

The Etheric Formative Forces In Cosmos, Earth and Man by Dr. Guenther Wachsmuth (Part 3)

(continued from Part 2)

Breathing of the living Earth Organism

I

Exhalation begins during and after sunrise, illlll Chemical ether

II

Exhalation process is completed during midday and in the afternoon. Hllll Chemical ether

III

Inhalation begins towards sunset, llllll Chemical ether

Solid earth

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IV ^

Inhalation process is completed during night, 3-4 o'clock. HUM
Chemical ether

In detail this breathing of the living earth organism takes its course the following way (observe here the above diagrams)

:

Exhalation during and after sunrise:

All rushes outward from the solid earth past the observer on the surface. The suctional ether forces, still concentrated, course through the lowest atmospheric strata.

Maximum in the vertical current, especially in summer.

(The elements of atmospheric and terrestrial electricity are drawn upward by the great breathing process.)

Maximum in the potential gradient, especially in summer.

Maximum in barometric pressure in the lower atmosphere. (The chemical ether passes by the observer.)

Maximum of humidity in the soil.

Gradual increase of the humidity in the upper air strata. (The chemical ether is adapted to the fluid state of aggregation. See Chap. II).

Gradual increase in the degree of induction of the higher strata.

Gradual decrease of the emanation grade of the earth (as it has been radiated out from it).

Air in upward motion.

“ Reversal of temperature ” begins, chemical ether with cold going upward, sun's rays with heat going downwards. (The special explanation of this will be given on pp. 62-63.)

Exhalation process is completed, at midday and just after.

Nearly static condition, as at night. The suctional forces are scattered widely in the atmosphere and hence are very weak.

Minimum vertical current.

Minimum potential gradient.

Minimum barometric pressure in the whole atmosphere (3 o'clock

p.m.), chemical ether most widely scattered.

Maximum humidity in the atmosphere (produced by chemical ether, since the fluid state of aggregation is subject to this ether. See Chap. II).

Maximum degree of induction in the atmosphere.

Minimum degree of emanation of the earth (having radiated out).

“ Reversal of temperature ” is completed. The earth organism is chaotically revolutionized (warmth ether below, chemical ether above, so that, contrary to their individual basic structure, the spheres of the etheric forces are thrust into one another).

Maximum vital activity.

Inhalation toward sunset:

All rushes again to the solid earth, past the observer. The suctional forces, concentrating, course back through the lowest atmospheric strata on their way to the inside of the solid earth.

Maximum vertical current.

Maximum potential gradient.

Maximum barometric pressure in the lower atmosphere (chemical ether going again past the observer).

Maximum humidity at the surface of the earth (The fluid state of aggregation is subject to chemical ether. See Chap. II).

Gradual reduction of humidity in the higher strata, from the movement of the chemical ether downward.

Gradual reduction of the degree of induction of the upper

strata.

Gradual increase in the degree of emanation on the surface of the earth (gathered together there again).

Air in downward motion.

“ Reversal of temperature ” begins again ; warmth ether rushes upwards, chemical ether with cold and humidity downwards (see p. 64).

Inhalation process is completed, during night, 3-4 o'clock.

All is concentrated in the solid earth ; and the etheric forces have returned to their own spheres.

Minimum vertical currents.

Minimum potential gradient.

Minimum barometric pressure.

Minimum humidity in the atmosphere (especially in the upper atmosphere ; if the breathing process is not entirely completed, there may still be some degree of moisture near the soil).

Minimum degree of induction in the upper atmosphere.

Maximum degree of emanation of the earth (there gathered together).

“ Reversal of temperature.” The earth organism has its basic form : warmth and light ether above ; chemical and life ether below.

Minimum vital activity.

As the expert will see from the table, a great many other phenomena find here a complete and harmonious explanation.

We have seen, in the chapter on the states of aggregation,

that the chemical ether causes the fluid state of aggregation. In the table above we can now follow the wandering of the chemical ether out of the solid earth into the atmosphere and back again in the course of a day, and through experiments in measuring the moisture content in the lower and upper strata of the atmosphere as well as in the soil at varying times of day, we shall be able to follow the chemical ether in its rhythmical activity of creating moisture. Both dew and mist in the morning and evening are also the results of the moisture-producing activity of chemical ether, because in the morning and evening this reaches its highest state of concentration in the lowest levels of atmosphere and at the surface of the earth. The earth organism, then, may be said to breathe in and out, along with the chemical ether, also the moisture-producing elements in rhythmical alternation.

The Relation of the Earth Organism to the World of Living Plants

It may be well to call attention here very particularly to another phenomenon which has the utmost significance for the processes of life within our earth organism: the rising and falling of water in trees, in the plant world everywhere. For this process, which is the very fundamental pre-requisite for all the vegetation of the earth, no explanation has ever been found, since the mechanistic conception of " the pressure of osmosis " in the plants has been proven to be false by the evidence that this " pressure " is far too slight for the occurrence under consideration. The fundamental error is made here which occurs also in the consideration of the human organism (Chap. XII), that of seeking to understand a plant according to the laws of a mechanism, and therefore giving less and less attention to its articulation in the living organic totality of the earth and the cosmos (for example, in the case of the pressure of osmosis). And there has been in addition the one-sidedness through which, on the basis of materialistic-mechanistic philosophy, only the physical, and not also the etheric and higher principles, are brought under

observation (see Introduction).

In reference to the rising and falling of water in the vegetable terrestrial world, Professor A. Hansen says rightly in his book " Die Pflanze " * (p. 84) : " There is a great gap in our understanding due to the entire absence of any insight in regard to the energy which must come into play in the lifting of water into the trees."

* Berlin, 1914.

But this very occurrence is the most important of the primal phenomena in the life-processes of the plant world. The sprouting, shooting up, and development of plants in the spring, their withering and dying in autumn, are a direct result of this dominant rhythm which the watery element in the earth organism carries through in the course, of a year. So long as there is no understanding of the cause of this process, there is no foundation for an understanding of the phenomena of life. When, however, we enter concretely into the action of the etheric formative forces and into the rhythm of breathing which the living earth organism carries on with them, this primal phenomenon will become visible and intelligible to us.

The occurrence is, as represented in a diagram, the following:

Spring

llllll Chemical ether

The beginning of the influence of the sun breaks up the fundamental -inter-relationships of the etheric earth. The chemical ether rises out of the solid earth into the atmosphere, is exhaled from the earth organism, forming moisture and dragging this upward with itself. The water rises in the trees, vegetation begins.

Summer

IIMIf Chemical ether

The structure of the etheric earth is completely upset. The earth lives and wakes, the chemical ether has passed over, been exhaled, to the maximum degree into the zone of light ether of the atmosphere : the culmination of vegetable life.

Autumn

ihiii Chemical ether

The chemical ether of the earth organism, which has been creating moisture and bearing the watery substance along with itself (see Chap. II) is drawn slowly back into the solid body of the earth organism. The water in the trees descends. The leaves dry up. Minimum processes of vegetation in the trees.

Winter

III HI Chemical ether

The earth has reached its normal basic system. The chemical ether is for the most part concentrated in the solid earth, inhaled; the life-producing, dissolving influence of the sun is at its lowest. The earth seeks to rest in its normal etheric structure.

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Just as the breathing rhythm of man, as shown above, stands in direct relationship to cosmic processes, so also the life-process of the vegetable world repeats the great breathing rhythm of the etheric earth in several graduated rhythms. In the course of the year, as the etheric forces of the earth organism begin to expand outwards with the spring, the water begins to rise in the plant world ; vegetable life begins as a result of the breaking up of the etheric basic structure of

the earth-organism, which has become fixed during winter. The shooting up of the plant world into its forms at the time of the expanding process in Nature is a result of the chaos induced—that is, the coming together of * the normally separated etheric formative forces. We shall see in Chapter XI not only that the etheric formative forces of the earth-organism are active in the rising of the water in the plant world, but that Certain etheric formative forces combine in activity also in the individual shaping and forming of the plant world, and that here again we are not dealing with a merely mechanical process as the mechanistic philosophy might again maintain. This process of expanding and shooting up into forms in the spring stands in direct contrast to the concentration of the etheric formative forces in the solid earth during autumn, which is accompanied by the descent of water in the plant world and by a very wide-spread loss of forms among plants. This again is

not merely a mechanical process. It is a result of the rhythmical etheric activity of breathing of the earth organism.

Along with the great yearly rhythm in the plant world, goes the daily rhythm already described, which, in the alternation of day and night, maintains, by means of the inhaling and exhaling of parts of the chemical ether at brief rhythmical intervals, the movement of water in the plants, and all that is connected with this—that is, maintains life.

A third rhythm of the plant world was first observed by Goethe,

as indicated in his noble words concerning the “ metamorphosis of

plants.” This rhythm which rests upon a threefold expanding and

contracting process in the growth of a plant can be

discovered, however,

solely when we look upon the plant world, not with the eyes of a

mechanistic dogmatism, but with the eyes of one who experiences the

organic metamorphosis of living forms with an equally living vision.

Dr. Rudolf Steiner has set forth this rhythmical movement of growth

with wonderful descriptive power in his work "Goethes Weltanschauung."*

The state of contraction, concentration, in a seed first passes over into

an outward expansion when the plant develops out of itself the first

organ, the cotyledons, forcing these outward by successive impulses.

In the second period of growth, there follows on the contrary an inward

concentration. Goethe says :f

Less abundantly yielding the sap, contracting the vessels,

So that the figure ere long gentler effects doth disclose.

Soon and in silence is check'd the growth of the vigorous branches,

And the rib of the stalk fuller becometh in form.

Leafless, however, and quick the tenderer stem then upspringeth,

And a miraculous sight doth the observer enchant.

Rang'd in a circle, in numbers that now are small and now
countless, Gather the smaller-siz'd leaves, close by the side
of their like.

Round the axis compress'd the shelt'ring calyx upfoldeth.

And as the perfected type, brilliant-hued coronals form.

Dr. Steiner comments on this ; " In the calyx the plant-form
draws itself together and in the corolla again spreads itself
out. The next contraction follows in the pistils and stamens,
the organs of generation. The threefold rhythm of expansion
and contraction in the course of the year is completed, and
can begin again the following year in the germ. We are here
dealing with an activity of the etheric formative forces, and
their tendency to expand and contract, where their
differentiating and form-creating activity begins—that is, a
spiritual activity entering into the world of substance. In a
later discussion of the form-creating forces (Chap. XI), we
shall be able to observe this in detail. Here we need only
point out that, for those who would understand and interpret
in a purely mechanical fashion the all-embracing activity of
the great

* English edition, "Goethe's Conception of the World," 1928. t
Translation by E. A. Bowering, The Poems of Goethe, London,
1853.

X loc. cit., p. 112.

rhythms of the etheric formative forces within the earth
organism the real and scientific investigation of the
phenomena of life will always remain impossible.

The Circulatory Process of the Earth Organism The Reversal of
Temperature

We shall undertake here in particular to explain, on the basis

of the distribution of the etheric formative forces of the earth as already set forth, two exceedingly important phenomena, which require for the science of meteorology a more exact interpretation—the so-called “ reversal of temperature ” and the true origin of the rotation of the earth on its axis.

We have said that, in their normal structure, the etheric formative forces of the earth are so associated that, when the earth establishes her basic concatenation, the warmth ether encloses the terrestrial atmosphere as the outermost sphere—that is, that the earth as a whole is surrounded by a heat mantle. The findings of scientific investigation up to the present have generally not yet reached this important conclusion, but they have confirmed the several facts separately. Professor Wilhelm Trabert, in his very interesting book “ Meteorologie,” already cited, says : “ Up to the altitude of eight kilometers, the higher one mounts the more rapidly does the temperature fall. But from ten kilometers on, we observe again a rise in temperature or an isothermic stratum. Beyond eleven kilometers, the temperature seems to be almost constant, or to rise very slowly.” This conjecture of meteorology in regard to a gradual rise of temperature in the highest atmospheric strata, is now completely confirmed by the facts stated above—that the earth possesses a heat mantle over the outermost limits of its atmosphere, as corresponds with its structure shown on page 46.* This fact, indeed, is further con-

* The following results of the most recent scientific experiments in this field were reported in the press, February, 1926. “ Research in the atmospheric strata

at an altitude of 150 km. The Moscow Institute of Astrophysics has completed its researches in the upper levels of the earth’s atmosphere. The research has been carried out with the help of a special apparatus for photometry of the upper strata constructed by the Director of the Institute, Fessenkow. The Institute succeeded in determining the

structure of the atmosphere to an altitude of 150 km. It was determined that the density of the upper strata is almost one hundred times greater than has hitherto been supposed. This proves that, contrary to the prevailing opinion, the temperature of the very high strata is higher than that of the lower strata. Perhaps, the freezing point is reached at an altitude of 60 or 70 km., and thereafter the temperature rises. The Institute investigated the atmosphere by systematic observations of the twilight up to the beginning of night. The results of these investigations were confirmed by those of English scientists carried out entirely differently—that is, by observing the fall of meteors.”

These experiments thus afford a supplementary confirmation of the facts given years ago as a result of research in spiritual science by Dr. Steiner and used as the basis for the theory of ether and of the earth organism here set forth.

firmed by the phenomenon of the so-called “ reversal of temperature/” which is of the utmost importance for the life processes within the earth organism.

The fact is that, while by day the temperature falls in the lower atmospheric strata with the increase of altitude, yet “ by night and in winter,” as Professor Trabert says, “ the temperature rises with the increase in altitude.”

We have, therefore, to observe the following interesting occurrence in the atmosphere :

By day, fall in temperature with increase in altitude.

By night, rise in temperature with increase in altitude.

This unique phenomenon can be understood, systematically and in its significance, in no other way than on the basis of the etheric processes within the earth organism. We must bear in mind that, according to the breathing process of the earth organism, as described on page 51 in relation to the subject

of barometric pressure, the chemical ether rushes to the solid earth at night, when the earth seeks to establish its basic structure. But then the warmth-ether, which according to the earth structure belongs above, has just the opposite tendency on account of this process : that is, to rush from the solid earth back to its own sphere of activity in the outermost parts of the atmosphere.

Therefore, we have the following rhythmical circulatory process of heat within the earth organism (the " reversal of temperature ").

linn Warmth ether Light ether llllll Chemical ether Life ether

Night:

Basic structure of the earth. (Diagrammatically represented for the whole earth.)

The action of the sun reduces to chaos the structure of the earth, bringing the warmth ether out of its own sphere, from above down below to the solid earth. The chemical ether passes out of its own sphere, from below upward.

M idday:

The process is completed whereby the warmth ether is gathered upon the solid earth, the chemical ether interpenetrates the atmosphere and thus the etheric basic structure of the earth is reduced to chaos : the earth wakes and lives. Climax in processes of vegetation. The temperature at the surface of the earth is at its highest, and decreases with increased altitudes. The solid earth has its maximum of warmth.

Sunset—the earth seeks to restore during the night its etheric basic structure—that is, the warmth ether rushes upward, the chemical ether downward : both of them thus going to their own spheres of action. The beginning of reversal of temperature.

Night:

mm Warmth ether If Light ether mm Chemical ether 1 11 'l Life ether

The process is completed. The earth organism has again restored its fundamental arrangement. The reversal of temperature is complete—that is, it is warmer above than below.

From this reciprocal rushing past one another of the warmth ether and the chemical ether (and naturally, to a certain extent, the other two kinds of ether also) comes the explanation both of the maxima of the vertical current, which at sunrise and at sunset moves perpendicularly toward the surface of the earth, as well as the simultaneous maxima of the potential gradient, which is only a specific expression of the shifting and mixing and separating processes of the etheric forces. As is visible in the tables given on p. 54, the increase in the degree of emanation at the earth's surface by night and the minimum of this

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by day, following the inhalation process of the earth by night and its exhalation into the atmosphere by day, become intelligible ; and finally also the reversed behaviour of the degree of induction in the upper atmosphere by day and night is reduced to system. Meteorology has been in confusion in reference to the direct inter-dependence of all these factors, some authorities affirming and others denying this. But a systematic testing and co-ordinating of these with the great breathing and circulating processes of the earth organism we have discussed gives throughout the inner harmony of all these factors. Unfortunately, it is not possible to go into the exceedingly interesting details of all these organic processes ; this must be reserved for special treatment, since here we shall first indicate the great inter-relationships and their causes.

The Rotation of the Earth

From what has already been said, an explanation of the true nature and true causes of the rotation of the earth can now readily be given. Scientific research has not, up to the present, been able to reach any clear conception of the causative factors of the earth's rotation, because, unfortunately, it was not yet possible to reach a systematic conception of the phenomena of terrestrial magnetism and of the electric and etheric currents encircling the globe. Only such a systematic conception will render possible the understanding and comprehensive grasp of the one phenomenon on the basis of the others, so as to penetrate to the very foundation causes of all these occurrences intimately connected with the rotation and the structure of the earth.

Indeed, in reference to the terrestrial current, Professor A. Nippoldt says in his very lucid, comprehensive work, "Erdmagnetismus, Erdstrom, und Polarlicht" * : "Our knowledge of the terrestrial current is still exceedingly slight; not even the necessary observations are available." In the effort to explain the electric and magnetic currents "induced" – or existent – in the earth, the hypothesis has been set up of a cosmic current encircling the earth at a great distance "in a circuit whose diameter is a multiple of the diameter of the moon's orbit" (Nippoldt, p. 128), and supposed to be the ultimate cause of the most varied terrestrial phenomena. Yet this hypothetical current quickly proved to be quite contrary to other hypotheses in this field, and, therefore, as highly improbable, but in any case, when we place the causes of this phenomenon outside the earth in an altogether unknown source of force of questionable existence, we at once begin again that "regressus ad infinitum" of which we spoke in the introduction : the everlasting question concerning the cause of the force which generates motion, and the like.

1 * * 3rd edition. Berlin, 1921.

The rhythmic processes of the living earth organism itself, on the other hand, direct us to the way. In order to explain the

rotation of the earth on the basis of activities within the earth itself, one must simply conceive of the earth, not as a dead body, but as a living organism. This is generally readily admitted in a theoretical way in connection with the observation of life-processes on the earth; but it is often just as quickly forgotten again in the further practical application of thought; so that'—under closer attention—there generally remains behind a conception of the earth as a dead mass of matter which moves on its own axis and in the cosmos after the manner of a dynamo driven by forces of unknown derivation. This startling and false mechanical sort of view will come very speedily in this fundamental field of knowledge to its " ignorabimus."

We have seen that the living earth organism carries on, with its etheric formative forces, a process of breathing and of circulation, which comes to expression chiefly in the exhaling and inhaling of the forces of chemical ether from the solid earth on the one hand, and on the other in the flowing of warmth ether downwards and then again upwards. Between these two processes there is a fundamental distinction, the nature of which is of decisive significance . for an understanding also of other cosmic and terrestrial processes. That is, while the warmth ether is induced by the direct influence of the sun to flow down through the atmosphere even to the solid earth, the exhaling and inhaling of the forces of chemical ether, on the other hand, constitute an occurrence which—although caused indirectly by the sun, like everything in the cosmos—is, however, carried out directly by the earth organism itself.

We have already seen that the breathing of man, that of the earth organism, and the time required for the passage of the sun successively through each sign of the zodiac at the moment of the spring equinox stand in a cosmic numerical relationship—that is, that the time required for the passage of the sun at the spring equinox through the signs of the zodiac is 25,920 revolutions of the earth around the sun, and

that one breathing of the earth organism (in a period of 24 hours) corresponds to 25,920 breaths of a man. If we observe now the human organism as regards its rhythmic system, we see that man has no direct influence upon the circulation of his blood, but that he has a direct influence upon his breathing, although he does not usually exercise this influence, but gives himself up to the general rhythm (Chap. XII). For any one can at any moment by action of his own will change the rhythm of his breathing, but not that of the circulation of his blood. The intimate relationship, therefore, which the human ego and its will bears to man's breathing, in contrast with the very much stronger control of other influences over the circulation of the blood, reveals to us the reality of

the resemblance between these facts and the other fact that the breathing rhythm of the earth organism is caused directly by the earth itself and only indirectly by cosmic influences, while, on the other hand, the process of circulation of the warmth ether is due directly to cosmic forces outside the earth. These truths, of extraordinary breadth of significance, can naturally only be pointed out here ; and it must be left for the present to each one to follow out this connected group of facts to their significant consequences.

In the following diagram (p. 68) is shown the etheric structure of the earth at midday—that is, when the exhalation process has been carried out. The entire space between the solid earth and the outermost atmosphere—that is, the spheres of warmth ether, light ether, and , chemical ether—are interpenetrated by warmth ether; but at the same time the atmosphere is also interpenetrated by the exhaled chemical ether. The basic structure is, therefore, reduced to chaos ; the earth is awake. During this time, accordingly, that part of the earth organism turned toward the sun is, as it were, saturated in all its spheres with warmth ether (see diagram p. 68).

While in this way that half of the earth organism, with its

etheric and vegetable components, which is turned toward the sun is passing through the process described, the other side, at the same time turned away from the sun, re-establishes the basic structure of its strata ; this side is, therefore, as it were, unsaturated by the etheric forces necessary to its vital process. What now happens is simply the result of that which is so characteristic of all organic bodies—heliotropism, the eternal striving toward the sun. Just as plants always systematically turn again toward the sun and induce in their physical bodies the requisite motions directed toward the sun, impelled from within, in order to grow toward the sun by the shortest way, and just as the most recent researches have shown beyond dispute the same heliotropism in the case of animals of the most varied kinds (which, indeed, respond selectively to definitely determined rays of light), so does the part of the earth organism which is not saturated with the warmth ether of the earth and life ether of the sun (see diagram) strive to be exposed to the action of the sun (heliotropism), while the part of the earth organism which has been reduced to chaos, saturated with the etheric forces, strives to restore its static basic complex undisturbed by the action of the sun.

' The rotation, therefore, is not the result of a mechanical driving of the dead earth body by forces of unknown origin ; but the rotation of the solid earth is a natural result of the rhythmical processes within the etheric formative forces of the earth organism itself—that is, the etheric formative forces which in their rhythmical action call forth the phenomena of life

in the earth organism also induce the rotation necessary for this purpose on the part of the earth body, formed, maintained, and vitalized by them.

Just as blood circulates through the human organism, warming and vitalizing it, so also does the warmth ether, saturating part by part the earth organism, circulate around the rotating

earth body, keeping it alive. The " warmth-night " and " warmth-day " thus alternate as a rhythmical result in the different parts of the earth organism. The rotation of the earth can be understood only if we know that it is the etheric earth which induces this rotation of the solid earth, and not the reverse.

These phenomena are illustrated in the following diagram :

iiiiii Warmth ether

|j[] ill Light ether mm Chemical ether Life ether

Sun

Nature and cause of the earth's rotation

Etheric earth and solid earth

The circulatory process of the earth organism

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The Etheric Currents in the Earth Organism

We shall now concern ourselves somewhat more thoroughly with the etheric, terrestrial-electric, terrestrial-magnetic, and other currents coursing through the earth organism, since these will be of decisive importance for a future consideration of man, animal, plant, and mineral.

In the remarkable and lucid scientific work of Meyer and von Schweidler, " Radioaktivitat, "8 I have discovered a passage the thought-content of which—if it be not relegated in merely theoretical fashion to an uncertain future, but introduced practically into the scientific investigation of the present—must bring to realization that which has not only been postulated in concrete form by the spiritual science of Dr. Rudolf Steiner, as oriented by Anthro-posophy, but also taken as the orientation of view for many branches of science. The

passage reads (p. 20) : " Perhaps, we may be permitted to think that the human organism continually receives ' electrons ' out of its environment and, under the influence of light and heat gives these up again ; perhaps, the near future will permit us to speak of a ' circulation of electrons ' out of the environment into man and back again into the environment, concerning whose effects upon our vital processes we as yet have not the slightest intimation.'" I should fear that the two bold investigators of radio-activity would not make themselves very popular among certain of their colleagues in the faculties of medicine, biology, etc., through this scientific postulate, although it rests, in fact, entirely upon a truth. But I must confess also that this sceptical hope of the two'investigators of radio-activity, so carefully hemmed in as it is with " perhaps," actually shocked me as I thought that the very thing which Professors Meyer and.von Schweidler claim and hope for some indefinite future was already taught and applied in a great many fields of scientific research by Dr. Steiner many years before the appearance of that book concerning radio-activity, and that, because of that scientific dogmatism so characteristic, unfortunately, of our time, only now do this teaching and its results begin to influence fruitfully the scientific world. Only historical parallels in the fate of those who have given a new direction for men's conceptions of the world can allay one's distress over this sad fact.

In reality, constant currents stream, not only through men but also through animals, plants, and minerals, and we shall here concern ourselves concretely with these. In order to arrive at a clear conception of the most elementary principles involved, it may be well for me first to bring

XI. THE SHAPE-BUILDING FORCES AND ARCHETYPAL

FORMS IN NATURE AND THE REALITY -- -155

The Individualisation of Substance in the Process of Becoming.

The Archetypal Forms and their Genesis in the Earth Organism.

The Archetypal Forms in the Mineral Kingdom.

The Archetypal Forms in the Plant World.

Heredity.

Mendelism.

Shaping Forces and Archetypal Forms in Embryonal Development.

The Sense Organs and their Formative Forces.

Animal Instincts.

Man and Animal.

The Differentiating Characteristics of the Kingdoms of Nature.

XH. MAN AND MAN'S ORGANISM — 195

The Threefold Human Organism.

Polarity of the Etheric Formative Forces.

Polarity of the " Cold and the Warm Flame."

The Genesis of the Bony Skeleton.

The Nature and Cause of Human Breathing.

The Rhythmic System, Speech.

Nature and Cause of the Human Blood Circulation.

The Forming of Organs.

The Archetypal Forms in the Human Organism (Epidermis, Blood-Crystals, etc.).

Etheric Structure of the Blood Corpuscles and of the Earth.

Etheric Structure of Dead and Living Substance.

The Genesis of the White and the Red Blood Corpuscles and their Formative Forces.

Blood and Oxygen.

The Metamorphosis of the other Substances in the Human Organism.

Stages of Consciousness, Etheric Formative Forces, and Substance in Man, and their Relationship to the Macrocosm.

The Etheric Life-Current in the Human Organism.

The Etheric Formative Forces and the Art of Healing.

A WORLD REFLECTION.....235

The astronomer Johann Kepler, in his work " Harmoniees Hundi," " The Harmonies of the Spheres " :

" Even though men may scorn me for my frank confession—

Yes ! I have stolen the sacred vessels of the Egyptians that I might make of them a sanctuary for my God, far, far from the confines of Egypt.

" If ye forgive me, I shall be happy ; if ye are angry, then I must bear it. Well, here I cast the die and write a book—■ whether for the present or for the future is of no consequence to me. What though it wait a hundred years for its reader— God has awaited his decipherer for thousands of years/'

forward here a fact which has never, unfortunately, been set forth and emphasized in its exceedingly broad bearing upon the phenomena of life : that is, that the maximum effect of the sun's rays is exerted when

the Sun is in the zenith—in other words, when its rays stream down

<■ - toward the centre of the earth vertically, perpendicularly to the earth's surface ; whereas the maximum effect of the moon's rays is received when the moon is on the horizon—in other words, when its rays pass horizontally over the surface of the earth. With reference to the latter fact, I might introduce here, among other things, experimental evidence cited by Professor Nippoldt in " Erdmagnetismus, Erdstrom und Polarlicht " : namely, the fact that the influence of the moon upon variations in terrestrial magnetism is exceedingly strong, indeed at its " maximum, when the moon is on the horizon, at its minimum during the upper or nether culmination of the moon " (p. 91). If meteorology and astrophysics will value rightly this individual observation in its full significance and vigorously develop it, this peculiarity of the moon influence will be generally confirmed. Ancient schools of wisdom of the Orient and the Occident have always known this fundamental primal phenomenon, which we now begin to learn again, and these schools have always seen therein a decisive active principle for the evolution of the earth in that sense in which we shall seek below to explain these things according to our modern manner of expression. If one observes for example—thereby fulfilling the postulate set up for the future by the investigators of radio-activity, Professor S. Meyer and E. von Schweidler—the positions of the vertebral column of a sleeping man and an animal when asleep and when awake, as well as the direction of growth of a plant, one sees the following picture : The vertebral column of man awake is vertical, perpendicular to the earth's surface. The vertebral column of man asleep is, on the contrary, horizontal in relation to the surface of the earth. The vertebral column of the animal, asleep and also awake, is always horizontal in relation to the surface of the earth (with the exception of individual transitional forms). The direction of growth of the plant is, on the other hand, again vertical, perpendicular to the surface of the earth, but with an essential difference between the plant and man, awake. Namely, man has his head and nerve-system directed upwards, the metabolic and reproductive

system directed downwards (Chap. XII). Plants, on the contrary, have their reproductive system, the blossom, directed upwards, and the opposite pole directed downwards. Thus the three living kingdoms of Nature, in this polarity to the earth, are arranged as follows : A Man Plato, the great initiate in the Greek mysteries, spoke in regard to this truth those words concerning the three living kingdoms of Nature :

[> Animal

Plant

V

“ The soul of the world is slain on the cross of the world's body. ’ ’ Every one who is neither consciously nor unconsciously an adherent of the mechanistic-materialistic philosophy will hereby understand the profound and true meaning of these words.

If we now apply this truth concerning the direction of the vertebral column in the three kingdoms of Nature to what we have learned, this fact known to the ancients—that the sun's rays have their maximum effect when vertical and the rays of the moon when horizontal—we perceive that these three kingdoms of Nature are influenced as follows in their most important vital organs and processes by these two different .. currents which work upon the earth from the sun and the moon.

Man, when awake and erect, is coursed through, in his full length, in his brain and vertebral column—that is, in those organs of sense and of thought which, indeed, make him a man—by the sun current flowing vertically. (The daily life-current of etheric forces in the human organism we shall discuss in detail in Chapter XII.) On the other hand, man, when asleep, has placed himself in such a position that the vertical current from the sun works only at its minimum upon brain and vertebral column ; whereas, $\theta 1^{\wedge}$ the contrary, he is coursed through in his full length when reclining asleep at

night by the horizontally acting current from the moon.

The waking man, therefore, fully self-conscious, receives, through taking an erect posture, the utmost possible influence of the sun (the vertical) ; the sleeping man, on the contrary, not self-conscious, receives, through taking a reclining posture, the utmost possible influence of the moon (horizontal). He who refuses to see anything more than "electrons "

that course through the organism in these currents coming from the sun and the moon, which influence the life-processes and especially the phenomena of self-consciousness, will certainly be as far removed from reality as one who would explain the human world of concepts solely on the basis of " vibrations of the surface of the brain." As regards these things one may be permitted to say, in all modesty, that

" There are more things in heaven and earth . . .

Than are dreamt of in your philosophy."

It has remained for our age, at the turning point of the twentieth century, to desire to extend the philistinism of its earthly, mechanistic system of concepts to the cosmos and all which therein lives and weaves.

If, now, we observe the position of the vertebral column of the animal, we see that this, in contrast to that of man, is exposed at the maximum, even when the animal is awake, to the horizontal currents coursing out from the moon to the earth, and at a minimum to the vertical action of the sun. But this is characteristic and decisive for the life-processes and state of consciousness of the animal.

The plant, by contrast, is subjected to a vertical current whose

tendency is centred toward the middle

of the earth :

To what extent the plant is influenced by the vertical current coursing down toward the earth, and, reciprocally, influences this current, appears from the following fact cited in the lucid work of Dr. K. Kahler, of the Potsdam Meteorological Observatory, "Luftelektrizitat" * •—a fact which came to light as the result of measurements of the vertical current. He says (p. 85) : " Nowhere is there any current at all under the trees." And in another passage (p. 88): "The first attempts to measure the current, for instance, which enters a tree occurred decades ago. This current may become rather strong in places where the lines of force crowd together." We see that the living plant kingdom of the earth stands in a very active reciprocal relation with the vertical current.

We have, therefore, to deal principally with the two extremely

* * Berlin, 1921.

important terrestrial currents ; a vertical current generated by the sun, and a horizontal current generated by the moon.

If we bear in mind that the vertical current is made up, as it were, of two chief components, the flowing of the warmth ether downward toward the solid earth and the exhaling of chemical ether into the atmosphere, then it appears that the part of the earth organism whose etheric forces are in this way reduced to chaos, and thus give rise to the phenomena of life and of the waking state, is naturally always turned toward the sun ; whereas the earth, because of the heliotropism described above, is always in rotation. Therefore, the chaotic dissolving sun influence, if observed from the standpoint of the solid earth outward, travels, as it were, over the rotating earth in a direction opposed to the west-east direction of the rotation. It is the effect of this important occurrence that we, as observers going along with the earth in its rotation, very rightly conceive as the, terrestrial

current flowing from east to west.

Sun influence

The east-west current, therefore, is a result of the influence of the sun, and shows its maximum upon the day side of the earth, turned toward the sun. In "Erdmagnetismus, Erdstrom, und Polarlicht," Professor Nippoldt, in speaking of the divers variations, remarks (pp. 128-129) :

" We are most backward of all in the investigation of the terrestrial current; yet we do know, at least, that it is composed of combined magnetic and atmospheric influences. . . ."

And in another

passage : " the energy,

however, of all these variations does not derive from the sun, but from the energy-store of the earth's rotation." This statement thus supports throughout the comprehensive explanation given above. (See also p. 68.)

The east-west current encircling the- earth is, therefore, an earth current, which is produced through the fact that the action of the sun causes the changes in the etheric structure of the earth organism described above and that this influence travels in an east-west direction around the earth. And this east-west current operates thus chiefly on the day-side of the earth—that is, by day.

Besides this east-west terrestrial current, to be ascribed to the

action of the sun, there is also another current induced by the moon, which, however—in accordance with the west-east direction of the course of the moon round the earth—flows likewise in a west-east direction. Although the motion of the moon is slower than the velocity of the earth's rotation, yet in revolving round the earth from west to east it develops a

strong activity of its own, in this direction, and its horizontally acting forces thus flow through the earth's atmosphere in this direction. The sun, on the contrary, develops no special activity in

this sense in relationship to the earth ; and therefore only the stationary state with respect to the earth need be considered in connection with the vertical action of its force. This naturally cuts in an east-west direction through the earth's atmosphere, which is moving in the opposite direction (diagram p. 74), The current induced by the moon is, for the reasons given above, at its maximum in a horizontal direction and on the night side of the earth.

In addition to these two terrestrial currents during the course of the day—the east-west and the west-east current—there are, however, two principal currents which have an annual periodicity—the current flowing from north to south and that from south to north. It is observed that the north-south current is at its maximum in autumn-winter and “” the south-north in spring-summer. These two currents in the course of the year are, in turn, to be traced back to the heliotropism of the earth organism ; they arise from the fact that, with the beginning of winter in the northern hemisphere, the etheric forces flow toward the sun—that is toward the southern hemisphere ; and, on the contrary, with the beginning of summer, the etheric forces again flow back from the southern half of the earth to the northern hemisphere.

Naturally, this is a process taking its course gradually, but it has its greatest intensity in spring and autumn. (See diagram p. 77.)

This fact is illustrated for us also in a beautiful manner through an occurrence which, until now, has never been given any true explanation : the migration of flocks of birds over the earth, towards the south in autumn with the etheric current then setting in, and in spring toward the north with

the strong current then setting in. Men have till now wondered at the inexplicably sure "instinct" of the flocks of birds in flight, by means of which they fly each year over immense stretches of the earth in a north-south and south-north direction. But the word "instinct" is nothing more than a name standing for an unknown quantity. If men would give close attention in the sense here intended to this occurrence, they would find that the unique sense of direction of migrating birds does not arise from a sense of geographical direction—which the young especially, sometimes entering upon the journey for the first time alone, could certainly not possess at all—but corresponds to a fine, intimate reciprocal relationship between the etheric life-creating forces, their earth-currents, and the animal world, extremely sensitive to these things.* In man this sensibility and this interplay with his etheric environment has disappeared from consciousness as a result of the strong ego-development, his materialistic objective consciousness, one-sidedly developed, and other circumstances later to be discussed. That is, it is now lost, although in past times he still possessed it. Man will recover it again in the coming centuries—no longer unconsciously—a truth of which the signs already reveal themselves for one who has an open eye for everything and does not, because of scientific dogmatism, play blind-man's buff in the presence of such phenomena. The reciprocal influence of the other etheric currents, associated with the position of the vertebral column and with the states of consciousness, we have already observed.

A tremendous vista for the future ethnology, zoology, botany, etc., opens up to one with the investigation of the changing geographic

* Herr Hans Jenny, of Basel, has been kind enough to call my attention to the following interesting ornithological phenomenon, which seems to show that the laws governing the movements of migratory birds fit, not only into the south-

north and north-south currents in the course of the year, but also into the east-west and west-east currents in the course of the day. The crows and jackdaws found widely scattered about Basel in summer, together with the rooks coming from the north and wintering here, collect in the environs of the city in droves, numbering, perhaps, 6,000[^] and spend the winter generally in flocks of several hundreds. At sunrise they* pour forth in great caravans, soaring in the sunlight from their night-quarters in the east toward their feeding grounds in the west, a distance of ten miles. At sunset this process is reversed, except that in this case the west-east direction is not accurately maintained. While the time of the morning flight is strictly observed and the flight is carried out in spite of the strongest adverse winds and other hindrances, and thus accompanies the etheric currents of the sun flowing intensively in the morning in the east-west direction, there are the greatest differences in the time of the evening breakup. The birds never leave the feeding grounds before sunset but their

distribution of the etheric formative forces within the earth organism, when one realizes that here is the doorway to a true understanding of the hitherto unexplained appearance and dying out of races and genera and species of the several kingdoms of Nature in the different geographical regions of the earth. For in the course of thousands of years also an alteration occurs in the basic etheric structure of the earth, a continual metamorphosis. (See Chap. X.) We shall return to this subject. Whoever, indeed, is willing to understand only mechanically the etheric world and its activities in relation with the living kingdoms of Nature, had better renounce from now on an understanding of the deeper nature of such things.

We have been able to take a view of the four great essential currents within the earth organism.

Worth

1. The east-west current, a result of the activity of the sun, exerts its strongest influence in the vertical direction ; it stands in reciprocal relation with man, awake, standing erect in waking consciousness, and also to the vital activities of the rest of the kingdoms of Nature during the day.

flight toward the night quarters may be postponed till so late at night that only the noise indicates this movement. In this return journey there often occurs, not a simple direct home-coming, but the higher-flying flocks carry out a queer flying game, as if they were caught in a whirlpool which drives them round and round and casts them up and down so that the birds appear to tumble about in an " etheric whirlpool/* thus, perhaps, making etheric movement.^ in a way physically perceptible. But, in addition, during this play of the birds flying high {about 600m.), the lower birds glide under them (about 150m.) quite peacefully to the roosting place. This may, perhaps, be explained on the ground that the higher flocks are still in the disappearing sun influence, while the lower birds in the " shadow " heed the west-east current prevailing at night and flow back with it in this direction.

See in this connection also : Hans Jenny : " Der Vogelzug und die atherischen Strome." (Gaa Sophia, Vol. I., Dornach, 1926.)

A systematic observation of the migration of birds in the course of the year and also of the day and of similar phenomena among other species of animals {such as bees, ants, etc.) would certainly lead us, through consideration of the etheric earth-currents, to a knowledge of important inter-relationships and laws.

2. The west-east current, a result of the moon's activity, exerts its strongest influence in the horizontal direction ; it stands in reciprocal relation with the dream-consciousness and deep-sleep consciousness of man, while he is in a reclining position ; the animal, on the contrary, on account of the horizontal position of its vertebral column, is exposed

even while awake to the maximum influence of this current.

This current acts at its strongest during the time when the earth organism, not upset by the sun, strives to establish its basic structure— therefore, at night

3 and 4. The north-south and south-north currents with their intimate alternating relationship with the soul-life and with the vital activities of the kingdoms of Nature, especially in the course of a year.

Obviously, we can merely mention the enormous complex of questions which appear in this combination of facts, and only by way of reference to an endless perspective. All these phenomena are subject to many variations and associated influences, and we can speak here only of the fundamental activities, the tendencies of their influence. But, without bringing these tendencies of the etheric into connection with our investigation of Nature, we shall not be able in future to understand either the animate or the inanimate.