

Watkins, John Elfreth. "Queerest Baby Training Ever Heard of Is This." *The Chicago Tribune*, Nov. 16, 1902

**. . . Baby Training . . .**  
**by**  
**John Elfreth Watkins, Jr.**

Washington, D. C., Nov. 14.— "As the twig is bent, so will the tree incline," sayeth the wise proverb. Accordingly, the Gates children are destined to be most unusual adults, for their education—you will agree with me—is most assuredly unusual.

Some six years ago I met Prof. Elmer Gates, a psychologist, who outlined to me a most elaborate system of training, to which he was about to subject his baby. Impelled by professional curiosity at the time, I ventured out to his home and laboratory at Chevy Chase, Md., "to see the wheels go round."

The other day I fell to wondering how Baby Gates was progressing, and set out upon a half-hour's ride out to the picturesque suburb, where his father delves into profound research, and where the great men of the capital relax themselves with "drives" and "puts."

The only Baby Gates was a rosy-cheeked cherub of 16 months when I had inspected him before, but, behold! I now found him a youth in trousers and, what is more, the brother of three babies Gates. So the Gates children today are four, and I was presented to each—to Elmer, Jr., the aforementioned, aged 7½ years; Phoebe, 4½ years; Donald, 3 years; Roger, 14½ months—all flaxen-haired and with eyes of the bluest blue.

It has been put down as a rule that the genius has a dual personality—one which he takes to his sanctum and the other which he brings home; that the professional humorist is the most melancholy and lugubrious spirit in his home circle; that the matinee idol, who idealizes love, goes home and maltreats his wife. But Prof. Gates is evidently the exception. While devising means for studying and improving the public mind, he has not neglected the minds of his own little ones.

It is his notion that out of the science of psychology should develop an art of psychology. Psychologists have devised many

wonderful instruments of precision which measure the acuteness of the senses, time the speed of thought and in various ways gauge the capacities of the mind. Hundreds of people are measured by these devices to be afterward compared and in the end each subject receives just one test. Perhaps if any one subject were similarly measured the second time he would display greater acuteness than was manifest at the first trial; still greater acuteness the third time, and so on.

It is this psychologist's theory that repeated psychological tests, properly made, increase mental skill, just as repeated gymnastic trials develop greater physical skill; that you develop discrimination in seeing, for instance, by making repeated measurements of discriminative power in that sense.

The psychologist himself expressed it in words far more technical than these, but such seems to be the pith of his theory—of one part of it at least. Before adapting this training to his children, he states, it was first applied as far as possible to dogs and small laboratory animals whose brains were dissected and carefully studied. That the Gates children are not being crammed is evident to anyone permitted to study them closely. Their faces bubble over with childish mischief and the infant-food concerns could find no better models. Their father explained that their education commenced several years before the oldest saw the light of this world. But I will commence with their early infancy, describing some of the apparatus and their uses.

The first stage of this unique education the psychologist terms the "Sensation Stage." As early in life as possible he teaches his babies to discriminate between each recognizable difference of color and sound, each pleasurable and healthful taste and smell, between differences in touch, temperature and muscular sensation.

For training in color discrimination he employs first a simple color wheel, revolving pasteboard disks, which produce various shades and tints in their proper order. For more advanced training he has devised a dark chamber, into whose mysteries I was permitted to penetrate, after being led through a veritable labyrinth of dark hallways arranged to shut out every ray of daylight, visible and invisible—for there are rays of invisible light, as you shall directly see.

In this dark cell is hung a white screen, and upon this, side by side, by means of three prisms, placed in a ray of light, are projected three solar spectra with their rainbow bands of color. Then with a black card the psychologist covers all except one color, say, red, in each band. In one the darker part of the red is exposed; in the second a lighter portion and in the third a different tint of the same color. The child is taught to distinguish between these pitches of color; and from day to day he learns to detect much smaller differences, according to the psychologist. Over 2,000,000 of recognizable color differences can be produced by this apparatus, he asserts. By mingling white in successive amounts with each spectral color, various tints of the same are produced. and a child can be taught to detect readily the difference between a 10 per cent. and a 20 per cent. tint. By mingling black with the colors, the shades thereof are likewise produced. Blending one color with another produces the hue differences. In the dark cell was a large quantity of tinsel, which I was told was used in producing various iridescences and lusters of colors. An advance course of training is to include the effects of invisible light thrown upon different bands of the spectrum.

This color education is given to the children from the second to the seventh year. One hundred hours training, or a few minutes at a time each few days, is sufficient to teach discrimination of 200,000 color differences, the professor stated.

Two hundred canvas screens, bearing blocks of pigment, are carried across a field in the view of a child, and thus is measured the distance at which respective colors become invisible. Repetition of this test develops acuteness in judging color perspective.

To accomplish similar training of the ear, an "electric sonometer," which produces all of the pitches of sound, without skipping intermediate pitches, as the organ and piano do, has been devised.

For training smell, taste, touch, pressure and temperature senses there are employed various aesthesiometers, or sensation meters, more or less common to psychological laboratories.

Elmer, the oldest boy, was called in to demonstrate the use of a complicated device, known as the "pendulum chronograph,"

applied in the course of his scientific education. Two hinged rods are poised vertically on a horizontal bar. By a sweep of his hand, the boy knocks them down, one after another. They are placed about a foot apart and the hand is held a still greater distance from that nearest it.

Prof. Gates with a telegraph key gives a signal which starts a pendulum beating. At this signal the boy strikes. As each upright falls an electric contact is broken and the break is recorded automatically. Thus is measured the hand's speed in traveling from one upright to the other, or the quickness of muscular movement. The child is told to make the motion as fast as possible and only a few days practice is found to increase the speed. Another measurement given by the instrument is the brain's speed of responding to the signal after hearing it. This measurement is made between the electric key and the first upright. Thus is developed attention and mental readiness as well as muscular speed.

Phoebe, the only daughter, was produced to demonstrate another complicated device, which the professor called the "Myergesthesiometer" (muscle-energy-feeling-measure). The child placed her finger upon a sort of piano key, whose pressure was regulated by the father's shifting a weight along a bar underneath. The problem for the little girl was whether the key worked with more difficulty one time than another. By continued practice, the father explained, she will be able to detect differences more and more acutely, and all the while her pressure sense will be receiving an education invaluable, especially in music.

These calisthenics of the senses the psychologist deems essential as the foundation of all education. Each recognizable color quality, for instance, when [sensed] produces a corresponding memory structure in the brain which never appears until that color quality, tone quality, odor, touch, taste, etc., is perceived. Briefly, the theory is that each child should be given every sensation memory structure which he can get from each of his nine classes of sensory nerves. Then he will have a perfect foundation for brain work, inasmuch as the sense memory structures are the first laid foundation stones of all thought. As his children grow older they are trained in what their father terms the

image stage, idea stage, concept stage, reason stage, and thought stage. As much attention is given to the body as to the mind, and from the cradle up every muscle is exercised.

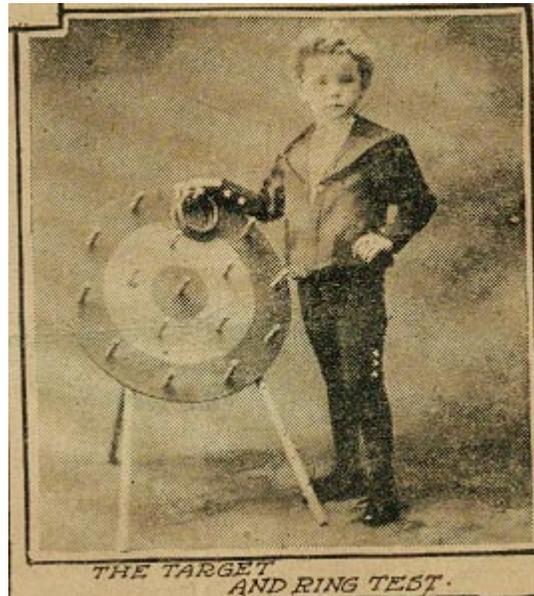
The babies have shown that they can appreciate touches and temperatures before they can discriminate smells and colors, the professor said. He avoids all unpleasant sensations. He does the work only while each child is happy.

One of the earliest lessons given each child is begun by placing upon the floor twenty green and twenty red boxes of the same size and shape. Into each of the red boxes is put a small bit of cake. The child will, after several repetitions, learn to open only the boxes and thus discriminate between red and green. Long before a child can talk it can be made to stick pennies through a crack or put blocks through a hole in the top of a box.

Prof. Gates has constructed a box for what he calls image training. The box has eight sliding lids covered with holes cut in 68 different shapes—square, circular, triangular, etc. Into each hole fits a block of the same shape.

Each child is given these scientific toys before he learns to talk. After playing with them some days he will look at the blocks, then at the holes, and will deliberately put the proper block into the proper hole. In other words, it has learned to discriminate between two geometric "images," as the psychologist puts it.

Another scientific toy played with by these children consists of a target about whose concentric rings are arranged pegs, one peg being placed in the bull's eye. The object of the game is to make the best average in throwing wooden rings at the pegs and hanging them thereupon. The professor has tested the children's skill under different conditions of hunger, fatigue, cold, etc. The statistics collected show that the best results are made under complete rest in the morning, after a good night's sleep. Each hour's muscular labor beforehand diminishes skill. Coffee, tea, excessive cold, and excessive heat also reduce accuracy. When a reward or prize is offered, most of the child's energy appears to be used up in his "desire effort," with the result that less skill is shown.



The youngest child is being taught to talk by aid of the phonograph. The father gives it sentences to be spoken into the instrument. It afterward listens to its own voice and is required to repeat each sentence into another phonograph, correcting deficiencies as it progresses. The father listens through one pair of tubes while the child's ears are attached to another.

In a little building adjacent to the psychologist's laboratory is the kindergarten of the establishment. Here, in a well lighted room, several little ones work amid growing plants.

"I am beginning to adapt my methods to existing educational systems," explained the professor. I have employed a graded teacher of the city public schools to teach my oldest child, and by practice and mutual modifications will try to adopt the two systems. You see that my child has the companionship here of others of his own age. I eliminate from the kindergarten methods myth and fairy tale and the teaching of any religious or denominational system. In short, my object is to introduce into the Froebelian play system more of the simple elements of the natural sciences and of my own methods of training."