

September 10, 1968

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Dear Jim:

This note is a delayed follow-up to a column that I wrote over a year ago.

I have in mind to ask you whether there has been an aggressive response on the part of your colleague dairy scientists to the very negative climate about the health values of milk as a food post-infancy. (Note for example, Dr. Stare's remarks attached).

The question of the ^{derivative} deleterious effect of saturated fats with respect to later heart disease may, of course, still turn out differently from the current tradition, but it seems to me foolhardy to ignore it or to just take it without reacting. Quite apart from the protection of the economic interests of dairy farmers in Wisconsin, milk is too valuable a food to have it go down the drain for failure to keep up with contemporary science.

I guess what I have in mind could be embodied in efforts to -

1. Replace the standards for milk quality moving them away from butterfat content and towards the nutritional values we recognize today, e.g., the balance of essential amino acids,
2. Breeding milk cattle to meet these specifications, and
3. Perhaps even attempting to modify the metabolism of the cow, either environmentally or genetically, so as to decrease the saturation level of the milk fatty acids.

I have no idea what plausible physiological limits there may be on such a process, for example, are there any animal species whose milk is significantly unsaturated?

I suppose another thing to look into might be fermentation processes that could give cheese-like products in which saturated fats are replaced by unsaturated ones.

Crow

Sincerely yours,

Joshua Lederberg
Professor of Genetics

JL:lh

Let us carry this argument one step further. The Pediatricians and the Dairy Scientists ought to get together to define an ideal nutritional fluid. If the dairy industry doesn't react in some way the market for fresh milk and a large part of the market for its derivatives is going to dry up. Once an ideal fluid is specified, there then remains the task of engineering its production, deciding what part of it can most economically be manufactured by artificial supplementation and what part can be obtained by redirecting the breeding of dairy cattle toward such an ideal product. The question comes up, for example, whether an ideal milk should have appreciable quantities of lactose when a probably even more desirable caloric equivalent can be introduced as industrial glucose. (I have in mind the moderately wide distribution of lactose intolerance). As a rule of thumb, I would assume that any irrelevant component still costs the cow something she might better put into tryptophane and lysine.