

CHAPTER OUTLINE AND STUDENT OBJECTIVES

- 1) Notice the three-foldness in plants with its flower, leaf and root principles.
- 2) Study and summarize the corresponding principles of man and the plants.
- 3) Explain why the root system of plants corresponds with the Nerve-Sense System of man.
- 4) Explain why the flower (with its nectar and seeds) of plants corresponds with the Metabolic System of man.
- 5) Explain why the leave of plants corresponds with the Rhythmic System of man.
- 6) Explain why the animal is oriented towards the horizontal and therefore, stands between man and the plant kingdom.
- 7) Give examples of herbal medications which demonstrate these correlations.

MAN AS AN INVERTED PLANT, MAN AS A PLANT "UPSIDE DOWN"

We have seen that one can distinguish a three-foldness in man. But very similarly, one can also distinguish a three-foldness in plants, which one could characterize as follows: the flower-, the leaf- and the root parts.

When one studies the root of a plant, one observes the following: the root is usually the most hardened, most woody part of the plant. It has grown in a certain manner and direction, perhaps around stones or the roots of other plants, and thereafter becomes fixed in its form and fixed to the earth, in which it has rooted itself. The root is **immobile**.

When one studies the root of a plant in the garden or in the field one finds a principle root system with an abundance of branches, extending in all directions. Usually the root system is crooked, because during its growth process it has to grow around the roots of other plants, around stones and rocks, and will continue to grow in that direction with the least resistance. It is very interesting to watch the growing root of a tree slowly pushing aside a brick wall or a thick layer of asphalt over time. What kind of forces are actually at work here?

If one takes a pea or another seed and lets it sprout on a piece of cotton, which one keeps wet, one can observe that the main root, the senker, grows out of the pea downwards, always in the

direction of the center of the earth. As soon as the main root has been established, branches develop off the main root. If the developing root system remains free to grow in any direction, so that the roots do not meet any resistance, they grow according to a pattern, characteristic of their family, which is usually symmetrical, like an up-side-down Christmas tree (see figure1). Thus, the root system is usually bilaterally **symmetrical**. (Some plants have roots which spiral down radially according to a strict mathematical order which is not completely bilaterally symmetrical).

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Practically all roots are white to gray in color. Only a few plants have colored roots. These are exceptions to the rule. They are usually plants which are that way because people have cultivated them for nutritional purposes (carrots or red beets, are an example) or they have medicinal potential. Later in the course, when nutrition is studied, attention will be paid to this phenomenon. But one could say that roots of plants are archetypally white to grey of color, like the brain. In the brain, we find white (nerve bundles, etc.) and grey matter (nerve cell bodies in the cortex) as well. In summary, there is a certain correlation or similarity between the nerve-sense system of man and the root system of plants.

When one pays attention to the leaves of a plant, one can observe the following phenomena: The characteristic color of leaves is green. They are green because of the *chlorophyll* they contain. Chlorophyll is a prerequisite for the process of *photosynthesis*. The central atom of the chlorophyll molecule is *magnesium*. Magnesium has a tremendous affinity to light. (In the early to the middle of the 20th century, magnesium, for instance, was used for flashlights in photography. Later in the course, when attention will be paid to the various minerals and substances which are used in anthroposophical pharmacology, the characteristics of magnesium will be studied).

Under the influence of *sunlight*, through photosynthesis, chlorophyll forms (complex-) carbohydrates out of CO₂ (carbon dioxide), which it takes from the air, from the atmosphere, and water. Through this assimilation process, free O₂ (oxygen) is produced and released into the atmosphere. Therefore, practically all free O₂ in the atmosphere is made by plants, is a gift of the plant kingdom to man and the animal kingdom.

In man, the opposite process takes place. Through breathing in the lungs, free O₂ is taken up into the blood stream from the atmosphere and delivered to the tissues in the body so that oxygenation can take place. In addition, in the lungs, CO₂ is given off to the atmosphere. In the blood, hemoglobin is the protein which makes this process – the exchange of O₂ and CO₂ during expiration – possible. Interestingly, the central atom in the hemoglobin molecule is not magnesium but *iron*. Thus, man and the plant kingdom live in a true *symbiosis*: what the plant gives off to the atmosphere (free O₂), is taken in by man and what is given off by man to the atmosphere (CO₂ and water) is taken up by the plant.

Another primal phenomenon which Goethe discovered was that of *complementary colors* and their mutual relationships. He discovered that the eye, in the act of seeing, produces within the viewer, for each color which impacts on the retina, a complementary color as a subjective after image. Later in this course, when we will study the twelve senses of man, detailed information will be given on the light and color theories of Goethe. For instance when one looks at bright yellow for about twenty seconds and then closes one's eyes, one will see an after image in the complementary color, namely blue, and vice versa. The yellowish-green of the chlorophyll and the purplish-red of the hemoglobin are opposite or complementary colors. That is why the leaves are green and the blood of man is red. Human blood could have been orange or green. Why is human blood not green but red? Because chlorophyll is (yellowish-)green! In nature, complementary biochemical processes will carry complementary colors. That is what Goethe found in his studies of nature. Since chlorophyll is (yellowish-)green, blood must be (purplish-) red.

To summarize, there is a certain correlation, a similarity but also a "complementary" between the leaves of a plant and the rhythmic system of man. When one observes the flower of a plant, one can say that in this part, color has become predominant. Flowers can bloom in almost any possible color, and bring about joy and awe in the human soul. Flowers, and their products, like fruits and seeds, need **warmth** to ripen. The pinnacle of the plant's growth is the seed, which is one stage on from the flower. The seed itself tends to be a simple structure but it bears within it the potential for a whole new plant.

Thus, as much light is necessary for photosynthesis as warmth is necessary for the development, the ripening of the flower, its seeds and fruits. Usually, the sun is the source for both light and warmth. But in laboratory settings one can clearly document the affinity of the

leaf for light and the affinity of the flower for warmth. The flower and its organs (stamen, pistil, stigma, pollen, etc.) are the reproductive organs of the plant. To summarize, there is a certain correlation, a similarity between the flower of a plant and the metabolic-limb system of man.

If one were to make a drawing of a person and a plant to show their correlation, one would have to draw the person in an upside-down position. Therefore, one could say that *a person is a plant upside down!* (see figure2).

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And what about the animal kingdom? The animal is very much oriented to the horizontal plane. Practically all animals have their spine, their whole anatomy, oriented to the horizontal. Therefore, the animal kingdom stands between the plant kingdom and man: it has a middle position. The animal has shifted 90 degrees compared to the plant.

Why is this image of a person as an upside-down plant so important? It has direct consequences for the choice of a plant or plant product to be used as therapy for a given illness. Suppose a patient is suffering from nervousness, insomnia, heightened irritability with respect to normal sensory perception. A plant which may be used as a remedy, in such a case is *Valeriana officinalis*.

Valeriana is a powerful nerve stimulant, carminative and antispasmodic. It has a remarkable influence on the cerebro-spinal system, and is used as a sedative for the higher central nerve centers in conditions of nervous unrest, St Vitus' dance, hypochondria, neurologic pains and the like. Valeriana allays pain and promotes sleep. It is of special use and benefit to those suffering from nervous overstrain, as it possesses none of the after-effects produced by narcotics. Though in ordinary doses, it exerts an quieting and soothing influence upon the brain and nervous system, large doses, too often repeated, have a tendency to produce pain in the head, heaviness and stupor. It is commonly administered as Tinctura Valerianae Ammonidata, or in a low potency, and often in association with the alkaline bromides ("A Modern Herbal" by M. Grieve. Tiger Books International London. ISBN 1-85501-249-9).

The active components of Valeriana are primarily to be found in its roots. Therefore, Valeriana has an effect mainly on the nerve-sense system.

When we search for a remedy for a patient with, for instance, congestive heart disease, with a decrease of ejection fraction, we could consider giving *Digitalis purpurea*, or Foxglove.

Digitalis purpurea contains four important glucosides of which three are cardiac stimulants. The most powerful is Digitoxin, an extremely poisonous and cumulative drug, insoluble in water. *Digitalis* has been used from early times in heart disease. It increases the activity of all forms of muscle tissue, but especially that of the heart and arterioles, due to the all-important property of the drug, which is its effect on the circulation.

The active components of *Digitalis* are primarily to be found in its leaves. Therefore, *Digitalis purpurea* has an effect mainly on the heart, as part of the rhythmic system. *Nicotiana tabacum* (Tobacco) is another plant with a significant effect on the rhythmic system, especially on the lungs (and kidneys; why the kidneys are affected by the effects of *Nicotiana* will be discussed later). The main constituent is the alkaloid nicotine, which, when smoked, decomposes into metabolites like nicotianin, nicotinine, furfural and nicoteline.

The poisonous effects of tobacco smoke are due to these substances of decomposed nicotine. (Potentized) preparations of *Nicotiana tabacum* are used in the treatment of asthma, especially as an expectorant, but also as a smooth-muscle relaxant in bronchospasm. In addition, *Nicotiana* is a mild diuretic and has anti-hypertensive activities. This can be understood when one remembers the common origin of the embryological development of the kidneys, the airways and lungs.

The active alkaloids of *Nicotiana* are primarily to be found in its leaves. Therefore, *Nicotiana tabacum* has an effect mainly on the lungs, as part of the rhythmic system.

Chamomilla officinalis is an annual plant with beautiful flowers, with white petals and bright yellow stamen. *Chamomilla* is not toxic. Its flowers, which contain etheric oils, are used for their anti-spasmodic activities, like dysmennorrhoea, spastic colon, colic pains, bloating, etc. The active components of *Chamomilla* are to be found in its flowers.

Usually, Chamomile flowers are used as a warm compress on the affected area, like the pelvic region in case of severe menstrual cramps. Thus, *Chamomilla officinalis* has an effect mainly on the metabolic system.

Thus, an Anthroposophical health care professional will take into account where the origin of

a symptom or disease is located and, if a plant remedy is chosen for relief or as a cure, the fact that a man is an "upside-down plant " is considered.

In Anthroposophical pharmacology medications from the three different parts of the plant are manufactured. In the chapter on Anthroposophical pharmacology further information on this subject will be provided.

SELF-ASSESSMENT REVIEW QUESTIONS

I

- a) **The flower of a plant corresponds usually with the metabolic processes within the body, and its organs.**
- b) **(b) The flower is usually soft and therefore, seeds are not considered to be part of the flower principle of the plant.**
- c) **Etheric oils are usually produced by the flower and therefore, they are effective in the treatment of sclerotic processes.**
- d) **Leaves can contain etheric oils: good examples are majoran and thyme.**

II

- a) **Roots can contain etheric oils: good examples are horse radish and ginger.**
- b) **Foxglove produces alkaloids, which have a significant effect on the Nerve-Sense Sytem, as these alkaloids are to be found in the root of the Digitalis purpurea.**
- c) **The spine of the animal is oriented towards the horizontal.**
- d) **Man is a plant “upside down” only when he is lying down and asleep.**

III

- a) **In veterinarian medicine, chamomile and arnica cannot be used, because an animal is not a plant “upside down”.**
- b) **A bee can be considered to have qualities of the “flower principle” of plants.**

- c) Chlorophyll with its photosynthesis acts similar as hemoglobin in animals and humans.
- d) Johann Wolfgang Goethe was a Italian scientist who discovered the law of complement-tary colors.

(correct answers: 1: (a), (c), (d); 2: (a), (c); 3: (b);)

CONCLUSION

This chapter discusses the relationship between the Nerve-Sense System and the *root* of a plant; the Rhythmical System with the *leave* and *stem* of a plant; and the Metabolic-Limb System with the *flower* of a plant. The fact that the human being is a “plant upside down” has significant consequences for therapy in Anthroposophical Medicine. Examples are given.

In this chapter, the student must be able to analyze and debate the relationships between plant, animal and man, and the consequences for diagnosing and implementation of therapy.