of agitation and the low level of cornstarch. Level of egg and sugar had no effect on cooling time. The use of the scraper-lifter gave fast cooling times at a slow rate of agitation and caused little thinning of the mixtures.

CURRENT PROBLEMS AFFECTING CONSUMPTION OF MILK AND INDUSTRY'S RESPONSE TO THEM

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Situations having an adverse effect upon the dairy industry have probably occurred with greater frequency during the past five or six years than in any comparable period of time within our present recollection. In listing some of the causes leading to undesirable publicity, which have affected milk consumption, we might begin with reports concerning the presence of antibiotic residues in milk.

You may recall here that the stories pointed out the fact that some people were extremely sensitive to even trace amounts of penicillin, and there was also the fear that the continued ingestion of even trace amounts of antibiotic would cause infective organisms in the body to acquire a resistance to the drug and render the latter ineffective in case a real serious infection should occur.

This problem was effectively dealt with by prompt instituting of antibiotic testing programs by both regulatory agencies and dairy industry members so that the finding of positive results in milk samples became a relatively rare event.

Next came scares concerning pesticide residues which, by the way, are still being revived at irregular intervals. Here again testing programs, mostly by regulatory people, helped to place the problem in its proper perspective.

The next significant items, which are very much in evidence right now, concern cholesterol in its relation to heart disease and the radioactive isotopes situation, especially strontium 90 and Iodine 131, as they relate specifically to milk.

Without in any way trying to minimize the significance of the problems posed by these unpleasant situations it is interesting to note that milk, because of its status as a highly desirable food, especially for infants and children, lends itself easily to becoming the subject of highly emotional appeals to parents.

This enables the creation of a climate where milk can become the excuse or the whipping boy to produce a completely unrelated effect. The people who object to the use of insecticides because they claim it disturbs nature's biological balance have nothing against milk per se, but if they can point to milk as being contaminated by poison spray residues, they can get a great many more people behind their special interest. The groups who oppose nuclear testing are the first ones to tell you that they have nothing against milk, but they do know the value of milk as an emotion rouser and if they can create the proper psychological effect upon parents by showing that milk becomes contaminated with radioactive material they hope to gain recruits and, more importantly, finances, to carry out their campaign to pressure the government to discontinue nuclear testing.

In addition to these people who may even have altruistic but sub-surface reasons for using milk as a decoy for achieving a specific effect, we have writers and other publicists whose stock in trade is the writing of articles with a highly emotional appeal, which can be sold to periodicals. It goes without saying that articles of this flavor can be sold more readily to certain media than can factual and unemotional articles. To illustrate this type of journalism, you may have seen a front page headline in a certain tabloid which features bizarre headlines to the effect that "Milk Killed My Babies." A reading of the article presents some lurid story to the effect that a woman in England had a number of children with an extremely rare disease called "galactosemia" which is defined as an inability to tolerate milk sugar. The headline tended to create an effect in which milk was pictured as a villainous killing agent potentially threatening the entire infant population, but actually, an inherited physiological defect is the cause of this type of illness. Incidentally, this disease occurs so infrequently that most of us never heard of it.

We did not consider it worthwhile to dignify this
story with any type of response because this would only provide grist for the perpetrators. The paper is not one recognized for outstanding circulation or influence.

**Cholesterol and Heart Disease**

It might be well to try to put into proper perspective some of the things which have been causing us so much distress, so let us consider cholesterol as a starter.

1. Statistical studies by a number of investigators have shown without doubt that one of the leading causes of heart disease is a condition called atherosclerosis—which is a hardening of the arteries brought about by the accumulation of fatty plaques on the walls of the arteries.

2. Studies have also shown that people who have high levels of cholesterol, a fatty substance, in their blood are more likely to suffer heart attacks caused by atherosclerosis than other people. It is not known, however, whether the high levels of blood cholesterol cause the deposit on the artery walls.

3. It has also been shown that some people, but not all, can have their blood cholesterol levels lowered by replacing in their diet the so-called saturated fats (animal fats and hydrogenated oil) with unsaturated fats, (liquid corn oil and safflower oil). But there is absolutely no proof that lowering cholesterol levels reduces the incidence of atherosclerosis.

These scientific observations have been interpreted in different ways by different people. They have led to logical, as well as illogical deductions. Some physicians felt that it might prolong the life of some of their "high risk" heart disease patients if they changed their diets by substituting unsaturated fats for the saturated ones. We have no quarrel with this reasoning as long as it is fully realized that such dietary treatment is experimental and to be conducted under the direction of a physician. This is the attitude of the American Medical Association.

However, some commercial interests, eager to promote the sale of their products, were not content to keep the matter on a scientific plane and began to advertise how unsaturated their oleomargarines were. In spite of the effort of the medical and scientific groups to point out that there was no basis for the general public to change its dietary fat intake in the hope of preventing heart disease, these advertisers, either directly or indirectly have tried to convince the public that their products help to avoid heart attacks. As a matter of fact, some of the advertising became so deceptive that the Food and Drug Administration issued warnings indicating the possibility of legal action unless corrective steps were taken.

**Radioactive Materials**

In the case of radiation, it should be remembered that this phenomenon has been a factor in man's environment since his creation. However, a new, critical situation has come about since man began testing nuclear devices. This testing releases into the atmosphere radioactive substances which have health implications. Scientists generally assume that there is no threshold level for radioactive substances; that is, there is no level which can be considered absolutely safe, or, put in another way, any exposure to radiation, no matter how minute, may be potentially harmful. In trying to measure the degree of contaminating radiation, it was reasoned that milk would be one of the best substances for testing because (a) it is easy to get samples all year round and in all parts of the country; (b) most of the radionuclides in which we are interested from a health point of view, Strontium 89 and 90, Cesium 137, and Iodine 131, may be found in milk; (c) milk is a significant item in the diet of many people, especially children; (d) the values found for milk can be used to estimate the radioactive content of the entire diet. Again and unfortunately, although other foods and beverages are also contaminated with radionuclides, milk receives the focus of attention because it is a good material for test evaluation and a general impression is created that milk is the only food which can cause concern because of radioactivity.

No normal person can be very happy over the fact that our environment is being contaminated by radioactive material and the dairy industry would be happy indeed to be rid of the Strontium 90 or Iodine 131 problem. However, the decision to test or not to test is a political one bound up with our international relations and national defense. Based upon the information made available to us through government sources, the levels of radioactive Strontium and Iodine which have been found in our milk supply are well within the acceptable limits established by the Federal Radiation Council.

The anti-testing advocates concentrate the attention of people on milk because they can obtain an interested audience by implying that the milk supply is contaminated to the point where it can affect the health of their children and cause deformities in generations yet unborn. The fact that there has not yet been a single proven case of thyroid cancer due to Iodine 131 or that the best presently available way of reducing the likelihood of absorption of Strontium 90 in the bone structure of the body is to ingest liberal amounts of available calcium which is contained in milk, seems to be of little consequence to the "ban-the-bomb" advocates. In other words, many of them have no qualms about encouraging people to follow a course where they may be adversely affecting their...
health by depriving themselves of essential calcium, as long as the advocates can advance their own special objectives.

It is extremely difficult to measure accurately the effect of these attacks upon fluid milk consumption. If you speak to a distributor who has just received a cancellation from a customer, he will tell you that the business is going to the dogs and perhaps he had better give it up. On the other hand, surveys based upon actual interviews across the country show that the consumer still has a tremendous feeling of good will toward milk because of its nutritional values and confidence in the ability of the dairy industry to continue to give the public a safe and wholesome product. In the New York Metropolitan Market area which embraces the City and adjacent areas, including northern New Jersey, fluid milk sales increased 1.7% in 1962 over 1961 and this trend was similar on a national basis. However this is far from a satisfactory picture because the rate of population increase has been considerably higher and on a per capita basis, consumption of fluid milk has decreased. Concurrently, sales of low fat fluid milk products, fluid skim milk and especially powdered skim milk have risen significantly. Much of this increase is due to the cholesterol problem, some to the popular indoor sport of talking about dieting and some to the mistaken notion that radioactive materials are not found in milk powder.

On the question of dieting, a disconcerting tendency has been noted among teenage girls and others to discontinue the use of milk for fear of hurting their figures. There is a failure to realize that dieting, in order to be effective, must be a well planned project, giving proper consideration to balancing the entire food intake so as to assure sufficiency of all the necessary nutritional elements. One of the most misguided steps which can be taken is to haphazardly eliminate milk which can supply such a high percentage of the minerals, vitamins and high quality proteins without pushing the total calorie intake very high. There is a feeling among some nutritionists that considerable harm may result from this trend, especially in view of the fact that many girls now marry at a young age and start having their families early.

We now come to a consideration of the things which the industry is doing to meet the challenge caused by the events described above. Unlike the cosmetic, tobacco, or soft drinking industries, the milk industry is a low profit one and cannot spend the high sums of money on advertising and other forms of promotion which are characteristic of the former. This is particularly true when it comes to operating on a local level.

Counteraction

There are, however, activities which can be undertaken on a national basis, which can best be performed by groups such as the American Dairy Association and the National Dairy Council with which we are affiliated. The National Dairy Council approach is to work on an ethical basis through nutrition professionals, constantly pointing up the positive side of the nutrition picture as it relates to milk. Educational work is done with dentists, showing the relationship between good teeth and good nutrition, and literature is made available to them for distribution to their young patients, if they care to use it. Advertisements are placed in medical and other scientific journals reminding the professions of the vital part that milk plays in the diet, and finally, the National Dairy Council actually sponsors a great deal of research by renowned scientists to learn more about the effect of milk on human physiology. Results of this research are published and widely distributed to the medical, dental and public health professionals.

The American Dairy Association which is financed by producers, has a fair sized national budget which is spent more for direct advertising of dairy products. They finance television programs and national magazine advertising, billboard posters, as well as direct promotion programs for chain supermarkets and other retail outlets. In addition, they make available to dealers literature for direct distribution to customers.

On a local level, our activities are varied and to a certain extent they become a matter of reacting to situations which arise. When the New York Times published an advertisement sponsored by the "Committee for a Sane Nuclear Policy," showing a milk bottle with a skull and crossbones, and implying that the milk supply might become poisoned as a result of nuclear testing, we immediately wrote the New York Times calling their attention to the fact that the advertisement libeled a product. We received an immediate reply in which the managing editor admitted a mistake in publishing the ad, offered to print an apology and undertook not to entertain similar ads in the future. We sent this letter for publication to Printers Ink, a newspaper trade association magazine, in the expectation that it might deter other papers from taking this type of advertising; and we have reason to believe that our hopes have been fulfilled to a considerable degree.

You may recall that the Herald Tribune ran a series of six articles last fall dealing with the "Diet and Heart Disease" subject. While trying to give the impression of dealing with the subject objectively, we were convinced that a needlessly slanted impression was being created. This impression was
bolstered by the fact that two of the six articles had ads about margarine, claimed to be made with polyunsaturated oils, placed immediately adjacent to the articles.

It so happened that the American Medical Association, shortly before this, had issued a release condemning self-imposed diets induced by the cholesterol scare, and pointing out that there might be a significant health risk in following diets which were not being medically supervised. We decided to take an ad in the Herald Tribune on the day the series was completed, reprinting the release by the American Medical Association which called the Heart Diet fall not only useless but possibly harmful if it was not carefully supervised. The release further advocated the use of four basic food groups in maintaining a healthy nutritional balance. One of the basic four is milk and other dairy products.

We also wrote to the Editor of the Herald Tribune questioning the propriety of placing an advertisement involving a product in juxtaposition to an editorial type of article relating to the same type of product. A reply from the editor admitted the impropriety of this practice, claiming an oversight or lack of coordination between the editorial and the advertising departments.

It is difficult to assess the value of our action in this situation in tangible terms but we at least afforded the readers an opportunity to get another side of the story which, if left unchallenged, could surely have done the dairy industry considerable harm.

The rather sudden and fairly large increase in the Iodine 131 content of fluid milk in several sections of the country last fall created a rather strong public anxiety. Even though our own supply was nowhere near as badly affected as were those throughout the middle west and southwest, concern was apparent and the cries of those who opposed nuclear testing did not help the situation. Since Iodine 131 gets into the milk as a result of cattle eating grass in pastures, one of the best ways of lowering the Iodine 131 level in milk is to put the herds on a program by which they would receive only those feedstuffs that had been stored sufficiently long to reduce the Iodine values below the danger point. (Iodine 131 has a half-life of eight days; thus, feed that has been stored about 20 days should be quite low).

We thought it advisable to anticipate the possibility of a bad situation and decided to formulate a plan which could be followed in case of need.

We organized a meeting of all interested parties which included a wide segment of producer representatives, state and local milk dealers' organizations and regulatory people from Federal, State and Local levels. The problem was fully explored and there was unanimous agreement that plans should be developed for imposing countermeasures if the Iodine 131 situation became critical in this area.

The first step called for the development of an information program for producers. If they were properly informed, it was felt that we could count on their cooperation.

The next step would involve the mechanics of determining when a critical situation would be declared to exist and who would make the determination. This would also involve a delineation of the areas involved in high-level contamination because it is conceivable that the fallout effect could be spotty rather than extensive.

Thereafter would come the mechanical task of notifying the producers in the affected areas about the need for going on a stored feed program and checking on the effectiveness of the producers' cooperation.

Consideration would also be given to a milk supply allocation program so as to be able to shift low level milk to areas in need and to divert highly contaminated supplies for manufacturing purposes, since storage brings about the discontinuation of the Iodine 131.

Details of the plan are not as yet completed but we are reasonably confident that as an industry, we will be able to give assurance to the public that we are prepared to supply them with milk which comes within the limits of acceptability for Iodine 131 as established by the Federal Radiation Council.

I have presented an outline of some of the recent major problems that have faced us and indicated some of the measures which have been taken to meet them. It is perhaps unfortunate that in many cases we do not know when the attacks may come and what their causes may be.

While we react to these attacks as promptly and as forcefully as we can within our ability and resources, we realize that we must approach our problems with a patient but continuing program of public education. Through objective presentations of facts, we hope will in the long run counteract the fly-by-night fad appeals and alarmist promotions.

After all, the high regard for the nutritional value of milk didn't just happen. Over the years man learned about the vital quality of milk proteins, of the part played by milk in providing a ready available source of calcium and phosphorus for building bone tissue and regulating some bodily functions, and of the importance of some of the vitamins which are found in milk. It is well recognized that milk has played a significant part in the healthful development of our people. We have a strong conviction that the basic values of milk will continue to be recognized by the American public.