THE SPREADING MENACE OF PCB

New reports make it clear that the presence of this man-made chemical in food and water is a nationwide peril demanding quick action, not sneppy-patter routines by some hesitant bureaucrats by ROBERT H. BOYLE

There was ironic laughter in the coffee shop of Chicago's Pick-Congress Hotel last Friday when Nathaniel P. Reed, Assistant Secretary of the Interior for Fish and Wildlife and Parks, glanced at the menu and said, "Ah, fresh salmon sandwich!" Only an hour before, at the concluding session of the National Conference on Polychlorinated Biphenyls (PCBs), Reed had delivered a blistering speech on PCB contamination of fish, including Great Lakes salmon.

"The problem is a national problem," Reed had emphasized to some 400 scientists, bureaucrats and conservationists. "I am deeply shocked by the pervasiveness of PCBs; they are literally everywhere. I am very troubled by the exceedingly high levels found in fish in all our drainage systems, and I do not mean just the Hudson and the entire Great Lakes system, but the Merrimac and Connecticut rivers of the Atlantic Coast, the Mississippi and Ohio rivers of the Midwest, the Columbia River system in the northwest, the Sacramento in the West, the Rio Grande and other Gulf Coast streams . . . even the Yukon in Alaska."

Reed called for the elimination of all sources of PCBs in the U.S. environment within three years. With a candor unusual for a federal official, he criticized the sponsor of the conference, the U.S. Environmental Protection Agency, which has done little protecting, and the U.S. Food and Drug Administration, which has established a "tolerance" level of five parts per million of PCBs in fish for human consumption.

"Quite frankly," Reed ended his speech, "I am thoroughly disgusted by the gnashing of teeth, wailing and rubbing of hands. To the agencies which have the enforcement responsibilities, a word on behalf of the bewildered but concerned American people—*get on with it!*"

PCBs are chlorinated hydrocarbon compounds used by industries throughout the world because of their resistance to heat. More durable than DDT, PCBs are a proved menace to animal organisms, ranging from invertebrates to man (SI, Sept. 1). In 1968 an estimated 1,200 Japanese came down with *Yusho* disease after using rice oil heavily contaminated with PCBs. The clinical effects included stillbirths, undersized infants, bone and joint deformities and various neurological disorders including loss of libido.

In this country, in a recent experiment on laboratory rats, PCBs caused liver cancer. Last week in Chicago the scientist in charge of that experiment, Dr. Renate D. Kimbrough of the U.S. Public Health Service, delivered a paper in which she warned, "Because of these findings in experimental animals, ingestion of PCBs in humans must be curtailed." The EPA estimates that about half the American public now carries around with it from one to three parts per million of PCBs in its fatty tissues.

Another speaker at the Chicago meeting was Dr. James R. Allen of the University of Wisconsin Medical School, who fed eight female rhesus monkeys a diet that included 2.5 ppm of Aroclor 1248 (one of the nine trademarked PCB compounds made by the sole domestic manufacturer, Monsanto Industrial Chemicals Company) for six months. They were then bred to normally fed male rhesus monkeys. Two females resorbed their fetuses, one suffered a stillbirth, and the five infants born were all undersized. Two of the infants died while nursing. The three survivors are now eight months old, and although they have been on a PCB-free diet for four months, preliminary observations by Dr. Diane H. Norback, a colleague of Dr. Allen, indicate that the youngsters are hyperative.

The PCB problem, which has been growing for years, began to receive nationwide attention last summer when Ogden R. Reid, commissioner of the New York State Department of Environmental Conservation, warned the public against eating striped bass from the Hudson River or salmon from Lake Ontario. Reid issued his warning after receiving a report from EPA scientists who noted that two General Electric plants at Hudson Falls and Fort Edward were discharging at least 30 pounds of PCBs per day into the river. In September, Reid brought action against G.E. to force the company to reduce its discharge to two pounds a day by Dec. 31 and to zero by Sept. 30 of next year. The action is now before a state hearing officer, and G.E. is contesting it all the way. It is worth noting, however, that in response to a state interrogatory before the hearing began, G.E. admitted, "During the past 15 years, 49 employees have reported to the dispensaries complaining of allergic dermatitis, diagnosed as having been caused by contact with PCBs."

No one really knew that PCBs were present in the world environment until 1966 when Sweden's Dr. Soren Jensen isolated and identified the compounds that had been baffling researchers working on DDT residues. PCBs were then commonly used in a wide variety of everyday products, such as paints, sealants and caulking compounds. In 1971 Monsanto announced it would restrict sales of PCBs to use in so-called "closed cycle" systems, such as capacitors and transformers. U.S. industry turns out more than 100 million capacitors a year, including those for home air conditioners. When junked, such an item is commonly taken to a dump, where the chance exists that PCBs can leach through the soil to bodies of water. In western New York state several companies have been draining PCBs from old transformers, mixing them with crankcase oil and selling the gunk to municipalities to put on roads as a dust suppressor. There is also a report the PCBs have been spread on airport runways in Maryland to prevent skidding in wet weather.

Beyond such practices, there is the danger that transformers can rupture or leak. According to EPA records available in Chicago, a transformer leak occurred on April 16, 1974 on a railroad train running between Philadelphia and Paoli, Pa. From 10 to 100 pounds of PCBs were spilled. The same type of spillage oc-

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curred on July 5 of last year from a transformer leak in Stamford, Conn.

On March 8, 1973, a truck developed a leak in Kingston, Tenn., and 630 gallons of PCBs were spilled. The contaminated soils were recovered in 11,500 drums and sealed in concrete at a cost of $1.7 million. It was paid by G E., which was shipping the chemical. Local residents also brought damage suits against G.E. and last October a judge awarded them a total of $120,000.

The U.S. Department of Defense was involved in a Catch-22 PCB episode with other government agencies in Seattle. On Friday, March 13, 1974 an electrical transformer destined for an Air Force radar station in Shemya, Alaska fell on a pier in Seattle and 265 gallons of PCBs bled into the Duwamish River. Defense refused responsibility; so did the U S. Coast Guard, which has the primary obligation to clean up oil and other harbor spills. The Coast Guard said PCBs were not among the chemicals it was required to recover. The EPA had to hire divers who brought up 70 to 90 gallons of the compound, and in February of this year the Defense Department finally agreed to pay the cost, $148,000.

But recovery from the Duwamish spill is far from ended. EPA officials estimate 60 to 80 gallons remain in the riverbed, and Defense has assigned the job to the U.S. Army Corps of Engineers. The Corps is scheduled to begin dredging 30,000 cubic yards of river bottom sometime around the first of the year. Estimated cost of the project is between a quarter and half a million dollars.

Although the U.S. Food and Drug Administration allows up to five parts per million of PCBs in fish, the U.S. Fish and Wildlife Service regards the presence of a *half* part per million (.5 ppm) in a fish egg as a sure sign of trouble in a waterway. According to Charles R. Walker, Senior Environmental Scientist with the Service, who delivered two papers in Chicago, trouble spots on the Atlantic Coast range from the Merrimac River in Massachusetts to the St. Johns in Florida. On the Gulf Coast afflicted rivers extend from the Rio Grande east to the Apalachicola in the Florida panhandle. The Mississippi-Missouri system has its hot spots. On the West Coast, the Sacramento, Rogue, Columbia and Snake rivers have problems and they abound in the Great Lakes region and in the St. Lawrence. Last week, Canadian officials announced they were dropping edible fish tolerance levels from 5 ppm to two ppm and might well close the eel fishery in the St. Lawrence.

Obviously, some rivers are in worse shape than others. Here are some PCB values for fish sampled by the U.S. Fish and Wildlife Service: carp, Cincinnati, Ohio River, 133 ppm, two channel catfish, Marietta, Ohio, Ohio River, 38-77 ppm; walleye pike, Natrona Heights, Pa., Allegheny River, 35 ppm; white perch, Camden, N J., Delaware River, 19 ppm; gizzard shad, Elizabethtown, N C , Cape Fear River, 23 ppm; small-mouth buffalo, Redwood, Miss., Yazoo River, 73 ppm; yellow perch, Lowell, Mass., Merrimac River, 98 ppm; goldfish, Poughkeepsie, N.Y., Hudson River, 213 ppm.

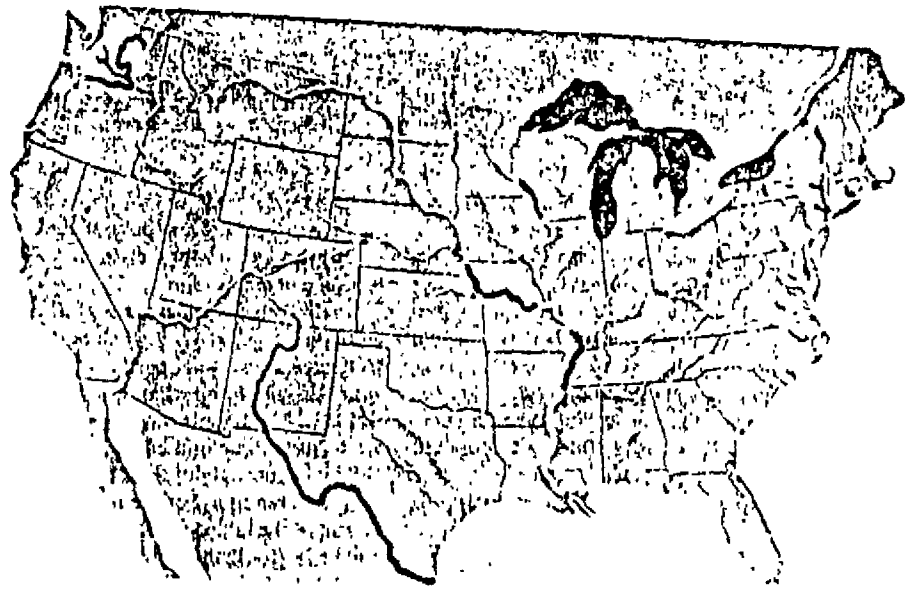
The Fish and Wildlife Service does not sample every stream in the country—it extends itself to maintain even the 100 monitoring stations in existence—but research by other agencies reveals other trouble spots. Half the lake trout analyzed from Lake George, N.Y. have more than 5 ppm. And eggs of striped bass taken in 1972 from the Nanticoke and Choptank rivers on the supposedly unspoiled eastern shore of Maryland had PCB levels that ranged from 2.8 to 20 ppm.

For a number of years the Fish and Wildlife Service also has been monitoring birds. Every starling tested has contained PCBs. Examination of mallard and black duck wings show the Atlantic Flyway has the most severe problems, at least for waterfowl. The mean value for black duck wings is 1.36 ppm, while mallards averaged 1.26 ppm. The values are slightly lower for the Mississippi Flyway, and lower still for the Central and Pacific.

For all the damning data produced in Chicago, some bureaucrats acted in bizarre fashion when their turns came to speak. Walter C. Barber, director of the Standards and Regulations Evaluation Division in the EPA, said, "I don't know what we're going to do." Dr. Albert C Kolbye, associate director for Sciences, Bureau of Foods, FDA, said, in all seriousness, "We are the straight men in a bad joke." Dr. Kolbye is the FDA official who sets the PCB tolerance levels for human foods.

The weeks ahead doubtless will reveal even more grim news about PCBs. A hearing by the House Subcommittee on Fisheries and Wildlife Conservation and the Environment is scheduled to start this month in Washington; and in New York, Ogden Reid continues to push his state hearing.

If there is any measure of comfort in all this, it is that Soviet bureaucrats must be more inefficient than most of ours. Just recently a delegation of Soviet scientists visited one of the finest labs in this country. They were shown everything the lab had on PCBs and left loaded down with papers Before returning home, they stopped at the Soviet embassy in Washington, where all the papers were taken away from them. AND



Shown in red are the principal areas where excessive PCB levels have been discovered.

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