LECTURE TWO

My dear friends,

We now have to distribute the rest of the syllabus among the different classes, and we should be very clear that towards the ninth year, that is in the third class, we start to deal with a selection of animals, bringing them in relation to man, as I have shown by an example. This we continue in the fourth class, so that in the third and fourth classes we consider the animal kingdom in its relation to Man; and in the case of the fifth class we add to this some of the lessfamiliar forms of animals.

In the fifth class we start Plant Study in the way we have discussed in the didactic portion of our course.

Sixth Class: In the Sixth class we continue with Botany and start Mineralogy. We should describe minerals only in connection with Geography.

Human Science: in the Seventh Class we go back to man and try to bring forward, as I pointed out yesterday, what should be taught in connection with food and health. They should try, with the ideas you have been able to evoke in physics and chemistry, to build up a comprehensive survey of industrial and economic conditions, transport and the management of a business. All this should arise out of the study of nature in connection with the teaching of Chemistry, Physics and Geography.

Human Science; In the Eighth Class you will have to build up man in such a way that you describe what has been built into him from outside; the mechanics of the bones and muscles, the inner construction of the eye, and so on. And once again you make a comprehensive survey of conditions in Industry, Commerce and Transport, in connection with Physics and Chemistry.

When you build up the Natural History lesson in this way, you will make it extraordinarily alive, and through natural history you will awaken in the child an interest in everything belonging to the world and man.

Physics: Sixth Class: We start with the teaching of physics in the Sixth Class, in such a way that it is linked with what the child has acquired through the teaching of music. We start our teaching of physics by letting acoustics grow out of the musical. You bring acoustics into relation with musical science when you describe the human larynx physically, and physiologically. You cannot describe the human eye yet at this age, but you can the human larynx.

Then you proceed to optics and the science of heat, taking the most important items. The principles of electricity and magnetism should be taught in the Sixth class as well.

Physics: Seventh Class: In the Seventh Class you extend the teaching of acoustics: heat, optics, electricity and magnetism, and only from here do you proceed to the most important principles of mechanics, i.e. the lever, the wheel and axle, roller, pulley, inclined plane, cylinder, screw, etc. Then you explain some such processes as burning, by taking such an everyday occurrences as combustion you seek for a transition to simple chemical ideas.

Eighth Class: In the Eighth class you enlarge again, revise what you have fostered in the Sixth Class, and then pass on to the Hydraulics, the theory of power working through water. You take everything belonging to the conception of lateral pressure of the water, buoyance, the Archemidean principle, etc.

It would have been marvellous to deliver lectures on pedagogy here for three whole years and to have worked though with you for one, as a sort of model, all the single details that it will fall on you to build up from your own discoveries. However, this cannot be, so we must just rest content with what we have been able to do.

Physics: Thus you bring the physics lessons to some sort of a conclusion with aeromechanics whereby everything is discussed concerning climatology, the barometer and meteorology. And you take further the simple conceptions ofchemistry, so that the child may also come to realise the dependence of industry on chemical processes. You endeavour to combine with your teaching of chemistry what has to be said about the substances building up organic bodies: starch, sugar, albumen, fat.

We have nowto distribute the different stages of geometry - Mathematics, Arithmetic, among the eight classes. As you know, the ordinary method prescribes dealing only with numbers up to a hundred in the first school year. One can keep to that, for it is of very slight importance so long as one keeps to simple counting how far up one counts in the first class. The main thing is that so far as you use figures, you pursue the kind of reckoning that I have indicated: addition developed first out of the sum; subtraction out of the remainder, multiplication out of the product and division out of the quotient, that is to say, the exact opposite of the usual procedure. Only after having shown that 5 is 3 plus 2, one shows the opposite, though addition, that 3 and 2 makes 5. For one must arouse in the child strongly the idea that 5 equals 3 plus 2, but that 5 is also 4 plus 1, and so on; therefore addition comes second after separating out of the sum. Subtraction after one has asked "What minuend must I take in order to leave such and such a remainder". As already said, that one does this with the simpler numbers in the first school year is taken for granted. Whether one goes up to 95 or 105 is immaterial.

Then, however, as soon as the child is through with the change of teeth, one begins straight away with teaching the tables , two times table and for that matter one plus one up to six or seven. You get the child as early as possible to memorize it (two is one time two, two is one plus one) as soon as ever the child has had the principle explained, just with the very simplest multiplication as has been shown. That is to say then, that as soon as ever it is possible to bring to the child the idea of multiplication, you give himthe task of learning the tables by heart. Then you carry on with these ways of reckoning with larger numbers. You try to get the pupil to solve simple problems without any writing, just in his head. First of all one tries to develop abstract numbers with objects. I have already shown how you can develop abstract numbers from beans, etc. But do not lose sight of reckoning in connection with concrete numbers as well.

Counting Third Year: In the third school year everything to do with more complicated numbers will be continued and the four rules employed relating them to simple things in practical life, as was done in the second class.

Fourth year: In the fourth year at school all that has hitherto been fostered is continued, but now we have to pass on to fractions and to decimal fractions.

Fifth Year: In the fifth school year fractions and decimal fractions are continued and everything brought to the child that will give him the capacity of moving freely among whole numbers, fractions and numbers expressed as decimal fractions.

Sixth Year: In the sixth year we pass on to Interest and Percentage, Discount Bill of Exchange, and also make a start with Algebra, as I have indicated. Now I should like to draw your attention to the fact that up to the sixth year we have taken geometrical forms (circle, triangle, etc.) out of drawing, which we were doing in drawing in the first school year. Then gradually we made the transition from employing drawing in the writing to the development of more complicated forms for their own sake, drawing them for drawing's sake. We guide the drawing and painting lessons into this sphere in the Fourth Class. In drawing we learn what a circle is, an ellipse, etc. This is now taught in the drawing lesson. This you take further, always leading to practical forms, using plasticine if you have it: if not, mud will do - in order to bring about a fine feeling and sensitivity for form.

What has been taught in this way in drawing is taken over now into the mathematics lesson. What the children have acquired so far is now incorporated in geometry. Only now does one begin to explain the triangle, circle, square, etc. geometrically.

Therefore the spatial conception of these forms is brought out of drawing and in the sixth class the child learns the geometrical conceptions of the forms which he previously made in drawing. By this it will be seen that something different is absorbed through drawing.

Seventh year: Then in the seventh school year after going through algebra you endeavour to go on to squaring and find the square root; also what is called reckoning with positive and negative numbers, and above all, one tries to introduce, drawing freely from practical life, what may be termed the theory of equations, bringing the children as far as you can and adding to this the calculation of figures and planes, the theory of the locus, as we touched upon yesterday. This gives you a picture of what you have to do with the children in mathematcis and geometry.

Drawing: In the early classes, as we have seen, we conduct the drawing lessons in such a way, that the child acquires a certain feeling for round and angular forms, etc. Out of the form we take what we need for the drawing lesson. We avoid at the beginning of this elementary drawing lesson any copying whatever. You try as hard as ever you can at firstto keep the child from copying a chair or a flower, or anything at all, and bring to his notice as much as ever you can, lines and forms, round and pointed, semi-circular, elliptical, straight, etc. Arouse in the child a feeling for the difference between the curve of a circle and an ellipse, in short awaken the feeling for form, before the urge to imitate wakens. Only later may you use what has been fostered in

the form for copying. Let the child draw an angle so that he grasps it in its form, then show him a chair and say to him: "You see, here is an angle and there is another." Do not let the child copy until you have cultivated in him, out of his inner feeling, the form as self-creative activity. And you keep to this when you start treating drawing and painting and modelling in an more independent way.

Sixth class: Then you bring forward in the Sixth class a teaching of simple projection and the study of shadows, drawn freehand, but also with ruler and compass and similar instruments. See that the child gets a good grasp of the following and can draw it: here is a cylinder and there is a globe, and the globe is shone upon by a light, how will the shadow look when it falls on the globe?

Simple projection and shadow study must be taken in the Sixth school year. The child must get an idea and be able to copy how shadows fall on a flat and a bent surface, and from other surfaces more or less flat, and from solid objects. The child must also discover in the Sixth class how the technical can be combined with the beautiful, how a chair can be technically adapted to its purpose, and at the same time have a beautiful shape. This idea of combining the technical with the beautiful must enter into the child.

Seventh class: Then in the Seventh class everything to do with the inter-penetration of solids must be cultived. Taking a simple example you say: Here is a cylinder with a post through it. The post has to be struck through the cylinder." You have to show what kind of a section plane arises where the post enters and leaves the cylinder. That must be taught to the child. The child has to learn what happens when solids or planes intersect eachother so that he may know what the difference is if a stove pipe above pierces the ceiling vertically, whereupon a circular aperture is made, or slanting, in which case an ellipse follows.

In addition, in this year there must be brought to the child a thorough idea of Perspective, simple perspective drawing, shortening in the distance, lengthening in the foreground, etc.

And then again you combine the technical with the beautiful in a way that will call out appreciation of whether, let us say, a house wall partially covered on account of a projection, is beautiful or the reverse, for a projection may cover a wall in a beautiful way or it may not. Such a fact as this works very strongly, precisely when brought to a child in the Seventh class, that is child of 13 to 14 years old. All this reaches its culmination as the Eighth class is approached and when it goes over into the realm of the artistic.

And in a similar way the remaining subjects must be treated. We shall return to this this afternoon, supplementing our syllabus. We must above all realise how music must first be taken from what is most elemntary and simple in the first class, making a transition to what is more complicated somewhere about the Third year, so that gradually the child acquires, little by little, by the study of an instrument (more particularly by instrumental playing, but also by singing).

just that which is formative, just what forms his capacities. From singing and playing an instrument, especially from instrumental playing, just what he actually needs for developing his capacities.

Gymnastics and Eurythmy will be brought out at all the rest (sic); these must be developed from music and all the other artistic activities.

THIRD LECTURE

(Speech exercises were done.)

We have already pointed out this morning that as it is only possible to give general indications for the plastic arts, so one can only give indications for the musical. The details naturally must be left to the freedom of the teacher. Therefore I would beg you to regard these general indications as linking up all that is essential for the teaching of music.

Music: In the first, second and third classes you are dealing essentially with simple musical measures, and here the point of view should be so to utilise the musical material that it acts formatively on the growing human being.

Therefore the point of view to hold is this, that everything musical is so directed that it brings about in the human being a proper development of all connected with voice, tone, ear training. This is now clear.

Fourth, Fifth and Sixth classes: By this time you will have got on well with explanations of the signs and the notes and will be able to make comprehensive exercises with scales. By the Fifth and Sixth year the difference keys can be introduced: you can bring in D major, etc.

You wait as long as possible with the minor, but it can be introduced somewhere about now. But all that is really essential is this: that you begin to work in the opposite direction. The child's attention will be directed to the claims of music, therefore the lesson will be directed more towards the aesthetic aspect. First "the child" is the chief thing, and everything is done to get him to learn to sing and hear. Later when the child has passed through the first three classes where he himself was the first consideration, he must conform to the demands of music as an art.

That is the main consideration from the educational point of view.

Seventh and Eighth classes: And in the last two years I ask you to note that the child should no longer feel "drilled", but should already have the feeling that he studies music because it gives him pleasure, because he likes to enjoy it as an end in itself. It is towards this that the so-called music lesson should work; thus in these two years musical appreciation can be formed.

The particular nature of different musical works of art can be brought out: thus the character of a piece by Beethoven or of Brahms can be brought to the fore. Through simple forms the child should be brought to exercise musical judgement. Before this, all musical discrimination should be kept back, but now it may be fostered.

It will now be quite especially important that a certain understanding is evolved. You know I gave just the same indications this morning for the plastic arts. I said, first we use drawing in such a way that writing proceeds from it, then later, develop drawing for its own sake. The whole point is that it becomes an art at the moment when the child makes the transition from utility forms in painting and drawing to free artistic forms.

At the moment (between the Third and Fourth school year) the transition must also be made in music, as I have shown. First work so that it bears on the psychological development of the child, then work so that the child must adapt itself to the musical art. These transitions should correspond to each other in drawing, painting and music.

Eurythmy: Now here comes something in the official syllabus that is in our favour. In the first three school years there are no gymnastics at all, so we begin with eurythmy.

And here it should be very beautiful if in the first year eurythmy could be cultivated with music, so that in actual fact the connection of geometry and music with eurythmy could be fostered.

In the second school year one would begin with the forming of the letters, which should be carried further in the Third school year, always in such a manner that one forms a link between music, geometry and drawing.

In the Fourth, Fifth and Sixth school years, forms are taken that are concrete, abstract (special forms given in eurythmy for concrete and abstract nouns), these ideas now being possible for the children because meanwhile they have reached so far in grammar.

Then in the Seventh and Eighth classes we continue with our more complicated forms.

Gymnastics drill: From the Fourth class upwards, gymnastics as well as eurythmy are taken in such a way that even in the Fourth, Fifth and Sixth classes we have "limb exercises" in gymnastics, that is, everything connected with running, jumping, climbing, but only simple exercises with apparatus. Complicated exercises with apparatus come only in the Seventh and Eighth classes, in which the free exercises are also continued, but these latter must be taken in conjuction with running, jumping, climbing.

When you think through all this, with what you have yourselves been able to think over, you will find it all in harmony with what has been attempted here.

These lectures belong with the famous ones given at the founding of the Stuttgart school. Some details have changed in practice, but it is useful to see what was originally said about the curriculum.

NOTES FROM A PAINTING COURSE WITH DORIS NIXDORFF (BERLIN)
GIVEN AT THE TOBIAS SCHOOL OF ART, EAST GRINSTEAD, IN JULY 1987

The course consisted of an exploration of technique, rather than a detailed exposition of the curriculum.

Wet painting: Exercises were given making circles and surrounding them with a different color. Then a fairy tale mood was created with the story of Star Child.

Animals were developed out of the circles or ovals for Farming and Man and Animal; the rooster arose out of an "egg" and was painted in many colors with mixed and blended. Then came a sleepy hedgehog from a blue oval painted on blue. A red vermilion horse ran over a yellow field which was later changed to green. With this painting, as in many others, a color wash covered the whole paper first before any attempt was made to paint the animal. A distinction was always made between drawing and painting: we worked in surfaces and not in outlines. A sleeping donkey was painted on a blue surface which was later turned into green. If we compare these two paintings we can see color perspective at work, but nothing of this is mentioned to the children: this will only be spoken of in the High School.

Wet on Dry: Boards were stretched and allowed to dry. We were not told what we were about to paint, just to make a blue wash and leave some white circles in the upper part of a vertical paper. We painted dandelion leaves below and yellow and puff-ball seedheads above, once we were told what we were to do. The technique used very small touches of color and used a veiled technique, but it was not as rigid as the technique used for crystals. Steiner said to paint the plant's leaves darker than life, then put a wash of yellow over it, and it will shine. Paint animals lighter than life and put a blue wash over.

Dry veil painting: We went on the the more conventional type of veil painting, using blue. This is the easiest color to handle for beginners. It needs to be mixed very thin at first. Triangular veils are painted near the edge of the paper on all four sides, large veils reach almost to the center, but as there are more veils nearer to the edge the outside becomes darker than the center.

Then we made veils in two colors (red and blue, or yellow and blue) and were allowed to use curved forms also is we wished. Mrs. Nixdorff felt that this kind of veiling should be saved for the 8th class and not be begun before.

Charcoal: We drew on large sheets of paper enlargements of the either the Dürer Melancholia or Hieronymus (St. Jerome) as examples of Class Nine work. Many preliminary exercises are done in Class 9 to prepare for this culmination of the year: a sphere in a stream of light, a candle, various objects and the shadows they cast in various lighted situations. We had to observe proportions and vanishing points, and we all found the exercise a strain. Once we had completed our charcoal version we proceeded to the Class 10 work of painting it in colour. We could choose any basic colour, and began with the usual pale wash. We again used the dry veiling technique which allowed a lot of work to be done before the board was saturated and had to be dried with a hair dryer.

We were not able to complete the full High School curriculum, but we did paint two of the Nature Moods which are the theme for the year in Class 11: different landscapes at different times of day, seasons, weather changes, different zones of the earth, moonlight, sunlight, etc.

We began with a November tree on a gray wash. For this it helped to mix various shades of gray on a test paper, and simply blend them, after they were mixed, on to the paper. This gave a misty effect, with yellows, blues and violets interweaving. On top of this an almost leafless tree was painted.

Then we painted 3,5 or 7 trees in sunlight and then later in storm. The number of trees allows for a good composition. Some were in the foreground and some in the distance. The sun shines on to one side of the trees and shadows are cast on the branches and on the ground. Begin the sky with yellow and the ground with blue, then add the trees.

In the storm picture we made one side of the picture very stormy and the other had yet to be reached by its fury.

Mrs. Nixdorff was a very quietly encouraging teacher; most of us were all at different stages with the paintings and she would give us our instructions individually about the next painting; sometimes she demonstrated with chalk on the board, but there was actually little group instruction. One could see her strength in working with Upper School students who need constant encouragement and constructive criticism which has to be very gentle.

Postcards of the Melancholia and Hieronymus can be obtained from Staatliche Museen (Berlin), Arnim Allee, D-1000 Berlin 33. It is good for each student to have their own copy.

Herr Weitmann of the Ulm school made a poster-size version for his students to copy.