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TO THE READER

Only a few months after this Journal came out with its first issue it suffered the loss of one of its editors, Professor Karl Ernst Schäfer. His enthusiasm, knowledge and practical sense were of the greatest value to this undertaking and we are now left without them. A few days before his death he sent in a manuscript on nitrogen metabolism, a theme that had been a central concern of his for many years. It will be published in the next issue.

K. E. Schäfer was born in Germany and emigrated to America, where he made a name for himself as a scientist and humanist. It was also there that he was active in initiating Anthroposophic medical seminars and editing the three volume edition of "A New Image of Man in Medicine".

We are grateful for the help he gave us and are confident that his cosmopolitan spirit will remain close to us in our attempt of spreading the branches of Anthroposophic medicine throughout the English-speaking world from its geographic roots in central Europe.

The first article in this issue is the introductory chapter from "*Fundamentals of Therapy*" by Rudolf Steiner and Ita Wegman. This book is presently not available in English. We have, however, been granted permission from the publisher to reprint it and we plan to present one or two chapters in each number of this journal. The second article is Part II of G. Husemann's study of the biological functions of the cerebrospinal fluid — an essay demonstrating a Goethean approach to anatomy and physiology. It is followed by M. Weckenmann's presentation of 11 cases treated with Cardiodoron. He discusses the indications for this therapy and his results. The article on Liliacae is from W. Pelikans book on botany of medical plants and is an attempt to characterize the morphology and growth dynamics of medicinally used plants in such a manner that their therapeutic properties may become apparent. L. Davissons obituary of K. E. Schaefer concludes the main section. Reports and therapy colloquium follow in the half-line section.

This is the second of four issues which is distributed free of charge to all interested. We now need to know the approximate number of those interested in subscribing. We therefore would ask all who have not already done so to communicate their interest to us by means of the accompanying card.

Suggestions and criticism are also welcome.

Th. McKeen

Fundamentals of Therapy

An Extension of the Art of Healing
through Spiritual Knowledge

By

Rudolf Steiner, Ph. D.

and

Ita Wegman, M. D. (Zürich)

Authorized Translation from
the German

First printing by Anthroposophical Publishing Co.
London 1925

CHAPTER I

True Knowledge of the Human being as a Foundation for the art of Medicine

This book will indicate new possibilities for the science and art of Medicine. The reader must, however, be prepared to enter into the points of view which guided us when the medical conceptions here described came into being. If he cannot do so, he will not be in a position to form a proper judgement of what is brought forward in these pages.

There is no question of opposition to the Medicine that works with the recognized scientific methods of to-day. The latter, in its principles, is fully recognized by us; and we hold that what we have to give should be used in medical practice by those alone who are in the position of fully qualified doctors in accordance with the recognized principles.

On the other hand, to all that can be known about the human being with the methods that are recognized to-day, we add a further knowledge, whose discoveries are made by different methods. And out of this extended knowledge of the World and Man, we find ourselves compelled to work for an extension of the art of Medicine.

Fundamentally speaking, the recognized Medicine of to-day can offer no objection to what we have to say, seeing that we on our side do not deny its principles. He alone could reject our efforts *a priori*, who would require us not only to affirm his science but to adduce no further knowledge extending beyond the limits of his own.

In the Anthroposophy founded by Rudolf Steiner we see this extension of our knowledge of the World and Man. To the knowledge of the *physical* man, which is alone accessible to the natural-scientific methods of to-day, Anthroposophy adds that of the *spiritual* man. Nor does it merely proceed by a process of reflective thought from knowledge of the Physical to knowledge of the Spiritual. For on such a path, when all is said, one only finds oneself face to face with hypotheses more or less well conceived — hypotheses of which no one can prove that there is aught in reality to correspond to them.

Anthroposophy, before making any statements about the Spiritual, evolves and elaborates the methods which give it the right to do so. Some insight will be gained into the nature of these methods if the following be considered: All the results of the accepted Science of our time are derived in the last resort from the impressions of the human senses. For to whatever degree, in experiment or in observation with the help of instruments, man may extend the sphere of what is yielded by his senses, nothing *in essence* new is added by these means to his experience of that world in which the senses place him.

But his thinking too, in as much as he applies it in his researches of the physical world, adds nothing new to what is given through the senses. In thinking he associates, analyses the sense impressions, and so forth, in order to reach the laws (the Laws of Nature); yet the man who researches into this world must say to himself: "This thinking, as it wells up from within me, adds nothing real to what is already real in the world of sense."

Now all this at once becomes different if we no longer stop short at the thinking activity which is yielded, to begin with, by ordinary life and education. This thinking can be strengthened, vitalized within itself. We place some simple, easily encompassed thought in the centre of consciousness and, to the exclusion of all other thoughts, concentrate all the power of the soul on the one conception. Then, as a muscle grows strong when exerted again and again in the direction of the same force, our force of soul grows strong when exercised in this way with respect to that sphere of existence which otherwise holds sway in Thought. It should again be emphasized that these exercises must be based on simple, easily encompassed thoughts. For in carrying out the exercises the soul must not be exposed to any kind of influence from the unconscious or the semi-conscious. (Here we can but indicate the principle; a fuller description, and directions showing how such exercises should be done in individual cases, will be found in Rudolf Steiner's books, *Knowledge of the Higher Worlds and its Attainment*, *An Outline of Occult Science*, and other works in Anthroposophy.)

It is easy to make objection: that anyone who thus gives himself up with all his might to certain thoughts placed in the focus of his consciousness will thereby expose himself to all manner of autosuggestion and the like, and that he will simply enter a realm of phantasy. But Anthroposophy shows how the exercises should be done from the outset, so that the objection loses its validity. It shows the way to advance within the sphere of consciousness, step by step and fully wide-awake in carrying out the exercises, as in the solving of an arithmetical or geometrical problem. At no point in solving a problem of Arithmetic or Geometry can our consciousness slide into unconscious regions; nor can it do so during the practices here indicated, provided always that the anthroposophical directions are properly observed.

In the course of such training we attain a strengthening of the *force of thought* of which we had not the remotest idea before. Like a new content of our human being we feel the force of thought holding sway within us. And with this new content of our own human being, there is revealed at the same time a World-content which, though we might perhaps have divined its existence, was unknown to us by experience till now.

If in a moment's introspection we consider our everyday activity of thought, we find that the thoughts are pale and shadow-like beside the impressions that our senses give us. What we perceive in the now strengthened force of thought is not pale or shadow-like by any means. It is full of inner content, vividly real and graphic; it is, indeed, of a reality far more intense than the contents of our sense-impressions.

A new world begins to dawn for the man who has thus enhanced the force of his perceptive faculty. He, who till now was only able to perceive in the world of the senses, learns to perceive in this new world; and as he does so he discovers that all the Laws of Nature known to him before hold good in the physical world only. It is of the essence of the world he has now entered, that its laws are different, nay, the very opposite of those of the physical world. In this world, for instance, the law of the force of attraction of the Earth does not hold good. On the contrary, another force emerges, working not from the centre of the Earth outward, but inversely. Its direction is from the circumference of the Universe towards the centre of the Earth. And so it is, in like manner, with the other forces of the physical world.

The faculty of man to perceive in this world, attainable as it is by exercise and training, is called in Anthroposophy the "Imaginative" faculty of knowledge. "Imaginative" — not that we have to do with "fancies" or imaginations in that sense; the word is used because the content of consciousness is filled with living pictures, instead of the shadows of thought.

In sense-perception we feel, as an immediate experience, that we are in a world of reality, and so we do in the activity of soul which is here called "Imaginative Knowledge". The world to which this knowledge relates is called in anthroposophy the "etheric" world. This is not to suggest the hypothetical ether of modern physics; it is something really *seen* in the Spirit. The name "etheric" is given to it in keeping with older, instinctive and dream-like, conceptions of that world. By the side of what can now be known with full clarity, those old conceptions no longer have a scientific value; but if we wish to designate a thing we have to choose some name.

Within the etheric world an etheric bodily nature of man is perceptible, existing in addition to the physical bodily nature.

This "etheric body" is to be found in its essential nature in the plant-world also. Plants, too, have their etheric body. In point of fact the physical laws only hold good for the world of lifeless mineral nature.

The plant-world is possible on Earth through the fact that there are substances in the earthly realm which do not remain enclosed within, or limited to, the physical laws. These substances can lay aside the whole complex of physical law and assume an opposite manner of working. The physical laws work, as it were, streaming outward from the Earth; the etheric, streaming toward the Earth from all directions of the World-circumference. Man cannot understand how the plant-world comes into being, till he sees in it the interplay of the Earthly and physical with the Cosmic and "ethereal".

So it is with the etheric body of man himself. Through the etheric body something is taking place in man, which is not a straightforward continuation of the laws and workings of the physical body's forces, but rests on quite a different foundation. In effect the physical substances, as they pour into the etheric realm, divest themselves to begin with of their physical forces.

The forces that hold sway in the etheric body are active at the beginning of man's life on Earth, and most distinctly during the embryo period; they are the forces of growth and formative development. A portion of them, emancipated in the further course of earthly life from this formative activity, then becomes the force of thought. They are the forces which bring forth, for the ordinary consciousness, the shadow-like world of man's thoughts.

It is of the utmost importance to know that the ordinary thought-forces of man are the refined forces of bodily growth and formation. In the forming and growing of the human body, a Spiritual manifests itself. For it appears as such in the further course of life, in the spiritual force of thought.

The force of thought is but a part of the human force of growth and formation that works and weaves in the etheric. The other part remains true to the purpose it fulfils in the beginning of man's life. But the human being continues to evolve even when his formation and growth have reached an advanced stage — when they are to a certain degree complete. It is due to this alone that the etheric spiritual force, which lives and moves in the organic nature of the body, is able to emerge in later life as the force of thought.

Thus the formative (or plastic) force, appearing from the one side in the soul-content of our Thought, is revealed to the "imaginative" spiritual vision from the other side as an etheric-spiritual reality.

We may now follow the substantial nature of the earthly substances where they enter the etheric process, and we find: Wherever they do so the earthly substances themselves assume a form of being which estranges them from the physical nature. And while they are thus estranged, they enter into a world where the Spiritual comes to meet them, transforming them into its own being.

This way of ascending to the etherically living nature of man is very different thing from the unscientific postulation of a "vital force" which was customary even to the middle of the nineteenth century in order to explain the living body. Here it is a question of the actual *seeing* — that is to say, the spiritual perception of a reality which is present, no less than the physical body, in man and in all living creatures. To reach this sight of the etheric we do not merely think on vaguely with the ordinary kind of thought; nor do we "think out" another world by dint of fancy. We extend the human powers of cognition by an exact and scientific process; and the straightforward result of this extension is to gain experience of an extended world.

The exercises leading to higher powers of perception can be carried farther. Just as we exert a heightened force in concentrating on thoughts placed deliberately in the centre of our consciousness, so we can apply a greater force again to suppress the Imaginations — the pictures of a spiritual-etheric reality — attained by the former process. We then reach a condition of completely emptied consciousness. We are awake and aware, but our awareness to begin with has no content. (Further details are to be found in the above-mentioned books.)

But this awareness without content does not remain so. Our consciousness, emptied as it is of any physical or even etherically pictorial impressions, becomes filled with a content that pours into it from a real spiritual world, even as the impressions from the physical world pour into the physical senses.

By Imaginative Knowledge we learn to know a second member of the human being; by the emptied consciousness becoming filled with spiritual content we learn to know a third. Anthroposophy calls the power of knowledge that comes about in this way "Knowledge by Inspiration". (The reader should not let these terms offend him. They are borrowed from instinctive ways of looking into spiritual worlds which belonged to more primitive ages, but the sense in which they are here used is stated scientifically.) The world to which man gains entry by "Inspiration" is called in Anthroposophy the "astral world".

Speaking, in the manner here explained, of an "etheric world," we refer to the influences that work from the circumference of the Universe towards the Earth. When we go on to speak of the "astral world," we proceed, according to the perceptions of Inspired Consciousness, from the influences from the World-circumference to the spiritual Beings who reveal themselves in these influences — just as the materials of the Earth reveal their nature in the forces that go outward from the Earth. We speak of definite spiritual Beings working from the universal spaces, just as we speak of the stars and constellations when with the eye of sense we watch the heavens at nighttime. Hence the expression "astral world". In the astral world man bears the third member of his human nature, namely his astral body.

Into the astral body, too, the substantial natures of the Earth must flow. They are thereby estranged still more from their physical nature. Man, as we saw, has the etheric body in common with the world of plants; he has the astral body in common with the world of animals.

The essentially human being, whereby man is raised above and beyond the animal creation, is known by a form of knowledge still higher than Inspiration. At this point Anthroposophy speaks of Intuition. In Inspiration a World of spiritual Beings is revealed; in the act of knowledge which we here call Intuition, the relation of the human being to that grows more intimate. He now brings to fullest consciousness within him that which is purely Spiritual, and of which he knows — immediately in the conscious experience of it — that it has nothing to do with any experience conveyed through the bodily nature. He transplants himself into a new life which can only be described as a life of the human Spirit among other Spirit-Beings. In Inspiration the spiritual Beings of the World reveal themselves; through Intuition we ourselves *live with* the Beings.

In this way we come to recognize the fourth member of the human being — the essential “I” or “Ego”. Once again we become aware how the substantial nature of the Earth, in entering the life and being of the “Ego”, is estranged still more from its physical form of existence. The nature which it here assumes — the “organisation of the Ego” — is, to begin with, that form of earthly substance in which the latter is farthest estranged from its earthly, physical character.

In the human organization what we thus learn to know as the “astral body” and “Ego” is not bound to the physical body in the same way as is the etheric body. Inspiration and Intuition show how in sleep the astral body and the Ego separate from the physical and etheric; it is only in the waking state that there is the full mutual permeation of the four members to form the single and united nature of man.

In sleep the physical and the etheric human body are left behind in the physical and etheric world. But they are not in the same position as the physical and etheric body of a plant or plant-like being. For they bear within them the after-influences of the astral and the Ego-nature. Indeed, the moment they would no longer bear these influences within them, the human being must awaken. A human physical body must never be subject to the merely physical, nor a human etheric body to the mere etheric influences. Under such influences alone they would disintegrate.

Yet another thing is revealed by Inspiration and Intuition. The physical substantial natures, as they pass on to live and move in the etheric, are carried to a higher form of organization. And *Life* itself depends upon the fact that the organic body, freed from a mere earthly form of existence, is built up by forces working inward from the Universe beyond the Earth. But while this *upbuilding* process leads to *Life*, it does not lead to *Consciousness* nor to *Self-Consciousness*. The astral body must build up its own organization within the physical and the etheric, and for the “Ego-organization” the Ego must do the same. But this upbuilding process is not accompanied by any conscious unfolding of the soul’s life. For the latter to ensue, type upbuilding process must be opposed by one of *demolition*. The astral body builds up its organs; it destroys them again, and in so doing enables the activity of Feeling to unfold in consciousness of soul. The Ego builds up its “Ego-organization”; it destroys it again, when in Selfconsciousness the activity of Will becomes effective.

Thus the Spirit (the mental life) unfolds in human nature, not on the basis of constructive activities of substance, but of destructive. At whatsoever point in man the Spirit is to work, material substance must withdraw from its activity.

Even the rise of Thought in the etheric body rests not on a further development but on a destruction of etheric life and being. *Conscious* thinking takes place, not in the actual processes of growth and formation, but in processes of deformation — fading, dying processes — which are continually interwoven with the etheric life.

In the act of conscious thinking, the thoughts loose themselves from bodily formation to emerge as formations in the soul, in the conscious experience of man.

With the foundation of such a knowledge of man, we can now observe the human being, and we become aware that the nature of the whole man, or of any single organ, is only seen with clarity by recognizing how the physical, the etheric, the astral body, and the Ego are at work there. There are organs in which the Ego is paramountly active; in others the Ego works but little, and the physical organization is predominant.

¹ *Note by Translator.* Dr. Steiner uses the identical words — *Imagination, Inspiration, Intuition* — in the German original of this and other anthroposophical works. Occuring as they do more frequently in English in the colloquial meanings of ordinary speech, we distinguish them here by a capital letter when used in the technical sense of Anthroposophy to denote the higher powers of cognition.

The healthy human nature can only be understood by recognizing how the higher members of man's being take possession of the earthly substance, compelling it into their service. In this connection we must also recognize how the earthly substance becomes transformed when it enters the sphere of action of the higher members. And so it is with the man diseased. We only understand him when we perceive how the organism as a whole, or a certain organ or series of organs, become affected when the mode of action of the higher members falls into irregularity. We shall only be able to think of remedies when we evolve a knowledge of how some earthly substance or earthly process is related to the Etheric, to the Astral, to the Ego. For only then, by introducing an earthly substance to the human body or by treatment with an earthly process of activity, shall we be able to achieve the desired result, enabling the higher members of the human being to unfold again unhindered, or providing the earthly substance of the body — in the added medicament or treatment — with the assistance it may need, to bring it into the path where it becomes a basis for the earthly working of the Spiritual.

Man is what he is by virtue of body, etheric body, soul (astral body), and Ego (Spirit). He must, in health, be seen and understood from the aspect of these his members; in disease he must be observed in the disturbance of their equilibrium; and for his healing we must find the remedies that can restore the balance.

A medical conception built on such foundations is to be indicated in these pages.

To be continued

THE CEREBROSPINAL FLUID*) II

Gisbert Husemann

Origins of the CSF

The CSF is secreted into the ventricles of the brain from the choroid plexuses. "Choroid" derives from "chorion", the vascularized embryonic envelope; the vessels form the placenta.

The ventricles of the brain are invaginated at an early stage by the choroid plexuses, fringe-like vascular processes exactly the same in nature as the placental chorionic villi. The escape valves (granulations) are also of the villous type (v. i.).

Like the embryo, the brain is floating in fluid. Brain and embryo are thus protected from pressure and given the freedom to grow and develop their intrinsic form. In both cases, the fluid is secreted by an epithelium — the epithelium of the amnion in the case of amniotic fluid, and the choroid plexuses in that of cerebrospinal fluid. The head with its brain floating in CSF retains this embryonic feature as a basis for its involuntal tendencies. In the case of the brain, the fluid is secreted against an osmotic pressure gradient; being in osmotic hypertension, the brain would otherwise take up water. There is a tendency for the brain to swell, to become oedematous, and this is counteracted by the secretion of the CSF which forms a protective envelope around it.

The greater part of the CSF is produced in the two lateral ventricles (I and II), and enters the third ventricle (III) on either side through the interventricular foramen. The central part of the third ventricle narrows to form the aqueduct, and the CSF passes through this to the fourth ventricle (IV), leaving it by the lateral apertures (Fig. 1, 2 and 3).

*) Translation of an article in *Beiträge zu einer Erweiterung der Heilkunst*, Juli 1980, No. 4. Translator: A. R. Meuss
FIL MTG.

The CSF does not just go anywhere after this, but is collected in a kind of sac formed by the arachnoid. The arachnoid is impermeable to water and the brain rests on it like on a water-filled cushion (Fig. 1). It is therefore not floating in the usual sense of the word. The space inside the cushion is known as the subarachnoid space. In the superior median line of the brain, villus-like elevations protrude from this space into the superior sagittal sinus. These are valves through which the CSF escapes (arachnoid or pacchionian granulations). Being enclosed in a cushion, the CSF becomes the receiver, distributor and conductor of the alternating pressures transferred to the brain via the CSF from the respiration and pulse. More of this later.

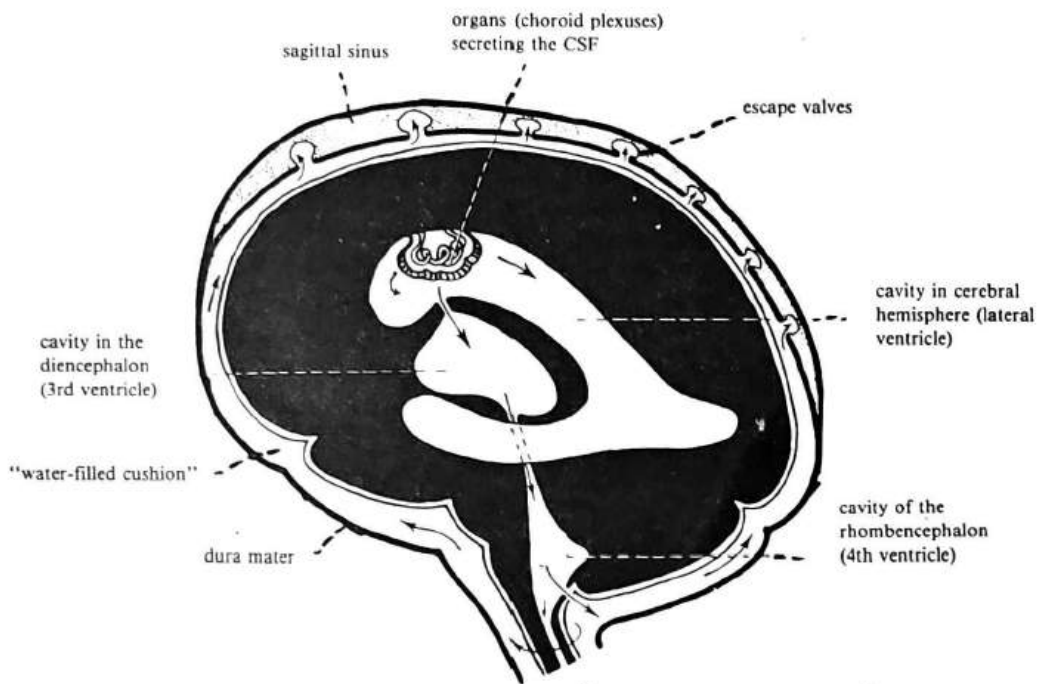


Fig. 1. The circulation of the cerebrospinal fluid in the cavities within the brain.

Circulation of the CSF

The total volume of the CSF in the cranium and vertebral canal is 135 ml. This is distributed as follows:

In the subarachnoid space (water-filled cushion)	100 ml
Of this, the cranium contains	25 ml
and the vertebral canal	75 ml
The ventricles of the brain contain	35 ml

500 ml of CSF are produced daily, so that the quantity of 135 ml is replaced almost four times in the course of 24 hours. This also reveals the vital importance of the peripheral escape valves; without them, the brain would be destroyed by water pressure within a short time.

The CSF contained in the cranium (25 ml + 35 ml) actually is renewed approximately eight times in 24 hours. In the cranium, the source and the outflow point (escape valves) lie closer to each other than in the vertebral canal where renewal occurs at a slower rate. There, in the vertebral canal, the fluid is like the water in a backwater, in a lagoon cut off from the open sea and its wave movements (D. W. C. Northfield 1973).

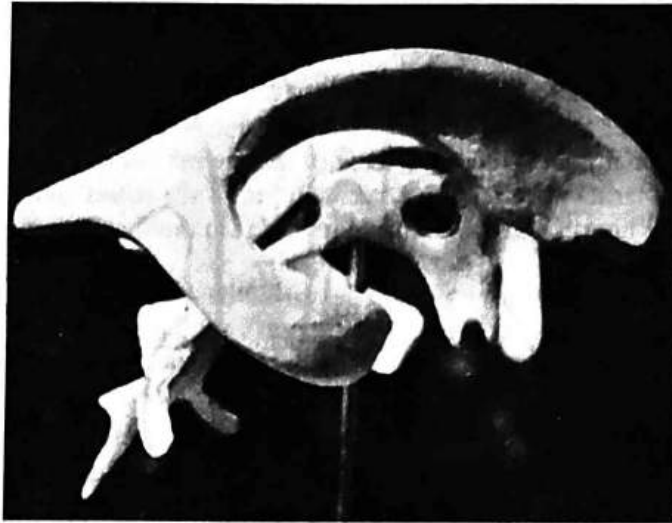


Fig. 2. Cast of the cerebral ventricles (anterior aspect to the right). The curved form of one of the lateral ventricles can be seen; between the two lateral ventricles lies the third ventricle and this continues down into the cerebral aqueduct (narrow tube) and then the fourth ventricle. The end of the narrow tube continues into the central canal of the spinal cord. The hole in the third ventricle is in life filled with a solid strand connecting the two hemispheres (commisure). To the right above it, the place may be seen where the ventricles communicate through the interventricular foramen.

The CSF pressure can be measured inside the cranium, in the ventricle, and in the lumbar region. In the lumbar canal, the pressure is equal to that of the dense venous plexuses in that region:

$$150 \text{ cm column of water} = 11 \text{ mm Hg.}$$

The pressure in the ventricles on the other hand is slightly below zero when the subject is sitting down. If the pressure is determined below the cerebellum, shortly before the CSF leaves the cerebellomedullary cistern, it will be found to fluctuate between 40 mm and minus 85 mm CSF in a person standing upright. At this point, beneath the cerebellum, the CSF therefore has to be aspirated through the needle, as it will not escape under its own pressure. "This means that during our waking hours, for about two thirds of our life, the intracranial pressure is at zero or below" (D. W. C. Northfield 1973). Negative pressures are easily thought of as suction forces, and it is possible to think of suction forces involved in CSF production.

In the venous spaces (venous sinuses) into which the valves or escape locks of the CSF project, the pressure is *permanently* below that of the CSF itself. These pressure differences give rise to a "dynamic circulation of the CSF" which takes place between the sites of secretion, i. e. the plexuses that are the point of origin within the brain, and the CSF valves or sites of escape at the surface of the brain. Arterial blood produces the fluid, venous blood receives it. The brain and the spinal marrow are placed within this special fluid circulation system. If this circulation ceases, or if it is obstructed by coagula or pressure from a tumour at one of the narrower points, brain function is immediately threatened.

Let us now consider the CSF circulation in comparison to the blood circulation. Whilst the CSF is replaced four times a day, 1,200 ml of blood pass through the brain in *one minute*. This reveals the enormous difference between the slow movement of the CSF on the one hand and the tremendous acceleration in the movement of the blood on the other.

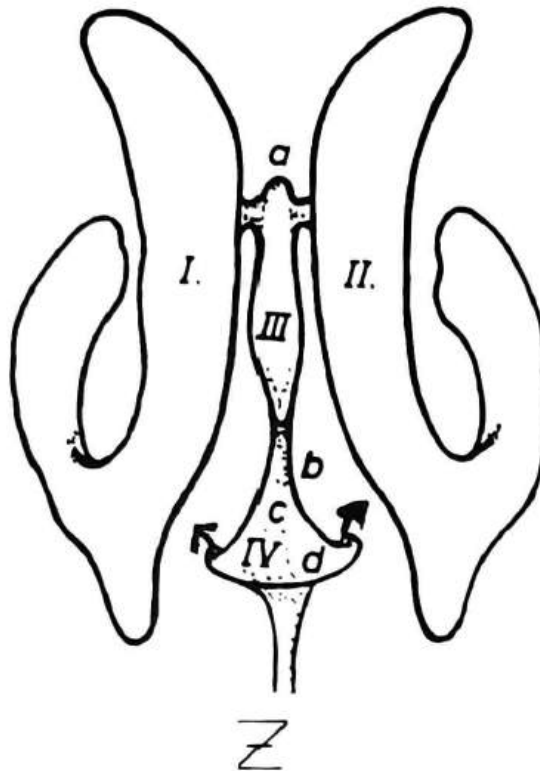


Fig. 3. Ventricular cavities in the human brain (seen from above).

- I-IV = 1st — 4th ventricle
- a = interventricular foramen
- b = cerebral aqueduct
- c = foramen of Magendie
- d = lateral aperture of fourth ventricle
- Z = central canal of the spinal cord

In this difference between the flow rate of two fluids we are able to perceive another function of the CSF. The brain is relieved of the conditions of gravity and it also opposes the accelerated blood flow with a circulation of its own that is very much slower. Being present all around the brain, the CSF ensures the even distribution of the pulsating pressure of the blood flowing through it, so that we do not feel this pressure. The CSF has here an equalizing function, spread out over an area, that counteracts the pulsating, swelling pressure of the brain (turgor). It assists the veins, suppressing the waves of blood coming from the heart. Without the CSF, the brain would experience the full power of the strong pulse beat we can feel in the neck.

The hydrostatic function of the CSF that eliminates weight is a precondition for the other function through which the pulsating movement of the blood is muted and brought to rest in the head. The one is a specialized function arising from the other. The function of suppressing the blood is a special differentiation and a consequence of the loss of weight effected by the CSF. The function of the CSF relating to the weight of the brain is more of an outer function; it becomes more of an inner function in relation to the number of pulse waves which the CSF opposes with its slowness, capturing them and making them ineffective.

We noted that the circulation of the CSF is maintained by forces of pressure and of negative pressure or suction. These are the same forces as the gravity and buoyancy acting on the brain, but in a modified form, functions of a dynamic circulation.

The configuration of the ventricular system reflects the growth and development of the brain. The hindbrain grows from front to back in a circular arc; it comes to overlies the older parts of the brain. Inside the brain, this anteroposterior movement is reflected in an empty space, a negative form, and the CSF is secreted into this. From these empirical data arises the concept of a negative space with suction properties. Inside the brain, we can see etheric space taking organic form and having an effect on gravity through the CSF. At the same time we consider the conditions under which thinking is freed from the forces of growth and from disruptive organic functions: The forces of the inner negative space become outer ones in the liquor, and in doing so cancel the property of gravity that belongs to outer matter. The forces of etheric space need a mediator if they are to act on the mechanics of the physical and mineral world. The CSF is that mediator, a medium that enters into both spheres of forces.

This concept of a medium which we have now established can also be applied to the potentizing tendency in the cranium that was referred to at the end of Part I of this paper. Matter has mass, like the brain; the residual weight of the brain indicates that matter can be potentized through rhythm; its forces are active in the medium, which is analogous to the CSF.

Respiration and the CSF

The CSF in the vertebral canal is displaced by the respiratory movements; synchronous with the movements of the lung, the fluid is pushed up and down and therefore also moves within the water-filled cushion. There are two basic physiological preconditions for this. Firstly, the veins at the base of the skull that lie adjacent to the CSF space and the veins of the thorax and abdomen are all in communication, and a similar communication exists also between the venous plexuses of the vertebral canal and the CSF in the vertebral canal.

The second precondition is that the normal venous pressure is equal to the pressure of the CSF. Any increase in venous pressure is immediately reflected in the CSF and vice versa.

We have already established that the CSF space is a sensitive pressure receptor. How can the pressure in the CSF be raised? By coughing, sneezing, and pressure on the lateral veins in the neck. This causes congestion in the veins of the neck, and drainage of blood from the brain is impeded. The blood held back above the compressed veins causes the CSF pressure in the cranium to rise. The pressure is transferred via the veins of the neck into the water-filled cushion in the cranium. The same effect is produced by coughing and sneezing, with the increased respiratory pressure passing right into the cranium, i. e. passing through the veins and into the cranial CSF.

If a cerebellar tumour obstructs CSF drainage, the CSF is forced forward by the increased pressure and into the sheath of the optic nerve. Fundoscopy will show papilloedema at the point of entry of the optic nerve into the eye. Abdominal muscular pressure can produce a similar effect, by putting increased pressure on the abdominal veins. The resulting back pressure of the blood is comparable to that produced by compression of the veins in the neck, but the route by which the pressure is transferred is much longer, passing via the veins of the spinal cord, through the vertebral canal, to the CSF in the cranium.

The foramen magnum acts as a safety valve in this case, for it is at this point that the spinal fluid that is forced upwards is able to escape into the cranium. It is also the point where CSF from the cranium can escape into the vertebral canal.

The foramen magnum is an extremely sensitive valve. If a spinal puncture is done in a patient with a cerebellar tumour, the flow of fluid from the needle may cease abruptly.

The tumour and the cerebellum are suddenly pushing the medulla oblongata into the foramen, breaking the communication between the CSF in the cranium and the vertebral canal. Pressure of nervous tissue on the bony margins and surrounding areas causes fatal nerve cell damage in this area, among other things to the respiratory centre. That is why sudden death may occur on lumbar puncture if a cerebellar tumour is present. It serves as an example to demonstrate the important role the CSF plays in maintaining the nervous system, and what can happen when buoyancy is lost and gravity alone is taking effect. The effect Hyrtl produced in dogs (Part I of this paper) here occurs in man due to pathological causes.

Coughing, sneezing and abdominal muscular pressure are only able to produce those on-sided pressure changes in the CSF because they increase respiratory pressure. The effect of an inspiration is as follows: As soon as the diaphragm pushes further down into the abdomen, there is increased pressure on the abdominal veins, with the result that some of the CSF in the vertebral canal moves up into the cranium, lifting the brain. The actual pressure of the cranial CSF begins to increase when the descending diaphragm reduces the volume of the abdominal cavity. The inspiratory pressure therefore effects first a reduction in abdominal space, then increased pressure in the veins of the abdomen, in the CSF in the vertebral canal, and finally in the CSF in the cranium; the increase in pressure travels along this route like a wave, finally lifting the brain. Inspiration and expiration may be compared as follows:

Inspiration

- 1) as the diaphragm descends, putting pressure on the abdominal veins, the increased pressure in the veins is transferred to the vertebral canal; increased CSF pressure drives the fluid through the foramen magnum into the cranium. *The brain is lifted forward and up; it follows the upward movement of the CSF.*
- 2) The movement of the CSF becomes a reflection of inspiration: As air is forced into the lungs, so fluid is forced into the cranium on inspiration.

Expiration

- 1) as the diaphragm ascends, reducing the pressure on the abdominal veins, the veins of the vertebral canal and the CSF are subject to less pressure, with the result that CSF moves down from the cranial space, again through the foramen magnum. *The brain moves downward, following the downward movement of the CSF.*
- 2) The movement of the CSF becomes a reflection of expiration: As carbon dioxide leaves the lung, so fluid flows from the cranium.

As far as I can see, Rudolf Steiner always referred to this abdominal form of respiration.

With the thoracic form of respiration, conditions are reversed: inspiration produces a negative pressure in the veins of the neck, resulting in the brain moving down; expiration causes an increase in pressure, lifting the brain. A mixed form of respiration would result in a brief thoracic upbeat, followed by an abdominal main beat. To quote Rudolf Steiner:

“In breathing the air out, we push the diaphragm upwards. That action is connected with a relief of pressure on the whole organic system below the diaphragm. As a result, the cerebrospinal fluid in the skull, in which the brain is floating, is pushed downwards. This cerebrospinal fluid is nothing but a denser modification, as I should like to put it, of the air, for it is in truth the exhaled air which causes this. When I inhale again, the cerebrospinal fluid is pushed upwards, and in my breathing I am constantly living in this downward and upward movement of the cerebrospinal fluid, a distinct reflection of the whole respiratory process.” (R. Steiner, Nat. Sc. Course 1920/21, Bibl. No. 320).

The respiration has two functions. One of them is physiological, the control of oxygen and carbon dioxide as a chemical function. The other proceeds concurrently, on the basis of the differences in pressure produced as we inhale oxygen and exhale carbon dioxide. Both are transmitted through the *whole* body. The excursions of the CSF bring an external physical principle into play biologically, their function being to lift out the organ of thought and to damp down the pulsation of the blood. That is achieved for the brain, for instance, and for the closely adjacent senses. Chemically this is reflected also in the well-known blood-brain barrier existing on the material level, a barrier that makes it difficult to use therapeutic agents in material form to treat the brain and nervous system.

Carbon dioxide has a powerful effect on the cerebral vessels and therefore on the circulation of the brain. 5 — 7 % of carbon dioxide (CO₂) in the air we breathe cause a 70 % increase in cerebral blood flow. The vessels dilate, so that more blood is able to pass through them. If the CO₂ level drops, e. g. by increased exhalation, vasoconstriction results, and the circulatory volume may drop by one third.

If we get a person to inhale pure oxygen, blood flow is cut down by reflex action; a reduction in oxygen (to 10 % of the air inhaled) will increase the circulation. The two respiratory gases carbon dioxide and oxygen thus act as chemical agents; the CSF produces the same effect “physically“, by acting from without — for it is obvious that the circulation of the brain is subtly changed as the fluid moves up and down. The respiratory function is thus reflected in the excursions of the CSF, and the movement of the CSF presents itself as a modified, denser form of respiration. (To be continued)

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CARDIODORON

Manfred Weckenmann

Introduction

The following concise presentation will be comprehensible only to those familiar with the basis of an anthroposophically extended medicine. Nevertheless we will try to use only such concepts as can be understood from the text itself.

Cardiodoron consists of an extract of *Primula off. flos* 2,5 g, *Onopordon acanth. flos* 2,5 g and *Hyoseyamus niger herba* D 2 10,0 g/100 g. According to general experience

(Weckenmann 1981) and systematic testing it is indicated in the case of vasolability and orthostatic hypotension. Figures 1—3 illustrate this by means of pulse, pulse-respiration quotient ($Q^{P/R}$) and orthostasis quotient. For a better understanding of these parameters we will explain them for orthostatic lability: in terms of pulse reaction a tachycardic and a bradycardic form can be recognised. This may serve as a first indication that the pathological orthostatic phenomenon is not accompanied by a uniform vegetative tone. On the contrary an increase in vagotonia even to the point of asympathicotonia as well as an increase in sympathicotonia can accompany orthostatic insufficiency (Bradbury et al 1925, Reindell et al 1955, Parr 1957, Thulesius 1976, Osten 1977). This is supported by the fact that periods of orthostatic lability are found to occur in a diurnal rhythm, the times of maximum lability occurring at about 3 a. m. and from 12 a. m. to 2 p. m. respectively (Ashkoff et al 1966). At night a narrowing of blood pressure amplitude is predominant, during daytime tachycardia. The former indicates predominating vagotonia, the latter predominating sympathicotonia. (Blood levels of noradrenalin do not correlate with the severity of the pathological orthostatic phenomenon but do correlate with pulse frequency, from Vendsalve 1960 according to Thulesius 1976).

It may at first glance seem surprising that a sympathico-ergotropic reaction could be unfavourable for orthostasis. This will, however, be understood if we take trophotropia and ergotropia to be opposite extremes of a polar organisation in the sense in which Rudolf Steiner develops these in his first medical course (1920). This polarity is the basis for specific physiological functions on the one hand but on the other hand it provides a natural disposition to illness, if the extremes are not kept in balance. Those processes and organic structures which mediate between the two sides and maintain an equilibrium between them are in this sense the source of health (Weckenmann 1980 a). We will call them the "middle organisation".

The pathological orthostatic phenomenon can be induced from polar extremes — resulting in a bradycardic and a tachycardic type. Both types of orthostatic reaction have in common, that the mediating functions are not sufficiently effective.

According to Steiner the respective rates of pulse and respiration to each other as expressed in the pulse-respiration quotient ($Q^{P/R}$) indicate the polar organisation and how it can be harmonised by the rhythmical central organisation represented in the heart and the lung. Steiner indicates that the healthy relation of heartbeat and respiration centers around a quotient of four heartbeats to one respiratory cycle of breathing in and out ($Q^{P/R} = 4/1 = 4$). If heartbeat slows down or respiration increases out of proportion the $Q^{P/R}$ will become smaller — if pulse-rate increases or respiration slows down $Q^{P/R}$ will increase.

Hildebrandt (1960, 1976, 1977) demonstrates that a low $Q^{P/R}$ at rest indicates trophotropism and that an increased $Q^{P/R}$ indicates ergotropism. We understand trophotropism to be a preponderation of the biological functions of growth, regeneration and anabolism that predominate naturally during infancy and childhood but also during sleep at night — and we understand ergotropism to be the preponderation of those functions that are the basis of reactions to external stimuli observed in their fullest sense only during periods of waking which are periods of predominating metabolic katabolism.

From a study of the phenomenon of orthostatic collapse — taking it to be a tachycardic form of orthostatic lability — Steiner demonstrates that an increase in $Q^{P/R}$ indicates the strong katabolic effect of the nervous system on metabolism and conversely that a decrease of $Q^{P/R}$ indicates a weak effect due to a "loosened" connection between the two. (See Bibliographical Index no. 348).

The tachycardic form of orthostatic lability is determined by a hyperactivity from the side of the nervous system, associated with fear while cerebral circulation diminishes, in a sense "not healing" the overactive nervous functions. After such a collapse, the patient is usually temporarily unconscious and the relation of pulse and respiration is reversed — Q P/R falling below 4 just as in case of bradycardic orthostatic lability from the very beginning.

In bradycardic orthostatic lability the opposite of the above is true. The nervous system is not overstimulated and forced into a state of high activity but it is dulled and, figuratively speaking, sinks into metabolism, being absorbed by it and thereby not leaving forces for conscious awareness. It is a state similar to that which is passed through during embryonic growth and to a lesser extent during infancy and in the sleeping phases of life. In such a situation or rather at times when Q P/R tends in this direction orthostasis can not react sufficiently to the stimulus of the altered and upright position. Some patients show this kind of orthostatic reaction — it is related to the bradycardic form that may occur physiological at night and corresponds to the vagovasal syncope.

Cardiodoron seems to be effective in both types of disturbances, if actual orthostatic lability is present (Weckenmann 1981 a). It is not yet clear whether or not it is also effective in the case of trophotropic and ergotropic hypertension. Inquiries with colleagues indicate that the results are generally better with hypotonic patients than with hypertonic patients.

The purpose of the following study was to determine whether individual case studies would yield fine points that are lost in systematic collections and to find out to what extent individual case studies would agree with the results from more generalized studies.

Methods

The patients described here necessarily underwent a certain preselection since on the one hand my previous knowledge of them — whether right or wrong — entered in, and on the other hand only certain patients came to me. Hence this group is not a random sample, but speaks for itself. Thus this study is intended to let the reader experience how observations — judgements — decisions — treatments — renewed observations — etc. interweave in each unique encounter of patient and doctor. This gives the report a personal style, which I do not wish to avoid. It will be less important for the reader to discover precisely when Cardiodoron is indicated than for him to follow the course presented here, which may help him think over his own way of proceeding in similar situations. Thus the study does not intent to evoke imitation, but to stimulate the reader's own presence of mind for future patient — doctor encounters.

Furthermore, observations of individuals can also lead us to recognize the "type". The type, as it is meant here, need not be identical with a statistical average. It comes to the observer intuitively *after* evaluation of a particular case.

If individual cases are to be evaluable in this sense, we require above all an accurate description of the symptoms and their modalities, as well as of the observations made during examination (see also Hahnemann). Then in the subsequent consultations one must ask for the symptoms again, check for new ones, and revue the pathological observations. For that purpose in my outpatient records I write down all symptoms and observations under each another in a column, and the days directly next to one another. I use symbols to mark the change in symptoms and findings (Fig. 5).

The patients are asked to speak freely for themselves. For me, questions serve to clarify what has been said or to stimulate further speaking. I ask either quite open questions, not intended to lead, or yes or no-type — questions. As a matter of routine I ask only after appetite, weight, bowel movement and so on. In the following cases the in-

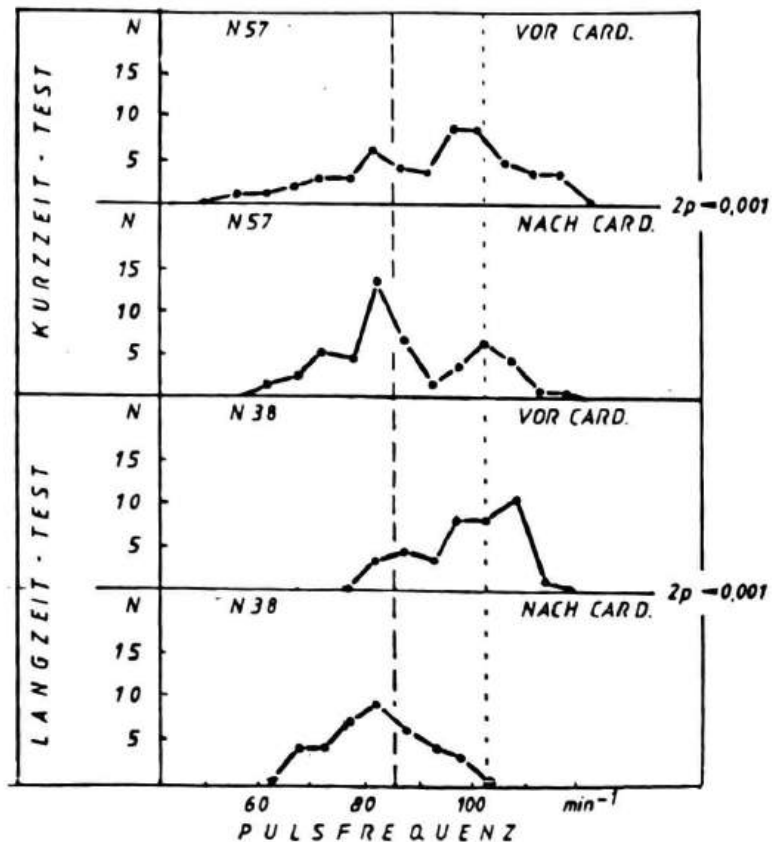


Fig. 1

Average pulse rates of orthostatically labile patients standing upright — before and after Cardiodoron. In long term testing (Langzeit-Test) two tests were done before giving Cardiodoron and two tests 40 days and 80 days after therapy with 5 x 20 drops Cardiodoron respectively. Averages were made of the results before and after Cardiodoron.

In short term testing (Kurzzeit-Test) one test was done before giving Cardiodoron and one test an hour after an injection of 1 ml Cardiodoron 5% i. m.

It is obvious that the double peak in frequency distribution still remains after therapy. The difference was calculated by the Wilcoxon test.

vestigations and observations of the course of the disease are unsystematic since they are oriented solely around the therapeutic requirements. I will use diagnostic concepts only for the sake of making myself understood.

It can be tested relatively quickly whether a remedy lives up to expectations or not, so long as an effort is made to give *single* remedies. Single-remedy prescription is much easier to carry out in homeopathic-anthroposophic therapy than in allopathic, since homeopathic remedies have a greater sphere of efficacy than allopathic ones. The reason for this is that the therapeutic range of a homeopathic substance includes all the so called side effects — allopathically speaking — as its *chief* effect. If it takes effect after a number of unsuccessful therapeutic attempts have been made and if it continues to work for an number of months afterwards, then the likelihood of a placebo effect is small.

In order to provide for good conditions, I chose only such patients who had had Cardiodoron *alone* or with whom Cardiodoron had been added to another therapy of long standing (which was also continued).

Cardiodoron was always administered orally, usually 3 x 20 drops/day.

In the following reports I do not mention all findings, since this is tiring and disturbs clarity. I will however be glad to reply to inquiries.

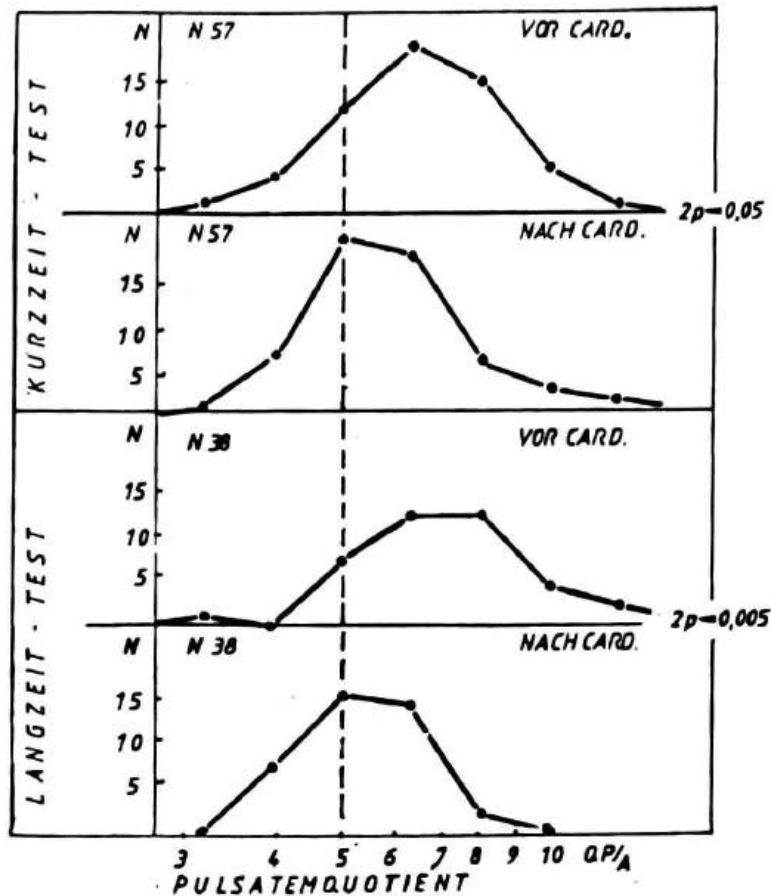


Fig. 2
The frequency distribution of pulse — respiration quotient ($Q^{P/A}$) of orthostatically labile patients standing upright before and after Cardiodoron given as described in legend to Fig. 1. The statistical calculations were done according to the T-Test.

Case histories

[1] At the beginning I would like to present a case of misjudgement. A 45-year-old leptosome, blonde woman (Patient no. 1) consulted me. She complained of an inability to walk more than a few hundred meters, and of tiredness. I observed a strong tendency to blush and a tachycardia with intermittent atrial flutter. The respiration was slow and she had a round back and pectus excavatum. The patient spoke hastily and restlessly, and kept squinting as if in pain. The cause of the atrial flutter was a mitral insufficiency stage 2—3, which had brought about atrial dilation and subendocardial damage. The patient had already been treated with Digitoxin and Verapamil; she refused an operation and asked me if I could do anything else to help her. Since there appeared to me to be an ergotropic hypocirculation, hyperventilation and instable weakness, and since the behavior of the atrium also seemed to fit this picture, I gave Cardiodoron — without success.

This example teaches us that though Cardiodoron affects functional disorders, it will do so only so long as they are 'on the way' to becoming organic deformations, but not when they stem from an already existing organic deformation. The atrium itself was not primarily pathological, and reacted quite normally to the organically caused congestion — namely with fluttering. If I wanted to stop this without improving mitral insufficiency, I would have to suppress the normal reaction of the atrium, i. e. to poison it permanently, and this lies outside the scope of regulatory therapy.

[2] A second observation led to similar results: a 43-year-old woman (Pat. no. 2) had had a mammary cyst operation and also had had kidney stones and gall-bladder colics. For 4.5 years she had observed palpitations for up to 2—3 hours (150—160 P min.⁻¹) with substernal pressure and anxiety, aggravated by rest, excitement, window cleaning and washing. She reported sweating in the morning and nausea on rising, especially during change of weather. She had a tendency to gain weight, was constipated, suffered from hemorrhoids, sweated at the least exertion, slept badly and ground her teeth. She pushed herself and was over-punctual. She was very carefully dressed, smoked 20 cigarettes and drank 2—3 cups of coffee a day.

This medium weight woman had taut subcutaneous tissue: at first she tended to be pale, later had a redness of the face; she was brunette and had a tendency towards eczema. The extremities were cold. In the stress test there was a rising of the blood pressure without any marked rise in pulse rate, while at rest the blood pressure fell to 120/80 mm Hg. I was unable to detect tachycardic phases. As I assumed that this was a functional circulatory disorder in the process of becoming permanent, I did not choose a sulphur therapy or Scleron (cf. Steiner in Degenaar 1939), but rather Aurum D10 and evenings Digitalis D3, which improved matters slightly. Later, however, I dropped this idea and decided in the face of the symptoms that the cause of all was a metabolic sluggishness with insufficient stimulation of blood circulation and nervous weakness, and therefore gave Cardiodoron — a primarily sulfuric agent. Without success. Why? The tendency to react with an elevated blood pressure and a fixed pulse rate, the disposition to adiposity and the preclimacteric situation ought to have taught me that “enlivening“ was not primarily the problem; rather it was as if the “upper organisation“ was immediately imposing its form on everything else. (Possibly this is a key to an understanding of the climacteric situation.) Thus the stage for a therapy with sulfuric and mercurial substances was already passed: in other words, such a therapy could at best work as temporary “counter measure“. Thus the high blood pressure at this stage appears to me typologically as a connecting link between the unstable circulatory weakness in the young adult and the deformation of arteriosclerosis in the old. Unpublished studies on orthostatic reactions have shown that with increasing bradycardia and hypertension the orthostatic lability yields in favour of regulatory rigidity.

Here the question arises how to interpret tachycardic phases in this patient. After all, the pathological tachycardia is *not* related to an exertion of the organism as a whole but seems to appear autonomously. Phenomena such as atrial fibrillation, ventricular tachycardia, and others become more frequent with age. Although in their outer aspect they are mostly high-frequency disturbances, according to present day views they arise out of “retardations“ of the spread of the action potential, for example, which permits the occurrence of reentry mechanisms. Since in old age many processes, especially of the heart, slow down, the danger of developing autonomous accelerations (secondary tachyarrhythmias) is greater than in youth, when primary tachyarrhythmias are present more often. One might with all due caution compare the secondary tachyarrhythmias in some ways with degeneration in cancer. Cardiodoron appears to me to be a remedy only for primary tachyarrhythmia. To be sure, it must remain open whether this patient had a primary or secondary tachyarrhythmia.

[3] A 27-year-old patient came with a similar complaint. This man (Pat. no. 3), however, complained of shooting pains in the left chest, ever since childhood, aggravated by excitement, exertional dyspnea, axillary perspiration, trembling in both arms and numbness of the limbs.

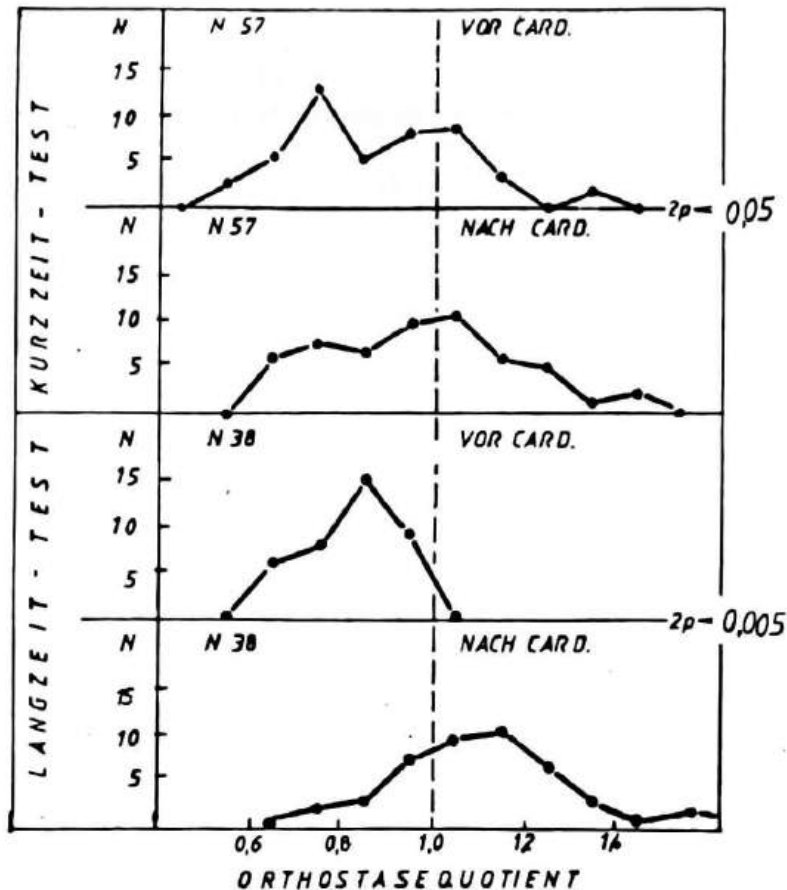


Fig. 3

The frequency distribution of the orthostatic quotient of orthostatically labile patients before and after Cardiodoron in short term testing and long term testing. The orthostatic Quotient (OQ) is a measure for the stability while standing up and is calculated according to the formula $OQ = \frac{\bar{X} \text{ Bloodpressure-amplitude standing} + 52,5}{\bar{X} \text{ Pulse-rate standing}}$ (Weckenmann 1981). Values of < 1 are an indication

of orthostatic lability. The differences between the results before and after Cardiodoron were calculated with the T-Test.

This fair-skinned patient was vasomotorically flushed, shrugged his shoulders, pulled up his chest in a strange manner, and had loud, excited heart sounds.

His circulation I evaluated as having a juvenile lability: $Q^{P/R}$ of 8 with tachycardia of 100 P min^{-1} at rest, labile T in the ECG with improvement under stress. On the other hand there were signs of incipient rigidity: blood pressure at rest of 155/90 mm Hg. hypertensive reactions under stress (100 Watts for 6 min. sitting) to 210/90 mm Hg, and pulse frequency of only 156 min^{-1} .

I decided on Cardiodoron, giving emphasis to signs of juvenile disturbance. The shooting pains in the chest, exertional dyspnea, tachycardia and $Q^{P/R}$ — elevation improved. Whenever he improved, the patient stopped Cardiodoron, then asked for it again. This indicates that it only helped temporarily and that it is not the basic remedy. In a following consultation I should give more importance to the signs of rigidity.

I will now present four cases of patients with experimentally proven trophotropism. All four are leptosome, thin, pale — but not from anemia — shy and quiet. No excitement was to be seen in them.

[4] A 32-year-old woman (Pat. no. 4) complained of an empty feeling in the head with dizziness, yawning, swelling of the eyelids and hands, and also of pain in the nape of the neck growing worse in the morning, palpitations of the heart especially at night in bed, chills, and hard, infrequent bowel movements. She suffered from severe acne, and had a diffuse goiter, a heavily coated tongue and a pulse rate of 54 min^{-1} while lying and only 64 standing. The $Q^{P/R}$ was perfectly stable at about 4,0 lying and standing. The blood pressure at rest of about 110/72 climbed to 112/80 mmHg standing. Thus it was necessary to assume a regulatory rigidity with vagotonia, since even healthy people usually show a pulse-respiration-quotient rise of from 4 to 5 standing (Weckenmann 1980 a). Fig. 6 illustrates the result with Cardiodoron (only the first retesting was not at the same time of her menstrual cycle, the second and third retesting were). Rest and standing pulse-rate rose towards the normal region (72 and 80 — 85 min^{-1} resp.) The $Q^{P/R}$ responded to Cardiodoron with a decrease at rest but reaction towards normal. The low systolic blood pressure at rest and standing improved a bit and the already normal diastolic blood pressure remained unchanged.

Cardiodoron improved the bradyarrhythmia, the regulatory rigidity and also, to an extent, the systolic blood pressure, although the trophotropic situation at rest, measured in terms of the $Q^{P/R}$ seemed to be more pronounced.

This course of treatment also showed that Cardiodoron is effective for a period of 2.5 months in a situation of trophotropic regulatory rigidity with bradyarrhythmia even when there is no orthostatic lability but there is hypotonia. Furthermore, symptoms clearly unrelated to the circulation such as constipation were also influenced in the process.

[5] The second trophotropic patient was a 42-year-old woman (Pat. no. 5) suffering from dizziness, dullness and substernal oppression for about ten years. She also suffered from anxiety, perspiration of the head, tremor and attacks of dyspnea for one year. This leptosome patient had a delicate, pale face which presented a certain contrast to the slight accumulation of fat on her legs. The standing test, particularly the last minutes of it, showed the typical signs of orthostatic lability with a pulse rate of 84 P min^{-1} , ca. 11 breaths per minute, a $Q^{P/R}$ around 8 and BP at 110/85 mm Hg. This time the decision for Cardiodoron was easy. The patient took 30 drops every morning. After 30 days the dizziness and the perspiration of the head were better, and all the other symptoms had disappeared. The blood pressure amplitude had not improved, but the "rhythmic ordering" had: 84 P min^{-1} , 14—15 Resp. min^{-1} and $Q^{P/R}$ around 5.5 i. e. near normal. It can be seen that the improvement of rhythmic ordering alone can be accompanied by well-being although hypotonia remains the same.

[6] The third trophotropic patient was a 33-year-old man (Pat. no. 6). He complained of shortness of breath, which always set in on the day after any physical activity; he also complained of anxiety with tachycardia before entering a room with unknown people. The patient was thin, prematurely old with a red face, partially grey beard, and had strikingly unshaply thorax and abdomen. The $Q^{P/R}$ lying was 20 (!) and 9,9 standing; bradypnea was extreme, improving under stress. The strong relative bradypnea with tachycardia induced by anxiety prompted me to give Cardiodoron. After 4 months of treatment the complaints had almost completely disappeared, even in situations where the patient — as he said earlier — would have suffered definite difficulties. This result could be maintained for more than a year with a regime of 30 drops of Cardiodoron in the evening.

[7] The fourth trophotropic patient was a 34-year-old woman (Pat. no. 7) with a 12 year history of migraine-like pains in the nape of the neck and back of the head with simultaneous vomiting, which were independent of time of day, weather or menses. For 4 years