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Environment

PCBs - New Entry In Environmental Controversy

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Chances are that the fluorescent lights you flicked on last night, the air conditioner you turned on this morning, and the utility poles outside your home all have one thing in common.

They all contain PCBs.

Like dozens of common electrical items, these products contain polychlorinated biphenyls, or PCBs, a synthetic organic chemical. Since 1972 [illegible] the sole manufacturer of PCB's in the United States—has agreed to sell PCBs only for use in electrical systems.

But prior to that time, PCBs were even more common. The list of man-made products containing this colorless, viscous family of fluids included such items as bread wrappers, baby bottle linings, paints, varnishes, paper coatings, carbonless carbon paper, waxes, floor tiles, pesticides, plasticizers and a host of other products.

Suddenly, a new chemical pollutant has joined the alphabet soup of environmental contamination.

An estimated one billion pounds of PCBs were manufactured between 1930 and 1970 in the United States. And at least another billion pounds were manufactured during this period by Great Britain, France, Germany, Italy, Spain, Czechoslovakia, Italy, Japan and the Soviet Union.

Yet in spite of their prevalence almost everywhere, most Hudson Valley residents had never heard of these complex organic chemicals until Ogden Reid, the commissioner of the state Department of Environmental Conservation, formally warned of their danger on Aug. 7.

And the controversy concerning this chemical compound continued to swirl earlier this week when Reid formally warned people not to eat any fish taken from the Hudson River because of probable contamination by this chemical.

Suddenly within a matter of five weeks, a new chemical pollutant has joined the alphabet soup of environmental contamination, the charter member of which is DDT.

And suddenly very real questions are being asked concerning the safety of Poughkeepsie's drinking water, which is drawn from the Hudson and the safety of the seemingly all-pervasive chemical PCB.

Polychlorinated biphenyls, which are also sometimes known as chlorinated biphenyls, are chemical compounds manufactured in this country solely by the Monsanto Chemical Co. According to a Monsanto spokesman, PCBs were first produced in 1929 by the Swan Corporation, which later became part of Monsanto, and European production of the compound followed about 10 years later.

PCBs are made up of chlorine, hydrogen and carbon and are manufactured under Monsanto's trade name Aroclor. The chemicals are marked under the names of Aroclor 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262 and 1268 with the last two digits indicating the chlorine percentage in the different formulations.

PCBs, which are produced at Monsanto's plants at Sauget, Ill. and Anniston, Ala., are similar in many ways to another chlorinated hydrocarbon—DDT.

Like DDT, polychlorinated biphenyls contain the same [illegible] elements and are soluble in fat [illegible] only slightly in water. For this reason when either chemical enters a [illegible] body such as a river or [illegible] chemical sinks to the [illegible] remaining largely insoluble for [illegible] years in the future.

But unlike DDT, a pesticide [illegible] was used in the open environment with intent because of its toxic effect to kill insects, PCBs have escaped into the environment largely by accident.

Yet surprisingly, in spite of this difference, PCB's are not far behind in overall global contamination. Of the one billion pounds produced in the United States from 1930 to 1970, 780-million pounds are estimated to have entered the environment via the atmosphere, water systems and dumps. Add to this total, the production figures of Europe and Japan, and the total amount of PCBs entering the environment may approach that of DDT.

The Hudson Valley is especially affected because the General Electric Company has been discharging PCBs into the upper Hudson at its Fort Edward plant since May 1942 and at its Hudson Falls plant since December 1951.

But contamination of water supplies is by no means the only way PCBs may enter the Hudson Valley environment. According to Dr. Robert [illegible] from the University of California at Berkeley, there are at least four ways which PCB's can contaminate spaceship earth.

The [illegible] is from the stacks of the Monsanto plant which manufacture PCB's and the stacks of the plants which manufacture PCB-based [illegible] such as General Electric.

The [illegible] is through the gradual wear and weathering of PCB-containing products, such as asphalt, which may result in the release of PCBs as vapor or minute particulate matters.

The [illegible] is through the burning of PCB products at the dump which may release PCB-vapor in the form of highly toxic fumes.

And the [illegible] is through the discharge of PCB products, such as a fire-resistant hydraulic fluid, which may leak out in small quantities from a "closed-circuit" system. It is through this fourth method, in the form of minute quantities of oils, that PCBs are believed to be entering the Hudson River.

According to Dr. Barry Commoner, the author of "The Closing Circle", 1,500 to 2,000 tons of PCBs are "lost" to the air each year, 4,000 to 5,000 tons are lost to fresh or coastal waters each year, and 18,000 tons are lost to dumps and landfills each year.

In any case, the evidence of global contamination fo PCB's is everywhere.

Dr. George Harvey of the Woods Hole Oceanographic Institution says "PCBs have been found in all organisms analyzed from the North and South Atlantic Oceans, even in animals living under 11,000 feet of water . . . Based on all available data it seems safe to conclude that PCBs are present in varying concentrations in every species of wildlife on the earth."

According to Dr. Risebrough, PCB's have been found as high as 1,500 parts per million (ppm) in the body fat of North America peregrine falcons and 17,000 ppm in the fat of the white-tailed eagle in Sweden. By comparison, the U.S. Food and Drug Administration considers and consumption of fish with PCB concentrations greater than five ppm to be unhealthy.

But perhaps even more surprising is the fact that the federal Environmental Protection Agency has estimated that PCBs are so widespread that between 41 and 45 per cent of the U.S. population contains one ppm or more of PCB's in their fatty tissues.

The widespread use of PCB's during the 46 years the chemical has been manufactured makes it impossible then to escape from PCB contamination in the land, the sea or the air. And perhaps even more frightening is the fact we can never escape PCB contamination, simply because through our widespread release of this toxic pollutant into the atmosphere, we have managed to contaminate ourselves.

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