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PCBs - can the world's sea mammals survive them?

(polychlorinated biphenyls) Joseph E. Cummins.

Monsanto assures us in its recent advertisements that the health of the world's environment is a top priority. But this is not borne out by its record. Its products have caused extensive environmental destruction, and continue to do so. Among other things, it is largely responsible for putting the world's ocean mammals at serious risk of extinction.

In 1929, Swann Corporation, which later became part of Monsanto, began manufacturing polychlorinated biphenyls (PCBs) for commercial use. PCBs are oily liquids that conduct heat but not electricity. As such, they could be used as an insulating fluid in electrical appliances and were widely applied in everything from hydraulic equipment to degreasing agents for nuclear submarines.

In effect, Monsanto has either produced or granted production licences for all but a very small fraction of the world's PCBs, and is responsible for the release of a massive 1.2 million tonnes of the deadly chemicals worldwide.

Although the company was aware of adverse health affects in workers exposed to PCBs as early as the late 1930s,[1,2,3,4] Monsanto continued to mass- produce them for decades until a highly-publicized PCB health scare 30 years later alerted policy-makers to the hazardous nature of the chemicals. The news has since only worsened.

In 1968, 1,300 residents of Kyush, Japan, fell ill after eating PCB-contaminated rice. Many of the affected women later gave birth to children with severe defects.

In 1969, the New Scientist published a report revealing the capacity of PCBs to "bioaccumulate along the food chain. TM The chemicals, which take many years to biodegrade, pass easily through the lipid portions of cell membranes and are readily absorbed into mammalian fat tissue. Animals at the top of the food chain, like whales, polar bears, dolphins and humans, can store PCBs at highly concentrated levels. The result has been a terrifying array of adverse reactions.

And in 1995, it was revealed[6] that women who had eaten fish from the contaminated waters of the Great Lakes, Canada, gave birth to children with an unusually high susceptibility to bacterial infection. PCBs were also shown to damage nerves in the brains of developing mammalian foetuses, leading to behavioural and learning defects.

Cancers, particularly malignant melanomas[7] have also been clearly linked to PCB-poisoning. In Ontario, State compensation is provided for the toxins' malignant effects. In addition, PCB-pollution has been seen to result in immune defence deficiencies, hypertension and strokes.

Initially, it was assumed that PCB-accumulation was greatest nearest the sources of pollution. However, in 1988, the journal Environmental Pollution published an article revealing the extent of contamination borne in particular by marine mammals.[8] Dolphins, whales and porpoises all contained levels of PCBs that far exceeded that of

their terrestrial counterparts. Mediterranean blue-white dolphins, for example, were found to carry 833 parts per million in their blubber - nearly 17 times the level requiring goods to be labelled and handled as toxic waste.

Marine mammals were also found to have a genetically predetermined sensitivity to PCB-induced reproductive impairment;[9,10] a sensitivity that only one in ten humans of European origin share." The chemicals, which mimic mammalian hormones, thus pose a real threat of extinction to these animals.

Accumulation at the Poles

Revelations that PCBs have actually been condensing at the Earth's poles, where there is no industrial activity to speak of, provoked both governmental activity and real concern from polar populations. The North Pole, because of the intensity of industrial activity in the Northern hemisphere, has been the most badly affected. In 1998, for example, ringed seals from Arctic Norway were found to contain five times more PCBs than seals from the Canadian Arctic.[12] For the last three years, the Norwegian Polar Institute has been finding polar bears with both male and female sexual organs.[13] This year, four hermaphroditic cubs have been seen - the highest tally so far - and researchers fear that up to four per cent of the bears may be affected. The Norwegian Special Adviser on polar affairs has pointed out the findings' implications for other life forms, including humans: "The polar bear, like us, is at the top of the food chain. We are very concerned," he said.[14]

Native Arctic populations have little choice but to eat the food their environment provides. But the accompanying toxic overdose is causing inevitable disease. For instance, in Greenland, the children, partly at least as a result, are being administered two to three times as many prescriptive drugs as those in Sweden, Norway and the US. There are also many documented cases in that country of an increase in reproductive disorders.[15,16,17,18,19,20]

Despite the obvious cause for alarm, Canada's Northwest Territory officials recently issued a misleading public report, stating that blood taken from a group of newborn babies contained less PCBs than the Canadian national average. A closer examination of the data, however, showed that PCB levels in Northern Territory babies were actually significantly higher than the national average"' - an illuminating insight into the growing tendency of Canadian bureaucrats to manipulate scientific studies to satisfy their immediate needs and desires.

Although PCBs have been banned in many countries, research suggests that 20 per cent of the 1.2 million tonnes produced now pollute the world's oceans.[22] The United Nations Environment Program committee is to begin negotiations between 120 nations on a global, legally-binding ban of 12 persistent organic pollutants, including PCBs. Such a global agreement is desperately needed but long overdue. Further more, who is going to pay for the safe destruction and replacement of the world's remaining PCB stock, particularly an estimated 180,000 tonnes in the Third World? Perhaps Monsanto, as the Earth's prime PCB-producer and profiteer, should begin to balance its accounts with the Arctic ecosystems. It would certainly make its new self-image, as a defender of the environment, a little less incredible.

BIOGRAPHY

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Two international organizations now deal with issues relating to Arctic pollution: the

Arctic Monitoring and Assessment Program (AMAP) and the North American Free Trade Agreement's Environmental committee - the Commission for Environmental Cooperation (CEC)

AMAP has published no-nonsense papers on the need for statutory measures in circumpolar countries to manage Arctic pollution. The CEC has prepared a number of reports examining the remaining quantities of PCBs. As far as possible, these attempt to trace the pollutants' path back to the environment.

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