# THE NEW PHILOSOPHY.

VOL. IV. JANUARY, 1901. No. 1.

## ON THE SENSES.

PART FOUR OF "THE ANIMAL KINGDOM"
BY EMANUEL SWEDENBORG.

### II.

*The Common Trunks of the Carotids.*

*Experience.* There are two Carotids; the left carotid ascends from the arch of the aorta, the right, for the most part, from the subclavian artery of that side; both near the trachea and the internal jugular vein, to the altitude of the larynx, without branches; thus far they are called the Common Carotids; but there, at the larynx, they are divided into two great branches, one of which is called the external, the other the internal carotid; the former tends especially into the external parts of the head, the latter into the skull and brain. The external carotid is in front of and nearer to the larynx, but the internal is behind and farther from it.

1. *Analysis.* The blood vessels in the body take their direction according to the circles and common axes of the whole body, and according to the proper or particular axes of the viscera, in order that they may be in the stream of motion, nor be disturbed by any diversity arising from the motions of the body or the viscera, but that they may distinctly perform their offices.* This can be seen everywhere.

*The Word in the original is *muniis*, should be ***muneribus***.—Tr.

2. The carotids of the trunk, the aorta and the subclavian artery concur in one umbilicus [or centre], especially in the subclavian; for the centre of the upper body, or the terminus of the vertebral axis is there presented; wherefore also the Thoracic Duct there concurs with the subclavian vein; the aorta runs down according to the vertebral axis and passes through perpetual centres and fulcra, and indeed even to the receptacle of the chyle, which it sometimes perforates; for the receptacle of the chyle constitutes the other terminus of that axis, or as it were, a kind of umbilicus. This now is the reason that the aorta, subclavian, and the carotids concur here. The carotid proceeds then even to the centre of the skull in the sphenoid bone to the clinoid processes, and a branch of the external carotid even to the temples.

3. If the blood is borne upward or downward in its own orbit or animal world, it is the same as if it were thus forced by the heart, either upward through the carotids or to the side through the subclavians, or downward through the aorta,* in whatever position the body may be in; for every body is a world within a world, and therein forms its own ways, directions, pressures and gravities, nor does the external world act upon it, except that it sustains this whole little world, and causes that it exercises its powers aright.

Thus the centre of gravity of every arterial branch is towards its smallest branchlets and their ends, which also are beginnings. Every member is such a centre, whither they aim, or whither they tend. There are in the head as many centres as there are organs and glandules; then also the brain is such a centre, and in the brain there are as many as there are parts and individual things; thus in the body there are as many centres as there are viscera. The sanguineous stream seeks these its centres, and it is the same whether in respect to our universe this centre be at the summit or at the centre of the earth, which is confirmed by many things; but when these centres have been set in motion, when they suddenly stop, or when the mass of the vessel overcomes

---

*The Word in the original is *avitam*, should be *aortam*.—Tr.

the strength of the motion, as sometimes happens in the head, then it sustains the pressure of the universe.

4. All the viscera, so also all the organs of the head, and also the brain, demand of the heart each its own quantity and quality of blood; for the artery gives nothing of its own to any viscus, but only brings and offers the indiscrete wave. It determines neither the quantity nor the quality.

5. What determines the quantity of blood through the carotids is each and every organ which thence receives its supply; thus there are many fountains which attract those streams. In order that all things may flow according to the course of nature, there is everywhere an internal, a mediate and an external cause, which concur wonderfully to the same effect. The internal cause is called attraction or invitation; the mediate is the assistant cause, or promotion; the external is propulsion or incitation; thus the effect flows spontaneously from itself, when they concur.

*The internal cause,* which determines the quantity through the branch and the trunk of the artery, is in the very smallest things and beginnings, which open themselves from their own or other adventitious cause, and, as it were, invite the blood into themselves like syringes; for when those smallest glandular follicles are expanded, then the blood from the branch presses in; as in the brain, when the cortical glands are expanded, the desired supply rushes in from the neighboring branches; so also in the remaining glandular follicles, as also in the motor fibres. There are only glandular congeries and motor fibres, besides papillary forms, which constitute ultimates. When these are opened, a supply, determined by the expansion, flows in from the infinite smallest branches; into the innumerable smallest branches it flows in from those somewhat larger, then from the larger, finally from the trunks; thus, in order that the quantity of blood in the inmost arteries may always be as much as may be demanded of the branches which unite from these, there are in the smallest arteries myriads of little branches which inosculate to form one larger, and so forth, so that the number in the direction of the trunk decreases. From these things now one may judge how great a syringe-like force from the inmost arteries urges that the

blood may be invited from the trunk. This also is the reason that the carotid rises at almost a right angle.

Thence it follows that no more can be impelled than is invited, for it resists a greater quantity: besides that, the trunk contracts itself in relation to the desire.

*The external cause,* which determines the quantity through the trunk and the branch, is the undulation begun by the heart; for the blood is urged by the undulation,—see our *Animal Economy,*—to the extent of the force of the undulation; see *ibid.,*—then also notice that the undulation goes upwards, sideways and downwards, equally in all directions; this is the propulsion or incitation which corresponds to the attraction or invitation.

*The mediate or assistant cause,* is the reaction of the muscular tunic, which is similar in every branch to what it is in the heart; for the force of the heart is, by a similar organism, continued through its branches,—see our *Animal Economy.* The rule is general, that the force arising in the beginning or fountain is continued such through all the channels, for similar powers are adjoined which push forward. This is called promotion.

6. As to the quality of the blood, there are similar causes, internal, mediate and external; for every member demands for itself its own quality as well as its own quantity of blood; nor does a better blood arise to the sensories of the head and to the brain, because the carotid goes upward. This world has nothing in common with the greatest world, in which it lives.

*The internal or inmost cause* resides in the glandules themselves and in the fibres; for ultimate organic forms are contexted from the smallest nervous fibres. These fibres bear the same animus or appetite and aversion as the cerebrum itself and the cerebellum, whence the fibres arise. The larger organs desire this but refuse that, as, for instance, the tongue, the nostrils, etc., wherefore also the smallest organs. A compound derives what it has from its simples. Therefore the things which the brain and its fibres desire, these little lips attract, drink up and lead aside with avidity, but if they be of another nature they refuse and reject them, and, as it were, vomit them back. Thus every single viscus, member and organ, draws to

itself the kind and nature of blood suitable for itself and its use, and it attracts this from the midst of the torrent. Other things they reject either into the neighboring veins by anastomosis, or elsewhere by excretory vessels. From use are formed the combinations and the single things, so that nothing else may occur. This inmost cause, called invitation, is why the purer blood is carried to the sensories of the head and to the brains.

*The external cause* is, that the carotid artery turns to the left or backward from the trunk of the aorta; for every little wave, flowing spontaneously, flows according to the direction of the universal vortex, as one may see in water and other fluids, and in the atmospheres themselves; hence things more fluid are borne to the left more easily than to the right. This is the reason why the thicker blood, the same nature leading, flows down to the right through the aorta, laterally through the subclavian, and the better essences through the carotids; it, [the purer blood], tends thither in whatever position the carotids may be. In like manner the branch elevates itself to the larynx, so also the internal carotid, namely, to the left.

*The mediate, assistant or promoting cause*, is a trembling or tremulous modification of those organs arising in both the larynx and the ear, then in the other sensories, finally in the inmost parts or those of the brain. The modification is cruder about the larynx, purer towards the superior sensories, and purest in the brain; wherefore the purest essences thus modified are borne to the exact place where their nature concords with the organism. But this cause will be explained at greater length in the doctrine of modifications.

To mediate causes must also be referred this, that throughout the whole way there are many glandules which invite and thus draw off the salivas and thicker and slower parts of the blood so that a purer blood may remain; of this we will treat below.

7. In order that these things may rightly accompany the effect, it is necessary that the carotid should ascend through a long tract near the trachea all the way to the larynx smoothly or without branches, for several reasons, namely:—1. In order that it may form a large channel with capacity sufficient to contain all those mixtures, whence all the organs can draw each

its own allotment, which could not be done in a short canal. 2. In order that, according to the usual custom of nature, all things may at first be poured together, as it were, into a chaos, from which each single thing may draw distinctly its own supply and portion. 3. In order that in this passageway the blood, by the aid of the trachea and then of the larynx, may in its first passage be excited and animated by sonorous vibrations; for the sonorous tremor and other modifications penetrate every single part, wherefore, as is to be known, it keeps the parts distinct from one another, so that every organ can take its own essences distinctly. 4. Because the trachea is actuated by more extraordinary motions than the rest of the viscera, therefore this artery does not before this dare to send off any branches; see *The Trachea.*

*The Common Branch of the External Carotid.*

*Experience.* The external carotid is the greater, and by its direction is as it were a continuation of the trunk of the carotids; it pushes itself insensibly outward between the external angle of the lower jaw and the parotid gland, to which in passing it gives off branches; finally it ascends towards the ear, and terminates on both sides at the temples; in this passage it gives off branches which can be divided into anterior or internal, and posterior or external.

1. *Analysis.* Each common branch contains within it all those essences, namely, as great a supply and such a quality of blood, serum and lymph as the organs thence dependent require; thus the common carotid contains the whole supply and quality which the whole head with its organs and the brain demand. The external carotid is the common branch of all the organs of the head, both of the sensory and motor organs or of the muscles as also of the glands; likewise every branch of every organ is common or proper to it. This branch the viscera themselves share with one another according to use.

2. In a common branch of this kind there is always a like quantity and a like nature of requisite blood and serum; for nature always conspires to an equilibrium which we call an equation; if indeed one organ attracts more of its own kind or

species of blood, then it flows more quickly; the celerity itself does not hinder a like supply from being present, for it is compensated by the celerity, so far that a like ratio all the while subsists. See *equation* in our *Animal Economy.*

3. In order that a greater supply and another quality of blood than it needs should not be obtruded upon the brain against its will, the external carotid is a continuation of the common trunk, and is larger than the internal carotid. The internal carotid goes off thence at almost a perpendicular, which is the first artifice of nature that nothing be obtruded except what is desired (See the Intercostal vessels). Therefore the blood flows past the internal carotid when the brain does not require it; wherefore the external carotid is continued from the trunk and is larger than the internal.

4. In order that the sensory and motor organs shall not draw any but the purer blood,—for there is a blood for the sake of those organs, that is, for the sake of motion and sense, wherefore they require a purer blood,—therefore from the blood approaching in the way the more watery, serous and impure portions are drawn off by various little fabricated glandular machines, and by still other artifices. Every common branch has its own diverticula and resting places, into which it throws the impurer parts of the blood, and thus clarifies itself, that a supply of purer blood may be present for the sensory and motor organs. The common branch of the internal carotid has the great parotid gland which draws off an immense amount of watery serum, as is known from experience. Wherefore also in its passage the common branch gives off branches to the parotid gland so that that gland is the common purifier of that blood. This is also the reason why the parotid gland is situated where it is, close under the ear, and indeed subjoined to muscles, as to the masseter. If that gland, which regards the mouth and tongue, were not for that use, it would not be drawn up so high. A similar thing occurs with every branch less common, which always has its own salivary glands, in order that it may unload its super-abundance of impure serum and of blood.

5. The blood of this common branch is also excited by cruder tremblings, which correspond to its stream, abundance and na-

ture, namely, from the larynx even to the ear and the temples; for both the larynx and the ear, together with the temples, tremble continually from sounds which pervade the bones and the membranes themselves through which the common branch passes. Thus the crudest modification invades the trunk from the beginning to the end, that is to say, so that the parts tremble individually, and the blood is in that state of life that it may not clot, but be agitated continually and in particular, which contributes much to the giving off to each organ its own portion.

6. For every tremor pervades the fibres which go to make up the vessels themselves, wherefore it also pervades the blood which they contain or convey; for at the first, this cruder tremor, which is excited from speech or hearing, or from the larynx and the ear, attacks the vessels; afterwards a more subtle tremor which arises from the sense of taste, then that which arises from smell, finally, a still more subtle one which arises from the subtle tremor of sight, excite, not the blood itself, but its spirit or the interior essence of the blood. The cruder senses urge into a tremor or modification the whole globule of the blood, but the purer, the parts themselves of its corporeal structure, the still more subtle its spirit. Thus all things contribute to the end that there be nothing in the blood that is not driven on in its own vital motion. The common branch or carotid artery thus also tends in such a way that according to the degrees of its progression it may receive this more animated vital motion; for it proceeds at last to the organ of sight or the eye. For nature does not progress even a line without the consideration of use, for it intends nothing but ends. This is the reason why the nerves of the fifth pair go to all the organs of the senses, namely, that they may communicate and dispense the single things of the senses.

(To be Continued.)