

My practical reason for mentioning this law is this, that it follows from it that, in working associations into your pupils' minds, you must not rely on single cues, but multiply the cues as much as possible. Couple the desired reaction with numerous constellations of antecedents,--don't always ask the question, for example, in the same way; don't use the same kind of data in numerical problems; vary your illustrations, etc., as much as you can. When we come to the subject of memory, we shall learn still more about this.

So much, then, for the general subject of association. In leaving it for other topics (in which, however, we shall abundantly find it involved again), I cannot too strongly urge you to acquire a habit of thinking of your pupils in associative terms. All governors of mankind, from doctors and jail-wardens to demagogues and statesmen, instinctively come so to conceive their charges. If you do the same, thinking of them (however else you may think of them besides) as so many little systems of associating machinery, you will be astonished at the intimacy of insight into their operations and at the practicality of the results which you will gain. We think of our acquaintances, for example, as characterized by certain 'tendencies.' These tendencies will in almost every instance prove to be tendencies to association. Certain ideas in them are always followed by certain other ideas, these by certain feelings and impulses to approve or disapprove, assent or decline. If the topic arouse one of those first ideas, the practical outcome can be pretty well foreseen. 'Types of character' in short are largely types of association.

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## X. INTEREST

At our last meeting I treated of the native tendencies of the pupil to react in characteristically definite ways upon different stimuli or exciting circumstances. In fact, I treated of the pupil's instincts. Now some situations appeal to special instincts from the very outset, and others fail to do so until the proper connections have been organized in the course of the person's training. We say of the former set of objects or situations that they are *interesting* in themselves and originally. Of the latter we say that they are natively uninteresting, and that interest in them has first to be acquired.

No topic has received more attention from pedagogical writers than that of interest. It is the natural sequel to the instincts we so lately discussed, and it is therefore well fitted to be the next subject which we take up.

Since some objects are natively interesting and in others interest is artificially acquired, the teacher must know which the natively interesting ones are; for, as we shall see immediately, other objects can artificially acquire an interest only through first becoming associated with some of these natively interesting things.

The native interests of children lie altogether in the sphere of sensation. Novel things to look at or novel sounds to hear, especially when they involve the spectacle of action of a violent sort, will always divert the attention from abstract conceptions of objects verbally taken in. The grimace that Johnny is making, the spitballs that Tommy is ready to throw, the dog-fight in the street, or the distant firebells ringing,--these are the rivals with which the teacher's powers of being interesting have incessantly to cope. The child will always attend more to what a teacher does than to what the same teacher says. During the performance of experiments or while the teacher is drawing on the blackboard, the children are tranquil and absorbed. I have seen a roomful of college students suddenly become perfectly still, to look at their professor of physics tie a piece of string around a stick which he was going to use in an experiment, but immediately grow restless when he began to explain the experiment. A lady told me that one day, during a lesson, she was delighted at having captured so completely the attention of one of her young charges. He did not remove his eyes from her face; but he said to her after the lesson was over, "I looked at you all the time, and your upper jaw did not move once!" That was the only fact that he had taken in.

Living things, then, moving things, or things that savor of danger or of blood, that have a dramatic quality,--these are the objects natively interesting to childhood, to the exclusion of almost everything else; and the teacher of young children, until more artificial interests have grown up, will keep in touch with her pupils by constant appeal to such matters as these. Instruction must be carried on objectively, experimentally,

anecdotally. The blackboard-drawing and story-telling must constantly come in. But of course these methods cover only the first steps, and carry one but a little way.

Can we now formulate any general principle by which the later and more artificial interests connect themselves with these early ones that the child brings with him to the school?

Fortunately, we can: there is a very simple law that relates the acquired and the native interests with each other.

\_Any object not interesting in itself may become interesting through becoming associated with an object in which an interest already exists. The two associated objects grow, as it were, together: the interesting portion sheds its quality over the whole; and thus things not interesting in their own right borrow an interest which becomes as real and as strong as that of any natively interesting thing.\_ The odd circumstance is that the borrowing does not impoverish the source, the objects taken together being more interesting, perhaps, than the originally interesting portion was by itself.

This is one of the most striking proofs of the range of application of the principle of association of ideas in psychology. An idea will infect another with its own emotional interest when they have become both associated together into any sort of a mental total. As there is no limit to the various associations into which an interesting idea may enter, one sees in how many ways an interest may be derived.

You will understand this abstract statement easily if I take the most frequent of concrete examples,--the interest which things borrow from their connection with our own personal welfare. The most natively interesting object to a man is his own personal self and its fortunes. We accordingly see that the moment a thing becomes connected with the fortunes of the self, it forthwith becomes an interesting thing. Lend the child his books, pencils, and other apparatus: then give them to him, make them his own, and notice the new light with which they instantly shine in his eyes. He takes a new kind of care of them altogether. In mature life, all the drudgery of a man's business or profession, intolerable in itself, is shot through with engrossing significance because he knows it to be associated with his personal fortunes. What more deadly uninteresting object can there be than a railroad time-table? Yet where will you find a more interesting object if you are going on a journey, and by its means can find your train? At such times the time-table will absorb a man's entire attention, its interest being borrowed solely from its relation to his personal life. \_From all these facts there emerges a very simple abstract programme for the teacher to follow in keeping the attention of the child: Begin with the line of his native interests, and offer him objects that have some immediate connection with these\_. The kindergarten methods, the object-teaching routine, the blackboard and manual-training work,--all recognize this feature. Schools in which these methods preponderate are schools where discipline is easy, and where the voice of the master claiming order and attention in threatening tones need never be heard.

\_Next, step by step, connect with these first objects and experiences the later objects and ideas which you wish to instill. Associate the new with the old in some natural and telling way, so that the interest, being shed along from point to point, finally suffuses the entire system of objects of thought.\_

This is the abstract statement; and, abstractly, nothing can be easier to understand. It is in the fulfilment of the rule that the difficulty lies; for the difference between an interesting and a tedious teacher consists in little more than the inventiveness by which the one is able to mediate these associations and connections, and in the dulness in discovering such transitions which the other shows. One teacher's mind will fairly coruscate with points of connection between the new lesson and the circumstances of the children's other experience. Anecdotes and reminiscences will abound in her talk; and the shuttle of interest will shoot backward and forward, weaving the new and the old together in a lively and entertaining way. Another teacher has no such inventive fertility, and his lesson will always be a dead and heavy thing. This is the psychological meaning of the Herbartian principle of 'preparation' for each lesson, and of correlating the new with the old. It is the psychological meaning of that whole method of concentration in studies of which you have been recently

hearing so much. When the geography and English and history and arithmetic simultaneously make cross-references to one another, you get an interesting set of processes all along the line.

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If, then, you wish to insure the interest of your pupils, there is only one way to do it; and that is to make certain that they have something in their minds *to attend with*, when you begin to talk. That something can consist in nothing but a previous lot of ideas already interesting in themselves, and of such a nature that the incoming novel objects which you present can dovetail into them and form with them some kind of a logically associated or systematic whole. Fortunately, almost any kind of a connection is sufficient to carry the interest along. What a help is our Philippine war at present in teaching geography! But before the war you could ask the children if they ate pepper with their eggs, and where they supposed the pepper came from. Or ask them if glass is a stone, and, if not, why not; and then let them know how stones are formed and glass manufactured. External links will serve as well as those that are deeper and more logical. But interest, once shed upon a subject, is liable to remain always with that subject. Our acquisitions become in a measure portions of our personal self; and little by little, as cross-associations multiply and habits of familiarity and practice grow, the entire system of our objects of thought consolidates, most of it becoming interesting for some purposes and in some degree.

An adult man's interests are almost every one of them intensely artificial: they have slowly been built up. The objects of professional interest are most of them, in their original nature, repulsive; but by their connection with such natively exciting objects as one's personal fortune, one's social responsibilities, and especially by the force of inveterate habit, they grow to be the only things for which in middle life a man profoundly cares.

But in all these the spread and consolidation have followed nothing but the principles first laid down. If we could recall for a moment our whole individual history, we should see that our professional ideals and the zeal they inspire are due to nothing but the slow accretion of one mental object to another, traceable backward from point to point till we reach the moment when, in the nursery or in the schoolroom, some little story told, some little object shown, some little operation witnessed, brought the first new object and new interest within our ken by associating it with some one of those primitively there. The interest now suffusing the whole system took its rise in that little event, so insignificant to us now as to be entirely forgotten. As the bees in swarming cling to one another in layers till the few are reached whose feet grapple the bough from which the swarm depends; so with the objects of our thinking,--they hang to each other by associated links, but the *original* source of interest in all of them is the native interest which the earliest one once possessed.

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## XI. ATTENTION

Whoever treats of interest inevitably treats of attention, for to say that an object is interesting is only another way of saying that it excites attention. But in addition to the attention which any object already interesting or just becoming interesting claims--passive attention or spontaneous attention, we may call it--there is a more deliberate attention,--voluntary attention or attention with effort, as it is called,--which we can give to objects less interesting or uninteresting in themselves. The distinction between active and passive attention is made in all books on psychology, and connects itself with the deeper aspects of the topic. From our present purely practical point of view, however, it is not necessary to be intricate; and passive attention to natively interesting material requires no further elucidation on this occasion. All that we need explicitly to note is that, the more the passive attention is relied on, by keeping the material interesting; and the less the kind of attention requiring effort is appealed to; the more smoothly and pleasantly the classroom work goes on. I must say a few more words, however, about this latter process of voluntary and deliberate attention.

One often hears it said that genius is nothing but a power of sustained attention, and the popular impression probably prevails that men of genius are remarkable for their voluntary powers in this direction. \_But a little introspective observation will show any one that voluntary attention cannot be continuously sustained,--that it