STUDY MATERIAL

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MAN AND THE FEATHERED WORLD

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MAN AND THE FEATHERED WORLD,

Rudolf Steiner in his teachings on the understanding of Man (Anthroposophia) takes many illustrations and comparisons from the birds or better to say the feathered world, because the fact that they grow feathers is one of the distinctive and important things about the bird creation.

If one were asked why a bird grows feathers one would probably answer "to fly with and to keep its body warm". These reasons are quite true but they by no means contain the whole truth, If we would know about the bird we must examine the whole bird organism, study its position in the Universe, and above all its relationship to Man. At first sight some of these references of Dr Steiner's to birds in the Agriculture Course and other Lectures do not seem to be of much practical use to the modem farmer or poultry farmer.

Farming today is growing ever more and more specialised. That he is a poultry farmer is no longer sufficiently specific a description. He may be running a hatchery, or his line may be commercial age production, or pedigree breeding, or fattening table poultry. These all are run as separate concerns, and from an economic point of view this is all very well, but at the same time it is very dangerous from the side of the health and stamina of our stock.

The further we go on these lines the more important it becomes to have a good general knowledge of bird nature, one night say the limitations of bird mature. It is not safe to exploit our birds entirely for our own ends without keeping an eye on the bird's point of view - literally taking a bird's eye view of the situation. Of course, a knowledge of bird life in general also comes in useful in other branches of farming and not only in connection with poultry.

To begin at the beginning, let us take a look at the bird as a whole. Compared with Man a bird must be looked on as a head only. The whole bird organism is comparable to Man's head

Just at first it is not very easy to grasp this idea of the bird as a head, but perhaps the following rather childish approach may help: Tricks in optical illusions are familiar to anyone, picture puzzles in which a

man's face may he found in a Landscape, or the drawing of some object is found to present some thing quite different when one has the key, or knows just how to turn the paper. We will 'have a go' with a man's head, just a primitive drawing with outline, Eyes and nose, (Fig. 1.) Looked at in one way it is recognisable as the representation of a head. But now change your looking gear, and can you not also see a broody hen on her nest?

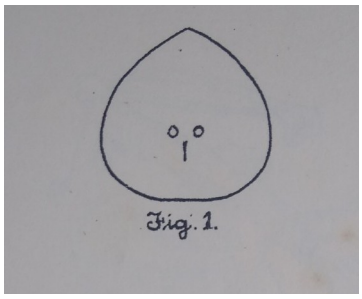


Fig. 1.

This, of course, is quite a superficial way of dealing with this subject and would not be of any use without going more deeply into the reality behind it, except that perhaps it helps to bring us into the mood and reminds us that things are not always what they seem at first sight.

Now take up the broody hen and handle her and let your sense of touch and feeling confirm this 'head' idea in the formation of the framework. To feel a bird's body by spanning it across the back gives quite a different impression from grasping an animal like a cat in the same way. Especially do the bones of the pelvic arch resemble a cranium, The hollows formed for the kidneys might the eye-sockets and indeed the kidneys are the eyes of the lower organism. (Fig. 2.)

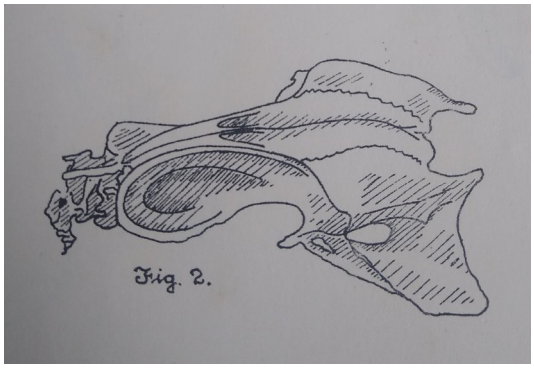


Fig. 2.

In comparing a skeleton of a bird within that of a mammal, many of the same individual bones can be recognised in each, but the outstanding difference (in addition to many of the birds' bones being hollow instead of being filled with marrow) is the tendency in the bird's skeleton for the bones to flatten out and fuse together, (Fig. 3.)

Thomson in his "Biology of Birds" after mentioning the hollow bones of birds, says: "*A second general characteristic of the bird's skeleton is the tendency that adjacent bones have to fuse together while still in the making. What is behind this tendency we do not know; it must express a general constitutional peculiarity for it occurs in so many different parts of the skeleton.*"

As a general principle this spreading and fusing tendency applies to all birds, though the actual shape of the bones varies according to the species, An attempt has been made to classify birds by identification through the bones, for the bones indicate the activity.

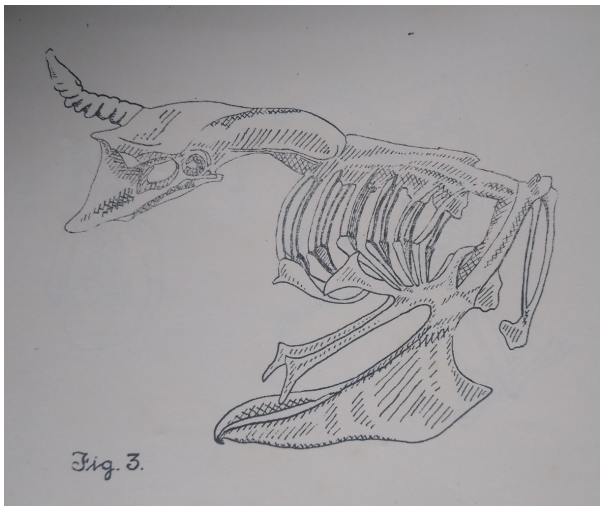


Fig. 3.

It is the activity which shapes the bird through the muscles. As Newton says in his famous "Dictionary of Birds" (p. 604: "*Most muscles leave an impression upon the bones to which they are attached in the shape of ridges, furrows, crests and processes, ...The muscles are not as a rule attached to such crests and ridges because these happen to be there, but on the*

contrary, they shape the bone which serves as their passive framework: What is bred in the flesh comes out in the bone - not vice versa."

The bony limestone framework of the skeleton is first mapped out by the carbon. The carbon working through the muscles is the real architect of the skeleton.

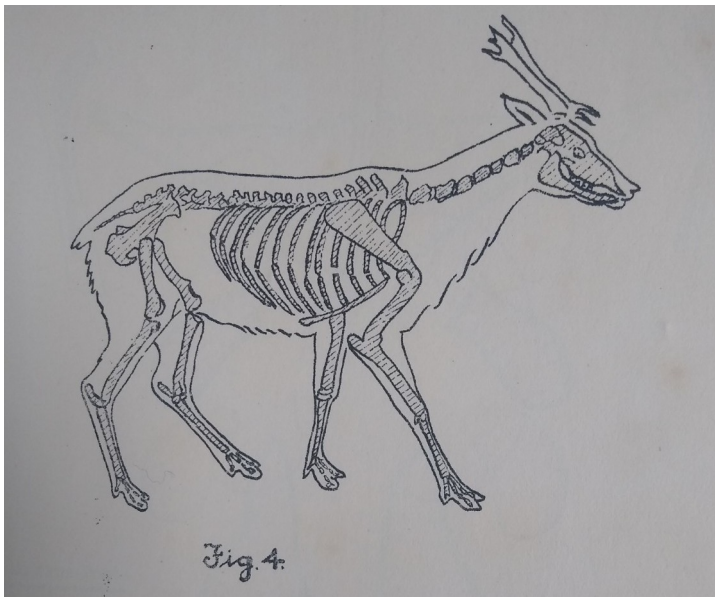


Fig. 4.

Just as in a new born child or any young animal the skull is soft and open at the top and only gradually, as it hardens, the space is closed, so in the baby chick what first appear as the gelatinous separate little bones of the framework of the whole bird gradually grow together and form a hard, more or less rigid case around the body.

The Pelvic Arch which makes the bird's skeleton so skull-like is really composed of a number of fused vertebrae besides three other bones, The Ilium, Ischium and Os Pubis. Note also the ribs with their widened ends and their fusion at each end to the vertebrae and broast bone, and the cross struts in the middle, the whole making a close-meshed network of bone.

Compare this pelvic arch of the fowl with the pelvic bones of an animal like the deer; see in the deer the loose, open formation of the pelvis. (Fig. 4.)

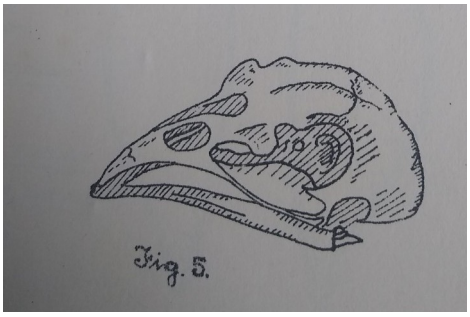


Fig. 5.

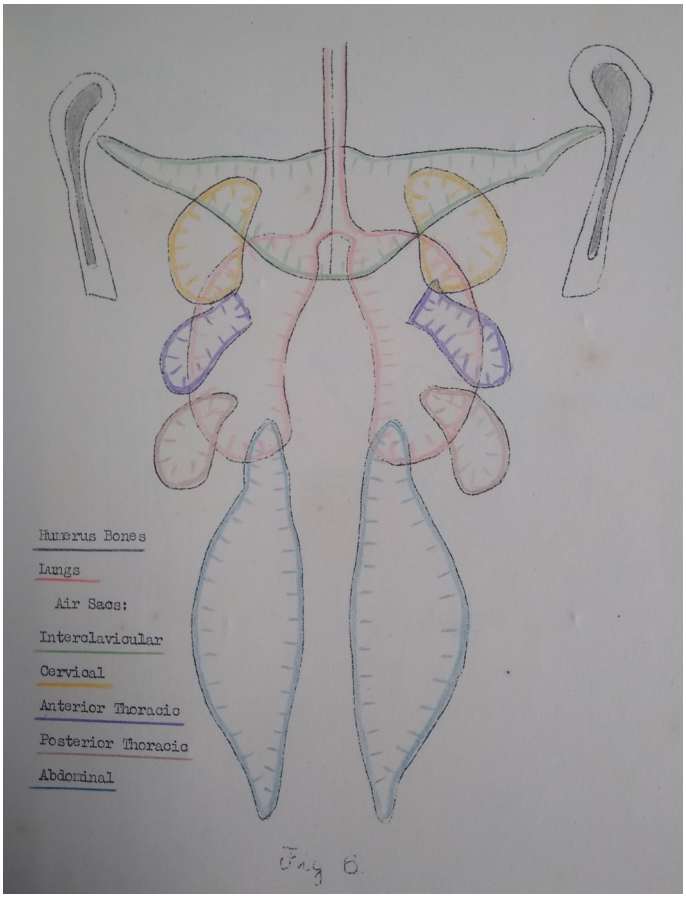
But this bone-fusing process is carried to its extreme in the skull of the fowl. (Fig. 5.) In the skull, fusion begins at such an early stage and is so complete that there are no signs left of the separate bones or sections as in mammals. Just as though it had been made all in one piece. In fact in many ways the bird's head is not head-like at all: it is much more a sort of multiple tool for the use of the whole organism. A bird's head is attached to the spine by a single bone instead of two as in mammals, and consequently the bird can twist its head round much further and more freely and easily. Having sacrificed its hands for wings, it must do all its handwork with its head. The head does the seizing of food, reaching to the ground, preening the feathers, or (as in the parrot) to hand on by, or as a hammer in the case of the woodpecker. The adaptations of the bill are in the direction of tools rather than sense organs: flat bills, long thin bills, hooked bills and so on according to the habits and food of the species.

Looking at a bird's skeleton in this way, we see how the head system has been pushed back into the whole organism, making it a head-organism. The form of the body is more headlike than the head. And what of the creative forces behind this headlike form? We should expect them to be headlike also. We should

expect to find the bird's consciousness to lie more in the body than in the head. But in order to understand the nature of the Third, its consciousness and its feeling of self, it is necessary first of all to take into consideration the element in which the bird lives. Although the bird lives in the air, flies through the air and fills itself with air, its true element is warmth and the various differences of warmth within the air. "*It really lives in the difference in temperature between the warmth of the air and the warmth it imparts to its own internal air; in these variations of temperature a bird has its life.*" (R. Steiner, "Man as Symphony of the Creative Word" p. 78.)

The breathing system is one of the most remarkable things about birds. Seeing that the air is of such importance in the bird's life one would expect to find very large and capacious Lungs whereas on opening a fowl we find the lungs to be very inferior affairs compared to those of a mammal. They appear as a flattish membranous substance attached to the ribs, scarlet in colour but with very little extensibility.

The secret lies in the fact that the bird has a most elaborate breathing organisation, for the lungs open into an elaborate system of airsacs. If, when you kill a fowl you cut a hole in its windpipe, insert a glass tube and blow air through it, you will see the whole of the body lifts, not where the lungs are but principally in the abdomen and under abdominal organs, and even along the humerus bones of the wings. If you can cut the bird open carefully without damaging these great bubbles, you will find that they are made of transparent membrane.



In a fowl there are nine main airsacs. (Fig. 6.) The trachea or windpipe divides into two bronchi, which again divide up to form the lung. A main channel goes right through the lung, and leads into the abdominal airsac penetrating the bones of the sacrum (back) thighs and legs. Other branches lead into three pairs of smaller sacs, and there is a pair which appears to have joined into one.

Besides these nine large airsacs there is a pair extending into the wings along the humerus bones. The holes through which they enter the humerus can be seen in the fowl at the end of the bone nearest to the body, so small that it is almost unbelievable that air can pass to and fro. And yet it does so pass, for it is well known that a bird which has had its humerus shattered by shot, can go on breathing for some time although its beak and nostrils are choked with blood and tightly closed. It breathes through the humerus bone. I have noticed that these small holes - or foramen as they are called - are in very many cases situated in the proximity of a joint, and

it may well be that the movement of the limbs, as in flying or in running, acts like a pump and is a help in the changing of the air inside the bone.

The way these airsacs creep into the bones is most interesting. Newton describes it thus (p.47): "*Hollow bones contain marrow, except where it has been driven out by the penetrating airsacs. On the surface of the bone covered by a fibrous membrane, there open small, often microscopic holes, which are continued through the walls of the bone into larger spaces and ultimately into the marrow cavity. These render possible the entrance of blood vessels, air cells and nerves."* And p. 4. *"The airsacs do not enter the bones before a considerable portion of the marrow has been absorbed; an extremely small hole in the bone is sufficient for their entrance; the cavity of the hollow bones is ultimately lined with the thin membrane of the airsac.*"

This is another instance of forces working in living tissues building up an organ or member, and having completed it, continuing to work functionally in the organ instead of constructionally. We shall see this principle again when studying the feathers.

In his further description of the airsacs Newton says ( ): "*Besides the airsacs already mentioned, there exist numerous smaller cells which enter more or less directly from the lungs into the vertebrae and ribs, between the muscles, underneath the skin and other parts, thus making the skeleton and some times the greater part of the body pneumatic*."

This is almost as Dr Steiner describes it. If you remove the bones and the flesh and the hard material part, what is left is an air-bird. That is the real bird, what you have taken away is really only luggage.

What is the function of this great system of air reservoirs? Some writers have thought that they have some thing to do with lightening the bird's body and making it more buoyant to assist in flying, but the difference in weight of such a small amount of warm air and cold air would be negligible in this connection. Moreover some of the flying birds like Swifts and swallows have more solid bones, and some of the non-flying birds have hollow bones. It is evident that these airsacs cannot act as lungs because their supply of blood vessels is insignificant, whereas the lungs proper are a closely packed network of blood vessels.

What happens is this. Air is breathed in by the bird, it passes through the lungs and fills the airsacs. There it is exposed through the great surface of these membranes to the warmth of the bird's body. In expiration it again passes out through the lungs. Actually the lungs have two 'goes' at the air of each inspiration, though expiration is the more active part of the respiratory process. Il you observe fowls when roosting, you see that it is the hinderpart of the body that expands, not the chest, which would be uncomfortable as it rests on the perch.

The Warming of the outer air with its internal warmth is the function of the bird. Large lungs would not be so efficient for this purpose and might prove embarrassing in flight, whereas with the airsacs, spread out as they are in the body together with the lungs attached to the bony framework, the activities of breathing and flying are closely bound up with one another and mutually assist one another. Further, the activity of flying - in fact any activity of the bird - engenders heat. Activity also demands more oxygen, so the greater the activity the more air is required. Breathing itself is also an activity which engenders heat, so that this

inner warming process is accelerated on every side,

Think of the air-warming going on in a lark soaring and singing high in the sky where the oxygen in the atmosphere is rarer. It has been calculated that his wings beat at the rate of two hundred strokes to the minute - probably much more. Or again watch a pair of thrushes or starlings at nesting time feverishly hunting for food and the to-ing and fro-ing when feeding the young ones. Or notice the quick and energetic movements of tits as they dart around a bone or piece of fat bung up in the garden..

In so many ways we can see the birds living so much more intensely than other animals. Their temperature is higher than that of mammals, the heart beats more quickly and the blood is richer in red corpuscles than in any other form of life. Above all they breathe faster, and each breath passes through the lungs twice, once on its way to the reservoirs and again on its way out. On this point Headley in his book "The Structure of Birds" says (p. 102): "*The rapid breathing that is natural in flight will of itself counteract the heating effect of violent exercise".... "It is probably as regulators of temperature that the airsacs have been developed till their cubic capacity surpasses that of the lungs many times; how many it is diffioult to estimate; probably ten times at least, They cannot, as some writers have supposed, do the work of the lungs, since the blood vessels in them are so minute as to be of little use, whereas by exposing their very large surfaces constantly to fresh indraughts of air, they cause a large withdrawal of heat from the body and for this no other effectual machinery exists*".

That is to say that the airsacs are created to disperse the heat, whereas the truth is probably that the heat is created to warm the air in the airsacs. And in the warming of the air, this internal air, somehow the bird has its experience of living. Knowing this, we can attempt to go a little further into the consciousness of the birds.

In comparing the anatomy of birds with that of mammals, one very striking difference appears, and that is that the birds have no bladder and do not excrete urine in a liquid form. In mammals, three organs divide between them the work of eliminating waste products from the body, - the skin, the lungs and the kidneys, In birds the skin is not an excretory organ, it has no sweat glands. The bird's kidneys are very active in excreting urea and uric acid, but it is in a nearly solid form, being easily distinguishable as the white part of the bird's droppings. The duty of getting rid of the superfluous water in any large quantity falls therefore on the breathing system.

There is another indication that the breathing system of the bird takes on this function that in mammals is done by the bladder. You will remember that Dr König in his lectures on "The Sheaths of our Preparations" (October 1947) told us about an organ in the human embryo called the Allantois. The allantois in the embryo of mammals acts in the place of what later develops into the bladder. We also find this same organ called the allantois in the chicken whilst it is still within the shell of the egg, but in the case of an embryo bird the allantois besides acting as a receptacle for the urine, functions as a respiratory organ, taking the place of what ultimately becomes the lungs and airsacs in the bird. In Dr Koenig's words: "*Our astral body is situated around this organ (the allantois) during the embryonic period, and you will understand therefore, that in a bird the allantois serves the air-breathing process during the development of the embryo within the egg. Imagine the egg of a bird, say the farmyard hen. Underneath the surface of the calcified shell with*

its hundreds of pores, there is spread out the allantois. The allantois is the organ which leads oxygen in, and carbonic acid out. The allantois replaces what is afterwards the lungs. It is outside the body; it is a lung which you have taken out and put, so to speak, around you. This lung which you have around you is now in direct contact with the whole astrality of the world, with the whole breathing process of the cosmos."

Take an animal like the stag. The antlers of the stag are continually in contact with the astrality around the earth. This astrality comes to expression in the bladder of the stage

In the bird, on the other hand, it is done through the breathing system. The bird is in contact with the whole breathing process of the cosmos through its own comprehensive breathing system. And the airsacs in the bird, with their great surfaces of membrane exposed to the inner warmth of the bird's body, dispose of the superfluous water that in the animals is dealt with in the bladder.

The bird's digestion is a much cruder process than that of the mammals. The cosmic forces that come in from outside and meet the earthly forces are held in the plumage. They do not work down into the digestive system so strongly. Birds do not accumulate their excretions; only in the ostrich is there any development of either bladder or large intestine. What goes on in the bladder and intestines of human beings and the higher animals is a thought process not carried to the end, a process which in the bird takes place outwardly in the feathers. It is this internal thought-process that accounts for the very disagreeable smell when the body of a sheep or other ruminant is opened. A bird's body, like the plant's, has not this smell. The manure of the poultry, on the other hand, contains stronger astral qualities than animal manure. It should not be given to plants in a concentrated form but should the mixed with plenty of vegetable matter and should be composted.

But we shall return later to this question of what is at work outwardly in the bird. What we are trying to understand at the moment is the bird's consciousness, what the bird feels in itself. So let us follow further the idea of the whole bird organism representing the head part of man.

In man the seat of thinking is situated in his head. This is not to say that brain creates our thoughts, - rather the reverse, as it is the case with the bones of the bird. The forces of thinking first create the brain and then function through that organ as thought. Thoughts are not of our making, we receive them and elaborate them according to our ability. In former times man's consciousness was much more connected with his breathing than is the case today, especially his inbreathing. There is still a hint of this in our present everyday life. Take a simple thing like driving a stake into the ground with a heavy mallet. You look and take a deep breath; you raise the mallet and there is a moment's pause as you take aim; then, with the expulsion of the breath, you strike the blow. Thinking while breathing in; doing while breathing out; the reverse is impossible, Inbreathing signifies observation, outbreathing signifies action.

In the course of the twenty lectures to doctors "Spiritual Science and Medicine" (March/April 1920) Dr Steiner says "*Birds' understanding operates more through their pulmonary system than ours...*" - "*Mankind has reft the power of thought away from the lungs and the rhythmic system --- We no longer think so centrally - that is with heart, Lungs and so forth, in unison with the cosmos, as birds still think.*"

The hawk senses the tiny animal in the grass. The homing pigeon searches the ether for the particular

atmosphere it wants - the atmosphere of home, the atmosphere to which its whole being is wed and is craving for. Only when an animal has fallen out of the herd do the vultures appear out of a Clear sky. Something in the air has told them that there is soon to be a carcass for them to devour. In the flight of the eagle or the vulture searching for its victim is exemplified a great craving; more than anything else it is a craving. When the farmyard rooster flies up on to a high place and flaps his wings, he is inhaling the air on order to sense the whereabouts of his adversary preparatory to exhaling the challenging crow.

Now we know that throughout nature, it is the nitrogen that is the bearer of astrality, the bearer of sensation. As Dr Steiner puts it in his lecture on The Countenance of the Earth" (Dornach, 2nd July 1922) "through the nitrogen the cosmic laws can enter everywhere". And in the Agriculture Course (III/9) "It is the nitrogen which senses whether there is the proper quantity of water in a given district of the earth". And it is the nitrogen which guides the bird to its home, or to a warmer climate, or tells it where to find food, and so on, We have the expression "I felt it in my bones" and this is quite true in the case of the birds. Nitrogen enters with the inbreathed air even into their bones.

Let us look again at the full picture. First the carbon traces out the framework, working in the muscles, and designs the skeleton. Then the carbon calls in the aid of the silica and limestone to make the frame strong. Through the extensive breathing system the framework is filled out with air; air in the airsacs pervading every part of the body; air in the bones. And throughout the whole of this air-bird travels the nitrogen with the oxygen. The nitrogen, moistened with the sulphur, penetrates everywhere where the carbon has formed the framework.

And now Dr Steiner says in the Agriculture Course (III/11): "*All that is developed in the living creature, structurally, as in a fine and delicate design must eventually be able to vanish again. It is not the Spirit that vanishes but that which the Spirit has built into the carbon, drawing the life to itself out of the oxygen as it does so. This must be able once more to disappear, not only in the sense that it vanishes on earth; it must be able to vanish into the cosmos, into the Universal All*". This is achieved by the hydrogen... "*In the hydrogen the physical flows outward, utterly broken and scattered, and carried once more by the sulphur out into the void, into the indistinguishable realms of the cosmos.*"

So far we have spoken only of what the bird does for itself - for its own Life - but now we are to consider the bird's cosmic task, - the mission of the bird world for the whole universe.

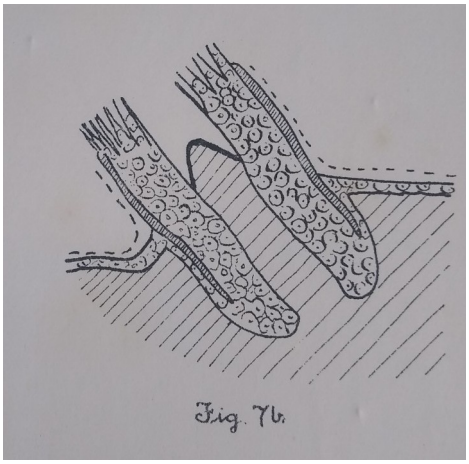
Our surest guide in the care of animals is to find out the meaning of the animal; why the particular creature has been created; what is its purpose, not only in relation to man, but in relation to the whole of nature.

The distinguishing characteristic of birds, which makes them different from all other creatures, is of course their feathers.

In "Man as Symphony of the Creative Word" (p.50).we read: "*Everything concerned with the eagle's plumage is carried out very thoroughly - in other birds this is even more the case - everything connected with their feathers is worked out with infinite care, A bird's feather is really a wonderful structure. It is mainly composed of what we may call earthly material which the eagle draws from the earth, and which is spiritualised by fassimilate them".... "When the eagle dies and its feathers decay, the spiritualised earthly*

matter passes over into the Spirit Land and is changed back again into spiritual substance. This of course applies equally to all birds."

This then is the cosmic task of the birds - to accumulate in their feathers this spiritualised earthly material which the hydrogen can conduct back again into the creative world.



It is interesting at this point to think of how a feather grows. (Figs. 7 a + b) The best detailed description of the growth of feathers that I have found is given by Newton in his "Dictionary of Birds" and this is a condensed version of what he says (p. 225 ff): "*The first indication of feathers appears about the fifth day of incubation as slight pimples on the still semi-transparent skin of the embryo. Each pimple is produced by a cluster of cells ... which multiply rapidly and take on the shape of a cone the apex of which is directed backward. The base of the cone then sinks more deeply into the skin and arranged itself into an outer sheath, which contains the whole of the young feather, ...and an inner mantle of a delicate meshwork containing a pulp of blood or plasma, and this pulp becomes the nutritive organ of the feather... Around this pulp the quill or the spine of the feather grows, and above this the cells arrange themselves in longitudinal rows. These rows are transformed into the barbs of the feathers, or in the case of the chicken the hairlike tufts, and their formation proceeds from the apex downwards... Ultimately all these hairs meet at a base and join up with the cylindrical tube forming the quill of the feather.*"

It would appear from this that there are two forces at work here. We see, on the one hand, the young feather nourished by the body of the chick through the pulp from inside the eggshell, but formed and fashioned by forces coming apparently in from outside. The barbs seem to shoot in like arrows, as Rudolf Steiner describes it, or as Newton says, they form from the apex downwards. It is the silica forces that work from the outer universe through the body of the earth and then upwards perpendicularly, and the limestone forces from the spheres nearer to the earth working directly down onto the surface of the earth, radially. The silica, or cosmic forces in the sheath draw the pulp right through to the tip of the feather, and the formative forces of the limestone press in the barbs. Thus is the feather built up of earthly material.

I asked our Provincial Poultry Advisory Officer if he could give me the chemical analysis of poultry feathers, and this is what he says: A typical analysis of feathers shows the following percentage data:

Nitrogen		15.00 (equivalent to 93.75 protein)
Ash		0.89
Calciun (CaO)		0.10
Phosphorus (P204)		0.34
Sulphur		*2.75*
Chlorine		0.53
Silica (SiO)		Traces

From these data it will be noted that feathers consist almost entirely of protein, the ash content being quite small. There is silica present, is no doubt that this silica, though small in amount, forms an essential part of the feather structure. The sulphur is quite high and most of it is present in an organic form as part of the protein structure. In this form it exists principally in the sulphur containing amino acid, cystine."

How does this analysis fit into the way we have been thinking of birds? The importance of the silica we can well understand, and that there should also be a trace of calcium. There is sulphur too, but what the analyst finds most striking is that the ash content is so small, and that the feather is composed almost entirely of protein, which the dictionary describes as a '*complex organic compound containing carbon, oxygen, hydrogen and nitrogen, with some Sulphur.'* So also from the analysis it is shown that the feather contains organic earthly substance,

What has Newton to say about the further development of this part of the feather? (p.246) "*When the pulp has finished its function as a nutritional organ, it withdraws towards the base, leaving only its horny sheath in the form of a series of 'caps', known in German as the 'soul' of the feather.*' (Fig. 8.) We know that in the human being, the growth forces that build up the body of the child, later become the forces of the intellect. So in the feathers, the growth forces of the pulp withdraw, Leaving the column of silica representing a thought-activity, which however is not used by the bird itself, as we shall see.

Notice how the quill has been tapered and safely sealed at the bottom by the withdrawing pulp. The blood circulation is cut off and the feather has no longer a living contact with the bird. As far as the bird is concerned, feathers form useful instruments of flight and a warm covering for the body. The large flight feathers are fastened to the wing bones, which correspond to our phalanges or digits, by strong tendons and ligaments, much as though the feather were an implement grasped in the bird's hand, - a flying tool.

In the growth of a feather, we saw first a pimple on the skin of the chicken. This pimple, following the inherent nature of skin, hardens and becomes horn and forms the quill of the feather. The quill of a feather is really a horn. The shaft and the barbs, on the other hand, are something quite Instead of a skin formation, they are more of a bony nature, branching out, or rather reaching out, like antlers. In fact they are antlers. The bird is a head carrying both horns and antlers.

Look at a feather, such as a flight feather from a goose's wing. The upper part, like the antlers of a stag, reaching out gathering the forces from the surroundings of the earth In the case of the stag there is a connection between the antlers and the bladder. But birds have no bladder. Instead, the forces gathered by the barbs, passing through the shaft of the feather, are received into the horny quill with the silica cups held in readiness. The silica wrests from the limestone of the shaft what the limestone would keep for itself.

Just as we fill our cowhorns and place them in the ground, so the feathers were placed in the body of the bird. When the contents of our cowhorns or other sheaths are fully impregnated with cosmic forces, we spread them on our fields. The bird's feathers are cast during the moult each year, or on the death of the bird, and the spiritualised substance they contain is returned to the creative world.

In describing the process of thinking, Dr Steiner tells us that a bird's feather is a true physical picture of a thought. We make use of the same forces when we think, as the bird uses in growing its feathers, The bird inserts feathers in its body; we with our ego insert perceptions and participation in our movements.

In the Agriculture Course (VIII/4.) we learn that all that is present as substance in the head organisation is composed of earthly matter. Precisely the opposite is true of forces. In the head we have cosmic forces, in as much as the senses are chiefly localised there and the senses perceive out of the cosmos, Cosmic forces flow through our senses into our head from the world around us and the activity engendered is thinking. Cosmic forces from Mars, Jupiter and Saturn are streaming through the air from the Sun, shimmering in the plumage of the birds and spiritualising the earthly substance of the feathers. Thus in birds' feathers we have a picture of human thought.

Each of these pictures, drawn for us by Dr Steiner, taken separately, may not appear at first sight to have much significance for the farmer, but if they are put together, a concept of the bird organism or archetypal bird can be built up, which will prove to be a real help wherever day-to-day poultry and bird problems arise.

In conclusion let us remember that Dr Steiner said "Truly, he who understands the wonderful shadings of the bird world understands much also of the nature of the human soul in its relation to the world."