Fight over Proposed Saccharin Ban Will Not Be Settled for Months

It was bound to happen sooner or later. As it turned out, it happened on 9 March. The Food and Drug Administration (FDA), which for years has been reviewing studies of the safety of saccharin, finally had—courtesy of Canadian scientists—"definitive" data indicting saccharin as a potential carcinogen. And so, the FDA declared that saccharin has to go. It is going to ban the only artificial sweetener in America—if America will let it.

Predictably, the proposed ban on saccharin has stirred public furor the likes of which have not been seen since the late 1960s when the agency threatened to restrict the sale of vitamins. But Americans like their vitamins and successfully fought the government's efforts to take them away. So it is with saccharin—apparently one of the most popular products around—or so the public outcry against a saccharin ban would suggest.

In Washington, where congressmen and Administration officials have been getting hundreds of letters, telegrams, and phone calls every day, response to the FDA's proposed action has varied, but one can detect a fairly consistent attitude beneath most reactions: people simply are not prepared to believe that saccharin, which has been around for 80 years, might really cause cancer in human beings just because it produced bladder tumors in a few rats that consumed the sweetener in staggering quantities. Representative Andrew Jacobs spoke for the multitudes when he suggested that the whole issue could be taken care of by simply putting the following notice on diet colas and other saccharin laden products: "Warning: The Canadians have determined that saccharin is dangerous to your rat's health."

In the Canadian study, which was carefully designed to avoid all the criticisms that have been leveled against earlier experiments, saccharin, at a concentration of 5 percent of the total diet, was fed to two groups of 100 rats each. Another group of 100 rats served as controls. Opponents of the FDA ban delight in pointing out that a person would have to drink about 800 12-ounce bottles of diet pop *a day* for a lifetime in order to consume equivalent amounts. It is said one would drown first. That catchy but irrelevant criticism obscures the point of toxicological testing which routinely relies on giving small groups of animals large dosages of whatever is being studied. The reasoning is that if a large dosage causes tumors in a significant number of animals during the course of their short lifetimes (compared to human beings), a smaller dosage over a longer period can be expected to cause tumors in some people.

Of the test rats, 3 of the first 100 developed bladder tumors and 14 of the second 100 developed bladder tumors. The second group was made up of offspring of the first, thus those animals were exposed to saccharin in utero in addition to being fed it after birth. This has led some researchers to worry that saccharin might be particularly hazardous if consumed by pregnant women, but the data are not unequivocal.

There is, at present, no direct evidence that saccharin causes cancer in humans. But, as David P. Rall, director of the National Institute of Environmental Health Sciences, told *Science*, when one looks at the data that have been accumulated from animal experiments over the years, there is plenty of reason to doubt that saccharin is safe. It is not just the Canadian study. "In practically all of the studies that have been done, including those in which animals were fed saccharin at much lower dosages than in the Canadian study, you find tumors in more of the saccharin-fed animals than in the control," he noted, adding that people would not necessarily have to drink ridiculous quantities of Diet Cola in order to expose themselves to potential risks. "It may be," he said, "that drinking just a couple of bottles a day may be risky for some people. FDA certainly should get saccharin out of diet pop."

The saccharin issue brings before the public a long-standing debate within the scientific community about the nature of the country's food and drug laws and the way in which they should be administered at a time when, as former FDA Commissioner Alexander M. Schmidt said recently, "Our scientific capacities

Cancer Society Takes Pro-Saccharin Stand

Sarasota. The American Cancer Society (ACS) has joined the fracas over saccharin and cast its lot with those who want the artificial sweetener to stay. ". . . As a major voluntary health agency whose primary responsibility is cancer, the American Cancer Society is vitally concerned with the general health and well-being of the public. Saccharin is of great value in dietetic food, used to help control diabetes and obesity, which afflict tens of millions of Americans and pose more immediate danger than the possible carcinogenicity of saccharin. Banning saccharin may cause great harm to many citizens while protecting a theoretical few," society president R. Lee Clark declared at the ACS' annual writers' seminar here. Acknowledging that the Food and Drug Administration acted "properly" under the law in proposing to ban saccharin, Clark, who is head of the M. D. Anderson Hospital and Tumor Institute in Houston and a member of the President's Cancer Panel, went on to say: "The Delaney Amendment has served the public well but, as more sophisticated and quantitative technology becomes available, issues of dosage, cost-benefit, risk-benefit, and the predictability of animal data to potential impact in people must be further and better evaluated." Clark emphasized that "there is no evidence that saccharin causes cancer in humans" and took the position that it is definitely of great medical benefit.

The society's pro-saccharin statement and Clark's categorical remarks came as something of a surprise to scientists attending the seminar. They were challenged directly by Nobel laureate David Beltimore of the Massachusetts Institute of Technology. "It's necessary for organizations like the American Cancer Society to be watchguards, and I don't think the statement they issued fulfilled that responsibility. Any implication that animal studies are not predictive of human beings leaves one in the extremely unfortunate situation of saying there's no way to know what is carcinogenic to human beings. I think the animal studies are as good as we have for predicting carcinogenesis in human beings and we have to go with them. To undermine the reliability of those tests, even in one situation, is an extremely dangerous precedent," Baltimore said. The ACS, however, stands by its statement.—B.J.C.

to detect chemical residues have in many cases outstripped our scientific ability to interpret their meaning." Similarly, there are questions about the interpretation of the Canadian data and their applicability to man.

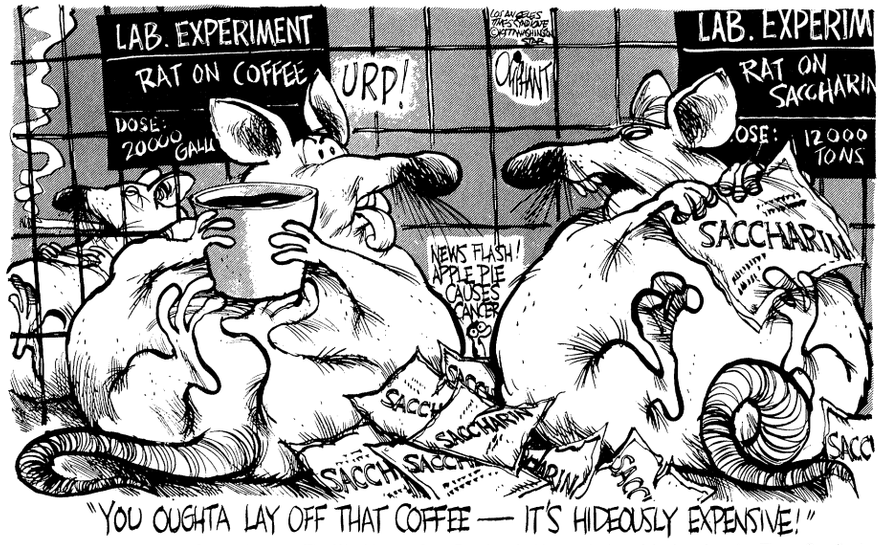
Under particular attack in the present situation is the "Delaney amendment" (1958) to the food and drug laws that says "no additive (saccharin is a food additive) shall be deemed to be safe if it is found to induce cancer when ingested by man or animal, or if it is found, after tests which are appropriate for the evaluation of the safety of food additives, to induce cancer in man or animal." The amendment is absolute, allowing for no extenuating circumstances or consideration of benefit versus risk.

(Artificial sweeteners are by no means the only substances of potential benefit to come under the shadow of the Delaney clause. There are some data, for instance, that suggest vitamin A can cause cancer, though it clearly is necessary to human health. The FDA would be in an even worse bind were it to find that data incontrovertible.)

Oddly enough, the Delaney amendment is not the only thing at issue here. As acting FDA Commissioner Sherwin Gardner said in testimony before a House oversight hearing held by Representative Paul G. Rogers (D–Fla.), chairman of the health and environment subcommittee, "There is a very good possibility that the FDA would have banned saccharin even without the requirement of the Delaney clause." It is persuasively argued that under its general powers to protect the public from adulterated foods and drugs the agency could ban saccharin on the basis of the Canadian evidence of its carcinogenicity. Therefore, the question is raised about why FDA elected to make such a point of the Delaney clause, why it is making that amendment a symbol of the complex scientific dilemma Schmidt described.

One possible answer is that some FDA scientists are deliberately trying to force Congress to reconsider the amendment. There is no doubt that by invoking the Delaney amendment, the FDA put itself in the position of having to ban saccharin. Nor is there any doubt that the agency fully anticipated the public outrage that its proposed ban has elicited.

Politically, it certainly makes sense to link the Delaney amendment to saccharin if one wants to get public and congressional support for a reevaluation of the law. Were a less ubiquitous, less popular chemical about to be banned, one can safely bet the FDA would win points for protecting a cancer-conscious



Oliphant cartoon strikes note of much public comment on saccharin decision.

nation from an environmental hazard. Thus, in most cases, any move to modify the Delaney clause would look like a vote *for* cancer. But when it is diet cola that is at stake, things look different. In fact, there is some concern that popular demand for saccharin is so great that Congress will overreact. In any case, it is clear that Congress is reacting. Already there are several bills before the House, in addition to Jacobs' facetious one for a warning on behalf of rats. Some of them would overturn the Delaney amendment altogether, something most scientists and FDA officials oppose. Others would simply grant saccharin a special exemption to the amendment, which would preserve the sweetener—if that is desirable—but avoid the more basic issue. Still other bills offer amendments to the amendment, modifying it in some way to allow the FDA a little discretion in its application. It is the proposals to amend the amendment that are likely to receive the most serious attention in the House where Rogers has made it plain that even though his subcommittee rushed to hold a hearing, there will be no precipitate changes in the law one way or the other.

The Senate, for its part in the saccharin cause, opted not for a hearing but for a study. Senator Edward M. Kennedy (D–Mass.), chairman of the health subcommittee and the technology assessment board, has asked the Office of Technology Assessment (OTA) to undertake a thorough study of the situation. "We badly need the kind of careful, objective and balanced assessment which the OTA has agreed to undertake," Kennedy said in announcing the study which must be completed within 60 days. (In that amount of time, OTA will be lucky if it can manage to assemble all of the relevant experiments, analyses, and assessments that already have been made during the past 6 or 7 years, not to mention those dating from the first decade of this century.)

Specifically, OTA has been asked to:

- Determine the validity of applying data from animal experiments to human beings.
- Evaluate and quantify, if possible, the potential risk that saccharin poses to human beings.
- Assess the potential benefits of saccharin, especially to diabetics, persons with heart disease, obesity, or other medical problems.
- Report on the potential availability of alternative artificial sweeteners.

There is not one of those questions that has not already been addressed. Nor is there one to which the OTA will get a consensus. However, some answers can be predicted. To the first question it will be said that we cannot be *certain* that something that causes tumors in rats will cause tumors in man, but it is reasonable to make the extrapolation. Assuming that the rat data do apply to people, statisticians will say that the risk cannot be quantified but can be said to be small but real.

The need for saccharin will be hotly contested. What reviews have been made of matter suggest that whereas it is not *necessary* for the care of patients with diabetes or other disorders, saccharin (or some form of artificial sweetener) certainly has some value in making life more tolerable from a dietary point of view. (On the other hand, one must acknowledge that when it comes to general use, the world is full of persons whose "diet" consists of coffee with Sweet N' Low and lemon meringue pie.) In addi-

tion, saccharin is used as an additive in many prescription drugs which, pharmacologists say, would have to be "reconstituted" were the sweetener to be prohibited.

As to alternatives to saccharin, it is safe to say that none is available right now. However, Abbott Laboratories, maker of cyclamates which were banned in 1969 on the basis of data showing they cause tumors in rats, has been trying for years to get FDA to allow them on the market again. Abbott claims, and many scientists tend to agree, that the data supporting the cyclamate ban were tenuous at best, and the company very likely would be happy to get back into the artificial sweetener business. Another big drug house, G. D. Searle & Co., is ready and willing to bring something called "aspartame" to the market. A company press release dated 17 March declares that "Aspartame may be low-cal substitute for saccharin." But the FDA is not too sanguine about aspartame and has stayed its approval pending a review of Searle's animal data. In fact, Searle and the FDA have been debating the aspartame question since 1974 and, at the request of FDA, Searle has agreed "in principle" to pay for an independent review of its own studies. Searle understates the case when it says, "The company is unable to estimate when this review will begin or be completed." One can be sure that aspartame will not be on the market any too soon. Chemicals extracted from the rinds of oranges and grapefruit have been discussed recently as new artificial sweeteners but, because of their fruity taste, they would have limited application even if they were fully developed and accepted by the FDA. So one must conclude that a ban on saccharin really means an end to artificial sweeteners for the time being at least.

Whatever happens to saccharin, one thing is sure. There will be no ban until July at the earliest, so there is plenty of time to stock up. What the FDA said in its 9 March announcement is that it is setting in motion all the legal machinery necessary to issue a ban. In effect, it gave everybody advance notice of the fact that it will publish its proposal for a ban in the Federal Register some time in mid-April. After that, the "public" has 60 days in which to comment, arguing for or against the agency's position. Then, FDA must review the information it has received and, only after that, can it force saccharin products off the shelves. It is not foolhardy to speculate that the 60 day period for comment might be extended and the debate will rage on for some months before things are settled. As Washington *Post* writer Tom Shales wryly observed in a recent column, "The FDA has opened a Pandora's box and fallen into a fine kettle of fish." But not by accident.

—BARBARA J. CULLITON

Solar Energy Research Institute: Grumbles About a Change in Plans

The Energy Research and Development Administration (ERDA) has picked a contractor and initial site for the Solar Energy Research Institute (SERI) amid grumblings that the new facility will be little more than a "captive organization" whose effectiveness may be diluted because last-minute political maneuvering resulted in a plan to build several regional SERI's to supplement the central facility.

The contractor chosen to establish and operate the central facility is the Midwest Research Institute (MRI), headquartered in Kansas City, Mo., which submitted a proposal in cooperation with the State of Colorado. MRI will launch initial operations in leased office space near Golden, Colo., just west of Denver, and is prepared to establish a permanent facility, if such is approved, on 300 acres of land on nearby South Table Mountain. The proposed permanent site is owned by the state, which has agreed to deed it to the federal government without cost in an effort to snare the coveted research plum.

The choice of MRI was the end result of an arduous evaluation and selection process carried out by ERDA over much of the past year. The agency received 20 formal proposals. One was quickly rejected as unresponsive to many of the requirements; the other 19 were subjected to detailed review, including oral and written communications and visits to each of the proposed sites.* The evaluations were conducted by a Source Evaluation Board of ERDA personnel, headed by Raymond Fields, which scored each proposal on the basis of its overall management plan, key personnel, and manpower resources. The board was unanimous in rating the Midwest Research Institute–State of Colorado proposal as best, and ERDA's acting administrator Robert Fri, who was officially responsible for the final decision, stated: "After careful consideration, I agree that the MRI-Colorado proposal is the best."

So far as is known, the selection process was conducted thoroughly and fairly. None of the original proposals or ERDA's evaluations of them has been made public, and therefore even the other contenders have no real idea how good the winning proposal was. But Fields says the selection board felt no political pressure whatever to decide the issue on any basis other than merit. And at least one of the runners-up concedes that the judging was fair. Says an aide to Senator Edward M. Kennedy (D–Mass.), who lobbied hard to get the prize for New England, "Naturally, we were disappointed. We understand we were in the running until the very last minute. But there's every evidence it was a fair, objective decision. There's apparently wide agreement that Midwest Research Institute

*The 18 final competitors, in addition to MRI, were: Battelle Memorial Institute of Columbus, Ohio, teamed with the State of Arizona; Corporation for Solar Energy, sponsored by the California Energy Resources, Conservation and Development Commission, Berkeley, California; State of Georgia for Solar Consortium, Atlanta, Georgia; Icarus Corporation, sponsored by The City Council, City of Wilkes-barre, Pennsylvania; Purdue University in cooperation with the State of Indiana; Solar Research Management Corp., Lockheed Missiles & Space Company, Inc., of Palo Alto, California, in cooperation with the State of Florida; Michigan Energy and Resource Association of the State of Michigan, teamed with Bendix Corp., Lansing, Michigan; National Solar Energy Research Consortium, Inc., Washington, D.C.; National Solar Energy Research Institute, Inc., Minneapolis, Minnesota; Nebraska Energy Research Corp., Lincoln; State of New Jersey, Trenton; Solar Energy Research Institute of Boston, Massachusetts, on behalf of the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; Southwest Research Institute, San Antonio, Texas; Stanford Research Institute of Menlo Park, California, teamed with the State of New Mexico; System Development Corp. of Santa Monica, California, teamed with the El Paso Regional Solar Energy Task Group; Thermo Electron Solar Huntsville Corp., Huntsville, Alabama; University City Science Institute, Philadelphia, Pennsylvania; Department of Natural Resources, State of Utah, Salt Lake City, Utah. The competitor who was dropped early in the game was Goodrich-Bartlett & Associates, of Las Cruces, New Mexico.