found in which all the sulphur of the plant was contained in the ash.

The determination of the sulphur was made by two methods: *a*. 10 grams were burned to an ash at the lowest possible temperature, and the sulphur determined in it; *b*. 10 grams substance were burned with the addition of 20 cc. of a solution of calcium acetate containing 29.2 grams per liter, as recommended by Dr. A. E. Shuttleworth.

SULPHUR FOUND IN PLANTS.

	b. Burned with calcium acetate. Per cent.	*a*. Alone. Per cent.	Loss. Per cent.
Oat straw	0.158	0.151	4
Crimson clover hay	0.173	0.137	28
Green rape	0.503	0.471	6
Wheat bran	0.055	0.000	100
Corn silage	0.098	0.082	16
Timothy hay	0.085	0.076	11
Cottonseed meal	0.222	0.071	68
Soy beans	0.161	0.091	58
Linseed meal	0.091	0.038	58

The sulphur obtained when the ash was burned by itself is from 4 to 100 per cent. less than when burned with calcium acetate. Whether the calcium acetate retains all the sulphur or not, is a point which requires further study.

The differences in the above table may in some cases seem insignificant, but owing to the quantity of material employed, it requires 0.0007 gram barium sulphate to produce a difference of 0.001 per cent.

It is plain that the determination of sulphur in an ash prepared in the usual way, far from giving any idea as to the sulphur in the plant, may prove very misleading. Any conclusions drawn from such analyses are liable to prove erroneous.

This work was performed in the laboratory of the North Carolina Experiment Station, with the permission of Professor W. A. Withers, chemist.

G. S. FRAPS.

A Simple Test to Distinguish Oleomargarine from Butter.—In the March (1900) number of this Journal, Hess and Doolittle refer

to the well-known spoon test for oleomargarine and in the October number Dr. C. A. Crampton mentions the fact that this test is preferred to the polarizing microscope by many revenue examiners.

Another simple test was called to my attention by Mr. C. H. Waterhouse, Dairy Instructor at the New Hampshire College, a short time before his death, this last summer, and was originated by him. Previous to his sickness he had asked me to try it on various kinds of fats, but until recently I had been unable to do so. From the results now obtained and the simplicity of the test, I am convinced that it may find application preliminary to chemical analysis.

The details are as follows: Half fill a 100 cc. beaker with sweet milk, heat nearly to boiling and add from 5 to 10 grams of butter or oleomargarine. Stir with a small rod, which is preferably of wood and about the size of a match, until the fat is melted. The beaker is then placed in cold water and the milk stirred until the temperature falls sufficiently for the fat to congeal. At this point the fat if oleomargarine can easily be collected together into one lump by means of the rod, while if butter it will granulate and cannot be so collected. The distinction is very marked. The stirring is not, of necessity, continuous during the cooling, but it should be stirred as the fat is solidifying and for a short time before. The milk should be well mixed before being turned into the beaker as otherwise cream may be turned from the top and contain so much butter-fat that the test is vitiated for oleomargarine. I have tried this test many times on twenty-one different samples of oleomargarine and on several samples of butter and have found it to work in every case. Many of these samples were also given by me to my assistant for trial and he never failed to immediately distinguish between oleomargarine and butter. I have also made mixtures and have found that one containing about 25 per cent. or less of butter would be always classed as an oleo. Lard and cottolene act the same as oleomargarine.

While the small number of samples of oleo to which the test has been applied will not allow of a positive statement of its universal application, I am convinced from my own experience that

it will prove of value, especially in the hands of revenue agents and others employed in detecting illegal sales of oleomargarine, as it may materially lessen the number of samples to be sent forward for the final proof of chemical analysis.

If this test is found to be of use it should be known as the "Waterhouse Test." CHARLES LATHROP PARSONS.

BOOKS RECEIVED.

A Contribution to the Pharmacognosy of Official Strophanthus Seed. By Pierre Élie Félix Perrédès, B.Sc. The Wellcome Chemical Research Laboratories, 6 King Street, Snow Hill, London, E.C. 36 pp.

Lehrbuch der anorganischen Chemie. von Prof. Dr. H. Erdmann. Zweite Auflage. Mit 287 Abbildungen, einer rechen Tafel und sechs farbigen Tafeln. Braunschweig: F. Vieweg & Sohn. 8vo. xxvi + 758 pp. Price, 16 M.

Report of the Committee on the Protection of North American Birds for the year 1900. Extracted from the *Auk*, January, 1901. 37 pp.