

ORIGINS AND ULTIMATION OF SWEDENBORG'S CONTIGUUM CONCEPT: FROM TREMULATION TO DIVINE PROVIDENCE

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By means of the Divine from Himself the Lord provides that all things may be held together in the order in which and for which they were created; and because this is the work of the Divine Proceeding it follows that all this is the Divine Providence. **Divine Providence 55**

In Emanuel Swedenborg's *Angelic Wisdom Concerning Divine Providence* (1763) we find three passages dealing with the anatomical arrangement of the human body according to degrees of order, from smallest to largest parts. Since all the parts are connected in this series, no part can be acted upon without all parts being in some way affected. The whole is changed when the least particular is moved. *Divine Providence* paragraph 124 says this most succinctly, 125 extends the concept, and 180 revisits and expands the theme in the context of the fallen human will. This idea of wholeness is found elsewhere in the Writings, and is in fact a common and recurrent theme of New Church theology.

In the chapter expounding the doctrine of connection by degrees of order, Swedenborg in his *Divine Love and Wisdom* (1763) tells us that the structure of all things, from the universe itself to the smallest elements of natural matter, is effected by connections of only two kinds. One is *continuous gradation*, from one level to another (as in degrees of heat), and the other is connection across discontinuous or *discrete degrees* of order (as in the branching of a tree, or an artery). In a series of philosophical arguments in paragraphs 190–194, he proves that the architecture of all existence is due to this simple relational scheme.

It is quite likely that this concept of connectedness was one of Swedenborg's most fundamental interests, appearing as it does in his earliest scientific works, to undergo refinement and perfection thereafter,

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appearing finally in his theological Writings as a doctrinal mechanism of Divine operation.

The theological construction of this connection is not particularly complicated: The Lord is able to act into the natural man by means of his inmosts, while man is operating in freedom, from ultimates. Since this Divine operation is unknown to the man, he need only know to shun evils as sins and act accordingly, and the two levels of activity will meet and merge into a one. The nature of this operation is such that all action in all parts is simultaneous. In *Divine Providence*, it is explained in rather philosophical terms at first, in paragraphs 124–125:

To what has been said I will add two interior truths (arcana) of angelic wisdom from which the nature of the Divine Providence may be seen. The first is, that *the Lord in no wise acts upon any particular thing in man separately, but upon all things at the same time*; and the second is, that the Lord acts from inmost things and from ultimates at the same time. Now since the human form is such that all its parts form a general whole which acts as one, it follows that one part cannot be moved out of its place and changed in state except with the concurrence of the rest. For if one part were to be moved out of its place and changed in state the form which must act as one would suffer. From this it is clear that the Lord in no wise acts upon any particular thing but upon all things at the same time. In this way the Lord acts upon the universal angelic heaven because it is in His sight as one man; in this way the Lord acts upon each angel because each angel is a heaven in the least form; and in this way He acts upon every man first, as being nearest to Him, upon all things of his mind, and through these upon all things of his body. For the mind of man is his spirit and is an angel according to his degree of conjunction with the Lord, and his body is its obedient instrument. (DP 124, emphasis added)

These angelic truths are stated here in order that it may be understood how the Divine Providence of the Lord operates to unite man to Himself and Himself to man. *This operation does not act upon any particular of man separately but upon all things at the same time, and is effected from the inmost of man and from his ultimates at the same time.* The inmost of man is his life's love, his ultimates are what reside in the external of his thought, and intermediates are what reside in the internal of his thought. It has

been shown in the foregoing numbers what the nature of these is in a wicked man; and from these considerations it is again made clear that *the Lord cannot act from inmost things and ultimates at the same time except together with man, for in ultimates man and the Lord are together. Therefore as man acts in ultimates which are matters of his choice, because they are within the scope of his freedom, so the Lord acts from his inmost things and in the things ranging in series to his ultimates.* What the inmost things of man contain and what is present in the series from the inmost things to the ultimates are totally unknown to man; and man is therefore quite unaware of how the Lord operates and what He accomplishes there; but as those things are linked together as one with the ultimates, man need not know more than that he should shun evils as sins and look to the Lord. In this and in no other way can his life's love, which by birth is infernal, be removed by the Lord and a heavenly life's love be implanted in its place. (DP 125, emphasis added)

We find this treatment to be quite similar to passages in *Divine Love and Wisdom*, the book which preceded *Divine Providence* by only one year. Again, we find the idea set forth in fairly philosophical terms here as well as in paragraphs 193–194:

That *these things in their order are like ends, causes, and effects*, is evident; for the first, which is the least, effectuates its cause by means of the middle, and its effect by means of the last. (DLW 193, emphasis added)

It should be known that each degree is made distinct from the others by coverings of its own, and that all the degrees together are made distinct by means of a general covering; also, that this general covering communicates with interiors and inmosts in their order. *From this there is conjunction of all and unanimous action.* (DLW 194, emphasis added.)

Finally, in *Divine Providence* paragraph 180, the concept emerges in more pragmatic terms, yet expanded to new limits, by the application of examples from human anatomy. Here Swedenborg is showing us the concept of spiritual connectedness, in use, in the human form:

IF A MAN SAW CLEARLY THE DIVINE PROVIDENCE HE WOULD INTERPOSE IN THE ORDER AND TENOR OF ITS COURSE, AND WOULD PERVERT AND DESTROY THAT ORDER. In order that this may come within the clear perception of the rational man and also of the natural man it may be illustrated by examples and in this order:

1. *There is such a connection between external and internal things that they make one in every operation.*

2. *Man is associated with the Lord only in certain externals; and if he were at the same time in internals he would pervert and destroy the whole order and tenor of the course of the Divine Providence; but as has just been said, it will be illustrated by examples.*

First: There is such a connection between external and internal things that they make one in every operation. This will be illustrated here by examples taken from several parts of the human body. In the whole body and in every part there are both externals and internals; its externals are called skins, membranes, and sheaths (or coverings); while the internals are forms variously composed and interwoven of nerve fibres and blood vessels. The surrounding sheath by offshoots from itself enters into all the interiors even to the inmost parts; and thus the external, which is a sheath, unites itself with all the internals, which are organic forms composed from fibres and vessels. From this it follows that as the external acts or is acted upon so the internals act or are acted upon; for there is a continuous binding together of them all.

Take some common sheath in the body, the pleura for example which is the common sheath of the chest, or of the heart and lungs, and examine it with an anatomical eye; or if you have not made a study of anatomy, consult anatomists. You will learn that this common sheath, by various circumvolutions, and then by continuations from itself becoming finer and finer, enters into the innermost parts of the lungs, even into the tiniest bronchial branches and into the very minute sacs which are the beginnings of the lungs; not to mention its subsequent progress through the trachea to the larynx towards the tongue. From these things it is clear that there is a continuous connection between the outer-most things and the inmost. Therefore, just as the outermost acts or is acted upon so also the interiors from the inmost things act or are acted upon. This is the reason that, when this outermost sheath, the pleura, becomes congested or in-

flamed or ulcerated, the lungs labour from their inmost parts; and if the disease grows worse, all action of the lungs ceases and the man dies.

It is the same everywhere else in the whole body; as with the peritoneum, the common sheath covering all the abdominal viscera, and also with the sheaths surrounding the several organs as the stomach, the liver, the pancreas, the spleen, the intestines, the mesentery, the kidneys, and the organs of generation in both sexes. Take any one of these viscera, and either examine it yourself and you will see, or consult those skilled in this science and you will learn. Take for instance the liver, and you will find that there is a connection between the peritoneum and the sheath of that organ and through the sheath with its inmost parts; for there are continual extensions from the sheath, and insertions towards the interior parts, and in this way continuations to the inmost parts. Hence there is a binding together of the whole so that when the sheath acts or is acted upon the whole form acts or is acted upon in like manner. It is the same with the rest of the organs, because in every form the general and the particular, or the universal and the singular, by wonderful conjunction act as one.

It will be seen below that *in spiritual forms and in the changes and variations of their state, which have relation to the operations of the will and the understanding, the same course is followed as in natural forms and in their operations, which have relation to motion and action.* Now since man is associated with the Lord in certain external operations, and since no one is deprived of the liberty of acting according to reason, it follows that the Lord can only act in internals as He acts together with man in externals. Therefore, if man does not shun and turn away from evils as sins, the external of his thought and will and at the same time the internal become vitiated and are destroyed, comparatively as the pleura is affected by its disease called pleurisy, which causes the death of the body.

Second: If man were at the same time in internals he would pervert and destroy the whole order and tenor of the Divine Providence. This also may be illustrated by examples from the human body. *If man knew all the workings of both brains into the fibres, of the fibres into the muscles, and of the muscles into actions, and from his knowledge of these things were to dispose all things as he disposes his actions, would he not pervert and destroy them all? If man knew how the stomach digests, how the surrounding viscera absorb*

their own portion, work upon the blood, and distribute it for all the needs of life, and if he had the disposing of these as he has of external things, such as eating and drinking, would he not pervert and destroy them all? When he is unable to dispose the external, which appears to be a single thing, without destroying it by luxury and intemperance, what would he do if he had the disposition of the internals, which are infinite in number? Therefore man's internals, lest he should enter into them by the exercise of his will and gain control of them, are entirely removed from the scope of the will, with the exception of the muscles which constitute the covering; and, moreover, it is not known how these act; it is only known that they do act.

It is the same with the other organs; as, for example, if man had the disposing of the interiors of the eye for seeing, the interiors of the ear for hearing, the interiors of the tongue for tasting, the interiors of the skin for feeling, the interiors of the heart for systolic action, the interiors of the lungs for breathing, the interiors of the mesentery for distributing the chyle, the interiors of the kidneys for secretion, the interiors of the organs of generation for propagating, the interiors of the womb for perfecting the embryo, and so on, would he not in innumerable ways pervert and destroy in them the order of the course of the Divine Providence? It is known that man is in externals, as, for example, that he sees with the eye, hears with the ear, tastes with the tongue, feels with the skin, breathes with the lungs, contributes to propagation, and so on. *Is it not enough for him to know about the externals and to dispose them for the health of body and mind? When he is unable to do this, what would happen if he also had the disposing of the internals?* Hence it may now be evident that if man saw clearly the Divine Providence he would interpose in the order and tenor of its course, and pervert and destroy that order. (DP 180, emphasis added)

From these passages (and there are many others of similar content to be found elsewhere in the Writings) it is evident that Swedenborg brought a thorough knowledge of the anatomy and physiology of his day with him into his revelational writing. Besides this basic knowledge, we find a fully developed concept of connectedness, or simultaneity as well. It is one thing for an Age of Reason scientist to know his anatomy, but such a concept of functional integration across all levels of organization is quite

unique for his day. Swedenborg was easily 150 years ahead of his contemporaries in this model of integrated function. Where might this idea have originated? Did it spring intact from a spiritual vision, or was it delivered to the site, and applied to the new spiritual reality under construction? A careful look at Emanuel Swedenborg's scientific works will throw much light on this question.

Nothing is increased and multiplied in man unless there be some affection, for it is the delight of the affection that causes it not only to take root, but also to increase, and everything depends upon the influence of the affection. What a man loves he freely learns, retains, and cherishes—thus all things that favor any affection. Those which do not favor, the man cares nothing for, regards as nothing, and even rejects. But such as the affection is, such is the multiplication. With the regenerate man the affection is that of good and truth from the charity that is given by the Lord. Whatever therefore favors that affection of charity he learns, retains, and cherishes, and thus confirms himself in goods and truths. This is signified by, "Bring forth abundantly in the earth and be ye multiplied therein." (AC 1016)

This simple statement of the nature and origin of our talents and interests is presented as evidence for the argument which follows: **It is likely that Swedenborg's idea of spiritual operation by means of the simultaneous action of inmosts and outmosts and all parts in between, was present in his mind from his earliest days. It is likely that this affection increased and was multiplied by his studies and discoveries, until it became a unifying principle of physiology for him. And when the time was opportune, this principle was easily refitted to explain the mechanism of spiritual operation.** That the Lord prepares all of us for future uses is a familiar axiom of Divine providence. That Swedenborg was able to follow through with this use to such cosmic proportions is testament to his apt use of the signature "Servant of the Lord."

In what follows, several samples from Swedenborg's scientific works will be presented, with only a brief description of each. I believe that the content of each quotation makes it a more than likely candidate for inclusion in a corpus of references, together suggesting that the wholeness

concept found in the Writings grew out of a well-developed physiological concept from Swedenborg's scientific period.

Tremulation, Chapter 3, n. 2 (1719)

This is a tentative work dealing with human anatomy and physiology, but also speculating on the role of certain anatomical structures in the transfer of information within the body. The idea of a harmony of sympathetic vibrations between anatomical components is introduced. After this very promising beginning, Swedenborg apparently abandoned this line of investigation for the pursuit of philosophical topics focusing on cosmology. In this, the first of Swedenborg's scientific works, we find a mature treatment of organization at the tissue level, remarkable for his time. In examining the idea of action-at-a-distance, he sees a continuity of "membranes," having originated in the substance of the dura mater, traversing levels of organization from the smallest "fibers" to the whole body. Here is a structural framework on which he will later hang functional integration as well.

The dura mater may be said to produce an expanse over the whole body, for it communicates membranes and tunics to all parts, making a continuous system just as the nerves do.... As now the nerves send out ramifications to all the periosteae, to all the muscles, and to all the blood-vessels, it follows that the dura mater provides clothing for all these parts, forming all cuticles, periosteae, and integuments in the body, so that the whole contiguous system of membranes is nothing but a continuous extension of the dura mater.

Note Swedenborg's use of the word *contiguity* here—he will return to it time and again to describe this system.

The Principia, Vol. I, Part I, Chapter I, n. 4 "Means Conducing to True Philosophy" (1734)

This was a major work attempting to explain creation by a series of compounding aggregates of matter derived from active and passive primary particles. Essential to extended matter is motion, provided by a

conatus from the Infinite; creation proceeds by a series of compounded *finites* in increasing degrees of complexity, each successive level containing the one before.

In the introduction to what is ostensibly a physics textbook, Swedenborg again returns to his theme of contiguity, this time in terms abstract to the familiar context of the human body—but the concept is apparent, nonetheless:

Now Nature herself closely resembles this spider's web; for she consists, as it were, of infinite radii proceeding from a certain centre, and connected together, in like manner, by infinite circles and polygons; so that nothing can happen in one of them which does not immediately extend itself to the centre, from whence it is reflected and dispersed through a great portion of the fabric. By means of such a contiguity and connexion it is that Nature is able to perform her operations, and in this her very essence consists.

Here is not only contiguity, but the first stirrings of *function* in the consideration of *structure*.

***The Principia*, Vol. II, Part III, Chapter I, n. 9 (1734)**

No longer the speculative remarks of introductory material, we find in *Principia* Vol. II a maturation of the concept of contiguity at work in his description of magnetic flux. Here is connection in action, and a description of single motion producing a resultant universal response:

The vortices in connexion with each other are only parts; parts preserve the connexion; if one part be deficient, there is a corresponding deficiency in the connexion: if one link in a chain be removed, lengthened, or curtailed, all the links of the chain alter their position: if one link be moved from its place, the whole chain is moved with it; for taken collectively they form one contiguous body: all the parts taken together originate the contiguity...Hence, in consequence of the vortices being in series and connexion, no change can happen in one which is not perceived in the other.

The Infinite and the Final Cause of Creation, Chapter II, “The Mechanism of the Operation of the Soul and Body,” n. VII (1734)

This philosophical/scientific work represents a turning point in Swedenborg’s scholarly life, as it is here that he shifts his attention away from cosmology and physics, and begins in earnest his search for the soul. Realizing the need for more anatomical expertise, he embarked after this on extensive self-study and finally formal studies in Paris, 1736–38, in the School of Chirurgy and Dissection.

Following his treatment of physics in *Principia*, we find Swedenborg turning immediately back to his studies of human anatomy, this time with the very clear goal of identifying the *nexus* of soul and body. Realizing that this is a dynamic system at work, he pays particular attention to the action of his contiguous parts, and how one might affect the other at a distance. It is in this book that we find his first use of the technical term *contiguum*, to describe this structure/function complex. This is seminal work, which would set the course of his professional life.

...all motion in man from one end to the other, from the external senses to the very soul, through the whole human contiguum is in this respect like the elements, and indeed is the microcosm of the universe; and that in man, too, all actions take place by means of **contiguum**; the motion tending from gross to subtle, from the senses to the soul; and in ascending the scale of finer and finer entities, stopping in the finest of all as the centre...

The Animal Kingdom, Vol. I, Chapter. XVI, “The Peritoneum,” footnote (r) (1744)

This is a major series of works of the same nature as *Economy*, but from the perspective of the soul itself. Its goals were to define a “rational psychology,” or the operation of the mind, and to gain knowledge of the soul, “the crown of my studies.” From this approach, Swedenborg hoped to identify the seat of the soul in the body. Leaning toward the brain as the site of this nexus, the series nonetheless ends in an unfinished state, a reflection of the author’s failure to define the nexus in anatomical terms.

Major contributions of the series (which includes *Generation* and *The Five Senses*) are the further development of the *contiguum* concept, relation by degrees, and the absolute necessity for a doctrine of correspondences (briefly described, but never really defined). This unfinished study was terminated by Swedenborg's spiritual crisis, which followed his theological period.

In this volume we find what is perhaps Swedenborg's finest description of his *contiguum* in action, tracing as he does the subdivisions and reflections of the peritoneum, to establish a three-dimensional lattice of structure and function spanning the whole body.

That which circumscribes the aggregates of things, not only contains and embraces them, but also divides, demarcates, and distinguishes them from contiguous things, as well as limits them with respect to shape, and connects them. For if every quantity be similarly circumscribed and distinguished, that is to say, the lesser quantities which constitute the larger, they must of course be connected with the larger, and this cannot be accomplished excepting by prolongations from the most general covering. This is the case not only with the viscera of the body, but also with the muscles, with all the motive fibres, and even with the nervous fibres, the common fasciculus whereof is covered with a membrane which in like manner detaches or gives off filaments and little membranes, that connect the lesser fasciculi, and even the very fibres, with the entire nerve. It may therefore be regarded as a law, and it is particularly manifest in the brain.

Generation, ns. 342–46. (See also ns. 38, 39, 55, 267, 279, and 309) (1740–1743)

This work, although limited to the organs of reproduction, is clearly written in the stream of the previous books of the *Animal Kingdom* series, and here we find many clear statements of the *contiguum* in action. One paragraph (n. 342) of many is quoted here:

The outmost tunic of the cord, which is continued from the amnion, the moment it touches the embryo or its umbilicus, is continued to the whole

of its cuticle, and afterwards to the peritoneum; consequently it is continuous with all those membranes that surround the fetus, and thus by means of the arterioles, with all the active principles of the new embryo.

***Rational Psychology* n. 18 (1742)**

In this, a transitional work linking Swedenborg's *Economy of the Animal Kingdom* series with *The Animal Kingdom* series to follow, we find the focus on the brain, with promise of finding the *nexus* there. Although this was not to happen, what is present is a continuing reliance on the *contiguum* concept to explain the operation of the soul, identified as it was with brain/mind activity. The mechanism of simultaneous operation was clearly governed by this structural/functional complex.

Thus it can be seen that, in the cerebrum, cerebellum and both medullas, there is nothing wholly discontinuous or disconnected.... Therefore, the rationale of sensations is the same as that of modifications, in that the latter, commencing in a least center, diffuse themselves round about into the whole periphery. From this it follows that there is no part of the cortex that does not share in the sensation that comes to it, and become conscious thereof.

CONCLUSION

At first inspection, it may not seem particularly surprising to find an anatomist and physiologist paying attention to functional integration in the human body. But as stated briefly above, Swedenborg's era was one of anatomical discovery, and the search for function (to become the scientific discipline of Physiology) was to lag behind this foundational phase by at least a hundred years. His attention to function, and to interpreting function as closely integrated with structural elements as he did, is the remarkable feature of Swedenborg's science. It is obvious from what has been presented that this interest in integrated structure and function appeared early in his career, and was to remain prevalent to the end of his life.

Was this interest, then, and the *contiguum* model it generated, a part of what was to become revelation, in the inspired Writings for the New

Church? Where do we put this concept that appears finally in *Divine Providence*, *Divine Love and Wisdom*, and elsewhere, so succinctly describing the operation of the Divine into natural man? A satisfactory answer to this question lies in a separate and thorough treatment of the nature of revelation itself—a task beyond the scope of this work. But it is possible to say that what began as an interest—an “affection” as it is called in *Arcana Coelestia* 1016—was “increased and multiplied” from “delight,” until finally, when the Lord in His Divine providence saw fit, this affection was “confirmed” in the “goods and truths” of Swedenborg’s spiritual experience. □

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