

Swedenborg uses the words “truth” and “falsity” with a regularity that appears to assume that their meanings are understood. Their specific meanings, however, are drawn from a wider context of ideas that need to be made more visible if they are to have a deeper relevance in the modern world. To that end, there are certain key ideas that require attention initially in order to see how they knit together. These are “little heaven,” “primaries in ultimates,” “correspondences,” and “words.” Within these, there is also the beating heart of influx, and within this there are the ordering principles contained in the notion of “making all things new,” a phrase found repeated in many places throughout the Bible. It is from this structure, when it is seen in rational form, that one begins to have some idea of the physics of spirituality, and it is from this that truth and falsity derive their meaning. But as this structure begins to emerge, there is one uncomfortable fact that is clearly intended in Swedenborg’s work, which is that none of it actually has any real meaning unless it is anchored in the natural level of our ordinary lives. What is the form of that anchoring? Does it apply only to an ethical dimension? Or does it actually reach into the very structure and fabric of reality that we tend to assume is the domain of science? In many ways, therefore, this is the issue that is the subject of this article. Part of it will be concerned with uncovering something of the spiritual structure just referred to, but if it is to mean anything, it will need to be anchored in the physically real. To that end, relativity theory will be the central focus, but the reason for this will not yet be apparent. Suffice it to say that while this may not seem to be promising at this moment, the particular treatment given here will focus on its status of realism. No previous knowledge concerning its intricacies is assumed or necessary.

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The little heaven

Today we might express the notion of “little heaven” with the more familiar word “holism.” The idea itself predates Swedenborg and is usually expressed in the Hermetic tradition of “as above, so below.” There are some who have expressed the idea that Swedenborg merely re-states what had existed previously, but this is to underestimate what is implied in Swedenborg’s usage, and what makes it particularly relevant. To say that the “general whole incorporates parts that are like that whole” is simply to repeat what is well known as a general principle. Swedenborg knew this and this particular line is actually quoted from *Arcana Caelestia* 4292: 1. But this brief quotation does not capture the whole idea and must be seen in a larger context. It appears at the end of a passage that throws more light on this than simply the well-known idea of connectedness. It is in the episode in Genesis where Jacob is wrestling with an angel, and where Swedenborg is concerned with the internal, historical sense. This sense is concerned essentially with the natural level, and it has particular relevance to Jacob who eventually represents the Divine Natural. At this point, it is clear that the natural cannot represent anything spiritual unless it has a spiritual component. This is represented by Jacob’s new name of Israel. In this way the natural level adopts a spiritual level, and it is only then that it can perform the function of spiritual representation. This is summarised in *Arcana Caelestia* 4292: 2/3 as follows:

The reason they could not [play the representative part] as Jacob was that “Jacob” represented the external aspect of the Church, but not the internal . . . From this it is evident “Jacob’s,” that is, Jacob’s descendants, could not represent the Church as Jacob, for that would have been to represent solely the external aspect of the Church. They had to do so as Israel as well because “Israel” is the internal aspect. (AC 4292: 2/3)

The question this gives rise to is this: what is the right relation of the spiritual and the natural? From this passage, we can see that the external level, or the natural level, has an incredibly important part to play. Even though Jacob’s descendants are purely representative, they nonetheless had to have elements that were spiritual in order to create the essence of a

little heaven, even though merely representative. This fundamental emphasis on the natural is a theme that runs through all of Swedenborg's work, and this is because it is of fundamental importance in the Bible where it appears many times as the drama of salvation unfolds.

In an earlier scene when Hagar is near the spring on the road to Shur, there is an even more cogent reference to the little heaven. Notice particularly how the natural level is referred to.

“A spring” means truth; “a road” means that which leads to truth and which comes from truth; while “Shur” means factual knowledge such as is still in the desert so to speak, that is, which has not yet acquired any life. Truths that come from facts are said to acquire life when they ally or associate themselves with truths into which the celestial element of love is flowing, the source of the actual life of truth . . . Real things, or truths, which do not exist joined together in accordance with the form which heavenly communities possess have not as yet acquired any life; for prior to this, the celestial element of love from the Lord cannot fittingly flow in. They first receive life when a similar form exists on both sides, that is, when the miniature heaven in man is a corresponding image of the Grand Man. Prior to that nobody can be called a heaven-like man. (AC 1928:1)

Now consider why it is that Shur means factual knowledge. Etymologically it means a wall or boundary, and so encloses Egypt so to speak which references the natural mind. Hagar, meaning “foreigner” or stranger, comes from Egypt and so is the representative of the natural here, and which is ultimately the focus of regeneration, that which is to reflect the spiritual in itself as the natural and become the little heaven. Anybody reading Swedenborg for the first time might be surprised at these constant references to the importance of the physical level, partly because of the sense of distance from spirituality that has been the norm, and the yearning of the spiritual to inhabit the physical in a real way. In the very next paragraph, Swedenborg places these thoughts in an even wider panorama in which he expresses how the Lord Himself thought about these things:

The Lord, who from Himself was to govern the whole of heaven, imposed such order while He was in the world on the truths and goods

present with His External Man, that is, with His Human Essence. But because He perceived that such order did not exist with His rational conceived first, He thought about and perceived the reason why. This was that natural truths arising from facts did not as yet have any life in them . . . (AC 1928:2)

Notice that the natural truth referred to stems from the first rational whose origins are clearly Egyptian/ natural, and are like all things driven by the downward-looking natural. Even so, this is the origin of the rational that subsequently evolves into Isaac who represents the Divine Rational, but still it should not be forgotten that his roots are natural. So clearly, what is natural plays a fundamental role in the development of spirituality. Notice also that this is a reciprocal union: “when the miniature heaven in man is a corresponding image of the Grand Man.” (See above).

Primarys in Ultimates

But what exactly is meant here by truths that come from facts? This is not as straightforward as it seems. We are familiar with facts after all, given the dominance of science in our culture. Surely this is not referring to such facts? Yet while this may seem implausible to begin with, we should keep in mind that the sensory level of experience, while it is the basis of science, is very much part of the structure of reality that is used in formulating religious concepts and doctrine. “Primarys in ultimates” is a phrase that is generally speaking taken to mean the presence of an inner sense in the letter of the Word. But this can hardly be the whole meaning, when we see how Swedenborg places his spiritual concepts within a very definite physical structure. Marriage, for instance, as the joining of good and truth, is clearly a representation of the same on the natural level when it falls into the concepts of male and female. But this is not the whole story. When speaking of Abram and Sarai, Swedenborg tells us:

With man there exists in every single part the likeness of a marriage; nor can anything possibly exist which is too small to have that likeness within it—both in the external man in every part, and in the internal man in every part. (AC 1432)

If there is any doubt that he is referring to the fabric of material we are actually made from, he directs us back to other sources in his work:

Celestial and spiritual love is the Being itself of one who is being regenerated, while the rational part and the sensory part of him—when these are endowed with that love—are the Manifestation of it. The same may be said of every single thing in the universe for nothing ever exists without conception to give it Being and birth to give it Manifestation. (AC 2621:2)

Even the physical universe shares all those qualities of influx and consequent order that we usually associate with the morality of a person. Clearly, there is something that is significant about the natural level of existence in its completeness that is missing from current models of reality that are largely secular and exclude all spiritual reference. This is an aspect of Swedenborg's work that requires more attention.

The very organs of man's body, in their complex and in their simple parts, and indeed in the simplest parts of all, contain that which is passive and that which is active. And if these were not coupled together, like man and wife in marriage, they could not even be there, let alone produce anything. (AC 718)

This mention of "producing anything" is a clue to the deeper meaning of life, in both a spiritual and natural sense, for the notion of moreness that is at the heart of Divine Love filters down through the process of influx into the fabric of mortality, where that notion is experienced inversely as mere desire, passion, or the yearning for progeny. It is this that is active and which acts on the passive, or which in other cultures such as the Greek is referred to as the "to peras" and the "apeiron." This is not the place to delve too deeply into these concerns, but clearly a picture is beginning to emerge in Swedenborg's thought of the presence of spiritual things in actual physical things, and of physical things awaiting the arrival of spiritual things. It is that presence that creates the miniature heaven, but it does so by flowing from a highest point to the lowest where it finally comes to rest, and it is this that is also meant by primaries in ultimates. This flow is not direct, but constantly altering on the journey to be ame-

nable to each level encountered, until it comes to rest, (or terminates, as Swedenborg usually puts it) in the “ultimate,” which is the natural level, and at the same time in the literal sense. This flow is particularly noticeable in the story of Jacob’s ladder. Jacob, as the natural, is at the bottom of the ladder, while Jehovah is standing above it. So notice the emphasis in Swedenborg’s exegesis that what is at the bottom, or the ultimate or what is referred to biblically as the footstool of heaven, is a prime spiritual directive:

... the human being has been so created that Divine things that are the Lord’s may come down through Him even to the lowest things of the natural order, and from the lowest things of the natural order may go up to Him. Thus the human being was created to be the means through which the Divine was linked to the natural world, and the natural world was linked to the Divine, and in this way through the human being as the means linking the two together, the lowest degree of the natural order might receive life from the Divine—which would be a reality if mankind had lived in accordance with Divine order.

The creation of the human being in this particular form is evident from the fact that his body is a world in miniature, because every Arcanum that is part of the natural world is also stowed in the body. (*AC 3702:1/2*)

Here we begin to see the function of New Church thinking, to recover what has been lost of the reality in which what is highest finds a dwelling place in what is lowest, and that “lowest” is the reflection that is called the “little heaven.” Furthermore, this marriage is one that is actual rather than moral. By this is meant that the moral is a felt state, a “want” rather than an “ought,” and that desire is what is meant by the will that has organic form in us. Furthermore, because it has such a physical form, it should be kept in mind that its evolution from natural to spiritual requires instruction that begins in the natural, but which is cast away ultimately as the regenerative process advances.

This combination of the holistic with first principles in residence is not unlike what is already known philosophically in the current systems that we inhabit and live by. The first principles, axioms or assumptions that exist at the core of a system of thought are subsequently contained in every

statement that ensues and reach their fullness in the last layer that impinges on the life. It does not matter how abstract they might appear in their initial, logical or mathematical form, it is their actuality in concrete form in practice that bears witness to them. Furthermore, this applies even more so in religious practices. Consider for instance the opening line of the Ten Commandments:

I am the Lord your God, who brought you out of the land of Egypt, out of the house of slaves.

To most people, this will seem to be little more than a historical fact, that after the Passover, the Israelites left Egypt. But Egypt at this point is a reference to the natural mind that has no spiritual element in it. It is also a statement that precedes the Ten Commandments, and so provides the meaning that is contained in them which is carried forward at the same time. This is how Swedenborg describes this:

The reason why this is the first truth to be stated by the Lord from Mount Sinai is that it must be present, reigning universally in each and every truth that follows. For what is stated first must be held in mind and must be seen to reside universally in everything that follows . . . Truths stated first must reign in those stated next and incorporate them; these in turn must reign in and incorporate those after that, and so on sequentially. (AC 8864:3)

Because this is referring to the state of the natural mind, something with which this particular era is almost exclusively concerned, it should be emphasised that what reigns universally in the Ten Commandments is the spiritual freedom which obsessive emphasis on the natural prevents, and it is this that is meant by slavery. This is particularly pertinent in this article as will be apparent. For the time being, we should note the importance of the tenth commandment, not so much because it is the last commandment, but because it is where the first principle reaches its fullness in the last. Again, Swedenborg tells us in *TCR* (treating the tenth commandment as a combination of two):

These two commandments look back to all the preceding ones, and teach and command that evil actions must not be done, nor even longed for. (TCR 326)

The first principle of the Divine is love, and as stated earlier, it becomes through influx in the lowest level the presence of a sense of moreness, or desire, in every bit of the natural world. Now because all that precedes the tenth commandment comes to rest in the last, it is inevitable that this commandment, more than any other, is concerned with that moreness. When it has become spiritual, it is called desire, but when it remains unregenerate, it is craving or covetousness. The relevance of the last as the gathering place of all the rest is that it predominantly concerns the nature of will, for it is the will in which and through which the person truly lives. Swedenborg summarises this as follows:

All this shows why it is that the words “you shall not covet the things that are your neighbour’s” means that one must take care to prevent them from becoming present in the will, since what takes possession of the will becomes the person’s own; for, to be sure, the will is the real person. (AC 8910:1)

Correspondences

A great deal could be said about this subject, but for present purposes, only one thing needs to be emphasised, which is that the way influx impresses itself upon a person is through parallels that exist both on the natural and spiritual plane, such that whatever may be the source, it becomes realised in real, physical things. This places it high above metaphor, which often resembles it, but correspondences exist to create an actual link. Furthermore, when influx flows properly, it does not flow into what is abstract but into concrete things. Consequently, given the prime importance of the human level of experience, it should not surprise us that the images used to represent that level are invariably quite external or low: fish represent facts, feet and parts of the feet, including shoes, relate to the lowest level in the natural. Hair, hands, the staff or rod, the belt, camels,

oxen, figs—all these have symbolic meanings relating to the natural level in some degree. There is nothing abstract about any of them. Mention, however, has also been made of “words.” Indeed, Swedenborg always refers to the Bible as the “Word.” This is usually associated with John’s gospel that begins with “In the beginning was the Word,” which translates the Greek term “logos” with the etymologically more correct word, “dialogue.” This is particularly pertinent to this gospel since it contains many references to the dialogue between Jesus Christ as the Son, and the Father. It is from that dialogue that we see Jesus Christ doing what he sees the Father doing, so notice that this doing is something stronger in meaning than saying. When Genesis 15 opens with “After these words the word of Jehovah came to Abram,” Swedenborg explains:

That “after these words the word of Jehovah came to Abram in a vision” means that after the conflicts in childhood revelation followed is clear from the meaning of words” . . . The expression “words” in the Hebrew language means real things, in this case the things that have been completed, namely the Lord’s conflicts . . . (AC 1785)

Consequently, we should give particular attention to the brief comments Swedenborg makes whenever the words “said” or “spoke” are used, as in this example:

That “Sarai said to Abram” means that it was so perceived by Him is clear from the meaning of “Sarai” and of “Abram,” that is to say, “Sarai” is truth allied to good, while “Abram” is the Internal Man. Consequently the phrase “Sarai said to Abram” cannot in the internal sense mean any talking of one to another, but perception . . . “Saying” in the internal sense means perceiving. (AC 1898)

Since the Hebrew language is composed of concrete rather than abstract ideas, it should be no surprise that it is not only words that are real things but numbers as well. Numbers and words are prone to abstraction in our own culture, and this may explain why the Bible is little understood; but this emphasis on “real things” is a useful way to become familiar with the nature of correspondences. So notice the meaning of numbers in this

passage, concerning the numbers of good people that might be found in Sodom:

As all the numbers mentioned in the Word mean real things and states . . . so also does twenty, and what twenty means becomes clear from how it may be obtained, namely from twice ten. In the Word ten, as also tenths, means remnants, and by these are meant everything good and true that the Lord instils into a person from earliest childhood. (AC 2280:1)

The particular relevance of this number will be discussed elsewhere, but this is enough to demonstrate the physicality of expressive form as real presence, and not merely symbolism of some other reality separate from it.

This brief overview of spiritual structure is intended to emphasise the importance of the natural in the overall picture of reality that Swedenborg presents us with: the “little heaven” is an actuality and presence in the natural world reflecting the spiritual; “primaries in ultimates” is the means via influx through which that actuality is realised, and this realisation is through correspondences that reference real, physical things and which is the meaning of words as well as numbers. Most importantly, “the Word” itself is written in this form of correspondences and represents ultimately the link between the spiritual and physical elements. It is important to keep this last point in mind, for even though the next step is to consider the implications of this in our own times, emphasis should be given here to the supreme form in which all these things gather together in Jesus Christ. In Revelation we read: “I am the Alpha and the Omega, the beginning and the end.” Swedenborg’s explanation of these words demonstrate clearly how all the elements spoken of so far hang together in the Divine Human:

That this signifies that He rules all things from primaries to ultimates, and consequently all things from heaven to eternity, is evident from the signification of the Alpha and the Omega, as denoting the first and the last, or in primaries and in ultimates; and he who is in primaries and in ultimates also rules the intermediates; thus all things . . . But that He rules all things from primaries by means of ultimates is a mystery not hitherto perceived by man. For man knows nothing concerning the successive degrees into which the heavens are distinguished, and into which also the

interiors of man are distinguished; and little concerning the fact that man, as to his flesh and bones, is in ultimates. (AE 41)

It is also significant to mention that it is the vowel sound that gives a word its reality, and it is actual breathing that creates this form. The fact that the Lord calls Himself the Alpha and the Omega should not pass by without mentioning this emphasis on lung function that is related to truth. This, too, cannot be discussed here, but interest in this should be noted in terms of how the physical participates in the spiritual in actuality. Since regeneration is a mirror of glorification, we also breathe and make real what is in our thoughts. But when separated from the felt state, reality easily collapses back into hot air. Words, that is, the words we use today are certainly audible and appear to contain meaning, but do they relate to real things or are they little more than abstractions? That, in part, is the question to explore here.

Reconfiguring the 21st century

(What follows is largely a brief summary of what appeared in "Reconfiguring the 21st Century," (*The New Philosophy* January–June 2011, pp. 5–107) but with added emphases relevant to this essay.)

These days, anyone curious about the basic principles of Christianity will find plenty of references to Christian charity, the Beatitudes, the Ten Commandments, what is meant by a good life and so on. Indeed, when looked at from their basic points of reference in application, even the atheist might consider such things worthwhile. But it is not until one begins to tackle the deeper layers of theology that one finds ideas like the vicarious atonement, papal infallibility, faith alone, instant regeneration, and in extreme cases, literal end-of-the-world prophecies, the rapture etc. One then discovers a long list of doctrinal teachings that split the churches into various camps, and a whole host of teachings that attempt to keep them linked to the first principles that may have drawn in those professing some kind of interest in the religion.

These things are not mentioned here as criticism of Christianity, but to spotlight a certain practice that is common to all systems of thought, spiritual or secular. When we think of science, we might think of experi-

mentation, measurement, mathematics, or the products of science we use like mobile phones and so on. But none of this actually tells us how such things spring from deeper layers of thought that identify science as a particular system of thought. After all, smelting and shipbuilding had been going on for centuries before science became the system we now recognise with great effect. For this reason it becomes extremely difficult to critically appraise it since, like theology, its prime tenets are kept from view. Generally speaking, because science has produced so many things that make life comfortable, the tendency is to allow such things to outweigh what appear to be abstract or philosophical concerns. But because these “things” have also had the effect of eclipsing spiritual concerns, it is extremely important to consider what it is that science at a deeper level means by a real thing.

To begin with, (and also generally speaking, since not all will agree with this) science quite explicitly places a boundary to knowledge that is designed to exclude spirituality. From the beginning, the setting of this boundary helped to identify its own domain. Immanuel Kant was the first major thinker who expressly set out to unite the various elements of what became science under the one banner, and so turn it into the Enlightenment movement. What is interesting about this is that he began this process by attacking Emanuel Swedenborg in *Dreams of a Spirit-Seer*. It may appear at first sight that his attack is aimed at the mystical Swedenborg, but this was essentially a pretence, since he could not attack Swedenborg the scientist who out-gunned him in every field in that department. Consequently, the only way forward was to re-draw the map of knowledge in such a way that Swedenborg was excluded, the effect of which was ultimately to exclude religion from any rational concern:

... to that extent metaphysics is the science of human reason¹

... eventually science arrives at the determination of the limits set for it by the nature of human reason ...²

¹ Immanuel Kant, *Dreams of a Spirit Seer and other Writings*. Ed. Gregory R. Johnson (West Chester: Swedenborg Foundation), 57.

² *Ibid.*, 59.

. . . The boundaries [of philosophy] draw closer together and marker stones are laid that never again allow investigation to wander beyond its proper limits . . .³

It should be said that there is little, if any, real analysis of the psychology of human reason in Kant, yet the kind of reason of which he speaks is well-known to Swedenborg scholarship. The rational mind is a key ingredient in the structure of religious thought, but the kind that is referred to by Kant is entirely Ishmaeli, and has none of the quality that is subsequently associated with its evolved form in Isaac. Here is what Swedenborg has to say about this kind of mind which he refers to as the first rational:

For the rational is the means which unites the internal man to the external, thereby perceiving from the Lord what is taking place in the external man. The rational also brings the external into a position of obedience—or rather raises it up from the bodily and worldly interests in which it immerses itself—and causes the person to be truly human. (AC 1944)

In this first passage, notice the function given to the rational, something not at all part of Kant's metaphysics. But Ishmael, the wild ass man, is altogether much like Kant:

The person whose rational is such as consists in truth alone . . . is quick to find fault, makes no allowances, is against all, regards everyone as being in error, is instantly prepared to rebuke, to chasten, and to punish, shows no pity, does not apply himself and makes no effort to redirect people's thinking . . . In short, he is a hard man. (AC 1949)

One might imagine that this is a reference to purely spiritual thought, but this is a mistake. The fact that it is born from Hagar the Egyptian tells us something of the earthly lineage of this first rational mind that is found in all in the process of growing. It is an immature mind and purely downward tending. But there is something significant in the metaphysical

³ Ibid., 59.

placing of marker stones at the edge of reason, and we need to understand this in the wider context already explored of influx and correspondences. These marker stones are set entirely against influx, and have had the disastrous effect of shutting off all light from heaven. Kant achieves this by the use of striking metaphor:

Before we were wandering like Democritus in empty space, where the butterfly-wings of metaphysics had lifted us, and conversing with spirit forms. Now that the styptic power of self-knowledge has folded these silken wings, we see ourselves back on the low ground of experience and common sense, happy if we regard it as our assigned place from which we may never depart with impunity and which contains everything that can satisfy us, so long as we stay with what is useful.⁴

The word for butterfly in the original Greek was Psyche, so notice what Kant is trying to do here. The Isaac form which is the true rational evolving out of the first rational is denied any existence. These are the butterfly wings that emerge from the initial cocoon, but now that cocoon is to be regarded as the end-state. “Styptic knowledge” is human knowledge with no inclination or reference to the spiritual knowledge from which it sprang, but which it can no longer recognise. Consequently, we are coerced, much as described by Swedenborg concerning the wild ass man, to settle for less and to shut the door on the spiritual.

But we should not imagine that Kant’s attack on Swedenborg concerns the nature of metaphysics. Not in the least. Bear in mind what has already been said about first principles, that they inform all subsequent concepts and are contained in them. Lastly, as the Ten Commandments are concerned, they find their fullest expression in the 10th commandment. Just prior to his theological life, Swedenborg wrote *The Hieroglyphic Key* in which he set out a certain pattern of similitudes that later became a fuller science of correspondences. In this work (whose full title is *A Hieroglyphic Key to Natural and Spiritual Arcana by way of Representations and Correspondences*), Swedenborg sets out a pattern of correspondences in the

⁴ Ibid., 57.

Hermetic form “as . . . so . . .” What we should notice is how the natural level is seen as full of impulses, these in turn are recognised in the human rational mind, and these in turn are seen as corresponding to God’s love. The form is therefore impulse/affection/love:

In every nature there is, implanted in its conatus, a principle of effecting something . . . There is, in every human mind, implanted in its will, an intuition and love of some end; therefore, as is the love, such is the desire . . . There is in God, implanted in His providence, a most pure love towards us and for our salvation which is the end of creation . . .⁵

One could add a speculation here that the selection of Swedenborg as the subsequent revelator of the Bible’s internal meaning may be partly due to the fact that he possessed in seed form the ideas that could be developed into the science of correspondences, and indeed the more mature conception of the relation between the little heaven and Grand Man discussed briefly above. But more than this, one can also see in part a counterposition to that of Kant. Having put marker stones in place, we can see that what is excluded from the Enlightenment position is just about everything that can be called spiritual. There is no influx into the rational mind that has put a barrier in front of itself, so that what is informed in that thought has no component that can be identified with “God’s providence” and love. Consequently, the implantation of desire in the human will that is the receiver of this has no role to play because it is only the Ishmaeli rational mind that has any significance in Kant’s vision. As a result, the notion of impulses in natural things separate from the natural man in the natural world are to be regarded as forces (external agents) rather than “conatus” (internal impulses). In this way, it becomes possible to establish “styptic” knowledge, and this was always Kant’s intention.

But there is a darker side to this also. In establishing the principles of correspondences, Swedenborg was subsequently sensitive to principles that denied or did not allow for this form of knowledge. That is to say, “real things” were only real if correspondence could be attached to them.

⁵ Emanuel Swedenborg, *Hieroglyphic Key in Psychological Transactions* (Swedenborg Scientific Association, 1984), 159.

As someone living at a time when he was aware of the kinds of thought that were beginning to rise up and influence thought, he was clearly aware of the Newtonian laws of motion and the principle of inertia that informed it. He discusses this briefly, but ultimately concludes:

One of the classes may be wanting, owing to there being no corresponding representative, as in the present case; for in things divine there is nothing corresponding to sluggishness, inertia . . .⁶

Where there is no correspondence, neither is there a reflection of the particular with the universal. When this is the case, there is no way to ascertain the nature of the reflection of the very large in the very small and all true knowledge breaks down. This, too, is suggested in seed form in the same article:

What conjoins, consociates, unites, universally, this also does the same singularly. For nothing can act universally unless at the same time it also act singularly. The universal is nothing without its singulars; of these it is composed, and from them it becomes and is called a universal . . .⁷

Holism: real and fake

What has been explored so far is the actuality of spirituality in the physical at a more intimate level than symbolism alone can describe, but which correspondences carry as a matter of course. What we find in Kant is an attitude of mind that is more or less the current view, which is that nature is better understood without reference to any kind of spiritual presence. But while this may be the case, there is a sense in which the natural mind (as opposed to the rational mind) imitates the methodology of the rational mind in order to persuade us that it is in fact quite rational. That is to say, its procedures have an appearance of rationalism while motivated entirely by naturalism. This aspect of similarity is discussed at

⁶Ibid., 166.

⁷Ibid., 176.

length in the incident concerning the turning of rods into serpents both by Moses and Pharaoh's magicians. Bearing in mind that Pharaoh at this point represents the natural mind with no internal, spiritual component, then what is described in this incident concerns the implications of this state, in which the roots of natural power are clearly made evident, resting purely in sensuality and the kinds of illusions such a limitation imposes. One might wonder, therefore, why it was that Pharaoh's magicians could do the same, and the answer given by Swedenborg in his exegesis is both subtle and elegant:

... it should be recognised that it is in accordance with the laws of order that no one should become convinced of the truth instantaneously, that is, should instantaneously made so sure of the truth that he is left in no doubt at all about it. The reason for this is that when truth is impressed on a person in that kind of way, he becomes so fully convinced of it that it cannot be broadened in any way or qualified in any way. (AC 7298:2)

It is not possible to emphasise the importance of this principle of openness, which is a principle of rationality that does not persuade but remains open to the flow of influence coming from two directions. When influx is closed and pinched off, which is clearly the desire of the Kantian view, the rational mind will still attempt to project the larger picture, and create the appearance of universality from which the particular is derived. There are two reasons for this. It is well-known that there is no such thing as an isolated fact, but only of contextual facts which suggest something of the nature of the larger picture. But what should be noticed here is a certain type of mimicry of the ancient microcosm/macrocosm that is contained and rejuvenated in Swedenborg's little heaven/Grand Man. The particular and the universal, or the more updated local and non-local levels of reality, are faint copies of the little heaven/Grand Man, while yet denying any relevance to the spiritual elements that inform that structure. While this is how science conceives of reality, this is nothing new, just as the expressions of atheism are also quite ancient. Indeed, the shutting off of correspondences that takes place when only the natural levels of understanding operate is carefully guarded against, since this leads to a will that is purely proprium-driven, and this is always inclined against anything

spiritual as part of the human psyche (giving rise to the preference for stypitic knowledge already referred to in Kant). That is to say, there is no such thing as a neutral position. When the spiritual is closed down and cut off, the impulses of the proprium then hold sway and control every aspect of life as it is experienced physically. It was because of the danger offered by a mind bent only towards the natural level that the first commandment concerned the making of graven images and likenesses. These images are essentially models, but as such they are models of the divine as it is assumed to be reflected through one's own intellectual powers. When this happens, divine realities are subsumed by the imitative abilities of simulation which tend to glorify self-love and lead subsequently to self-aggrandisement as the divine elements they represented recede. It leads to incredibly persuasive resemblances of the universal (or Grand Man), and which is implied by the description of Nimrod as a man mighty in hunting. The explanation Swedenborg gives for this is that such people as those represented by Nimrod are persuasive, much the same as the Nephilim are described as persuasive and the root cause for the end of the first dispensation known as the Very Ancient Church. The aim of such persuasiveness is to show how particulars experienced at a local level have a universal scope. And yet, as we know from modern science, there is not the slightest hint anywhere suggestive of a divine influx in the cosmic sense, and therefore no correspondences whatsoever. They are excluded from the outset, as we shall see.

A habit of thought that has pervaded science from the outset has been the "Grand Unified Theory," or "theory of everything." Yet to have such a theory, the assumption is that our local experience can supply principles that apply at a universal scale. That it has failed to supply such a view is not because it has not had the time to complete such a project, but that difficulties have arisen that question this very practice of assuming that the local can supply universal principles. Lee Smolin, in promoting his book *Time Reborn* makes the following statement on a youtube video concerning scientific methodology with respect to this issue:

It is a method that is well suited to studying small parts of the universe.
Where we differ and where we impose a wedge is taking this method and

characterisation of nature and extending it from small parts of the universe to the universe as a whole.⁸

Needless to say, mainstream science is reticent to admit to this failure, and stalwartly defends a “many worlds” interpretation as a way of countering the implications of the anthropic principle. Indeed, the tendency is to regard this as the only game in town. That is to say, in order to provide the local level of experience with a contextual form to give it credibility, it is necessary to formulate many millions of universes in which ours occurs as a matter of probability. In this way, it becomes possible to protect the assumptions of randomness and the laws of motion as if these principles, drawn from the local level, apply to the non-local level. In this way, there is some kind of semblance of a microcosm/macrocosm, but one that is entirely devoid of any reference to spirituality (which is always a kind of hidden intention), and one that gives absolutely no reference to the emotive as part of physical structure. (One wonders how, in the exclusion of emotive principles, there could ever be a theory that can call itself a “theory of everything.”) Notice also that such a conception is not part of daily experience. Nor is there any evidence in support of it. This level of science is not unlike the level of theology that is concealed behind the veil of the two great commandments of love. It has become a regular occurrence these days that we are invited to accept the hypotheses of science with reference to the large scale on trust alone. Think about it. Science is associated with an experimental methodology that is designed to test hypotheses. But now consider that we are becoming more and more familiar with exotic theories such as dark matter, dark energy, the multiverse, black holes, worm holes, spacetime, gravity waves and gravitons, to mention but a few, and yet there is not the slightest shred of evidence in support of any of them. Furthermore, given the principle already stated that what is contained in first principles carries into everything that follows, all of these owe their allegiance to the principle of inertia from which the laws of motion derive. What we see in science is that the fake “little heaven” is the very principle that Swedenborg found to

⁸ (www.youtube.com/watch?v=6Hi4VbERDyI) (“A new theory of time—Lee Smolin”).

be no “real thing” because nothing could correspond to it. And because these large scale models derive from it, one is forced to ask: “Are any of these ideas “real things”?” Even on the natural level alone, one can legitimately ask whether there are real things that correspond to the word forms attached to the mathematical descriptions from which they are derived.

As an example, consider these general comments on string theory that can be found in Lee Smolin’s book, *The Trouble with Physics*, noticing particularly in the comments how that which is outlandish and outside the usual purview of testable science has become accepted in the mainstream:

What is remarkable to me is the number of distinguished scientists who seem unable to accept the possibility either that string theory or the hypothesis of a random multiverse is wrong. Here is a collection of pertinent comments:

“Anthropic reasoning runs so much against the historic goals of theoretical physics that I resisted it long after realizing its likely necessity. But now I have come out.” (Joseph Polchinski)

“Those who dislike the anthropic principle are simply in denial.” (Andrei Linde)

“The possible existence of a huge landscape is a fascinating development in theoretical physics that forces a radical rethinking of many of our assumptions. My gut feeling is that it may well be right.” (Nina Arkani-Hamed)

“I think it’s quite plausible that the landscape is real.” Max Tegmark.⁹

Nina Arkani-Hamed is quite wrong, however. These ideas do not challenge assumptions but uphold them. The pity of it is that a huge landscape has been made available to us in the work of Swedenborg, and it is this landscape which possesses the potential to challenge the assump-

⁹ Lee Smolin, *The Trouble with Physics* (Allen Lane, 2007), 169.

tions that give rise to these ideas, a landscape whose few elements include what is being explored here, which is the application of correspondences as a real thing relating to the little heaven/Grand Man.

When Newton first produced the mathematical model based on the inverse square law of gravitational force, its spectacular success in describing planetary orbits as well as providing a framework for falling bodies locally was probably the first time a micro/macro principle was seen at work in purely physical terms. But here we see how the imitative abilities of the rational mind become persuasive, since we can see here how what is non-local (planetary motions) is described by the self-same principles of motion that apply to the local (an apple falling from a tree). It is this success that became intellectually seductive, for here was a way of talking about the micro/macrocosm in virtually the same language as that of the Hermetic tradition (as above . . . so below) but with this difference—there was no need to refer to anything spiritual at all. There was nothing in the heavens that contained the least reference to the divine. But the fact that the planets are in the heavens, and since the form of words is identical, this alone was enough to show how the Enlightenment program was a supposedly new kind of thinking that promised at last to provide us with the big picture.

One should perhaps pause here in order to emphasize the focal point. The interest here is not Newtonianism, nor is it string theory or the multiverse. Rather, it is to show how these ideas have in a sense followed the prophecies of Daniel. The Kings of the North invade the Kings of the South and destroy everything. Destruction and death in the Bible are always referencing spiritual destruction and spiritual death. By overlaying the principles of correspondences and creating an appearance of the same, the door on influx closes as the craftsmen make images that resemble themselves. And this is very much the motivation in the Enlightenment movement in whose thrall we still try to lead our lives. Perhaps this kind of “reading” of Scripture will strike many as too strong and interpretative, but we should keep in mind that the aim of correspondences is to create a link that joins us in actuality to spiritual concerns, and the Bible is written entirely in correspondences. Is it not our responsibility to see how they apply in our own context? Indeed, there is a sense in which it very

often appears that it was written specifically for our context. Consider, for instance, this passage from Jeremiah:

For the customs of the people are vain: for one cuts a tree out of the forest, the work of the hands of the workman, with the axe. They deck it with silver and with gold; they fasten it with nails and with hammers that it move not. They are upright as the palm tree, but speak not. (Jeremiah 10, 3–5)

It is hardly possible to understand these verses without some knowledge of the way that correspondences work, for without them it will not appear how they have a relevance in this particular place. Here is what Swedenborg says about them:

These words describe natural good separated from spiritual, which is good from the proprium, but considered in itself it is not good, but the delight of desire arising chiefly from the love of self and of the world, which is perceived as good. (*AE* 458:8)

Notice first of all that here we find imitation at work, in that something that is not good is made to look like good, once natural and spiritual things are separated. Swedenborg continues:

How man forms this in himself, so that it appears as good, and persuades himself that it is good is described by wood which one heweth out of the forest, and by the work of the hands of the workman, with the axe. (*AE* 458:8)

Notice how distinctly different the notion of persuasion is compared with the episode concerning the serpents turned into rods by both Moses and Pharaoh's magicians, and that doubt was a necessary ingredient in instruction. Here, however, it is persuasion. Swedenborg explains this in more detail subsequently:

Wood signifies good, in the present case, good of such a quality; forest signifies the Natural; here the Natural separated from the Spiritual. The

work of the hands of the workman with the axe signifies that which is from the proprium, and from man's own intelligence. (*AE* 458:8)

The telling comment comes next, for while it is clear that "man's own intelligence" has no spiritual content, nonetheless it works to create a sense of the holism that involves spiritual things, while at the same time denying them:

... the confirmation thereof by means of truths and goods from the Word which are thus falsified is described by its being decked with silver and gold. (*AE* 458:8)

It is the next sentence, however, that concerns us here, since it has a more direct bearing on current assumptions that form our scientific thoughts and concepts:

The coherence resulting from confirmations from the proprium is described by its being fastened with nails and with hammers, that it move not; its thence appearing like good formed by means of truths is signified by its being compact as the palm. (*AE* 458:8)

This use of the word "coherence" is not new in Swedenborg, and is used as a spiritually technical term. In describing the ephod in Exodus, slender strands of gold are interwoven in it. It is the outermost garment of three with which Aaron was clothed in his service as priest, and so represents the ultimate level, (the "ultimate" meaning the literal and the outermost level). However, its connection with the inmost level from which it is derived is represented by the gold threads in order to show that every level springs from the ordering principles of the divine through influx, and this ordering principle is what Swedenborg means by "coherence":

"On the borders you shall make them" means at the most external parts through which influx comes. This is clear from the meaning of the borders as the most external parts. The reason why these are the parts through which influx, the influx of good, comes is that coherence is meant

by “the small chains,” and all coherence in the spiritual world is brought about by means of influx. (AC 9853)

So again, we find through coherence that the ultimate level, which is the physical, contains essentially all that stems from the celestial and becomes a part of it. It is no wonder, therefore, that through correspondence we should find something of a spiritual sadness that the spiritual and natural, by separating, lead to an inert state that feigns goodness: “its thence appearing like good.” It should be no surprise therefore that the principle of inertia, the founding principle of science and which therefore infuses every statement, should be identified by Swedenborg as possessing no correspondent.

Yet even here, one should recognise that “coherence” as Swedenborg uses it is ultimately overlaid by something that looks similar but is entirely different. In his book *Consilience*, Edward O. Wilson explains his title in this way:

Consilience is the key to unification. I prefer this word over “coherence” because its rarity has preserved its precision, whereas coherence has several possible meanings, only one of which is consilience . . . a jumping together of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation.¹⁰

Clearly, there is not a hint of anything spiritual in this idea, and if the intention is to be made clearer, then yet again we find this intellectual infatuation with Kant’s “styptic” knowledge which will not allow the slightest hint of spiritual concern to be part of the fabric of reality where consilience overlays coherence, and where strands of gold are very much part of the fabric of the ephod as the ultimate level, being a truer representation.

¹⁰ Edward O. Wilson, *Consilience* (Little, Brown 7& Company, 1999), 7.

The God issue

Many may find some of the preceding remarks a little harsh, and in some respects this may be true. It should therefore be said that while spiritual concerns have been overlaid and wrested of their meaning, and therefore their relevance denied, one can hardly say that spiritual concerns have been falsified. Rather, they have been denied. This is particularly so in the modern world since religion, as far as Christianity is concerned, is no longer the influential system of belief it once was when it was particularly related to political power. Not only this, but it is most probable that the majority of Swedenborg readers and New Church members would share many of their disagreements with respect to religion. Who cannot sympathise with Wilson's experience of a religious upbringing as he describes it:

I had been raised a Southern Baptist, laid backward under the water on the sturdy arm of a pastor, been born again. I knew the healing power of redemption. Faith, hope and charity were in my bones, and with millions of others I knew that my saviour Jesus Christ would grant me eternal life. More pious than the average teenager, I read the Bible cover to cover, twice . . . It seemed to me that the book of Revelations might be black magic hallucinated by an ancient primitive. And I thought, surely a loving personal God, if He is paying attention, will not abandon those who reject the literal interpretation of the biblical cosmology.¹¹

Clearly, he rejected religion for good reason, and there is no sense in his work that he is undermining religion to make personal gains. The problem is that such has been the apparently miraculous success of science that many scientists and philosophers have taken it upon themselves to interpret the Bible from a scientific or philosophical perspective in order to show it as little better than an anthropological statement, and then compare their results with the advantages their own thinking supplies them with. Reading the Bible twice or many times does not lead to understand-

¹¹ Wilson, 4.

ing the doctrines that correspondences reveal. And when these are closed down, as they are inevitably closed by the strictures of stypitic pursuit, it is inevitable that the Bible is seen as the history of “agricultural societies of the Eastern Mediterranean more than two thousand years ago” as Wilson describes it in the same paragraph cited. Many others have done the same, and continue to do so, but they cannot be listed here or commented on further for practical reasons. However, rather than defend religion against these kinds of comment, it is far more useful to actually look at the limit set by Kant’s marker stones and show how they reflect on the actual concepts that science parades before us as truths.

But even before this can be done, it should be plain by now that while science may appear to be a disinterested concern with the nature of reality, it is nonetheless infused with the denial of spirituality. For instance, the following quotation from a respected journal, quoting the Harvard geneticist Richard Lewontin, is now a much downloaded quotation on the internet, the spirit of which is accepted generally by virtually all academic communities, especially those with a say in the development of policy:

It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is an absolute, for we cannot allow a Divine Foot in the door.¹²

This could easily be seen as a re-assertion of what Kant wrote in *Dreams* as quoted above: “Now that the stypitic power of self-knowledge has folded these silken wings, we see ourselves back on the low ground of experience and common sense, happy if we regard it as our assigned place . . . ” and when this becomes the prescribed notion of what constitutes progress, we can see that this excludes religion from the efforts of science

¹²http://www.drjbloom.com/public%20files/lewontin_review.htm (section 8, 1st paragraph)

to create a unified theory of everything which is what Wilson meant by consilience. When that denial becomes an active part of science, this should be a matter of great concern.

Consider what has already been stated with regard to numbers, and that in the Bible they constitute real things. To understand their reality, we actually need to see that realism in action. In the passage concerning the use of numbers where Abraham is pleading with the three men going to Sodom and Gomorrah to spare the inhabitants, that pleading is communicated through the use of numbers, and this is what Swedenborg says about the number twenty:

That “perhaps twenty will be found there” means even if there is no existence of conflict but good is nevertheless present is clear from the meaning of “twenty.” (AC 2280)

This “real thing” is remnants, represented by the number ten and instilled as a potential for future use once conflicts do begin. Until that time, they are instilled in stages depending on the stage of development during early years. Consequently, “if twenty are found” implies the presence of some remnants in a particular spiritual state in a community, local and/or global.

This particular section is entitled “The God Issue” because in 2012 a journal of science called *New Scientist* (issue 2856) gave this name to its leading articles, not because it was dedicated to exploring the meaning of God, but because it was clear that science was still having to deal with issues stemming from spirituality. At one point, the question of child education arose and one article stated:

Children under 10 tend to embrace creationist explanations of living things over evolutionary ones—we do not simply outgrow this attraction but that it *must be forcibly tamped down through formal education . . .* their default position is to assume superpowers *until teaching or experience tell them otherwise.* (Emphasis added)¹³

¹³ *New Scientist*, No. 2856.

One can see here that the scientific momentum is such that imbued with its own confidence, it will do its very best to ensure that children will see the error of the ways that are non-scientific. Children do not have a default position riddled with comic book heroes, nor do they have creationist explanations. But they do have remnants, and by bawdlerising them into these forms, the aim is quite clear—to stamp out anything other than its own perspective based on force and the principles of motion that gave rise to it. This is an entirely impoverished view of the workings of a child’s mind. It is also an impoverished view of religion. The following passage in Swedenborg may not be entirely appropriate here, but it highlights something of the serious nature of the effects of this “tamping down” as seen from his experiences in the spiritual domain concerning the state of young children there:

. . . Yet their ideas present in that tender understanding were capable of being opened even to the Lord, that is, even from the Lord; for the Lord flows in best of all into young children’s ideas, from things that are inmost, since nothing as yet has closed their ideas, as is the case with adults. No false assumptions have been adopted to prevent an understanding of truth, nor a life of evil to prevent the reception of good, and so to becoming wise. (AC 2291)

Even so, with no reference to spiritual meaning, it makes it possible to set up religion as a straw man in a form that is easily blown down. It is not an unfamiliar methodology since it is a tried and tested procedure in the science of attaining power and control, a fake holism that is more often exercised in the political arena but now a significant intention in the scientific and in education programs. This should be a cause for alarm, yet there is no outcry, nor the slightest whisper of discontent. Has this program of “tamping down” been so successful so quickly? It would appear so. Consequently, we should see and feel a sense of urgency concerning the deeper meanings within spiritual concerns, and that they really impact on life. Ultimately, we can see here that the scientific program is doing its best to remove remnants, and that is why numbers mean real things. But as long as it is in denial, so it will continue to foist its excesses of thought upon us through persuasive techniques, (thus resembling a re-incarnated

Nimrod) much like advertising, and we will continue to be swayed by their many chariots and their horses, and their mobile phones.

The microcosm

Relativity is seriously flawed as a theory of reality. This will be our engagement in a few pages time. However, it is very often the case that even a flawed theory is acceptable when no viable alternative is offered. It may seem strange to imagine that what is going to be developed here is in some interesting ways just such an alternative. However, it is not so much that the interest here is relativity. The meaning of microcosm as it is developed requires that it should be offered up against reality in comparison. When this happens, it is clear that a certain dissonance takes place, and so it becomes necessary to look at relativity since the dissonance comes from there. It should be stressed, however, that this is not intended as a scientific enterprise. Far from it. This notion of microcosm begins its life by looking for novel ways of approaching a more tangible and accessible meaning. The reason for this should be emphasised. If the little heaven in Swedenborg corresponds to anything we know, it is to be found in the sense of microcosm. Therefore, understanding this word may help to actualise what is spiritual as a presence in the ultimates of the physical.

Microcosm is generally considered in fairly abstract terms: a part reflects a whole, or more generally, all things are connected. Poetically and artistically, it is also suggestive of man as a reflection of the whole. But here, it may be more useful to think of the microcosm as a fraction—the word “fraction” already holds within itself a denominator form that expresses the idea of the whole of which it is a part.

But in terms of microcosm, the fraction must be raised to a different level of wholeness. The fraction and the whole as it is usually meant is suggestive of a particular grouping, such that a segment of an orange, for instance can be expressed as a fraction of the orange as the whole of which it is a part: $1/8$ th of the orange, or perhaps $1/16$ th.

But here, one is to imagine that the fraction implies a different level of wholeness. To see it in some kind of visual form, it can be thought of in quantitative terms. If we were to weigh a rock on a scale, we might imagine that we can read off the measurement and declare with some

measure of confidence that it weighs so many ounces, pounds, grams or kilos. It is the use of these specific words that tend to make us think of the part as a whole in itself. But in considering this without reference to the terms of measurement, we begin to approach something of the kind of thought implied by microcosm. It is, in other words, just as feasible to say that whatever it weighs, the measurement represents a fraction of the whole as a separate entity, the separate entity being the rock and the whole being the earth. One can express this just like a fraction:

Stone

Earth

But now, when we consider the weight of the earth, it is just as feasible to see this as yet another fraction, which is the separate earth over the denominator solar system:

Stone

Earth

Solar system

One can continue in this way of referencing parts to wholes, where each whole is part of a bigger whole, such as the local grouping of stars, the particular arm of the milky way, the milky way itself, the local group of galaxies and so on until the very bottom denominator would be the universe, or totality.

Of course, when engaged in activities in a practical way, as in cookery, we do not think of such notions of parts, wholes, and microcosm, even though engaged with them. A recipe would become totally unwieldy, and for good reason. A pound of butter, expressed as a fraction of the universe would be unmanageable, and meaningless since inapplicable. One would get into trouble instantly in mixing it with 4 ounces of sugar, since that expression would not show clearly the difference between them. Even so, this in itself is a highly significant point, but let this be put to one side for the moment and return to it later.

Consider again the fraction in its layered form:

Stone

Earth

Solar system

(Everything in between)

Universe

In reality, “everything in between” could be a much longer line of denominators, and represents all the levels composing the whole. It might be asked, however, why not dispense entirely with all these levels and merely consider the stone as a fraction of the whole that is ultimately the universe.

Consider the stone sitting on the scale, the measurement on the scale and the earth. Clearly, the measurement represents a certain degree of separation between the earth and the stone. However, when these two, the stone and the earth, are seen as a fraction of the solar system, then it is in that comparison that the earth and stone are not seen as separate entities, since their proximity to each other, even though separate, constitutes their singular form as a fraction of the solar system. All the parts of the solar system, as separate as each moon and planet may be, is then a singular form acting as numerator for the local group of stars and so on. In effect, whatever is considered as the part is also a “one,” so that it is necessary to see the totality as a structure, virtually a one in itself, but which is nonetheless a composition of ones. One can catch a glimpse here of how the microcosm is beginning to reflect the macrocosm in that any part, however composite, is always a one in structure, though at the same time a fraction.

But a good way to approach an understanding of the microcosm, apart from the fraction, is through the notion of the hologram. It is well-known that breaking a plate on which a hologram is imprinted does not create a jigsaw of the image which might have been expected, but a jigsaw in which each piece holds the whole image. There would, however, be this difference between the part and the whole; the unbroken plate contains the image with a high degree of sharpness and clarity, while each image seen in the parts would be seen obscurely. The more the number of pieces, the greater the degree of obscurity.

Generally speaking, when discussing the relation of parts to wholes, we adopt an attitude of separation definable in terms of fractions. A broken holographic plate, however, can be spoken of in two different ways. If the plate is in a hundred pieces, we can say that one piece is a hundredth of the whole. Yet speaking holographically, it is more accurate to say that a piece is the whole seen in degrees, in this case seen with an obscurity factor of 100. These two ways of talking about parts hardly ever clash since both are efficacious in their own ways. Yet in terms of realism, it is never possible to reduce holism into a form in which parts really are bits in their own right, and this is seen in the hologram as the obscurity in the part witnessing the nature of the whole. The obscurity factor as opposed to the fraction is a far more profound description of reality, since it entails a certain connectivity that fractions tend to ignore, since it is easy to do so. This is something that spills over easily into moral language. In Swedenborg's writings, for instance, one never reads of something being plain wrong or right. Instead he constantly refers to clarity and obscurity as the benchmarks of perceptions that engage with reality. Take this single passage from *Arcana Caelestia* which is constantly repeated throughout his work:

“Mankind has removed itself so far from spiritual and celestial things, immersing itself in natural, worldly and bodily ones, that it lives in obscurity” (AC 4748).

Note particularly what holism means for Swedenborg. The whole picture requires celestial and spiritual elements if the natural is to have any real meaning. Their absence automatically creates obscurity, but this is inadmissible to a purely natural view. We get a flavor of this in the attitudes that currently prevail with regard to the grand unified theory or string theories. Their distinctive feature is that they contain no spiritual elements whatsoever.

What could one use by way of analogy to make this clearer? The economist Adam Smith once wrote that the knowledge of the impending death of a number of people in a faraway land would not cause us to lose much sleep, much as it might be deplored. But if told that the top of one's finger was to be amputated in the morning, one might well be filled with anxieties and a sleepless night. Here, we can see something of the beginnings of cheap labour in foreign climes, but this is not really the point of

interest. Consider this from a slightly different perspective; our emotional response to the death of a person or persons will be tempered enormously by the degree to which we are or are not acquainted with them. If it is the death of a member of one's own family, the sadness felt will be greater or less in considering distant cousins, grand-parents, parents, siblings, one's own wife or husband or children. It may be different again for close friends, or for acquaintances, for people one admires or dislikes and so on. In effect, each response is graduated and determined by degrees of closeness or separateness. Indeed, even the loss of complete strangers can have an effect, and may be determined by the feeling that he, she or they belong to the same ethnic or racial group. It is not difficult to see that there is not a blanket response that covers all. There is a structure, and that structure is determined by different degrees of affinity or separation. Is it a coincidence that such an emotive structure has a striking similarity to the microcosmic structure just discussed concerning the weight of things? This is a second point that is also highly significant and shall be returned to a little later. As an incentive, consider why it is that when the deepest kind of emotive reaction is concerned, as in the human response to falling in love, it is a common reaction to regard the beloved, (the individual) in terms that are quite macroscopic or epic: the world, the moon and stars, the sun etc. For the moment, it is interesting to note that this emotive structure is a key part of the Bible, and is why so many spiritual concepts are carried by blood relations as correspondences.

But it should be said here that this view of the microcosm is not altogether new, and in some respects it is already incorporated in the overall philosophical structure of science, and relativity in particular: it is called "Mach's principle." Ernst Mach explains it as follows, although it did not bear his name as such at the time:

Let us look at the matter in detail. When we say that a body K alters its direction and velocity solely through the influence of another body K, we have asserted a conception that it is impossible to come at unless other bodies A, B, C . . . are present with reference to which the motion of the body K has been estimated. In reality, therefore, we are simply cognisant of a relation of the body K to A, B, C . . . If now we suddenly neglect A, B, C . . . and attempt to speak of the deportment of the body K in absolute

space, we implicate ourselves in a twofold error. In the first place, we cannot know how K would act in the absence of A, B, C . . . ; and in the second place, every means would be wanting of forming a judgment of the behaviour of K and of putting to the test what we had predicated, which latter therefore would be bereft of all scientific significance . . . The motion of a body K can only be estimated by reference to other bodies A, B, C . . . But since we always have at our disposal a sufficient number of bodies, that are as respects each other relatively fixed, or only slowly change their positions, we are, in such reference, restricted to no one definite body and can alternately leave out of account now this one and now that one. In this way the conviction arose that these bodies are indifferent generally . . . When we reflect that we cannot abolish the isolated bodies A, B, C . . . , that is, cannot determine by experiment whether the part they play is fundamental or collateral, that hitherto they have been the sole and only competent means of the orientation of motions and of the description of mechanical facts, it will be found expedient provisionally to regard all motions as determined by these bodies.¹⁴

The essence of this principle is that certain properties associated with mass are actually thought to be determined by the total mass of the universe. The fact such knowledge does not prevent local measurement, and can be ignored without risk, does not mean that background is insignificant. The following example has been used many times to exemplify this: we tend to think of the curve of water in a container that is rotating to be caused by centrifugal forces. It may not appear to be a serious, even a scientific question to ask at first, but nonetheless it is one that has caused some interesting speculative thought in science: how does the water know it is spinning? The reason this is an interesting question is simply that modern theories have more or less dispensed with the notion of absolute space, particularly where relativity is concerned, and so it cannot be curving in relation to that as a reference body. The problem is two-fold,

¹⁴ Ernst Mach, *The Science of Mechanics*, download from: <http://sites.harvard.edu/fs/docs/icb.topic1068951.files/Mach.pdf>, 299.

and is explained in this passage from *Was Einstein Right?* by Clifford M. Will, in relation to the curved surface of water in a spinning bucket:

If we truly abhor the concept of absolute space, as relativity in its Newtonian or Einsteinian forms teaches us, we cannot answer that the water knows that it is rotating relative to absolute, non-rotating space. With respect to what then? The best we can do is to answer that somehow the water knows that it is rotating relative to the distant stars and galaxies.¹⁵

There are two things to note here. Firstly, it is extremely unusual to find a scientist talking about natural objects as “knowing” or “somehow knowing.” In fact, that water “somehow knows” about the existence of distant stars and galaxies is not only a non-scientific statement, it is exactly the kind of thinking that lies outside the purview of Kant’s marker stones. But clearly, this is not a meaningless statement since even as an obscure perception, one should note a bond between any particular part and the whole, and the closest that science can get to it is to describe it as “somehow knowing.” It is of interest to note, however, that Einstein was much taken by Mach’s thoughts concerning the relation of the part to the whole, and indeed tried to incorporate it in his own theories, failing to do so nonetheless. But the issue does raise problems for science, however, for while it has a predilection for detail, hoping to build up a complete picture from them, the reality is that the complete picture actually gives meaning to the details, and Ernst Mach put it this way:

Nature does not begin with elements, as we are obliged to begin with them. It is certainly fortunate for us that we can, from time to time, turn aside our eyes from the overpowering unity of the All and allow them to rest on individual details. But we should not omit, ultimately to complete and correct our views by a thorough consideration of the things which for the time being we have left out of consideration.¹⁶

¹⁵ Clifford M. Will, *Was Einstein Right?* (UK: Oxford University Press, 1989), 150.

¹⁶ Julian Barbour, *The End of Time* (London: Weidenfeld and Nicholson, 1999), 66.

Clearly, it is possible to do science without a whole picture, but in some ways we see here in obscure form something of the idea constantly affirmed by Swedenborg, which relates to spiritual knowledge; but here in a startling way it can also apply to physical knowledge of the world. Influx works from top to bottom, but not in the reverse direction. Science, on the other hand assumes too much for what it gleans from the bottom, since it conceives of a picture of the whole from these things, and never gives consideration to things that are left out and impede this process. What, then, are the things that are left out of consideration? Mostly, it is its very objectivity that excludes the person experimenting or thinking about science, as if incidental to requirements. Interestingly, Mach prefigures quantum theory by noting the importance of the experimenter in an unusual way. In a section with the subtitle “Importance of an instinctive grasp of mechanical facts,” he wrote:

This feeling is not unscientific; much less is it detrimental. Where it does not replace conceptual insight but exists by the side of it, it is really the fundamental requisite and sole evidence of a complete mastery of mechanical facts. We are ourselves a fragment of mechanics, and this fact profoundly modifies our mental life. No one will convince us that the consideration of mechanico-physiological processes, and of the feelings and instincts here involved, must be excluded from scientific mechanics. If we know principles like those—of the center of gravity and of areas only in their abstract mathematical form, without having dealt with the palpable simple facts, which are at once their application and their source, we only half comprehend them, and shall scarcely recognise actual phenomena as examples of the theory. We are in a position like that of a person who is suddenly placed on a high tower but has not previously travelled in the district round about, and who therefore does not know how to interpret the objects he sees.¹⁷

The main thrust of this passage has been largely put to one side since Mach’s time, but we should note here our interest since, properly per-

¹⁷ Mach, 304.

formed, science makes real its ideas when they are palpably felt, and not merely known. Feeling is the essence of being, and yet it hardly appears in science as any kind of idea or concept. Is it just coincidence, therefore, that Mach, in citing the importance of a felt state, should also be the person who presents us with the closest science seems to have got to a microcosm? More will be said about this later, but we should be able to see, nonetheless, that whatever we might understand by the little heaven, we can actually see that the structure of reality corresponds to it.

But of course, it is only a partial correspondence, since unlike the concept of microcosm dealt with at the beginning where it is the weight of things that creates the correspondence, Mach's principle inevitably bows to the supremacy of the underlying principle of inertia, producing universal inertia as the microcosm. As stated earlier, citing Swedenborg's objections, there is nothing that can correspond to inertia since spirituality is designed to exclude it from the outset, and it is this exclusion that we will see operating in relativity. Indeed, it was this objection by Swedenborg that really provoked Kant to attacking Swedenborg, thereby producing the over-riding assertion of limiting knowledge to its styptic form, a view strongly supported by inertia.

Spacetime: real or illusion?

What is spacetime?

In this context, this is not the correct question. Given that we have already seen that with regard to correspondences, numbers and words relate to real things, the appropriate question to ask is this: Is spacetime a real thing? From this perspective, the question conceals within itself a double aspect, the inner view of which is asking whether any such thing as spacetime (whatever it turns out to be) has a spiritual link in the same form in terms of correspondence as we have begun to see with respect to the little heaven and the microcosm as a real state as discussed above.

Yet in some respects, this is an immensely difficult question to answer because the weight of opinion that has formed a kind of outward consensus compels an affirmative answer as though it were foolish to think otherwise. As we shall see, there are grave doubts concerning this whole

topic, but it should be emphasised that the aim here is not to become embroiled too deeply within the mathematical and conceptual complexities of this subject, but to bring to the surface how it is that many things that may have no real existence nonetheless adopt the status of a real thing.

Spacetime began as a kind of non-Euclidean geometry describing large structures for which Euclidean geometry was not suited. But in the course of a very short period of time, the idea began to dawn that far from being simply a convenient qualitative description, spacetime became the fabric and mechanism missing in Newton which his laws of motion referenced in a descriptive way, without ever stating what it was they were describing. In other words, while Newton describes the acceleration of things via a formula with great precision, there was no mechanism in place that the formula actually described. But once Einstein's became extant and subject to experimentation, there emerged the idea that perhaps spacetime is not simply a geometry, but an actual fabric that is the substance of gravity. Note what is being said here, that "there emerged an idea." This idea was that gravity and spacetime are one and the same thing. This is how Lee Smolin describes this:

The geometry of space is like a flat, infinite plane. It is like the surface of the ocean—incredibly dynamic, with great waves and small ripples in it . . . But Einstein's equivalence principle tells us that the effects of gravity cannot be distinguished, over small distances, from the effects of acceleration. Hence by telling which trajectories are accelerated and which are not, the geometry of spacetime is therefore the gravitational field.¹⁸

Geometry is "like" a plane, it is "like" the surface of the ocean. Being "like" something is one thing, but it is a huge leap of faith from "like" to "is," and this is precisely what has happened: the geometry of spacetime "is" the gravitational field. It is an odd thing to note that in the spiritual tradition, similitude leads to similar real things from correspondences or "likenesses," but whether we are speaking from science or religion, "like"

¹⁸ Smolin, 42–43.

is not the same as “is.” But in science, this likeness is a powerful, (dare I say, “Nimrodian”) persuader. If it looks, walks, squawks like a duck, then it is a duck, and this is how spacetime became a real thing. Consider the following passage, and note the absolute lack of doubt concerning the status of realism, such that spacetime is considered as a real fabric:

Since we speak of the “fabric” of spacetime, the suggestion goes, maybe spacetime is stitched out of strings much as a shirt is stitched out of thread.¹⁹

This was published in 2004, and confirms how entrenched we have now become in thinking of spacetime as a real thing, indeed as the apparatus of the gravity field. However, even though the principles of similitude are clearly highly motivational in establishing a state of realism, this really is not enough from a scientific perspective to make the case cast iron. If it is a real thing, then it must be possible to detect it. One of the consequences of relativity is that light grazing past the surface of the sun should be deflected by a small amount as a result of the bending power of gravitation near such an object, which is effectively the same thing as an intensification of spacetime curvature. Without going into details, photographs were taken during an eclipse of stars near the sun whose light was made visible by the darkness and sure enough, certain stars were not in the same position as seen in the night sky as their light passed close to the surface of the sun. It is difficult to explain the huge influence of this experiment in 1919. Prior to this, relativity was an interesting, theoretical model that hardly anybody understood, but the implications of this experiment were so resounding that it was headline news all over the world, and everybody suddenly got interested in this new theory, even though only a handful of people actually understood it. Even so, it became the talking point of the decade and pivoted its founder to superstar status. Sir Arthur Eddington, the scientist who carried out the experiment, subsequently wrote a book which is largely academic, in which he explains the new views in relativity

¹⁹ Brian Greene, *The Fabric of the Cosmos: Space, Time, and the Texture of Reality* (London: Penguin books, 2005), 486.

from a mathematical and conceptual point of view, but then goes to much trouble in giving the details of the expedition for these reasons:

It is not the general purpose of this book to enter into details of experiments; and if we followed this plan consistently, we should . . . summarise the results of the observations in a few lines. But it is this particular test which has turned public attention towards the relativity theory, and there appears to be widespread desire for information. We shall therefore tell the story of the eclipse expeditions in some detail.²⁰

It is difficult to understand the impact of an experiment like this, since we live in an age that has inherited its impact in a way that has become matter-of-fact over time. However, the impact was not only in terms of worldwide publication. This experiment was the incentive that led to Karl Popper becoming the leading philosopher of science, and who established the crucial test as a way of determining scientific realism as the only true reality. His interest had been concerned with psychology initially, and he was perplexed by the fact that different theories of mind, while mutually exclusive, could all nonetheless be verified, and constantly verified with every new case they were applied to. But then he heard about Eddington's observation of the eclipse and everything changed:

There was a lot of popular nonsense talked about these theories, and especially about relativity (as still happens even today), but I was fortunate in those who introduced me to the study of this theory. We all, the small circle of students to which I belonged—were thrilled with the result of Eddington's eclipse observations which in 1919 brought the first important confirmation of Einstein's theory of gravitation. It was a great experience for us, and one which had a lasting influence on my intellectual development.²¹

That influence led to the principle of falsification and the crucial test that became the mainstay of scientific method, and this because light truly was

²⁰ Arthur Eddington, *Space, Time and Gravitation: An Outline of the General theory of Relativity* (UK: Cambridge University Press, 1990), 110.

²¹ Karl Popper, *Conjectures and Refutations* (London: Routledge and Kegan Paul, 1972), 34.

bent by the sun. It could not possibly be an ambiguous conclusion. Even Eddington dismissed any other kind of explanation:

It is suggested that it may not be an essential effect of the sun as a massive body, but an accidental effect owing to the circumstance that the sun is surrounded by a corona which acts as a refracting atmosphere. It would be a strange coincidence if this atmosphere imitated the theoretical law in the exact quantitative way . . . and the suggestion appears to us far-fetched.²²

As far-fetched as it may have been back in 1919, measurement techniques and telescopes have improved by many magnitudes in the intervening years, as has knowledge of the sun's structure. Part of this structure concerns the surface that is composed of plasma, a substance unknown of at the time the experiments took place. An important feature of this plasma is that it is both very hot and ionising, which means that light passing through it is altered in its direction. A youtube video featuring a lecture by Dr. Ed Dowdye entitled "Solar Gravitation and Solar Plasma Wave Propagation on Interaction," Dr. Dowdye argues a case that actually answers Eddington: yes, it is a strange coincidence, because investigation now shows that light bends near the sun if it is within the plasma limb. Three key statements are made:

- 1) The plasma limb of the sun acts directly on the electromagnetic waves propagating along a minimum-energy or a least time path within the plasma limb as would be defined by the gravitational gradient field of the sun.
- 2) The gravitational gradient field of the sun acts only indirectly on the electromagnetic waves that are being deflected by the plasma limb.
- 3) All electromagnetic waves propagating in the plasma-free vacuum space appear to be unaffected by the gravitational gradient field of the sun and of the stars.

These three statements are the result of many observations, but the implications for relativity are profound. Light certainly bends in the plasma

²² Eddington, 121.

rim of the sun, and should also bend at various distances from the sun by smaller degrees. They do not do so, and as Dr. Dowdye put it, this is bad news for relativity. Light rays follow Gauss' law and not Einstein's law. It seems, therefore, that the eclipse did not provide Popper with the crucial test, and Eddington was too confident in his views. Now this is not intended as a scientific critique. Keep in mind that the question with which we began was "Is spacetime a real thing?" There is plenty of evidence today to say that this is not the case. For those interested in pursuing this further, the link to this video is given.

<https://www.youtube.com/watch?v=CnvOybT2WwU&index=12&list=PLTeINRf8MIXXlw-fAiNHlJQpcUeDe1TAH>

Notice this: this criticism is not mine but has come from science itself. In other words, there seem to be two factions in the scientific community, and Dr. Dowdye is no lone voice. The importance of this from a Swedenborg perspective will be apparent when considering how the New Church once defined its own function. For now, it is enough to emphasise that these are not significant as scientific concerns, but for what this implies for the notion of ultimates as discussed earlier. Secondly, any reference to spacetime is automatically a reference to the gravitational field so that doubt about the one as a real thing is doubt about the other. Indeed, a Machian perspective (albeit blurred by inertia), nonetheless throws doubt on both. Despite that, scientists cleave to the reality of it:

Many physicists tried to prove that the supposed waves in space amounted to a misinterpretation of the mathematics of general relativity. But in due course, the theoretical analyses converged on the correct conclusion: gravitational waves are real, and space can ripple.²³

Consequently, scientists over the last twenty years or more have been searching for these with LIGOs (Laser interferometer gravitational wave observatories). Despite the long search, none have been detected. And yet

²³ Greene, 420.

this does not deter the spirit of confidence in the reality of these waves, even though their existence is entirely derived from the principle of inertia that has no correspondence with anything at all other than a preferred psychological position of preference. Furthermore, because mass has the effect of reputedly curving spacetime, there is an effect called frame-dragging in which a spinning object alters the spacetime fabric by causing it to be dragged by the rotation. This also presented science with an opportunity to perform an experiment that could detect it. Brian Greene describes the experiment, which uses precisely engineered gyroscopes which are sent into space:

Four decades of development and nearly a hundred doctoral dissertations later, a Stanford team . . . is ready to give the experiment a go . . . If the experiment is successful, it will be one of the most precise confirmations of general relativity, and will provide the first direct evidence of a Machian effect.²⁴

This evidence was not found, and the experiment cancelled. Perhaps it is easier to let science speak for itself here, for there are many who have written on these constant failures, but it is the mainstream voices only that we usually hear, since these are instrumental in raising the funding for these expensive experiments, and this does not go unnoticed, even in the scientific community:

No amount of experiment can prove a theory, but it only takes one experiment to falsify a theory. LIGO's international counterparts have also failed to detect the alleged gravitational waves. We have however seen that they are destined to detect nothing, being as they are, founded on false theory. LIGO alone has cost hundreds of millions of dollars to date, and it was recently granted another \$450million US to continue its unaccountable extravagance. It is alleged that general relativity predicts that a rotating body such as the Earth, drags spacetime around with it. This is called "frame dragging" or the "Lense-Thirring effect." The Grav-

²⁴ Ibid., 418.

ity Probe B was launched into Earth orbit to detect this alleged effect. It did not detect the effect, despite exceedingly high precision gyroscopes designed for the purpose. In fact, NASA has cancelled the project . . . Gravity Probe B cost the taxpayer in excess of \$750million US . . . Interests other than science, physics and astronomy in particular, is very big business. Interests other than science consequently hold sway over what is and what is not published in science journals and otherwise reported, what is taught to students at universities and high schools, and what research money goes where.²⁵

The Swedenborg reader may or may not find any of these matters particularly relevant, but it is important to understand that the natural level is the ultimate into which all impulse through influx from the highest level comes to rest in its fullness. Here, in this example concerning relativity, we discover that the persuasiveness of science, with respect to the original Eddington observations of 1919, was somewhat miraculous in its effect, and one should be wary of miracles, since as Swedenborg put it, the miraculous “cannot be broadened in any way or qualified in any way” (AC 7298:2; emphasis added). On the other hand, the current observations of Dr. Dowdye effectively remove that persuasiveness by throwing doubt on the status of existence of spacetime, that it probably has no existence.

New Church thought

This is something that we need to think about because as we shall see, the former view does not lead to correspondences, but the latter can. In fact, it is a New Church directive that distinguishes it from every other Christian organisation as it outlined its double-ended purpose in the 19th century in *Words for the New Church* IV –VI:

The knowledge . . . revealed from God out of heaven cannot be held in the mind intact from the ideas of space and time, and thus intact from the facts of nature, and independent of natural science, because our thoughts,

²⁵ Stephen Crothers.

<https://www.academia.edu/6882128/>

The_Black_Hole_Catastrophe_And_the_Collapse_of_Spacetime)

“even on the most hidden things of faith,” are all based on natural and sensuous ideas, in which they are “representatively presented.”

This then not only proves the great importance of natural science, or of natural scientifics, for the New Church, but it also shows that it is essential for the prosperity of the New Church to have clear and exact ideas in respect to the nature of true or genuine science, and the specific uses of this science in the New Church. This will also lead us to consider the nature of false and spurious science, and its effect on the human mind; and likewise to define the attitude of “modern science” so called, to the New Church and its Heavenly Doctrine.²⁶

Given also that all influx comes to rest in the natural, then what is meant by “double-ended” is clearly explained, since spiritual meaning must find a level within the natural to manifest itself:

... The New Church will become a power in this world, and will be able to convince all those who are willing to be convinced, just in proportion as it brings its purely spiritual doctrines within the radius of vision of men in this world, by preaching them in the first place immediately out of the letter of the Word; and in the second place by bringing down the doctrines into the knowledges of the natural world, and thus within the sphere of natural light, and hence of natural science.²⁷

Just how relevant and fresh these ideas are to our times over a hundred years later, with respect to attitudes that are prevalent today, can be seen from these passages from the same book:

... the Doctrines of the New Church are also for those who have intellectually separated themselves from the foundations of Christianity, and whose minds are absorbed in the study of the natural sciences.²⁸

This is akin to identifying one’s target audience. It is for this reason that a more detailed study of the things found on the natural level are so

²⁶ *Words for the New Church* IV –VI (1879), 282.

²⁷ *Ibid.*, 285.

²⁸ *Ibid.*, 286.

important, since these must have a form that is open to higher levels of perception, and not closed off to them, if there is to be a greater understanding of the nature of reality. Notice in this next passage, therefore, the identity of science as the modern Egyptians, and the great similarity between this form of Egyptianism, which is devoid of any spiritual reference, in contrast to the Egypt of Joseph, when the spiritual was at the heart of the natural. Returning to this form is at the heart of New Church thinking, and not simply being critical for its own sake:

The modern Egyptians also use their knowledge of natural things in declaring the independence of matter from spirit, and in denying man's immortality . . . The Church ought not to reject and condemn natural science, but it ought to "despoil" the modern Egyptians, and thus make the vessels of natural science, vessels of truth, instead of vessels of falsity.

But when a church has perverted and lost all its spiritual truth, when "its sun has been darkened, when its moon no longer gives her light, when its stars have fallen from heaven," then indeed it is at the mercy of the modern Egyptians, and is utterly unable to despoil them of their vessels of silver and of gold . . . The New Jerusalem, the Lord's New Church, needs the vessels of the "Egyptians" for her own use and adornment, and that she may arise in all her glory and power, and therefore she must go and borrow them.²⁹

The sciences exert such an effect on the human understanding, when they are studied, believed, or trusted immoderately or exclusively; that is, they darken the human mind just in proportion as natural things are cultivated to the exclusion of spiritual things.³⁰

There is enough here to suggest that as a Church, we are not at liberty to simply ignore what is happening in the sciences. Driven by the principle of stypitic knowledge and shoring up the boundaries of it to exclude any spirituality, we should see that asking the question "Is spacetime a real thing?" is also asking "What is this real thing excluding in order to make

²⁹ Ibid., 290.

³⁰ Ibid., 290

itself real?" Consequently, while the language that is used here may at times seem to concern scientific things that do not seem to impinge upon spiritual matters, one partial aim is to change this kind of thinking. Everything has a spiritual content, and if it has not, it should be made clearly visible. In that "making visible" there should emerge a picture of reality whose aim is to remove the restrictions that are self-imposed, in order to see what the natural world can be when it is truly the Lord's footstool.

Gravity

These days, there exists such a sense of certainty concerning the nature of gravity that in the minds of most people it would seem to be absurd to ask the question, "What is gravity?" Yet while common experience makes us all familiar with its effects, there is no actual consensus about its nature. "Gravity is the force that keeps us on the ground." This is a familiar answer, but in the absence of evidence it is actually a label and nothing more—it tells us nothing at all about the nature of the accretive process and what drives it. The common view is that it is one of the four fundamental forces of nature that are reputedly known to exist, and it is indeed spoken and thought of as though there was not a doubt about it:

There are only four forces that are known to operate between elementary particles. Two of these, gravity and electromagnetism, are familiar in the everyday world . . .³¹

It even has its own particle associated with it, and is spoken of as a real thing:

Graviton: The messenger particle (intermediate vector boson) which carries the gravitational force (mediates the gravitational interaction). It plays a part in quantum gravity analogous to the role of the photon in electromagnetic interactions . . .³²

³¹ John Gribbin, *Q is for Quantum* (London: Weidenfeld and Nicholson, 1998), 141.

³² *Ibid.*, 168.

What should be noticed in this last quotation is the use of the word “analogous.” It will become apparent in due course that analogy alone, and not evidence, carries the whole attitude towards gravitation that is in current use. Clearly, gravity is treated as a real thing, even though it has not been detected, despite every effort and enormous cost. If anything that is realistic can be said about it, one could apply legal language here and say that it is yet to be proven whether the “alleged” force exists.

On the other hand, by identifying spacetime with the gravitational field, quite a different attitude emerges. Since any experiment for spacetime as a real thing has not established its existence unequivocally, and since the gravitational field is synonymous with spacetime, one could now pause here momentarily to catch a glimpse of Swedenborg’s attitude to this subject.

A quotation made earlier was this: *in things divine there is nothing corresponding to sluggishness, inertia . . .* However, this quotation was cut short since at that point the focal point was inertia. The full quotation is now more relevant:

. . . in things divine there is nothing corresponding to sluggishness, inertia, gravity, rest, indetermination, inaction; for properties that pertain rather to death, are not predicable of pure and veriest life.³³

How are we to understand this attitude to gravity? The answer has already been given to some extent, and its application alone is required here. That which is contained in the base principle carries into every idea and concept that follows, such that gravity as it is used in this quotation upholds the inert state of reality carried in the base principle. That is to say, we should see this more from a philosophical position rather than a scientific one, since the gravity that arises from inertia is not a force but a logical conclusion. Certainly there are mathematical models that describe accretive behaviour, but that does not mean that there is something real corresponding to the words that are used about it. Consequently, when we read Kant on Swedenborg, we find his attack on him as a “spirit seer” is

³³ Swedenborg, 166.

actually a veiled defence of Newtonianism, which he is quick to uphold as early as chapter 2 of his book:

The dead matter that fills the universe is, according to its proper nature, in a self-same state of inertia and stability; it has solidity, extension and shape, and its manifestation, which are based on all these grounds, permit a physical explanation that is at the same time mathematical, and together they are called mechanical.³⁴

We can see that modernity has been more influenced by Kant than Swedenborg here, simply by the supreme importance given to the mathematical model which alone has any correspondence. Furthermore, this quotation accepts this as a description of “lifeless matter” governed by the “laws of impact and contact.” Swedenborg’s vision is far more sophisticated, since he sees it as the ultimate that is vivified by primaries, so that the only dead matter is that which denies the spiritual when it is able to. This applies solely to man, the dangers of which are contained latently in his criticism of gravity and inertia. And yet, once he embarks on his spiritual journey, we find an entirely different statement that seems to contradict this earlier quotation:

Many places in the Word make reference to weights and measures, but no weight or any measure is meant in the internal sense. Rather, states so far as the good involved in some reality is concerned are meant by weights . . . *gravity in the natural world corresponds to good in the spiritual.* (AC 5656; Emphasis added)

Here is a correspondence that is rarely noticed or quoted. And if we take this at face value alone, we should notice that every spiritual meaning comes with both positive and negative connotations so that gravity can have both a positive and a negative connotation. So we find this negative connotation at *Arcana Caelestia* 8279:

Evil also corresponds to a heavy object on earth that falls downwards on account of its weight . . . (AC 8279)

³⁴ Kant, 15.

This is a carefully stated correspondence, and the first thing to note is that gravity corresponds to good, not to truth. Good is a willed activity, and is therefore active, while truth is, generally speaking, an object through which the activity is expressed, or within which that activity is harbored, but which is itself passive. That is to say that the activity springs from within the object, but is not the object itself.

Consequently, even as a correspondence, Swedenborg's view on gravity presents the modern perspective with a challenge since it is totally at variance with modern views on gravity. Here, we find that it is a certain "something" that exists outside an object and compels it, either as a wave form, a space-time fabric, a field of gravitons etc., so that if one were to speculate on correspondences, such a relation would be one of truth and not good, though a very low level one. And yet all these "things" (gravitons etc.) are treated today as real things, and the most compelling argument in their favour has far more to do with analogy than any evidence.

Why should this be so? With Kant's marker stones in place, carefully positioned by the assumption of inertia, the questions that can no longer be answered are those concerned with motivation, impulse, or as Swedenborg put it, *conatus*. None of these are part of the program of reality as it is currently understood. Instead, there is a constant search for "real things" that make such propensities superfluous to requirements. Consequently, it is an imperative to make gravity into a real thing since the alternative is too uncomfortable. For this reason, we find in Kant an attempt that is effectively an intellectual fudge to somehow marry the notion of dead matter being vivified by some kind of spiritual inspiration to bring it to life:

Thus Newton called the certain law governing the tendencies in all particles of matter to draw closer to each other their gravitation, not wishing to involve his mathematical demonstrations in a vexatious participation in philosophical disputes that might arise concerning its cause. Nonetheless, he did not hesitate to treat gravitation as a genuine effect produced by the universal activity of matter operating on itself and for this reason also gave it the name attraction.³⁵

³⁵ Kant, 21.

This “cause” then lends itself perfectly to an analogy with spiritual concerns:

Should it not be possible to represent the phenomenon of the moral impulses in thinking nature, who are reciprocally related to each other, likewise the effect of a genuinely active force through which spiritual natures flow into one another such that the moral feeling would be this felt dependency and an effect of the natural and universal reciprocal interaction through which the material world attains its moral unity by forming itself into a system of spiritual perfection in accordance with the laws governing its own cohesion?³⁶

One might think that the phrase used above, “intellectual fudge,” is too strong, but we should consider what Kant is doing here. He is clearly aware of the theory of correspondences that are inferred in *The Hieroglyphic Key*, so what he presents is an alternative that has all the semblance of correspondence, much as the tree of knowledge makes itself resemble the tree of life, by placing these two things, gravity and morality, next to each other as though they are related by spiritual causes that are unknown. Because “causes” is a word equally applicable in the natural and spiritual realms, the idea is to create a link by juxtaposition only, as something that can safely be placed in the public domain without causing any undue consternation. Yet privately, this sham of a correspondence is admitted to. In a letter to Moses Mendelssohn, Kant writes:

. . . my attempt at an analogy between actual moral influxes of spiritual natures and universal gravitation is not a serious opinion of mine . . .³⁷

Notice again this word “analogy,” for it will appear again shortly in the more detailed analysis of relativity. But before admitting to this pretended correspondence between physical and spiritual matters, Kant makes an interesting statement concerning causality:

³⁶ Ibid., 86.

³⁷ Ibid., 85.

This investigation resolves itself into another, namely, whether one can by means of rational inferences discover a primitive power, that is, the primary fundamental relationship of cause to effect; and since I am certain that this is impossible, it follows that, if these powers are not given in experience, they can only be invented.³⁸

The cause/effect relationship is typically Newtonian. Swedenborg readers, however, will no doubt be familiar with the triple form that is unavailable to Kant, since the third part lies outside the boundaries that he himself set up. Cause and effect, in Swedenborg's perspective, is preceded by "ends" or purpose. In its absence, and left to the merely rational mind that is effectively Ishmaeli (as explained above), it is this rational mind, bereft of ends that does the inventing. In that sense, it has already been seen how that invention has become part of the common vernacular as though describing something real. So let us consider ends briefly as a rough guide and context for what is to come.

Even Kant comes to see gravitation as an attraction, which is admittedly a very powerful conception when seen as matter operating on itself. This self-activation is actually key to understanding not only gravity, but very many other things that resemble it in human behaviour when it is known how the microcosm reflects the macrocosm. However, what Kant then says about moral feeling is, frankly, turgid. Compare that passage with one by Swedenborg, also referencing attraction, yet far more incisive which becomes meaningful only in an ends/cause/effect context:

Man does not know that he is raised above his proprium while he lives in the world, because he does not sensibly perceive this, but still there is an elevation, or attraction as it were, of the interior understanding and interior will of man to the Lord . . . But because it is according to Divine order, that where attraction exists impulsion must exist—for *there is no attraction without impulsion*—it is therefore according to Divine order that impulsion also exists with man, which, although it is in him from the Lord, still it appears as though it were from him, and the appearance causes it to seem to belong to him. (AE 646:4; Emphasis added)

³⁸ Ibid., 86

For Kant, and indeed for all those who imbibed the principles of the Enlightenment, the notion of attraction is one that is not impelled internally but caused externally by a force, which in Kant's language is a "secret cause." However, we should see this as a logical conclusion since the boundary placed around thought must exclude any notion of impulsion since it cannot stem from its basic assumption that the boundary ultimately defines. For Swedenborg, however, no such boundary exists since the former view is logically derived from a causal model that has no ends attached, while Swedenborg's is a triune in which ends play a fundamental part. Consequently, "impulse" is a key conception, and the word that is used to communicate the spiritual and natural sense of it is "affection." One should not assume that this word is solely concerned with mere endearment. Rather, it communicates the source of what it is to be a real thing, whether a person—and since all of reality relates to the little heaven—whether a thing. Consequently, to ask the question "is spacetime a real thing?" is also asking whether there is anything of the nature of impulse in it. And this is what it means to say that there is nothing that corresponds to inertia since nothing of the "veriest life" can correspond to an idea which contains not the slightest hint of affection as impulse. And since gravity that stems from inertia is a force derived from this, there is none there either. The question that remains is this: what did Swedenborg mean when he said that gravity in heaven corresponds to good? If this is the case, then there must be something of the nature of impulse and affection in every thing that exists, from quarks to quasars and everything in between. What needs to be done is to look at how the concepts that are subscribed to as describing real things are in fact blocking the view to a more impulsive universe. This is the task in hand.

As a footnote, we can summarise what has been said so far as follows: everything that is spiritual descends and comes to rest in the natural. It is at that level that correspondences become established. Correspondences are the result of influx, and this works in us initially and constantly through the heart where the source of affection lies and makes us "real" people, while at the same time acknowledging and confirming the need in us of impulses, for it is these that make us human, or in fact bestial. If they fail to do so, then the natural level closes off, and we are left entirely at the beck and call of natural demands that have no spiritual content, and it is

the latter state that then dominates. Furthermore, there is no neutral position. Is it any wonder, therefore, that the decline in interest in spirituality follows the same curve that plots the rise of a science that has no spiritual provenance or interest? It is this kind of interest that has seen the corruption of correspondence into metaphor and the transmutation of faith into blind faith. If this trend is to be reversed, it is necessary to re-view how we think of the natural level in order to open the way to perceptions that are only truly fed by a correspondential perspective. In its absence, we are left with nothing more than appetite, the lowest form of affection, and acquisitionism, which is more commonly referred to as consumerism or even capitalism, the roots of the latter being derived from the former.

Types of knowing

To understand the limitations imposed on thought in the specific area of relativity, it is important to begin with some kind of perspective that permits a kind of intrusion into its main ideas. That perspective has already been discussed briefly, for it is the revised form of Mach's principle when it is considered with respect to weight as opposed to inertia. But just as the bending of light near a sun-like object has been seen to be ambiguous in terms of explanation, there is a sense in which the explanation chosen is often the one that pertains to accepted assumptions. This applies just as much in the present case with regard to Mach's principle in its two forms. However, because relativity owes much to Mach's principle in terms of what Einstein was setting out to do, it would be useful to look at the implications of the principle in more detail to see how they can apply.

Mach's principle is contained in the idea that the inertia of any mass depends on some kind of relation with all the mass in the universe, and we saw that the closest explanation that science gives of this in more human terms is that matter "somehow knows." However, the microcosmic view in which the weight of a mass depends on the total mass of the universe does not lead to the notion that mass "somehow knows," but that it knows itself as a part. The "part" is the microcosm reflecting the macrocosm, but the form in which it is expressed has a potential to lead to other ideas that

should now be explored since it is these that inform the perspective which is capable of application to relativity.

It is a well-known fact that all objects fall to the ground at the same speed. However, just as Einstein's ideas are developed through thought experiments, here is a simple illustration of just such an experiment. Imagine two objects of different weight—a 50 gram weight and a 100 gram weight. Now imagine these weights dropped from the same height, but as they are falling to the earth the whole universe suddenly disappears, leaving these two weights stranded. What should we expect to see happening? According to Mach, we can say nothing useful for the reasons he gave quoted above:

If now we suddenly neglect A, B, C . . . and attempt to speak of the deportment of the body K in absolute space, we implicate ourselves in a twofold error. In the first place, we cannot know how K would act in the absence of A, B, C . . . ; and in the second place, every means would be wanting of forming a judgment of the behaviour of K and of putting to the test what we had predicated, which latter therefore would be bereft of all scientific significance . . . The motion of a body K can only be estimated by reference to other bodies A, B, C.³⁹

This is true of a way of thinking that clearly relates to motion, but this is not the case with the microcosm since the motion is incidental, while the weight is the prime consideration. While reference to motions requires a background (other bodies A, B, C . . .), small fractions of the whole universe become large fractions in its absence. The two weights weighing 50 grams and 100 grams, expressed as fractions in this new context, would be 1/3rd and 2/3rds respectively. In the presence of the universe, a whole range of denominators beneath them would make them singular numbered numerators above denominators of extremely high numbers. That is to say, in a context where each is a third and two-thirds respectively, each represents the bulk of all the galaxies concentrated in their individual sizes, and at that concentration, they could not sustain themselves as two parts of a whole and would most likely explode into many millions of

³⁹ Mach, 299.

fragments. But this now has implications which are not available in Mach's principle. In returning to the original illustration, and considering this phrase "each knows itself as part," we find a more enriched conception available: because each knows of itself as a separate unit that is part of something that is larger, as opposed to large in itself, it will therefore not explode into fragments. As strange as it may seem, it implies that everything that exists is known to it as part.

But this phrase "it knows itself as part" is neither satisfactory nor satisfying. This has partly to do with the preconceived ideas brought to bear when we use a verb like "to know." It suggests something like conscious thought constantly considering or working things out, while "knows itself" is associated with some kind of meditative thought. In both cases, it is clearly unimaginable to think that this can apply to falling weights or indeed to any part of the whole at all. No doubt, this is why, even in Mach's case, we find the expression associated with this is "some-how knows." But there is a way out of this impasse, suggested earlier by means of comparison with feeling states as a way of approaching structural form. In this sense, by including them, we should recognise that in fact there are two kinds of knowing. The familiar kind that is cited above and used in everyday language is derived from the Latin "scire," which is generally speaking is knowing *that* something is the case. Indeed, the derivation of the word "science" stems from this meaning and does not have any connection with the second kind of knowing. This other kind of knowing that has been subsumed or even ousted from any sense of understanding is derived from "cognoscere" and is more intuitive. It tends to relate to persons in the sense that one person may know another in a sense that is alien to the scire type of knowing. One can get a deeper sense of this meaning simply from recognising that the word "conscience" is derived from this, and this alone should alert Swedenborg readers to a much deeper sense, since this word is central to the notions of understanding and thought in his work. Indeed, if these could be delineated in Swedenborg terms, the scire type of knowing has to do with knowledge in the understanding, while the cognoscere form stems from the heart, or the will. The real person, as we saw earlier is derived from the emotive center of our being, with the heart representing our deepest concerns and desires which draw us towards anything that relates to them. This attraction, as

stated earlier, is driven by an inner impulse, and it is this that forms this kind of knowing. In fact, these distinct types of knowing are used to explain the differences between Reuben and Simeon, the former representing faith in the understanding (which in itself has no real understanding since it is described as weak as water) while Simeon represents faith in the will. Consequently, comparing the interpretation of Mach's principle as matter "somehow knowing" with the microcosmic sense of "knowing itself as part," it is clear that this difference is very pronounced. They do not share the same kind of knowing. The former is derived from the mind alone, while the latter derives from the heart. Furthermore, we should now see that the notion of impulse as an inner inclination is the source of the meaning of the word "conatus," a word in Swedenborg's vocabulary that contains the meanings of impulse and endeavour simultaneously, something found in human beings and everything else. This word has long since passed away from common usage with the rise of science and its preference for a language of forces, but if the microcosm is to have any significance, it is the use of this word that will aid in its revival. Furthermore, given the sense of "moreness" hidden from view in its spiritual sense within influx, yet clearly seen as a drive in human terms, we should see in conatus a sense of that moreness since it also contains the root form of being born as in "natal," "native" or indeed "nativity." When this word is understood in its spiritual form, then we begin to see the more comprehensive association with "coming into being" as the meaning of "existence" or "existere" as it is used by Swedenborg. There are extensive references to this in Swedenborg's work, but for the time being it is enough to note that "the part knowing itself as fraction" must have a far more extensive range of meaning than merely "knowing" in the scientific sense. As we shall see, it is this latter kind of knowing that has restricted relativity in order to reflect the bias that favours Newtonianism.

Equivalence principle

How does the part knowing itself as fraction reflect in expressions of meaning in the nature of physical reality? This is an important question to answer if words like "endeavour," "impulse" and "conatus" are to become more than objects of philosophical interest and nothing more. But if

they are to be clothed in real meaning, it is because one finds here a striking comparison between the microcosm and Swedenborg's little heaven, although it is premature to explore this here. Suffice it to see that at this point, we begin to explore the notion of primaries in ultimates, where those ultimates can be realistically reconfigured as a microcosm in the way this is being proposed here. Indeed, given the way that the polarisation of thought, and consequently the types of knowing related to them, has seen an inordinate emphasis on "scire" knowing at the expense of "cognoscere" knowing, there is still a tendency to think that the latter can have nothing to say about reality. Even so, what we think is entirely determined by how we think, or as Mach put it above, "we are ourselves a fragment of mechanics, and this fact profoundly modifies our mental life." These coming remarks are therefore an attempt at modification.

Returning to our falling weights of 50 grams and 100 grams, is there something more to be said that is unavailable to the "scire" sight? As already seen, if we consider these weights in isolated form as we are inclined to do, we think of them as though one is twice as heavy as the other. But in true isolation, that difference is far more significant. In the absence of the universe, they *are* the universe, and so the difference is enormous. But in the presence of the universe, the difference is negligible. Let us make the difference even more extreme, say an ounce and a ton. The difference is then over 30000 to 1. Yet still, in comparison to the universe these are negligible degrees of difference. But let us suspend the sense of explosion that would doubtless occur if these weights were the sum of everything that exists, then at that point we would see the ounce attracted towards the ton. But at what rate it is not possible to guess for the reasons given by Mach, that one requires a background A, B, C . . . etc. Still, it is clear that the individual separate object would behave differently in the presence of the universe from the same object in its absence. Given the negligible difference between them, they would both be overpowered and be attracted to a larger object such as the earth rather than towards each other. Even so, there would exist an attraction but it would no doubt be immeasurable. This emphasis on negligible difference is extremely relevant, since it means that we should expect to see them both falling at the same rate, which is precisely what happens.

There are two conclusions that follow from this. The first of these is that whatever we might mean by the universe, the part knowing itself as fraction must therefore have the whole inscribed on it. It is like any person who carries the genetic structure of their forbears. No individual is the whole, but as part of the whole they mirror in themselves something of the history of their physical form. However, this is not an oppressive weight so much as the form of individuality as a separate entity that springs from the whole. If we should consider a quantum state of particularity here, we can begin to see how that notion of imprinted wholeness defines the non-interactive that collapses into individuality in an interaction. No one thing, however small, is ever a single thing, but a complex that either references the universe from which it sprung, or has the potential of becoming one since as a whole it would possess that potential. That is to say, any one thing may be an ounce, a ton or hundreds of tons, yet each thing could quite easily be the point of "infinite density etc." that could give rise to a universe. (Clearly, this has implications for the current views on the Big Bang, as well as interpretations of the quantum state, but these are not the point of interest here, so it is left for the time being.) It is enough to note that this kind of idea is available and open to "cognoscere" knowing, but entirely hidden from view in "scire" knowing.

The second point of interest, however, directly concerns the principle of inertia. This principle states that a state of nothing-happening is what one can expect to find where no forces are at work. On the contrary, any state of nothing-happening is actually a constant evaluation of the presence of the universe in order to maintain the appearance that nothing is happening. Yet all the while, this state of not-changing is actually the most active state since it is determined by a constant re-evaluation of the state of the whole in order to maintain its own equilibrium which only appears to be inert. It can be seen why Swedenborg objected to inertia, since nothing of the "veriest life" could correspond to it. The same cannot be said for the microcosmic view, since the microcosm, which is any part, no matter how small, is constantly reflecting on the state of the whole. Why this section is called "the equivalence principle" will become apparent momentarily, but it is of interest here to emphasise this microcosmic view since it is this view that we find in Swedenborg. It has already been pointed out that Swedenborg references the "little heaven" throughout his work, but it

should be known that this little heaven is a correspondence to the microcosm which it mirrors at the natural level, for he writes of both almost within the same sentence in the Arcana with reference to the Grand Man:

. . . anyone who has studied anatomy and at the same time physics may know by investigation that other physical and material organs—not merely the sensory but also the motor ones, as well as the internal organs—correspond to things that are part of the natural world. Thus the whole body is an organ composed of the deepest arcana belonging to everything which exists within the natural world, and its formation is determined by the hidden forces by which all things act and the wonderful manner in which they flow. This was why the ancients called the human being a little world or microcosm. (AC 4523:2)

There then follows the ontological form which relates all these matters in terms of ends/cause/effect before moving to the actual correspondences:

. . . But because there can be only one source of life, as in the natural system there is only one source of light and warmth, it is clear that every trace of life originates in the Lord, who is the Primary Source of life. This being so, every single thing which exists in the spiritual world corresponds to Him, and so therefore does every single thing within man, for man is a tiny spiritual world in miniature form. Consequently, the spiritual man is also an image of the Lord.

From all this it is evident that in man in particular everything has a correspondence with the spiritual world, and that without this correspondence he cannot remain in being for a single moment; for without correspondence nothing continuous from the very Being of life, that is, from the Lord, could have any existence. (AC 4523:2)

The only conclusion that can be drawn from this is that the issues being discussed here are no mere intellectual concerns. If the scientific system that we have in place is built on premises with no correspondences, then everything touched by science and inspired by it is accordingly tainted with it. This might go some way to explain why the New

Church in the 19th century saw its prime directive to separate good from bad science. The implications have a long reach, and this will be returned to later.

The gravitational field: its origins

The heart of general relativity is the local equivalence principle. This is not so difficult to understand once it is known what it is intended to explain. In fact, that explanation has already been given in part, which is that all things fall at the same rate because all things represent themselves as microcosms whose comparative differences are negligible. Science, however, has an entirely different answer, and one should see that this is because ultimately, any answer that is offered as explanation automatically incorporates a belief in its assumptions. The key assumption, as analysed above, was the inertia principle. Despite the modernity of relativity in comparison to traditional Newtonian science, it nonetheless adopts the basic assumption of inertia that drives the laws of motion. When we consider that Kant set up the marker stones that put styptic knowledge in place, one should note that Einstein subscribed to the views this way of thinking encouraged, and sets out this belief in his book which explains relativity:

Why is it necessary to drag down from the Olympian fields of Plato the fundamental ideas of thought in natural science, and to attempt to reveal their earthly lineage? Answer: In order to free these ideas from the taboo attached to them, and thus to achieve greater freedom in the formation of ideas and concepts.⁴⁰

In its meaning, this is very similar to Kant's statement in opposition to Swedenborg in delineating the rational program:

Now that the styptic power of self-knowledge has folded these silken wings, we see ourselves back on the low ground of experience and

⁴⁰ Albert Einstein, *Relativity. The special and general theory* (Random House, Wings books), 142.

common sense, happy if we regard it as our assigned place from which we may never depart with impunity and which contains everything that can satisfy us, so long as we stay with what is useful.⁴¹

The styptic power, in Einstein's case, is to assume that nothing but knowledge with an earthly lineage can be considered as knowledge. But "an earthly lineage" is taken to new extremes, in that every bit of any kind of human element must be removed in order to get to the "real" picture. The concept of space itself, central to his thesis, must become more mathematical and freed from any sense of material which has become psychologically attached:

All these space-like concepts already belong to pre-scientific thought, along with concepts like pain, goal, purpose, etc. from the field of psychology.⁴²

Notice the attitude, that an ends-related conception of causality, central to understanding Swedenborg, is simply rejected out of hand since it is "psychology" and also "pre-scientific." It is then that he strips away everything from reality in order to be left with the pure abstraction that eventually becomes the mathematical model:

Now it is characteristic of thought in physics, as of thought in natural science generally, that it endeavors in principle to make do with "space-like" concepts alone, and strives to express with their aid all relations having the form of laws. The physicist seeks to reduce colors and tones to vibrations, the physiologist thought and pain to nerve processes, in such a way that the psychical element as such is eliminated from the causal nexus of existence, and thus nowhere occurs as an independent link in the causal association.⁴³

From the current perspective, this is saying the same as this: all of reality will reflect only the purely rational conceptions of thought that are

⁴¹ Kant, 57.

⁴² Einstein, 141.

⁴³ *Ibid.*, 63.

removed as far as possible from anything human in order to guarantee that what is derived from it contains nothing of correspondences, nothing of influx and nothing of any kind of ends-related view of reality, and no affections or such-like impulses. Since this is Einstein's base position, it may now seem more pertinent to restate the original question: Is spacetime a real thing? Indeed, is the gravitational field a real thing since it is seen as a synonym for it? This is the question that needs now to be explored. However, bear in mind the advantage presented by the concept of the microcosm (together with its associated correspondences) over Mach's principle. It is this that ultimately provides the means of analysis of these concepts, and brings relativity within the range of human experience.

The concept of the gravitational field is derived from a principle of analogy. It may be that most people think of it as a "real" force, in that we are accustomed to think of changes in terms of forces, but this has more to do with tradition and education than with any evidence in support of the concept. The first thing for Einstein is to remove the sense of psychological input from the word "attraction" for reasons just given above. In this regard, he begins by discussing gravity by comparing it to electromagnetism:

"If we pick up a stone and then let it go, why does it fall to the ground?" The usual answer to this question is: "Because it is attracted to the earth." Modern physics formulates the answer rather differently for the following reason. As a result of the more careful study of electromagnetic phenomena, we have come to regard action at a distance as a process impossible without the intervention of some intermediary medium . . . We are constrained to imagine—after the manner of Faraday—that the magnet always calls into being something physically real in the space around it, that something being what we call a "magnetic field."⁴⁴

The aim here is not to discuss electromagnetism but gravity. The force of gravity, however, is connected to it in that its form is inspired by this statement about electromagnetism, so it is important to consider what is being stated here. As just mentioned, given the predilection for non-

⁴⁴Ibid., 63.

emotive language, which a word like “attraction” might suggest, matter (in this case, a magnet) “calls into being” a field. But what exactly does this “calling into being” mean or entail? In some ways, this is closer to subjectivity than what is normally associated with it, a kind of ontological naturalism that is “physically real.” But in general, this kind of metaphysical definition is overlooked since the ensuing existent “the field” lends itself to measurement, and it is that quality that is the reality for science, as though the “calling into being” can be safely ignored. In fact it is ignored, and Einstein put it this way:

This magnetic field operates on the piece of iron, so that the latter strives to move towards the magnet. We shall not discuss here the justification for this incidental concept, which is indeed a somewhat arbitrary one. We shall only mention that with its aid electromagnetic phenomena can be theoretically represented much more satisfactorily than without it.⁴⁵

Of course, there is no justification, but this does not matter, for the incidental conception provides a framework of measurement, even though what it measures is somehow “striving.” Is not “striving” a word more at home in psychology than anything defined as science? We should be alerted by this habit of operation, since what concerns us here is how an idea is made “real.” The technical word for this process of making something real is “reification,” and it is clear that while “striving” may have “called into being” a field, these elements that are apparently human are then discarded once the field is made real. While this is rarely mentioned, even so a lot of thought has developed since Einstein’s day, and there are now, even among scientists, doubts about the status of being of these kinds of reified objects.

As recently as the end of the 20th century, a paper written jointly by Professors Jeremy Butterfield and Chris Isham of Imperial College entitled “Spacetime and the Philosophical Challenge of Quantum Gravity” made the following assertion:

⁴⁵ *Ibid.*, 63.

... philosophers of physics do in fact tend to endorse realist accounts of reference and truth. We suspect that the main cause of this is the powerful psychological tendency to take there to be real physical objects, corresponding to their properties and relations to the mathematical objects in mathematical models, especially when those models are very successful . . . The main example of this psychological urge will be the tendency to reify spacetime points . . .⁴⁶

But to return to the point, it should be stressed that these are not serious considerations with respect to electromagnetism, though it should be borne in mind. It becomes a problem, however, when the successes in one area of field theory become an analogue or extension into areas that do not comply in the same way. This is the danger of reification, as suspected in the article just cited, for it is at this point that the concept of field is then applied to an area of reality—the concept of gravity—purely in terms of similitude.

This becomes an issue once the discussion on gravity gets under way, and Einstein immediately sets this habit of thought to work:

The effects of gravitation also are regarded in an analogous manner.⁴⁷

Straightaway analogy is invoked, only this time an idea becomes reified, or made real, for no more reason than this, that it had produced results before with respect to electromagnetism. Couple this with the fact that it was no longer possible to conceive of action at a distance without an intermediary called a field, then these two together become the compelling argument. There is no evidence for the view, but it is hardly possible to express the power and the intellectual seduction that such thoughts can have. They help to put even greater confidence in place for the stypitic model. That is to say, another field is “called into being,” but only because it was useful in a completely different domain, that of electromagnetism:

⁴⁶ Butterfield J., Isham C., *Spacetime and the philosophical challenge of quantum gravity, Physics meets philosophy at the Planck scale: contemporary theories in quantum gravity* (Cambridge University Press. 2001), ?.

⁴⁷ Einstein, 64.

The earth produces in its vicinity a gravitational field, which acts on the stone and produces its motion of fall.⁴⁸

But does it? It is *like* a field and at the same time it is not like a field. That is, it is given characteristics that are not field characteristics that present us with a conception that is mass-dependent and at the same time mass-free. The electromagnetic field has both attractive and repulsive characteristics, but the gravitational field does not. How can it be both at the same time? “The earth produces a field,” but how does it do this and why?

Equivalence principle: 2

Keep in mind the following, that the microcosm shows that the difference between two masses of different weight is negligible, and that for this reason they fall at the same rate. It has been known since at least 1980 that when explorations of gravitation at a microscopic level take place, the equations used contain a mass component. On the relativistic or large scale, there is no mass component. In both cases, however, experiment agrees with general relativity theory, the equivalence principle specifically. However, there is some irony in this agreement since in rising from the small to the large scale, the mass disappears for statistical reasons. This is in accord with the expectations of the microcosm as proposed here. However, while the microcosm explains why inertia is actually a state of something-happening, the ideas presented by Einstein are entirely different in that inertia plays a key role in his formulation, in that the state of nothing-happening is fundamental. The problem for Einstein is therefore to present an explanation that proposes why different weights fall at the same rate, while at the same time excluding any notion of the microcosm as it is presented here. (Bear in mind that while these words may still appear to have little connection with anything spiritual, what we are looking for are the actual elements in the psychological procedures in science that are putting mechanisms in place—mechanisms that are reified entities—that keep out any possibility of correspondences and therefore

⁴⁸ *Ibid.*, 63.

influx, guaranteeing a stypitic understanding aiming to hold exclusive rights to thought about reality.)

For Einstein, having postulated the gravitational field, he immediately explains that it is not like the field that inspired the conception:

In contrast to electric and magnetic fields, the gravitational field exhibits a most remarkable property, which is of fundamental importance for what follows. Bodies which are moving under the sole influence of a gravitational field receive an acceleration, which does not in the least depend either on the material or on the physical state of the body.⁴⁹

So it is not like a true field. How, then, is one to explain the rate of fall? It is by appeal to Newtonianism:

According to Newton's law of motion, we have:

(Force) = (inertial mass) x (acceleration), where the "inertial mass" is a characteristic constant of the accelerated body. If now gravitation is the cause of the acceleration, we then have, (Force) = (gravitational mass) x (intensity of the gravitational field), where the "gravitational mass" is likewise a characteristic constant for the body. From these two relations follows:

$$(\text{acceleration}) = \frac{(\text{gravitational mass}) \times (\text{intensity of the gravitational field})}{(\text{inertial mass})}^{50}$$

The mathematics can be ignored here, for it is the conclusion that is drawn from it that is significant:

If now, as we find from experience, the acceleration is to be independent of the nature and the condition of the body and always the same for a given gravitational field, then the ratio of the gravitational to the inertial mass must likewise be the same for all bodies. By a suitable choice of units we can thus make the ratio equal to unity. We then have the following

⁴⁹ Ibid., 64.

⁵⁰ Ibid., 64.

law: *the gravitational mass of a body is equal to its inertial mass.* (Emphasis added)⁵¹

The influence of this statement cannot be overemphasised. From the perspective of the microcosm, what this is saying is this: Why do different things fall at the same rate? Certainly not because of the microcosm, since this is an inertia-free conception. Rather, it is virtually a mathematical principle of cancellation. The acceleration *of* a body and the inertia *of* a body, (since one is the numerator and the other the denominator) cancel out by the arbitrary choice of suitable units. In this way, the gravitational field becomes an independent entity and therefore a real thing, even though there can be no gravitational influence without a body. But because the equivalence principle that is inherently microcosmic has the same effect as Einstein's version of the same, credence is given to the latter because it maintains belief in inertia, and thereby continues to promote the philosophy of stypicism. (Just as a reminder here, stypic knowledge is caterpillar thinking opposing the evolution of the butterfly!) It is effectively a principle designed to fit the facts after the event, but which cannot account for those facts. Again, we should note that because there are here two forms of equivalence, that in itself speaks volumes concerning the ambiguity of knowledge that is informed by the predilections and bias of the mind-set, and Einstein's is clearly the same as Kant's as shown above. Furthermore, we should not imagine that Einstein's view is comprehensive in its scope since the arbitrary choice of units still leaves his explanation looking like a designed coincidence, in order to support the reified gravitational field. In his dictionary of science, "Q is for Quantum," John Gribbin supplies a definition of gravitational mass, and we should note the implications of the last statement:

Gravitational mass: A measure of the amount of matter in a body, determined by its gravitational force. The force of attraction F between two bodies with gravitational masses m and M separated by a distance r is given by the equation $F = GMm/r^2$, where G is the gravitational constant. The gravitational mass of an object is exactly equal to its inertial

⁵¹ *Ibid.*, 64.

mass; *this is a deep truth about the way the Universe works, but nobody can explain it.* (Emphasis added)⁵²

This is stated here in order to show how little of what we know is actually really understood. However, since this has been a conceptual study, it may not yet be clear what is at stake. But fortunately, this is also an attitude shared by Einstein, and he provided an interesting thought experiment which is much more accessible, and so he outlines this next. It is in this that the restrictions to thought become more visible.

Thought experiment

We imagine a large portion of empty space, so far removed from stars and other appreciable masses that we have before us approximately the conditions required by the fundamental law of Galilei. It is then possible to choose a Galileian reference-body for this part of space (world), relative to which points at rest remain at rest and points in motion continue permanently in uniform rectilinear motion.⁵³

We should note to begin with that we are presented here with an ideal state, a state that, according to Mach, is meaningless since being "far removed" amounts to trying to imagine a universe without matter, since it has no influence, as well as presenting the inertia principle as though it were fundamental and could apply in this state. This, in effect, is the background for the experiment that Einstein is about to propose. It begins with an ideal candidate placed in this context:

As reference-body let us imagine a spacious chest resembling a room with an observer inside equipped with apparatus. Gravitation naturally does not exist for this observer. He must fasten himself with strings to the floor, otherwise the slightest impact against the floor will cause him to rise slowly towards the ceiling of the room.⁵⁴

⁵² Gribbin, 165.

⁵³ Einstein, 66.

⁵⁴ Einstein, 66.

Here, then, are the two conditions which are posited for this thought experiment, a region of space so far removed from anything else that the whole universe can be deemed non-existent, and therefore without fields to influence it. The second condition is the room, a particular but unspecified mass floating in it, containing equipment and occupant who clearly shape no field by their presence. It is effectively a situation that may have existed just after an alleged Big Bang perhaps, but this is doctored in such a way in order to conform to Newtonianism, that is, with the laws of motion which assume the principle of inertia as a starting point, and which are assumed to hold in such remote conditions when they clearly cannot.

But now it is necessary to make it possible, and it is here that Einstein inserts a condition which is overlooked, and has been overlooked, since the inception of general relativity:

To the middle of the lid of the chest is fixed externally a hook with rope attached, and now a “being” [*what kind of a being is immaterial to us.* KB] begins pulling at this with a constant force. The chest together with the observer then begin to move “upwards” with a uniformly accelerated motion. In course of time, their velocity will reach unheard-of values—provided that we are viewing all this from another reference-body which is not being pulled with a rope.⁵⁵

This “reference-body” is suddenly inserted as an objective watching post that does not affect the experiment that is to take place. In some respects, this too has become habitual practice when considering certain fundamental questions as though such a position actually exists somewhere. However, this is not the problem, and is stated here to show how easily we can be distracted from what is being said. Here is the problem: the experiment cannot possibly work in these conditions because whatever causes the acceleration is absolutely impervious to any changes that occur in the mass being accelerated. This is the crucial point here, for it is at the heart of the local equivalence that Einstein establishes, from which many exotic reified objects eventually emerge (such as black holes, dark matter etc.), so it is worthwhile to look at this in more detail.

⁵⁵ Einstein, 66.

It is usual for writers on relativity, when reaching this point, to communicate the same idea by referring to rockets, as in the following example, again from John Gribbin's scientific dictionary:

. . . the equivalence is best described in terms of a spaceship being accelerated through space by constant firing of its rocket motors . . . In principle, when the motors are firing, the acceleration of the rocket could be adjusted so that everything inside felt a force exactly as strong as the force of gravity on earth (or any other strength you chose), pushing things to the back of the vehicle as it moved forward through space. Any scientific experiments carried out in this accelerating frame of reference . . . would give exactly the same results as if the spaceship were standing on its launch pad on earth, and not accelerating at all.⁵⁶

Without looking at the original, and referring to rockets, it is extremely difficult, in fact near impossible, to see how Einstein's lift has carefully steered the mind away from its basic flaw in order to arrive at the equivalence of acceleration and gravitation, indeed with the gravitational field and therefore the spacetime manifold that is assumed to be a real thing. That is to say, by ignoring the role of the accelerator, Einstein's lift is actually predisposed to its own conclusions. The rockets used by every writer on science since fail to recognise this restriction. Nonetheless, its presence is clear: *and now a "being"* (what kind of a being is immaterial to us) *begins pulling* . . . In effect, Einstein puts a regulator in place to be impervious to any changes, and it is this that requires the being causing the acceleration to be "immaterial to us." The equivalent of this "being" is a governor that can be found in any lift system, so that its speed can be the same for one person or several persons. It is this special type of accelerated system that is created in this thought experiment so that its experimental conclusions are guaranteed. That is to say, we are made to ignore the role of the accelerator in order to focus entirely upon what is happening in the lift without reference to an outside. Is it any wonder, therefore, that Einstein should come to this conclusion:

But how does the man in the chest regard the process? The acceleration of the chest will be transmitted to him by the reaction of the floor of the

⁵⁶ Gribbin, 141.

chest. He must therefore take up this pressure by means of his legs if he does not wish to be laid out full length on the floor. He is then standing in the chest in exactly the same way as anyone stands in a room of a house on the earth.⁵⁷

So far, so good. But now, since he has brought equipment, he performs an experiment:

If he release a body which he previously had in his hand, the acceleration of the chest will no longer be transmitted to this body, and for this reason the body will approach the floor of the chest with an accelerated relative motion.⁵⁸

Here is a rough sketch that expresses Einstein's position:

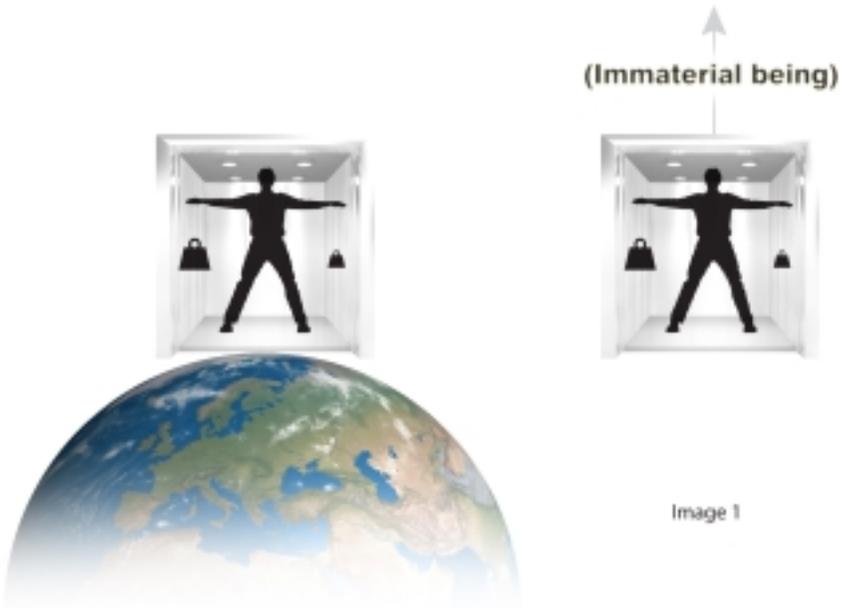


⁵⁷ Einstein, 67.

⁵⁸ *Ibid.*, 66.

As it looks, it seems accurate enough, and most people will probably identify with this image as an experience one may have had in an actual lift. A weight is released and it falls to the floor. If the lift is on the planet surface, it will fall to the ground. If it is in space and accelerating away, it will also fall to the ground. The key point here is that the occupant of the lift cannot work out whether it falls to the ground because it is in one state (gravitating) as opposed to another (accelerating).

In fact, a more detailed illustration, showing both the accelerated lift and the gravitating lift, was cited in an article in *Scientific American* as long ago as 1980. A similar illustration is produced here, (but not with the immaterial being pulling it) and below it is to be found this reading of it:



Classic elevator thought experiment, developed by Albert Einstein, demonstrates the strong equivalence principle: The effect of being at rest in a gravitational field (left) is the same as the effect of being at rest in an accelerated coordinate system (right). At the left, a man in an elevator in outer space experiences a real gravitational field due to a large mass that is near him, and so he feels himself pulled down toward the floor of the car. If he drops simultaneously a small mass and a large mass, they will fall with the same acceleration “g” and therefore reach the floor at the same time. Now imagine instead that the gravitational field has been replaced by a rocket that pulls the elevator upward with a uniform acceleration “g” (right). The man will still feel himself pulled down toward the floor of the elevator with the same force. When he releases the two masses, they will maintain a constant upward velocity, although the elevator floor is rising with acceleration “g” to meet them. As a result they appear to be falling with acceleration “g,” as they did in the gravitational field. Therefore the man in the elevator cannot tell the difference between the situation at the left and the one at the right.⁵⁹

But now we see why this stronger form of equivalence was the desired conclusion, because, being in parenthesis, one tends to think that the accelerator is superfluous to requirements, but it is not. Basis physics taught in every school tells us the following: Suppose the weight of the lift and contents is given. Then the force applied to accelerate it and simulate gravity is a fixed one. That is to say, the force acting on the mass produces a clear acceleration, or :

$$F \rightarrow M = A$$

Now imagine that the experimenter is standing on scales which show his weight under this acceleration. He may conclude, since it is a constant acceleration, that the weight reading is identical to someone on the earth. He now pulls a lever which releases a heavy weight from the ceiling which is half the weight of the whole system of lift, equipment and occupant. He

⁵⁹Daniel M. Greenberger and Albert W. Overhauser, “The Role of Gravity in Quantum Theory,” *Scientific American* (May 1980), 74.

will now notice that his weight on the scales doubles as the weight is in relative motion according to this formula:

$$F \rightarrow M - M/2 = 2A$$

This clearly falsifies the equivalence principle, since he can now conclude with some confidence that he is not standing on the earth, but accelerating upwards. This is forbidden by the equivalence principle, and explains why the accelerator is ignored in the reaction, since it is only true where the lift is governed, so that the accelerator is superfluous, or it is extremely local, where the falling weights are tiny fractions of the whole that are virtually immeasurable. But this is not what Einstein is saying. He is so convinced of the equality of inertial and gravitational mass that he is hardly aware of this problem and actually universalises it beyond the local level where it could possibly be relevant:

The observer will further convince himself that the acceleration of the body towards the floor of the chest is always of the same magnitude, whatever kind of body he may happen to use for the experiment.⁶⁰

Consider, therefore, how this entirely restrictive conclusion with respect to acceleration is forced into equivalence with gravitation. (It should be stated that by “restrictive,” the limited range of application is meant. That is to say, there is a range of application, but it is limited to the Newtonian scale):

Relying on his knowledge of the gravitational field (as it was discussed in the preceding section) . . .⁶¹

That knowledge, of course, is not so much established fact but belief, that gravitation is made into a real thing by analogy alone to the electromagnetic field. Belief suddenly becomes “knowledge” and ultimately in this discussion into a “law.” No evidence of any kind other than descrip-

⁶⁰ Einstein, 67.

⁶¹ *Ibid.*, 67.

tive observation is relied on, as though the description was in itself prescriptive, and it is this habit and nothing more that has reified it. Consequently:

... the man in the chest will thus come to the conclusion that he and the chest are in a gravitational field which is constant with regard to time ...⁶²

Let us put the case in a more concrete form: a man is pulling up a bucket of rocks using a rope. It is quite heavy, and so he is drawing them up slowly. Suddenly, the bottom of the bucket gives way, the rocks fall out, and the man experiences a sudden surge upward as the force he is applying is the same, but the bucket is now lighter. If we now transpose this effect to the accelerated lift, then because the lift is suddenly lighter as a result of releasing the masses, it will experience a sudden increase in acceleration which means that the weights released will reach the floor sooner in the elevator on the right compared with the elevator on the left. In fact, this seems so obvious, that one must ask why it was necessary to put the immaterial being into the picture and so rig the outcome. Clearly, the right hand lift cannot possibly behave in the same way, and yet every science book that has ever been written on the subject conveniently leaves out the matter of the immaterial being, even though basic physics teaches that this cannot be done. What is the deeper reason for this exclusion, for it is clearly not an oversight?

Plato's cave

The allegory of Plato's cave is probably the most well-known of all ideas in the history of thought. Its influence upon spiritual as well as non-spiritual ideas is also well documented. Put briefly, the natural world is that of cave-dwellers, in which we see only shadows on the wall in front of us illuminated by a fire from behind. Between the fire and our backs objects are moving and shadows are cast which we take to be real things. The spiritual domain is one that embraces the natural world and is there-

⁶² *Ibid.*, 67.

fore more comprehensive in its scope. A spiritual person who escapes the cave, sees the true reality, and returns to tell the other cave-dwellers that what they take to be real things are merely shadows.

In more modern times, a re-casting of this allegory is one that has reduced it to the merely metaphorical, where spiritual light is turned into a kind of quasi-rational light, which is actually a natural one. What had previously been considered a spiritual conception is seen as a higher order natural one, as though the so-called "spiritual" had in reality been the notion of a concept, something for which the natural mind had been responsible all along, and that we had fooled ourselves by thinking otherwise.

The interest here is not that one view is true while the other is false since the polarisation of thought will always do this. Rather, it is the fact that the same thing can be seen in such a way that what is regarded as a weakness from one perspective becomes a strength from another, and vice versa. Bearing in mind that the natural mind has an inbuilt temperament to be averse to anything spiritual, then it will always behave in the way of Pharaoh's magicians who, like Moses, could also turn rods into serpents. Swedenborg explains this ability as already described above (*AC* 7298:2). From the perspective of a natural mind that denies the relevance of a spiritual component (which is essentially the Exodus Egypt), we should see that the interpretation of Plato's cave is identical with the view expressed by Kant that updates it to suit the emerging Enlightenment perspective. Natural knowledge, devoid of a spiritual component, is stypitic knowledge. Since this is such a central conception and the main characteristic of modern thinking, this should be restated: it is the knowledge carried by the caterpillar that has little chance of ever becoming a butterfly. Since the impulse to become a butterfly is part of being the caterpillar, then the stypitic component takes every measure to ensure that it is suppressed by putting marker stones in place, and it is these marker stones that are guaranteed to identify and exclude every reference to anything that is of the nature of an impulse, conatus, endeavour or affection (for all these words are synonyms), and to show a picture of reality that appears to be comprehensive yet (because of their absence) is fundamentally etiolated. In effect, those marker stones are basic assumptions. These assumptions work by giving supremacy to the model rather than the state of reality that

is represented by the model. The ideas formed from the experience of shadows is precisely what Kant and the Enlightenment generally are satisfied with: *and which contains everything that can satisfy us.* (See above: *Dreams* p. 57).

There are many references in Swedenborg that seem to refer to something like the allegory of the cave, but we should be mindful at the same time that what he says is based on an experience of reality for which neither allegory or metaphor are suitable expressions. Consequently, we should see this as something that is descriptive of the archetypal form of the cave that the natural mind inhabits. Here are just a few examples:

The life that goes with evil desires and resulting pleasures sometimes appears as a coal fire among evil spirits . . . The life of their delusions however looks like the glow from that fire—a glow that is dim and does not reach very far . . . (AC 1528)

When heavenly light is seen, the light of the world is like thick darkness. It is similar with human minds: to the person who limits everything to human wisdom, or worldly knowledge, heavenly wisdom is seen as something obscure and blank; but to one who possesses heavenly wisdom, human wisdom is like something totally obscure which, unless it has heavenly rays of light in it, would be as thick darkness. (AC 1738:2)

Note here that while the subject may appear to be about matters outwardly scientific, the essence of relativity, seen in a different light, concerns the nature of light and its effect on matter. At this moment, the concern is with the status of the gravitational field as a real thing, or spacetime which is the same thing. These two quotations from Swedenborg could actually run into hundreds, and they all reference light. Consequently, while we know that these are not metaphors, but real things, so conversely when such things are denied, then illusions and deceptions become the real things to take their place. That is not to say that any of these matters can be proved or falsified, but rather show the possibility of a different perspective Swedenborg has to offer in the modern context by

showing the implications of denial that modern thinking has imposed on the psyche (the butterfly).

In *Shadows of the Mind* Roger Penrose sets out to create a model of consciousness, but does so by re-invoking the allegory of Plato's cave as though it were never an allegory but an early form of enquiry that should have been identified as scientific. He presents his case as a dialogue between a scientist father and his daughter, but we should note the assumptions concerning reality that are entirely stypitic:

[Daughter]: How could I know what the real world outside was like?

[Father]: Well, I suppose that every now and again, on a sunny day, a bird might fly exactly in line between the sun and the crack, and then we would see its shadow on the cave wall behind. Of course, its shape would be distorted somewhat, on the rather irregular shaped wall, but we could learn how to correct for that . . .

[Daughter]: Do you think it would be possible for us to make a real scientific discovery, while stuck down here in the cave?

[Father]: . . . part of our task would be to convince people that there actually is an outside world that our theory refers to . . . First, we'd need to show how our theory explains in a very accurate way an awful lot of very detailed data concerning how the bright spot with its shadows, moves about on the cave wall . . .⁶³

It is quite clear that this interpretation of Plato's cave is completely stripped of all reference to anything spiritual. And yet, since "the real thing" outside is inaccessible, one should note that it is the model of reality that is given precedence and not any experience of it. It is also presented in a way in which the father is made to resemble wisdom, tutoring the child who presumably is everyone else who needs to be instructed in the scientific way.

The most telling passage in Swedenborg contrasts so perfectly with Penrose's presentation that it must be included here. It demonstrates how the self-same images and ideas seen as strengths in one light are weaknesses in another:

⁶³ Roger Penrose, *Shadows of the Mind* (London: Vintage, 1995), 2–3.

... truth is not in any light unless good resides with it or exists within it. For good is like a flame radiating light, and when that good meets some truth it not only throws light on it but also draws it into that radiating light, towards itself. People therefore who are guided by truth but not as yet by good are in a kind of gloom and darkness, because truth possesses no light of its own, and the light which those people receive from good is as feeble as light which fades away. (AC 6400)

This passage is presented here because it begins to suggest something about motivation (good drawing to itself or attracting, because this will become more relevant later with reference to impulse and conatus), but it should be pointed out that these remarks are not metaphorical but actual, which is why the passage following should not surprise us too much, although it is quite startling that it is a modernised Plato's cave that takes the opposite view to Penrose:

... they are like people who in the gloom see streaks on a wall and whose imagination leads them to make some shape out of them, either of a human being or some other living creature. But when daylight comes it is seen they are merely streaks without any shape. (AC 406)

We should therefore be on our guard when we find such streaks rationalised to the point of sanity, since there are few people who actually doubt that there is some truth to the ideas concerning the structure of reality, especially with reference to gravitation, spacetime, black holes, the Big Bang etc. except what we should be aware that these ideas are entirely metaphysical and based on streaky thinking, with no evidence in support anywhere.

Even so, it may well be asked what this has to do with the lift experiment as presented and understood. It has everything to do with it. In fact, the lift experiment represents the bowdlerised cave as a culmination point. Why is it that the role of the accelerator is ignored? Because it was necessary to present the scientist in a newly realised cave, in which everything outside must be deduced from the inside. The occupant of the lift must create a theory and come to conclusions without reference to an advantage that the inclusion of the accelerator would provide. This in turn

leads to the appearance of an experiment, the dropping of weights, and yet the conclusion is precisely identical to doing no experiment at all. In both cases, the outcome is the same because nothing has changed. Nothing-changing perfectly equates with what the assumption of inertia dictates, and yet it only appears as if this is an experimentally confirmed conclusion. (Nor should we forget that nothing corresponds to inertia.) In other words, the right hand is pointing us into the lift while the left hand is immunising the lift from the effects of changes. It is as if the mind itself is carefully steered into a position of acquiescence, and since the Kantian marker stones are now operating at the base foundations of thought, we see only that which we were intended to see. That is not to say that we are duped, but rather, having taken the position that all knowledge stems from a purely earthly origin (as Einstein declared), then all we will see is what is proclaimed consistently and regularly, and we will not even see that the equivalence principle is rigged to the outcome of its own choosing, since it supports the idea of a gravitational field. Yet not the slightest shred of evidence in its favour has ever been found. Instead of looking at the concept, however, to check it for flaws and inconsistencies, the search for them goes on with no regard to the public purse which funds it. This demonstrates how something that is clearly non-rational can take a grip of the natural mind and hold it in its thrall. It is the natural mind feigning rationality and reigning over it. In fact, given the predisposition for knowledge with a purely "earthly lineage," we should not imagine that this is merely a slight difference of opinion, for it impacts on the entire structure of the human mind, limiting it to a form of immature rationalism which all people ought to grow out of, but a growth that is stunted by this predisposition. Indeed, the transformation of Ishmael to Isaac as archetypal forms of the rational points towards the need for this evolved state of reason, which Swedenborg describes as follows:

. . . the rational, which is called the rational man, can be at variance with the natural, which is the natural man; indeed the rational man is able to see and perceive evil that is in the natural, and if it is a genuine rational is able to correct it . . . If in this conflict the rational prevails, the natural is placed in subjection, and the man is thus endowed with conscience; but if the natural prevails, he is not able to receive any conscience at all. If the

rational prevails, his natural becomes as though it too was rational; but if the natural prevails, the rational becomes as though it too was natural.
(AC 1528:2/3)

In our time, the natural has indeed cloaked the mantle of rationality, and we know this simply from the fact that nothing is real unless it conforms to the principles of naturalism implied by the afore-mentioned stypitic form of knowledge and its earthly lineage.

It was mentioned in passing that the scientific mind effectively turns the allegory into metaphor. And yet, if we return something of the nature of allegory to the cave, then we see that it always represented the human mind, operating both within a spiritual and natural context. It is no coincidence, therefore, that in dealing with the question of meaning with regard to the names of countries, Egypt, Assyria and Israel form a structure that is the human mind operating as a microcosm. They represent the natural level (Egypt), the spiritual level (Israel) and the rational level as go-between containing elements of both (Asshur). When things are not properly ordered, and supremacy is given over to the natural level in which the rational acts as an aide, then a deterioration of order sets in and the whole mind becomes a cave. The meaning of a cave biblically is the same as living in obscurity. Clearly, in reading Penrose, we find that the mind is of this form in which the seeing of shadows is enough of a reality to give it confidence, and to take it as light. Since Swedenborg writes about correspondences, then we should be wary of thinking that he writes in metaphor. It is inevitable that when he describes the states of obscurity, either when the spiritual is falsified, but especially when it is denied, his way of communicating the effect greatly resembles the description of reality as given by Penrose, but from a spiritual vantage point. There are many passages that relate this, but the following is chosen to represent them all:

There are in man two minds, the one higher or interior, called the spiritual mind, and the other lower or exterior, called the natural mind . . . but when the spiritual mind is not opened . . . then a mind is still formed with such a man inwardly in the Natural, but this mind consists of actual evils and falsities. The reason is that the spiritual mind is not opened, by which the light of heaven can be let into the Natural by a direct way, but

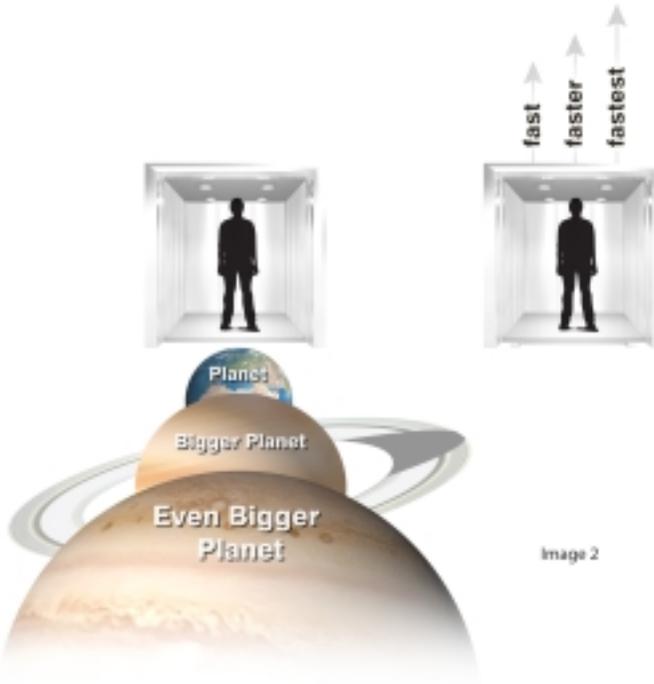
only through chinks round about, whence a man has the faculty to think, to reason, and speak, and also the power to understand truths; but still not that of loving them, or of doing them from affection. (AC 406)

Is this not exactly what is meant by obscurity, and is this not a description of what is presented in the allegory of the cave? Consequently, the secular form of knowledge is not a neutral form, as mentioned earlier, and denies any spirituality. When the spiritual is closed down and cut off, the impulses of the proprium then hold sway and control every aspect of life as it is experienced physically, and in fact glories in its partial successes that shadow thinking provides. Therefore, do not think that this emphasis on relativity is an academic one. At its heart lies a modern version of the cave and is represented by the lift experiment which is designed in such a way that it assumes exactly what Penrose identifies as the scientific method, and which rigs the outcome from the start.

Revising equivalence

It should not be assumed that this is an attack on relativity. Certainly, the form in which equivalence is presented is attacked, but this does not negate equivalence entirely, nor was that the intention. There are some common sense reasons for saying that the effects of gravitation are the same as the effects of acceleration. The example Einstein uses is the experience of a train accelerating or braking. When pushed to the back of a seat we can assume we are either accelerating or being pulled by gravitational effects, as if lying down. Consequently, there is something that appears to be intuitively correct about the lift experiment, so what will now be presented is the same thought experiment, except that the role of the accelerator is included (see next page).

Firstly, notice that the arms of the occupants in both lifts are by their sides. This is to indicate that they are not performing any experiment. The reason for this is simply that the outcome would be the same as in the first experiment. Imagine that the occupant in the lift on the right drops a heavy weight. Such a lift would have to be suspended by a spring balance above the earth since the interest here is in mass and weight. Since the lift



would be fractionally lighter, the spring would retract and the occupant would “feel” heavier momentarily. If the occupant in the second lift dropped a weight, the lift would be accelerated somewhat and so the conclusion would be the same. No real advantage is gained, and this is because the closed box does not provide any access that can provide any.

The difference, however, is precisely the fact that they do not do experiments. So now imagine that while they are standing in their respective lifts, they experience a change. Imagine them standing on scales. On looking down they would note that their weight had increased. What can they actually deduce from this? The person on the right might assume that another rocket has been fired, or the being pulling on his lift was exerting more force. What about the person on the left, however. He might suppose that the gravitational field had strengthened, but what exactly could make that happen? The answer is simple: it is as if a great deal of mass were suddenly added to the earth, or indeed that somehow he had been trans-

ported to another, bigger planet. But you should also notice that the lift on the right is somewhat smaller than the lift on the left. This is to indicate the following, that the expenditure of a small amount of energy resulting in acceleration is actually equivalent to the addition of a great deal of mass beneath the other. This is not at all the same as saying that the effects of gravitation and the effects of acceleration are indistinguishable. The reason for this is that the effects of gravitation are the result of the presence of mass and cannot be separated from it. For traditional relativity, mass is superfluous since the notion of a gravitational field is conceived as an entirely geometric concept which does not refer to mass at all. The cancellation of gravitational and inertial mass guarantees this.

The implications of this difference are far more wide-reaching, but for the moment, we should consider that we are presented here with two entirely different viewpoints, one that is mass-dependent and the other mass-free. Despite this difference, they both agree with the outcome that all weights fall at the same rate. Which of these has the greater scope of perspective when describing reality? And is there a way to choose between them? (At the same time, keep in mind that there are two statements at the base of all this that are driving this investigation. The first is that there is nothing that corresponds to inertia, and the second is that gravitation corresponds to good. These two statements are incompatible, and yet the system that we have inherited and which dominates in 21st century culture is one in which inertia is the basis of everything, and gravitation turned into a real thing. At base, therefore, this paper is effectively concerned with the question: what is the status of being of a real thing?)

The description of the original lift experiment above was cited from the May 1980 edition of *Scientific American*. It appeared in an article by Daniel M. Greenberger and Albert W. Overhauser entitled "The Role of Gravity in Quantum Theory." These scientists had developed a method for magnifying events on a quantum level so that they could be seen, with the use of a device called a neutron interferometer. In effect they were able to test the effect of gravity on a neutron wave and thereby measure the range of its application down to the smallest part. The result showed that the equivalence principle applied right down to the quantum level. However, while this is a significant result, there was a fly in the ointment, and this was to do with the geometric form of equivalence, produced as we

have seen by the cancellation of inertial and gravitational mass. It would be useful to remind ourselves here of the issue. The microcosmic equivalence relates the uniform rate of fall to the negligibility of differences in masses of different weight because they are expressed in fractional terms as parts of a whole. Traditional equivalence sees this uniformity with respect to falling masses to the cancellation of two forms of mass, and this in turn leads to a geometric form of equivalence in which mass plays no role. In microcosmic equivalence, the mass is crucial. Consequently, while the effect is the same, the cause is entirely different. It is this difference that the experiment cited in this article brought to the fore:

From the viewpoint of Einstein's theory a particle is said to obey the geodesic equation: the particle takes the "shortest" path in the curved space-time. The geodesic equation replaces the classical law of inertia: free particles in flat space tend to travel in a straight line, which is of course the shortest path in flat space. Like Galileo's observation, Einstein's formulation speaks not of mass but of position and velocity. We can summarize this point by introducing the geometric weak equivalence principle, which holds classically. The principle states that there are no physical effects at all in an external gravitational field that depend on the mass of a point particle.⁶⁴

The authors are explaining this geometric, mass-free equivalence at this point, because although their experiments confirm it, nonetheless this has more to do with coincidence than design. The reason for this is that their experiment requires that on the small scale, mass is included in their description of events:

Yet surprisingly it turns out that the COW experiment is incompatible with the geometrical equivalence principle because interference effects in quantum mechanics depend on the mass . . . The interference between matter waves, which is an essential part of quantum mechanics, is the phenomenon that underlies the neutron interferometer. Since the wave-

⁶⁴Greenberger & Overhauser, 75.

length of a neutron depends on the momentum, which is equal to the mass times the velocity, it depends on the mass as well. This means that from the outset the mass is incorporated into the wave nature of the neutron. In other words, the importance in quantum mechanics not of velocity but of mass times velocity has deep theoretical roots as well as having been securely established by experiment . . . As a result quantum mechanics predicts that all phase-dependent phenomena, whether or not they are in a gravitational field, depend on the mass through the wavelength. This feature is intrinsic to quantum mechanics.⁶⁵

What is interesting about this is that it is known that when there is a climb upwards from the quantum level to the relativistic level, (or more appropriately here, from the microcosmic to the macrocosmic level), there is a sense in which that which is particular retains something of its particularity in the large scale in the form of a statistical structure. This structure does not contradict the microcosmic since it emerges from it, but the form of relativity, in which gravity becomes pure geometry through the equivalence principle, is such a contradiction. The fact that it appears geometric is because, statistically, the mass becomes negligible on the large scale and has no bearing on the outcome. Even so, it may be negligible, but it does not evaporate away. Indeed, the article states:

It is only in taking the average values of the trajectory parameters that the mass drops out.⁶⁶

The interest here is that while the restrictions imposed by traditional equivalence (image1) are prominently featured here, the conclusions show that the quantum mechanical picture is perfectly in phase with microcosmic equivalence, an equivalence that can easily be seen from image 2, but which has not been visible as a result of the influence of metaphorical cave thinking as described. Here, then, is the conclusion, and it is left to the reader to make their own determinations:

⁶⁵ *Ibid.*, 75.

⁶⁶ *Ibid.*, 75.

Since the phase shift depends on mass even in the case of a gravitational field, it seems in retrospect almost accidental that the mass drops out of the classical gravitational equations . . . since the COW experiment confirms the applicability of quantum mechanics in the presence of gravity, including the non-geometrical mass dependence, the experiment seems to be a step in the undermining of the purely geometrical point of view.

Yet one strange feature in all this is that in most cases where a symmetry manifests itself in a classical theory, the quantum version of the theory tends not to eliminate the symmetry but to greatly strengthen it. The failure of the classical geometrical conception of gravity in the realm of quantum mechanics would run counter to this trend. Perhaps, then, nature still has some major surprises in store for physicists before they finish the task of smoothly joining the theory of gravity and the theory of quantum mechanics.⁶⁷

Static versus dynamic

It may seem somewhat strange to many that what began life as an exploration of the meaning of “primaries in ultimates” should arrive at this point, in which what was identified as a microcosm should have significant scientific application. Certainly, there are implications for the task of “*joining the theory of gravity and the theory of quantum mechanics,*” but this is not in itself an urgent concern here. It is enough to note that image 2 equivalence provides the mass element in a fractional form that mirrors the use of mass at the quantum level. However, the contrasts between the two types of equivalence are not yet fully explored, and some further detail should be added here. It is clear from image 1 that equivalence is presented in a static form. Whatever happens in one lift, it remains the same size as the other. However, image 2 equivalence represents each as a system; the lift *and* the mass of the planet make a unity, and the discussion of each component as if entirely separate is not possible. This system, however, has an interesting equivalence in that the accelerating lift shows

⁶⁷ Ibid., 75.

this relation between the mass and the acceleration. Consequently, it should be affirmed strongly at the outset that mass in image 2 does not and cannot equate with any kind of concept of a gravitational field, and consequently it has no correspondence to a space-time continuum. What we discover is that the addition of mass in one system creates a stronger degree of attraction, and yet this addition (which would have to be substantial in order to change the degree of attraction even by the smallest amount) corresponds to a small, added exertion on the part of the accelerating lift. Consequently image 2 equivalence is extremely dynamic and far from static. This strengthens the view that a state of no-change (the apparent inertial state) is a state of constant re-evaluation, in contrast to the state of inertia ruling in image 1 equivalence, where there is no re-evaluation. Furthermore, what is meant by “dynamic” is that what is microcosmic at the accelerated level is directly related to what is macrocosmic at another. Indeed, it is this dynamism that is yet to be entertained in science with a view to re-evaluating the quantum gravity issue in the article cited that was written over 30 years ago.

One should not imagine, however, that these are entirely new ideas, nor indeed that science is not aware of these issues. This is clearly apparent from this article in *Scientific American*.

In fact, Lee Smolin in his book *The trouble with Physics* hones in on just this problem. The problem lies in the fact that no real progress has been made in physics since the beginning of the 1980s. In the introduction he writes:

The story I will tell could be read by some as a tragedy. To put it bluntly—and to give away the punch line—we have failed. We inherited a science, physics, that had been progressing so fast for so long that it was often taken as the model for how other kinds of science should be done. For more than two centuries, until the present period, our understanding of the laws of nature expanded rapidly. But today, despite our best efforts, what we know for certain about these laws is no more than what we knew back in the 1970s.⁶⁸

⁶⁸ Smolin, viii.

Is it just a coincidence that this lack of progress coincides with the neutron interferometer experiment? Perhaps, but as he develops his thesis, a connection does begin to emerge, and it is entirely connected to assumptions about space-time.

Whatever else one says about string theory, loop quantum gravity, and other approaches, they have not delivered on that front. The standard excuse has been that experiments on this scale are impossible to perform—but as we've seen, such is not the case. So there must be another reason. I believe there is something basic we are all missing, some wrong assumption we are all making. If this is so, then we need to isolate the wrong assumption and replace it with a new idea.⁶⁹

Clearly, experiments have been impossible, since the COW experiment cited came to its conclusions concerning equivalence as a result of that experiment. Yet the implications were never taken up, and it is only now, after thirty years of relative redundancy, that Lee Smolin is directing our attention to the need for new thinking. Interestingly, it concerns the very implications to emerge from that experiment.

What could that wrong assumption be? My guess is that it involves two things: the foundations of quantum mechanics and the nature of time . . . But I strongly suspect that the key is time. More and more I have the feeling that quantum theory and general relativity are both deeply wrong about the nature of time. It is not enough to combine them. There is a deeper problem, perhaps going back to the origin of physics.⁷⁰

We should not underestimate this conclusion. Questioning assumptions is not the usual business of science. Rather, assumptions give rise to concepts and the concepts to mathematical models. It is very rarely the case that science will work back to the assumptions to review them. This is partly because so much may have been built up already on the assumptions that it is preferable to tweak the models rather than make such a

⁶⁹ *Ibid.*, 256.

⁷⁰ *Ibid.*, 257.

drastic change that could undermine an edifice that is already in the service of a world dependent on them. Furthermore, and to put it bluntly, questioning assumptions is not their business. As a result, we find that whatever new idea comes along, it comes complete with references to a spacetime context. It is never seen that the concept itself drops out of a seriously flawed thought experiment (trivialising the flaw by making its presence “immaterial to us”). Consequently the unification of space and time into a reified structure dons the mantle of realism for no better reason than the perception that all advances in science are represented by unifications. In this case, however, it has been a disaster. The fact that Lee Smolin is at last raising this issue offers a glimpse of hope, if for no better reason than this: it is a problem situation that originally stems from something simple. This is how he put it:

Around the beginning of the seventeenth century, Descartes and Galileo both made a most wonderful discovery. You could draw a graph, with one axis being space and the other being time. A motion through space then becomes a curve on the graph. In this way, time is represented as if it were another dimension of space. Motion is frozen, and a whole history of constant motion and change is presented to us as something static and unchanging. If I had to guess (and guessing is what I do for a living) this is the scene of the crime . . . We have to find a way to unfreeze time—to represent time without turning it into space.⁷¹

It is useful every now and again to pause and allow what appear to be, as here, secular or scientific ideas, to fade to the background, and take stock in a different vein. The subject of relativity is concerned with the combination of space and time (which are here seen as static or “frozen”), but we should keep in mind that since our concerns here are essentially spiritual, we should recognise that space and time are much like the principle of inertia. As Swedenborg said, there is nothing spiritual that corresponds to inertia, but it should also be seen that a similar lack of correspondence exists with space and time. A stock phrase of Swedenborgian origin is that there is no ratio of the temporal with the

⁷¹ *Ibid.*, 257.

eternal. Indeed, when reading the *Arcana*, one often finds this expressed as follows, that there is no correspondence with the spiritual, for instead of time and space there are states. As physical beings, we are inevitably caught up in the practical concerns of this world in which space and time are indispensable, yet we should recognise that these are man-made conceptions. So here is a definitive description that covers much ground where time and space are concerned:

Nature has two basic properties: space and time. In this physical world, we use them to form the concepts of our thinking and therefore the way we understand things. If we stay engaged with them and do not raise our minds above them, there is no way we can grasp anything spiritual and divine. We entangle such matters in concepts drawn from space and time, and to the extent that we do, the light of our discernment becomes merely earthly. When we use this light to think logically about spiritual and divine matters, it is like using the dark of night to figure out things that can be seen only in the light of day. Materialism comes from this kind of thinking. (DLW 69)

Notice that this explanation mirrors exactly the kind of thought in the modern world that is represented by Roger Penrose in his description of the cave, and what this implies. Reading material that comes from science may also have the effect of keeping us rooted to the material, and so this pause is a reminder that in exploring these matters, the aim is to discover real things. So far, we have found that much doubt surrounds the concept of the gravitational field as a real thing, which should not be a surprise, even though it may be difficult to grasp. But we should recognise that it is not an easy matter to throw aside the assumptions we have inherited as cave dwellers ourselves, and that part of the struggle in releasing ourselves from there is tied up with the inchoate sense that the real things presented to us there never possessed the realism they claimed for themselves. In effect, it should not surprise us that what was considered the real thing was a statue of reality that is only now being discerned. Moving towards something dynamic requires an entirely different light, and it is

no irony that the key idea that forms relativity is light itself. Since part of the search here concerns primaries in ultimates, then the correspondence of light as a physical phenomenon with a spiritual light is not outside the bounds of reason, since wherever we turn in the Bible, in poetry, in the expression of deep affection, the imagery of light is inevitable. It is only after an event that we then interpret this, and call light metaphorical. But during an event that is emotive, that expression is never metaphorical, but correspondential. As T. S. Eliot put it in "Choruses from the Rock," it is the visible reminder of invisible light. Hence, the search here is for a way of reformulating the physical experience to open a way to correspondences with the spiritual. Understanding the limitations of space and time is not difficult, but to reformulate these concepts in such a way that they adopt a new character is not so easy, and this is something that Lee Smolin recognises when he writes immediately after the passage cited above:

I have no idea how to do this. I can't conceive of a mathematics that doesn't represent a world as if it were frozen in eternity. It's terribly hard to represent time, and that's why there's a good chance that this representation is the missing piece.⁷²

If we now read this in the light of the current analysis, it is inevitable that time becomes a feature of a static view since stasis is the natural condition of a world apparently enfolded within the Newtonian notion of inertia. Consequently, there are a whole range of questions that arise from this: what do we understand by motion? What is meant by space? Indeed, all the basic concepts of science revolve and draw their meaning from inertia, which in turn become enfolded in the local equivalence principle, so yes, Lee Smolin has identified the problem very precisely. This is the work in hand, for we can already see that gravity as a correspondence of good is beginning to emerge out of this mist of natural thinking that has no spiritual content, and indeed possessed of an aversion to it. It is because of this that we cannot expect the kind of re-evaluation that is taking place here to come from that direction. In effect, this is why it is a key New Church function.

⁷²Ibid., 257.

Space-time versus mass-time

It will not be at all clear what is meant by mass-time at this point. Suffice it to say that it is a concept to aim at once it is clear that spacetime as a concept is inadequate. Since it is identified with the gravitational field, and that this concept itself is derived from a flawed equivalence principle, the aim is to see what develops when the microcosmic equivalence principle stands in its place.

The physicist John Wheeler, when asked to sum up relativity in a few words, said that space commands and matter acts. No doubt he meant spacetime. There are two things to notice about this statement. Firstly, just because two instrumental concepts like space and time become welded together, it does not follow that the ensuing concept is a real thing. Secondly, we should also notice that this is saying nothing new that had not been said by Newton with regard to the principle of inertia. Matter is inert and is pushed along by forces. That is to say, there is no sense of self-propulsion in matter, and it is this conception that has become the accepted view of reality since its inception. However, while the laws of motion derived from this principle had a certain practical range of application, that limit did not extend beyond the moon and planets in our solar system. Spacetime, on the other hand, is an attempt to increase the scope of application to the whole universe, and in this way the microcosmic inertia principle mirrors the macrocosmic spacetime manifold. For this reason, therefore, one should not think that Einstein has actually introduced something new; rather he has extended the range of the old to appear to be something new. Matter in both cases remains inert, and the underlying assumption remains intact.

But now we can consider this phrase “spacetime commands” in more detail than the principle of inertia allows, because it is the attachment of time to space that makes space the dominant feature, and which freezes time. One attempt to make this appear dynamic is to see packets of frozen spacetime coming at us in a line, much like the frames of a film, each of which is entirely frozen, but the succession of which is to create the appearance of motion. But this attempt at a solution to unfreeze time does not recognise that the basic assumption of inertia that froze it in the first place keeps that view intact. Secondly, if the element of space in the

attachment is responsible for the stasis, it follows that any motivational notion of change lies with the time element.

However, if that is the case, we should recognise that there are two kinds of time. The chronological notion of time, the kind that we strap to our wrists, is not the kind of time to which any correspondences can be attached. Keep in mind that Swedenborg often refers to the fact that there are three things that do not exist in heaven: space, time and personhood. However, changes occur frequently, just as they occur here, and those changes are identifiable in terms of ageing. This kind of time is usually referred to as Kairos time. It is more indeterminate and not at all concerned with measurement. Before proceeding further, however, we should consider more carefully the notion of motivation.

Because we are accustomed to think in terms of inertia, it is not an easy thing to show that certain words that we use in everyday speech have their meanings greatly reduced in the shadow of the dominance of scientific reasoning for which their origins would be alien and incomprehensible. Such a case in point is the word "endeavour." Because the word smacks of animation, it lies outside the bounds of the kind of thinking that sees everything pushed by force and not acting of itself. And yet, the spiritual dimension is entirely devoted to endeavour as a self-propelled act. The current concepts of space, time, gravity etc. are designed to keep it excluded which is in keeping with the pursuit of stytic knowledge. Consider, therefore, a deeper range of meaning in just these few passages from Swedenborg, in which the word "effort" acts as a synonym for endeavour:

. . . within every tree and young plant there lies concealed inmosty the effort to produce fruit or seeds. But that effort cannot manifest itself until all the means have been produced first, that is to say, shoots, leaves and blossom; and when these have been produced, that effort comes into act. (AC 3748)

It should be noticed that, just as the gravity field justifies itself by analogy to the electromagnetic field, there is a sense in which the notion of similarity leads to some kind of connectivity, although in the case of science the requisite evidence is lacking. This is also because the similarity is superficial compared to the deep differences. The same does not apply

with the sense of endeavour, however. The first principles which begin the spiritual ultimately find their way into the natural, and those principles are entirely to do with moreness, as stated earlier. We see this in terms of the correspondences that are recognised here as “effort” and production in real seeds, and Swedenborg immediately relates this to human feelings:

It is the same with those being born anew. The conjugal relationship which exists between good and truth lies concealed for a long time but is nevertheless present as the effort within the efficient cause and from this within the effect itself. But it does not appear until everything has been properly ordered, and once everything has been properly ordered only then does it emerge and manifest itself. (AC 3748)

A little later, Swedenborg then speaks about these matters abstractly, so that one should see this act of endeavour as principle enthusing everything. It appears in a section dealing with the Grand Man, and so we should perceive here some of the grander scale of principle that becomes endeavour even on the most local level:

I then went on to speak about intention. Did he know that intention produced activity and motion, and that intention is present within activity and motion, so that it manifests itself and continues to do so within them? (AC 3748)

What is more, while it may appear as though endeavour, effort, and moreness are rational terms, nonetheless (and this is something that Swedenborg does not stop emphasising) their key meaning is derived from the will. It is, in other words, a felt state, and the felt state is where the real person resides. The reason why it has not been given recognition up till now is that our own systems of thought have emphasised stypitic knowledge which is characterised by the lack of the emotive as a fundamental aspect of physical structure. Central to that meaning that is quite the opposite of the stypitic form is therefore the concept of attraction. We may be familiar with the use of this word as though it were symbolic with reference to magnetism, electromagnetism, and gravity, since the sym-

bolic forms of these tend to be regarded as though communicating a real thing which is far from attraction. But when reality is seen in terms of the will, attraction returns to the fore, and is key to understanding both spiritual and natural matters. Nor should it be regarded as a compulsion, in much the way that gravity is treated, but something driven inwardly by an impulse of action, and this indeed is the meaning we find in Swedenborg:

Man does not know that he is raised above his proprium while he lives in the world, because he does not sensibly perceive this, but still there is an elevation, or attraction as it were, of the interior understanding and interior will of man to the Lord, and thence there is a turning of man's face as to his spirit unto Him . . . But because it is according to Divine order, that where attraction exists impulsion must exist—for there is no attraction without impulsion—it is therefore according to Divine order that impulsion also exists with man, which, although it is in him from the Lord, still it appears as though it were from him, and the appearance causes it to seem to belong to him. This impulsion as if from man, corresponding to the attraction from the Lord, is acknowledgement, thus reception grounded in the acknowledgement and confession of the Lord, and in a life according to His precepts. (*AE* 646)

From these few passages, one should not only sense the universal application and presence of this attraction, but also realise that the use of the word “affection” is actually a reference to that impulse. But because it has been so overused in superficial ways over the last few hundred years, its meaning has become trivialised though not lost. Consequently, we should recognise something of the deeper nature of Swedenborg's words concerning attraction, impulse, and affection that is far from trivial. Indeed, its insignificance runs parallel with the rise of science for which this word has no meaning:

A further brief statement needs to be made about what the spiritual compared with the natural is since the majority living in the Christian world do not know what the spiritual is. They are so ignorant of what it is that when they hear the term they are at a loss, saying to themselves,

“What the spiritual is no one knows.” Essentially, the spiritual existing with a person is his actual affection for what is good and true, loved for its own sake and not for any selfish reason . . . (AC 5639:2)

Consequently, it is the presence of affection that that makes reality dynamic, while it is the lack of it that makes it static. Logically speaking, therefore, we should see that spacetime leaves all of reality bereft of impulsion, and consequently will-less. For reality to be revived, it is necessary to split these two apart, space and time, and then marry time and mass. But the time in that case would have to be *kairos* time and not *chronos* time. While Lee Smolin is unable to conceive of this as a resolution to this crisis, it is interesting to note that nonetheless, the physics world dealing with the extremes of the universe should adopt a more biological approach:

1 Ours is one of a vast collection of universes with random laws.

2 There was an intelligent designer.

3 There is a so-far unknown mechanism that will both explain the biofriendliness of our universe and make testable predictions by which it can be confirmed or falsified.

Given that the first two possibilities are untestable in principle, it is most rational to hold out for the third possibility. Indeed, that is the only possibility we should consider as scientists, because accepting either of the first two would mean the end of our field.⁷³

Here, the right direction is outlined but for the wrong reasons. The predilection for experiment is derived from *styptic* knowledge. Nothing of the nature of attraction, impulse, or affection can ever be tested for as though an unknown mechanism since it is the whole picture. The whole universe echoes the thunder of desire from beginning to end, while experimentation is designed not to have ears to hear it. Even so, the biofriendliness of the universe is end-oriented when causality is seen as a triple form. When it is simply causal, then no end in view emerges. And now, when we

⁷³ Smolin, 164.

consider that the natural mind that engages in experimentation has historically had two forms, then it is the natural mind of Exodus that we see mirrored in our culture, and not the natural mind at the end of Genesis which contained a core spirituality. In Exodus, the natural mind opposed to spirituality is represented by Pharaoh; the spirituality that is rejected is represented by Joseph whom this Pharaoh did not know. Of this situation, Swedenborg said:

“Who did not know Joseph” means which is completely alienated from the internal . . . Factual knowledge alienated from the internal is factual knowledge opposed to the Church, for the goodness and truth that constitute the Church flow in by way of the internal. But if they are not received by the natural the internal is closed, and so the person is alienated from goodness and truth. (AC 6652)

. . . If true order is to exist, goodness and truth as they emanate from the Lord must find acceptance in a person. When they do, true order is present in every particular aspect of the person’s intentions and thoughts. But when they do not find acceptance in him as true order originating in the Lord requires and he instead believes that everything is a purposeless stream of events . . . he perverts true order. (AC 6692)

The whole theory of the multiverse rests on the premise that our universe drops out of an infinite number of failed universes so that the notion of randomness suffers no harm. It is interesting to note something of a prophecy in these lines by Swedenborg, for who could have imagined that the notion of random behaviour would have taken center stage in our understanding. Is it any surprise, therefore, that “the internal is closed” today? But that aside, given the nature of fractional form encapsulated in the microcosm, that any part is constantly re-evaluating the existence of the whole of which it is a part, and given the central role played by attraction, we should note that the apparent inertia of any part is actually a state of what Whitehead once called a “subjective aim” in matter, and while this is missing, we are imprisoned in the old paradigms (and this includes relativistic ways of seeing) and so find ourselves in the Egypt of Exodus.

Masstime/conclusion

So what is mass-time? The answer is both simple and difficult. Suppose one discovers that a piece of wall is crumbling away in a building. It would seem easy enough to call a builder and have it repaired. The same does not and cannot apply to conceptual forms, however, since these eventually derive their meanings from basic assumptions. A flaw has been found in the local equivalence principle (which is easily visible in the lift experiment) but this cannot simply be repaired, since it is derived from the basic assumption of inertia. But in producing a more realistic equivalence, it is clear that virtually every concept one cares to think of is equally affected by the change. It is impossible to leave spacetime intact when it is an expression derived from a flawed theory. Furthermore, a great deal of what we think we understand about the universe is built up from it, so that even black holes, the Big Bang, dark matter and energy, even the basic concepts of motion, are affected by this change. The only one touched on here is spacetime, and its re-evaluation has led to mass-time.

But it has been inferred that mass-time returns something of the nature of dynamism to reality, and that dynamism is effectively what spacetime excludes, which is that the motivation that underlies the order of things is attraction and impulse, and hence a subjective aim in matter itself. To paint this in a broad stroke, one has simply to state it baldly: matter is self-motivated, and attains to positions where a sense of moreness is at its fullest. This is another way of saying that matter, indeed all things, are expressions and forms of desire, and this is made visible in the act of falling. Nor is one to think of time as something strapped to matter as a wristwatch, but that as *kairos* time, all things age. As a result, we find in human experience all kinds of expressions that are offshoots of moreness as a real motivation, such as the accruing of wealth, or power, or property, or a thousand different things. We also find it represented in eating and trading in that all these things are ways of making things our own and part of ourselves. The symbolism of this and how it is represented biblically will not be lost on Swedenborg readers. After all, the land of Canaan, where the highest form of representation occurs, means the land of “trading” or “merchandise.” Consequently, there is not anything in the universe that does not participate in this desire. Up till now, this has not been

recognised since the form of natural thinking that has dominated has taken every step to ensure that all access to what is spiritual is closed off, so that only the negative forms of desire, which are effectively desireless, rule the day.

There is not the space here to include the changes that must occur to other familiar concepts, such as space and motion, for the intention has been to demonstrate that when Swedenborg presents us with an internal meaning, its range and scope is vast, but remains obscure unless it is seen that it is firmly rooted in the natural level. If it is unable to find the good soil to root in it will wither and die. Ironically, the meaning of Egypt etymologically is “black earth,” and this in itself points to the fact that reformation and regeneration begin here, where we currently exist as physical beings as potential little heavens that are mirrored as microcosms. As such, we have a directive from the early New Church in *Words for the New Church*:

The desolation of modern science is visible not so much in the textbooks of the sciences which are used in the schools, and which for the most part consist of a mere digest of natural facts and phenomena accommodated to the understanding of youth; but the poison lies in the theories which the modern men of science have hatched out of these facts, all of which . . . lead to the denial of God and the deification of nature.⁷⁴

Underlying everything written so far is yet another New Church directive, and this is to be found in the reading of Exodus at the point of the departure of the Israelites where they are instructed to ask for vessels of gold and silver and clothing. In the deeper sense, it should be seen that this correlates with separating good science from bad, while at the same time emphasising the importance of a proper order of thought in the natural world. This, too, is emphasised in *Words*:

By this cursory view of modern science as it appears in the light of the doctrines of the New Church it is made very plain that “it cannot serve as a plane for spiritual, and still less for celestial truth”; and further,

⁷⁴ *Words for the New Church* IV-VI, 311.

that one of the duties of the New Church in future will consist in wresting the facts of nature from the hands of the modern “Egyptians,” and instilling into the sciences the genuine principles of revealed truth.⁷⁵

That this work remains to be done by the New Church is clearly stated in the conclusion of the following passage:

. . . since the world at the present day is such that it desires to be called learned, and is not willing to believe anything but what it can comprehend, therefore with such what is spiritual can scarcely operate, unless that false and mendacious plane [formed by modern science] be shaken utterly to pieces and perish, or unless it be changed into a plane of natural truths. That this work, however, is one of paramount importance to the New Church, and that its success among mankind as a church is involved in it, appears from this consideration, that “inasmuch as the understanding has been closed by the sciences, it must also be opened again by means of the sciences.” (SD 5709.93)⁷⁶

A partial opening has indeed begun in science since many of the criticisms made here have stemmed from work like that cited here by Overhauser and Dowdye. There are many others in the field that have not been mentioned, so one should not feel that this is brand new. On that front, we should consider what Professor Dowdye stated with regard to the bending of light in a plasma. This is a fairly modern word, but a word that was used long ago that bears a strong resemblance to it is “ether.” This should not be confused with the ether of the late 19th and early 20th century which was introduced as a medium for carrying light. In fact, the best description of it that most resembles our notion of plasma can be found in Swedenborg:

From the sun of our system, as from their fountain, went forth auras and atmospheres, which are called ethers and airs. In nearest proximity to the sun therefore is pure ether, at a greater distance from it are ethers less

⁷⁵ Ibid., 317.

⁷⁶ Ibid., 317.

pure and lastly the airs; but these ethers and airs are around the earths. These ethers and airs when actuated in the total volume produce heat, but when modified in their component parts they produce light. Through these the sun exercises all its power, and produces all its effects outside of itself, thus through ethers and airs, through the medium of heat and at the same time through the medium of light. (*AE* 726:3)

This is a reasonably good description of what is beginning to take shape in the new understanding of how the sun works. But it should be pointed out that the reason for stating this was that it corresponded to what was meant by the Divine truth as the proceeding Divine. Consequently, we should see that what is meant by correspondence is in actuality a real mirror of the spiritual influx into the natural; and it is for this reason that we should widen the scope of the meaning of “primaries in ultimates” and bring them to earth. It should not be a surprise, therefore, that the following passage follows close on the heels of the previous quotation:

All power coexists in ultimates, and therefore the Lord possesses infinite power from primaries by means of ultimates. What is meant by ultimates should first be explained. Primaries are those things which are in the Lord, and which proximately go forth from Him. Ultimates are those things that are most remote from Him, which are in Nature, and are the final things therein; these are called ultimates, because spiritual things, which are prior, terminate in them, and subsist and rest upon them as upon their foundations; therefore they are fixed, and are consequently called the ultimates of Divine order. All power is in ultimates because prior things are together in them, for they coexist in that order, which is called simultaneous order. For there is a nexus of all things from the Lord Himself through the things belonging to heaven and to the world even in those ultimates; and because prior things which successively coexist simultaneously in ultimates, as has been said, it follows that power itself is in ultimates from primaries. But Divine power is power through the proceeding Divine which is called Divine Truth, as shown in the preceding article. (*AE* 726:5)

Further information concerning these matters from a scientific perspective can be found at :<http://vixra.org/abs/1411.0574>. The subject is concluded here for the time being, but it should be emphasised that the aim was to reach a point where what we understand about the nature of reality has been severely curtailed by the exclusion of the will as a fundamental property of all things in reality. An alternative view has been presented whose aim has been to try and widen the scope of our understanding by giving precedence to the existence of the will, or heart nature. Ultimately, this is expressed as attraction and impulse which animates reality (mass-time), but going from the lowest level of the ultimate to the primary, we should recognise the prior state of this attraction existing within the essential nature of the Lord, the only Divine Human who presented us with the deepest mystery of all concerning that attraction/impulse/affection in declaring :

Now is the judgement of this world; now the ruler of this world will be driven out. And I, when I am lifted up from the earth, will draw all people to myself. (John 12: 32) □