THE QUESTIONING OF INTELLIGENCE

A Phenomenological Exploration of
What It Means To Be Intelligent

John Thornton

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Chapter 11

The Being of Form

The Search for Meaning

Given that our being conscious is itself an experience of meaning, it may seem absurd that we should go in *search* of meaning. And yet, in our ordinary everyday lives, we do not explicitly recognise this continuous stream of meaning because we live *within it*—it is there in our understanding of where we are and what we are doing and why we are doing it. As long as we are immersed in the familiar routines of daily living we have no problem with this embodied level of meaning as it simply and seamlessly assimilates our actions into the meaningful thread of the events in which we participate. It is only when we stop and think about the totality of this life, and its finitude, that we start to wonder about the ultimate meaning of our being here. Such wondering seeks after a reason that could explain why it is that we are born, why it is that we have this brief moment here on Earth, undergoing all these fleeting and contradictory experiences, before slipping back into that unknown and apparently unknowable place that we are calling the unthinkable source of experience. For most of human history we have lived in the certainty that this source is also the source of the ultimate meaning of our being here, and that in order to discover that meaning we only need to 'read the signs'—through prayer perhaps, or divination, or hearing the words of the prophets. It is here that we again encounter the symbolic contents of the human psyche—all the gods and the religions and the creation myths

that are overflowing with reasons and explanations for our existence. But, in our embracing of modernity, we have rejected these symbolic forms. Our science has shown that such mythical accounts do not correspond with the world that is revealed in the spotlight of our strict objectification. It is this very objectification that has cut us off from the symbolic world of the psyche and all its intimations of a greater reality lying behind the materiality of our sensory experience. And so now, when we come to ask after the ultimate meaning of our being here, if we are honest and do not simply parrot an opinion we have picked up along the way, we are met with an inscrutable inner silence.

The question, of course, is how we are to proceed, now that we have come to doubt this god of scientific materialism? Clearly we cannot forget what we have learnt in the last four hundred years. For the sun that we photograph and study is not drawn across the sky in a chariot by a team of celestial horses. At the same time, phenomenology has taught us that the psyche is the source of *all* we experience, not just our subjective feelings and phantasies, but the objectivity of the world itself. Knowing this, as we turn within, we know that our reflective consciousness is facing an extraordinary potentiality . . . .

But the *meaning of life*—how are we even to approach such a question? For this is not something we can *calculate,* as the neo-Darwinists have attempted in their logic of survival. We cannot simply *measure* the trajectories of the events of our lives and somehow extrapolate a meaning by seeing where it is all tending. For it is all tending towards death, and, it seems, the disintegration of the universe itself. It is not a prediction of this final state that we are seeking, it is *transcendental* meaning, meaning that can make sense of our lives from the place of the inevitability of our dying. It is *this* that troubles us. All the effort, all the care we put into sustaining ourselves here, the cleaning of the teeth, the going to work, the falling in love, the bearing of children, the disappointments, the losses, the illnesses, the suffering and the eventual death—all the plans, the projects, the energy we focus on this little life, and then one day, perhaps much sooner than we think, it ends. We are seen no more. And when we realise this, we are almost forced to ask: well, what was it all for? For the suspicion is there, in the background perhaps, that there is no reason, that the very idea that there should be a reason is a human invention, and from the cold perspective of death, from the place where all the species evolved

in a continual cycle of eating and being eaten, that reason, if there is one at all, is not concerned with the plans and projects of you and I and our idea that our little lives have some kind of meaning.

In the background of such thinking there lies the 'hard-nosed' view of our scientific materialism that says we simply live and breathe and eat and drink in order to survive long enough to mate and reproduce the species. There is no reason for our being here beyond that, for the universe is a giant mindless mechanism and only those who behave in such a way as to survive actually do survive. That's the end of the story. This is the *meaningless* explanation of our scientific materialism. It is meaningless in that it simply describes the operation of a certain machine. It does not say what the machine is for, or why it came into being, it simply says: this is the way the machine works.

And yet we cannot just dismiss our science. For it has taught us that the kind of meaning and purpose we once thought lay behind our appearance here on Earth does not correspond with the objective facts of our experience. Our little planet is not the centre of the universe. There is no celestial sphere upon which the stars are placed in order that they can revolve around us in perfect circles. Life on Earth was not created according to some pre-ordained plan devised by an all-seeing intelligence. It *evolved.* And the history of that evolution shows all the characteristics of a blind experiment involving the formation and destruction of countless trillions of life forms without any clear or obvious design in mind. What science says is that if there were gods and intelligences behind the creation of the universe, then they have certainly gone to great lengths to disguise their presence. For surely it would be easy for them to have left a sign, a message? Why should it be that wherever we look we find the inexorable regularities of the laws of physics in operation? If there is a transcendental intelligence, why does it not declare itself to everyone. It would be so easy, wouldn't it? To just appear one day and say: "Yes, it is I, your creator God, look, I shall raise a mountain right here before your eyes, I shall cause the seas to part, I shall bring back the dead!" But this does not happen. We are once again confronted with a profound and inscrutable silence. We stumble on, as if abandoned, from world war to world war, from Auschwitz to the ecological destruction of our planet. And in the light of all this, we are almost *forced* to ask: what kind of intelligence is it that should do all this, that should think that this is *necessary*?

What we have experienced, what our culture has experienced, is the death of the idea of there being a rational, benevolent creator God who consciously and deliberately created the human race and placed us the centre of existence in order to fulfil some intelligible pre-ordained divine purpose. The evidence, the scientific evidence, the historical evidence, the evidence of our own behaviour, simply does not bear this out. We thought there was a great father in the sky who knew what he was doing, who was guiding our lives, who held in mind on our behalf the greater meaning and purpose of our being here. But now it seems that this idea of God was something of our own devising. Something we projected into a transcendental heaven.

We stand in the ruins of this former meaning structure. Collectively we have given up on the task of making clear to ourselves the reasons for our being here. We may still have some feeling in moments of intense crisis that there is a deeper significance in the events we experience, but we no longer have a definite idea of what this significance amounts to. We are adrift, and really, we are in *anguish.* Our faith now lies in our science, and our science, our *hard* science, pretends to have nothing to say about the meaning of our being here. Like Pontius Pilate, it washes its hands of the responsibility of articulating the meaning that lies behind what it has discovered. Either that or it denies there is any such meaning. But this notion that objective science can somehow abstract itself away from questions of meaning and value is mistaken. For the idea that the material substrate of the universe is 'really real' and that this material substrate finally determines all that happens here, is not some kind of neutral, objective statement of fact. It is an ontological *theory* that contains a very definite conception of the meaning of our existence, i.e. the conception that it is ultimately without the kind of meaning that would grant any special significance to our being here. Such negative meaning is still a form of meaning. And our science and our scientists are still responsible for this meaning. For we are all responsible for the consequences of the meanings we live by, even if we live these meanings unconsciously. This is the simple justice of cause and effect. Our science has tried to escape this responsibility, just as we try and escape, by ignoring the question of the meanings that are embodied in the economic and technological systems that we serve. But we are not absolved or protected by such unconsciousness. For we *are* the meanings that we live and the meanings that we

live determine *how* we live. And if we live according to the idea that our lives are without ultimate meaning—even if only by being unconscious of such meaning—that is still a meaning that we enact, and that enacting changes the trajectory of our lives.

That is not to say that being scientific automatically leads us to think that our lives have no meaning. All science has shown is the inadequacy of our former conception of a creator god. Our current materialism is only what has managed to survive from the wreckage of that former way of thinking. Such materialism, in itself, is neither scientific nor unscientific. It is no more than a habit of thought we cling to in the absence of a better alternative. And yet it is no accident that materialism leads us to think that our lives are without meaning. For materialism is a denial of the independent reality of consciousness, and it is only insofar as there is consciousness that there is meaning. So materialism, by definition, is unable to see what meaning is, in itself. And that means it is necessarily going to conclude that our lives have no intrinsic meaning. For if it turns out that our lives do have intrinsic meaning, then that is the end of materialism. And, of course, our lives do have intrinsic meaning. Our whole experience of being alive is an experience of intrinsic meaning. This is not a matter of refuting materialism, it is a matter of seeing the meaning of materialism. For it is our materialism that cuts us off from any kind of direct knowledge or insight into the meaning that our lives are actually manifesting. It is not that we have to invent such a meaning, we have to *discover* it.

To consciously live in meaning is to live in conscious resonance with the unthinkable source of experience. Ordinarily we live in unconscious resonance with the source, only seeing the fragmentary being of the things and events and thoughts and feelings that are the stock-in-trade of our daily experience. What we miss is the meaningfulness and unity of this continuous upsurging of life into the space of our being conscious now. We can intuit the presence of this greater unity that stands 'behind' the appearance of the world in the immediate consciousness of love or beauty. In such moments we no longer ask "What does it all mean?" Instead we find our being alive, our being conscious, is *already* intrinsically meaningful. Such meaning seems to suffuse our qualitative sensory experience and speak of the being of a deeper timeless reality. And yet it is all connected. For when we see the pure quality of the colours that manifest a

sunset, we are also experiencing the transcendental beauty of the essence of colour itself—an essence that does not evolve or arise or pass away, but instead shows the form of what evolves and arises and passes away. It is here that we can understand what inspired the great impressionist painters. And it is here that we can understand how the source is able to communicate a meaning that transcends anything we can think or speak of directly.

In such experience we become *attuned* to the source itself rather than to the form of the world it is projecting. This is not something we can imagine, or treat as some kind of thought experiment. It is a matter of attuning ourselves in the immediacy of consciousness to the manifestation of the source in each moment. It is here that we start to encounter the methodology of a science that is grounded in consciousness rather than in the objectivity of the world. For we cannot measure the source with a ruler. We have to use the resonance of immediate perception, the same resonance that already reveals the actuality of the world (such as the actuality of the cat in the garden). This resonance of the natural attitude becomes the resonance of *transcendental* meaning just as soon as we become attuned to the source of the world's actuality (i.e. the consciousness of consciousness itself). The great problem here, of course, is that, in such transcending of the world, we lose our capacity for objective verification. For we are no longer looking at an objective something 'out there', we are looking at the meaning that lies behind our experience of there being something 'out there' in the first place. And, according to our usual way of thinking, once we lose our capacity to objectively verify our understandings, then we fall into the relativity of our various subjective viewpoints. From this place it seems that we all resonate differently, and so we fall into disagreement, and we find we have no standard by which we can resolve our disagreements. We form groups and schools, and we develop various philosophical theories of meaning, and instead of making progressive discoveries we become embroiled in continual conflict with people who do not seem to understand what we are seeing.

Again we enter the labyrinth, and again we remember that the way out is to disidentify with our self-reflective, personal thinking processes. Of course, different people will be disidentified to different degrees. So there will be disagreement. But that does not mean we cannot make progress. For there is still only the one source. And it is not that we are attempting

to uncover, once and for all, the true and final objective meaning of our being here. We are setting up a line of resonant communication with the source of meaning that lies within us. And we are testing this line by looking into the meaning of what our science has already discovered. We started this process in our earlier consideration of the measurement problem. The idea was (and is) to show how we may go about creating a meaningful scientific account of the being of the universe that includes the incontrovertible reality of our being conscious. This is not a matter of everyone having to agree that consciousness causes the collapse of the wave function. That is only a working hypothesis. More fundamentally, what we are doing is pointing out the absurdity of a science that thinks it can get by without addressing the question of the meaning of what it discovers—that thinks it is not responsible for that meaning. What we are exploring is the development of a science that does take responsibility for the meanings it creates. A science that, instead of turning its back on the source, recognises the transcendental ground from out of which it is emerging, and recognises its responsibility to give a meaningful account of that ground.

That means we don't just test a theory by deducing its objective consequences, we also evaluate its *resonance.* The more resonant a theory, the more meaningful it is. We can think of this as a kind of parallel to Occam's Razor: that, all else being equal, we prefer theories that have a greater resonance of meaning. In following this principle we actively look for theories that correspond with the state of immediate consciousness that is our connection with the unthinkable source of experience. From the perspective of materialistic science, this is a kind of heresy. For it seems as if we are choosing theories on the basis of what we like, or prefer, or what we wish and hope for. But, insofar as we are directly and immediately conscious of our being conscious, we are no longer ruled by subjective feelings of liking and disliking. They too are phenomena that appear in consciousness, while consciousness itself is simply presenting itself to itself. The entire project of this new science hinges on the question of the impersonality of the consciousness of the one who is inquiring. And yet this capacity to remain impersonal is *already* a fundamental requirement of our *existing* science. It is just that this impersonal objectivity of the conventional scientist is being shifted out of the natural attitude of the objectively measurable into the dimension of the transcendentally resonant.

To give a practical example, let us again consider the question of the quantum collapse. Here, all else being equal, we prefer the theory that proposes the quantum state of potentiality only collapses into a state of definite being insofar as it manifests in some form of conscious experience. Such a theory does not multiply entities unnecessarily. And neither does it understand consciousness to be an inexplicable, purposeless, epiphenomenon. That makes it more meaningful than a purely mechanistic account. It is more meaningful because it explains more, it covers a greater domain, and it resonates with our direct experience of the world manifesting in consciousness during each moment that we are able to tear ourselves away from the stream of our habitual thinking. If we follow this thread of meaning, it destroys our modern conception of the insignificance of humanity in the face of a vast and indifferent universe. It is almost as though we are returning to our medieval origins—with the earth at the centre of all creation—only now it is our consciousness that is the centre, for it is only in consciousness that the universe is able to come into being. Do you see the significance this bestows upon each one of us? For even though there appear to be billions of human individuals on the planet, all these individuals, and the planet itself, are only able to manifest insofar as there is a consciousness in which to manifest. And the only consciousness that we know of, that *I* know of, is this very consciousness that I am.

Here then is the beginning of a science that bestows a meaning on our existence: the meaning that we are here so that the source can manifest itself in a definite form. We are the very site of this manifestation. This is what ancient philosophy experienced as *wonder.* The wonder that this manifestation actually manifests. That there is *consciousness, being, meaning,* rather than the not-being of anything whatsoever—rather than the nothingness of a complete unimaginable absence. Could it be that the source is *pleased* by this manifestation? That through this it gains a sense of its own being? That it has *striven* to become manifest and that we are a living expression of this striving? Do you sense what is resonating here?

The Science of Form

Let us look a little further into what science has revealed about the form of the potentiality of the source of our experience of the world. One thing

is clear: modern Western science has been a *mathematical* science, a science that is concerned with the development and discovery of ideal mathematical forms that resonate with the source. In such resonance these forms acquire meaning and ideal being. And the resonance tells us something of the source—it tells us about the abstract mathematical structure of the world that we manifest in consciousness. We do not imagine this structure. But, in its pure mathematical ideality, it has very little to tell us about our being here, about our being conscious, about our being alive. It simply speaks an abstract ideal language of numbers and relations.

So how are we to make this mathematical science meaningful? How are we to bring it back to consciousness?

Firstly we should recognise that it has been exclusively a science of *form.* From the very outset Galileo abstracted away all idea of the objective being of sensory *quality,* considering it to be something subjective that could finally be explained in objectively mathematical terms (as our brain science attempts to this day). And we still think that if we can provide a mathematical description of the form of a certain process then we have somehow explained that process *away.*

But once we return to the undoubted and immediate reality of our being conscious, we find that the world, the actual world that we experience, is entirely manifested in the medium of sensory quality. This sensory quality is no more subjective than it is objective. It is that which manifests the world to us *before* we make any subject-object distinction. It is this fateful carving up of our experience into the quantitatively (measurably) objective and the qualitatively (perceived) subjective that has led us to develop a science that lacks intrinsic meaning—because, for there to be intrinsic meaning, there must be both form *and* quality. It is quality that gives form *being,* otherwise it is nothing. Even the ideal forms of pure mathematics require the qualitative consciousness of a mathematician in order to acquire their timeless and rarified ideal being. For all being is a form of meaning, and meaning cannot come to manifestation except and insofar as there is a qualitative field of conscious experience for it to manifest as and in.

So let us propose another principle of meaning for our new science: that nothing can exist, nothing can have being, without possessing both form *and* quality. But what does it mean to 'possess quality'? And what, for that matter, does it mean to 'have being'?

Here again, we must return to the phenomenology. The one ground level, indubitable experience I have of being, is this immediate being of consciousness that I am. My being is my enduring, my being conscious of the flowing temporality of the streaming forms of quality that make up the field of consciousness that I am. I know this unity of form and quality *directly*. It is not some kind of object from which I can separate myself. It is that by means of which objects are able to appear to me in the first place. For what is it to have vision? To see colour? When I see the world in front of me, what is the medium in which it appears?

Even if I withdraw from the streaming of these sensory forms, there is still a quality to my being here. I experience my endurance, my continuity, in my understanding of time, in my being poised here, in this immediacy of now, in this clearing that itself never moves, never flows, from out of which the past is continually manifesting and moving away from the horizon of now, even as the past remains present, while continually falling back and being replenished from out of an inexhaustible source. Being—meaning—quality—form: all are bound up in this unity of pre-reflective consciousness.

But now, when I look *into* my experience, I discover a whole other dimension of being. For I understand the qualitative forms that appear in the stream of experience to be the qualitative forms of *other beings*—beings in some sense like me, but at the same time *not* me. For I know myself from the *inside*, so to speak, whereas these qualitative being-forms only show themselves from the *outside*. How strange is this? It seems there is not just the one form of being (me-being), there is also you-being and it-being, and even thought-being and imaginary-being. And yet, in some way, I already understand that we and they are all still *beings*. It is as if we are back with Descartes. For how can I be sure there are any other *real* beings, beings like me, who have an *inside*, who are conscious, who are having actual experiences? The answer is, of course, that I cannot be sure, at least not with the kind of complete and indubitable certainty that Descartes was seeking. For this could still be a dream, and I the only dreamer. All I can say is that there is more here than this finite reflective consciousness, with its limited field of experience. There is also the source, the place from out of which all this is emerging. Perhaps, insofar as I am the source of the clearing *and* the being of the clearing then there is just the one inconceivable unity that I am. But that is not our concern at

the moment. Our concern is with our being here together, with the *meaning* of this being here, where we *do* appear to each other in these separated individualities, in the qualitative form of these bodies that manifest in our consciousness of each other. The question is, how are we to understand this? And what does science have to say? What has it discovered about these qualitative being forms that we appear to be?

Perhaps the first, and most salient fact that objective science has discovered is that our consciousness of the world and of our being in the world is directly and immediately connected with certain objective events and processes that are occurring in our brains. Scientific materialism takes this fact as evidence that some form of materialism must be true. That is because it already assumes the universe is made of material, physical 'stuff'. And yet, as we have seen, if we take quantum physics seriously, the material being of the universe is really founded on an immaterial realm of potentiality that only manifests what we take be material particles when there is an act of observation. At the quantum level there are only *patterns of probability*. Here what we take to be the material stability of an atom or a molecule becomes the stability of a highly probable pattern of manifestation. When we look for the 'real' substantial materiality of the atom, we find it disintegrates into something that keeps appearing and disappearing according to whatever it is that determines the collapse of the wave function that maps the superposition of its possible states. What we actually find is the *being of form* and not the being of matter. When we think of the being of form we usually think of something being carried on a material substrate, like the form of an ocean wave being carried on the movement of the material substrate of the sea. But if we look into that material substrate, we find molecules, made up of atoms, whose materiality is also a kind of wave-form carried on the immaterial potentiality of quantum probability. From this perspective, ocean waves are oceanic forms which are carried on molecular forms which are carried on atomic forms which are carried on sub-atomic forms which are carried on immaterial quantum forms of probable manifestation. Beyond that we cannot ask. Nowhere in this cascade of form do we find any materiality whatsoever, just form emerging out of form, emerging out of form . . . . At each level what we find is the form of an *event*, of a unified movement that can also be decomposed into the movements of the forms of the next level down.

And yet what kind of being can we attribute to this vast cascade of hierarchical movement-form? On what basis do we distinguish sub-atomic particles from atoms, and atoms from molecules, and molecules from ocean waves? Aren't these just distinctions that *we* have made, according to certain practices of objective measurement, distinctions that some other species or intelligence would simply regard as human inventions emerging out of the spatiotemporal dimensionalities of our perceptual systems?

If this is the case, then we cannot say that the pattern forms we distinguish have any intrinsic being of their own—we can only say that this is the way that we have found to divide up the otherwise unified streaming of the unthinkable source of experience. These forms have being because we invest them with being, just as we invest the sensory forms we perceive with actuality. For our human perceptual systems are just one way in which the unthinkable source is able to manifest.

Imagine if we could perceive time as a fourth dimension of space—if we could see the entire history of the universe as a single, complete form, from the Big Bang to whatever state it is that marks the end of objective time (if there is such a state). In this universal form there would no longer be atoms as we picture them now. Such discrete entities would become world lines in a vast interconnected system of paths that both join and split apart to manifest another kind of form—a *form of eternity.* Who can say what kind of beings such a perceptual system would distinguish, or whether there could be another dimension of time in which change of a different order could manifest?

And yet our mathematical science has already transcended the three dimensions of space and the one dimension of time with which we are perceptually familiar. It now represents a unified four-dimensional model of a curved spacetime within which the world lines of particles evolve in the mathematics of general relativity. It is this model that we now take to be the 'more real' representation of space and time, and not our naïve, perceptual notion that space somehow exists independently of time. That does not mean our idea of discrete atomic being is *false.* Our mathematical science is only transposing measurements of objective events from one system of dimensionality into another. Einstein's four-dimensional model of spacetime simply captures more information than we can directly represent in our three-dimensional perceptual imagination. The

mathematical form of this perceptual idea still captures an *aspect* of whatever it is that is generating our scientific observations of atomic phenomena. That aspect is a partial and approximate representation of the form of a deep invariance that lies behind the continually changing surface of our collective perceptual experience of the being of an objective world.

From this we can see that our scientific models of atomic being are not determined or limited by the dimensionalities of our perceptual systems. These dimensionalities only limit the extent to which we can picture or imagine what our scientific models 'look like'. But if we consider the meaning of these models more fundamentally, we can see that they are still based on a quite specific conception of being—namely an idea of *enduring mathematical form.* This too is a *human* idea that is 'built in' to our perceptual systems. For, according to our latest scientific theories, these systems have evolved to detect invariance in the streams of sensorimotor input and output, in order to form predictions of the future evolution of these information streams.[1] What emerges from this process are our ideas of a world populated with determinate and identifiable things and events. These are the entities we project to be the *causes* of the streams of sensorimotor information that continuously activate our nervous systems. Here, in order for something in the world to 'be' or to 'exist' it must possess the kind of enduring mathematical form that enables us to predict the shape of our future. This is all to do with computational efficiency. If you were to attempt to predict what you will experience in the next moment purely on the basis of the state of excitation of all your sensorimotor nerve impulses in this moment, it would turn out to be impossible. There is just not enough information in the previous state to determine with any accuracy what will happen in the next state. For virtually nothing at this level is stable. It is the river in which you cannot step twice. What the brain is doing is forming connections between its inputs and outputs in such a way as to detect the presence of enduring or stable relationships. Once it has encoded the essential underlying relationships that exist in the sensorimotor streams that emerge from our interactions with a particular object—such as the table in front of me now—then instead of trying to predict how the visual field is going to change as I shift my gaze over the table by examining the immediate state of that visual field, it uses what it has stored from past experience with tables in general, and with this table in particular, to predict and project how the table will

appear in the next moment. Of course the immediate state of my visual system informs this process, but it is the mathematical form of the table that is encoded in the brain that determines what I am predicting, both in terms of what I expect to perceive and how I expect to act.

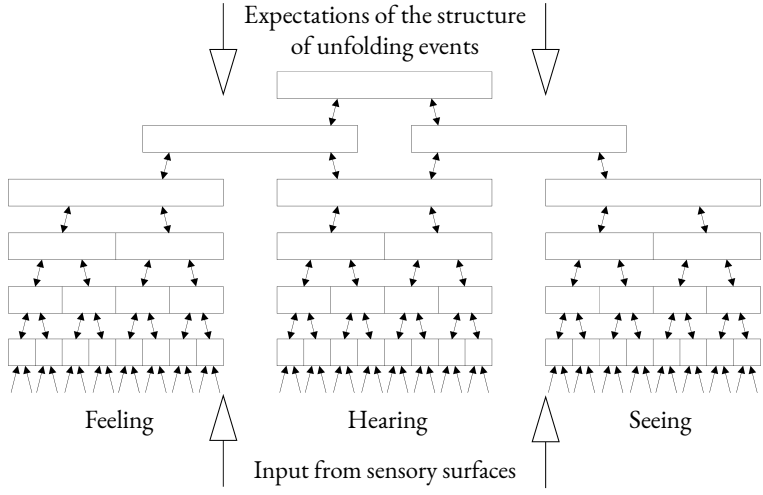

Figure 11.1: A simplified model of sensory input processing in the neocortex of a human brain. Motor output would be processed in the same way except that bottom layer signals would travel downwards ↓ rather than upwards.

This mathematical form is interesting in itself. It is not that the brain stores a perfect model of the table and every other thing we may encounter in our daily experience. It *constructs* its projection of what it expects to perceive 'on the fly'. Current theory[2] suggests there is a hierarchical structure to this projection (see Figure 11.1), where each level of the hierarchy corresponds to an area on the outer surface of the brain's neocortex. The hierarchy itself only emerges when we examine the pattern of longer range connections between these areas. The theory proposes that the top level of the hierarchy encodes our quite imprecise expectations of the general form of the context of the overall situation—such as my being at home, in the front room, on a Tuesday afternoon. As we go down a level or two, this context is brought into sharper focus by feedback from my more recent experience of sitting here in this chair, at this table, typing on this keyboard. This produces a more active and detailed expectation of the form of the things with which I am interacting, an expectation that will fade

as soon as I leave the room and enter the kitchen. At each level, what is expected from higher level projections meets with what has already been assimilated from the streams of information arriving from below. Ultimately we reach the lowest level where the raw information is being absorbed and emitted from the sensorimotor systems. But even here, in the retina for example, visual information is already being processed according to expectations 'built in' to the connections and sensitivities of the retinal neurons—neurons that are stimulated by photonic energy that is precisely focussed by a lens in an eye that has been guided to it current position by a higher level expectation of what it will encounter.

In this model, our perceptual experience is produced by an extraordinary and seamless meeting of the general forms of our past experience (that are encoded in the forms of the connections between our neurons) with the moment to moment streams of information that are flowing in and out of our nervous systems. These streams bring our expectations into focus entirely on an 'as needed' basis. Right now we think the whole room is present before us in all its detail. But really, if we pay attention, we can see it is only the tiny area at the centre of our visual field that possesses this detail. We think as we look up that the detail we see was already there. But it wasn't. The moment before we looked up, the part of the room we now see was just a vague premonition in the periphery of our visual field. It is the brain that has produced the expectation that both moved the eye and expected the form of what the eye will encounter, just in time for the visual input at the retina to fill in the detail of this expectation.

Here we meet the contemporary idea that the brain is a kind of extraordinarily complex prediction machine.[3] In order to make its predictions, it detects (relatively) invariant forms in the streams of sensorimotor information it processes, and, according to these forms, it distinguishes the things and events of the world around us. From this objectifying perspective, it follows that it is the structure of the brain that determines our idea of being. This idea is something that has been laid down by the process of the brain's own evolution—for the organism that predicts with greatest accuracy is the organism that has the greatest chance of survival (all else being equal). Such a predictive idea of being says that for something to 'be' it must endure by retaining an invariant form of identity. That means there must be *something* about the way it manifests that does not change. This 'something' is what defines it as the being that it is, so that, if it were

to lose this 'something', then it would cease to 'be'. It is this 'something' that the brain uses to predict how a being will endure and also how it will change over time. If there is no predictability then there is no being.

But, of course, this is only *half* the story. For the brain itself, considered objectively, does not distinguish any form of being whatsoever. It is only insofar as the brain is conscious that there can be a field of experience where one 'thing' is distinguished from another. Returning to our earlier principle, it is only when form and quality are unified in consciousness that being can manifest. It is consciousness that apprehends form in the first place—a mathematical expression that *describes* form does not *possess* form, for the expression is a configuration of meaning that again only has being insofar as it is apprehended by consciousness.

So where does this leave us? If we consider the brain objectively, we can start to explain the origins of the forms of our experience in the forms of the processes that occur in the brain. If we do not fall unconscious, and think that the brain, in and of itself, is causing our experience of the being of form, then we can start to explore the true significance of this remarkable correspondence. For it *is* remarkable to have recognised that brain processes occurring 'out here' in the objective world of things and events are also involved in determining the form of our experience of those events. Even though the manner of this involvement remains mysterious, there is no doubt that there is a detailed and definite correspondence. How else are we to explain the behaviour of people who have suffered severe brain injuries? Perhaps we are capable of sustaining states of consciousness that are independent of the activities occurring in our brains. But if that is the case, these must be quite extraordinary and rare forms of experience. For there is little evidence, at least here in the world of our everyday interactions, that we can maintain any form of conscious experience without our also having a brain that functions in just the right way to allow such experience.

What challenges this common sense view are the many and varied reports of near death experiences, in which states of consciousness are described that appear to exist independently of anything occurring in a physical brain. For example, there is the case of the American neurosurgeon, Eben Alexander, who wrote an entire book documenting a series of psychic experiences that he believed were occurring while he was in a deep coma and his brain was known to be virtually inactive.[4] The problem

with such reports is that they are based on the consciousness of a *memory* of a near death experience, not a consciousness of the experience in the moment of its occurrence. It could be there is no associated consciousness in the near death state itself, and that the memory is formed once the brain starts to function 'normally' again. This memory is then experienced so that it *appears* to have occurred during the near death state. In contrast, if we limit ourselves to experiences that are actually happening while the report is being made, we find, as far as we are able to measure, that such reports do correspond with the kinds of processes we would expect to occur in the brain of the person making the report. Of course, such an explanation still does not account for the *content* of a near death experience.

Conscious Resonance

The question we are considering is whether this division of perceptual experience into the various objective forms that we distinguish is something *arbitrary*, something *human*, something that is entirely determined by the kinds of brains that we possess—whether there are only 'plants and birds and rocks and things'[5] because our brains evolved to distinguish such forms. We are asking whether the distinction of form is also a distinction of *being*—whether the forms we distinguish also have their *own* being, independently of their being distinguished by us. This, of course, is a kind of impossible philosophical question. For how are we to see how things stand independently of our observing them? We can only speculate. Phenomenology avoids such speculation by remaining with experience itself and recognising objective being as a meaning that *we* bestow on certain aspects of our experience. But now we are stepping outside the domain of pure phenomenology. We are no longer 'bracketing' what objective science has discovered. We are building a bridge between the phenomena that we experience and the objective forms that science distinguishes from processes of purely ideal mathematical measurement. We are inquiring into the *meaning* of these objective forms.

The first indication of such a bridge is the correspondence of our conscious experience with certain processes occurring in our objectively physical brains. If we look at this correspondence we find it is the *immaterial form* of these processes that specifies whether or not we are conscious, and

not the molecular material of the brain itself. For it is not the individual neurons that are the 'carriers' of consciousness. If that were the case then we would not be able to fall *un*conscious. And yet we do fall unconscious each night in deep dreamless sleep. In such states our neurons are still firing and interacting. All that changes is the *manner* of this interaction. It is the form of the manner of this interaction that defines whether or not we are having an experience of being conscious. At the moment the precise specification of this form is a subject of ongoing research into what are called the neural correlates of consciousness.[6] So there is still uncertainty as to the manner in which our conscious states are correlated with our brain states. But there is little doubt that there is such a correlation and that its form will eventually be revealed by our scientific instruments.

What this means is that our consciousness is directly associated with an entirely abstract property of the collective behaviour of the neurons in our brains. This property is not something physical, it is a pattern of activity that the 'physical' neurons are enacting. For if the neurons enact a slightly different pattern, then consciousness disappears. And it is not that consciousness is associated with a *particular* collection of neurons. The pattern of activity that is our experience of being conscious is continually including and excluding *different* collections and populations of neurons. Current theory suggests that the crucial criterion is the manner in which these populations dynamically self-organise into emergent collectivities that pulse together in a coordinated and synchronous unity.[7] This coordinated pulsing is carried in the electro-chemical signals that the neurons transmit to each other through their axons and dendrites. Seeing this, we might think that consciousness is associated with the electrical fields that form as a result of this behaviour. But an electrical field is still not conscious in itself—for the brain is continuously generating electrical fields regardless of whether or not we are conscious. It is the abstract form of the process that the fields are enacting that finally objectively specifies the presence or absence of our being conscious.

Another remarkable aspect of consciousness is its demonstration of *nonlocality*. Nonlocality in quantum physics refers to the instantaneous connection between entangled particles, such that the measurement of one particle instantaneously affects the properties of another spatially separate particle (for a brief explanation and diagram see page 94). Einstein published a paper in 1935 (with Podolsky and Rosen), pointing out that

nonlocality is a consequence of Neils Bohr's Copenhagen interpretation of quantum mechanics.[8] He thought this argued against the plausibility of Bohr's entire interpretation, particularly the idea that the collapse of the Schrödinger wave function could be inherently random (which he famously opposed by saying that "God does not play dice"). But subsequent experiments have supported Bohr, and it is now widely accepted that nonlocal quantum effects do occur in practice. And yet, in all this scientific investigation of nonlocality, its most obvious manifestation in the brain has been overlooked. For, if we accept that our consciousness is connected with certain processes occurring in our brains, then we must also accept that our consciousness is *instantaneously* connected with these processes.

To understand this we must first be clear that consciousness is not some kind of physical field that could be laid out in the space where our neural processes occur, and where 'messages' could be passed to various 'points' in that field of consciousness. There is simply no objective evidence for such a field or for any particle or flow of energy that could transmit such messages. All our observations confirm that in the objective world of measurement, there is just a brain, made up of physical neurons that send signals to each other that move at a certain speed and take a certain time to arrive. That means there is no point or neuron in that physical space that instantaneously 'knows' what is happening in all the other neurons that contribute to the process that corresponds to my experience of being conscious now. And yet my consciousness does 'know' what is happening in this global process that stretches across my brain. It instantaneously unifies information that is being carried by millions of spatially separate neurons into the simultaneity of a single moment of experience. What I see now is being carried by the activity of neurons in my visual cortex, and what I hear now is being carried by the activity of neurons in my aural cortex, and what I perceive now is being projected by the activity of neurons in my frontal cortex. The activity of all these neurons, that are in physical contact only by means of sending single pulses to each other, where each pulse is separated by a few thousandths of a second, and each neuron only receives signals from around a thousand others, is instantaneously unified in my immediate conscious experience now. This immediacy means it has taken *no time* for consciousness to discover what is occurring in my brain—it is simply, directly and imme-

diately conscious of all these spatially separate brain events. And, more than that, it *knows* what all these events *mean.* For I am not conscious of millions of little signals, I am conscious of the meaning of these signals, of their reference to the being of other forms that are distinct from the patterns of excitation occurring in my brain. Do you see, if we start by accepting the objective being of the physical brain, then consciousness emerges as something that transcends the limitations of ordinary physical spacetime, where—according to the theory of relativity—no information can be transmitted from one place to another faster than the speed of light? But consciousness *breaks this rule.* It instantaneously connects different regions of space in the manifestation of our experience, just as quantum states instantaneously connect spatially separate entangled particles. Both these phenomena point to the same conclusion: physical space is an *appearance* of something that is not, in itself, separated in space and limited by speed of light communication.

But what stands out, in the midst of our examination of consciousness and the processes in the brain to which it corresponds, is the *unique status* of these brain processes. For we are inquiring into the meaning of the being of the forms that science discovers. We have been asking whether our distinction of such forms is an entirely human-relative procedure, something that is determined by the structure of our physical brains, such that, if we had different brains, we would distinguish entirely different forms, or perhaps we would not even distinguish form at all. But what we have discovered is the being of at least one form that *distinguishes itself* independently of our acts of distinction—and that is the being of our own consciousness insofar as it manifests in the form of an objective process that occurs in the brain. It is not *we* as human individuals that have distinguished the form of this process, it is consciousness itself, or, if you like, it is the unthinkable source of experience that lies behind, and within, and is our experience of being conscious.

Now this may sound contradictory. For our experience of being conscious does appear to be an entirely human affair. But the *fact* that I am conscious is not something that has come to pass because of an act of human discrimination. My being conscious precedes all acts of discrimination, and all such acts depend on my being conscious. Of course, my recognising that I am conscious, my becoming conscious that I am conscious, does require an act of discrimination. But we are talking of con-

sciousness itself. And I am conscious regardless of whether I consciously discriminate the fact that I am conscious. What science has discovered is that conscious experience also has an objective form in the world. It is the signature of the necessary and sufficient abstract form of the brain processes that correspond with my moment to moment experience. As we have already discussed, we do not yet know the exact form this signature takes. It is likely to be very abstract indeed. For it will say: whenever and wherever a form of this kind manifests, there will also be consciousness.

Of course, philosophers have already speculated on this. There are functionalists who say: whenever and wherever a process exists that takes the same inputs and produces the same outputs as an entity that we already recognise as being conscious, we can say that that process is conscious. But this is a *lazy* answer—an answer that steps around the problem of understanding exactly what it is about the processes in the brain that correspond with our being conscious. And it already ignores the most obvious fact: that, up until now, and as far as we can tell, consciousness has only manifested in *living* organisms. Functionalism ignores this because it is committed to a materialistic idea of being that already assumes there is no essential difference between a living organism and a machine.

Here we are going to take a different approach. We are going to begin by describing the form of a system that we know to be conscious, i.e. ourselves. We are starting here because we know this form has *intrinsic being.* Its intrinsic being is the being of our conscious experience. That means we are looking at something that discriminates itself by having an experience of itself. This not like an act of perceptual discrimination, where we discriminate the presence of enduring form in the streaming of our sensorimotor fields without reference to whether or not that form is having an experience of itself. Now we are seeking the form of our experience in the form of the processes occurring in our brains. It is not the underlying enduring stability of those processes that matters. Our guide is the *correspondence* between the brain process and our immediate experience. It is experience itself, its already given and immediately present form that provides our measure. This is not something arbitrary, something that evolved by chance on this planet. It is an extraordinary and primal feature of the universe that consciousness can and does emerge when the

circumstances are favourable. And clearly, with us, the circumstances are favourable. But what are these circumstances?

Already we can say something of this correspondence on the basis of our existing science. For if we accept that the brain is a prediction machine, that means it is able to embody the forms it perceives. It is by means of this embodiment that it can set up a stream of predictions that then interact with the stream of information that impinges on its sensory surfaces. It is in the meeting of these two streams that our conscious experience of being in the world emerges. What occurs can be described as a kind of *resonance.* We can say that the form the brain is projecting is resonating with the sensorimotor input it is encountering. But here, of course, we have again taken up the stance of the objective observer. Such an observer already pictures the human body in a world surrounded by objects and fields of electromagnetic energy, whereas, the objective situation is that this picture is formed by and based upon the very processes we are trying to describe. The fact is we only know that 'something' is resonating in us. This something is the unthinkable source of experience. We automatically think of this source in terms of the forms that our perceptual systems discriminate. But we are not entitled to do this. The resonance only tells us there is an agreement with the source—that our picture corresponds. The source is not the picture. The source is that which facilitates the very dimensionality of our being conscious, the space, the endurance of our being in time, the qualities of the colours, of the sounds, and then, within this dimensionality, the source grants an experience of resonance which tells us that the beings that are appearing in our sensory dimensionality actually correspond with an aspect of the potentiality of the source.

What singles the brain out from all the other forms that we perceive around us is its capacity to embody the form of forms that are different from itself, forms that are able to *resonate* with the source. This embodiment of form is manifested in the brain's capacity to predict the form of its own input. Such prediction, when it succeeds (i.e. when it resonates) means the brain has *captured* an aspect of the form of something that lies outside of the domain of its own structure. If we examine this act within the context of our understanding of the being of form, we could say that the brain has literally captured an aspect of the *being* that manifests the form that is perceived. For we are no longer thinking in terms of a ma-

terialism that identifies being with configurations of material substance manifesting at particular locations in an objective space and time. If it really is the case that there is no objective material substrate, that it is form supporting form, supporting form 'all the way down', then my perceiving of form is no longer a *representation* of something that exists separately from my act of perception. In capturing and experiencing the form of something that is 'not me', I am experiencing an aspect of the very source that manifests that form. At the same time, that form can only come into being as the form that it is insofar as it is able manifest (to resonate) in the perceptual consciousness of a being like you or I.

For example, consider an act of speech. Let us assume there is an impulse in you that manifests in your saying something to me. If we look into the world of objective form, this impulse will first be traced out in the activity of the neurons in your brain. The pattern of this behaviour will contain the essential form of what you are intending to say. This form will be *transformed* into a series of motor commands that will manifest in the movement of your lips and tongue and mouth and vocal chords (and so on). These motor commands, and the corresponding movements, will still embody the form of your speech act. And then these movements will set up a series of disturbances in the molecular structure of the air that will carry the form of what you are saying from your body to mine. The hair cells in the cochleas of my ears will then pick up the pattern of these disturbances and transform them into electro-chemical neural signals that are relayed to my brain. Again, another pattern of neural behaviour will be manifested as these signals meet other neural signals that, in each moment, project expectations into the incoming signals that result in an experience of my hearing and understanding what you are saying.

In this hearing and understanding I have grasped the very same form—assuming I have understood you—that impelled your speech in the first place. Can we say that the 'true' form of what you intended to say only existed in your mind, or in the pattern of neural activity that originated in your brain? Or is it the *same* form that comes to manifest in my brain? Could we say that we are *both* hearing this one form manifest, that it is resonating in each of us at the same time—that you too, are first realising what it is you intend to say by hearing yourself say it? For where does this form really have its being? Surely only in the resonance of a consciousness that is able to manifest it as an experience of meaning? Even if I do not

understand a word of what you are saying, my resonant consciousness will still manifest a true *aspect* of your speech act. I will perceive that these sounds were uttered by you and I will experience their meaning form just as I experience the meaning form of a bird song. Your resonant experience will be richer than mine, more meaningful, because you understand what you are saying, but there will still be an *intersection* in which we resonate to the same form.

It is this meeting (in my brain) of the form of the utterance that originated in you (that has been transformed into the neural patterns propagating up from the hair neurons in my ear) with the form that my neocortical neurons are predictively projecting in response to this input that is the objective event of the resonance that we are speaking of. Of course I do not expect the form of your entire utterance beforehand. But I do expect the general form and tone of the manner of your speech, and I expect it to belong to the context of our relationship and of this particular meeting and of what has just been uttered beforehand. And as your utterance progresses, I expect and project the form of each word on the basis of each previous word and on the way this current word has begun and on the emerging meaning of the entire speech act. And once we are past half-way through, I can usually predict, with reliable accuracy, how it will . . . .

This is the *signature of consciousness* in the brain, that unique site where the essential form of one event (your speech act) *meets itself* in the form of another event (my neocortical neural projections). This is not like the surface of a lake reflecting back an image of the sky. My brain is able to project the form of its input *before* and *as* it arrives, not simply copy and reflect it back. Do you see that this event of neural resonance is something extraordinary? That, in all the complexity and apparent randomness of the events occurring in the objective universe, how improbable it is that an event should occur that contains within itself the essential form of *another* event? And if we go further, and conjecture that each form has its own being (rather than thinking that each 'bit' of material substance has its own being), then we can begin to see that the event of a form meeting itself is an event of a *different order* from all the other events we observe in the universe. For all these other events are just forms transforming into other forms which transform into other forms. Forms—such as atomic forms—may repeatedly emerge out of processes that themselves repeat,

but such processes never *meet themselves,* never configure themselves to embody the form of something that is coming towards them. To borrow Leibniz's term, such processes are *without windows.* Whereas we, who are conscious, *do* have windows—windows which objectively manifest in the form of our resonant brains.

If we look at the bigger picture of our place in the vast cosmos within which we appear to exist, what we are proposing is that consciousness like ours, when viewed *objectively,* only starts to emerge once corresponding brain structures have emerged that are capable of resonating with whatever it is that is the source of our experience. What this resonance signifies is that something 'out here', in the extraordinary process of the evolution of form, has at last come to correspond with the forms that (metaphorically) surround it. The presence of the potential of such resonance acts as a kind of trigger for the manifestation of consciousness. What we are considering is the evolution of 'something' that already had the capacity within itself for consciousness and self-experience but could not manifest that capacity until the right kind of resonant system was able to appear in the midst of the universal field of potential being.

Finally, what we are saying is that consciousness *is* an experience of resonance, so that the more *attuned* we are with the source, the greater is the resonance, and the greater is the consciousness. Our level of attunement grows the more we withdraw our identification with thought processes that are occurring in the orbit of our past experience—processes that recycle the material of that past by redirecting our attention away from the immediacy of now. Such redirection produces a derivative form of consciousness that resonates more or less habitually on material it has already encountered, even when it imaginatively projects that material into new configurations. This form of resonance is less conscious because it no longer directly resonates with the immediate *unpredictable* source of experience but instead becomes caught up with the secondary, *predictable* traces that this immediacy has deposited in the recording apparatus of the brain. That is not to say we cannot have new or surprising thoughts, it is to say that such thoughts only tend to arise insofar as we have disidentified with our habitual thinking processes and entered into an attunement with that place from out of which our thinking is emerging. For the immediacy of now is our only point of direct contact with the unpredictable source of both our thinking and our perceiving.

The first and most accessible way of getting in contact with this source is to become aware of what is happening in immediate sensory experience, to hear the wind in the trees, to become fully attentive to the quality of the sound, to enter into the silence from out of which all sound emerges. The more our own inner commentary recedes, the more we resonate with this extraordinary sensory manifestation—this meeting of our stream of sensory attention and expectation with the ineffable source that transforms our empty projection into a direct experience of the being of that which lies beyond the enclosure of our machinery of projection and expectation. *This* is the bridge between our scientific model of the brain as a prediction machine and our immediate experience of being conscious. And *this* is how we make such science meaningful.

The Pre-Being of the Source

Let us see where we stand. We are letting go of the old materialism—that pervasive understanding of being within which we collectively live and go about our daily business. We are taking a path out of a former world, partly to illuminate the hold that world still exercises upon us, and partly to see where this path leads. We are disidentifying with our belief in material being—our sense that the world is 'really' made of the permanent being of 'physical stuff', of bits of matter suspended in space connected by fields of physical force. We are seeing that the reality for us, when we come to examine how it actually stands in our experience, is the *qualitative being of form.*

The location of the crack in our prevailing system of thinking lies at the heart of our scientific materialism, in the quantum theories of physical science. It is here that our materialism has *already* broken down—and yet, as a culture, we do not have the consciousness, or the will, to follow through the consequences of this breakdown. It therefore falls to us, as individuals, to examine these consequences, and to lay down a path out of this situation in which we are collectively coming to accept and act as if our being were the being of a biological machine—a robot whose behaviour is predetermined by the behaviour of microphysical particles—when we already know that the behaviour of these particles is *not* predetermined. For their behaviour emerges out of a place we call the quantum level and is ruled by something we call 'chance'. In the discovery of quantum effects,

our physics has returned to the *source.* Just as it has always been, behind our pretence of knowing, we stand on the brink of a supreme mystery—the place of the origin of our own being, and of the being of the universe that we perceive. This place is determined by no law. We can only say that there is a certain predictability within its unpredictability. The quantum level is an *objectification* of this source. It manifests as the being of this moment. It is the source from out of which our experience is emerging now, and now, and now . . . .

If we look into this objectification of the source, what we find is a sheer *potentiality* for being. It is only here, on this side, in the stream of our experience that we encounter *actual* beings—atoms, molecules, cars and phones, oceans and skies. The source itself is not a *being.* That is why it is unthinkable. For as soon as we think of it we turn it into a being, into something definite. Even to think of it as a potentiality is to try and encapsulate it into a familiar form. And so we can only refer to it in terms of a negation—as the *un*thinkable source. For if we look, we must accept that we cannot see the source, we can only see what emerges from the source—and that includes *this*—the stream of our own thinking about the source. The source always precedes whatever we can think or say or experience. That is because it is the source of any and every thing that can possibly *be* for us, including our idea of the source as the pre-being of a pure potentiality.

Our first step—our first *positive* step—is to propose that it is consciousness that effects the collapse of quantum potentiality into the definiteness of actual experience. Once we let go of our materialistic preconceptions, this becomes a simple description of how things actually stand—because, for us, there is no 'other world' of material being, there is just *this* world of experiential being—this dimensionality of space and time and feeling and sense, and, within that, the being of the forms that we think and imagine and perceive.

This is not a monism of consciousness that says everything exists as an idea in a cosmic mind. To speak like that is to pretend to know that we know the source—and we do not know the source—we only know the experience that streams out of the source. And yet, within the forms that we perceive in this streaming (remembering that our perceiving itself is part of this streaming) we can distinguish *aspects* of the source. For these forms that we are and that we distinguish have emerged from the

source along with our experiential conviction that these forms actually *exist.* This conviction of actuality, of being, is our warrant to say: yes, this form expresses *something* of the source. We could even say that our experience of form is *symbolic* of the source. It enables that which lies *beyond* being to have an experience of itself *as* being. When we think this way we can begin to see the significance of the objective form that is our brain. For it is the behaviour of this special form that objectively reflects to us the manner in which our consciousness of the world is being manifested. This reflection is only *partial*—it shows what has already been done. It does not show (it cannot show) that which is manifesting what is manifest, the power that lies behind the projection, that makes it into an experience of the being of form, that collapses the pure potentiality of the source into something definite, into an experience of being amongst other beings.

At the centre of our experience of the being of form, there lies this extraordinary resonance, that is the foundation of our conviction that we are encountering a world that exists beyond the immanent sphere of our immediate subjectivity. We are informed by this resonance that the forms we are intending and projecting are in correspondence with something 'other', that they are not just forms and figments of our imagination, but that they correspond with the transcendental source of experience itself. If we try and understand the *basis* of this correspondence we find it turns into something enigmatic. To begin with, we cannot say that the form we perceive 'exists' in the source—for the source, as far as we can tell, both phenomenologically and scientifically, does not itself 'exist', it is the source of a potentiality for existence. And yet we know, in the direct evidence our living together, that the world has a common underlying form. When I use up all the milk in the fridge on my cereal, we do not find that this is only true for me, and that for you there is still some milk remaining. It is because of this unity of form that we know there is a common source. Collectively we believe this source exists in the form of the being of a material universe. Now we have let go of this idea of materiality, we are faced with the enigma of a source that we cannot experience objectively, because it is the source of experience itself. We can only think of it in terms of metaphors. And yet we know from our shared experience of resonance that the unity of the world, its having the same form for each of us, must have its common origin in this source.

If we pare down the possibility of this resonance to a minimum, then all that is left are the pure mathematical relations that define the forms that are resonating. Such ideal mathematical form shows itself in the speech act we considered earlier: it passes from one medium to another, from your immediate consciousness, into a pattern of motor commands, into the waveforms of air molecules, at which point it could equally be transformed via a microphone into the form of an audio recording where the entire utterance becomes a single static pattern of audio frequencies. Pure form, pure mathematical relation, can travel like this from one system of dimensionality to another, *and back again.* Seeing this enables us to *glimpse* an *aspect* of what is happening in our experience of resonating with the source. For ideal form does not 'exist' in any place or time. And in whatever way we think of such form, we can only ever picture a representation, never the form itself (as illustrated by the equilateral triangle in figure 5.1). For the form is a pure meaning that cannot be manifested as a spatiotemporal experience. But, as a pure meaning, it can still be *intended*—and in such intending we open up another dimension of nonsensible ideality. This is this same dimension we already intend in our perception of the objective forms of the everyday objects we see around us (as discussed in Chapter 4). What we are proposing is that it is our intending of ideal form (such as the ideal form of the table in front of me now) that reaches back from the domain of our unique and personal streams of consciousness into the common source of our experience—and that this intending can then invoke the resonance of a response from that source. All this is occurring in the immediacy of our being conscious, and yet, at the same time, it is appearing 'out here' in the parallel symbolic form of the objective behaviour of the processes that are occurring in our brains.

Here we should be clear that this description of the occurrence of resonance is still a *model* of something we cannot directly perceive, something that is pointing toward the ideal form of the process of resonance itself. In the immediacy of consciousness, there is no corresponding division of 'what is' into a stream of experience and its supposed source. We can only separate this out in the aftermath of a conscious reflection. And if we go far enough back into this immediacy, then, perhaps, we could say that I *am* this source, just as I *am* the experience of whatever is happening now. Here there is the greater unity of what we might call 'the whole'. This

is the undivided, unreflected unity that embraces the potentiality of the source *and* the being of experience.

At the same time, the resonance of perceptual consciousness testifies that our experience is not the unity of a one-way stream. For we project back into the source and receive a *response.* This projecting back and this response are the very ground of our being conscious, the very site of the emergence of an experience of the being of the pre-being of the ideal potentiality of the source. Form itself only appears in this relation of projection and response. It does not 'exist' *in* the source, for existence, as far as we can tell, is the actuality of the appearance of form in consciousness—the very consciousness we presume is effecting the quantum collapse. And yet we cannot finally separate this experience we have of the being of form *from* the source. For the source encompasses *everything*—both potentiality *and* actuality, both being *and* non-being. And we certainly cannot think of the objective form that is our brain as the place where this resonance 'occurs'. For the objective form of the brain is yet another form that appears out here on the *basis* of such resonance. We can only say that the brain is a *symbol* of the form of the resonance we immediately experience in our apprehension of the being of the world.

Notes

1. One of the most influential theories in this area is Karl Friston's proposal of the *free energy principle* (2006). Here he suggests that the entire function of the brain is to minimise the unpredictability of its input by anticipating the form of that input. He represents this general idea in the mathematical formalism of reducing free energy—where free energy is a computationally tractable way of estimating a system's entropy or degree of disorder. Whether the brain *actually* minimises free energy in the way Friston suggests is a matter of ongoing research.
2. The idea that brain processing in mammals is hierarchically structured is originally founded on Felleman and Van Essen's famous paper *Distributed Hierarchical Processing in the Primate Cerebral Cortex* (1991, Jan/Feb). Rao and Ballard went on to connect the idea of predictive processing with hierarchical structure in their paper *Predictive Coding in the Neocortex* (1999). Jeff Hawkins then developed the more unified idea that the entire neocortex is engaged in predictive anticipation of its own input in his book *On Intelligence* (2004) from which he developed the computational model of *Hierarchical Temporal Memory* (2016).

3. Two of the most influential and widely read books on the subject of predictive processing in the brain are Jakob Hohwy's *The Predictive Mind* (2013) and Andy Clark's *Surfing Uncertainty* (2016).
4. See Eben Alexander's book *Proof of Heaven* (2012).
5. 'Plants and birds and rocks and things' is a line from the song *A Horse with No Name* by the folk rock band America.
6. For a full explanation of this concept see David Chalmers' paper *What is a Neural Correlate of Consciousness*? (2000).
7. Recent findings on the relation between consciousness and the synchronous firing of neurons are reviewed in Christof Koch's multi-authored paper *Neural correlates of consciousness: progress and problems* (2016).
8. The Einstein, Podolsky and Rosen paper *Can quantum-mechanical description of physical reality be considered complete?* (1935, May) was the spur for the quantum physics research community to devise experiments to demonstrate whether or not nonlocal quantum effects actually occur. This became possible once John Bell (1964) developed his famous theorem which proposed testable empirical consequences of nonlocality. Subsequent experiments have consistently upheld that such nonlocal effects do occur between entangled particles, so that the majority of people working in the area now accept the reality of what Einstein once called "spooky action at a distance".