REPORT OF THE STATE CHEMIST.

MADISON, Wis., Sept. 30, 1890.

HON. H. C. THOM,  
State Dairy and Food Commissioner:

SIR:—I have the honor to submit the following report for the year ending September 30, 1890:

MILK.

Milk, like all products of the animal body, is of very complex composition. To the ancient as well as the modern world it was a fluid of great virtue, and was the first form of food that received the attention of physicians and experimenters. To it was ascribed valuable medicinal qualities. Hippocrates, the celebrated physician, prescribed milk, either that of the cow, ewe, or the goat, in certain ailments, but forbade its use in cases of headache, fever and bilious attacks. Aristotle decided that "milk is elaborated not decomposed blood." Avicenna and Placitus devote many pages to the subject, and gravely discuss whether milk was hot, cold or moist; concluding that animal milk, compared with that of human, is cold; human with that of animal, hot. Only three parts were at first recognized in milk, viz.: Serum, butter and curd. Bartoletus, in 1619, was the first to mention a fourth constituent, milk sugar. In his day, sulphur, mercury, and a saline principle were considered as the three active essences of all things; hence, from the yellow color of the butter, Bartoletus referred it to a sulphur principle, the whey to quick silver, and the curd to a saline element. He also compares milk with blood. In the eighteenth century Leeuwenhoek first observed milk under the microscope. He saw that it