



Division of Chemistry and the Environment

Awards/Lectures

2008	Fritz Frimmel, Germany	EuCheMS Lecture
2009	Meinrat Andreae, Germany	EuCheMS Lecture
2011	Derek Muir, Canada	DCE Lecture
2013	Joan Albaiges, Spain	DCE Career Award
2015	Karlheinz Ballschmiter, Germany	DCE Career Award



Division of Chemistry and the Environment

Career Award 2017

to

Professor Søren Jensen

University of Stockholm

*In recognition of outstanding contributions to the field of
Environmental Chemistry in particular the discovery of
PCBs as environmental contaminants*

REPORT OF A NEW CHEMICAL HAZARD

A Swedish research worker has expressed concern over the increased amounts of polychlorinated biphenyl (PCB) entering the air, presumably from industrial smoke and rubbish-dump smoke, and being absorbed by water and taken up by fish and later humans. PCB which is related to and as poisonous as DDT was detected by Mr Sören Jensen of the Institute for Analytical Chemistry, University of Stockholm, in some 200 pike taken from different parts of Sweden, fish and fish-spawn throughout the country, an eagle which was found dead in the Stockholm Archipelago, and in his own, his wife's and his baby daughter's hair. As the baby is only five months old her father concludes that she got her dose of PCB with her mother's milk.

It is not known at present how much of this substance is dangerous or even fatal. If it is comparable with DDT then the limit would be 0.5 mg per cubic metre of air—and, for comparison, the dead eagle had at least 10 times as high a concentration in its body. For purposes of elimination Mr Jensen has obtained feathers from eagles preserved at the Swedish National Museum of Natural History since 1880

NEW SCIENTIST 15 December 1966

and has detected PCB first in an eagle from 1944.

In Sweden, PCB is known to be used in electrical insulations, hydraulic oils, high-temperature and high-pressure lubricating oils, paints, lacquers and varnishes, and as pigments in various plastics. It does not seem to be used as an insecticide. It is not destroyed by incineration and may enter the body directly through the skin, by breathing, or by way of food (especially fish). It is particularly harmful to the liver, and also the skin; this has been demonstrated by experiments on mice. PCB is much harder to break down than DDT and there is every reason to suppose that it is much more difficult to get it out of the system. The substance has also been detected in the air over London and Hamburg and also in seals caught off Scotland. It can therefore be presumed to be widespread throughout the world.

NATURE VOL. 224 OCTOBER 18 1969

DDT and PCB in Marine Animals from Swedish Waters

by

S. JENSEN

Institute of Analytical Chemistry,
Stockholm

A. G. JOHNELS

M. OLSSON

Swedish Museum of Natural History,
Stockholm

G. OTTERLIND

Institute of Marine Research,
Lysekil

Analyses of pesticide residues in a wide range of marine organisms from the coastal waters of Sweden show that there is a marked contamination in the Baltic. There are signs of an increase in polychlorinated biphenyls (PCB) from north to south in this area. Exceptionally large amounts of residues were found in white tailed eagles from the archipelago of Stockholm.

> 400 citations

THE PCB STORY

BY SÖREN JENSEN

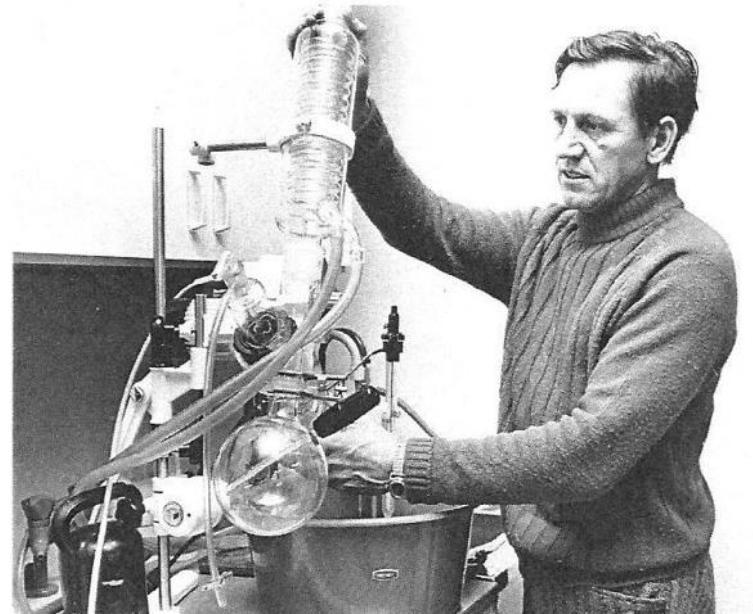
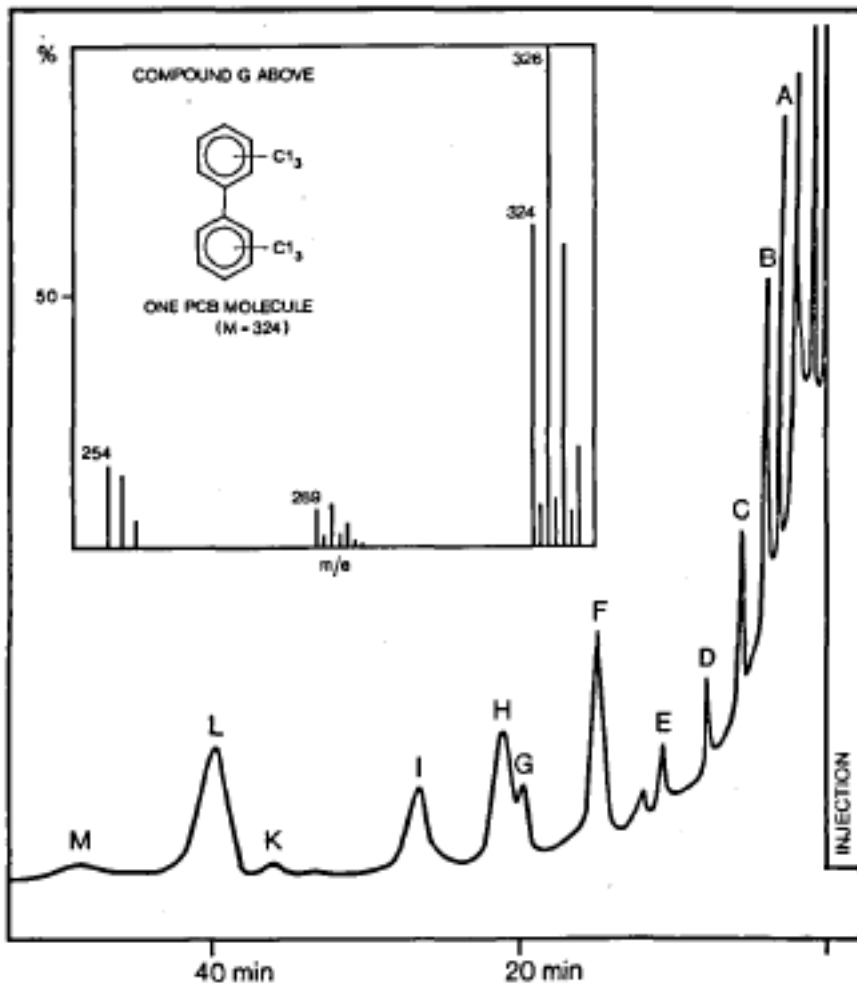
AMBIO 1(4),
123-131,
August 1972.

The accumulation of PCB in nature and thus in the food chains was unknown to scientists until 1966, although the substance had been used industrially since 1929. It was the Swedish chemist Sören Jensen who, when analyzing DDT accumulations in nature, accidentally found enormous quantities of unknown substances that were later on identified as PCB compounds. PCB constitutes perhaps the most stable group of organic substances in existence. It poses, therefore, a severe threat to life-forms.

In Sweden this discovery has led to a law prohibiting the use, import, manufacture and sale of PCB without permission from the authorities.

In this article Sören Jensen gives, for the first time, the complete story of his discovery of the substances. He also presents test results which show the PCB levels in blood samples from PCB-contaminated Japanese and other persons. The article can be read as a detective story with a moral. It can also be considered as an example of the kind of unpleasant discoveries we can expect unless environmental controls are applied to all dangerous substances before they are used extensively,

before they can contaminate the Earth.

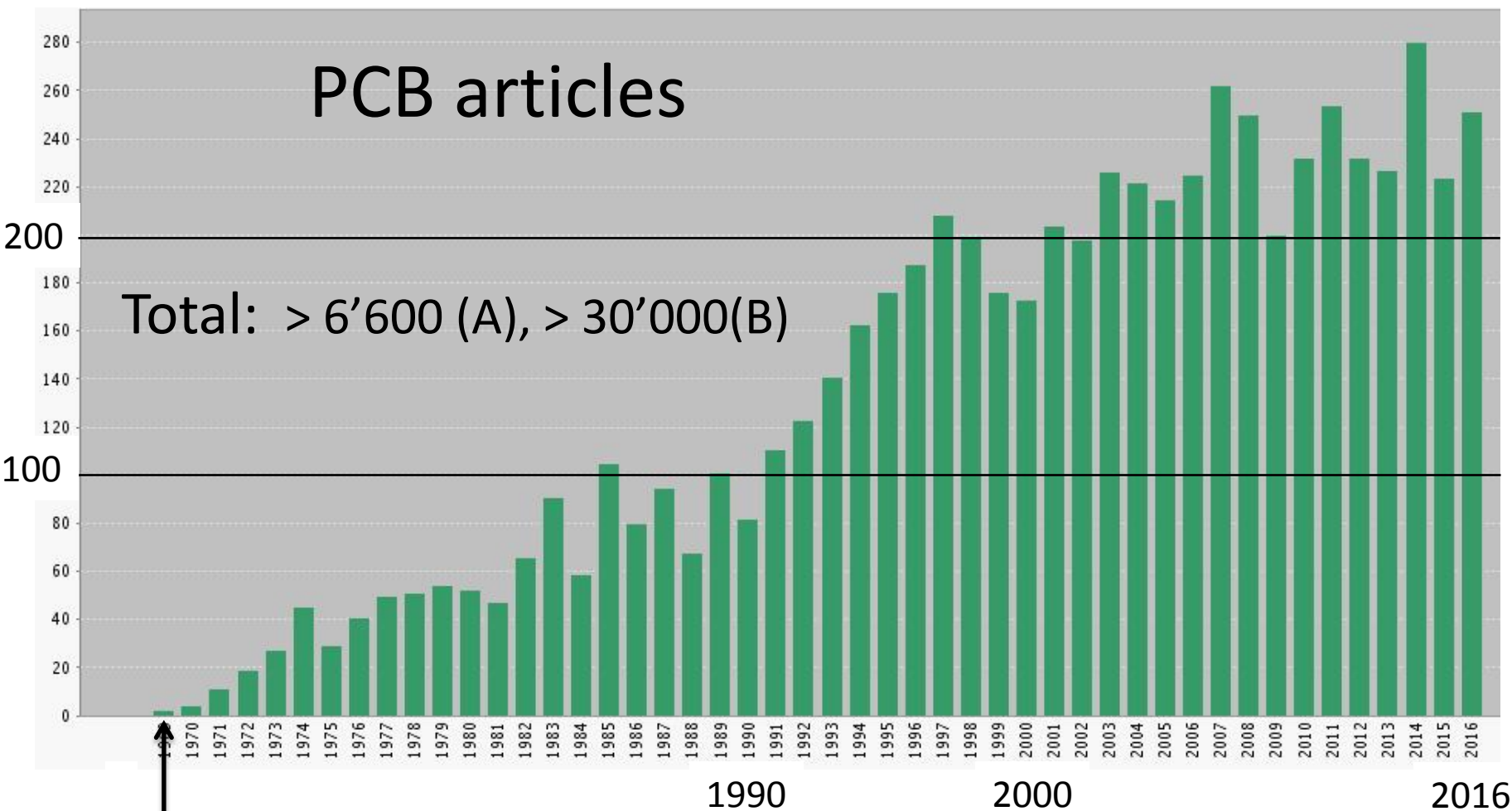


Sören Jensen,
 AMBIO 1(4),
 1972.
 THE PCB STORY

Figures 3a and 3b. Gas chromatogram from combined mass spectrometry-gaschromatography of white-tailed eagle extract. Molecular weights for A, B, C, D and E: 282, 296, 310, 324 and 338 (saturated hydrocarbons), F: 316 (DDE), G, H, I, L and M: 324, 358, 392 and 426 (chlorinated biphenyls with 5, 6, 7, 7 and 8 chlorine atoms).

PCB articles

Total: > 6'600 (A), > 30'000(B)



Jensen et al.
NATURE, 1969

[Web of Science, as of June 2017]

