

SCLEROSIS AND INFLAMMATION

THE POLARITY BETWEEN SCLEROSIS AND INFLAMMATION

In the previous chapter it was observed that the nerve-sense system has its "home" in the head, so to speak. It is here that the tendencies of immobility, hardening, mineralization, coldness, and the lack of life processes ("death"), are found.

An interesting phenomenon is "*brain sand*", well-known to anatomists, pathologists, and radiologists. It is described as small "yellow, sand-like granules, made up of calcium phosphate and carbonate, and of organic base". It is found in and around the pineal gland, a particularly significant organ in the history of animal and human evolution. It is an expression of mineralization, of sclerosis within the brain, brought about by the arousing of consciousness (breaking-down, catabolism).

What happens when these processes become stronger and stronger? When, what is characteristic of the head region overwhelms the body, penetrating further into the body? We might say that in this case other parts of the body would become more "head-like". The principles, the characteristics of the nerve-sense system would then become dominant and would immobilize, harden these other bodily areas and inhibit life processes. We can recognize that this process leads to what we call **sclerosis** (hardening, leading to chronic degenerative diseases).

Examples of sclerosis are atherosclerosis, arteriosclerosis, renal and bile stone formation, as well as any form of degenerative disease, or malignancies. Malignancies, practically all forms of cancer, are firm to hard in their consistency and usually show quickly necrosis and calcification at their center.

We have also observed that the metabolic system has its home in the abdomen. Here the processes of mobility, dissolving, destruction, diluting, of warmth and the abundance of regeneration and life, including reproduction itself, are found.

What happens when these principles, these processes become stronger and stronger?

When from the abdominal region they overwhelm the rest of the body, when they penetrate further into the body? One might say that in such a case, other parts of the body would become more "abdomen-like". These processes, the characteristics of the metabolic system would then become dominant and would cause warming, bring about fever and thus dissolve and destroy an area or organ (system). We would recognize this process as leading to what we call **inflammation**.

Examples of inflammation are allergic reactions and diseases, infections, auto-immune reactions and wound healing.

The processes of sclerosis and inflammation are natural and necessary processes which give the human being, on one hand, a skeleton and teeth (he would be like a jelly fish without a skeleton), and on the other, life forces, which, through destruction and reabsorption of the broken down products of digested food, make his physical existence possible.

Thus, in Anthroposophical medicine, there exists this fundamental and unique concept that the human organism possesses both the tendencies towards sclerosis and inflammation. As long as there is an age-appropriate balance between them, health exists. One could also say that health is facilitated via a delicate interplay between sclerosis and inflammation. This interplay is made possible by the rhythmical system.

Location-wise, the rhythmical system is not only located between the nerve-sense system and the metabolic system, but also functionally mediates, balances out, between these two polar systems: the "Upper Pole" and the "Lower Pole". (see figure 1).

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THE HONEYBEE (APIS)

When a nectar-collecting honeybee returns home, this bee informs other honeybees about the location, direction, distance etc., and how it found blossoms, through a very complex "dance". Since 1973, when Karl von Frisch received the Nobel Price for his

scientific work in this field, many researchers have studied bee-communication. Nevertheless, how exactly honey bees communicate is still not fully understood. A dancing bee produces a significant airflow in a certain direction and it is believed that the direction of this airflow indicates the direction for the watching bees to fly. This is strongly suggested by the work by Axel Michelsen and Kristin Rohrseitz of the University of Odense, Sweden, and by Martin Landauer of the University of Wurzburg, Germany.

A skilled spectator can notice that the longer the dance takes, the longer the distance to the blossom is. The angle to the vector of gravity indicates the direction (in relation to the sun). The bee moves in small and rapid steps, while moving the lower part of the trunk rhythmically. When the bee moves vertically and with its head upward, the watching bees are being informed about the orientation towards the sun. When the bee dances vertically with its head downward, the watching bees are being informed to the flying in the opposite direction.

From the point of view of the observing bees, the dance must be much less obvious to grasp. There is hardly any daylight in the beehive and therefore, it is speculated that bees possess a very sensitive *sense of touch*. Often, it can be observed that bees touch each other with their antennas. But it has been well documented, that a bee can watch and "read" the information without touching. Because the dancing bee does not only bring forth a strong airflow, but also vibrations in the honey cones on which it dances.

The rhythmical movements back and forth of the lower part of the trunk are very rapid (approximately 14 times per second), and do not seem to make communication easier. In other words, the communication is very hectic with not only the informing bee dancing in this way, but also having tens of other bees watching and moving hectically as well. The distance, which is communicated by the returning bee, is a subjective one. The bee estimates the distance visually by observing and remembering visual impressions. This has been shown by several researchers (Nature; 411: page 581.). When the returning bee flew at a low distance above the earth, it had more impression with its faceted eye than when it flew high above the earth. Thus, it would estimate the same distance as farther away when it flew low above the earth.

The orientation towards the sun also plays an important role. If the bees are prevented from leaving the beehive for two hours, the outgoing bees will fly in the direction, which would have been correct two hours earlier. During these two hours, the sun moved forward in the sky and that corresponds exactly with the degree the bees take off in the "wrong" direction.

Although it seems as if the ways of communication among honeybees are chaotic and not very reliable, bees do not usually send their sisters in the wrong direction. Probably because the bees will follow the same route as the returning bee, the distance and direction will be perceived in a very similar way, and the bees will not get lost but find the blossoms.

CONCLUSION

On the basis of Three-Foldness, Chapter III.2 discusses processes, which are present in all animals and humans, namely the principles of hardening (*sclerosis*) and dissolving (*inflammation*). If the forces in the Nerve-Sense System become too strong and invade the rest of the organism, **sclerosis** as a disease process, will occur in the body. If, on the other hand, the forces in the Metabolic-Limb System become too strong, **inflammation** as a disease process will occur in the body.