockets with wildflowers, your books with leaves. Collect shells, antlers, the shed skins of snakes, lost teeth, tusks, claws, bones, and feathers. Collect insects—a Cimex, a Zygoena, a Cicindela—if alive try to identify and draw them, then throw them back. Their lives are worth more than their names. Collect whatever you like that is dead—a pin can do no further harm. Collect newts and watch as they grow fresh legs. Collect habits—of starlings, robins, sparrows, peonies, gravel—and keep them in your notebook. Follow animals to their dens. If they keep you, the rest doesn't matter. If they don't, don't touch. Collect an egg from each nest you find, provided it contains more than one. With these things you can then build a shell, a soft one like a pea pod, or an eyelid that will harden into yourself.

I don't remember when I first began
collecting, but one piece at a time
the world passed through my hands
filling my mind with its mass, its names.

In the place and at the time to which I refer, systematic exercise was one of the great means relied on for the cure of chronic diseases, and it was in the course of the long country rambles thus necessitated, that DARWIN was seen at his very best. He was then literally "all eyes." Nothing escaped him. No object in nature, whether Flower, or Bird, or Insect of any kind, could avoid his loving recognition. He knew about them all—had in fact been observing every object in nature, great and small, all his life, and could give you endless information in his own graphic way about them, so that in one such walk you would gain more knowledge on many branches of Natural Science, if you were on the alert, than you could by weeks of study from books.

EDWARD LANE

Letter to Dr. B.W. Richardson, F.R.S. 1882

Earliest Memories: Cave et Aude

This is the equation for separating the observer from the observed.
Cut off your nose. The sense of smell is worn out, its findings
too difficult to reproduce. Tainted by memory, shaded by deep woods
it is the source of epileptic seizures. Ask yourself: what better way
to streamline your profile. Cut out your tongue. On long walks
you will need to keep your hands free for lifting stones, pulling
flowers. An empty mouth provides storage space for specimens.
You won't even know they're there. Cut off the tips of your fingers.
They are too sensitive, cause you to feel even in the absence of stimuli.
This way you can hold all objects equally. Subtract your weight from
the sum of both and you will have a textbook X. Cut off your ears.
The world's ringing stops and you are left in honest silence: science.
The yawn is a cry common to all mammals. Now you can finally hear it.
Now you are all eyes. Now your eyes can be tricked into believing
they're not there.

...A case is on record of a quantity of wheat taken from a Catacomb in Egypt having been eaten by modern rats, which shows it had kept well, as far as the flavor is concerned— There is a picture in Trinity of a man with a bulb of a Scilla in his hand, which he has just taken from a mummy, & the scilla is *sprouting*— I am certain nothing *impossible* in M^r Tupper's statement, but it is precisely one of those cases which need more than one experiment to authenticate the fact— I have no doubt whatever that the seeds grew, but I think it not impossible that Sir. G. W. may have been deceived— If I knew Sir G. W's address I would write to him & beg a few grains...

JOHN S. HENSLOW
Letter to Charles Darwin, 2 November 1840

Earliest Memories: Death of my Mother

Catherine remembers all the particulars. How
for four days the door to her room was shut.
Only Father, Aunt Kitty, Marianne and Caroline
could pass through. So we played outside—
sat in the arms of the Spanish Chestnut Tree,
watered the columbines and poppies with Abberley,
pounded the garden paths, didn't shout, kept clean.
And when we were sent for we went
into a tomb—wet with stench and vapours
circling round a body in a black dress.
I remember only the table beside, the tools it held.
Bottles of turpentine and laudanum, brushes
and damp cloths, bowls for water or blood, a cup
of crushed pearls and gold and shavings of unicorn?
The still life above it on the wall. At medical school
I would read about the sickness. Fever and chills,
loss of appetite, thirst, nausea and vomiting, limited
urine output, inability to pass stool, swelling
and tenderness in the abdomen with pain
ranging from dull to sharp. For some grief is strictly
a physical experience, afflicting particular organs.
My eyes dripped for days. I grew a nose like a fist.
My stomach never recovered.

The inventors of ether announced: we have conquered pain!
which is a lie. The nerves are just drunk. I won't go back. Not for
anything.

Earliest Memories: The Game Book

There were a few years when I took up hunting like a profession—as if hired by a coalition of insects to clear the fields of marauding birds. In the summer of 1826, I never went for a walk without a gun and a piece of string. Each kill was recorded as a knot and at the end of the day the number of knots was added to a tally I kept in a book. I shot at everything that was legal—hares, pheasants, partridges, pigeons—and experimented with rats trapped at the Mount. At night I studied, fell asleep in instruction manuals and handbooks only to wake up at dawn so eager to shoot my finger was on the trigger before I was dressed. I practiced my posture in the mirror. Took aim at an eye.

I learned that for each animal there is a precise shot size that will kill it; never throw a boulder at a sparrow. Use a size too small and you will cause injury—break a wing and be forced to finish the bird at close range, with your hands. Too big and the target will explode into a hail of feathers. Only the exact size clears the mess.

I learned to kill quickly. Death should be merciful, gentle, like a puff of air. Living is what's violent—birth and the surgeon who wears an apron to carve up his feast of pain. I watched one try to separate a child from its arm once. That scream.

By the time I stopped shooting, the path of destruction that trailed behind my gun was only as thick as a string.

A dove takes the smallest shot to kill—a goose the biggest—
which is why in many cultures the dove is held up as a symbol of
peace.

Nothing could have been worse for the development of my mind than Dr. Butler's school, as it was strictly classical, nothing else being taught except a little geography and history. The school as a means of education to me was simply blank. During my whole life I have been singularly incapable of mastering any language. Especial attention was paid to verse-making, and this I could never do well. I had many friends, and got together a good collection of old verses, which by patching together, sometimes aided by other boys, I could work into any subject. Much attention was paid to learning by heart the lessons of the previous day; this I could effect with great facility, learning forty or fifty lines of Virgil or Homer, whilst I was in morning chapel; but this exercise was utterly useless, for every verse was forgotten in forty-eight hours.

CHARLES DARWIN
Autobiography, pp. 27-28

Earliest Memories: A Vague Picture of Ships

The decorative arts disguise the beauty of function.
A teacup may resemble an ugly stepsister as long
as it keeps the serving hot and sits comfortably
in hand or saucer. And I was heir to a china fortune!
What do you do with poetic sense, but no skill.
Like the trembling hand of a surgeon
I am fit to repair only stiffs. *The man of blood*
be doomed to bleed. Given a quill and brought before
a blank page, I can use words, but never make them.
The facts simply march out in single file, in uniform,
deserting the castles in my head, razing walls I have built
in my sleep. How do you fit the horizon between
the left and right margins? How do you see past words
to the vanishing point where letters converge
to form a feeling. No cave art was ever discovered
in England. Had it all washed away or was it never there?
All that remains of Liverpool is a vague picture of ships
and a good dinner. Of the year my mother died:
the funeral of a soldier, his empty boots
sitting in the stirrups, his carbine suspended
from the saddle, while his regiment fires at the sky.
At night, they will make a trophy of his ghost
and I will watch birds close their wings in mid-air
so we feel what it's like to be a bomb. They always land
just as softly as the sound of that word.

Earliest Memories: the Laboratory

To avoid studying Latin and Greek, Erasmus and I joined the chemical revolution and claimed an old shed in the garden as our laboratory. The room was humble. Underneath the rotting floorboards there was no foundation. To prepare the way for experiment, we began by overthrowing the idols of philosopher kings and alchemists. We caught fire, air, earth and water and threw each into its own prison. With a wick we tied flames to lamps and limited their rations of whale oil. We called air by its new names—nitrogen, argon, oxygen, carbon dioxide—to anger it and let it know we were watching its movements. Distilled water was placed in stopped bottles and made to work, perform tricks for the benefit of science. Any raindrops that found their way through the roof were rounded up and thrown into a barrel outside. The old floorboards were ripped up and replaced with solid English oak. This action, supplemented by frequent sweeping, kept the earth down.

Once order had been established, we hung the laws of the house on the wall beside a reproduction of Geoffroy's Affinity Table and the Table of Simple Substances. We built a cubicle to keep instruments dry and a worktable below the window to make use of sunlight. Slowly a range of apparatus began to arrive, each pointing with a different finger towards discovery. There were gifts—a thermometer, an argand lamp—and investments—a goniometer, a blowpipe. From the glass house people came jars, test tubes and measuring equipment. We picked up stopcocks and minerals along the way, like loose change. At first our experimental ventures sought solids—we measured the angles of crystals, followed their halls of mirrors toward well-defined principles. Liquids passed through fingers too easily, escaped out of unstopped bottles, were lost down drains. And gases—it was enough to repeat the rumour: they were there. But soon the cold metals in our hands, despite their sparkle, were too slow. In a simple cup of water there were atoms racing ahead, daring us to catch them. So we took the liquid, like a knot and untied its gases, trapped them in glass nets so we could see clearly, for the first time, without a doubt in our minds, the seams of the universe.

Stoicheion is a Greek word meaning any first thing or principle, like a letter or an element. A human is not a stoicheion, but rather a compound of compounds—made up of letters and words, elements and compounds, bricks and timber. Eventually the whole will decompose into its parts.

Now if memory «of a tune & words» can thus lie dormant, during a whole life time, quite unconsciously of it, surely memory from one generation to another, also without consciousness, as instincts are, is not so very wonderful.—

Miss Cogan's memory of the tune, might be compared to birds singing, or some instinctive sounds.— Miss C. memory cannot be called memory, because she did not remember, it was an habitual action of thought-secreting organs, brought into play by morbid action.— Old Elspeth's... power of repeating poetry in her dotage is fact of same sort. Aunt. B. ditto.—

CHARLES DARWIN
Notebook M, pages 7-8

Orphans

Eventually the earth forgets
in a sandstorm a speck of rock
hushes and smoothes the place that said
here and how and then
silence. But then humans came along
with wonder and the habit of looking back.
What hasn't been found is a straight path leading to
the beginning is the end of the story
so we're stuck hugging an unmarked curve
of the plot. If you like the canopy now, the tree top,
the expensive view, you might ask: why go back?
And the orphans will say: because we will suck
on the root of origin until we know milk.
We will dig down into the dark with our eyes
into the muffled rooms and beg the secret to speak.
If it never does, the world is waiting.
But if you hear something
it means the earth can remember
if only in pieces, if only in us.

Botanist Somnambulist

Palus Somnii,

the botanist somnambulist has made his bed
a boat. He is waiting on the grass by the shore
for the dream-crowned captain to take him to Greenwich.
Lying there in the sheets in the reeds in the dream,
he shows you all the names in his collection,
but he cannot tell you his own. Tonight his mind
is a room I have stepped into, and you
are its only reflection. When the tide comes in
it paralyses the sleeper; when it goes out,
it exposes the dream. Seen from the lighthouse
such ships are the poorest of countries. Take away
the stern, the bow, the hull—regions of material
and atmosphere—and you are left with a mast—
a tree shaved of branches, planted in the sand.

This must be the way we all looked
before we turned back, hoping for costume,
wearing nothing but air.

Lakes on the moon are like colours in a dream,
dry.

The Botanic Garden

Sphagnum fallax, Cryphaea lamyana,
Equisetum pratense, Notholaena lemmonii,
Psilotum nudum, Ceratopteris richardii,
Taxus canadensis, Tsuga mertensiana,
Pinus ponderosa, Pinus banksiana,
Dracaena draco, Agrostis mertensii,
Olea europaea, Myrtus communis,
Pisum sativum, Salix matsudana,
Castanea dentata, Prunus persica,
Prunus avium, Linum usitatissimum,
Rubia Tinctorum, Fagus sylvatica,
Haematoxylon campechianum,
Stylophorum diphyllum, Laccifer lacca,
Dactylopius coccus, Sepia officinalis

Petrified Forest

These are the dead:

all branches of government, having collapsed under the weight of the people

the forest, no one ever seemed to see

stump speech

root words

the new leaf, turned too many times over and over

Paper Birch

It's not fair to the tree if you only see yourself in it.
It's not a pond or a mirror. It doesn't miss the leaves
or shiver in winter.

In the xylem, phloem, and cambium
I see no signs of life
except a kind of memory.

There is something
in the double-toothed leaves,
in the drooping catkins (the yellow sons, the daughters green)
in the winged nutlets and bark, and the branches bending
but not
enough

But in the lenticels, those dry mouths
with an appetite for atmosphere,
I see my own eyes,
bleached white and speckled black, asking
why my mouth is so full of poison.

Envy

The only colour I can see is human;
everything else is black.

I have been told there is such a thing as green.
I have been told there are people who see it,
but I don't know where to find them.

I am searching
for a person who understands the trees.

Today they are wintering and winter is
black—a time when all shapes move into their stomachs
and wait inside their hunger. I want I want

green to come in its own image but I'm afraid
I won't recognize it—
without leaves branches fade into fingers.

I need something to speak between us.

I want to ask green what it is to be alive
without voice or eyes or sense of direction.
How do you know and remember?
Where do you keep your mistakes and your envy?

The trees can't wait but they are watching me.
They are storing secrets inside their branches.
I want to know what they are thinking.
If I could hear their thoughts I could learn
how to be still

and for this

and also if

they could hear me, if I could know that they hear me,
I could teach them
how to walk away from the sun without dying.

Walking Palm

“We apply the term ‘walking’ to these phenomena because of the leg-like action of the stilts and because the plant eventually straightens itself at a new location, but we do not mean to attribute purpose to the plants.” – John H. Bodley and Foley C. Benson (botanists)

Methought the wood began to move and I asked who
would be killed. The trees do not mean to walk,

they said, it is an accident of evolution, of light
leaving them, of words belonging to a different kingdom.

walk: 1 to move at a regular and slow pace
by lifting and setting down each foot in turn.

walk: 2 to move at an irregular and very slow pace
by leaning and setting down new roots in turn.

A foot every two months—at this pace the king will die
of natural causes.

What if I could only step once?
Where would I choose to plant my feet?

The sound of rootsteps threatens more than the withering
of the stilts left behind, marking the place where rootprints rest.

I would like to know whose funeral I am to attend.
The king's? The word's? The stilt's? My own?

The Treehouse

If the tree has no roots
what will become of the house
I have built there? It cannot be
disassembled and carried on my back.
My body cannot support my shell.
You will protest: houses have never had
foundations. You will tell me: roots are built
in darkness so no one can see their fiction.
You followed the trunk into the ground
because the origin was a mystery,
and found that this truth alone remains
truth. I am not certain of anything without roots,
but I believe a tree without them is not a tree at all;
it is star.

But I cannot live there. I would fall
through its branches. I would crumble in its heat.

Bomb

Before the others can be civilized we must tame wonder.
A globe is the prison for it. Only a pin can pick the lock.
Shake an eye and the iris will shatter, filling the sclera
with its coloured flakes. A coat of arms is a scarecrow
you carry into battle to keep all parts of yourself
together, to keep the enemy from growing on the field.
Where the soldiers fall, new ways of seeing will spring up.
And again and again the eye opens for the first time. In this war,
it is a weapon of mass destruction and all survivors will
possess the bomb. All eyes sear the world differently.
The black eye, the bull's eye, the bird's eye, the glass, compound,
camera, naked, pink. Prepare yourself for the path of enlightenment.

ZOOBANK

The Dictionary

A is an ark entered not just the animals entering. This ark is a book: a bed of allegory where beasts become bestiary. The cargo is inclusive: the Cheshire and the centaur beside the dove and the donkey. The dinosaurs have died out, but enter through the exit. Extinction is etched on the sea floor under fossil. F is for flora, fauna and flood etched in Genesis in Garamond or Gothic. Obey God and He will hold you hostage, give you a hull-home and His word in vermilion, in citrus, icteric olive, in indigo and violet. Jehovah hangs his jabberwock in the jet stream—and we know it is a kite tethered to the keels of our feet.

Let us return to land; that is what this ship is for. For looking up the menagerie so it multiplies in our mouths and goes forth not knowing its nearness to nova. Tonight, all you nouns of Oxford, rest your origins in small caps on old-growth pines. You have been pressed into pages by the lure of quintessence. Remember there are two entries for question, and when the waters recede they will reproduce the Red Queen's race. Run, Shakespeare, to the scriptorium, if you want to save or not to save your monuments. In the traffic of usage is the making of meaning. A carriage waits, under victoria. The vernacular is at war and twenty volumes have only enough room to hold the dead. Find the wall's weakness and seep through. If you are X escape to Xanada, and plant in the ground the only answer you are seeking:

Tails, Pits, Beaks and Wings

Coccyx is a white coat word
distantly related to the Greek
term for a cuckoo. Coccyx
sounds like a squawk because
an anatomist of the sixteenth century
thought the bone at the base of the spine
looked like a sort of bill, and so adapted
kokkux to suit his purposes.
And coccyx is not the only technical term
that would have us imagine some kinship
with birds.

Axilla is a name nostalgic for the early
Mesozoic when all chordates were created equal.
Before our could-be feathers fell out
and fingers made our wings different.

The vernacular is not so sentimental
and looks to the earth for inspiration:

tailbone and armpit

are decidedly flightless words.

The tailbone is where our memories of animality are stored.
It used to be filled with instincts,
but over the years it solidified,
got cut off from the spinal cord,
and now the messages it tries to send to our busy brains
are often returned unopened.
They say the human race is getting taller.

And armpit is a word that turns up in conversation
so covered in grime you are afraid to ask:
where have you been? The armpit
has been wallowing in dirt
since it was first committed to paper.
You need only follow the muddy prints
to find out where it began.

And yet

the armpit is not such an unholy place,
a sort of asexual private part
where a tired lover can hide out.

Though I may share a little
of my Latin ancestor's wing envy,
I'm convinced
if the hollow was only bigger
if our bodies were only smaller
our angels would be four-legged,
and our dreams of crawling
instead of flight.

The Half-life of Words

It's a beautiful thing, the destruction of words. – George Orwell

The soldiers wake with Shakespeare on their lips
and move in deep green fatigues from bed to beach;
half dream of sleep and slouch wrapped in tropical heat.
Beneath the palms there is standing room only.

Backs to sea, eyes shut, ears stuffed
with fingers (their senses safe and sealed)
they wait for the black horizon to ignite,
hush the stars and end the night.

And for a moment they are ghosts
caught in the reckless red pulse—
skeleton shadows cast on the sand.
They see the star-crossed bones glow in their hands.

Where there was once an island a man-made sun rises
and the operation receives an awestruck-ovation.
Romeo: a radioactive romance in one act, atomic love
replaces sweet division. Constant Deuterium wins wild Tritium.

And the cloud would, were it not Romeo called, retain that
sublime destruction which is the god of their idolatry.
What is Romeo? It is not hand or hero. It doesn't come before Juliet;
she detonates first. Followed by Kilo, Lima, Mike and November...

Romeo is just what follows Quebec, what follows Q. It is only R
with less chance of confusion. From exalted title to filed code
the name decays into a sound obscure, into a sound that carries
no word—a tag, a blot, a shell without a nucleus of meaning.



FOUR SEASONS HOTEL
Toronto

June 2008

Dear Guest,

We wanted to let you know that a pair of Peregrine Falcons have made the top of our building home for this nesting season. The Canadian Peregrine Foundation has advised us that this species is endangered and have made Four Seasons Hotel Toronto their home for the past few mating seasons in an attempt to hatch their eggs.

Although we do not want to limit your use of the balcony, we strongly advise that you use extreme caution while outdoors, as the female falcon is very protective of her home and can be aggressive toward perceived threats.

Should you have any questions or would like more information, please do not hesitate to contact the Hotel Assistant Manager directly at Extension 4635.

Yours sincerely,

Kurt Englund
Hotel Manager

KE/vp

Bone Sonnet

Hamate bone, inferior maxilla,
ossa coxae, xyphoid process, incus,
cervical vertebrae, rib, patella,
metacarpal bones, tibia, talus,
lumbar vertebrae, pubis, mandible,
femur, navicular bone, fibula,
capitate bone, ilium, clavicle,
lateral cuneiform bone, scapula,
sacral vertebrae, stapes, malleus,
pisiform bone, proximal phalanges,
thoracic vertebrae, calcaneus,
trapezium bone, distal phalanges,
inferior nasal conchae, sternum.
vomer bone, coccyx, humerus, sacrum.

Blind Cave Fish

According to Darwin's view (since reaffirmed by a century and a half of further biological evidence), natural selection is a purposeless process but an efficacious one. Impersonal, blind to the future, it has no goals, only results. – David Quammen

I found God in a cave full of dead things. I wasn't looking for him, but found my way into a cavern as big as a cathedral with stalactite ceilings and a choir of bats and I brushed my hands over the surface of a pool and God swam up and sucked my fingers.

God is small and white and blind. Mostly he swims in circles and has no sense of direction. I asked him if he misses his eyes. There are other gods in the cave but they are all the same. There is only one way to live in the dark so there's no use in being different.

All the gods will live forever because there is no sun to weary them. The gods have forgotten the sun; they do not know they are fish.

OLD AND USELESS NOTES

The Poet's First Physical

The poet rattles off hereditary titles
that all sound as grand and enviable
as the Latin on a coat of arms.
His list of family jewels is long
and a copy fills each keyless safety deposit cell.
Diabetes and Huntington's Genes
sparkle like fool's gold, and foreshadow ambulances
backless gowns and bed pans. He is as under-nurtered
as he is under-natured and tells of holes in walls
where fists were planted in self-affliction.

After the oral,
the doctor pokes and measures—
listens to the secrets the body is thoughtlessly revealing.
The poet begs to differ with the stethoscope's opinion.
He stays focused on the words
he'll take in twenty years
when his knees start to creak, is certain
there is a prescription he can write
to keep his head above the rising bile
and stop his brain from running on,
sputtering slowly to a halt after his heart cuts off.

When he leaves he remembers the file
sitting open for him to see
nothing but the illegible scrawl of the G.P.
He thinks maybe it reads
like an alarm that says stay away
on these pages the words
and not the body betrays.

Nameless

for Fernando Pessoa and company

Excuse the use of apostrophe
it is the only way to cure you
of your loneliness.

After you died
someone found your diary
in a trunk. The pages, in need of stapling,
were all that remained of one Bernardo Soares.
It doesn't matter if they buried you,
or scattered your ashes,
or kept them in an urn.
It was always your uneven spirit that needed stitching.

Disquieted man you remind me
of still nameless creatures
lurking at the bottom of dark oceans.
The ones made of wet lace and delicate white skirts
that rustle in the breeze of currents. All costume
and no bride they drag their long tentacle trains
behind them as they move through the blackness.
They are like lungs in a sedated search for air. And you
are like them, but are also like a small gathering of strangers
at a house without a host
where dinner is eaten at a headless table.

Like is not is,
is something more infant
or infinite,
is harder to heal.

You are a light speaking through too many panes.

The Principle of Population

On a bus, an Iraqi stranger and I
discuss the looting of the Baghdad museum.
Of all its scattered contents he says he will miss most a vase
that once belonged to an Assyrian queen, whose husband
died in a war fought outside their country;
his body was never brought home. And the stranger,
three months shy of new citizenship, is misty-eyed
not for the queen
but for the vase, which caught all her weeping
and kept the tears
unevaporated for so many centuries
though it had no lid.
What he doesn't say is whether the ground was wet
where they found the vase's case smashed and empty.

Looking out the window
it is hard to go a mile without spotting a carcass
be it mammalian, avian, or insectile.
Turning wheels and speed often lead to a sad place.
A professor I once had
witnessed a head-on collision
between a hatch-back and a bird.
The impact interrupted his steady logic
and made him think swiftly:
the world is a sea of tears.

I am on my way to the biggest city in the country.
Its streets are wide and long.
Below ground, in the subway system,
commuters try to cover the greater distances.
While they wait they think and their thoughts swell
above their heads. It is hard to go a week without
seeing someone crying on the platforms.
Their tears feed the underground aqueducts
that make the skyscrapers grow.

In some cities the tears are worn quietly,
shed into hands and away.
In some they are tattooed onto faces.

The Empirical Disciplines

Sight: imperial empirical. But would you expect any less from retina? Pupil? Iris? Listen to the I in the eye and it will tell you where to find the focus. This is the sacred space where only light can go. This is where and how we think—the sense that makes us trust the rest. It points and teaches, keeps its distance, reaches out beyond our gadget fingers and lets us know.

Touch: sense or violence? It's the one that bleeds in extreme. If it's soft, it's a sensorium to be explored—texture is a branch of cartography for the low impact camper. But if it's hard, it's a blackout—a sight specific sour you spit out in scream, but still it comes slowly rolling over and straight to your head.

Taste: this is intimacy in infancy. The world becomes known one amuse bouche at a time. But then the tongue starts twisting and stops tasting. O psychoactive sense, if I could crawl inside you I would be complete. If I could be full at the mouth, if my stomach didn't take you away and spoil my appetite. You are the g-spot—the glottal stop. I want nothing more than more of you.

Hearing: silence is freefall—the sleeper's suicide. Here is the sense that guards the gates. Ears stand at attention for good reason. We are lazy. We build them rigid so they can weather the night without consciousness. And that drum is a lighthouse while we dreamers are at sea, tossing unaware we might lose the life left on shore.

Smell: a place that arrives in you. A knock at your septum brings you to stadium in seconds. Stench hemorrhages where your memory is: at the brain stem. Home of blood sport and botanics, bullrings and sweet sweat. It is the guarded secret, the private part, the only way back to the empirical here.

Tools

There are the ones that fit in my hand
and make me feel like an outside
to their in. They pass through my fingers
like crutches, reminding me of the fractures
in my practice; hammers are for boys
and lipstick is for girls to fasten mouths together tight.
I have used people, but I cannot remember for what purpose.

In a driver's seat, I feel like a brain
riding inside a spacious skull. The seatbelt tightens,
ever so slightly, and I think:
thank gravity I am the one in the holster.

The cranes looming over the city like prehistoric monsters
grew out of someone's cerebellum. Watching the giant limb
lift a pylon, I try to feel the weight
as if I held it in my fist.
There is a man I cannot see
riding inside the crane's cabin
and I wonder: who is holding whom?

Then there are the words I have kept on my tongue
where they gather the weight that will bring them to sentence
if I let them. For now I keep them,
growing rust in my spit because
I don't know
how to replace them
if they're lost.

Laugh Tracks

The evolutionary show is over.
In the next millennium,
the most exciting thing
the human body will do is lose hair and shed toes,
molting its way forward and downward.
There's no going back to the trees,
but every morning I eat the same finger.
Not the little one or the middle or the ring
not the index, but the Cavendish. Bananas
may grow in bunches, but they are sold in hands
and one digit is the same as any other. Thumbs
don't come from trees, and I wonder
how I would peel a banana
without one on each palm.
Do they taste good whole? I wonder
what I would eat, what I will eat
when there are no more bananas.
My sister washed all the lice
out of her hair, and my mother has never had ticks.
I am going to miss the banana—the perfect
fruitless fruit
with just a sterile fossil of seed inside it.
I am going to miss their potassium
and their sense of humour,
reminding us that we all fall
back
to the ground we came from.

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