

Sugar and the Synthetics

NEIL KELLY¹

I suppose there are many ways of looking at sugar as there are people in this room, but I shall mention only two extremes. On the optimistic side we can reassure ourselves that nothing has ever been able to replace sugar in mankind's diet. It remains overwhelmingly the most popular of sweeteners. No substitute has ever equaled its versatility and dependability, its quality and purity, its taste and flavor. As a food, it is cheap and plentiful. So sugar has been, is now, and always will be.

The other view is somber. It takes note of the expansion of facilities for producing synthetic sweeteners. It points to the prediction that one out of every seven bottles of soft drinks sold this year will be artificially sweetened. It points to the endless procession of new food products boasting their lack of sugar, to the steady drop in the price of major synthetic sweeteners, and to the forty-year plateau of per capita sugar consumption in the United States.

You can believe that everything is rosy with sugar, or that everything is dark. I do not suggest that you make a choice, because I don't intend to do so. Instead, I want to discuss with you today the actualities of sugar and synthetic sweeteners as the *consumer* sees them. We as sugar men need not panic about the future of this business, nor should we be complacent about its present position. The problems are insistent but not insoluble. But we should, as participants in the development of the industry, understand clearly where we are.

Now forget for the moment that you are associated with the beet sugar industry, and join me in looking at sugar through the eyes of a housewife as she walks through a good store. What's on *her* mind?

Tonight's dinner, probably. Meals for the week-end. Ways to save money. Ways to protect her family's health and well-being. Does she give much attention to the displays of sugar? I think she does, because sugar packaging is becoming more and more attractive, and sugar is an essential in any normal household. Yet, she also notices a new breakfast cereal, pre-sweetened with a synthetic and brightly marked SUGAR FREE. Around the corner, a mountainous stack of diet drinks shouts

¹ President, The Sugar Association, Inc., New York, New York. An invitational paper presented at the meeting of the American Society of Sugar Beet Technologists, Minneapolis, Minnesota, February 23, 1966.

NO CALORIES. Here on the shelves, four or five different brands of synthetic sweetening agents—in drops, pellets, cubes, granules, in boxes, in bottles, in jars—all labeled, NO CALORIES, NO AFTER TASTE.

But our shopper is still half-a-store away from the checkout counter. More brain washing is to come. She still has to pass the no-calorie, low-calorie jams and preserves, the diet crackers, the minimum-calorie ice cream, the weight-saving candy, the low-calorie salad dressings, the canned vegetables, tuna fish, canned fruits, soups, mayonnaise, seasonings and flavorings that promise her that happiest of dietary experience: *eat—but stay thin . . . eat—and get thin.*

Yet these are illusions, nothing more. On my desk at the office is a 450-page volume containing 73 scientific reports on weight reduction by every means under the sun, using drugs, juices, formula diets, pills, synthetic sweeteners or even starvation. The sum total of these dietary efforts is that most dieters just don't lose weight. And when they do knock off a few pounds, the chances are that they'll put it back on again within a reasonably short time.

Dieters get tired. Diet foods, by and large, are more costly than ordinary food. And even when they demand no premiums in price, they almost always lack the flavor and satisfaction of sugar-sweetened foods. So-called sugar substitutes provide absolutely no nutrition, no food value, no energy-replacement. Moreover, we eat for human values as well as for nutrients—for pleasure and companionship as well as for tissue-building. Sugar needs no apologies.

I don't have to tell you that there is nothing surprisingly new about chemical sweeteners. Saccharin was discovered about 90 years ago, and for many, many years it has been used by diabetics. Saccharin's unpleasant after-taste has always been a handicap to its general use, even though it is some 300 times sweeter than sugar. About 15 years ago a new and more aggressively-promoted synthetic was introduced and it is this product that has made possible the less distasteful diet beverages and the present flood of low-calorie foods.

This chemical is calcium (or sodium) cyclohexylsulfamate, commonly called cyclamate. It is 30 times sweeter than sugar. But when nine parts of cyclamate are mixed with one part of saccharin, the sweetness is additive, while the after taste of each seems to be reduced. This nine-to-one combination is marketed under such trade terms as Sucaryl, Sweet-Ten, Sweeta, and the like. A pound of it is equivalent in sweetening power to 57

pounds of sugar. The current price of the mix is 64¢ a pound wholesale. Remember that figure. If sugar had to compete with the synthetics on the basis of price alone, it would have to sell at a little more than a cent a pound. I won't try to translate the cent-a-pound figure into the price of a ton of beets in, let's say, the Red River Valley. It's too grim. But price, as you know, is only one factor in choosing a sweetener for table or kitchen use or for industrial food production. The synthetics simply cannot produce in other foods the qualities and attributes imparted by sugar.

Some non-chemists, myself included, have been known to refer to the synthetics as "coal tar derivatives." The largest manufacturer of the cyclamates objects to the term and describes his product as "a synthetic organic chemical manufactured from other synthetic chemicals." The chemicals used to make it are obtained—so one manufacturer says—from "petroleum and minerals." If that description is an improvement on "coal tar derivatives," I'm willing to accept it. It still sounds nauseous to me.

Do we in the sugar business have a bone to pick with cyclamates? We certainly do. Not because they're cheap, not because they are being insistently promoted as sugar substitutes, *which they are not*, but because the nature of the claims for cyclamate go beyond the limits of good sense and good nutrition.

I have already mentioned that artificial sweeteners just don't work. They don't take off weight directly, of course, and they don't help people lose weight significantly, or permanently. I have referred to the scientific evidence on this point. I want to mention, specifically, one more authority. This is the Food and Nutrition Board of the National Research Council--National Academy of Sciences. This Board's Policy Statement on Artificial Sweeteners has this to say:

"There is no clear justification for the use of artificial sweeteners by the general public as a weight-reducing procedure, even though sweet-tasting food is recognized as giving a psychological "lift" to many individuals, and even though the substitution of a non-nutritive sweetener for sugar does decrease the calorie content of the food in question. It is emphasized strongly that the availability and consumption of artificially sweetened foodstuffs have no direct influence on body weight, nor are the foodstuffs in question of any importance in weight-reducing programs except as they are used in feeding regiments in which the total intake is supervised and controlled."

The dieter who winds up her meal by slipping a synthetic into her coffee, even after a dessert of low-calorie canned fruits, is not, I assure you, on a "feeding regimen in which the total intake is supervised and controlled." She is more likely on a kid-yourself regimen, despite the slim-waisted illustrations in the "sugar-free" advertisements.

I may inadvertently have given you the impression that losing weight is close to impossible. That is not so. Experts in nutrition, researchers in foods and physical growth, physiologists and physical chemists agree that weight *can* be controlled, but almost always by a relatively simple formula: eat a little less, exercise a little more. Normal persons whose intake of food is lower than their physical activity—lower in calories, that is—will lose weight. And the use of sugar is perfectly compatible with a weight reducing diet.

Eight months ago the United States Food and Drug Administration announced that cyclamates could be considered safe at present levels of consumption. Yet this point—the safety of the cyclamates—remains a subject of debate. There is evidence that cyclamate sweeteners deserve closer attention than this FDA clearance might suggest. We are not alone in thinking so. Not too long ago an important publication in the field of drugs and therapeutics, the non-profit "Medical Letter," urged that studies should be undertaken on the effects of the sweeteners on the human fetus and in persons with chronic disease. What "The Medical Letter" demanded was a reappraisal of the toxicology of cyclamates, in pregnancy and lactation, and in sick persons as well as healthy. Other publications with no ax to grind have made similar requests, on similar grounds.

For the past two years the Sugar Research Foundation has been sponsoring a detailed study of the physiological effects of the cyclamates. This study is being conducted at the Wisconsin Alumni Research Foundation. Perhaps you saw news accounts of the first report on this work. They were published last October and they received a good deal of attention. What the researchers found was that cyclamates impair the growth of experimental animals and stunt their young.

Test rats that received 5 percent cyclamate in their food grew 12 per cent less than animals on a normal diet. When the proportion of cyclamate was raised to 10 percent, impairment of growth increased to 20 percent. Was this the result of lower food intake? Not at all. Animals with cyclamate in their diets could eat as much as they wished. And they ate more of their ration until they consumed just as much, from a nutritional point of view, as the control animals. Since the test animals

and those on normal diets received equal nourishment, the scientists concluded that the impaired growth of the test animals was caused by the chemical sweetener.

Whether these effects result from the chemical itself or from interference in the gastrointestinal tract remains to be determined.

Diets of 5 percent and 10 percent of cyclamate are certainly not what might be called normal intake. Cyclamate manufacturers were quick to make this point in commenting on the Wisconsin work. But the tolerance that is permitted food additives for use by man is well defined in this country. The rule of thumb is that an additive must be limited in foods to one-one hundredth of the amount at which it is safe in test animals. Anyone on a 1200 calorie a day diet who drinks two 12-ounce bottles of cyclamate sweetened beverage exceeds this rule of thumb. He is consuming the cyclamate at a rate of more than 1 per cent of total intake of food.

The study of the cyclamates is being continued at the Wisconsin Alumni Research Foundation, and we have placed new studies at the Albany Medical College in New York State and at the Huntingdon Research Centre in England. Sooner or later we're going to have the answers, based on observed facts, checked and rechecked.

The chemical producers and diet food manufacturers have spent staggering millions of dollars to promote their products as health foods and, by insinuation if not by direct statement, to imply that sugar should be avoided. They have not had their own way, for there are two sides to the argument and we have not hesitated to spell out the known facts of adequate nutrition and diet sanity. Sugar's own campaign, we have good reason to believe, has been making a dent in public attitudes toward the synthetics.

What have we been saying? How have we been saying it? I want to spend most of my remaining time discussing these matters. And I will be happy to answer your questions at the end of this period.

First, the organizational base of our efforts. The beet sugar industry showed foresight and industrial statesmanship, twenty-three years ago, when it joined with cane sugar producers in an all-industry association for the purposes of research and information. Today, the Sugar Research Foundation sponsors a widespread series of studies into the uses and effects of sugar in food products and in non-foods, as well as the work on synthetics.

Side by side with our research activities is Sugar Information, Inc.—conducting a day-in, day-out program of advertising, publicity, publications and public relations that serves three purposes: 1) Sugar Information takes the findings of Sugar Research Foundation, adds to them other appropriate data, and brings the results to the attention of editors, writers and publicists in many areas. 2) Sugar Information carries on a continuing campaign to tell sugar's story to the general public. 3) Sugar Information serves to provide basic facts about sugar to students, schools, and publications that seek authenticated materials about our industry and its products.

So much for what we do, in general. More important, how have we been doing it? If you are a reader of *Life*, *Time*, *Good Housekeeping*, *Ladies Home Journal*, *McCall's*, *Redbook*, *Parents' Magazine*, *Look*, *Better Homes and Gardens*, or *Seventeen*, then you have seen Sugar Information's advertising. We've been telling important things about sugar to the readers of these publications, and before the present schedule is completed we will have reached more than three quarters of the homes in the United States at least 14 times.

Ambitious as this advertising program may seem, it is far from matching the combined promotional impact of the chemical plants, food processors, bottlers and retailers who have been attempting, with some success, to make "diet foods" a staple household commodity. Their advertising outlets are not only magazines and major newspapers but also network television and radio, store displays and trade promotion.

Sugar Information's advertising is also aimed at the industrial publications that are read by our customers and prospects. We beam our message to the beverage people, the candy people, the bottlers and canners. We try to produce, through our advertising agencies, copy that will be memorable, and that will make readers stop and think. Yet we try to be light hearted. Some of these ads have been singled out for their creative excellence and power.

We are also engaged in a public relations program that takes many shapes, for we are trying to reach and influence many sections of the public. One part of this program is aimed at home economists. Another part is concerned with teachers and teaching aids. A third section concentrates on editors of food pages, writers of syndicated columns, medical and science writers. We also try to reach some publications "across the board"—as in the case of the Wisconsin work. We try to establish acceptable communications with women—as home-makers and consumers.

as members of clubs, as those who are responsible for what the family eats and how it stays healthy.

Perhaps you have seen our recent publications? They're getting around. Our newsletter to home economists and editors—"The Sugar Slant"—is now recognized as one of the soundest, most readable of industrial publications in the field of diet and nutrition. We send it not only to home economists in schools, universities, government posts, extension service, and industry, but we're also getting requests for bulk shipment to food processors. Our consumer booklet on sound dieting for weight control is in constant demand. Not a day goes by, without requests from 4-H Clubs, adult health classes, high school teachers, women's clubs and newspaper readers. Our handbooks on *why* you use sugar in cooking and baking, entitled "Add Sugar," has been called "the best single publication on the subject you can find anywhere." Who wants it? College and high school teachers. Newspaper editors and industrial food consultants. And just plain housewives—if there is such a thing.

You may think that such a variety of activities, in so many directions and for so many purposes, would be a tough and complicated program to ride herd on. As a matter of fact, however, it is remarkably coherent. The parts fit neatly into a pattern. The reason is that there are basically only two themes in our information efforts. *One is that sugar is a good thing.* It is a major source of food energy, it makes life more pleasant, and it serves many purposes besides that of a sweetener. *The second is that synthetic sweeteners should be looked at critically,* and not casually accepted as part of the dietary landscape. Our advertising and public relations work stress four important reasons—four basic facts—for closer scrutiny of synthetics. One, they can't take off weight. Two, they have no food value. Three, all they can contribute to cooking and baking is sweetness, nothing more. Four, their ultimate safety is still open to question.

We intend to keep these facts squarely in front of the American public and American industry.

That's our job. And I've enjoyed telling you about it.
