

7. Experience and Experiment

1. Our only teacher
2. Prophecy and perception
3. The clash
4. Dynamics of turning
5. Surprises
6. Fixing belief
7. The means of meaning
8. Dynamic tention
9. Speaking of experience

Our only teacher

It's all very well to speak of *speaking from experience*, but who has ears to hear what's been spoken? What's to stop the word from turning one way and *experience* another? Can any verbal revelation open up the bubble of language itself?

Philosophers of recent times have had much to say about *experience*, but here we will begin where we are, by considering how we use that word in ordinary English, and how that usage has evolved.

Back in the 20th century, when you applied for a job, you were often asked if you had 'experience.' The question was whether you had 'experienced' doing that kind of work *in the past*: if so, presumably you had acquired some skill at it, or at least remembered how it was done. (If you knew enough about it, you might even be called an 'expert,' which comes from the same root.) This kind of 'experience' is a set of *habits* which will guide your *future* behavior more or less predictably.

We can also say that you are 'having an experience' *now* (for instance, a reading experience), but this is a different kind of 'having.' So the word *experience* is ambiguous – like the word *learning*, which can refer either to a process or to the accumulated

results of the process; or the word *revelation*, which can refer either to the delivery of a message or to the message delivered (that is, to the advent of an insight or to the symbolized and formulated record of it). Following the lead of Gendlin's *Experiencing and the Creation of Meaning*, we could say that 'experiencing' now is how you learn what you don't already know, while 'experience' remains a name for what you've learned. However, since new discoveries are not disconnected from what you already know – as we will see below – 'experience' is often used for both, with ambiguities resolved by attention to the context or situation in which the word is used.

Everyone agrees that learning, and hence knowledge, depend on experience. C.S. Peirce even said that in science, 'Experience is our only teacher' (EP2:153, 1903). A century earlier, William Blake wrote that 'As the true method of knowledge is experiment, the true faculty of knowing must be the faculty which experiences' (*All Religions are One*, 1791). And a century before that, John Locke had written that the entire furniture of the mind, 'all the materials of reason and knowledge,' come from Experience (*Essay Concerning Humane Understanding*, II.1, 1690). But behind the apparent consensus among these voices lurks a deeper polyversity, which emerges when we investigate what they meant by 'experience.'

The roots of the English noun can be traced back to the Greek πείρα, translatable as 'trial, attempt, essay, experiment, enterprise' (LSG). Aristotle called experience ἐμπειρία; the usual Greek adjective describing an 'experienced' person was *empeiros*. From these we get the English words 'empirical' and 'empiricism' (the doctrine that experience is the source of all knowledge). From the Latin verb *experīrī*, which added the prefix *ex-* to the Greek verb πειράω, we get 'experience' and 'experiment.' These two English words were nearly synonymous – as in the Blake sentence above – until quite recently. William James (1902, 361) wrote that 'Yoga means the experimental union of the individual with the divine,' but most writers today would use 'experiential' instead. In our time, 'experiment' is mostly reserved for scientific activity (in the usual narrow sense of 'science'), while 'experience' is more broadly used in reference to the subject's feeling or awareness of whatever happens to him or her. The word has taken on more passive and internal overtones, drifting away from the Greek root concept of

trying or *testing*, which *experiment* has retained. This divergence in usage is one symptom of the conceptual gap which has opened up between 'revelation' and 'discovery,' religion and science, the way of belief and the way of inquiry (as described in Chapter 6).

In terms of philosophical doctrine, we can trace the development of this gap back to British or *classical empiricism*, as represented by Locke. He asserted that *sense* experience, 'conveyed into the mind' by the effects of external objects on the senses, is the source of all ideas, and therefore all knowledge. Locke described the mind as a 'white paper,' a blank slate or *tabula rasa*, which passively receives whatever 'Sensation' writes upon it, and then derives more abstract and general knowledge by reflecting on the 'ideas' given through the senses. This was in part a reaction against the *rationalist* view that reality is (or can be) known by reasoning from 'innate ideas,' with little or no help from experience.

Prophecy and perception

Empirical science itself has taken issue with classical empiricism, as we will see below. But few have opposed Locke's ideas quite so bitterly as Blake. In *All Religions are One* (quoted above), he asserted 'That the Poetic Genius is the true Man. and that the body or outward form of Man is derived from the Poetic Genius' – turning Locke inside out, as it were. This 'Poetic Genius which is every where call'd the Spirit of Prophecy' is the real Teacher of all we know. In another early tract, *There is No Natural Religion*, Blake emphatically rejected both sense empiricism and rationalism:

- I Mans perceptions are not bounded by organs of perception. he perceives more than sense (tho' ever so acute) can discover.
- II Reason or the ratio of all we have already known. is not the same that it shall be when we know more.

Locke was dead wrong, according to Blake, to think that human perception was entirely dependent on the senses, or that knowledge was bound within the cognitive bubble, as we called it

in the previous chapter (Blake sometimes called it the ‘Mundane Shell’). It’s only force of habit, or ‘Nature’ in Blake’s terminology, that keeps us imprisoned within the cave of Reason, where we can only rearrange old ideas. ‘The same dull round even of a universe would soon become a mill with complicated wheels,’ he went on – but fortunately we have ways to break out of this mechanical routine. We can discover a deeper, more living truth by means of the human (and therefore divine) Imagination.

This doesn’t mean that external objects are only ‘figments of the imagination,’ as we say nowadays. We will explore what Blake meant by ‘Imagination’ in a later chapter; for now, let’s just say that his take on perception sets up a stark contrast or contrary to Locke’s brand of empiricism. That was Blake’s usual way of proceeding, because, as he wrote in *The Marriage of Heaven and Hell*,

Without Contraries is no progression. Attraction and Repulsion, Reason and Energy, Love and Hate, are necessary to Human existence.

— MHH, pl. 3

His *Songs of Innocence and Experience* create another contrast, this time between ‘Two Contrary States of the Human Soul’ – only to point the way toward ‘a further state, a synthesis of the two’ (Damon 1988, 197). *Experience* is an ongoing disaster from the *Innocent* point of view, while *Experience* tends to see *Innocence* as hopelessly naïve. But the only viable hope lies beyond them both, in a third, more comprehensive vision of reality. Breaking through to that larger vision requires us to exceed the limitations of both *Innocence* and sense experience. It’s up to the Poetic Genius or Prophet to goad humanity toward that breakthrough.

At this point the question arises: does this enlarged vision of the Poetic Genius bring us closer to the whole truth, or only to a new belief? For Blake, there’s no real difference between the two. In *All Religions are One*, he wrote that ‘No man can think write or speak from his heart, but he must intend truth.’ But how do you know that the truth doesn’t get lost in translation from heart to thought, or thought to word? Does *intending* the truth suffice for *speaking* it? Blake addressed this kind of question in *The Marriage*

of *Heaven and Hell*, where the poet asks the prophet Isaiah,

does a firm persuasion that a thing is so, make it so? He replied: All poets believe that it does, & in ages of imagination this firm persuasion removed mountains; but many are not capable of a firm persuasion of any thing.

In 'ages of imagination,' then, *faith determines fact*. But sooner or later the voice of Experience is bound to break in: Haven't you ever imagined or believed something which you later saw to be mistaken? If so, you've learned that imagination is not infallible – or even if it is, your recognition and reading of its utterances is not. The poet's belief in the primal truth is indeed the heart of his utterance, but once it leaves his lips, that Word can work as a sign – and thus can be *true* – only in a world external to any private belief system.

A word can be a Sign of its Object only by generating an Interpretant, which is *another* sign. You can't *utter* a sign at all unless there's an *other* to hear it, even if it's only your future self. Moreover, any word *meant* to be heard must belong already to some language, and there is no private language (recall Chapter 2). Even when the Primal Person herself speaks forth as prophet, she takes on a social role, creating her audience by dividing it from herself. The act of prophecy creates a *universe of discourse* – or modifies it, as an external observer would say, since the prophet can only address the already-given situation in which he takes on that public role. Whatever he says will naturally be interpreted according to the very human habit-system it was meant to modify. The prophet is thus calling upon that system of habits to transform itself – which can only happen by learning *from experience*. But we will have to pass beyond Locke and Blake to see why Peirce named *experience* as 'our only teacher.'

The clash

Much like Blake, Peirce asserted that 'the true poet is the true prophet' (W1:114); that 'nothing but imagination' can give us even

‘an inkling of the truth’ (CP 1.46); and that ‘reasoning can supply the mind with nothing in the world except an estimate of the value of a statistical ratio, that is, how often certain kinds of things are found in certain combinations in the ordinary course of experience’ (CP 6.493, c. 1896). But Peirce also noticed that imagination is far from infallible. Although it is the only possible source of new ideas, even in science, most of those ideas turn out to be wrong when tested in the brutally bright light of experience. The poet has the first word in the way of inquiry, but not the last – creative imagination is only the beginning. *Experience* consists of things or events forcing themselves upon your awareness whether you want them to or not. A *fact* is an element abstracted from actual experience by representing it in the propositional format that reasoning can work with, and thus making it intelligible. Peirce places his faith in facts as the proper guides along the way of inquiry, precisely because they are *not* determined by faith. Since you can count on the facts to be as they are regardless of any belief about them, *experience* is our only connection with the reality beyond the cognitive bubble.

This Peircean use of the word ‘experience’ also restores its more active sense of *trying* or *testing*, as we can see in his second Harvard Lecture of 1903, ‘On Phenomenology’:

Experience is our only teacher. Far be it from me to enunciate any doctrine of a *tabula rasa*. For, as I said a few minutes ago, there manifestly is not one drop of principle in the whole vast reservoir of established scientific theory that has sprung from any other source than the power of the human mind to *originate* ideas that are true. But this power, for all it has accomplished, is so feeble that as ideas flow from their springs in the soul, the truths are almost drowned in a flood of false notions; and that which experience does is gradually, and by a sort of fractionation, to precipitate and filter off the false ideas, eliminating them and letting the truth pour on in its mighty current.

Peirce is speaking here in a scientific context, but 'science' for him includes all inquiry, not only what we call the 'empirical' or 'natural sciences.' Philosophy is a science too; and the very heart of it is *phenomenology*, the subject of this lecture. In the categorial terms introduced in Chapter 5, Peirce is using 'experience' here in reference mainly to *Secondness*. Blake's *Innocence* is the psychological face of Peirce's *Firstness*, while *Thirdness* is the 'tendency to take habits.' All three are essential to a viable guidance system, which is why it must incorporate the way of inquiry. In its deliberate, methodical public form, this is called *science*, but more vaguely it pervades every living system.

The role of *experience* in science, or in any kind of guidance, is the role of *Secondness* in *Thirdness*. Experience as *Secondness* is our only way of waking to a *difference* between appearance and reality, or sign and object. The primal person, being innocent of any duality, knows no *otherness*, and therefore makes no such distinction. When *Secondness*, or the dyadic, breaks into that innocence, the sense of the *external*, of *reality*, of *experience* and *existing things* all arrive together. When you live in the actual, factual world, this happens all the time: you are constantly looking forward, into the (more or less immediate) future, anticipating what will happen next, yet blissfully unaware that you are doing so – *until* something unexpected happens. This is the element

which the rough and tumble of life renders most familiarly prominent. We are continually bumping up against hard fact. We expected one thing, or passively took it for granted, and had the image of it in our minds, but experience forces that idea into the background, and compels us to think quite differently. You get this kind of consciousness in some approach to purity when you put your shoulder against a door and try to force it open. You have a sense of resistance and at the same time a sense of effort. There can be no resistance without effort; there can be no effort without resistance. They are only two ways of describing the same experience. It is a double consciousness. We become aware of ourself in becoming aware of the not-self. The waking state is a

consciousness of reaction; and as the consciousness *itself* is two-sided, so it has also two varieties; namely, action, where our modification of other things is more prominent than their reaction on us, and perception, where their effect on us is overwhelmingly greater than our effect on them. And this notion, of being such as other things make us, is such a prominent part of our life that we conceive other things also to exist by virtue of their reactions against each other. The idea of other, of *not*, becomes a very pivot of thought. To this element I give the name of Secondness.

— CP 1.324 (1903)

Your innocent feeling is *First*, and the actual event which violates or clashes with it is *Second* to that First. That ‘Outward Clash’ (EP1:233) awakens a sense of *reality* which *Thirdness* will bring to fruition, just as the clash of Blake’s ‘Contraries,’ such as Innocence and Experience, will bear fruit in a ‘third state of the soul.’ Of the three ‘elements’ or ‘categories’ which Peirce discerned in every phenomenon, or *phaneron*, ‘experience’ signifies especially the Second:

experience, from the very essence of the word, consists of our belief about a universe, – ‘the truth,’ – over against our opinions and beliefs, which are thought of as fallible and ignorant.

— letter to William James, October 3, 1904 (CP 8.294)

The path of inquiry does have a faith of its own: that all beliefs, regardless of origin, are fallible and open to correction, while the *objects* of factual signs are what they are regardless of whether anyone knows or believes the facts or not. Experience then is the ‘pivot of thought’ because it is the testing ground of every belief or scientific *hypothesis*, precisely because it is independent of anyone’s belief, and thus can *check* our expectations. This has a double meaning: actual events can *stop the flow* of expectation, or at least present obstacles to it; and this in turn qualifies them to serve as a *reality check*.

In a 1908 paper, Peirce defined ‘experience’ by its relation to the self-organization of habit:

An 'Experience' is a brutally produced conscious effect that contributes to a habit, self-controlled, yet so satisfying, on deliberation, as to be destructible by no positive exercise of internal vigour.

— EP2:435

It's the *otherness* or Secondness of experience that makes it 'brutal,' but also makes the resulting habit robust. A healthy habit is not 'destructible' from the inside because it has been *consciously tested* against the outside, against the external reality that can't be wished away. In the most rigorous form of scientific method, this means that a hypothesis cannot be considered well grounded until every effort had been made to *refute* it by experiment. Now, some highly significant ideas can't be tested in this rigorous way, because they don't refer to anything observable by the public, and therefore can't be conclusively refuted by any actual observation. Indeed this must be true of any *primal* revelation, since no *other* person could possibly bear witness to it. However, even in its less rigorous forms, the way of inquiry still turns on the same 'pivot of thought.'

Dynamics of turning

Even in Peirce, 'experience' does not mean *only* Secondness. You could refer to his triad of 'categories' as three 'elements' present in *all* experience. 'Since all three are invariably present, a pure idea of any one, absolutely distinct from the others, is impossible; indeed, anything like a satisfactorily clear discrimination of them is a work of long and active meditation' (EP2:267). On the other hand, you could refer to them as 'three Universes of Experience' – as indeed Peirce did in the 1908 essay quoted above (EP2:434). Still, you could say that the element of Firstness only belongs to 'experience' because any specific experience must have some *quality*. Secondness belongs to experience as the *unexpected*: 'it is by surprises that experience teaches all she deigns to teach us' (EP2:154). The teaching (or learning) itself, insofar as it actually governs our future conduct over the long term, is the element of Thirdness or 'habit-taking' –

which is also the universe of mediation, representation and *semiosis*.

Words and other signs can *turn* or guide your way of life only by actual engagement with the world beyond the sign-system. Cognition relates to that external world as a sign relates to its *dynamic object*, to the Other with which you engage through semiosis, when the indexical part of a sign points to it. This provides the sign-reading system with the leverage it needs to couple its actual conduct with the external reality which the system seeks to navigate, manipulate or explicate. That actual conduct – not the general pattern but the current instance of it – is the ‘Dynamic Interpretant, or effect actually produced on the mind by the Sign’ (CP 8.343). The word ‘dynamic’ (or ‘dynamical’) always refers to ‘the Dyadic category, the category of Action’ – though the interpreter’s ‘Action’ may appear to other people as passion, or may not *appear* to anyone else at all. Insofar as ‘the meaning of any sign for anybody consists in the way he reacts to the sign’ (CP 8.315, 1909), that ‘meaning’ is the *dynamic interpretant*.

Likewise the *dynamic object* is the actuality represented by the sign but external to it – which may not appear to others as external to the sign-reader. Even if it does, how do you recognize *that* as the object of *this* sign, if you have nothing but names to go by? In conversation, how do we really know that we are talking about the same subject?

The sign-reader’s engagement with the dynamic object involves experience of it as something other than (but naturally connected with) the sign itself. Peirce explained this in a 1909 letter to William James:

We must distinguish between the Immediate Object, – i.e. the Object as represented in the sign, – and the Real (no, because perhaps the Object is altogether fictive, I must choose a different term, therefore), say rather the Dynamical Object, which, from the nature of things, the Sign cannot express, which it can only *indicate* and leave the interpreter to find out by *collateral experience*. For instance, I point my finger to what I mean, but I can’t make my companion know what I mean, if he can’t see it, or if seeing it, it does not, to his

mind, separate itself from the surrounding objects in the field of vision.

— (EP2:498)

The Object of a Sign can even be defined as ‘that with which it presupposes an acquaintance in order to convey some further information concerning it’ (CP 2.231, 1910). But anyone you are likely to talk with could be acquainted with an infinite number of possible Objects. Supposing (as you must) that the one you refer to is among them, how can she know which one? Finger-pointing is the prototype of intentionally indexical signs, but you can’t point anything out to another person that way unless it’s ‘in the field of vision,’ which is *external to both of you*. If it isn’t – if it’s a *feeling* or an abstraction instead of a visible thing, for instance – then the challenge of ‘making your companion know what you mean’ is all the more difficult.

A sign, then, is anything whatsoever – whether an Actual or a May-be or a Would-be – which affects a mind, its Interpreter, and draws that interpreter’s attention to some Object (whether Actual, May-be, or Would-be) which *has already* come within the sphere of his experience.

— Peirce, MS 670 (1911)

The point of Peirce’s emphasis here is that a sign cannot supply its interpreter with experience of its Object. If the sign is a revelation, or a *turning sign*, it will affect your mind by turning your attention to something already ‘within the sphere of your experience’ and revealing qualities of it that you hadn’t seen or felt before. It may also alter your intersubjective connection with something to the extent that you *re-cognize* the other subject as a different kind of thing from what you thought it was. Yet as Heidegger says (1927, 227), ‘Once entities have been uncovered, they show themselves precisely as entities which beforehand already were.’ The *sphere of experience* is mostly unexplored by each of us, living as we do within the bubble of our habitual thoughts and perceptions. This *sphere* has been introduced already, in Chapter 5, as the *Umwelt* in which every organism lives and moves. Its presence is grounded in past experience but includes all the *possibilities* which may be

realized in future actions or perceptions.

What a sign can do is direct your attention to objects within the sphere of your experience *and to relations among those objects which you hadn't seen before*. But just because you haven't seen them before doesn't mean that you see them truly now. You could be hearing a fantasy posing as fact, or an old familiar truth in a new disguise. A *genuine* revelation is not only surprising as a present experience but also informative about the future. But if informative, it must also have some connection with the past, the already-known, other than being an interruption of it. It says something new on an old subject. The beauty and power of language lies in the possibility of recombining its elements to say what has never been said before, so that the interpretant of a turning word can boldly go in a new direction. This change of course will make further differences, signs of which you can hope to read in some later stage of semiosis.

Surprises

Beliefs are the habits that constitute your guidance system, whether you can declare them in propositional form or not. *Some* of your habits are bound to be good ones, and thinking about them would only interfere with their smooth operation. But once they run into opposition, or you call them into question, there's no going back to the innocence of 'instinct' or 'intuition.' If these were always trustworthy guides, there would be nothing to learn from any revelation or discovery. Likewise, if your faith in anything you've learned makes you immune to further learning, then that faith is your enemy.

Whether a discovery is a 'religious experience' attributed to a divine source or a scientific insight attained by the human mind, its value appears in the difference it makes to the whole guidance system. If we wish to avoid self-deception, the way of inquiry directs us to test the new idea by actively seeking to *cross* it with those 'brute' facts beyond our control. That *crossing* is the *experience* which is 'our only teacher.' In science – according to Peirce and Popper, at least – this means conducting an *experiment* which would conclusively refute the hypothesis if it is in fact false.

It's true that even in science, such an ideally definitive experiment is rarely attained; and the kind of *crossing* we can do in everyday life is often even further from that ideal. Nevertheless, the genuine seeker of truth lives the whole of her time experimentally. Living is learning, and learning (however vaguely it may be expressed) is an ever-widening spiral circulating between expectation and surprise.

Experience is our only teacher.... But precisely how does this action of experience take place? It takes place by a series of surprises. There is no need of going into details. At one time a ship is sailing along in the trades over a smooth sea, the navigator having no more positive expectation than that of the usual monotony of such a voyage, when suddenly she strikes upon a rock. The majority of discoveries, however, have been the result of experimentation. Now no man makes an experiment without being more or less inclined to think that an interesting result will ensue; for experiments are much too costly of physical and psychical energy to be undertaken at random and aimlessly. And naturally nothing can possibly be learned from an experiment that turns out just as was anticipated. It is by surprises that experience teaches all she deigns to teach us.

— Peirce (EP2:153-4)

Experiment as the testing of a hypothesis pervades not only the 'hard' sciences but the arts as well. The art lover's vision can be transformed by a painting because it presents her with a hypothesis, a new way of seeing, which she can then proceed to try out. Gombrich offers this example:

Whatever the initial resistance to impressionist paintings, when the first shock had worn off, people learned to read them. And having learned this language, they went into the fields and woods, or looked out of their window onto the Paris boulevards, and found to their delight that the visible world *could* after all be seen in terms of the bright patches and

dabs of paint. The transposition worked. The impressionists had taught them, not, indeed, to see nature with an innocent eye, but to explore an unexpected alternative that turned out to fit certain experiences better than did any earlier paintings.

— Gombrich (2002, 275)

The main difference between the experiments carried out by a reader of paintings (or of scriptures) and those of the scientist is that the art reader makes no concerted effort to *refute* the new way of seeing; if it works, that's good enough for him. The artist himself, as creator of the new hypothesis, is more scientific – more refutational – in being motivated by criticism of previous artistic achievements. He is driven by the feeling that he can do better, that indeed he can carry forward the tradition in which he is trained only by going beyond it. As Gombrich (2002, 271) put it, 'only experimentation can show the artist a way out of the prison of style toward a greater truth.'

This is where discovery meets revelation: they share the element of the unexpected, the until-now-unimagined. But the surprise is only the beginning of learning, the spark which touches off the *way of inquiry*. The object of the inquiry game is a *better* expectation, one which is not so easily ambushed by surprises. We begin with a guess at it, which we then subject to reality checks. If the guess is a truly scientific theory, we subject it to those tests which are most likely to prove it wrong – for if it survives all that brute Secondness can throw at it, we can take it as much more likely to be true. The fact that some theories generate definite expectations confirmed by actual events (despite our best efforts to refute them) is the strongest evidence that there's *more* to reality than here-and-now actuality. There's also the reality of Thirdness – general ideas, principles, beliefs, habits, laws, – which *continue* to guide the flow of events down a more or less definite path. But in order to see the true guides, we need a method of weeding out the false ones.

Fixing belief

In 1877, Peirce published a now-famous essay called ‘The Fixation of Belief.’ A *belief*, in Peirce’s terms, is a *habit* which actually guides conduct into the future. ‘Fixation of belief’ is therefore a deliberate formation of habit.

Most beliefs function implicitly in practice. You normally think about your guidance system only when some question arises about its ability to guide your life in the right direction. You are then somewhat agitated until the question is settled and you are satisfied with the rightness of your belief. (We’ve seen this pattern already in the *Gospel of Thomas*, Saying 2.) Peirce’s 1877 essay outlined four different methods of ‘fixing belief’, which constitute stages on the way toward truth. Decades later he summarized them as follows:

My paper of November 1877, setting out from the proposition that the agitation of a question ceases when satisfaction is attained with the settlement of belief, and then only, goes on to consider how the conception of truth gradually develops from that principle under the action of experience; beginning with willful belief, or self-mendacity, the most degraded of all intellectual conditions; thence rising to the imposition of beliefs by the authority of organized society; then to the idea of a settlement of opinion as the result of a fermentation of ideas; and finally reaching the idea of truth as overwhelmingly forced upon the mind in experience as the effect of an independent reality.

— CP 5.564 (c. 1906)

The *independence* of this reality can be guaranteed only by ‘experience’ as genuine Secondness. The ‘way of belief’ as explained in Chapter 6 is essentially what Peirce calls ‘willful belief’ or the ‘method of tenacity’: you simply ‘fix’ on a belief and refuse to change it, resisting any reasoning or evidence that might change your mind. (This is the only method to which the Freudian sense of pathological ‘fixation’ applies.) Any belief so ‘fixed’ that it can’t be altered by living experience is a lot like *rigor mortis*, and is bound to misguide the believer eventually. Some people call this tenacity

'faith,' but it does not really count as *religious* faith unless it is determined by external authority rather than personal insistence. This is an improvement because it helps to integrate believers into a social system; but the unity of this system may be gained at the cost of excluding others, and the destructive effects of 'self-mendacity' are only amplified when channeled through social institutions.

The next step up brings us to dialogue, or 'fermentation of ideas,' where reasoning carries more weight than anyone's authority. This tends to make a belief system more coherent and consistent, since reason enhances relations between beliefs – it's a way of keeping the collective cognitive bubble in good repair. But it doesn't necessarily open the bubble to new experience which isn't already encoded within the system. The fourth method is the only one which systematically avoids self-deception at every level, by actively seeking signs of an *independent reality*. This is what Chapter 6 called 'the way of inquiry'; Peirce called it 'the scientific method' or 'the method of experience.'

The logic of this method has three main components, according to Peirce: *abduction*, *deduction* and *induction*. When something unexpected happens, and you look for a way of explaining it, your first step is to make a guess (or more formally, a *hypothesis*) at the principle or pattern which would account for the surprising event. This first step in the way of inquiry is *abduction*, which corresponds roughly to Blake's 'Poetic Genius' or 'Imagination' as the source of original ideas. However, you can't *learn* anything from these ideas alone, since they are not necessarily true. Only by testing your guess against an obstinate reality, calling upon 'experience' as Secondness, do you actually learn something new; and this is the role of *induction*, as practiced in experiment and observation. But this observation itself must be guided by the nature of the hypothesis in order to test it. This is where *deduction* plays its part, by generating a *prediction* of what should happen under specific conditions *if* the hypothesis is true. Then you can test it by observing what *actually* happens under those conditions.

Scientific method is the deliberate use of all three components of this logic in a formal public process of inquiry. But ordinary reasoning is a less explicit version of the same process, and every new thought we have is an abduction:

All that makes knowledge applicable comes to us via abduction. Looking out my window this lovely spring morning I see an azalea in full bloom. No, no! I do not see that; though that is the only way I can describe what I see. That is a proposition, a sentence, a fact; but what I perceive is not proposition, sentence, fact, but only an image, which I make intelligible in part by means of a statement of fact. This statement is abstract; but what I see is concrete. I perform an abduction when I so much as express in a sentence anything I see. The truth is that the whole fabric of our knowledge is one matted felt of pure hypothesis confirmed and refined by induction. Not the smallest advance can be made in knowledge beyond the stage of vacant staring, without making an abduction at every step.

— Peirce, MS 692, 26-7 (1901)

It's the *combination* of abduction and induction in Peirce's logic which carries it beyond Blake's Imagination and makes 'experience our only teacher.' Whereas Blake thought of 'reason' as 'the ratio of all we have already known,' the 'bound or outward circumference' (MHH 4) which constituted the cognitive bubble, this experimental method provides a way of breaking through the bubble to the reality beyond, and thus learning something new. Peirce's *logic* 'is the science of the necessary conditions of the attainment of truth. In its broader sense, it is the science of the necessary laws of thought, or, still better (thought always taking place by means of signs), it is general semeiotic' (CP 1.444, 1896) – the science of signs, which pervade all of life.

As we saw in Chapter 2, it was Locke who first introduced the term 'semiotic' into philosophy. But it was Peirce who gave this bare notion body, going beyond both ordinary logic and Locke's classical empiricism to develop a semiotic science out of the 'logic of relatives.' At the heart of this development is the triad of categories elucidated by Peirce's phenomenology; and in his writings on that subject, he used the word 'experience' more broadly than he did when writing about the empirical sciences.

I use the word 'experience' in a much broader sense than it carries in the special sciences. For those sciences, experience is that which their special means of observation directly bring to light, and it is contrasted with the interpretations of those observations which are effected by connecting these experiences with what we otherwise know. But for philosophy, which is the science which sets in order those observations which lie open to every man every day and hour, experience can only mean the total cognitive result of living, and includes interpretations quite as truly as it does the matter of sense. Even more truly, since this matter of sense is a hypothetical something which we never can seize as such, free from all interpretative working over. Such being what is here meant by experience, my argument is of the utmost simplicity. It consists merely in begging the reader to notice certain phenomena which he will find, I believe, in every corner of experience and to draw the simplest generalizations from them.

— Peirce, CP 7.538 (undated)

Peirce is 'begging the reader' here to engage in phaneroscopy herself, rather than accept his authority on the subject. He defined the *phaneron* as 'all that is in any way or in any sense present to the mind, quite regardless of whether it corresponds to any real thing or not'; in this context, we can define 'experience' as the presence of the *phaneron*.

Since we cannot use the scientific method to find the conceptual tools which constitute that method in the first place, phenomenological inquiry is both deeper and more difficult than any special science. It was this kind of inquiry which provided Peirce with his core concepts of Firstness, Secondness and Thirdness. Since we have already explored the first two of these to some extent, we must now turn our attention to the Third, in order to comprehend the nature of semiosis.

The means of meaning

Thirdness is the element of experience which makes a change of mind *learning*, or makes an event *significant*. An event, strictly speaking, can't even happen twice. What *continues* through time is the pattern of relations which determines, in a given situation, what *kind* of thing will happen next: this is Thirdness. But Thirdness requires the *force* of habit – the energy driving the actual dynamic, the tension of genuine Secondness – to underwrite its own reality; and it requires the unforced spontaneity of Firstness to keep it alive.

In one of his Lowell Lectures of 1903, Peirce referred to Thirdness as 'the mode of being which consists in the fact that future facts of Secondness will take on a determinate general character' (CP 1.26). Thinking which actually *informs* your habits (rather than randomly recycling a stream of irrelevant ideas or images) is the very heart of the human guidance system. But *thought* in that sense is more than merely human: it's another word for *semiosis*. In the same lecture quoted just above, Peirce put it this way:

Now in genuine Thirdness, the first, the second, and the third are all three of the nature of thirds, or thought, while in respect to one another they are first, second, and third. The first is thought in its capacity as mere possibility; that is, mere *mind* capable of thinking, or a mere vague idea. The *second* is thought playing the role of a Secondness, or event. That is, it is of the general nature of *experience* or *information*. The third is thought in its role as governing Secondness. It brings the information into the mind, or determines the idea and gives it body. It is informing thought, or cognition. But take away the psychological or accidental human element, and in this genuine Thirdness we see the operation of a sign.

— (CP 1.537)

In that last sentence, Peirce was opening the way to *biosemiotics* (as we call it now), which 'considers human mental processes not as unique phenomena in the ontological sense, but rather as extremely interesting extensions of a more general mode of

biological organization and interaction that human beings share with all other living creatures' (Hoffmeyer 2008, 24). His concept of *information* here also anticipates Gregory Bateson's definition of it as 'a difference that makes a difference.' *Making a difference* to the system is the generation of a dynamic interpretant which generates another in its turn, and so on, each correcting the errors of the one before, thanks to reality checks at every turn. At the end of thought is not a sign – which, by definition, would lead to another thought-sign – but the final difference made by that semiotic process, the *ultimate logical interpretant*:

It can be proved that the only mental effect that can be so produced and that is not a sign but is of a general application is a habit-change; meaning by a habit-change a modification of a person's tendencies toward action, resulting from previous experiences or from previous exertions of his will or acts, or from a complexus of both kinds of cause.

— CP 5.476 (1907)

This pattern is not confined to the conscious thinking of an individual human, or even to the development of one person's habits over a whole lifetime; we can also think of evolution as the mental process by which life on earth learns, through experimentation, what forms to take. Jesper Hoffmeyer writes of a swallow as 'a product of history with everything about its body and its behavior representing millions of years of evolutionary experience' (1993, 47). And according to Max Delbrück, 'Any living cell carries with it the experiences of a billion years of experimentation by its ancestors' (Mayr 1988, 27). Experience does not have to be conscious of itself as such to *make a difference*. Genuine Secondness makes a mark on the habit-structure of a system, which in turn makes an actual difference in future encounters. The propensity to learn is the tendency to 'take habits'; evolution is learning at a higher time scale.

Gregory Bateson (1979) was thinking along these lines when he defined *mind* or *mental process* as independent of scale, or at least not limited to the scale of the human brain. He referred to learning and evolution together as 'the great stochastic processes,'

because they proceed by trial and error. The word 'stochastic' comes from a Greek verb meaning *to aim or shoot at* or *guess*. Sometimes it is used to indicate the element of *randomness* in a process. Yet the root meaning applies equally well to *intentionality* when used as 'a generic term for the pointing-beyond-itself proper to consciousness. (It comes from the Latin *intendere*, which once referred to drawing a bow and aiming it at a target)' (Thompson 2007, 22). The core idea goes back to the 'stretching' of the bow (and lyre) which we found in Heraclitus. Even the act of reaching for your coffee cup is stochastic (or *intentional*) in this sense, as Llinás (2001) shows: your arm first moves in the general direction of the cup, and the movement is progressively refined and modulated through a feedback process. An archery session works the same way in a longer time frame. Learning and evolution amount to the same recursive process at larger and larger scales of time.

Actually 'trial and error' is shorthand for 'trial, error, correction, and retrieval.' It might even be better to put 'error' first, since a routine is generally disinclined to change unless it produces unexpected or unintended results. Surprise generates a motivation to try something new, to change the routine. Then feedback from the trial determines whether the new routine is confirmed, modified or abandoned. The errors are weeded out from the tried and true routines by deliberate or natural *selection*. Science itself is a consciously organized and rigorous form of this pervasive mental process, translating the guesswork of evolution from nature into culture. The source of novelty in evolution is generally the random elements (mutation, genetic drift, the gene-shuffling of sexual reproduction etc.). However, randomness can contribute novelty only within certain constraints (formal causes), just as a word can mean something only in some context. Randomness in itself does not explain how systems change, develop or evolve. All mental life, all semiosis, requires all three 'Universes of Experience.'

The advantage of human learning, which enables the enormous acceleration of the process relative to evolutionary learning, is that we can learn from the errors and trials of others and modify our behavior within our own lifetimes rather than waiting for the information to be stabilized by natural selection. The disadvantage is that technology amplifies our ability to change

the world, so that the consequences of our errors may change the context of our trials faster than we can learn from them.

Dynamic tention

(The spelling of this subtitle is intended not only to disclaim any reference to Charles Atlas, but also to unmake the distinction between *attention* and *intention*, returning both concepts to their common root. I trust this is not too much of a stretch.)

Even at the everyday human time scale, there's more to experiencing than you can consciously attend to. Any description of this 'more' is necessarily vague, because only the foregrounded part of experience is in sharp focus, just like that part of the visual field mediated by the fovea in your eye. Try this: after you read this sentence, focus on the first word of the next one – and then, without shifting your visual focus, shift your *attention* to other words on this page. You can't read many of them, can you? We commonly don't notice this, but most of your visual field is only vaguely defined. The same is true of our mental or experiential fields, i.e. our *worlds*. In order to make sense of this sentence, you are now drawing upon a vast implicit knowledge of language, most of which you have *never* made explicit. The same applies to your reading of the world. It all depends on where *and when* you turn your attention.

Jesus says in *Thomas* 94, 'One who seeks will find; for [one who knocks] it will be opened' (Meyer). Similar sayings in *Matthew* 7:7-11 and *Luke* 11:9-13 point to the benevolence of a heavenly Father toward his children. But can you say, from your own experience, that you always get what you ask for, or even that you always learn what you really need to know? Not even Jesus himself gives the seeker what she wants, but instead requires of her to ask the right question at the right time.

Jesus said, 'Seek and you will find. In the past, however, I did not tell you the things about which you asked me then. Now I am willing to tell them, but you are not seeking them.'

— *Thomas* 92 (Meyer)

It's obvious enough that you are unlikely to find if you *don't* seek. But there's another lesson here, more in line with Peirce's phaneroscopy: Knock and the world knocks back – and vice versa. This is reality in the Universe of Secondness, or 'brute actuality,' without which even the law of gravity would be an 'airy nothing.' Thus the Zen master is kind and grandmotherly enough to give you '30 blows,' for as Heraclitus says, every beast is driven to pasture with a blow (πᾶν γὰρ ἐρπετὸν πληγῇ νέμεται). Knock, and it will be opened to you; if not, the 'school of hard knocks' will open *you*. The wise course is to collude with reality by seeking that very collision with it which will definitely show your guess to be wrong if that is indeed the case. And if you're looking for the answer in the right place, experience will only settle it there more firmly, *confirming* it as a proper launching pad for further inquiry.

Since the semiotic process of thought directed to habit-change must rely on reality checks *en route* to keep it honest, it will *degenerate* into a routine if it loses touch with genuine Secondness. This can easily happen in philosophical discourse, where thoughts often take the form of propositions.

Thus every kind of proposition is either meaningless or has a real Secondness as its object. This is a fact that every reader of philosophy should constantly bear in mind, translating every abstractly expressed proposition into its precise meaning in reference to an individual experience.

— (EP2:279)

Peirce distinguished between *genuine* and *degenerate* symbols, borrowing these terms from the mathematical usage in which (for example) 'the degenerate form of an ellipse is a point, that of the parabola a straight line' (EP2:545) – that is, either of these is a degenerate form of conic section, since 'all the beautiful relations which characterize genuine conics have, in this form, quite petered out' (EP2:390). A *genuine* symbol is one which actively and experientially connects an idea (or First) with some thing, event or fact (or Second), so that its Interpretant inhabits a more well-informed system. In other words, it actively connects Objects in the two Universes of Firstness and Secondness. This it does by

incorporating the functions of both iconic and indexical signs.

The reader of philosophy should be aware that 'mere reference' is only a 'degenerate Secondness' (CP 1.535, 1903). In order to fix her attention on a dynamic object within the sphere of experience, she must translate an 'abstractly expressed proposition into its precise meaning' – but since she can only do so by drawing upon her prior experience *with the terms translated*, her reading is at risk of getting trapped *inside* the bubble of language. 'All degenerate seconds may be conveniently termed Internal, in contrast to External seconds, which are constituted by external fact, and are true actions of one thing upon another' (EP1:254). Nor is it only abstractions and fantasies which are subject to this *degeneracy*: the representation of 'facts' in a 'true' story is equally degenerate, since it can only *refer* symbolically to the dynamic object of the story, the external facts. The difference between genuine and degenerate Secondness, or external fact and internal reference, is the difference between living through an event and imagining or recalling it.

Empirical science is a systematic way of keeping theory in touch with external fact. But in this respect it has come a long way from classical empiricism, which took the forms of sense experience to be *entirely* determined by external objects. This view can be traced back to Aristotle's description of a 'sense' as that which 'has the power of receiving into itself the sensible forms of things without the matter' (*On the Soul*, 424a, tr. Smith). He compared this to a piece of wax taking the impression of a signet-ring. Kant (1781) improved on this by recognizing that the forms of sense experience are framed by the nature of the human mind itself. More recent biological models have consolidated this insight by showing that forms experienced in sense perception depend as much on the structure and function of the nervous system as they do on the forms of external objects perceived. For instance, the various effects of incoming light on the retina are transformed into neural activity, which is further transformed or translated as the activation propagates itself through the structures of the visual cortex in the brain.

In neurobiology, the view of sense experience as impressed upon a passive mind by an external reality has been superseded by the theory that *meaning* is primary: that all experience (including

sense perception) is internal to the process of self-organization, even when the event which triggers it is external to the organism. The senses inform us only insofar as they constrain the articulation of *intent* (see Núñez and Freeman 1999). Empiricism has thus turned out to be self-correcting, as Peirce argued that a sound method of inquiry should be: for the primacy of meaning was arrived at through an investigation which was and is *empirical* in the classical sense, i.e. through observation and experiment crucially deploying sense experience.

There is still a tendency in psychology to think of perception as input from the external world rather than dialogue with it. The one-way linear model ignores the mutuality of influence between perception and behavior: organisms learn mostly from the *relations* between behavioral output and sense input, not from one or the other by itself. If we accept the principle that *all knowledge is based on experience*, we must also accept the complementary principle that *all experience is based on knowledge* – that is, on internal systems which guide our exploratory behavior, allowing us to anticipate what we will find. In the absence of such anticipation, how could we ever be *surprised*?

We now know that experience is a two-way street, and that seeing begins with looking (see for instance Merleau-Ponty 1945, 270, or Freeman 1999a). It is not true that we see only what we look for; rather, looking is a question to which seeing provides the answer. But it is generally true that you don't see if you don't look, just as you don't often find without seeking; and that *what* you see depends on *how* you look. To the extent that we can speak of a sense experience (a singular instance of sense perception), we can think of it as a semiotic process, or more simply as a *sign*. This is the biosemiotic approach to cognition, to which we will return in Chapter 14. For now we can say that the *way of inquiry* is the way of life itself, at every level.

Speaking of experience

'Experience' itself is only a word, like other words: how then do you reach the point where you can judge for yourself whether experience is your only teacher or not? Somehow your experience

of each word, of its use in the language, has formed a living connection with your whole bodymind, incorporating it into your guidance system, the self-organizing set of habits constituting you. To slightly update Blake's prophetic insight, the body or outward form of humanity is derived from the *autopoietic* Genius. But that body of habit is 'living' only so long as it remains a work in progress, and only the unfinished parts of the guidance system normally claim our conscious attention. As Heraclitus remarked, unapparent connections are *stronger* than the apparent (ἄρμονίη ἀφανῆς φανερῆς κρείττων). They are like the bones and ligaments of thought, structuring our thinking in its striving to make implicit meaning explicit. After it succeeds, the explicit meaning becomes implicit again, but *post-consciously* – taken for granted because it has already been tested.

As revelation is to habitual knowing, so is conscious experience to mind: an actual presence making history by heading for its own future. If the world as we know it is made up of all the meanings we now take for granted, consciousness is experience in the act of meaning. To the extent that an experience is memorable, it was a revelation, and you were changed by it. If you read a text or sing a song and *mean* it deeply, you're not the same the next time you perform it.

Learning from experience means seeing for yourself rather than taking authority's word for it or relying on untested belief. In the *Gospel of Thomas*, Jesus points seekers in this direction:

They said to him, 'Tell us who you are so that we may believe in you.' He said to them, 'You examine the face of heaven and earth, but you have not come to know the one who is in your presence, and you do not know how to examine this moment.'

— *Thomas* 91 (Meyer)

Lambdin translates the reply this way: 'You read the face of the sky and of the earth, but you have not recognized the one who is before you, and you do not know how to read this moment.' The 5G translation reads: 'you do not know how to test this opportunity.' Examining, testing and reading are all implicated with the Coptic verb here (*piraze*), which is derived from the Greek πειράω. There

is more to *presence* than 'being here now,' for *experience* is always oriented toward the future; reading the signs in front of you entails *trying out* your interpretations of them. The reader of an argument or story, for instance, 'follows' its narrative line or logic by anticipating its course, 'making forecasts about the forthcoming state of affairs' (Eco 1979, 32) which continued reading will confirm or confute. The reader or 'examiner,' the 'subject of experience,' is constantly testing her own guidance system.

You might say that experiencing consists of trying out our guidance systems, via the anticipations they generate, in the empirically real world which always lies beyond them. – Or you might say that *experiencing* is indefinable, as all definitions ultimately work by 'carving up' the domain of experience into distinct parts or 'units.' Using this metaphor, the *Tao Te Ching* refers to undefined presence as 'the uncarved block.'

The primary test of any guide is where it leads you. Thus testing it means following it, which also means testing yourself. Each set of directions has to be read and translated into a path, and since people do this differently, the same set of directions can lead in different directions! This creates a double problem for public dialogue: How do we achieve consensus enough to co-operate in practice, without closing our practice to primal experience and authentic insight?