

Why Babe Ruth is Greatest Home-Run Hitter

Hugh S. Fullerton (1921)

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Popular Science Monthly tests in the laboratory his brain, eye, ear, and muscle -- and gets his secret

The game was over. Babe, who had made one of his famous drives that day, was tired and wanted to go home. "Not tonight, Babe," I said. "Tonight you go to college with me. You're going to take scientific tests which will reveal your secret."

"Who wants to know it?" asked Babe.

"I want to know it," I replied, "and so do several hundred thousand fans. We want to know why it is that one man has achieved a unique batting skill like yours -- just why *you* can slam the ball as nobody else in the world can."

So away we went. Babe in his baseball uniform, not home to his armchair, but out to Columbia University to take his first college examination.

Babe went at the test with the zeal of a schoolboy, and the tests revealed why his rise to fame followed suddenly after years of playing during which he was known as an erratic although a powerful hitter. How he abruptly gained his unparalleled skill has been one of baseball's mysteries.

Albert Johanson, M.A., and Joseph Holmes, M.A., of the research laboratory of Columbia University's psychological department, who, in all probability, never saw Ruth hit a baseball, and who neither know or care if his batting average is .007 or .450, are .500 hitters in the psychology game. They led Babe Ruth into the great laboratory of the university, figuratively took him apart, watched the wheels go round; analyzed his brain, his eye, his ear, his muscles; studied how these worked together; reassembled him, and announced the exact reasons for his supremacy as a batter and a ball-player.

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Baseball employs scores of scouts to explore the country and discover baseball talent. These scouts are known as "ivory hunters," and if baseball-club owners take the hint from the Ruth experiments, they can organize a clinic, submit candidates to the comprehensive tests undergone by Ruth, and discover whether or not other Ruths exist. By these tests it would be possible for the club owners to discover -- during the winter, perhaps -- whether the ball-players are liable to be good, bad, or mediocre; and, to carry the [p. 20] practical results of the experiments to the limit, then may be able to eliminate the possibility, or probability, of some player "pulling a boner" in mid-season by discovering, before the season starts, how liable he is to do so.

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Testing Babe Ruth for Quickness of Eye, Brain and Muscle

Ruth was told to press the telegraph-key when a light flashed on the board before him. Results showed that his muscles responded to the eye-and-brain impulse more than one tenth quicker than do

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Ruth the Superman

The tests revealed the fact that Ruth is 90 per cent efficient compared with a human average of 60 per cent.

That his eyes are about 12 per cent faster than those of the average human being.

That his ears function at least 10 per cent faster than those of the ordinary man. That his nerves are steadier than those of 499 out of 500 persons.

That in attention and quickness of perception he rated one and a half times above the human average.

That in intelligence, as demonstrated by the quickness and accuracy of understanding, he is approximately 10 per cent above normal.



Do you think you could place this stylus in the three holes on the triangular-shaped board in consecutive order 132 times a minute? Probably not, because the average is only 82; but the "home-run king" found no trouble in doing it, thus showing that his power of coordination is unusually great

It must not be forgotten that the night on which the tests were made was an extremely warm one, and that in the afternoon he had played a hard, exhausting game of baseball before a large crowd, in the course of which he had made one of those home-run hits which we at Columbia were so eager to understand and account for. Under such circumstances, one would think that some signs of nerve exhaustion would be revealed. The instigation lasted more than three hours, during which Ruth stood for most of the time, walked up and down stairs five times, and underwent the tests in a close warm

room. At the end of that time I was tired and nervous, and, although Ruth showed no symptoms of weariness, it is probable that under more favorable conditions his showing would have been even better.

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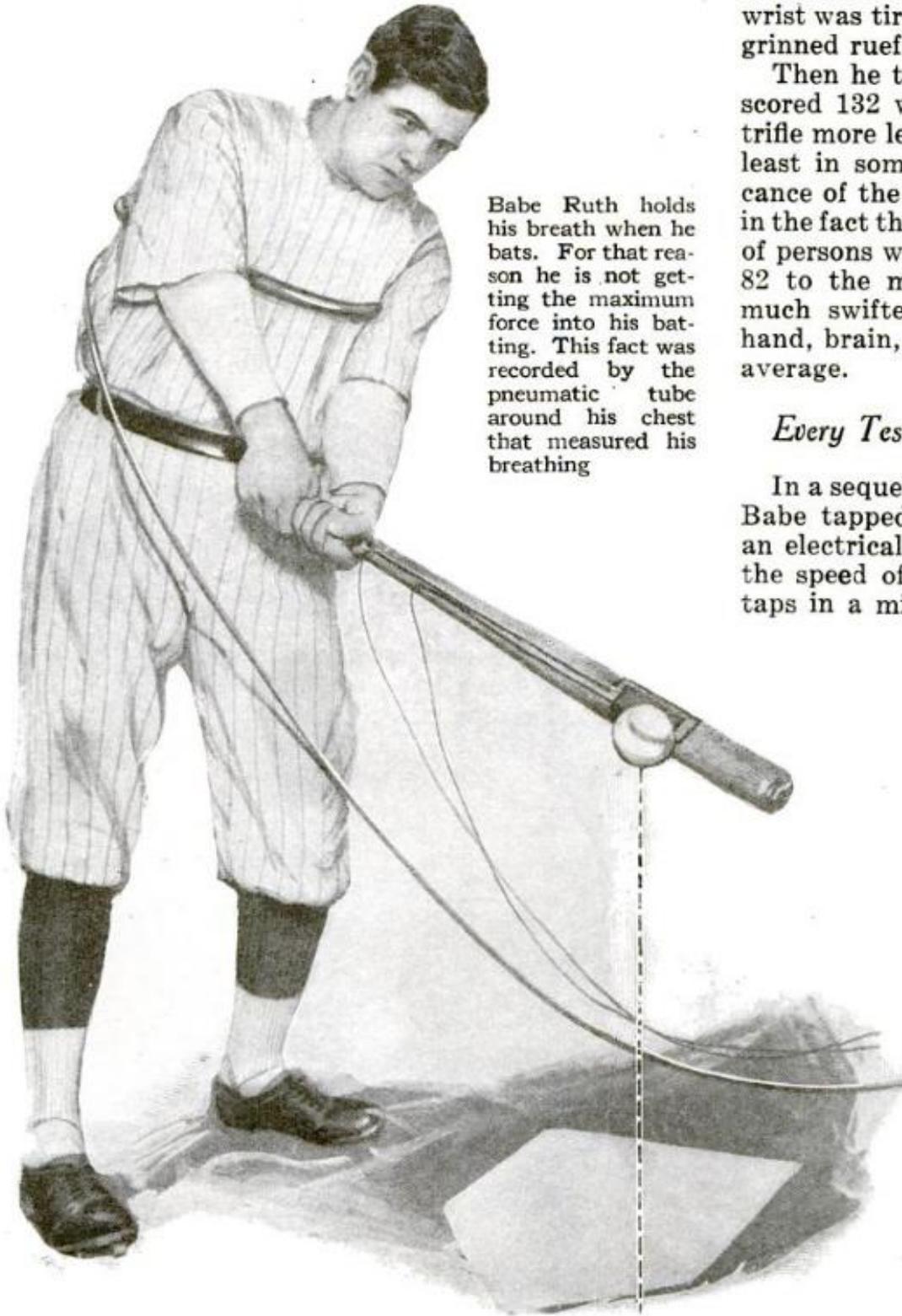
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Babe Could Beat His own Record!



Babe Ruth holds his breath when he bats. For that reason he is not getting the maximum force into his batting. This fact was recorded by the pneumatic tube around his chest that measured his breathing

a score of 124. His wrist was tired and he grinned rueful.

Then he tried to score 132 with a trifle more left in his hand, but he failed at least in some measure because of the exhaustion in the fact that he was one of persons who had 82 to the mile. He has a much swifter hand, brain, and average.

Every Test

In a sequel to the first test Babe tapped an electrically operated device to measure the speed of his taps in a minute.

Before proceeding to the psychological tests, however, we tried another in physics to satisfy my curiosity. A harness composed of rubber tubing was strapped around Ruth's chest and shoulders and attached by hollow tubes to a recording cylinder. By this means his breathing was recorded on a revolving disk. He was then placed in position to bat, an imaginary pitcher pitched an imaginary ball, and he went through the motions of hitting a home run. The test proved that, as a ball is pitched to him, Babe draws in his breath sharply as he makes the back-swing with his bat, and really "holds his breath" or suspends the operation of his breathing until after the ball is hit. But for that fact, he would hit the ball much harder and more effectively than he now does. It has been discovered that the act of drawing in the breath and holding it results in a sharp tension of the muscles and a consequent loss of striking power. If Ruth expelled his breath before striking the ball, the muscles would not become tense and his swing would have greater strength and rhythm.

The first test to discover the efficiency of his psychophysical organism was one designed to try his coordination; a simple little test. The scientists set up a triangular board, looking something like a ouija-board, with a small round hole at each angle. At the bottom of each hole was an electrified plate that registered every time it was touched. Ruth was presented with a little instrument that looked like a doll-sized curling iron, the end of which just fitted into the holes.

Then he was told to take the instrument in his right hand and jab it into the holes successively, as often as he could in one minute, going around the board from left to right.

He grew interested at once. Here was something at which he could play. The professor "shushed" me, fearing that I would disturb Ruth or distract his attention as he started around the board, jabbing the curling-iron into the holes with great rapidity. He would put it into the holes twelve to sixteen times so perfectly that the instrument barely touched the sides. Then he would lose control and touch the sides, slowing down. Only twice did he pass the hole without getting the end of the iron into it. With his right hand he made a score of 122. Not unnaturally, his wrist was tired and Babe shook it and grinned ruefully.

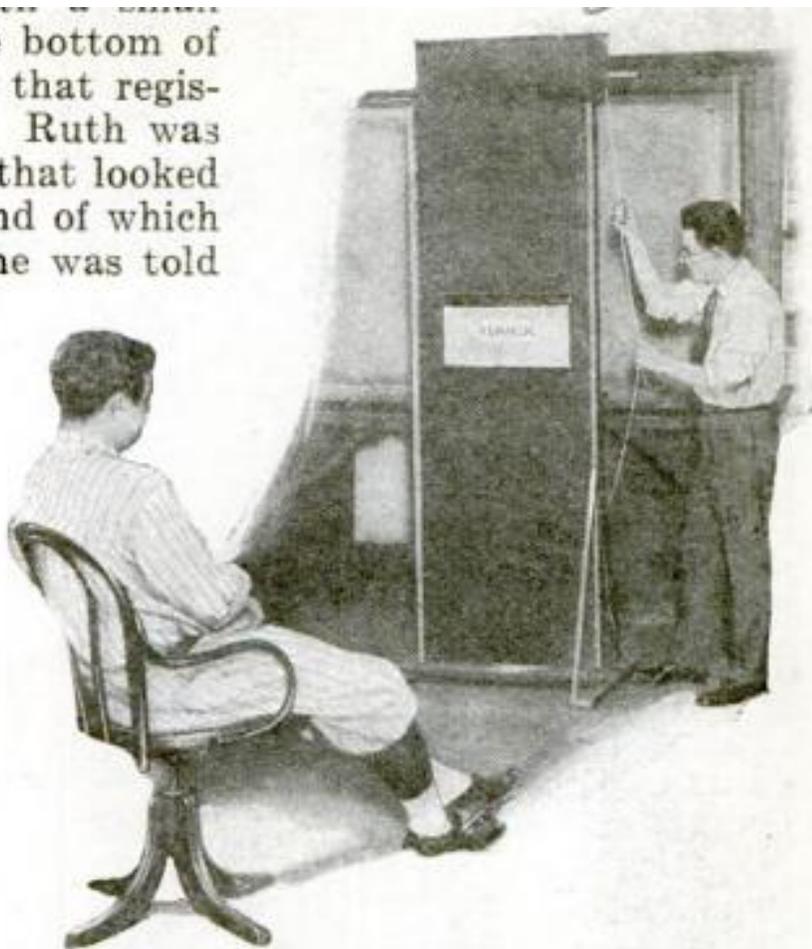
Then he tried it with his left hand, scored 132 with it, proving himself a bit more left- than right-handed -- at least in some activities. The significance of the experiment, however, lies in the fact that the average of hundreds of persons who have taken that test is 82 to the minute, which shows how much swifter in the coordination of hand, brain, and eye Ruth is than the average.

Every Test but Another Triumph

In a sequel to this test that followed, Babe tapped an electrified plate with an electrically charged stylus with the speed of a drum-roll, scoring 193 taps per minute with his right hand and 176 with his left hand. The average score for right-handed persons undergoing this wrist-wracking experiment is 180,

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But steadiness must accompany speed and so they tested the home-run king for his steadiness of nerve and muscle by having [p. 110] him thrust the useful little curling-iron stylus in different-sized holes pierced through an electrified plate which registered contacts between the stylus and the side of the hole. These measured respectively sixteen, eleven, nine, eight, and seven sixty-fourths of an inch; small enough, but not too small for Babe, for he made a score that showed him better than 499 persons out of 500.

The tests that interested me most were those to determine how quickly Ruth's eye acts and how quickly its signals are flashed through the brain to the muscles. Showing an amazingly quick reaction time, they interpreted what happens on the ball-field when the stands rock under the cheering that greets another of Ruth's smashes to the fence, proved an eye so quick that it sees

the ball make an erratic curve and guides the bat to follow.

The scientists discovered exactly how quickly Ruth's eye functions by placing him in a dark cabinet, setting into operation a series of rapidly flashing bulbs and listening to the tick of an electric key by which he acknowledged the flashes.

The average man responds to the stimulus of the light in 180 one thousandths of a second. Babe Ruth needs only 160 one thousandths of a second. There is the same significance in the fact that Babe's

response to the stimulus of sound comes 140 one thousandths of a second as against the average man's 150 thousandths.

Human beings differ very slightly in these sight and sound tests, or rather the fractions are so small that they seem inexpressive; yet a difference of 20 or 10 one thousandths of a second indicates a superiority of the highest importance.

Translate the findings of the sight test into baseball if you want to see what they mean in Babe Ruth's case. They mean that a pitcher must throw a ball 20 one thousandths of a second faster to "fool" Babe than to "fool" the average person.

If the results of these tests at Columbia are a revelation to us, who know Ruth as a fast thinking player, they must be infinitely more amazing to the person who only comes into contact with the big fellow off the diamond and finds him unresponsive and even slow when some non-professional topic is under discussion.

The scientific "ivory hunters" up at Columbia demonstrated that Babe Ruth would have been the "home-run king" in almost any line of activity he chose to follow; that his brain would have won equal success for him had he drilled it for as long a time on some line entirely foreign to the national game. They did it, just as they proved his speed and his steadiness -- by simple laboratory tests.

For instance, they had an apparatus with a sort of a camera shutter arrangement that opened, winked, and closed at any desired speed. Cards with letters of the alphabet on them were placed behind this shutter and exposed to view for one fifty-thousandth of a second. Ruth read them as they flashed into view, calling almost instantly the units of groups of three, four, five, and six letters. With eight shown he got the first six, and was uncertain of the others. The average person can see four and one half letters on the same test.

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The secret of Babe Ruth's ability to hit is clearly revealed in these tests, His eye, his ear, his brain, his nerves all function more rapidly than do those of the average person. Further the coordination between eye, ear, brain, and muscle is much nearer perfection than that of the normal healthy man.

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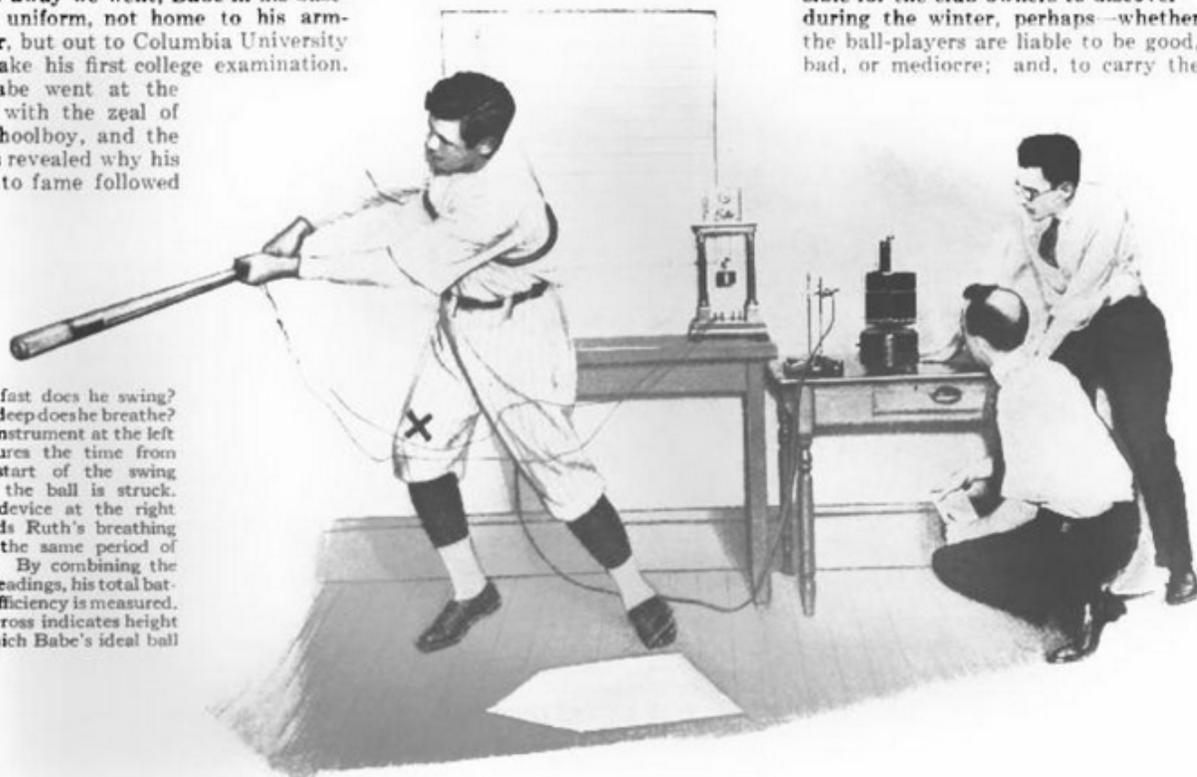
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(Concluded on page 110)

THE HOME WORKSHOP

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Emery-Wheel or Drill-Chuck for the Motorist

A POWER-DRIVEN emery-wheel or drill-chuck is a desirable tool for use in the garage, and the one shown in the illustration can be easily made and attached to the running-board of the car with a rear wheel jacked up to drive it.

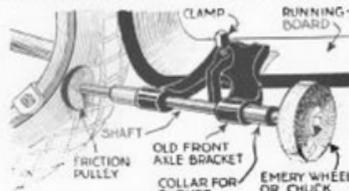
It consists of a yoke-shaped bracket that can be made from one end of a discarded front axle or other similar part, with a shaft and a pulley at one end of the shaft to drive from the tire of the rear wheel. The opposite end of the shaft is threaded.

By means of two nuts and washers a

small emery-wheel can be attached to the shaft. A small chuck threaded to fit the shaft can be secured in place of the emery-wheel. A clamp fastens the attachment to the running-board of the car.

This outfit, being detachable and light, can be carried in the tool compartment of the car at all times and is a desirable feature for the tourist.

The chuck used should have a jaw opening sufficient to take the stem of a valve, as truing valve faces is one of the details that the tool described can handle effectively.



This portable grinder is driven by friction against one of the rear wheels



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