

3. It is already in considerable use on the continent in approximately this (Bang, Czapek and most French investigators in the field).

The term "Lipin," introduced by Gies, although by derivation equally suitable, is believed to be less desirable because of the present practice among biochemists of making little or no distinction between—in and—ine (signifying the presence of nitrogen). For example MacLean uses the term lipin to mean lipid substances containing nitrogen.

Very little originality can be claimed for the above classification and the writer freely acknowledges the help obtained from a study of earlier classifications, notably those of Bang, Leathes, Gies and MacLean. At the same time it is believed to be an improvement on preceding classifications in that it provides a definite chemical and metabolic basis which has hitherto been lacking.

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Sodium citrate and scurvy.

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An Italian child ten months old was brought to the Children's Clinic, Stanford Medical School, in October, 1919, suffering from severe scurvy. The child had been fed from birth on raw certified milk to which had been added sodium citrate in the proportion of one grain to each ounce of modified milk.

A series of seventeen guinea pigs was fed on oats and milk. In the case of nine of these guinea pigs sodium citrate was added to the milk in the following proportions: 2 animals, 0.25 per cent.; 2 animals, 0.50 per cent.; 3 animals, 1 per cent.; 1 animal 1.3 per cent.; 1 animal 2.0 per cent. The period of feeding in this series was ten to forty-six days. Of the animals to which sodium citrate was given all except one, to which 0.50 per cent. was given for forty-six days, developed scurvy. Of the eight animals to which milk and oats only were given two developed scurvy. These control animals were observed for periods of forty to forty-six days. The average milk intake was 39.1 c.c. of milk per day for the control animals and 41.6 c.c. for the sodium citrate animals.

The incidence of scurvy in the latter series was 88.9 per cent. and in the control series, 25 per cent. The results of the control series are not in accordance with those of Chick, Hume and Skelton who state that guinea pigs receiving less than 50 c.c. milk per day invariably develop scurvy but indicate that with Inspected Milk used in this laboratory the lower limit is about 32 c.c. The average intake in the two series reported was approximately the same.

A series of electrometric determinations performed through the courtesy of Dr. E. C. Dickson showed the following changes in fresh Inspected Milk when sodium citrate in varying amounts was added:

Fresh milk.....	pH 6.45
0.25 per cent. sodium citrate added.....	6.50
0.50 per cent. " " ".....	6.95
1.0 per cent. " " ".....	7.05
1.25 per cent. " " ".....	7.15
2.0 per cent. " " ".....	7.35

The results of these experiments indicate that sodium citrate even in concentrations of 0.25 per cent diminishes or destroys the anti-scorbutic substance normally present in small amounts in raw cow's milk.