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CAN WILL-POWER BE TRAINED?
by
Elmer Gates

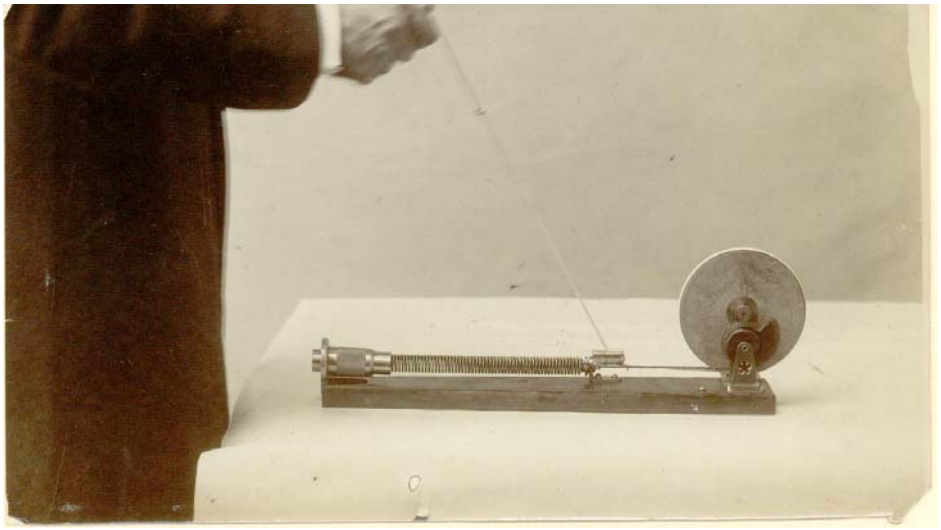
I wish to enter an emphatic protest against all modes of so-called "will-training" which claim to lead people to success by a simple exercise of the will alone. It matters not how strong or obstinate the motive of will may be; if the person does not possess accurate and sufficiently extensive knowledge of the thing he is about to undertake, he cannot meet with real success. If the images, concepts, ideas, and thoughts about a subject are erroneous, the motives and methods will also be wrong.

Scientific knowledge of the subject in which success is sought is the first prerequisite to success in that domain. The second prerequisite is a normal emotional life. If the emotions are abnormal or insufficiently developed, the person will not have normal likes and dislikes, and, consequently, the choice will often be abnormal. If both these prerequisites are combined with several others, I may say that the moral life must be normally poised. The person must be in love with truth and right; with truth for its own sake, and with right for its own sake; must have the welfare of others at heart; otherwise the conduct will often be guided by considerations that are not ultimately moral and ethical, and all lines of conduct that are based upon motives which are not just and true will ultimately fail, and cannot lead to real success, either for the individual or for others.

It is not the province of this paper to discuss what I consider to be the best intellectual training or the best emotional and moral training. It is my purpose to discuss only the question of volitional training, which properly commences after these previous trainings have been acquired; or, rather, they should be given simultaneously.

Fortunately, I am able to definitely prove that volition can be trained. For the sake of avoiding complex and technical psycho-physical discussions, I will describe the training of volition as related to one of the simplest acts of out mental life; as, for instance, the volitions connected with the willing of a definite muscular motion, such as moving an arm while pulling a cord against a yielding resistance; as, for example, in the chest weights used in gymnastics. If I wish to make a series of parallel lines in a blackboard, by free-hand motions, I must hold in my mind an image of those lines and an idea of what I wish to accomplish; and I must will each separate volitional motion, and the success with

which I am able to produce straight and parallel lines depends, not alone on the correctness of my images, concepts, and ideas of what I am trying to do, but also upon the skill with which I am able to direct the separate volitions which make these muscular motions. That is, each volitional element and its accompanying muscular motion must be trained by practice to perform the thing intended. To make a line slightly thicker or thinner, shorter or thinner, depends upon nice [i.e., precise] mental discriminations and volitions, and not upon inanimate physical processes. I have not by any means attempted to discuss the subject of the relation of vitality to mentality; I have only indicated that muscular skill depends upon mental factors, and that volition can be trained, and now I will prove it.



The picture herewith published illustrates an instrument which I have called a Myergesthesiometer, and I invented it to be used in measuring the mind's power to discriminate differences in the feeling of the muscular energy which accompanies slight differences in the dynamic energy required to move the lever or string. The pupil takes hold of the handle and repeatedly pulls the cord, which unwinds from the pulley; and, owing to the nature of the mechanism, the pull requires a uniform amount of energy throughout the whole length of the motion. This cannot be done with weights over pulleys, because the faster you move a given weight, the more energy is required to move it. It cannot be done with springs and elastic cords, because it requires more energy to move them as they become more and more tightly stretched. It is obvious that a uniform motion at any speed, requiring equal energy throughout all parts of its traverse, enables more accurate measurements than by the old way. While moving this cord to and fro, the pupil becomes accustomed to the effort-feeling required to

make that particular motion. Suddenly, and unknown to the pupil, the instrument is made to move, for example, one-fiftieth harder. If the pupil cannot detect the increased energy required to move the machine, then he is again allowed to try the original standard for a few minutes, and then again, suddenly and unknown to the pupil, it is made to move one-fortieth, and so on, until the energy-difference between the original and the more difficult motion is perceptible to the pupil. This will be the least noticeable difference of that pupil's discriminative power between muscular energy efforts. Now, I have found that, if I cause a pupil to practice detecting, perceiving, and discriminating this least noticeable difference forty or fifty times an hour, for one hour daily, for one or two days, an increased discriminating power results, enabling the pupil, on a subsequent measurement, to detect a smaller least-noticeable difference. If the pupil is then made to detect that smaller least-noticeable difference forty or fifty times an hour for several days, and then again measured, I have found that the discriminative capacity has again become more sensitive, so that it can detect a still smaller least-noticeable difference, and so on. That is, the mind's capacity to will its attention to the feeling of muscular energy becomes greater; and the introspective capacity to discriminate smaller energy-differences increases; and its power to will muscular volitions and motions with slighter energy-differences increases. This latter factor is the point at present in question. I caused a pupil to trace a line with a pencil, as if making a mark upon a blackboard; but the line was traced upon the surface of an instrument designed to measure the energy-difference with which that motion was made. Before such training, this pupil could make a motion with a given degree of energy, and then, when asked to make another motion with the least additional degree of energy, she could not, after repeated trials, will muscular motions involving energy-differences of less than four per cent. But after six days' practice on an earlier form of Myergesthesiometer, she could make muscular motions involving energy-differences of less than two per cent. Now, it is obvious that one of the elements of skill in the use of muscles in any free-hand or manual movements is the mind's power to discriminate slight energy differences. Whether it be finely proportioned shading of letters in penmanship, or in free-hand drawing; or whether it be the delicate handling of tools in fine workmanship, this power to discriminate energy-differences underlies all muscular skill. Of course, speed-differences are another factor, and direction differences still another; and experiments on these two factors prove that the mind can be trained to will a series of volitions involving minuter discriminations of speed-differences and direction-differences than have hitherto been possible to the

human race. My experiments have led me to explain this by the fact that to discriminate least-noticeable differences of muscular motion creates brain changes; and these new growths in brain cells and fibers constitute new capacities; and these structures, when refunctioned, enable small discriminations to be made in the energy with which a movement is performed. That is, the mind-activities create brain structures which are the embodiment of these mental capacities. I found, in my own case, an ability to discriminate speed-differences of four and one-half per cent in arm-motions. After six days' practice in detecting least-noticeable speed differences, I could detect three and six-tenths per cent. After four days' further practice, I could detect two per cent, and, after eleven days' further practice, I could detect one and one-half per cent. That is, I thus trained my mind to discriminate passive speed-differences to an extent that had hitherto been impossible. Afterwards, I made active motions upon an instrument which registered the speeds. At first, I could not make motions with speed-differences of less than five per cent. But, after the training which I have just described, I could make active speed-differences in my muscular motions of two per cent. That is, my volitions were trained to a greater degree of skill and accuracy than had hitherto been possible to me.

This same law applied to the higher mental functions. When I first began to measure my imaging-speed, it required an hour and a half to visualize one thousand given images, so that each particular of each image was equally visualized each time. But, after several months training, I was able to visualize the same number of images more completely and more vividly in sixteen minutes. The imaging function had been increased in its celerity and in its accuracy. My power to will the series of volitions involved in visualizing a series of images had been augmented.

I have found the same true with reference to still higher intellectual functions, such as conceptuating and ideating. To be able to make intellectual functionings ten times faster is, of course, an important element of success, especially in discovery, invention, and in all kinds of competitive skill where intellect competes with intellect. To think and ideate ten times faster is to live ten times longer.

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"What the superior man seeks is in himself; what the small man seeks is in others."—CONFUCIUS