

State Honors Dairy Pioneer in Centennial

S. M. Babcock, Inventor of Butterfat Test, Brought Revolution in Farm Methods

Journal Special Correspondence

Madison, Wis. — Wisconsin this month is paying special honor to the memory of the man who made the modern dairy industry possible.

It was in 1890 that Stephen Babcock invented the butterfat tester that paved the way for Wisconsin's pre-eminence in dairying. Oct. 22 will mark the one hundredth anniversary of his birth, and for that day the Wisconsin college of agriculture is arranging an elaborate program. At leading agricultural colleges throughout the country, where tablets have been erected in his honor, and in other countries, too, the day will be observed, for Babcock's invention revolutionized dairying everywhere in the world.

Before the Babcock test was developed, milk from farms was dumped into a common vat at creameries and paid for at a single rate. Babcock's simple process made it possible for farmers to determine the butterfat content of their milk and command premium prices by culling their herds. Agricultural authorities say that without the Babcock test today's improved herds could not have been developed on a wide basis.

Original Tester Is Shown

In connection with the centennial, an exhibition illustrating Babcock's life and work is to open Sunday at the state historical museum and will continue throughout October. Prof. George (Soybean) Briggs of the University of Wisconsin's department of agronomy, will speak on Babcock's career in a talk to be broadcast over station WHA at 3 p. m., and movies on the dairy industry will be shown at the museum. Objects on display will include many of Babcock's instruments, the awards which he won and his original butterfat tester.

Oddly, it was a cow named Sylvia that put Babcock on the right track in his long search for a simple testing process. If Sylvia had not been so obstinate, the infallible test now used universally might not have been found.

Sylvia wasn't a very good cow. She was a grade shorthorn, as undistinguished as many another cow which Babcock found on Wisconsin farms when he came to the state in 1888. Despite the pioneer work of William Dempster Hoard, who later became governor, the state's dairy industry was languishing. Many farmers, disgruntled over creamery prices because no premium was allowed for quality, were returning to the tedious chore of skimming milk on the farm, despite the extra work. Gossip said that many a farmer added a water pail to his dairy equipment in those days.

Babcock had just come to the college of agriculture from the experiment station at Geneva, N. Y. Dean W. A. Henry, then director of the Wisconsin experiment station, called him in and asked him to devote his time to the problem of developing a simple butterfat test. The testing methods then in use were costly and complicated. Small creameries and farmers could not afford the equipment, and few persons were capable of making the test even when the equipment was available.

Developed Own Method

Babcock worked for months on preliminary experiments. At first he tried to improve every test for butterfat already developed. Finally he developed his own simple method which, when checked with the more elaborate tests, gave identical tests.

Day after day, he tried his new test on milk from each of 29 cows in the university herd. Each time his simple method gave results that checked with those of the more laborious processes. Then he decided to try it on Sylvia.

Although the test had proved accurate with the other 29 cows, it did not work with Sylvia. His colleagues, satisfied that his method had proved its value by proving accurate 29 out of 30 times, tried to persuade him to make it immediately available to the industry. Babcock refused. He went back to his laboratory determined to improve his process so that even Sylvia would meet the test.

Weeks later, he walked into Dean Henry's office with a test tube in his hand and announced simply:

"Well, I have it at last."

This time all the readings taken with the new method agreed with those given by the best equipment that had been in use previously. With Sylvia no longer a dissenter, the test was applied with other herds. The results were always uniform.

In his process, Babcock used a quantity of sulphuric acid which rendered soluble all solids except fat. The heat that evolved in the mixture melted the fat and permitted it to rise to the surface. The melted fat then was measured with the use of a centrifugal machine that collected it in the narrow graduated neck of the bottle used. In five minutes, any person could read the butterfat percentage. The necessary equipment was inexpensive and easy to obtain.

The invention was worth millions. Babcock took no royalties.

"This patent," he announced, "will be given to the world for anyone to use without payment or hindrance in any kind."

Used All Over World

And dairymen did use it freely, in all parts of the world. In New Zealand, grateful producers sent a testimonial illustrated with scenes of that country in water color. From the Australian provinces of Victoria and New South Wales came an oil painting of a rural scene there. In

1899 the Wisconsin legislature awarded Babcock a bronze medal. In 1930, just a year before his death, he received the Capper award for distinguished service to agriculture.

Babcock made other contributions to the dairy industry in addition to the butterfat test. He perfected the gravimetric method of analyzing milk, now standard throughout the United States. He developed a simple method of finding the size and number of fat globules in milk, a mathematical formula for computing the amount of cheese that can be obtained from a fixed quantity of milk, a curd test to detect tainted milk at creameries and cheese factories. He made pioneer studies in cattle feeds and worked with vitamins.

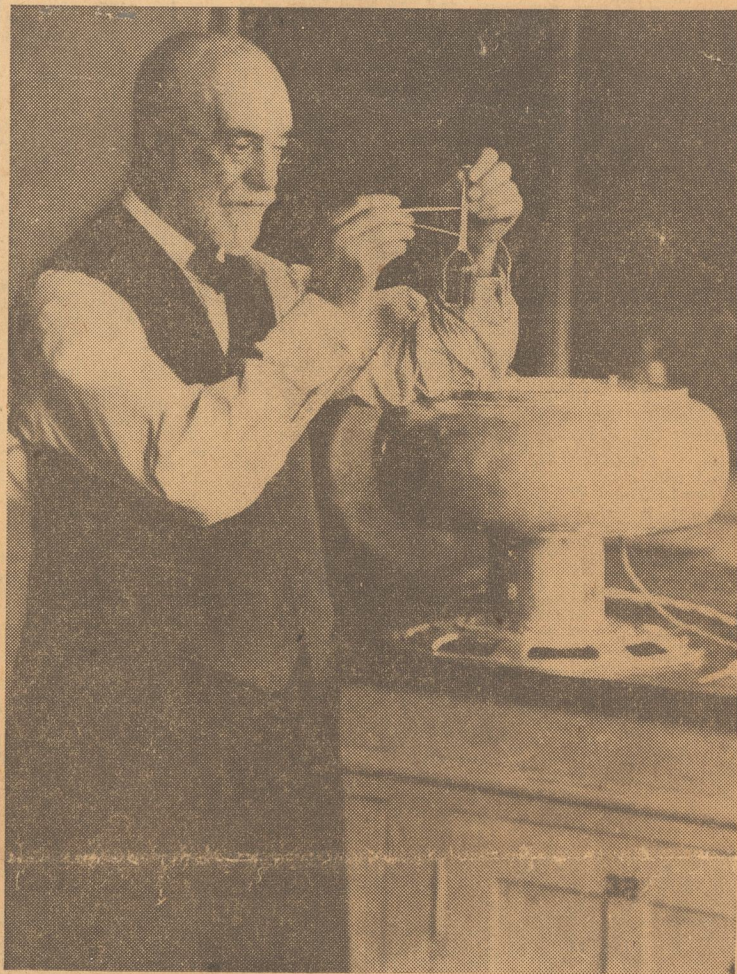
Shortly before he died, Babcock expressed surprise that his butterfat test was never improved.

"I expected at least that the markings on the tubes would be changed," he said.

But the test remains essentially the same today as on the day he walked into Dean Henry's office 53 years ago and announced his discovery. The only refinement has been in the method of applying power to turn the centrifuge.

Babcock was born at Bridgewater, N. Y., and was graduated from Tufts college in 1866. He studied and taught at Cornell university and took a doctorate at the University of Goettingen, in Germany. Before he came to Wisconsin he was chemist for the New York state agricultural experiment station.

Prof. H. L. Russell, former dean of the agricultural college who was Babcock's associate in many experiments, is expected to take part in the centennial program Oct. 22. The museum exhibition was planned by Mrs. Ruth K. Harris, assistant curator for the historical society, and Prof. Kenneth Weckel, Prof. E. B. Hart, Prof. A. W. Hopkins and Prof. Emeritus A. L. Hatch, all of the college of agriculture.



A scientist who revolutionized the dairy industry is being honored this month, the centennial of the birth of Stephen Moulton Babcock, inventor of the Babcock butterfat test. Babcock helped to build the nation's first dairy school building (shown in the top picture) on the University of Wisconsin campus. When the school opened in 1890 it had two students and a faculty of two. In the lower picture, Babcock is shown at work in his laboratory.