5. Discussion of 13 December 1922

The eye. Hair colour

Dr Steiner: Well, gentlemen, perhaps one of you has a question you would like to ask me today.

Question: I would like to know why people with blond hair are becoming increasingly scarce. Formerly, there were many fair-haired people in the region where I was born, but now there are far fewer. Why is this so?

Dr Steiner: Your question fits quite well into our discussions, and I can consider it after I describe the human eye for you, as I promised to do earlier. We have already studied the ear; now we shall look at the eye. You may have noticed that blond hair is closely linked with blue eyes; as a rule, blonds have blue eyes. Your question relates to this matter, which you will understand fully when we examine the eye.

Eyes have great significance for the human being. It might be assumed that people born blind do not benefit at all from their eyes; nevertheless, they are still part of them, and they have the function not only of seeing but also of influencing the entire nervous system, inasmuch as this originates in the brain. The eyes are still there in one who is born blind even though they cannot see. They are placed in the socket but something is wrong internally, especially with the optic nerve. In addition, the muscles that control eye movements exist also in a blind person, and actually continuously influence the nervous system. Thus, the eye is, indeed, one of the most important organs of our body.

The eye, which is really like a miniature world, is placed in a cavity formed by the skull bones. You might say that it is something like a tiny world. The optic nerve fills out the

retina and terminates in the brain, which I shall outline here [*sketching*]. So, if this is the eye seen in profile and sitting in the eye-socket, then here on the right is a canal through which the optic nerve passes. The eyeball lies buried in fatty tissue and is surrounded by bony walls. Attached to it are six ocular muscles that extend back into the bony walls of the socket. These bones are directly behind the upper jaw-bone.

In the anterior part of the eye is a completely transparent, clear tissue through which light passes. That the tissue looks black is an illusion. In reality, you see through the eye to its rear wall; you are looking through the transparent skin all the way to the back of the eye. The round blackness you see is the pupil, which looks black because the back of the eyeball is that colour. It is like looking through the window of a dark room; if you think the window itself is black, you are mistaken. The interior of the eye is completely transparent. This tissue is tough and opaque here and transparent in front. Within it and towards the rear is another layer of tissue possessing a network of fine, delicate blood vessels, which thicken here. Around the pupil is the iris, which in some people is blue and in others grey, green, brown or black.

Between the iris and the transparent tissue is a transparent fluid. Where you see the round blackness is the transparent skin, the cornea; behind that is the anterior chamber. It consists of living fluid and is shaped somewhat like a little glass lens. The actual lens of the eye is located here, where these delicate blood vessels come together and where the iris is formed. This structure, called the crystalline lens, also contains a living fluid. Its outer cover is transparent, permitting you to see the blackness behind it. Unlike a glass lens, it is mobile; it moves especially when you need to focus on something nearby. In that event, it is shaped like this [*sketching*], thick in the middle. When you need to look into the distance, it is bent like this, thin in the middle.

Next to the iris are delicate little muscles, which we tense to make the lens thicker when looking at something close up, or relax to make the lens thinner. A person's habits also affect the lenses. If you often use your eyes for close work, like reading or writing, gradually the lenses become permanently thick in the middle, and you become near-sighted. If you are a hunter, however, frequently looking into the distance, then the lenses become thin in the middle and you will become far-sighted. Another thing to consider is that in youth the tiny muscles located in and around the iris are still strong and elastic, and we can accommodate to our field of vision. In old age they become slack. This explains why many people become far-sighted with age, but this problem can be corrected. If a person's lenses are too thick in the middle, glasses are prescribed with lenses that are concave. These will compensate for the thickness of the eye's lenses. Some people even have a twofold problem, needing one set of glasses for clear distance vision and another set for close up. If the lenses of the eyes are too thin, the glasses will have convex lenses. Their thickness is added to the lens of the eye and compensates for the defect. You could say that we are able to see because we can correct the defect of the lens. The lens in our eye is like that of our glasses: near- and far-sighted. But the lens in our glasses stays the same, while that in the eye is living and can adjust and accommodate itself.

Behind the lens is also something like a living fluid. It, too, is completely transparent, permitting light to pass through everywhere. This gelatinous and crystalline substance completely fills the interior of the eyeball. So here in front is something like transparent 'hard water', the aqueous humour; next comes the transparent lens, and then comes the vitreous humour, which is also transparent. The

optic nerve enters the eye here, and reaches approximately to here.

This optic nerve is extremely complicated. I have drawn it as if the main nerve fibre simply divides here, but there's more to it than this. There are actually four layers of nerves surrounding the vitreous humour. This is the outer layer of the nerve [*sketching*], which acts like a strong mirror. When light enters the eye and hits the layers of the retina, it is reflected everywhere. It does not go into this [*probably referring to the nerve canal*] but stays in the eye. The outer layer acts like the wall of a mirror and reflects the light. A second layer of nerves intensifies this reflecting capacity. As we have said, the nerve that lines our eyeball consists of four layers. The outermost layer and the second outer layer reflect back all the light into the interior sphere. Thus, within the vitreous humour we have actually only reflected light. A third layer of nerves consists of the same substance that makes up the grey matter of our brain. The outer parts of our brain are grey matter, not white. Another 'skin' constitutes the fourth layer. You see, the vitreous humour is placed within a complicated 'sack'. This enables all the light that penetrates into the interior of the eyeball through the pupil to be reflected within the vitreous humour and to remain there.

What we have in our eye is something that looks like a complicated physical apparatus. What is it for? Well, imagine that a person is standing somewhere. When you look at him, an inverted picture is produced in your eye because of the lens and vitreous humour. So, if a person stands there [*sketching*], you have a small image of him in your eye, but owing to this apparatus, it is an image that stands on its head. The eye is just like a camera in this respect; it is much like a photographic apparatus in which the object photographed appears in an image upside down. That also happens in the eye; since it is a mirroring device, when light

enters, it is reflected. Thus, in the eye we have the image of a little person. Even with all our modern sophisticated machinery, something like the human eye can certainly not be manufactured. We must admit that it is altogether extraordinary and marvellous.

Now, picture to yourselves the starry heaven; form an image of the light-filled sphere around the earth, and then reduce this picture until it is quite small. What you then have is the interior of the human eye. The human eye is actually a world in miniature, and the reflections in the eye resemble myriad surrounding stars. You see, these outer walls do not reflect evenly. There are many tiny bodies, which, like miniature stars, radiate light towards the centre. If we were as small as the image of the human being in the eye and could examine it from inside, its interior would seem infinitely large. Our impression would be the same as when on earth we look up to the glittering stars at night. It is indeed so. It is interesting that the eye is like a miniature world and that the tiny human image produced in the eye by reflections would have the same feeling, if it were conscious, that we have at night under a starry sky. It is really quite interesting!

Well, I said, 'if that image possessed consciousness.' But if we did not possess our eyes, we would not be able to view the starry night. We see the night sky and its brilliant stars only because we have eyes; if we close them, we do not see the stars. Nor could we see the starry firmament if the eye did not already contain within it a miniature world. We say to ourselves that this miniature universe really signifies a big world. This is something that must be clearly understood.

Imagine that someone shows you a small photograph of himself or another person. You will realize that even though it is small it was taken of a regular-sized man. You are not encountering the actual person in this picture, and likewise

in the eye; in reality you have only this miniature starry sky within you when you look up at the heavens. You then say to yourself, 'What I have here before me is the "photograph" of the immense starry sky.' You do this all the time. You have within your eye the little starry sky and then you tell yourself, 'This is the photograph of the great starry sky.' You actually always picture the real starry sky from the miniature firmament in your eye; you conceive of the universe by means of this picture within. What you really experience is the infinitesimal firmament in its miniature form within the eye.

Now you might say, 'Yes, but this would be true only if we possessed just one eye like the cyclops, whereas we have two eyes.' Well, why do we have two? Try this. Look at something with only one eye. It will appear to be painted on a backdrop. We do not have two images of an object, which we see in proportion and in the right dimensions only because we possess two eyes. Seeing with both eyes is like grabbing your right hand with your left. We are conscious of ourselves because from childhood we have been used to saying 'I' to ourselves. The little word 'I' would not be in the language if our right side were not aware of our left. We would not be conscious of ourselves. We become so accustomed to the most important things that we take them for granted. A hidebound philistine would say, 'The question of why one says "I" to oneself does not interest me. It goes without saying that one says "I" to oneself!' Well, he is a narrow-minded and prosaic person. He does not realize that most subtle matters are based on the most complicated processes. He does not know that, as a child, he became used to an awareness of himself based, for example, on touching his left hand with his right, and thus grew accustomed to saying 'I' to himself.

This fact can be traced in human culture. If we go back to ancient times, to the days of the Old Testament for instance,

we find priests who – excuse me for voicing such a heretical opinion – often knew much more than the priests nowadays and who said, 'We want to teach man self-awareness.' So they taught people to fold their hands. This is the origin of folding your hands in prayer. Man touched one hand with the other in order to find the strong ego within him and to develop his will. Things like this are not said today because they are not understood. Priests today simply tell members of the congregation to fold their hands in prayer; they do not give the meaning of this gesture because they themselves do not know it any more.

When we see with our two eyes, we feel that what is there in the light is in fact spatial. If we had only one eye, everything would appear as if painted on the firmament. Our two eyes enable us to see things in three dimensions and to experience ourselves as standing within the centre of the world. In a good or bad sense, every person considers himself to be the centre of the world. Therefore, it is of great importance that we have two eyes.

Now, since it is so important for man to use his eyes for seeing, we overlook something else about them. We are not so ignorant in the case of the ear. I believe I have mentioned already that when we hear we also speak; that is, we ourselves produce what we hear. We can understand a spoken language only because of the Eustachian tube, which runs from the mouth into the ear. You surely know that children born deaf cannot speak either, and that people who are not taught to speak a language cannot understand it. Special means must be used to gain an understanding of what has been heard.

At first glance it does indeed appear that seeing is the only purpose of the eye, but a child learns not only to see with its eyes but also to speak with them, even if we don't pay much attention to this. The language of the eyes is not as suitable for everyday use as is the language directed to

the ears, but with it you can discover whether a person is telling a lie or the truth. If you are the least bit sensitive, you can discover in the way he looks at you whether or not he is telling you the truth. The eyes do speak, and the child learns to speak with them just as it does with its mouth.

In speech the larynx, with its function of uttering sounds, is separated from the ear, and thus there are two separate aspects. In the case of the eye, there are muscles right within the organ and also around it. It is the muscles that make the eye into a kind of visible organ of speech. Whether we look somebody straight in the eye, or have a shifty look, depends on the muscles that surround the eyeball. It is as if the ear were contained within the larynx, as in fishes. In man the ear is separated from the larynx, but in fishes they are joined to form one organ. The act of speaking is separated from hearing, but with the eye it is as if the larynx with its muscles surrounded the ear. The eye is situated within its speech organ as if the ear were placed within the larynx. In humans it is like this [*sketching*]. Here we have the larynx, the voice box, which goes down through the windpipe into the lungs and up into the palate. It enables us to speak. From the mouth we have a connection with the ear.

Now imagine that the larynx is not like it is in humans but that it spreads out much wider. Then we would have the broad larynx that Lucifer possesses in my wooden statue. The larynx is so large that the head fits in between, and it reaches up on both sides to surround the ear. With this organ we would both speak and hear. With the eye we do just that; we speak through the muscles that surround the eyeball, and through the eye we simultaneously see. So in some respects the eye is conceived like the ear, but in other respects it is, of course, quite different. This, then, is the purpose of the muscles I have drawn here.

We can say that we speak of what we know, and we consider those who say things of which they know nothing

to be more or less fools. We say of such people that they are talking to themselves, shooting their mouths off. As a rule, however, sensible and rational people express what they know. We do not speak consciously with the eye, however, for we would have to be shrewd fellows, indeed, if we could consciously speak the language of the eyes. This process is unconscious and accompanies our other behavior. The people in southern Italy, for example, still speak of an 'evil eye'. They still know that a person who has a certain look about him is false. They talk of an evil eye because they sense that the eye expresses the whole nature of a man without his being aware of it. This superstition in southern Italy goes so far that some hang little charms or religious medals around their necks as protection from it.

So you see how marvellously the eye is formed. A person who studies the eye in this way simply cannot say that there is nothing of the soul in it. It is simply stupid and philistine to say that the eye has no element of the soul. People say that light penetrates through the pupil into the eye, passes through the lens into the vitreous humour, produces an image here on the retina, and then is transmitted into the brain. Modern science stops right there; or it might perhaps go as far as to say that the light in the brain is used to produce thoughts. This description gives rise to all sorts of nonsensical statements that lead to nothing.

In reality, the light does not reach the brain. I have explained how it is reflected in the eyeball as in a mirror. The light remains in the eye, and it is important to know that it stays there. The interior of the eyeball is like the illuminated starry expanse. The light remains within the eye and does not penetrate directly into the brain. If the light did enter the brain, we would not be able to see anything at all. We can see because it does not do so. Just imagine, gentlemen, that you are standing here in this room all by yourselves; there are no chairs, nothing but the walls.

The room is completely illuminated within, but you see nothing. You know only that it is illuminated, but you can see no objects of any kind. If the brain were only filled with light, we would see nothing because it is not solely on account of light that we see. Everywhere the light is kept in the eye and illumines its interior. What does this mean? Well, imagine that we have a little box. I stand with my back to it; I have not seen it before. I must reach behind myself to be able to know that it is there. Likewise, when the eye is illuminated from within, I must first feel the light to know that it is there. I must first feel the light, and this is done with the soul. In other words, the apparatus of the eye produces something we can feel. The soul passes through the muscles and feels or senses the little person I have mentioned within the eye.

Every organ within the human being shows us that the soul observes, feels or senses what is within. If we examine everything carefully, we discover the soul and the spirit everywhere, especially in the eye. After a while, we can get the feeling that we are sitting in front of a peephole here. When I look at you, you appear within, but I *form the conception* that the image within is the person outside. This is how the eye works. Just imagine that it is a little peephole through which the soul forms the idea that what it observes is the vast world. We simply must recognize the soul's existence when we actually examine the matter.

Now, I said that here is the choroid [*referring to his sketch of the eyeball*]. It contains tiny blood vessels and lies under the optic nerve and its network. The optic nerve does not reach all the way to the front of the eyeball but the choroid, with its muscles, does. It extends to the lens and actually holds it in place. Here, as I have mentioned, is the iris surrounding the black pupil, which is nothing but an aperture. The iris is quite complicated. I will draw it a little larger, as seen from the side. So here is the iris, attached to the ciliary muscle.

The choroid and lens sit within, held in place by the iris. Seen from the front, the iris has a front wall and a back wall. On the back wall are little coloured granules, which are microscopically small sacks. In everyone they are filled with a blue substance, and this is what one sees in blue-eyed people. In their case, the front layer is transparent, so you see the back layer of the iris, which is filled with this blue substance. In a blue-eyed person you are really seeing the back wall of the iris; the front part is transparent. Brown-eyed people have the same blue substance in the back layer of their iris, but they possess also brown granules in front of it. These cover up the blue ones so that all you see are the brown. A black-eyed person has black granules. You see not the blue but the little black sacks. It is the iris that causes a person's eyes to be blue, brown or black. The iris is always blue at the back, and in blue-eyed persons it possesses no coloured substance at all in front; in brown-eyed and black-eyed people, it contains coloured granules in front that obscure the blue granules at the back. Why is that? Well, you see, these tiny little sacks are constantly being filled with blood and then emptied. The blood penetrates the tiny granules in minute amounts. In a blue-eyed person, they are constantly being filled with and emptied of a little blood. The same thing happens with brown- and black-eyed persons. The blood enters, deposits blue or black coloured substance, then leaves again and takes the coloured substance with it. This is a continual process.

Now, some people have a strong force in their blood that drives the substances from food all the way into the eyes. This gives them brown or black granules. Those with black granules are people whose organisms can drive the blood most strongly into the eyes; the substances from nourishment easily reach into the eyes. This is less the case with brown-eyed people. Their eyes are not so well-nourished, and a blue-eyed person's organism does not drive the

nourishing substances far enough into the eyes to fill the front part of the iris with them. It remains transparent and all we can see is the back part. Thus, a person is blue-eyed because of the way all the substances circulate through his organism. If you observe such a blue-eyed person, you can say that he has less driving force in his circulation than one who is black-eyed.

Consider the Scandinavians. Much of their nourishment must be utilized in fighting off the surrounding cold. A Nordic man does not have enough energy left to drive the nourishment all the way into the eyes; his energy is needed to ward off the cold. Hence, he is blue-eyed. A man who is born in a warm, tropical climate has in his blood the driving force to push the nourishing substances into his eyes. In the temperate zones it is an individual matter whether a man possesses more or less inner energy.

This also affects the colour of hair. A person with strong forces drives food substances all the way into his hair, making it brown or black. A person with less driving force does not push these substances all the way into the hair, and thus it remains light. So we see that blue eyes and blond hair are related. The one who drives the food substances forcefully through his body gets dark hair and eyes; the one who does it less vigorously gets light hair and eyes. This can be understood from what I have told you.

When you take into consideration the most important aspects, you can find meaning for everything. The earth on which we live was young when it brought forth those giant megatheri and ichthyosauri that I have described for you. The earth was once young. Now it is past its prime; it is growing older and some day will perish from old age, though not in the way described by materialists. We are already faced with some of the signs of the earth's old age. Therefore, the entire human race has been weakened in regard to the driving force that moves food substances

through the body. So what part of the population is going to be the first to disappear from the earth? Dark people can last longer, for they possess greater driving force; blonds have less and become extinct sooner. The earth is indeed already into its old age. The gentleman who asked the question pointed out that there are fewer blonds around than in his youth. Because the earth has less vitality, only the black and brown peoples attain sufficient driving force; blonds and blue-eyed people are already marked for extinction because they can no longer drive nourishment with the necessary force through their bodies.

In the age when those giant beasts existed – the ichthyosauri, plesiosauri and megatheri – cows certainly did not yet exist, cows from whom milk is taken for human consumption. Of course, neither did human beings exist then who would have required such milk. But just yesterday I read a statement by somebody who is really afraid of progress. He thinks people who express ideas today that should be formulated only after many centuries have passed ought to be persecuted, because, he says, the time is not ripe for their utterances. Gentlemen, it seems to me that if this had been the case in the period when cows were supposed to come into existence, no creature would have had the courage to become a cow! It is like saying, 'What is taught today as anthroposophy should emerge only after many centuries.' Well, then it wouldn't appear at all, just as no cows would have come into being. In effect, it is like saying, 'I would rather remain an old primeval hog than transform myself into a cow!'

The situation on earth is such that we must have the courage to change and to ascend from those periods when mankind knew things instinctively, to one in which everything is known consciously. This is why I present everything to you here in such a way that you can comprehend fully what is really going on and know in what direction the

wind is blowing. When you read a book nowadays, or when you hear about what goes on in the great wide world, you cannot actually get to the bottom of what makes everything tick. But people don't know that. You can understand a phenomenon like the gradual extinction of blonds if you comprehend how nourishing substances penetrate into both the eyes and hair, the colouring of which is closely related.

If you go to Milan, you will find that the head of the lion there is depicted in such a way that its mane, that is, the largest accumulation of hair the lion possesses, looks like rays of light. This rendering is based on an ancient wisdom in which it was known that both the eyes and hair are related to light and its rays.

Hair is indeed like plants, which are placed in the ground and whose growth is subject to light. If light is unable to draw nourishing substances all the way into the hair, it remains blond. If a person is more closely tied to matter, the food substances penetrate the hair completely and counteract the light; then he gets black hair. Sages of old were still aware of this, just as were people even a few centuries ago. Thus, they did not depict the lion's mane as being curly but instead they gave it a radiating, straight form, as if the sun had shone its beams right into the lion's head. It is most interesting to observe such things.