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SWEDENBORG'S SUMMARY OF THE PRINCIPIA.

(CONTINUED.)

CHAPTER V; CONCERNING THE ACTIVE OF THE FIRST FINITE, THAT IT CONSTITUTES THE SUN, BESIDES FORMING THE FIRST ELEMENTARY PARTICLES.

1. This active of the first substantial is only the motion of one substantial running into circles by means of which a surface is formed. 2. The axillary, progressive, and local motion in a simple or point cannot be examined in any other way than as an unknown quantity in algebraic analysis, by means of what is known, and consequently by means of things which are posterior and geometrical; and from the axillary, progressive, and local motion, as given in the sequents, it may be concluded that there was a something similar in their first origin; and that the very quality of the motions in the points may be disclosed by a similar analysis. 3. If in the first substantial the points arranged themselves into a spiral position, it follows from a mechanical necessity that such a substantial would revolve or rotate with an axillary motion. 4. From a mechanical necessity it also follows that such a substantial is progressively moved according to the position or order of the spires; that is, there is in it a motion of the parts or a progressive motion. 5. The centre of gravity is not in the middle of the substantial, but near its middle, and it follows the progressive motion of the parts and of the figure. The centre of gravity is in the plane of the ecliptic, not in the plane of the equator; and its progressive motion is *secundum consequentia*, or according to the ecliptic of the figure. 6. By

means of its axillary motion there is an effort (*nisus*) of the whole compound of entering into a second or local motion, and consequently this second or local motion is according to the motion of the centre of gravity. Since the centre of gravity not only revolves about its axis together with the compound, but also progresses in its plane or according to the ecliptic, the local motion describes not only a circle, but also a surface. 7. These actives flow with the same velocity, neither less nor greater, and they always form similar gyres and circles, nor can they form less or greater ones. 8. In this active there is no substantial except only that which is circumfluent and nevertheless a surface may be represented by motion, just as if it consisted of nothing but substantials. 9. There is no point in the surface of the active which can truly be called substantial beside the one where the fluent substantial is itself present. 10. Nevertheless, it is a most active [entity] and endowed with much force of acting upon the neighboring [entities]. 11. Nowhere in this surface can a point be conceived which is not acting, [although at distinct] moments. 12. In respect to this active finites bound in a series or in an aggregate, are passive. 13. This surface may, according to the different degrees of velocity, be represented as more and more like a continuous and finite surface. 14. This surface has no real dimension, but it may be called an apparent, imaginary, and mere surface. 15. When present, it acts perpetually upon every finite, and by its presence it can act upon the finites and dispose them into a certain motion, position and figure. 16. Several actives of this kind may flow within one and the same space without any running together or conflict. No running together can take place, as that one shall run up against the other which precedes it, because the velocity of all is equal and the circumference described by all is equally distant from any given centre. 17. Several may simultaneously adapt themselves to any angle and space, and, taken together, they may represent any figure. One circumference may apparently as it were cross and cut another; near one surface there may appear innumerable others, crossing as it were through that one. 18. Several in one space can rarely be in contact with each other, unless the abundance be too great. 19. And if they

run into each other they still continue the same superficial gyre. 20. Innumerable actives may occupy a very large space; they may occupy a space as large as the solar, and much larger. 21. They may also flow within an extremely small space within a surface consisting of finites. 22. A great number together in one space have a greater force of acting than a smaller number. 23. This active arises from the same force and cause from which arose its coeval or coexisting finite. 24. The apparent surface of the active is similar to the surface of its coexisting finite. 25. The running forth of the active into circles contributes no more to its activity than that it enables it to be everywhere present and to act everywhere; but that it is able to exercise a force upon the bodies it meets arises solely from its velocity and mass. 26. It could exist before its finite and be the cause of the contingent that second finites arose. 27. Therefore also the substantial itself, continually running forth into spiral circles according to its centre of gravity, can run forth no further than to a certain distance from a given centre, or always describe the same equal circumference and surface. 28. That force is attained by the velocity acquired is evident from the laws of motion. 29. Here again, being destitute of experience, we have formed principles, for in such very small and attenuated things experience does not present itself to our senses. But that a body may by internal motion be made to pass into another motion experience presents to our eyes every moment. 30. There is need that instead of a coronis a few words be said so as to show the connection of this [active] with the preceding [finite].

The active of the point. [From analogy and similitude with the active of the substantial we may in some measure conceive what is the active of the point, namely], that it is a point put (*actum*) into motion by its own internal force, and indeed into concentric spiral circles, by means of which a most exact surface is formed.

CHAPTER VI; CONCERNING THE FIRST AND MOST UNIVERSAL ELEMENT OF THE WORLD; THAT IT CONTRIBUTES VORTICES.

1. In the world we [now] have two kinds of particles, the one most active, the other altogether passive; thus the one is

plainly contrary and inimical to the other. But before anything elementary can exist, it is necessary that there should be two principles in the world, the one active and the other passive. They cannot possibly be conceived as being so separated, but that they must unite into one body. Since therefore the one does not cease to act and the other to be acted upon, before each comes into the position suited to its action and passion, it may be asked what this position or figure of position may be. Wherever therefore there exists a small volume of this kind, consisting of actives and passives, there cannot but arise a position which is suited to each, in which position and space each may subsist according to its own force and disposition. By means of this new figure there is thus a connection of each with the first substantial from which they derived their origin. 2. It is defined that the elementary particle is composed of the second finites and the actives of the first finite, having a most yielding and elastic surface. 3. This elementary particle is composed of the second finites and the actives of the first finite. There is thus a boundary of space, not resulting from the actives, which terminate nothing, but from the volume of the finites which surround them. 4. The second finites constitute the surface, and the active of the first finite occupy the internal space. 5. The surface of this elementary particle is suspended and balanced in the midst of two forces. Such a product cannot be obtained by the analogies of the antecedent motions except by means of space, extense, position and figure; all of which are present if equilibrium be obtained. A surface may be said to be expanded by the actives included in it; a surface, also, when in the midst of two forces, is in its natural position. 6. The surface is most yielding and elastic. We therefore finally arrive at this conclusion, that there can be no yieldance in any surface unless there be something within which is not contiguous, but which nevertheless acts and presses as if it were contiguous. Since therefore the actives do not resist as if they were something contiguous, but act and push in every manner [it follows that an extraneous pressure would disturb the equilibrium]. Nothing can be more elastic than the surface of this elementary particle. Its resilience (*elater*) is equal to the pressing

force, or it recoils and reacts with the same force with which it is pressed. The sum of the forces before and after conflict is the same, or in every conflict or pressure the quantity of the forces is preserved. The surface when liberated from the compressing force is immediately restored. 7. The ratio of weight (*ratio ponderis*) in the surface is imperceptible so that it cannot be said to lose any on account of its ratio (*propter ejus rationem*); and in this expanded particle only a very small or no weight can be conceived of. 8. Nothing can be conceived either without or within the surface of this particle as resisting, but only as acting. 9. The finites, which constitute the surface, are connected together by a contiguous series. 10. The force and effort of all the finites in the surface are always the same and perfectly equal. 11. The motion and conversion of one finite in the surface of an elementary particle, is the motion and conversion of another and of all. 12. The change of state in one finite causes a change of state in another, throughout the whole surface of the elementary particle. The change of state in each individual or finite of the surface, proceeds from an external cause and from compression by means of contiguity. 13. Since these finites are in connection and constitute the surface, they cannot become actives, but they generally (*fere*) remain passive and inert. 14. If the finites of the surface should drop out of their series, or the bond which associates them be loosened, they could not become actives and go into local motion, but would immediately pass into some series of a neighboring surface and betake themselves to other finites of the same kind. 15. But nevertheless from one elementary particle many actives may exist, which, together with the enclosed actives, may occupy a larger space. 16. A small volume of finites may present a large volume of elementary particles. 17. This elementary particle, consisting of finites and actives, may be compressed into one still smaller and smaller, and again, it may be expanded from a smaller into a larger. 18. In every degree of compression the similarity of the surface is most exactly preserved, although the surface may be larger or smaller. 19. The series of finites flowing through the surface may flow in a simple, double, or triple order, according to the degree of compression

with the adjacent [particles]. 20. In a state of compression [this elementary particle] begins to form certain polar cones towards the centre. 21. In the greatest degree of compression the elementary particle changes into some new finite. 22. And thus it ceases to be elementary. 23. The enclosed actives have a greater force of acting and reacting upon a compressed than upon a dilated particle. 24. Under too great a compression the enclosed actives begin to lose their force. 25. In the greatest degree of compression the actives evidently disappear and attach themselves to the finites which occupy the surface, and plainly cease to be actives. 26. The elementary particles cannot perish by any degree of compression, but they ultimately change into some new finite. 27. In their greatest degree of expansion they may perish and be dissolved. 28. They may be dissolved by actives acting upon them from without. 29. These finites may become actives. 30. When dissolved, they may pass into the surfaces of others which are similar and there continue their motion. 31. In this elementary there may be all degrees or kinds of elasticity, but according to the degree of compression. They possess a greater degree of elasticity when expanded and a lesser when compressed. In the greatest expansion their surface is most yielding, and finally in the greatest degree of compression it becomes hard and non-elastic, and at the same time it ceases to be elementary. 32. One elementary particle touches and presses upon another, and by means of this contact forms a contiguity of one particle with another. 33. Which could not take place unless it were in agreement with their motion and figure. 34. And except in a parallel position so that the poles of all are in a parallel position or line, likewise the remainder of their circles greater and lesser; and they are kept in this parallelism by the mechanism of their figures and their contact at the poles. 35. Nevertheless they may be easily disturbed in their position, but they immediately return to it as their natural one. 36. Several of them, or a volume, when put into motion, cannot be circumfluent otherwise than according to that parallelism or the position of each. In the motion of the volume there are likewise axes, which are the axes of its motion. 37. From the motion of the volume of these particles

exists their vortical motion, and no other particles can be better adapted to a vortical motion than these, on account of their figure and elasticity. 38. From the least force they flow into a vortical motion. 39. There can be no other vortical motion among the particles than such as is accordant with the figure of each particle and always refers itself to some axis of motion or gyration. The vortical motion likewise forms a certain polar axis. The circles of vortical motion among these elementary particles which are more remote from the centre of motion become more and more oblique and bend themselves until they come into a right line with the axis; until the motion terminates in a straight line and thus it evidently vanishes according to the parallelism of the axes of the particles. A vortical motion arises from a motive force in a given centre; and when thus begun from a centre the greatest motion is near the centre and the least at the outermost circumferences. The polar axes of the particles are the same as the polar axis of the zodiac, and their equators the same as the zodiac of the solar vortex. 40. Superficial matter, or finites, flowing through a surface, may, near the poles, pass into the surface of the neighboring particle. 41. By this translation of the finites and superficial matter from one surface to another, the surfaces of the particles may be diminished as well as enlarged; that is, they may be made smaller or larger and may thus be brought into an equilibrium of space and weight with their neighboring and associate particles. 42. The enclosed actives follow their enclosed particle (*quod ipsa activa inclusa sequantur suam particulam inclusam*), as if in their own natural location, and they are not sensible of the local motion of their particle; likewise neither the finites, which occupy the surface, if there be a local motion of the volume. 43. The cause of their compression arises from the action of one upon the other by means of a motion proceeding from a large space of actives. 44. Their compression may also arise from their mutual incumbency. 45. There is in the volume the same elasticity and ratio of elasticity which there is in the single particles. 46. They press according to the altitude in their vortex. 47. They also press according to the base or area subtending the altitude. 48. They press equally upward

and downward according to the altitude. 49. They do not press so obliquely as the aerial particles. Their altitude is only according to the plane of the equator of each particle, or according to the plane of the zodiac of the solar vortex. 50. This element is the most subtle, the first and most universal. All spaces, as well the greatest as the least, in every solar system (*in quocunque mundo*), are occupied by this element; it is likewise of all others the most contiguous. By means of it all things in the starry system appear as it were present. And if they do not appear it is only because we are accustomed to measure distances by comparing the angles of such things as are present together before the eye. By the help of this [element] we may contemplate the remotest stars, as also the planets by their reflected light. 51. In this elementary particle is latent all that had pre-existed, such as the point, the first finite, the second finite and the active of the first finite.

Concerning the figure of the above-mentioned entities. 1. The individual [parts] in a finite or compound are similar to each other, as well in regard to figure and position as in regard to motion; and the individual [parts] of these are likewise [similar], even to the point, in which lies the primitive force and the first cause of finiting the sequents. 2. The spires near the centre have a greater curvature (*acutiores*), and those more remote from the centre a less (*obtusiores*), as well in the polar cones as in the surfaces; and in the polar cones the kind of spires are different from those in the surfaces, whether nearer or more remote from the centre. 3. A small cavity is left in the middle, which on one side extends farther from the centre than on the other; and the plane of the ecliptic bisects all the superficial spires midway from their centre (*in media distantia*). 4. The centre of gravity is situated without the middle and in the plane of the ecliptic. 6. There is an axillary motion of the whole corpuscle, greatest when [the corpuscle] is in a very free state, less in a state of compression, and finally none in the greatest compression. There is a progressive motion of the parts *in consequentia* or according to the ecliptic, and the progressive motion is greatest in a very free state, and least or none in a state of compression. From an axillary arises a local motion, and this local motion is deter-

mined by the centre of gravity and directed by the progressive motion into the figure of a surface. 7. The local motion by which the surface is described is spiral, and in this apparent surface there are poles and the circles are larger and lesser as in finites and thus in regard to figure finites and actives are similar to each other. 8. The elementary particles in regard to their figure are also similar to finites and actives. In elementary particles the centre of gravity is in the surface, especially in a state of compression, when the surface is as it were convoluted into several folds. Consequently there is an axillary motion in every particle; there is also a progressive motion; or a force or endeavor towards a local motion. The axillary, progressive, and local motion of the elementary particle is the same in its state of expansion as in its state of compression. The elementary particles in a state of expansion make an effort to go (*nitantur*) into a larger circle; in a state of compression into a smaller. By the least action in their volume, or even spontaneously, the elementary particles wish to flow into a circle. They are thus most prone and apt [to go] into a vortical motion, which they perpetually continue in the same way. The finites constituting the surface of the elementary particle cannot be connected and conjoined in any other way than around the poles, and indeed in a position perfectly similar as to the centre of gravity of each. 9. The reason of the position as well as the motion of the parts and compounds is a mechanical, geometrical and physical necessity.

CHAPTER VII; CONCERNING THE ACTIVES OF THE SECOND AND THIRD FINITE.

1. The primitive force in the point, such as it has been treated of, cannot be otherwise than derivative, and cannot but raise itself higher and higher when the occasion is presented, and by its multiplication present [entities] similar to itself. 2. All the finites which arise from the point have a similar force of finiting as well as of actuating themselves. 3. The active of the second finite is the same as the second finite set at liberty. The second finite becomes active if there be no contact, and the internal force of the second finite becomes motory and passes into act if there be no pressure. 4. The active of the

second finite consists of individuals which are the first substantial. 5. The active of the second finite may come into existence from the same causes as the active of the first finite. 6. And it possesses the same qualities as the active of the first finite. 7. There is this difference, that the active of the second finite describes larger circles than the active of the first finite and that the active of the second finite does not flow with such velocity in its circumferences as the active of the first finite. 8. The active of the second finite can be in the same space with the active of the first finite, if the space be not too confined; but the actives of the second and third finites may more easily meet and run into each other than the actives of [only] one kind. 9. As regards mass the active of the second finite is stronger than the active of the first, but as regards velocity it is weaker. Still, nevertheless, the active of the second finite possesses a stronger impetus than the active of the first finite. 10. Actives of the same kind always flow with the same velocity, and they cannot flow with a less or a greater. Thus between actives of one kind there are no degrees of velocity, but there are [degrees of velocity] between two kinds of actives. 11. Actives of one kind always describe the same circles and gyres, and cannot describe greater or smaller ones [than these]. 12. These actives do not form their circles or surfaces round one centre, but around various centres; that is, the derived actives run out into surfaces or circles eccentric and not concentric. 13. By means of this eccentricity the apparent surface of the active appears to describe a new and different surface and one which is its own. By the progression of their centre actives are transferred into every imaginable point of their space. 14. Actives cannot be said to form anything contiguous or to occupy any determinate place. 15. Actives are devoid of all determinate place and position unless they are enclosed by finites or elementaries. They have nowhere in their space an upward or a downward. There is no weight in an active space; the greatest active space has the same weight as the least. 16. Actives cannot be said to resist, but only to act. 17. A number of actives does not constitute an element or matter, nor are the actives themselves to be considered as elementary particles. 18. The force of the active space is increased

and becomes stronger according to the number of actives. 19. A space which is filled with actives of the first and second finite acts more strongly if filled with actives of but one kind. 20. The Solar Ocean appears to consist of actives of the first and second finites.

Concerning the actives of the third finite. The primitive force in a point continually produces [entities] similar to itself, by the multiplication of itself into itself, whenever occasion offers; and the force can go out into act. 2. The active of the third finite is the same as the third finite set at liberty. 3. The third finite is rendered active if there be no contact with similar finites. 4. The velocity of the active of the third finite is less than the velocity of the active of the second finite, and still less than the velocity of the active of the first finite. Likewise, the circles and surfaces which the active of the third finite describes are larger than the circles or surfaces of the active of the first finite. The mass in the substantial of the active of the third finite is greater than the mass of the substantial of the active of the second finite. 5. The active of the third finite acts both by its mass and velocity and it is stronger in acting than the active of the second finite. 6. The actives of the third and second finites may be together in one space. 7. The actives of the third and first finite cannot be together in one space, since, in consequence of the difference between their velocities, circles and dimensions, the circles and fluxions of the active of the first finite would be utterly disturbed, and they would either be expelled thence or the active would evidently be absorbed. 8. By means of the influx of actives of the first finite the actives of the third finite may ultimately lose their active force. 9. There are in the world no actives of the third finite, but they are all third finites and compose the surface of the second elementary particles.

CHARACTERISTIC AND MATHEMATICAL PHILOSOPHY OF UNIVERSALS.*

1. In order to have an intelligible philosophy of universals, it is necessary to make use of characters and signs, which must signify the things treated of, or the materials of the things; for, as has been said formerly, when things obvious to the senses, or objects, are raised to higher degrees from a sphere of vulgar words to one of common words, they re-establish themselves; wherefore, unless we signify superior correspondences by letters or characters, we cannot at all describe them; for it is not permitted to introduce new words, for this would require us to write a dictionary of new words, a thousand of which would not be sufficient to represent the things which occur in the superior degrees. Therefore, the characteristic philosophy is first to be elucidated before it is permitted to proceed to the mathematical; but as the meaning of things may be rendered obscure by signs, let us make use of letters, raised through their several degrees, each letter expressive of some particular thing, as blood (*sanguis*) by S, artery by A, muscle by M, nerve by N, and so with the rest. But let us illustrate this by examples:

2. S signifies blood of an exalted degree (*sanguis eminens*), or the spirituous fluid.

SS blood of an inferior degree, or the middle or purer blood.

SSS the red blood, because it is of the third degree of composition, or of the third degree from the first or spirituous fluid.

SSSS is the blood clot, or crassamentum, a little mass (*molecula*), whence is the sanguineous fibre.

A is the *arteria eminens*, or the simple nervous fibre.

AA the arterial vessels of the middle or purer blood.

AAA is properly called artery, which corresponds to the nervous fibre in the third degree.

*From the photolithographed MSS. of Swedenborg, Vol. VI. Now first rendered into English.—C. L. Olds, translator.

AAAA is the great arterial canal, around which the arteries of the third degree are twined in an annular form, as occurs everywhere in the animal body.

M signifies muscle of an exalted degree, or of the first degree; this is the motor fibre determined by the simple nervous fibre.

MM the motor fibre composed of middle or white blood vessels.

MMM the fleshy motor fibre, or that woven together by the vessels of the red blood.

MMMM denotes the muscle itself, which is a motor fibre of the fourth degree.

N is also the simple nerve fibre.

NN is a fascicle of simple nerves.

NNN is the nerve itself composed of fascicles.

NNNN is a nerve ganglion, or a great trunk composed of many nerves, as the great sciatic, brachial, etc.

So in all the remaining; I only wish to adduce this here by way of illustration.

3. From these things it may appear that N and A, or the simple nerve fibre and the artery of exalted degree, are one and the same in eminence; but from the mode of determination another series is born; the simple nerve fibres grouped together, and the group surrounded by a tunic, constitute a fascicle, and the simple fascicles grouped together and covered with a tunic form the nerve. But the same fibre circumducted about some hollow in the form of rings, and so prescribing limits, forms the blood vessels, etc. Likewise the same fibre in a right line, obliquely placed or otherwise flexed or twisted, constitutes the motor fibre, and these latter gathered together and covered by a tunic constitute the white (*candidus*) motor fibre, etc., whence is the muscle; consequently, from the mode of determination flows the correspondence of inferiors; thus from one single universal innumerable species of particulars arise.

4. In order that there may be a substance which may subsist *per se*, it is necessary to add another which differs from it, that it may copulate, terminate, and thus separate; as the

spirituous fluid, unless the most minute saline elements derived from the ether had been added, the purer blood could not have been produced at all, and unless the elements from the air were added to this it would not be changed into the red blood. Then, also, unless the nerve fibres gathered together were surrounded by a proper tunic, they would not pass into a fascicle; and unless the fasciculi were enveloped by their tunic, they would not be formed into a nerve. It is fitting to call those substances which are now added accessories, in order that a substance may manifest itself in its own degree. The accessories are to be denoted by the letter *a*. Thus:

Sa is the purer or middle blood, for *S*. signifies the purest blood or spirituous fluid, which when adjoined to *a*, or the ethereal saline elements, becomes the purer blood.

Saa is the red blood, for *aa* signify of the second degree, or the aerial saline elements.

Saaa is blood clot, for *aaa* signify saline elements in the third degree of composition.

Na is the nerve fascicle, for *N* signifies the simple fibre; but *a* the tunic which invests many fibres and joins them into a fascicle; whence the fascicle exists as a substance *per se*, and when so connected, is terminated and separated from its prior as well as from its allied parts.

Naa is the entire nerve; for *aa* is the tunic which, investing the fascicles, binds them into one body, and separates them from their superior and allied parts.

Naaa is the complex of nerves within their own proper capsule or sheath, as the great sciatic nerve, etc.

So also with the remaining; for in order that the essence and nature of something of an inferior degree may be known, it is necessary that it be known what accessories there are which connect, terminate and separate it, likewise their number and quality. So also in the muscle, unless the motor fibre of one degree be separated from that of another degree by a tunic, it is not a motor fibre *per se*.

5. *Connection* also is required in order that the substance, whatever it may be, may produce the effect together with its

allied parts; and indeed a connection not only between the allied parts, but likewise between the parts of inferior and superior degrees; for without connection the cause is not active, for some effect thence flows into the ultimates of the series.

But connection is two-fold; that is to say, there is a *continuous connection* and a *contiguous connection*. Let the continuous connection be signified by *nc* and the contiguous connection by *nf*.

The continuous connection is between cohering substances, whence it is signified by *nc*; and the contiguous connection is between fluent (*fluens*) substances, whence it is signified by *nf*.

nc or continuous connection, as in fibres, muscles, membranes, becomes by intercedence threads or membranules, so that the substance is perpetually connected with an allied substance or one of the same degree; there is also a connection by threads and membranes with the involucra which separate them from the superior and inferior degree, which is a connection in ascending and descending order; then also by the very vessels themselves, which likewise separate themselves when they are continued.

nf or contiguous connection takes place through contact, as in fluids, water, oils, blood, air, etc. The more perfect this connection or contiguity is, the more the parts rejoice in a form more perfect, more circular, and are themselves endowed with a greater power of reacting, and are more elastic; they likewise rejoice in more perfect fluids within, and better ones around about them or in the interstices. Thus in order that we may get a correct knowledge of these contiguous substances, we ought to know their form and construction; also, their dependence upon the other parts, which are from these diversely, and yet touch them.

Accidental and qualitative connection is as it were contiguous, for it flows from substances in accordance with their connection; and may be compared with fluids which from the action of their substances are excited into a motion either undulatory or modificatory.

6. *Quantity* is of two kinds, viz., that of magnitude and that of multitude; the former is called continuous quantity, but the

latter discrete quantity; the former is to be signified by Qc , and the latter by Qd .

Qc or continuous quantity is that which exists between allied parts or those of the same degree, as when a vessel of the red blood increases in magnitude; or a vessel of the purer blood, or a fibre of the spirituous fluid, or some motor fibre becomes larger, etc.

Qd or discrete quantity exists when a blood vessel increases in number, branching into many vessels, as an artery into arterioles; and so with all the rest.

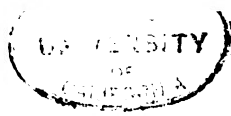
Thus we ought to adjoin those whose quantity we desire to signify, as SQc or continuous quantity of the blood; SQd or discrete quantity of the blood. Hence, NQc , MQc , AQc ; or NQd , MQd , AQd , etc.

7. But because every quantity comprehends its own minimum and maximum, hence its minimum or unity ought to be signified by 1, its major or intermediate by 2, and its maximum by 3. Hence, $Qc1$, $Qc2$, $Qc3$; or $Qd1$, $Qd2$, $Qd3$. Thus $NQc1$ is the simple fibril of a nerve; $NQc2$ is a larger congregation of fibrils, whence is the fascicle; and $NQc3$ is the largest fibril composed of the same fascicles. Thus it is that the fascicle is never so enlarged by the number of the fibres that it becomes a nerve, but that it becomes a major or maximum fascicle; only the tunic which surrounds it is added. Thus, $NNQc1$, $NNQc2$, $NNQc3$. So likewise, $NNNQc1$, $NNNQc2$, $NNNQc3$.

$AQc1$ is the nerve fibrule of the same degree as the *arteria eminens*; $AAAQc1$ is the simple red blood vessel; $AAAQc2$ the major, and $AAAQc3$ the maximum, or the great artery or powerful heart.

8. Rules to be observed in the explanation of things :

- (a) To what series does it belong?
- (b) In the series of what?
- (c) How it ascends by degrees.
- (d) What degree it is.
- (e) What it is and what enters into it.
- (f) Its maximum and minimum.



IN MEMORIAM.

In the departure from this life, in February last, of Mr. Carl Hj. Asplundh, the late Treasurer and Publishing Manager of the Swedenborg Scientific Association, which event occurred at Bryn Athyn as a result of an attack of pneumonia, the Association and its quarterly bulletin suffers a very great loss. His ability as a business manager was equalled by his conscientious fidelity to all the higher interests in his charge, his wide documentary knowledge and his sincere love for the Church and its sacred mission to the world. His careful attention to the financial interests of the Association should prove an incentive through his memory to every member and to every reader of our publications to be faithful in the individual duties belonging to each one.

THE SWEDENBORG SCIENTIFIC ASSOCIATION.

ANNUAL MEETING.

The Sixth Annual Meeting of the Swedenborg Scientific Association will be held at the Parish House of the Kenwood Church of the New Jerusalem on 46th St., near Woodlawn Ave., Chicago, Ill., on Wednesday and Thursday, July 1 and 2, 1903. The opening session will be held on Wednesday at 2 P. M. The President's Address will be delivered at 3 P. M. of the same day. All who propose to attend the meeting or to contribute papers are invited to notify the Secretary not later than June 17th.

By order of the President,

E. J. E. SCHRECK,
Secretary.

159 East 46th Street, Chicago, Ill.

New Treasurer of the Association:—It was proposed in the Board of Directors to fill the vacancy in the office of Treasurer created by the passing away of Mr. Asplundh, and correspondence among the members of the board resulted in the decision announced in the following communication by the President of the Association:

"The Rev. E. J. E. Schreck, Secretary of the Swedenborg Scientific Association:

"Whereas, The following members of the Board of Directors have cast their votes for Charles E. Døring for Treasurer of the Association, for the remainder of the present term, viz.: Messrs. Mercer, Whitehead, Farrington, Acton, Schreck, Gladish, Hite and Swanton, as witnessed by the enclosed signatures, I therefore declare that Charles E. Døring is elected Treasurer of the Association until the next annual election of officers.

"FRANK SEWALL,

"President, and Chairman of the Board of Directors."

We regret that his many other duties have prevented the translator of Swedenborg's work on *The Senses* from furnishing an installment for this number.

European Interest in Swedenborg's Scientific Writings:—The following letters will interest those who have followed the movement for publishing Swedenborg's Scientific MSS. now on foot in Sweden. The second was received through the President of the Association.

Editor of *The New Philosophy*:

In the January number of *The New Philosophy*, page 25, I notice that there is an account of the recent action of the Swedish Royal

Academy of Sciences. The following historical sketch may be of interest to the readers of *The New Philosophy* in connection with the development of interest in Swedenborg's scientific works in past and present times.

As long ago as 1845 Professor Anders Retzius, the great anatomist and founder of modern anthropology, wrote most appreciatively of Swedenborg's scientific genius and compared him to Aristotle. His son, Professor Gustaf Retzius, among others, supplied the historian Fryxell with statements respecting Swedenborg. Then came Dr. R. L. Tafel's great work in calling attention to Swedenborg's valuable contributions respecting the brain and nervous system, by a publication of a translation of some of the manuscripts, together with masterly comparisons of Swedenborg's results with those of modern scientists, showing that very important anticipations regarding function and structure had been made by Swedenborg. In 1883 Professor C. Loven described the first volume of Dr. Tafel's edition of the *Brain* at a meeting of the Academy of Sciences. After this, among other European notices of Swedenborg's scientific works, may be mentioned a long contribution to the Proceedings of the Academy of Sciences for 1889 on *Swedenborg as a Mathematician*, by Gustaf Enestrom. In 1892 the geologist A. G. Nathorst in his work on the *Geology of Sweden* called attention to the notable work Swedenborg did in the field of geology. In 1900 meteorologist N. Ekholm referred most favorably to Swedenborg's *Principia*, particularly to the comparison of the forces obtaining in the primeval "chaos" to those of the magnet. Within the last few months a great text-book on cosmology and physics has been published by Dr. Svante Arrhenius, in which Swedenborg's position in the history of cosmogony is recognized. In recent times Dr. Max Neuburger, of Vienna, has again drawn the attention of scientists to Swedenborg's remarkable anticipations of later results in the physiology of the brain. In the early months of 1902 Dr. Neuburger, through the Swedish legation at Vienna, inspired a document of enquiry respecting the unpublished manuscripts of Swedenborg preserved in Stockholm. The document was received by Professor Gustaf Retzius and the manuscripts examined. However, the handwriting was found to be very difficult and nothing further was done. Sometime after my arrival in Sweden I met Professor Retzius and he asked me to help in an investigation of the manuscripts. Interest in Swedenborg's scientific works increased and the idea came to Professor Retzius that a committee of investigation be appointed and on December 11th he laid a motion to that effect before a meeting of the Academy of Sciences. The motion was passed and the committee appointed. I had the great pleasure of being present on this memorable occasion, so interesting to the student of Swedenborg's science and philosophy. Since the meeting the committee has met and organized.

ALFRED H. STROH.

STOCKHOLM, March 12, 1903.

DEAR MR. STROH,

You have asked me, how I conceived the idea of proposing to the Swedish Academy of Sciences to appoint a committee for revising the manuscripts of Em. Swedenborg that are kept in the Library of the Academy.

I will with great pleasure tell you the history of this proposal.

Many years ago, in the beginning of the 1870-decade, the renowned Historian Professor Anders Fryxell, the Author of "Berättelser ur Svenska historien," asked my opinion about the value of the anatomical works of Em. Swedenborg. I then tried to study the edited anatomical works as far as they were to be had in the Library of the Caroline Institute (The Medical School of Stockholm), and as much as my time could afford. I wrote to Prof. Fryxell a short treatise on the subject. I had found that Swedenborg was a most learned man in the anatomical literature as well as in other branches. I had, however, then not found those marvellous passages where Swedenborg pronounces new ideas on the localization of the different centra in the brain, nor the exposition of the cerebro-spinal fluid, etc.

In the year 1882 the highly interesting work "The Brain considered anatomically," etc., edited by R. L. Tafel, was published. Dr. Christian Loven, at that time Professor of Physiology at the Caroline Institute, referred Dr. Tafel's work before our Swedish Academy of Sciences and pointed out, that Dr. Tafel had shown that several of the later great discoveries in the science of the brain and the nervous system were either made or more or less foreseen by Swedenborg, for instance the localization of the psychic faculties in the cortex of the brain and especially the localization of the motor centra, which in our own time were again discovered by P. Broca and by G. Fritsch and Hitzig (in 1870), the existence, importance and distribution of the cerebro-spinal fluid in the brain, the spinal marrow and the peripheric nerves, which fluid, after Swedenborg's time, was described by Cotugno, Magendie, Bogros, A. Key and myself.

Since that period I did not have the opportunity to occupy myself with Swedenborg's works, until in last spring (1902), when I received from the Swedish Ministry of Foreign Affairs in Stockholm a request, which was based upon a paper from our Legation in Vienna. Docent Dr. M. Neuburger had asked the Legation to transmit a printed treatise by him at the meeting of the naturalists in Hamburg in 1901 "Swendenborg's Beziehungen zur Gehirnphysiologie."

The Swedish Ministry of Foreign Affairs remitted the papers of the Legation and of Dr. Neuburger to me. In the former paper the Legation mentions: "In the letter, by which Dr. Neuburger transmitted his paper, he writes amongst other the following:

"Da selbst in den gelehrten kreisen Deutschlands uber Swedenborg's wunderbare Vorahnung der neuesten Errungenschaften der Gehirn-

physiologie so gut wie nichts bekannt war, benutzte ich die Gelegenheit des Naturforschertags um Swedenborg als Vorlauffer Gall's und Hitzig's zu feiern. Es ist sehr zu bedauern, dass eine in Stockholm liegende, umfangreiche Handschrift Swedenborg's uber das Gehirn noch nicht veröffentlicht worden ist."

In consequence of this remittance I tried, in the Library of the Academy of Sciences, to make studies in Swedenborg's manuscripts of anatomical contents. But I soon found, that it would take me more time than I could devote to this work. The manuscripts are voluminous and in many places very difficult to read. The Latin proved also often difficult to understand. I therefore soon found that I must give up this work.

In the autumn (last year) I heard that an American investigator of Swedenborg's works, Mr. Alfred Stroh, had arrived in Stockholm. It was then that I tried to make your acquaintance, Mr. Stroh. I soon met with you and found that you were able to read and to understand quite well the manuscripts of Swedenborg, and you were kind enough to promise to help me with the deciphering.

This was the reason why I again took up the problem.

I then proposed to the Academy of Sciences to name a committee of five of her members for examining the scientific manuscripts of Swedenborg, not only the anatomical, but all of them, the physical, the geological, the paleontological, the metallurgical, etc.

I told the Academy that Dr. Neuburger had asked through the Legation of Vienna for an examination of a manuscript concerning the Brain, but I thought it to be best to try to examine all the others, if there might be some inedited of a high value. I also informed the Academy that we at present had the good opportunity of having in our country Mr. Alfred Stroh, whom I had, with the permission of the Secretary, invited to the same session of the Academy. Thanks to you it might be possible for us to get the work executed.

The Academy then nominated a committee of five members, Professor Christian Loven, Professor Alfred Nathorst, Professor Svante Arrhenius, Professor S. E. Henschen and myself. We began our work, as you know, with the decision to divide the researches in accordance with our special sciences and by considering which of the manuscripts might be the most important for copying. As you kindly informed us, that in America there might exist copies of one or two of the most voluminous and most important manuscripts, we charged you to make inquiries about them, and we suspended the decision of the copying, until you could give us information on this question. We also ought to get means for the expenses necessary for the copying. There are happily persons here who can do that work, but it is necessary to get the transcriptions revised, and you have been so kind as to promise us to inspect and to revise them. We are therefore indebted to you, Mr. Stroh, for your great interest in this problem, which for the history of Science is of great importance.

This is the story of the beginning of our Swedenborg investigations. I have here given the dates just as they have succeeded each other. I take this occasion to thank you for your promise of helping us with the studying and deciphering of the manuscripts and the revision of the transcriptions.

Yours very sincerely,

GUSTAF RETZIUS,

President of the Swedenborg Committee of the Academy of Sciences.

Lester F. Ward on the Doctrine of Discrete Degrees:—Lester F. Ward, in his recent work entitled "Pure Sociology; A Treatise on the Origin and Spontaneous Development of Society," published by the Macmillan Company, makes an interesting comment on Swedenborg's Doctrine of Discrete Degrees. In explaining an illustrated table of what he calls the "Synthetic Creations of Nature," showing the "causes" to be telic, conative, efficient; the "Phenomena" to be social, psychic, vital, physical; the "Activities," molar, molecular, radiant, etc., Mr. Ward says: "Although their primary elements always existed, the combinations resulting in the several products constitute so many distinct things. . . . Each new plane of existence thus attained is a fresh base of operations. The successive products and properties are so many discrete degrees in the history of the universe. Only his most philosophical disciples know just what Swedenborg meant by "discrete degrees," but as he was a true poet, this may have been a poetic or prophetic vision of the law of evolution and universal genesis which I have endeavored to sketch. He may have dimly seen the creative power of nature and the principle of creative synthesis and his discrete degrees may have been an adumbration of the synthetic creations of nature." p. 94.

In other words, Mr. Ward is telling us that Swedenborg wrote wiser than he knew, so much so as to have even adumbrated the system of evolution here brought to light by Mr. Ward himself. Gratifying as it is to see Swedenborg's doctrine of degrees recognized by a writer of Mr. Ward's ability and reputation it is nevertheless important to the interests of science that this doctrine even in its adumbrations be not mis-conceived or mis-stated. Accepting Mr. Ward's definition of the successive products in nature's creative series being "new planes of existence affording fresh bases of operation" as applying to the discrete degrees of Swedenborg, there is something more involved than this mere serial order in the latter and that is what constitutes the peculiar discreteness of Swedenborg's degrees; and that is, that they are at once simultaneous and successive, being simultaneous as one within the next and these within the third so that all are immanent in the last and lowest product, and yet, while all together in the last, they retain severally their original character without confusion or blending into one "continuous" degree. Thus according to Swedenborg "End" is in "Cause;" and End through Cause is in Effect, but while End and Cause

are both actualized in Effect they never cease to be distinctly End and Cause. Ontologically applied God as End is *in* Spirit as Cause, and both are *in* Nature as Effect; and yet God retains His eternal discreteness from both the spiritual and the natural worlds in which He is immanent as the universal pervading End or Final Cause. Thus only is Pantheism to be avoided. In Nature's series also the doctrine of discrete degrees as applied by Swedenborg means not one product following another merely in accumulative series, but as evolutions from prior involutions; or each new "basis" being not a new creation as now first conceived, but a new step in the evolution of the end immanent from the beginning.

Swedenborg's doctrine of "series, orders and degrees" is consistently applied with mathematical clearness and exactness all through the philosophical works, and requires no especially "philosophical disciple" to understand it; but in the theological period its application is of a much vaster scope, embracing the whole range of being, natural, spiritual and divine, and thus the discreteness acquires an altogether wider significance.

F. S.

REVIEWS.

The Infinite and the Final Cause of Creation; also, The Intercourse between the Soul and the Body. *Outlines of a Philosophical Argument.* By Emanuel Swedenborg. London. The Swedenborg Society, 1 Bloomsbury street. 1902. New York, 3 West Twenty-ninth street. pp. 235.

The original work was published in Latin by Swedenborg in 1734 at Dresden and Leipsic. The author's title is there given as "Assessor of the College of Mines of His Sacred Majesty of Sweden." The work followed the author's *Principia* and seems to anticipate the larger work on The Soul, *De Anima*, which was written as a concluding part of the *Regnum Animale* and posthumously published in 1849 in Latin, and 1886 in English. The work *On the Infinite* was translated by Dr. James John Garth Wilkinson, M. R. C. S., of London, and published, with the translator's introduction and notes, by the Swedenborg Society in London in 1847. Even so early as 1795 a translation had appeared in Manchester, being done by two scholars in the Classical School of the Rev. W. Cowherd, but this was held by Dr. Wilkinson to be so unsuccessful as to call for a new effort. Dr. Wilkinson himself had frequent difficulties with the author's meaning, as his notes testify, and in some instances he has ventured on corrections of the original where it was divergent from Heister, the anatomical authority extensively quoted by Swedenborg. The work having been long out of print, the Swedenborg Society, of London, has shown its liberality and excellent judgment in bringing out a new edition from large type and in convenient shape, and thus one of Swedenborg's earliest and profoundest metaphysical discussions is enabled to take its place by the side of similar

discussions of today, and to show wherein its author wrote what was of more than ephemeral interest and worth.

Swedenborg's quest is here as throughout his philosophical period that which lies beyond the finite, and the problem is how to reach this by methods coincident only with finite thinking. As he finds the infinite lying before all things as their necessary source and cause, so he finds at the end of his quest the soul still lying beyond his reach so far as it partakes of the infinite. Between these vast mysteries lies a perfectly mechanical and geometrical world. Whence can this perfect form, order and adaptation come, but from an end or purpose in a self-causing infinite; and how does this end find its access into the mechanism of an extended world except by some means of the infinite's own creating; and how does the end find its realization in that world except in lifting the soul into the realm of the eternal and into union with its infinite source again? All the ancient contradictions of the Greek Sophists, all the "antinomies" of Kant, the mysteries of number, of time, of space, motion and change are threshed out in the author's cool, determined search for an answer to the questions, Whether there be an Infinite, and if so What is it? and Is there a Nexus or Link between it and the finite? On *a priori* grounds he proves by rational argument that the Infinite exists, that the nexus also exists as a part or function of the Infinite, and that the finite, while characterizing all our thought and knowledge leads us to the belief in the Infinite and so in God, although He be beyond our knowledge and understanding. Swedenborg's scientific method is that of a graded mechanism, i. e., a mechanism of increasing perfection as it applies itself to the finer subjects so that it may soar above gross matter into the ethereal, invisible, even into the spiritual, nay into the free activity of the Infinite itself and still be mechanical, that is a procedure of forces by determined law. Determinism and free will are reconciled in an interesting experiment of bringing together the timeless infinite purpose, which knows no future, with the reflection of the same in time's succession and in the corresponding modes of finite thought, giving before the finite mind the form and appearance of pre-determination to that which in the Infinite is only ever present free will completely seeing and completely accomplishing its ends.

The book is so rich in thought as to baffle any attempt to represent it by fragmentary extracts. The beginning is quite Socratic in the author's seeming acquiescence in the ordinary reader's conclusion that no infinite can exist and therefore no God beyond the material and extended; but only, like Socrates, to show into what a dilemma this brings us. He then points to the way out by means of a cause-world in a sphere utterly discrete from extension and hence neither great nor small, neither of short nor long time, but rather infinite and eternal or timeless. The beautiful simplicity of the author's language, as well as the humility of his philosophic spirit, will attract the reader and win his confidence. "You see here," he says in opening, "philosophy rea-

soning upon the infinite and the soul, yet using the most familiar words and a humble style and endeavoring to divest herself of the net of metaphysical terminology." The reason is defined to be "a faculty partaking both of the soul and the body, whose end is to enable the soul to be instructed through the body and its organs, that afterwards it may dispose all things in such order and connection that a rational principle may be the result. The end for which reason is given us is that we may be empowered to perceive that there is a God and to know that He is to be worshiped. If reason be the means endowed with the faculty and power of perceiving, and if the actual perception be the end, then the means in so far as it is correctly rational cannot be repugnant to the end." (The author's preface.)

That is, we must dismiss all fear of the reason as liable to lead us into disbelief when its whole nature lies in the current of true belief. "The very mysteries that are above reason cannot be contrary to reason, although reason may be unable to explain these grounds." (p. 6.) The philosophizing mind is ever enquiring about what is beyond; and "whether the infinite is beyond nature or the contrary, or whether there is anything in nature that can be called infinite." The mind "burns to possess denied knowledge and to tread forbidden ground." "But the deeper the mind seeks for the infinite the more it is involved in a labyrinth." Then follows a long list of the antinomies of thought upon the infinite. "Time is no more than a peculiar relation to modes proceeding from finite beings. . . . hence time, space, motion, quantity all conspire and consent rationally in declaring that there is no infinity in any of them." The "philosopher concludes from the impenetrable mazes that while there can be no infinite there may be an indefinite, and so guesses that the Divine is the prime of nature and nature and God are in a measure one." But if the "mind begins to reason it cannot help going deeper and deeper," and the process must be the undeviating one of reason. "To convince reason, reason must be made use of," so that "when once the individual is convinced of reasons, especially in matters of faith, there is nothing whatever in loss of human delights or death itself that can afterwards make us swerve from them, so greatly does the mind respect itself." "The more knowledge we possess the more there is to make us happy and the more to make us unhappy. Hence a Christian Philosopher may be the happiest or unhappiest of mortals." (p. 232.) In nature the infinite is impossible, but just so truly does nature demand a cause in a self-causing infinite outside of itself. "In machinery what we really wonder at is the first cause; not considered as organic or mechanical, but cause in the person of the inventor; and not the inventor as he who made, but he who *invented*, that is, foresaw that the consequence would flow from that." "Can nature produce such a construction of parts? Can any machinery, without an infinite intelligence? without a cause in God?"

Depicting man as that culminating effect in creation through which

the final ends of the infinite are realized, we have this fine passage (p. 47):

"Man, as we all know well, was created to enjoy the delights of the world, and to possess the earth for himself and his posterity. Wisdom and reason were given him, to venerate and worship the infinite Deity, that he might better make use of worldly delights, and have a finer or more delicious sense of them, to lead him to associate them with heavenly ones also, to carry the world to a new perfection, which it could not attain without a material being and human means; lastly, to commence a life and existence which should thenceforth be eternal and immortal, that he might increase the number of the angels. And that man might accomplish these ends, a body was given him, and parts and members were added to the body, all conspiring to the same end; a head was given him, with a brain therein, and this brain endowed with senses, and the senses with a soul."

Treating of the "superlative mechanism of the senses" the author says: "As the learned world is continually engaged in exploring the mysteries of nature by experiment, there is no reason to despair of further progress, or of their ultimately reaching the soul, so as at all events to judge of its mechanical operation."

Describing the successive degrees of elements and the mechanism applicable to each he says: "The nearer they are to the simple the purer they are and the more approaching to superlative perfection in their mechanism and geometry," and "there are membranes in the human body to receive all the motions of the elements." In this way by a subtle contiguity there is a complete community of motion through all nature, and man, as the most perfect receptacle, receives the most perfect motion and has in him the capacity of reflecting the Divine itself and acknowledging and adoring God his author.

By examining the anatomy of the body in all its parts and organs and its action in all the faculties of imagination, memory, perception or will "we shall be enabled to arrive at the true geometry and mechanism of this most perfect entity." "Experience and geometry alone have a right to be affirmative and positive, and when they become so and not till then, by the consent of the soul the rationale of the subject is declared. The main end of these, our labors, will be to demonstrate the immortality of the soul to the very senses." Could anything seemingly be more analogous to the spirit of the modern laboratory research in physiological psychology? Could anything indeed be more materialistic than at first glance seems Swedenborg's reasoning regarding operation by contiguity even on the soul? Thus, on page 190, he argues: ". . . motion is nothing without substance, there is no motion without there be something to be moved. That is to say, every moving body supposes a mode proceeding immediately from a substantial, and acting immediately on a substantial." Surely the very extreme of materialism, one is ready to say. But when we come to study further

Swedenborg's theories of the "several elements connected by contiguity" (p. 191) and how they reach throughout the universe and are derivable from those subtler essences treated of in the *Principia*, as the elementaries and the finites, down even to the first finite, and the "pure simple;" so that "in the undulations of an element there may exist all the conditions on which the infinite variety of phenomena is explicable" (p. 200), and that "there is nothing to prevent new undulations from constantly entering an identical tremulous volume, and co-existing therein, a thousand-fold variety thus taking place in a single contiguum;" and when we refer to the earlier statement (p. 40), that "in the primitive element were present all things that, as regards time, were future." and that "the essential and absolute Cause was present in the primitive entity, and by its derivation through a succession of compounds completed the world in a continuous chain in one distinctive manner," and finally that this motion is imparted to the "primitive entity" by the conatus in the self-active Infinite itself, which, while it is incapable of motion or mutation, is yet capable of producing these *in itself as finited*, we see how Swedenborg really derives all motion and so all the soul's activity and susceptibility from things beyond matter, and so makes his substance embrace in its highest elements what we would denominate the spiritual, just as his mechanism embraces the free but orderly activity of will. "There is a mechanism in the effects and there is a mechanism in the causes, and this we continue to observe until the causes become so subtle that they at first begin to disappear and at last actually disappear from our senses. At this last juncture we find that we desire to deny mechanism to the vanished causes. It is, however, no sufficient reason against their mechanical nature to say that it is not sensible." (p. 148.)

The key to the whole system seems to be in the subtle but most significant principle of the Nexus laid down in Chapters IX. and X. of this work, for herein alone is the question answered how does the Infinite impart or originate motion in the first primitive of nature. The answer is through a nexus between the Infinite and the finite, "but not a natural, neither a mechanical, geometrical or physical nexus, nor one of any kind that has any analogy with the qualities of the finite. In a word we know that there is a nexus, but as to what it is we know nothing whatever." The great significance of this position in the history of philosophical development, as well as in connection with Swedenborg's own spiritual philosophy, is in its epistemological bearing, and hence its relation to idealism. Does the real lie in matter or in a world discrete from matter and from which matter is derived? Does the immaterial or ideal world create the material world or the reverse? How can any relation exist between two things having nothing in common like a world of thought and a world of extension? We see at once it was the problem which Kant hoped to have solved in his Critique by his doctrine of the *schemata* Time and Space as mental media by which the

extended world takes on reality to the human consciousness. Swedenborg likewise draws his nexus, his only possible bond of relation between mind and matter, and hence only possible means of knowing the latter by the former, not from matter, but from mind, since, while we do not know what this nexus is, we know "it is not natural, mechanical or physical." "The more acute philosophers have made out, that neither hearing nor sight have a real existence until the undulation reaches the inner parts and the senses themselves are taken into fellowship with the soul." (p. 170.) In other words, they have found as Kant found, that while we learn only from experience, yet experience means senses plus mind, and the organon or way by which sense serves mind is something created by mind alone and is *a priori*.

The new edition is furnished with an introduction by Prof. Lewis F. Hite, M. A., in which the doctrine of the "link" or nexus is distinctly set forth, and a contrast drawn between the pre- and the post-illumination period of Swedenborg and the two positions brought into harmony by the later doctrine of "God as Infinite Love" and the Universe "as Love in the manifestation of its self-representative and self-realizing activities." A comparison is made with Dedekind's theory of numbers and with Professor Royce's doctrine of self-representation. According to Professor Hite Swedenborg's "concept of the Infinite applies primarily to self-conscious activity; he also gave decisive hints of the application of the doctrine of self-representation by correspondence in the case of nature taken as a finite series with man as its last term, . . . and his work claims the merit of being the first serious undertaking to treat the subject in a complete way from a philosopher's point of view. It should also be stated in fairness that he brought philosophical reflection to the real issues of the problem and that he presented those issues so conclusively that subsequent reflection only emphasizes the importance of his work."

In retaining also the introduction furnished by Dr. Wilkinson for the first edition we would have been glad if the editors had offered some more worthy reason than that of the "high sanction given it by the favorable estimation and the personal friendship it won from Ralph Waldo Emerson." In view of the better understanding of Kant's system and the consequent laying aside of many mistaken notions regarding what was called his "Transcendentalism" the virulent assault upon his teachings by Dr. Wilkinson will seem altogether misdirected by modern scholars, and if logically examined quite as hostile to the metaphysical positions assumed by Swedenborg as to those of Kant. That what is declaimed against as "transcendental," namely, a substitution of mere mental fictions for the things really experienced is not what Kant meant by the "transcendent" is known to every beginner of his system, the "transcendent" being with Kant that principle of essential reality in all experiences without which they are impossible and yet which transcends the limitations of any single one, thus corresponding to the pres-

ence of the Infinite in finite things as a constant regulating end or rational principle whereby things of sense can be made intelligible to things of mind, and hopeless diversity and separation be brought into unity and harmony.

Especially unfortunate seems to us the objection so strongly urged by Dr. Wilkinson in his preface against Kant's doctrine of the phenomenality of the objects of our knowledge, and against his distinguishing between the objects and the "things in themselves," since it has been shown that by the "things in themselves" Kant meant only the spiritual realities which according to Swedenborg can only be known to the natural mind in their corresponding appearances, that is, as phenomena.

This experience throws important light upon the questions discussed by the Association as to the advisability of introducing interpretative prefaces to the new editions of Swedenborg, except such as shall be of a purely historical and bibliographical nature.

F. S.

Psychology of the Nations. By A. L. Kip. *The Knickerbocker Press, N. Y.* 1902.

It is well-known that the nations of the world have peculiar mental and moral characteristics, as also distinctive physiological traits; and so the possibility of a psychology of the nations is granted. It is likewise an accepted doctrine of historical students that the physical features of a country help to mould and determine the character of the inhabitants.

Resting on this basis, the book before us proceeds to assign to each nation its proper function. In the prosecution of this task, however, the author while availing himself to some extent of recent ethnographical studies keeps these in a somewhat subordinate position, for the framework of the book and its method of procedure is drawn from a rather startling, not to say reckless application of Swedenborg's doctrine of correspondences. From this point of view, the book is, to say the least, a curious specimen and we will confine our notice to this aspect, since the ethnology it contains is of no peculiar importance.

After observing that the characteristics of a people are determined in the first instance by the country they live in, the author goes on to say, "A knowledge of the correspondence of a country is consequently necessary to explain the character of the inhabitants" (p. vii.). This statement is at once puzzling. It is admitted that there is a connection between the physical features of a country and the character and habits of the people, and we may very properly call this relation correspondence. But how can a country have a correspondence with psychological functions in advance of its special relation to its inhabitants? In short, what special and peculiar meaning does the author attach to the word correspondence in this sentence? This question the reader is left to answer the best he can. Indeed, the writer seems throughout to be altogether superior to the interests and the requirements of the ordinary

reader. The book moves along with monotonous self-complacency and a supreme confidence in its own inner self-sufficiency; and yet there is something decidedly attractive in the simplicity of its literary form and spirit. The reference in the foot-notes to Swedenborg and Worcester give us the clue we need to follow the method. Mr. Kip was a pupil of the Rev. John Worcester in the New Church Theological School, and seems to have had the usual experience of acquiring a profound admiration for him. But it must be very painful to the serious students of Mr. Worcester to find him imitated in this superficial way. As to the use the author makes of Swedenborg, perhaps we must accept it as inevitable if not legitimate for students to take Swedenborg's doctrines and apply and extend them as best they can. The question here, as in all such cases, is whether or not the doctrines have been correctly applied and extended. But this feature does not come within the scope of this notice. The immediate purpose is to exhibit the book and interpret it.

Simply stated, the main thesis of the book is this: The earth and its parts correspond to the mind and its faculties. "The correspondence of a land remains the same whether inhabited or uninhabited" (p. viii.). Making use of Swedenborg's general psychology and taking his cue from a few of the more familiar Bible correspondences, the author goes on to construct his scheme. Comparing the earth as a whole to the mind as a whole, "Its land corresponds to the natural feelings and its water to the natural thoughts" (p. i.). This is diagram I. Diagram II. places the earth, the brain and the mind in their correspondential relation as follows: The cerebrum, the seat of the intellectual faculties, corresponds to the eastern hemisphere ("the inhabitants of which have a greater aptitude for intellectual activity"); while the cerebellum, the seat of the emotional faculties, corresponds to the western hemisphere ("where the inhabitants tend mostly to emotional activity"). Diagram III. presents another view. "The southern hemisphere, being composed for the most part of water, represents the right or the intellectual side of the brain; and the northern hemisphere, being made up largely of land, represents the left or emotional side" (p. ii.). We observe that aside from the fact that the author here reverses Swedenborg's doctrine, he does not seem to be in the least troubled that diagrams II. and III. are inconsistent, so that Europe and Asia, for example, correspond at once to the intellectual and to the emotional faculties. So too does South America. But confusion becomes worse confounded when we come to diagram IV., according to which the north corresponds to mere knowledge, the south to emotion, the east to abstract feeling (whatever that may be) and to abstract knowledge, the west to concrete feeling and motives (p. 4). To exhibit the futility of this scheme, it is only necessary to superpose these diagrams and observe that each country corresponds in every case to both sets of intellectual functions, and therefore to neither in particular. For example, Europe and Asia

being land would correspond to the feelings, but being in the eastern hemisphere, they correspond to the intellect; on the other hand, being in the northern hemisphere, they correspond to the feelings, but being north they correspond to mere knowledge. These difficulties and inconsistencies, however, seem to offer no obstruction to the author. He calmly and confidently proceeds to assign each continent its proper correspondence, and then takes up the countries, islands, lakes and rivers.

"Australasia corresponds to the abstract emotional faculties; Asia to the abstract intellectual faculties; Europe to the concrete intellectual faculties; Africa to the emotional intellectual faculties; North America to emotional feelings; and South America to intellectual feelings" p. iii.).

Of course, this result or any other could be expected from the scheme, but why this particular result the author does not delay to tell.

The bulk of the book is made up of brief statements of the correspondence of the several countries and islands, in many cases down to small provinces and insignificant islands.

In view of the above scheme, we cannot, of course, expect any guiding principle, and in fact all that we actually find is a purely mechanical and arbitrary assignment of characters in terms which are drawn in large part, if not entirely, from Mr. Worcester's vocabulary, but from which Mr. Worcester's light and intelligence have escaped.

As specimens, take the following: Japan corresponds to the faculty of attention, attention to subjective knowledge with an effort to understand. As Japan occupies a sort of introductory position in relation to the rest of Asia, so this is one of the first and introductory intellectual faculties. China corresponds to inner memory, and so the inhabitants have a peculiar development of it. Australia corresponds to outer memory. But Indo-China, unexpectedly and quite inconsistently as a part of Asia, corresponds to good will, an emotional character. So too Palestine corresponds to veneration.

Europe, as we saw, corresponds to concrete mentality and we have a specimen of the author's psychology in the way he distributes concrete mentality among the various European countries. The British Isles correspond to the faculty of judgment; Scotland, judgment as to what to learn; England, to judgment as to what to think; Wales, to judgment as to what to do, etc. The river Thames is the judging of facts in accordance with established laws and methods; Avon and Severn are judgments on the meaning of life in the abstract and in the concrete; the Tweed is judgment based on conclusive evidence, etc. France corresponds to the analytical faculty, Germany, to the synthetical, Greece to the faculty of comparison, Italy to volition, Spain to self-esteem, Switzerland to determination, Turkey to faith, etc.

From first to last we are at a loss whether to take the book seriously or in fun. It appears sometimes to be the mere play of haphazard fancy, sometimes as deliberate burlesque, sometimes it gives one the

impression of being a reckless and sacrilegious exhibition of inordinate conceit. Take for example some of the things said about the United States. To begin with we are told that the United States corresponds to love to God. Then we have the correspondence of many of the States, the great lakes and some of the rivers.

Maine is the love of abstract knowledge about God; New York is the desire to be like God in thought; New Jersey is love to God in form, or as a Divine Man; Virginia is the desire to be filled with God's spirit; Wisconsin is the knowledge of the Lord's Divinity; Minnesota is knowledge of God's greatness; Lake Superior is the knowledge of the Divine teaching as to the love of God; Lake Michigan is the knowledge of the particulars of the Bible; Hudson river is the prayer for the Divine guidance; the Mississippi is meditation on the greatness of God; the Ohio is meditation on His great knowledge and wisdom.

This is a specimen of the inconsistent, arbitrary and absurd detail in which the author indulges apparently without any sense of responsibility, without any regard for truth, or any feeling of reverence or religious earnestness.

It would be a waste of time to subject such a book to serious criticism from the philosophical point of view. As an essay in applying the doctrine of correspondences it may lead to closer and more systematic study by provoking attack. It certainly has the merit of boldness and directness, whatever may be said of its significance and strength. Whether successfully or not, the field is occupied, and the main thesis is grounded in our doctrines. The Church needs a more systematic and more critical exposition of the doctrine than we have either in Swedenborg or in Worcester. From this point of view, to say nothing of its loose and inconsistent psychology, the book before us is fatally defective by reason of its thoughtless use of abstract and arbitrary correlatives, such as east and west, north and south, internal and external, abstract and concrete, etc. Such expressions as abstract intellectualized emotion and concrete emotional intellectuality may very well characterize the book itself, but they seem to be hardly enlightening when used to define the psychological status of a nation.

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