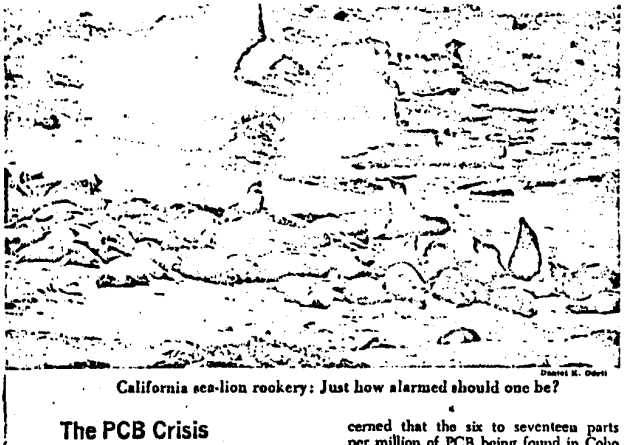

Daniel K. Gotti

California sea-lion rookery: Just how alarmed should one be?

The PCB Crisis

For the past several years, the pesticide DDT has been Public Environmental Enemy No. 1. It has been blamed for the decimation of a score of bird species, suspected of causing cancer in humans, and damned for disrupting the balance of nature. But now it appears that some of this damage may actually have been inflicted by a class of liquid chemical look-alikes that are used in a variety of consumer goods and industrial processes: theso are polychlorinated biphenyls, or PCB as they are known collectively.

PCB has an amazingly wide range of industrial uses. Manufacturers of inks and pesticides use it as a solvent or additive, producers of sealants use it to make their product less brittle; because the compound can withstand very high temperatures, it is also used as a coolant in industrial transformers. Other products whose manufacturing process make use of PCB include automobile tires, brake linings and paints.

Recently, because of the current interest in recycling waste products, the compound has been showing up in increasing amounts in cardboard packages made from discarded paper and other printed matter whose inks presumably used PCB as a solvent. Already, U.S. Food and Drug Administration investigators have found PCB in 36 of 60 sampled boxes containing such diverse foodstuffs as breakfast cereals, crackers and bread crumbs, macaroni and noodles, snack chips, chocolate, cocoa and dried-milk products.

The chemical has also been found in commercial poultry and wildlife; in the past three months, some 50,000 turkeys, 80,000 chickens and 60,000 eggs have had to be destroyed because they contained PCB levels far in excess of the federally allowable standard of 5 parts per million. In Michigan, tourist and sports-industry entrepreneurs are concerned that the six to seventeen parts per million of PCB being found in Coho salmon may discourage people from coming to that state—and spending money in quest of the fish. In California, investigators claim to have found a correlation between high levels of PCB in adult female sea lions and aborted fetuses; about 1,000 aborted pups have washed up on California shores over the last two years.

Interestingly, PCB is not a wonder chemical of the postwar chemical boom. The odorless, colorless and virtually nonflammable chemical was first identified in 1881 and has been mass-produced by the Monsanto Co. in the U.S. since the 1930s (it is also manufactured in large quantities in four other nations—France, Germany, Japan and the Soviet Union).

Samples: Then in 1966, Swedish chemist Sören Jensen used a gas chromatograph (an instrument that can separate complex chemicals into constituent parts) and made the first identifications of PCB in tissue samples of fish and birds and in human hair. Two years later, five Japanese died after eating food cooked in an oil heavily laced with PCB, and in 1970, after 1/6,000 New York State chickens had to be destroyed because of PCB contamination, scientists began taking another look at the substance. "It's possible," says Dr. Milton Friend, a research biologist at the U.S. Fisheries and Wildlife Center in Denver, "that much of the environmental contamination once attributed to DDT has actually been caused by PCB, or PCB in combination with DDT." He was quick to add, however, that DDT remains definitely on the list of dangerous contaminants.

For the moment, the FDA said, there is no indication that PCB in the containers is contaminating the contents. The FDA thinks that probably the only way humans could be afflicted by the chemical would be by consuming inordinately large quantities of animal or vegetable products that had somehow absorbed PCB through their own food chains. The 80,000 chickens destroyed a few weeks ago, for instance, got their PCB from contaminated fish meal.

Inevitably, the emergence of PCB as a new source of hazardous pollution made for some headlines, but the FDA seemed to feel that the crisis was minimal. "Public confusion has created public alarm and a feeling of still another crisis in the food supply," said FDA administrator Dr. Charles Edwards. "I know the confusion is unnecessary and I believe the alarm is greater than the facts will justify."

But by no means everyone agreed with this assessment. "Unfortunately," said Rep. William F. Ryan, Democrat of New York, in introducing a bill that would ban PCB, "the FDA seems to be more concerned about the image of American industry than the level of public knowledge of its food supply." Meanwhile, a number of scientists made it clear that they are worried about both the short- and long-term effects of PCB. They point out that large doses of the chemical can be fatal and that lesser amounts are known to result in acne, impaired vision, abdominal pains and liver ailments. Laboratory tests with animals have also given rise to fears of genetic defects in future generations.

Doves: In one experiment conducted with ring doves, Cornell University scientists discovered an unusually high rate of embryonic deaths in the second generation of birds raised from a colony of PCB-fed doves. And in another experiment carried out by the U.S. Fisheries' Milton Friend and Dr. Daniel O. Trainer, dean of the University of Wisconsin's College of Natural Resources, ducklings were given food containing varying amounts of PCB. When later exposed to duck hepatitis, the PCB-fed ducklings had mortality rates three to five times greater than a control group of PCB-free ducklings. The researchers concluded that the sub-lethal doses of PCB sharply reduced the ducklings' natural body defensive mechanisms against disease.

For its part, Monsanto says it has discontinued sales of PCB to users for whom suitable substitutes could be found. But for some heavy-duty industrial applications (notably as an insulator in capacitors), no alternate compounds have proved satisfactory, and so PCB continues to be used. As a result, public confusion and apprehension about the compound seem likely to continue. At one point last week, Edwards and other FDA officials insisted that an outright ban on PCB would not be feasible.

They then were startled when told by reporters that a voluntary ban has been in force in England since March. "I hate to say this," said one FDA scientist later in private, "but PCB is everywhere. And we really don't know if we should – or should not—be alarmed."

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