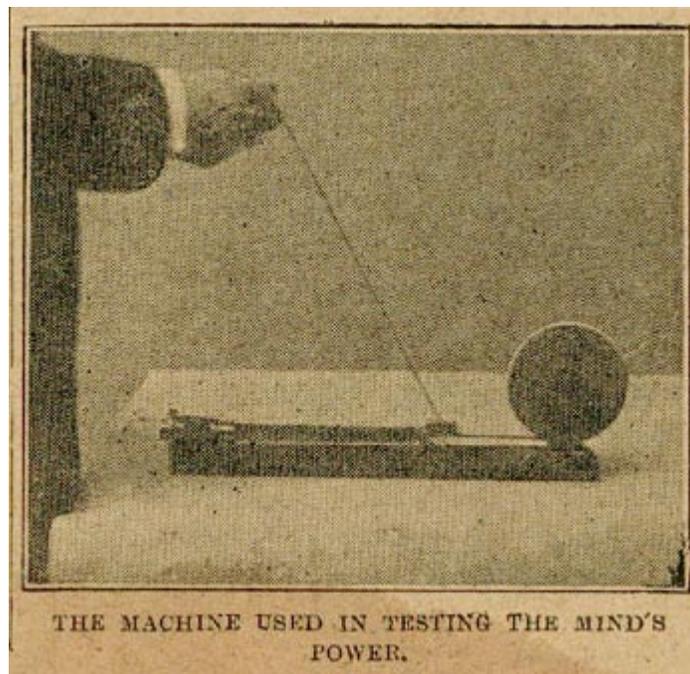


“Training the Will.” *The Golden Penny* (July 7, 1900), p.10.

## TRAINING THE WILL

*A Wonderful Instrument by  
Which It Is Possible to Test  
the Mind's Power.*

Strange as it may seem, the peculiar looking instrument shown in our photograph is able, in the hands of a psychologist, to test the mind's power. It is the invention of Professor Elmer Gates, one of America's greatest psychologists. By its aid it is possible to measure the mind's power to discriminate differences in the feeling of the muscular energy which accompany slight differences in the dynamic energy required to move the lever or string.



The instrument is known as the myergesthesiometer—truly an up-to-date scientific title. The pupil takes hold of the handle and rapidly pulls the cord, which unwinds from the pulley, as may be seen in our illustration. By an ingenious mechanical device the pull requires a uniform amount of energy throughout the whole length of the motion.

### How the Instrument is Worked.

We cannot do better, however, than quote Professor Gates's own words in describing how this wonderful and delicate machine is operated. "While moving this cord to and fro, the pupil," he says, "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 direct 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 him, it is made to move one-fortieth harder, 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 the pupil to practise 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 daily 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."

### The Value of Such Tests.

Now, what is the value of such tests, and what do they prove? First of all it is not difficult to see that by means of such instruments as the myergesthesiometer it is possible to increase the power to will muscular volitions and motions with slighter energy differences. The more practice one has with such an instrument the greater his powers of discrimination between energy differences. Now, it is obvious that one of the elements of skill in the use of muscles in any freehand or manual movements is the mind's power to discriminate slight energy differences. Whether it be the finely proportioned shading of letters in penmanship or in freehand drawing, or whither it be the delicate handling of tools in fine workmanship, this power to discriminate energy differences

underlies all muscular skill.

In the same way, too, it is possible to test speed differences and direction differences, and also the ability to test the imagining function. Professor Gates says that when he first began to measure his imagining speed it required an hour and a half to visualize one thousand given images. After several months' training however, he was able to visualize the same number of images more completely and more vividly in minutes. Undoubtedly, from a scientific point of view, Professor Gates's instrument by which he can test the mind's power is invaluable, indeed, if it is possible for us to train our minds to think and ideate ten times faster than they ordinarily do, it is the same as living ten times longer.

Our other illustration depicts another wonderful instrument, by which it is possible to test the muscular energy differences in a person's fingers. The lady seen in the photograph is a pianist, and it will readily be seen that a skilled player of the piano knows, unconscious as he or she may be of the fact, how much energy or power is required to produce this or that particular harmony. In his laboratory in Washington Professor Gates has a unique collection of scientific instruments indeed, it is the largest psychological laboratory in the world.



TESTING A PIANIST'S TOUCH AND MUSCULAR POWER WITH PROFESSOR GATES'S WONDERFUL INVENTION.