Lead Industries Association

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February 15, 1956

Robert A. Kehoe, M.D., Director
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Dear Bob:

I don't know to what extent you are familiar with the goings-on of Mr. F. J. Schlink, the doughty editor of Consumers' Research Bulletin, who holds forth from Washington, New Jersey.

A lot of his stuff is good, but plenty is questionable, and I would place in the latter category the attempt to resurrect the plumbic evaporated milk ghost of which a copy is herewith.

I have gone after the man on such an assortment of subjects that I'd rather not be the one to berate him on this one. Are you in a mood to take a crack at him?

Sincerely,

MB:GW

Enclosure

KE 0014819

Dry or Powdered Milk—

and the problem of lead in food and beverages

AT the suggestion of our readers who were interested in the article on "Evaporated Milk" which appeared in our October 1954 CONSUMERS' RESEARCH BULLETIN, Consumers' Research arranged to have analyses made for the lead content of three brands of a product variously known as powdered skim milk, dry milk, non-fat dry milk solids. The three brands included were *Farmdale*, *Borden's Starlac*, and *Instant Pet*.

All the samples gave approximately the same content of lead, lying in the range of 0.3 to 0.4 parts per million, which in CR's opinion would not be an objectionable amount, assuming that members of the family did not consume abnormally large quantities of the product; but it is somewhat above a tolerance which CR would consider satisfactory when a food substance is consumed in fairly large quantities, or is regularly consumed by children.

CR is indebted to a state Department of Health official for information regarding lead content of fluid milk, which was disclosed in connection with an investigation of lead exposure in a family where lead had been found by chemical tests in one of the children. Milk samples in this home showed lead to the extent of 0.2 to 0.3 mg. per liter of milk. Two samples from the producers and from the dairy showed lead as high as 0.3 mg. and 0.4 mg. Other samples from the same sources showed from 0 to 0.1 mg. of lead per liter, and these with other samples examined indicated that the normal lead content of fluid milk in that state might be expected to be in the range of 0 to 0.1 mg. per liter. This amount is not negligible, but it is sufficiently low certainly that there would be no cause for alarm for persons who consume only limited or moderate amounts of milk.

It is believed that lead poisoning from water supply has occurred from the continued consumption of water with lead content of as little as 0.1 mg. per liter. (Some would set the figure at about 0.3, but there is reason to believe that this may be rather too high.) It should be borne in mind in this connection that infants and children are susceptible to amounts of lead which would probably be unimportant if ingested by adults, and, according to one authority, females are nearly three times as susceptible to lead as males.

A leading authority in this field (Dr. G. W. Monier-Williams) considers that a total daily lead intake of 0.5 to 1 mg. (that is from about 1/1,000,000 to 1/500,000 of a pound a day) or possibly even less must be regarded as potentially dangerous. That such a quantity is easy to acquire is judged by the fact that a man doing light work consumes roughly 1000 grams of food daily, and if the lead content of this food averaged only 1 part per million, the person would be ingesting about 1 mg. of lead each day from food alone. (Water, dusts, and fumes in the air, e.g., from exhausts of automobiles using leaded gasoline, are common sources of additional lead intake; many industrial workers take in considerable amounts of lead in the form of fumes and dust in connection with their work.)

It must be borne in mind also that ordinary analytical methods available to chemists cannot detect lead with certainty if the amount present is very far below 1 part per million. Determination of smaller amounts calls for refined methods of analysis available only to the relatively few analytical chemists who specialize in examination of food and beverages for "micro-amounts" of food substances for contaminating metals. Dr. Monier-Williams in his monograph Lead in Food (British Ministry of Health) says that "the presence of lead in any particular food must be regarded not only as a danger in itself, but as a contribution, more or less serious, to the total daily intake of lead from all sources."

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The *Farmdale* brand was considerably more economical in use than the other two, as it provided a quart of "reconstituted" skim milk at about 6.3c and 7.5c (the higher figure for the 9.9 oz. package). The other two cost about 7.4 (*Starlac*) to 8.2c (*Pet*) per quart of reconstituted milk. It is greatly to the credit of the distributors of the *Farmdale* brand (a private brand of the American Stores Company, a grocery chain) that they did not refrain from using the term "skim milk" in connection with the product, and this phrase appears on the principal label. *Starlac* (product of the Borden Company) has the term on the bottom of the package, only, where very likely most ultimate consumers would not notice it; *Pet* milk (product of the Pet Milk Company) used only the term "nonfat dry milk solids" which many consumers might not recognize to be the same as the dry-powder equivalent of skim milk.