NOTE ON A SAMPLE OF OLD BUTTER.

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In December, 1884, I examined a sample of butter by Hehner's method with the following results:

Soluble acids	3.9%
Insoluble acids	88.7%

The fusing point of the butter was 33°–34° C.

The remainder of the sample was left in a tin box with a tightly fitting cap on a window ledge exposed to outside temperature, and frequently to direct sunlight, for two years. It was inspected occasionally to note the effect of keeping but no chemical examinations were made until the present month. The peculiar odor of rancid butter, which was soon acquired, disappeared after a few months and the mass retains at present only a slight tallowy odor scarcely suggesting that of butter in any of its changes. The color of the original product has disappeared and the mass has become tallow-like and opaque, but on close examination is seen to be minutely granular, the white and opaque granules being uniformly distributed through a transparent, semi-fluid mass. Portions of the mass next the side of the box were discolored by iron but the color had not extended through the mass.

I have lately examined the sample using only the uncolored portions taken from the centre of the mass. The results are as follows:

Reichert's test ..... 12.9 c.c. $\frac{N}{10}$, NaHO.

Koettsdorfer's method:

Mgs. K HO per gramme of butter	220.2
Saponification equivalent	254.8

Free fatty acids 19.86 mgs. per grm. of butter, equivalent to 9.98% oleic acid or 11.19% of the total fatty acids (calculated as oleic) originally present.

The fusing point is uncertain as there are evidently two distinct portions in the mass. The transparent portion fuses apparently at 32° or 33°, while the whitish granules dissolve slowly in this liquid as the temperature is raised, not disappearing completely below 39°.

Microscopic examination of the mass shows the granules to be crystalline in appearance, inasmuch as they present a certain regularity of form which is not, however, sufficiently definite to decide upon. The granules suggest rather the effect of partial solution upon masses originally having crystalline form. As to their composition they are probably stearine.